1850phae.proj

KG
11365
8

A.8

Transit Circle

From December 26th 1850

to April 3d 1851

Vol. II.

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KG 11365.8

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For reducing imperfect transits I have used the following intervals,

A to	"	+41.142
B	"	+27.474
C	"	+13.758
D	"	+ 0.045
E	"	−13.726
F	"	−27.431
G	"	−41.262

A.H. Dec 20. 1859.

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1850phae.proj....

(481)

Dec. 26/27 Am.

Ill. West

2557 β Leonis

8	49.4
9	03.7
9	17.9
9	32.
9	46.3
0	00.4
11.. 40.. 14.8	
	164.5
	60
2)2245	
	32.07
	−2
11.. 39.. 30. 07	
11.. 41.. 26. 54	
1.. 56. 47	
col. +.20	
az. −.10	
lev. −.09	
1.. 56. 46	
	.17

+15°

2557 β Corvi

9	54.4
4	09.3
4	23.8
4	37.9
4	53.8
5	08.9
12.. 25.. 23.5	
	211.6
	60
2)2716	
	24.38.80
	−2
12.. 24.. 36. 80	
12.. 26.. 33. 22	
1.. 56. 42	
col +.21	
az. −.34	
lev. −.04	
1.. 56. 59	
1. 56. 46	
1. 56. 54	
	13 9
1.. 56. 53	

−28°

4.9
4.5
4.1
5.9

2557 Spica

4.. 43.4	
4.. 57.7	
5.. 11.2	
5.. 25.3	
5.. 39.2	
5.. 53.4	
13.. 16.. 07.3	
	237.1
	40
2)1771	
	25.30
	−2
13.. 15.. 23.30	
col. +.20	
az. −.28	
lev. −.06	
13.. 15.. 23.16	
1.. 56 60	
13.. 17.. 19.76	
13.. 17.. 19.70	
−.06	

−10°

ε Virginis

4.. 29.2	
4.. 43.	
4.. 57.	
5.. 10.4	
5.. 24.5	
5.. 37.8	
13.. 25.. 51.3	
	253.0
	180
7)7380	
	13.. 25.. 10.43
	−2
13.. 25.. 08. 43	
col. +.20	
az. −.13	
lev. −.07	
13.. 25.. 08. 43	
1.. 56. 53	
13.. 27.. 05.06	
13.. 27.. 04. 98	
+.08	

+0°

col = +.20
az = −.34
lev = −.10

col + .203
az − .323
lev − .120

rate of 2557 + 2.58

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Dec 26/27 Am.

25 5 17

Moon's II limb

	1 ,, 31.4
	1 ,, 46
−04°	2 ,, 00.1
	2 ,, 14.3 −
	2 ,, 28.4
	2 ,, 42.8
	13 ,, 42 ,, 56.3
	219.3
	120
	2)99.3
	14.18
	−2
	13 ,, 42 ,, 12.18
	col. +.20
	az. −.25
	lev. −.07
	13 ,, 42 ,, 12.06
	1 56 66
	13 ,, 44 ,, 08.72

Dec 27 Pm.

25 5 7

β Ceti

	3 ,, 26.3
	3 ,, 40.8
	3 ,, 55.3
	4 ,, 10. —
	4 ,, 24.4
	4 ,, 38.9
	00 ,, 34 ,, 53.4
	249.1
	180
	2)69.1
	00 ,, 34 ,, 09.87
	00 ,, 36 ,, −2.47
	00 ,, 34 ,, 07.87

25 5 7

θ' Ceti

	3 ,, 57
	4 ,, 10.4
	4 ,, 24.5 −
	4 ,, 38.4 −
	4 ,, 52.5 −
	5 ,, 06.7
	1 ,, 15 ,, 20.0
	7)211.5
	60.
	7)271.5 −
	1 ,, 14 ,, 38.78
	−2
	1 ,, 14 ,, 36.78
	1 ,, 16 ,, 33.96
	1 ,, 57 ; 18
	col. +.19
	az. −.28
	lev. −.06
	1 ,, 57.03

Dec. 26

	Sid. Time	
α Virginis	13 ,, 17 ,, 19.76	19.70 −.06
ε Virginis	13 ,, 27 ,, 05.06	04.98 −.08
☾ II limb	13 ,, 44 ,, 08.72	

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1850phae.proj....

1850

(483)

Dec. 27 P.m.

Ill Mist

25537

Solaris U.C.

00 " 36 " 45 — 0 beats
45 " 41
54 " 35
03 " 27
12 " 19.5
21 " 12.4
1 " 30 " 02.3

T = 1 " 03 " 26.03
K = 1 " 05 " 38.34
T − K = −2 " 12.31
dt = +1 57.83
− " 14.58
less 2 sec D +2.67
0.015 sec D −0.58
ε = −17.83

26.7
−.10
26.70

γ Ceti

2 57.4
9 11.4
9 25.9
3 39.—
3 52.9
4 06.5
2 " 34 " 20.9
212.8
60
2)272.8
2 " 33 " 36.97
— 2
2 " 33 " 36.97
2 " 35 " 34.88
1 " 57.91
calc +.22
az. −.38
lev. −.09
1 " 58.16

25537

β Ursa Minoris

dew bow dw 36.4
28.3
20.
19.4
06.
57.5
2 " 57 " 49.8
211.4
120
2)91.4
13.05
−2

T = 2 " 49 " 11.05
K = 2 " 57 " 07.66
T − K = −1 " 56.61
dt = +1 " 58.16
+ 1.55
less 2 sec D = −.32
0.015 sec D +.05
ε = +1.28

cap of lev 3.6
−.09
3.24

1850phae.proj...

Dec. 27/28 Am.

2557

η Ursa Majoris

8	36.0
8	58
9	19.4
9	41.3 —
0	02.5 —
0	23.4
13 h	40 m 44.4 s
	225.0
	60
	2)E85.0
13 h	39 m 40.71 s
	— 9
13 h	39 m 38.71 s
13 h	41 m 37.97 s
	1 m 59.26 s.

27/28 Am.

2557

Arcturus

6	1,09.4
6	23.9
6	38.5 —
6	53.4 —
7	08.0
7	22.4
14 h	07 m 36.9 s
	491.9
	180
	7)S71.9
14 h	06 m 53.13 s
	— 2
14 h	06 m 51.13 s
14 h	08 m 50.37 s
	1 m 59.24 s

1.56.63
59.24
2.61

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1850phae.proj....

1850

(485)

Dec. 30 Sm. Ill West

25 57

ce Andromeda

7	50.8
8	06.3
8	57.3
8	59.2
9	08.3
23 59	24.4

+28° uncertain position

127.1
60
7)187.1
37.42
−2
23 58 35.42
al. +.26
az. −.11
lev. = −.14
23 58 35.43
00 00 40.78
2 05 55
11

180.3
60
240.3
40.05
cor −2.60
23 58 37.45

25 57

γ Segesi

2	47.3
3	01.4
3	16.2
3	30.0
3	43.8
3	58.4
00 04	12.3

+14

7)209.4
00 03 29.91
−2
00 03 27.91
00 05 33.12
2 05.21
al. +.22
az. −.18
lev. = −.11
2 05.28
10
2 05.38

25 57

Saturns 1st limb

3	54.0
4	07.8
4	21.3
4	35.4
4	49.
5	02.8
00 55	16.5

+3°

186.6
60
7)246.6
00 54 35.23
−2
00 54 33.23
col. +.22
az. −.23
lev. = −.09
00 54 33.13
2 05.36
00 56 38.49

25 57

o' Ceti

3	48.9
4	03.
4	17.
4	30.8
4	44.5
4	58.4
1 15	12.4

−09°

275.0
30.71
−2
1 14 28.71
1 16 33.92
2 05.21
al. +.22
az. −.29
lev. −.08
2 05.86
2 05.28
2 05.35
Mean 2 05.99
h
00 57 00 = 2 05.99

col = +.22
az. = −.37
lev. = −.12

Dec. 30
Sid. Time
Saturns 1st limb 00h 56m 38.49

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1850phae.proj...

(486)

Dec 30 Pm.

2557 r Ceti

2	50.0
3	04.0
3	17.5
3	31.4
3	45.0
3	59.0
2	34 13.1
2)220.0	
31.43	
−2	
2	33 29.43
2	35 34.85
4	2 05.42
col.	−4.22
dz.	−27
lev.	−.09
2	05.29

Ill. West

B Wrac Minorum

6	29.4
7	21.3
8	13.
9	05.4
9	59.
0	50.4
2	57 43.
221.5	
180	
7)41	
05.85	
−2	

T = 2 49 03.85
R = 2 51 07.88
T − R = −2 03.95
dT = +2 05.31
+1.36
less 2 MED = −.43
0.015 MED +.05
ε = +.98

rate of 2557 − 2.6
coef of lev 3.4
−.12
72
96
492

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1850phae.proj....

1851

(487)

1

Jan. 1st Am

2557
η Bootis
4 „ 42.5
4 „ 57.7
5 „ 12.9
5 „ 26.8 –
5 „ 40.9
5 „ 55.8
13 „ 46 „ 10.9
246.3
60
2) 186.3
26.61
– 2
13 „ 45 „ 24.61
19 „ 47 „ 34.02
2 „ 09 .41

2557
Arcturus
6 „ 14.2
6 28.5
6 43.5 –
6 58.0
7 12.2
14 „ 07 „ 26.8
156 4
160
5) 216.4
43.28
– 2
14 „ 06 „ 41 „ 28
14 „ 08 „ 50 „ 49
2.09.21

MSC 20 „ 08 „ 00
2557 14 „ 48 „ 36.3
2 „ 09.5
14 „ 50 „ 45.8
18 „ 34 „ 00.0
20 „ 24 „ 45.8
3 18 5
20 „ 08 „ 27.3
20 „ 08 „ 00.0
MSC – 27.3
~~60~~
5 ~~43.8~~

183.2
120
303.2

50.53
cor – 7.28
43.25

14 6 43.25

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1850phae.proj...

1851

(488)

Jan. 1st Am

Ill. West

South	North	Meridian Marks Zero	Level West	Level East
0.85	0.58	1,00	+96	93
.84	.56	005	+95	94
84	.58	01	89	98+
84	.56	.005	89	98+
.85	0.56	4.020	89	98+
422	284	1.005	92.1	95.8
844	.568			92.1
.005	.005			3.7
839	.563			1.85
2.3	2.3			
2517	1689			
1678	1126			
s 1.9297	n 1.2949			
12948	s 1.9297			
	s−n=.6948			
	n+s=3.2246			
	$\frac{1-n}{2}$=.3174			
	$\frac{n+s}{2}$=1.6123			

Lev. = −0.16 Lev. = −.123

Lev. = −.12
cal = +.22
az −.58

cal. = −1.384 + 1.612 = +.228
az. = −0.700 + .317 = −.383

Marks 3 P.M.	
S	N
0.85	0.55
S	N
0.85	0.54
84	52
84	53
85	54
845	5.35

$c = -1.384 + \frac{n+s}{2}$

$az = -0.700 + \frac{n-s}{2}$

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1850phae.proj....

Jan 1/2 Am

2557
ε Bootis

5.. 29.7
5 45.7
6 00.8
6 16.3 –
6 31.8
6 47.4
14.. 37.. 02.8
174.1
60
7)1114.1
16.3
–7
14.. 36.. 14.3
14.. 38.. 27.19
–2.. 12.89

2557
α Corona Borealis

5.. 23.3
5.. 39.3
5.. 55.
6.. 10.4
6.. 25.8
6.. 41.3
15.. 26.. 56.4
251.5
180
7)71.5
10.21
–2
15.. 26.. 08.21
15.. 28.. 20.93
–2.. 12.72

Jan. 2 S.M. Temp. +16°
Masks not good seeing

South	North	Zen
0.86	0.54	1.02
86	59	.01
66	54	.005
0.65	0.59	.005
043	214	4 040
857	585	1.010
010	010	
.847	.525	
23	23	
25541	15775	
1494	10500	
1.84815	1.20775	
1.2075 n		
3,05556 n+1		
.64061–n		
1.5278 $\frac{n+1}{2}$		
3203 $\frac{1-n}{2}$		

col = –1.384 + 1.528 = +0.144
az. = – .700 + 0.320 = –0.380

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1850phae.proj...

(490)

Jan. 3 Sm
25 57 faint clouds
α Andromeda

7 39
7 55
8 10.3
8 25.4
8 42.
8 57
23 59 12.4
24 1.1
60
7)181.1
25.87
−2
23 58 23.87
00 00 40.70
2 16.95

Jan. 7 S.M.
25 57
α Andromeda

7 42.0
7 58.0
8 14.0
8 29.4
8 45.0
23 54 00.4
188.4
120
5)68.4
13.68
−2
23 58 11.68
00 00 40.65
−02.28.97

188.8
60.09
128.8
21.47
− 7.77

23 58 13.70

25 57
r Leguei
2 23.4
2 37.8
2 51.9
3 06.4
3 20.3
3 34.5
00 03 48.4
222.7
180
42.7
00 03 06.10
−2
00 03 04.10
00 05 33 02
− 2.28.52

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1850phae.proj....

Jan. 7 P.M.

25 57
α Ceti
1 :: 21
1 .. 34.7
1 .. 48.4
2 .. 02.9
2 .. 16.
2 .. 29.9
2 .. 52 .. 43.4
195.7
180
7) 15.7
02.24
−2
2 .. 52 .. 00 .. 24

Jan. 7/8 A.M.

25 57
ε Bootis
5 .. 11.8
5 .. 27.7
5 .. 43.2
5 .. 58.4
6 .. 14.3
6 .. 29.8
14 .. 36 .. 45.4
290.6
180
7) 410.6
58.65
−2
14 .. 35 .. 56.65
14 .. 38 .. 27.35
2 .. 30.70

25 57
α Libræ
5 .. 25.8
5 .. 40.4
5 .. 54.4
6 .. 08.8
6 .. 22.9
6 .. 37.3
14 .. 40 .. 51.4
241.0
180
7) 61.0
08.71
−2
14 .. 40 .. 06.71
14 .. 42 .. 37.28
2 .. 30.57

25 57
β Libræ
uncertain
5 .. 48
6 .. 01.8
6 .. 16.
6 .. 29.7
6 .. 43.4
6 .. 57.3
15 .. 07 .. 11.3
7) 207.5
06 29.64
−2
15 .. 06 .. 27.64

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1850phae.proj...

Jan. 8 8 M. Ill. West (492)

Meridian Marks

North	South	Zero
0.53	0.58	1.02
54	67	1.045
54	86	1.01
.55	87	1.02
54	87	4.065
270	435	1.016
540	870	
016	016	
524	854	
2.3	2.3	
1572	2562	
1048	1708	
1.2052	1.96420	
	1.2052 m	
	3.16940+m	
	.75900-m	
	1.58470 $\frac{s+n}{2}$	
	.3795 $\frac{s-n}{2}$	

Level

East	West
+96	87
+96	87
91	93+
92	92+
375	359
937	897
897	
4.0	
2.0	
−.13	

cal = −1.384 + 1.585 = +0.201
az. = −0.700 + .379 = −0.321

cal +.20
az −.32
lev −.13

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1850phae.proj....

Jan. 8 P.M.

25 57
γ Ceti
2 " 23.4
2 " 37.4
2 " 50.9
3 " 05.
3 " 18.4
3 " 32.3
2 " 33 " 45.9
213.3
180
7) 33.3
04.75
-2
2 " 33 " 02.75
2 " 35 " 34.76
2 " 32.01

25 57
ω Ceti
1 " 16.1
1 " 29.7
1 " 43.2
1 " 57.4
2 " 11.4
2 " 24.8
2 " 52 " 38.2
220.6
180
7) 400.8
57.25
-9
2 " 51 " 55.25
2 " 54 " 29.52
2 " 34.31 How?

Jan 9/10 Am

25 57
α Coronæ Borealis
5 " 00.2
5 " 15.4
5 " 30.8
5 " 46.4
6 " 01.9
6 " 17.4
15 " 26 " 32.8
144.9
180
7) 924.9
46.41
-9
15 " 25 " 44.41
15 " 28 " 21.18
2 " 36.77

lev -0.130
coll +.201
ar -.321

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1850phae.proj...

Jan. 10/11 Am.

2557

B Librae	α Coronae Borealis
5 39.8	4 57.9
5 53.9	5 13.3
6 07.4	5 28.9
6 21.4	5 44.4
6 35.4	5 59.9
6 49.5	6 15.0
15 07 03.0	15 26 30.2
210.4	249.6
60	60
2)150.4	2)309.6
21.48	44.23
−2	2
15 06 19.48	15 25 42.25
15 08 58.24	15 28 21.20
2.38.76	2.38.97
cal. +22	cal. +.24
arg. −.25	arg. −.09
lev. −.10	lev. −.12
2.38.63	2.38.94

2.38.63
2.43.91
2)5.28
rate of 2.57 = 2.64

Jany. 11th Pll. on. 73 Ceti. 4th mag.

2557−
Immersion −23.22.58−2
1
23 22.57

Emersion 0.37.27−3 bad
1.5
0.37.29.5
2.29.87
00.40.05.37
19.22.22.13
5.17.43.24
52.06
Em. 73 Ceti 5.16 51.18

19.21.35.99
46.74
19.22.22.13

2557−23.22.0
23 4.04.7.2

23.22.57.0
2.29.73
23.25.26.73
19.22.22.13
4.09.14.60
39.85
Im. 73 Ceti 4.02.34.75

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1850phae.proj....

1854

Jan 11 P.M.

25-57

α Andromedæ

7.. 15.8
7.. 31.4
7.. 47.4
8.. 02.9
8 16.4
8 33.9
23.. 58.. 49.3
199.1
180
7)19.1
02.73
−2
23.. 58.. 00.73
00.. 00.. 40.60
2.. 39.87
cal = +24
az = −.09
lev = −.12
2.. 39.84
2°
2.. 40.04

Ill. West (6495)

25-57

γ Pegasi

2.. 12.9
2.. 27.0
2.. 41.0
+14° 2.. 55.3
3.. 09.4
3.. 23.5
00.. 03.. 97.4
206.5
180
7)386.5
55.21
−2
00.. 03.. 53.21
00.. 05.. 32.88
2.. 39.78
cal. + 22
az. − 15
lev. −.08
2.. 39.78
.08
2.. 39.86

25-57

α Arietis

5.. 23.6
5.. 39.
5.. 53.4
6.. 08.5
6.. 23.2
6.. 38.4
1.. 56.. 53.4
239.5
180
7)59.5
1.. 56.. 08.50
−2
1.. 56.. 06.50
1.. 58.. 46.55
2.. 40.05
cal. +.24
az. −.11
lev. −.10
2.. 40.02
2.. 40.13
2.. 39.86
2.. 40.04
2.. 40.02

Jan. 11 P.M.

α Ceti 25-57

1.. 10
1.. 24.
1.. 38.
1.. 51.3
2.. 03.
2.. 18.9
2.. 52.. 32.3
179.5
180
7)359.5
2.. 51.. 51.35
−2
2.. 51.. 49.35
2.. 54.. 25.54
2.. 40.19
cal + 22
az − 20
lev −.08
2.. 40.25
10
2.. 40.15

2.. 39.80
−.07
2.. 39.73
14
2.. 39.87

lev −.079
cal + .222
az −.314

Note 25-57 + 2.54

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1850phae.proj...

Jan. 11 S.M.

25-5-7

α Piscium

	1 00.6 G.
+2°	1 14 5 J.
	1 28.2 E.
	1 41.9 D.
	1 55.8 C.
	2 09.7 B.
	1.. 52.. 22.9 A.
	173.6
	120
7)	293.6
	41.94
	−2
	1.. 51.. 39.94
	cal +.21
	az −.20
	lev −.08
	1.. 51.. 39.87
	2.. 40.01
	1.. 54.. 19.88
	1.. 54.. 20.09
	+.21

25-5-7

ξ' Ceti

	1 46.4
+8°	2 00.3
	2 14.4
	2 28.
	2 41.9
	2 56.0
	2.. 03.. 09.9
7)	196.9
	28.13
	−2
	2.. 02.. 26.13
	cal. +.22
	az. −.18
	lev. −.07
	2.. 02.. 26.10
	2.. 40.02
	2.. 05.. 06.12
	2.. 05.. 06.13
	+.01

25-5-7

Moon's 1st limb

	9.. 09
+7°	9.. 23.2
	9.. 37.3
	9.. 51.9
	0.. 06.0
	0. 19.8
2..	20.. 34.0
	181.2
	180
7)	361.2
	51.60
	−2
2..	19.. 49.60
	cal. +.22
	az. −.19
	lev. −.08
2..	19.. 49.55
	2.. 40.06
2..	22.. 29.61

Jan. 11 S.M.

B.A.C. 8455

	3.. 53.5 3.9
	3.. 47.4 3.9
+9	4.. 01.9 3.9
	4.. 15.2 3.8
	4.. 29 3.8
	4.. 42.8 4.2
2..	34.. 57
	229.2
	120
7)	109.2
	15.60
	−2
2..	34.. 13.60
	cal. +.29
	az. −.17
	lev. −.08
2..	34.. 13.57
	2.. 20.02
2..	36.. 53.64
2..	36.. 53.30
	−.34

This comm. at 17°

π Arietis

	2.. 38
π	2.. 51.8
	3.. 06.4
	3.. 20.7
	3.. 35.0
	3.. 49.5
2..	44.. 04.
	295.4
	60
7)	145.4
	20.77
	−2
2..	43.. 18.77
	cal. +.29
	az. −.14
	lev. −.09
2..	43.. 18.77
	2.. 40.09
2..	45.. 58.86

M. − 2.. 40.0
7 − 2.. 28.9
4)11.1 / 2.8

Jan. 11th

	Sid. Time	Tab. R	
α Piscium	1.. 54.. 19.88	20.09	+.21
ξ Ceti	2.. 05.. 06.12	06.13	+.01
☾ I limb	2.. 22.. 29.61		
B.A.C. 8455	2.. 36.. 53.64	53.30	−.34

cal. +.22
az. −.21
lev. −.09

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1850phae.proj....

jan. 12/13 Am.

25·5·7
α^2 Librae
9 .. 13
9 .. 27
9 .. 41. 2
9 .. 55. 3
0 .. 09. 8
0 .. 23. 9
14 .. 40 .. 48. 2
228. 4
180
3) 408. 4
55. 48
−2
14 .. 39 .. 53. 48
14 .. 42 .. 37. 42
2 .. 43. 94

25·5·7
β Librae
5 .. 34. 9
5 .. 48.
6 .. 02. 3
6 .. 16. 4
6 .. 30. 2
6 .. 44.
15 .. 06 .. 58. 1
293. 9
120
3) 113. 9
16, 41
−2
15 .. 06 .. 14. 41
15 .. 08 .. 58. 31
2 .. 43. 91

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(498)

Jan. 13 P.M. Ill. West very unsteady

North	South	Zero	Level West	East
056	091	1.02	+84	81
56	88	1.015	+83	81
55	88	1.01	79	84+
54	905	1.01	79	84+
221	3575	4.055	325	330
552	893	1.014	8 1.12	82,50
014	014			81.12
538	879			1.38
23	23			1.69
1614	2637		lev. = −3.05	−.050
1076	1758			
1,2374	2,0217			
	1.2374			
	3.2591 A+n			
	0,7843 A−n			
	1.6295 $A+\frac{n}{2}$		cal. = −1,384 + 1.629 = +0.245	
	0,3921 $A-\frac{n}{2}$		az = −0.700 + .392 = −0.308	

cal. +,24
az −,30
lev. −,07

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1850phae.proj...

Jan. 13 P.M.

25 57
α Andromedae

7.. 10.9
7.. 26.4
7.. 42.
7.. 57.8
8.. 13.2
8.. 28.8
23.. 58.. 44.3
223.4
180.
7) 403.4
57.63
−2
23.. 57.55.63
00.. 00.. 40.57
2.44.94
cal +.26
ar2 −.06
lev −.08
2.. 44.82
+.79 [illegible]
2.4[illegible]

25 57
γ Seyeri

36
50
04.2
18.2
32.3
Σ = 140.7
corr −70.79
569.91
13.98
36.98
49.9F
2
47.78

E. G.
α Cassiopea

0.. 36.6
1 01.0
+55° 1 25.3
1 49.7−
2 13.9
2 38.3
00.. 33.. 02.6
167.4
180
7) 347.4
00 31.. 49.63
cal. +.43
ar2 +.14
lev. −.12
00.. 31.. 49.70
00.. 32.. 04.14
14.44

Spring Govenor
E. G.
β Ceti

5.. 07.8
5.. 22.3
−19° 5.. 36.9
5.. 51.3
6.. 06.0
6.. 20.5
00.. 36.. 35.1
179.9
180
7) 359.9
00.. 35.. 51.41
cal. +.25
ar2. −.28
lev. −.03
00.. 35.. 51.35
00.. 36.. 05.25
13.90

2.7

lev −.070
cal +.245
ar −.308

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1850phae.proj....

(500)

Jan. 8 9.11.

With Spring governor

E C
Moon's 1st limb

23.. 57.. 59.1
8.. 13.2
−5° 8.. 27.2
8 41.2
8 54.4
9 09.3
9 23.5
227.9
60
2)2879
23.. 58.. 41.13
cal. +.24
ar. −.22
lev. −.05
23.. 58.. 41.10
16.20
23.. 58.. 57.30

E. C.
12 Ceti

1.. 27.2
1.. 41.1
−5° 1.. 54.6
2.. 08.5
2.. 22.8
2.. 36.
00.. 22.. 49.7
239.7
180
2)59.9
00.. 22.. 08.55
cal. +.24
ar. −.22
lev. −.05
00.. 22.. 08.52
16.20
00.. 22.. 24.72

E. C.
α Cassiopea

+56°
00 31.. 23.0
47.2
11.4
00.. 32.. 35.6
117.2
120
2)237.20
59.30
cor. −36.58
22.72
0 31 22.72

E C
γ Pegasi

+14° 4.. 33.8
4.. 48.1
00.. 05.. 02.0
5.. 16.3
5.. 30.5
44.8 44.7 58.8
130.7 234.1
120 120
5)10.7 114.1
00.. 05.. 02.14 16.30
00.. 05.. 33.02
.88
Σ = 170.5
cor = − 42.53
6)132.97
22.16
20
0.05.. 02.16

Jan. 13 8 m.

E C 5.. 49.10 2 5 57 6.. 25.. 20
2 4 4 d 5.. 55.. 91.2 6 33 .. 43.2

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1850phae.proj....

Jan. 13 P.M.

α Orionis

2440	
2	34.4
2	48.4
3	02.3
3	16.2
3	30.0
3	44
5.. 53..	57.6
	232.9
	120
7)	102.9
	16.19
	−2
5.. 53..	14.19

H Gem.

2557	
0..	29
0..	43.3
0	58.4
1..	13.3
1..	28.
1..	43.
6.. 11..	58
	273.0
	180
7)	93.0
	13.28
	−2
6.. 11..	11.28
6.. 13..	57.27
	2.. 45.99
	cal +.25
	αz −.11
	lev −.08
	2.. 45.93
	11
	2.. 45.82
	04
	2.. 45.86

Imm. 1357 B.A.C. 6 mag ?.
2557 — 5.. 21.. 27.7 − 5

Immersion of two stars 7-8 mag
Northernmost at − 5.. 50.. 06 − 3
Southern — at − 5.. 57.. 08.5 − 4

Micrometer diff of dec of the two stars — 41.65
Zero — 50.00
8.35

Northernmost star, north of the centre of Tycho −
30.16
Zero − 49.99
19.83

	h m s	h m s
	5.. 51.. 06.5	5.. 50.. 06 − 3
	20	1.5
	5.. 51.. 06.5	5.. 50.. 04.5
	2.. 45.90	2.. 45.90
	5.. 53.. 52.40	5.. 52.. 50.40
	24..	24..
	29.. 53.. 52.40	29.. 52.. 50.40
	19.. 30.. 15.24	19.. 30.. 15.24
	10.. 23.. 37.16	10.. 22.. 35.16
	1.. 42.16	1.. 41.98
	10.. 21.. 55.00	

Im. * 7 mag. 10.. 20.. 53.18

Im. * 8 mag 10.. 21.. 55.00

5.. 21..	27.2
	25
5.. 21..	25.2
2.. 45	86
5.. 24..	11.08

24

29.. 24..	11.08
19.. 30..	15.24
9.. 53..	55.84
1..	37.30
9.. 52..	18.54

19.. 29..	28.50
	4624
19 90	15,24

Im. 1351 B.A.C. 9.. 52.. 18.54 (h m s)

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1850phae.proj....

Jan. 15 P.M.

2557
α Andromeda

worn point

7.. 06.4
7.. 21.9
7.. 37.4
7.. 53.0
8.. 08.7
8.. 24.
23.. 58.. 40.
191.4
180
2)971.4
55.05
−2
23.. 57.. 51.65
00.. 00.. 210.53
2.. 49.48

2557
α Tauri

3.. 52
4.. 06.8
4.. 20.3
4.. 35.0
4.. 49.0
5.. 03.3
4.. 25.. 18.0
183.9
60
7)243.9
34.84
−2
4.. 24.. 32.84
4.. 27.. 22.73
2.. 49.89

2557
α Aurigæ

1.. 54.4
2.. 14.
2.. 34.
2.. 53.4
3.. 13.5
3.. 33.
5.. 03.. 53
255.3
120
2)375.3
53.61
−2
5.. 02.. 51.61
5.. 05.. 41.99
2.. 50.38

Jan. 15/16 A.M.

2557
α Serpentis

3.. 24.0
3.. 35.0
3.. 47.8
4.. 05.9
4.. —
4.. 33.4
15.. 34.. 47.
148.3
120
5)28.3
5.66
−2
15.. 34.. 03.66
15.. 36.. 54.48
2.. 50.82

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1850phae.proj....

(503) (1.R.)

Spring gorgeous observations

Jan. 13 P.M.

E C		E C		E C		E C		E C	
c Tauri		λ Tauri		Moon's 1st limb		ε Tauri		α Tauri	
	9 „ 10.5		1 „ 29.8		9 „ 58.2		8 „ 58.2		6 „ 25.7
	9 „ 24.9		1 „ 43.7		0 12.9		9 „ 12.8		6 „ 40.2
	9 „ 38.6		1 „ 57.8		0 27.5		9 „ 27.		6 „ 54.6
+10°	9 „ 52.4	+12′	2 „ 12.0	+16	0 41.9	+17°	9 „ 41.7	+14	7 „ 09.1
	0 „ 06.3		2 „ 26.2		0 57.0		9 „ 56.1		7 „ 23.1
	0 „ 20.4		2 „ 40.1		1 11.3		0 „ 10.9		7 „ 37.3
3 „ 40 „	34.4	3 „ 52 „	54.1	4 „ 11 „	26.0	4 „ 20 „	25.2	4 „ 27 „	51.8
	187.5		263.7		234.8		231.9		241.8
	180		180		60		60		180
	7)367.5		7)83.7		2)294.8		7)291.9		7)61.8
3 „ 39 „	52.50	3 „ 52 „	11.95	4 „ 10	42.11	4 „ 19 „	41.70	4 „ 27 „	08.83
	col. +.24		col. +.24		col. +.25		col. +.25		col. +.25
	az. −.16		az. −.15		az. −.13		az. −.13		az. −.12
	lev. −.06		lev. −.06		lev. −.06		lev. −.07		lev. −.07
3 „ 39 „	52.52	3 „ 52 „	11.98	4 „ 10 „	42.17	4 „ 19 „	41.75	4 „ 27 „	08.89
	−13.80		13.80		13.80		13.79		13.78
3 „ 40 „	06.32	3 „ 52 „	25.78	4 „ 10 „	56.97	4 „ 19 „	55.54	4 „ 27 „	22.67
9 „ 40 „	06.33	3 „ 52 „	25.90			4 „ 19 „	55.29	4 „ 27 „	22.76
	.01		.12				.25		.09

col. = +.24
az. = −.30
lev. = −.07

Jan. 13

	h m s Sid. Time	Tab. K
c Tauri	3 „ 40 „ 06.32	06.33 + .01
λ Tauri	3 „ 52 „ 25.78	25.90 + .12
☾ I limb.	4 „ 10 „ 56.97	
ε Tauri	4 „ 19 „ 55.54	55.29 + .25
α Tauri	4 „ 27 „ 22.67	22.76 + .09

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1850phae.proj....

(504)

Jan. 17/18

2557
α Coronæ Borealis
very unsteady
4 " 41.3
4 " 57.0
5 " 12.3
5 " 28.—
5 " 43.
5 " 58.9
15 " 26 " 14.0
254.5
60
7)194.5
27.78
−2
15 " 25 " 25 . 78
15 " 28 " 21 . 42
2 " 55 . 64

Jan 18 P.M.

2557
γ Ceti
bad seeing
1 " 58.4
2 " 12.3
2 " 26.2
2 " 40.
2 " 53.4
3 " 07.
2 " 33 " 20.9
218.2
60
7)278.2
39.74
2
2 " 32 " 37 . 74
2 " 55 " 34 . 72
2 " 57 . 03

2557
α Ceti
0 " 53.0
1 07.0
1 20.5
1 34.0
1 48.2
2 02.1
2 " 52 " 15.4
180.2
60
7)240.2
34.31
−2
2 " 51 " 32.31

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1850phae.proj....

(505)

Jan. 18 S.M.

25-5-7
α Tauri

3h 44.5
3 59
4 13.5
4 27.1
4 42.0
4 56.0
4h 25m 10.4
252.5
60
7)192.5
27.50
−2
4h 24m 25.50
4 27 22.77
2 57.27

Jan. 20 S.M.

25-5-7
β Orionis

3h 39.8
3 53.9
4 07.4
4 21.2
4 35.3
4 49.0
5h 05m 03.0
289.0
60
7)149.0
21.29
−2
5h 04m 19.29
5 07 23.09
3m 03.80

25-5-7
β Tauri

3h 04.0
3 19.4
3 35.2
3 51.0
4 06.4
4 22.3
5h 14m 38.0
186.3
180
7)356.3
50.90
−2
5h 13m 48.90
5 16 52.95
3m 04.05

25-5-7
δ Orionis

0 41.
0 54.5
1 08.4
1 22.0
1 36.0
1 49.8
5h 22m 03.4
215.4
60
7)155.
22.2
2
5h 21m 20.2
5 24 24.22
3m 04.02

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1850phae.proj....

Jan. 20/21 Am.

25'5'7
α Serpentis
3.. 09,8
3 24.
3 37.4
3 51.3
4 05.0
4 19.0
15.. 34.. 33.0
179,5
60
7) 354,5
51.35
-2
15.. 33.. 49, 35
15.. 36.. 54, 62
3.05,27

Jan. 21 Sm.

25'5'7
α Andromedæ
6.. 49.3
very fair 7.. 05.
7.. 20.3
7.. 35.9
7.. 51.3
8.. 07.4
23.. 58.. 23.0
192,2
60
7) 2532,2
36.03
-2
23.. 57.. 34.03
00.. 00.. 40.46
3..06.49

25'5'7
α Aurigæ
3.. 34.9
3 49.0
4.. 03.4
4.. 17.9
4.. 32.0
4.. 46.4
4.. 25.. 01.0
184.6
60
7) 1924.6
17,80
-2
4.. 24.. 15,80
4.. 27.. 22.70
3..06,90



1851 January 21st First transmition of time to Boston by the Electric Telegraph

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1850phae.proj....

(507)

Ill. West?

Jan. 21 P.M.

E C
Solaris
v0 .. 38 .. 10.9
47 .. 10.5
56 .. 60.0
+
1 .. 13 .. 45.8
22 .. 40.6
31 .. 30.0
207 137.8
180
387
4 52.97
cor −1.74
1 4 51.23

1 4 52.97
− 0.29
1 4 52.68

E C
θ Ceti
1 .. 15 .. 39.7
54.0
16 .. 07.9
6 21.8
6 35.7
6 49.5
17 .. 09.4
212.0
60.
7)152.0
1 .. 16.21.71
1 .. 16 .. 37.65
1 .. 16.11.94

2557
β Orionis
3 .. 36.4
50.4
disturbed 4 04.5
4 18.4
4 31.8
4 45.4
5 .. 04 .. 59.4
246.3
120
7)126.3
18.04
2
5 .. 04 .. 16.04
5 .. 07 .. 23.08
3.07.04

Jan. 21 P.M.

2557
β Tauri
3 .. 01.
3.16
3 32.4
3 .. 48.
4 .. 03.5
4 .. 19.4
5 .. 14 .. 32.
154.3
180
7)334.3
47.75
− 2
5 .. 13 .. 45.75
5 .. 16 .. 52.97
5.07.22

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1850phae.proj....

Jan. 22/23
2 5 5 7
β Librae

08.4
36.4
50.4
04.0
17.6
15 06 31.8
148.9
180
328.9
54.82
con. − 04.63
15 5 50.19
15 5 48.19

Ill. West?
2 5 5 7
α Coronae Borealis

4 26.3
4 42.
4 57.2
5 13.0
5 28.5
5 44.0
15 25 49.4
270.4
180
90.4
12.91
−2
15 25 10.91
15 28.21.57
3 10.66

Jan. 23 PM
2 5 5 7
β Ceti

2 10.0 - off
2 24.7
2 39.2
2 53.6 - off
3 08.4
3 23.
00 33 37.2
196.1
180
376.1
53.79
00 - 0 beats
00 32 53.71
00 36 05.13
3 11.40

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1850phae.proj....

Jan. 23/24 Am.

2557
α Serpentis

3	02.
3	16.
3	29.5
3	43.4
3	57.4
4	11.
15	34. 25.0
	184.3
	120
7	304.3
	43.47
	-2
15	33. 41.47
15	36. 54.71
	3. 13.24

3/8
2.70

3. 14. 0

3. 56. 555
4
15. 46. 220 4 days
11. 49. 675 3 days

Rate of 2557 - 2.70

EC 20. 51. 00
2557 20. 47. 58.5
3. 14. 0
20 51. 12.5

Jan 24 noon EC slow 12.5 of Sell. Jan

	20. 12. 50.62
	46.75
	20. 13. 37.37
1h m.st	1. 00. 09.86
Sid Jan at 1h P.M.	21. 13. 47.23
EC slow	12.50
	21. 13. 34.73
	16 0
EC marks at 1h P.M. Boston	21. 13. 18.7
	3. 56.5
25 noon	21. 17. 15 2
	11. 49.66
	21. 29. 04.86
Cor Rate	= 86
EC marks at 1 P.M. Boston M.S.T. Jan 28	21. 29. 04.0
	7. 53.11
	21 36 57.1
Jan 30 at 1h Bost	21. 36. 57.1
	3. 56.5
	21. 40. 53.6
cor rate	.4
Jan 31 at 1h Bost.	21. 40. 54.0
	15. 46.22
Feb 4	21. 56. 40.2
cor rate	3
Feb 4	21. 56. 39.9
	3 56 5
	22 00. 36.5

Feb 4 EC 21. 56. 39.9
15. 46.2
Feb 8 22. 12. 26.1 EC at 1h Bost. M.S.T.
11. 49.7
Feb 11 22. 24. 15.8 EC "
3. 56.5
22. 28. 12.3
cor rate 1.3
12 22. 28. 13.6
14 7. 53.1
22 36. 06.7
3. 55.5
15 22 40. 02.2
11. 49.7
22. 51. 51.9
Cor rate 1.8
18 22. 51. 53.7

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1850phae.proj....

Jun. 23/24 Am.

EC 15.. 57.. 40
10 15.. 56.. 57.4

EC 16.. 00.. 00
25-57 15.. 56 58.8

EC 16.. 01.. 00
f.G. 16.. 07 59.2

EC 16.. 02.. 40
2440 16.. 09 .. 59.7

EC 16.. 04 .. 30.
2419 16.. 07 .. 59

M.O. 6. 19.. 56.. 00
25-57 14 05.. 47.3

16.. 05.. 47.3
3.. 13.24
16.. 09.. 00.54

20.. 08.. 54.00 24
46.24 30.. 09.. 00.54
29.09.40.80 20.. 09.. 40.80
19.. 59 .. 19.74
3.. 16.50
19.. 56.. 03.24
19.. 56.. 00
3.24

Jun 24 SM

γ Ceti

1.. 41.
1.. 55.
2.. 08.4
2.. 22.9
2.. 36.0
2.. 50.
2.. 3 3.. 03.4
2161
60
3) 156.1
22.30
- 2
2.. 32.. 20.30

after this observation 25-57 put forward 3 min.

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1850phae.proj....

Jan. 24 P.m.
25.57
δ Orionis

3.. 30.0
3.. 44.0
3.. 58.0
4.. 11.3
4 24.9
4 39.0
5.. 24.. 52.4
259.6
180
7)179.6
11.37
−2
5.. 24.. 09.37

ε Orionis

7.. 45.
7.. 59.8
8.. 13.3
8.. 27.
8.. 40.7
8.. 54.4
5.. 29.. 08.4
248.6
60
7)188.6
26.94
−2
5.. 28.. 24.94

Jan. 24/25 A.m.
25.57
δ Ophinchi

5.. 36.8
5.. 50.7
6.. 04.5
6.. 18.4
6.. 32.0
6.. 46.
16.. 06.. 55.4
247.8
120
7)127.8
18.25
−2
16.. 06.. 16.25
16.. 06.. 34.19
−14.94

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1850phae.proj...

(572) ... Ill Wert?

Jan. 23 P.M.

Spring observation

E C α Andromeda	E C γ Pegasi	E C α Cassiopeæ	E C β Ceti	E C Polaris		
23 59 41.5	00 04 37.8	0 37.8	00 35 09.3	00 38 08.0		
9 56.9	4 52.2	1 02.4	5 24.0	47 07.3		
8 12.5	5 06.3	1 26.7	5 38.4	55 58.1		
6 28.2	5 21.0	1 51.2	5 52.8	04 52.4		
8 43.6	5 34.9	2 15.6	6 07.7	13 44.2		
8 59.0	5 49.0	2 39.9	6 22.1	22 36.2		
10 14.9	00 06 03.1	00 33 04.1	00 36 36.3			
256.6	202.3	177.9	190.6	179	206.4	
160	60	180	180	182	26.4	
7)196.6	7)142.5	7)357.9	7)370.6	180		
23 58 28.08	00 05 20.33	00 31 51.13	00 35 52.94	362	26.4	
				60	24.40	
			cor	+4	25.18	
				4	49.58	

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Spring governors

Jan. 23 P.M.

ε Cet	
1	15 39.8
	53.5
	07.5
6	21.4
6	35.2
6	49.3
1	17 03.0
	209.7
	60
7	149.7
1	16 21.38

Jan. 24 P.M.

α Cassiopeæ	
00	30 37.8
1	02.3
1	26.6
1	51.0
2	15.4
2	39.7
3	04.2
	187.0
	180
7	934.7
00	31 51.0

β Cet	
00	35 09.3
5	23.8
5	38.4
5	52.8
6	07.5
6	21.9
00	36 36.3
	190.0
	180
7	370.0
00	35 52.85

Polaris	
00	38 10.2
	47.09.1
5	59.0
04	32.9
13	44.5
22	35.0
1	31 24.3
	235.8
	120
7	355.0
	50.71
04	50.71

ε Cet	
1	15 39.5
5	53.6
6	07.4
6	21.3
6	35.0
6	49.2
1	17 02.9
	209.9
	60
7	149
1	16 21.41

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1850phae.proj...

(374) Ill Wat?

Jan. 25 P.M.

EC

θ Ceti

1 15 39.4
5 53.5
6 07.3
6 21.2
6 35.1
6 49.1
17 02.6
208.2
60
7)14.52
1 16 21.1

Polaris last

00 47 11.3
56 00.2
04 51.1
13 40.5
22 26.0
31 26.8
173 165.9
240
413
69 19.32
cor. − 4 24.41
1 4 54.91

25 S.M.

EC

α Tauri

4 26 27.1
6 41.4
6 55.5
7 09.8
7 24.3
7 38.5
4 7 52.7
249.3
180
7)69.3
4 27 09.90
4 27 22.65
12.75

Spring Observation

EC

α Arrigie

4 29.9
4 49.8
5 09.4
5 28.5
5 48.9
6 08.4
5 06 28.0
202.9
60
7)202.9
5 05 28.98
5 05 41.87
12.89

EC

β Tauri

5 15 53.3
6 09.2
6 24.6
6 40.3
6 55.9
7 11.6
5 17 27.1
222.0
60
7)282.0
5 16 40.28

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1850phae.proj....

Ill. West.? (575)

Spring governors

Jan. 25 P.m.

E.C.	E.C.	E.C.
δ Orionis	α Leporis	ε Orionis
5.. 23.. 30.2	— — — —	5.. 27.. 45.7
3.. 44.0	28.7	7.. 59.4
3.. 57.7	48.2	8.. 13.3
4.. 11.4	57.6	8.. 27.1
4.. 25.1	12.0	8.. 40.8
4.. 38.9	26.6	8.. 54.6
4.. 52.7	5.. 25.. 40.8	5.. 9.. 08.5
260.0	208.9	249.4
180	180.0	60
7)60	388.9	7)189.4
5.. 24.. 11.43	64.82	5.. 28.. 27.05
5.. 24.. 24.17	cor − 7.23	5.. 28.. 39.63
12.74	5 24 57.59	12.58

Jan. 27 P.m.

E.C.
α Ceti
35.4
49.3
03.0
16.6
30.4
44.2
2.. 55.. 57.8
236.7
120
116.7
2 55 16.67

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1850phae_proj...

(576)

Jan. 27 Pm.

Spring observations

E.C. a Persei	E.C. η Tauri	E.C. τ' Eridani	E.C. α Tauri	E.C. α Aurigæ
3..12..26.5	3..37..40.3	3..50..09.7	4..26..26.5	5..04..29.2
2..47.8	7..55.4	0..23.8	6..41.5	4..49.2
3..08.0	8..10.2	0..37.8	6..55.6	5..08.8
3..29.6	8..25.5	0..51.9	7..09.9	5..28.8
3..50.4	8..40.6	9..06.2	7..24.2	5..48.2
4..11.5	8..55.4	9..20.1	7..38.6	6..08.1
3..4..32.6	39..10.2	3..59..30.5	4..27..52.9	5..06..27.9
206.4	237,6	180.0	249,2	200,2
000	60	180.	180	000
7)206.4	7)177.6	7)0000	7)69,2	7)200.2
3..13..29.49	3..38..25.37	3..50..51.43	4..27..09.88	5..05..28.60
3..13..42.46	3..38..38.01	3..51..04.64	4..27..22.63	5..05..41.84
12.97	12.64	13.21	12.75	..13.24

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1850phae.proj....

Jan. 27 P.m.

E. C.
β Orionis

6.. 42. 9
6.. 36. 5
7.. 10. 5
7.. 24. 1
7.. 38. 1
5.. 7.. 52. 0
172. 1
120
52. 1
5.. 07.. 10. 42
5.. 07.. 23. 01
12. 19

Jan. 29 P.m.

E. C.
β Tauri

5.. 15.. 52. 7
16.. 08. 2
16.. 23. 7
6.. 39. 3 -
6.. 55. 8
7.. 11. 3
5.. 7.. 26. 8
217. 3
60
7) 277. 3
5.. 16.. 39. 61
5.. 16.. 52. 89
13. 28

E. C.
δ Orionis

3.. 29. 5
3.. 43. 7
3.. 57. 0
4.. 10. 7
4.. 24. 6
4.. 38. 2
5.. 24.. 51. 9
255. 6
180
7) 75. 6
5.. 24.. 10. 80
5.. 24.. 24. 14
13. 34

E. C.
α Leporis

5.. 27. 45. 2
7 59. 0
8 12. 7
8 26. 4
8 40. 3
8 54. 1
5.. 29.. 07. 9
245. 6
60
7) 85. 6
5.. 28.. 26. 51
5.. 28 39. 60
13. 09

224. 1
120
104. 1
17. 35
corr. - 6. 93
5 7 10. 42

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1850phae.proj....

(578) (1C)

Jan. 30 P.M. Spring Gerasimos very unsteady Very poor

ε Eridani	β Lyncis	ϑ Orionis	α Sextantis	ε Orionis
3 48 09.3	5 15 52.8	5 23 29.8	5 25 19.9	5 27 45.2
0 23.6	5 08.5	3 43.8	5 28.3	7 59.2
0 37.6	5 24.2	3 57.4	5 42.6	8 12.9
0 51.8	5 39.6	4 11.2	5 57.1	8 26.5
1 06.	5 55.4	4 25.1	6 11.4	8 40.4
1 20.2	6 11.1	4 38.5	6 26.0	8 53.9
3 54 34.4	5 4 26.9	5 24 52.2	5 26 40.3	5 29 07.8
182.9	218.5	258.0	219.6	245.9
180	60	180	180	60
7)562.9	7)278.5	7)780	7)399.6	7)185.9
3 44 51.84	5 15 39.78	5 24 11.14	5 25 57.08	5 28 26.56
3 54 04.61	5 16 52.89	5 24 24.14	5 26 10.05	5 28 39.60
12.77	13.11	13.00	12.97	13.04

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1850phae.proj....

Jan. 30/31 Am. Temp. −2° Jan. 31 Pm. very unsteady Temp 42°

E C α Lyrae	E C β Tauri	E.C. ce Leporis	E.C. ε Orionis	E.C. ce Orionis
16 30 45.9 very unsteady	5 15 52.4	5 25 13.5	5 27 45.0	5 46 11.9
1 03.7	6.08.3	5 27.9	7 58.8	6 25.8
1 21.2	6 23.7	5 42.2	8 12.6	6 39.4
1 38.1	6 39.4	5 56.6	8 26.1	6 53.5
1 56.0	6 55.0	6 11.1	8 40.2	7 07.2
2 14.8	7 10.8	6 25.7	8 54.0	7 21.2
2 33.5	5 17 26.0	5 26 40.0	5 9 07.6	5 7 34.7
213.2	215.6	2170	244.3	193.7
60	60	180	60	180
7)273.2	7)275.6	2)392.0	7)184.3	7)279.7
18 31 39.03	5 16 39.37	5 25 56.71	5 28 26.33	5 46 53.39
18 31 54.79	5 16 52.88	5 26 10.04	5 28 39.55	5 47 06.76
12.76	13.51	13.33	13.26	13.37

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1850phae.proj....

1854 (520)

Feb. 2/3 Am
E.C.
α Aquila

42.. 33.7	
2 47.9	
3 01.7	
43.. 15.4	
3.. 29.5	
3.. 43.3	
19.. 43.. 57.2	
228.7	
120	
2)108.7	
19.. 43.. 15.73	
19.. 43.. 28.00	
13.27	

Feb. 3 Pm.
E C

Cε Andromeda	γ Pegasi	Polaris	θ' Ceti
23.. 39.. 40.0	00.. 04.. 37.0	00.. 38.. 04.6	5' 35.3
9.. 55.4	4 37.0	47.. 09.8	5 52.2
0.. 11.0	3.. 05.0	55 .. 33.6	16.. 05.9
0.. 27.0 —	3.. 19.3 —	04.. 46.5 —	6.. 20.1 —
0.. 42.2	3.. 33.6	13.. 37.4	6.. 34.0
0.. 58.0	3.. 47.7	22.. 29.5 —	6 48.0
00.. 01.. 13.4	00.. 06.. 01.8	1.. 31.. 20.4	1.. 17.. 01.6
248.0	00.. 05.. 195.4	195.8	200.1
60	180	120	60
7)1880	7)1354	315.8	7)140.1
00.. 00.. 26.85 —	00.. 05.. 19.34	45.11	1.. 15.. 20.01
00.. 00.. 40.28	00.. 05.. 32.72	1 04 45.11	1.. 16.. 33.47
13.43	13.38		19.46

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1850phae.proj....

Feb. 4 Pm.

ε C		ε C		ε C	
α Arietis		γ Ceti		Persei	
1	37 47.8	2	34 39.4	3	12 25.2
8	02.9	4	53.4	2	46.4
8	17.7	5	07.	3	07.4
8	32.8	5	21.0	3	28.6
8	47.6	5	34.5	3	49.7
9	02.4	5	48.3	4	10.8
9	17.4	6	02.	14	31.7
	168.6		205.1	7	199.8
	60		60	3	13 28.54
7	228.6	7	145.6	3	13 42.27
1	56 32.74	2	55 20.80		13.73
1	56 46.14	2	55 34.40		
	13.41		13.60		

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1850phae.proj....

Feb. 5 Sm.

Ill. West Meridian Marks

Temp +40°

South	North	Zero	Level East	Level West
0.869	0.472	1.02	+86	80
.89	.47	1.01	+85-	80
685-	48	1.015-	81	83+
682	465-	1.02	81	82
.865-	0.482	4 063-	333	325-
4432	2937	1.016	83.2	812
0.8864	0.466		81.2	
.016	016		2	
0.870	.450		1.00	
23	27		E too High −.066	
2610	1350			
1740	906			
2.0016	1.0356			
1.0356				
.9660 s−n				
3.0360 s+n				
.4830 $\frac{s-n}{2}$				
1.5180 $\frac{o+n}{2}$				

Formulae

$cal = -1.384 + \frac{s+n}{2}$

$az = -0.700 + \frac{s-n}{2}$

cal. = −.1,384 + 1.5180 = +0.134

az. = −0.700 + .4830 = −0.217

cal = +0.134

az = −0.217

lev = +0.066

lev = −0.08

Feb. 5 Mg. 5h Sm

A very brilliant mock sun was seen in the west — in the same altitude as the sun; distance from the cross centes to the brightest part of the mock sun 22°.20" — Mock sun south of the sun.

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1850phae.proj....

Feb 6/7 Am.

J.G.		E.C.		E.C.		E.C.		E.C.	
	a Aquilæ		α Arietis		Moon's 1st limb		ζ^2 Ceti		ν Ceti
	3,,02.2		1,,57,,48.25		2..02..27.0		2..19..19.25		2,,27,,08.65
	3 16.3		8,, 03. 55		41.1		9,,33.20		7,, 22.35
+8	3 30.0	+23	8,,18.30	+6	55.1	+8°	9,,47.10	+5°	7,,36.15
	3 44.2 —		8,,33.15 —		03,,09.2		0,,00.9		7,,50.10
	3 58.0		8,,48.20		4,,23.3		0,,14.8		28,,03.65
	4 11.5		59,,03.00		4,,37.6		0,,28.3		8,,17.55
	19,,44,,25.7		1,,59,,17.60		2,,04,,51.8		2,,20,,42.3		28,,37.10
	187.9		172.05		245.1		185.85		169.55
	120		60		180		180		180
	7)307.2		7)232.05		7)65.1		7)005.85		7)349.51
	43.98		1,,58,,33.15		2,,03,,09.30		2,,20,,00.83		2,,27,,49.93
	17		cal. +.14		cal. +.13		cal. +.13		cal. +13
	19,,49,,42.28		ar. —.08		ar. —.13		ar. —.12		ar. —13
	19,,49,,29.05		lev. —.07		lev. —.05		lev. —.05		lev. —.05
	13.23		1,,58,,33.14		2,,03,,09.25		2,,20,,00.79		2,,27,,49.88
	cal. +.13		13.05		13.06		13.08		13.05
	ar. —12		1,,58,,46.19		2,,03,,22.31		2,,20,,13.87		2,,28,,02.96
	lev. —.05		1,,58,,46.14				2,,20,,13.87		2,,28,,02.81
	13.27		—.05				.00		—.15

Feb. 7 Pm.		Feb. M.	
		′	
α Arietis	1,,58,,46.19	46.14	—.05
C′ I limb.	2,,03,,22.31		
ζ^2 Ceti	2,,20,,13.87	13.87	.00
ν Ceti	2,,28,,02.96	02.81	—.15

cal. +.13
ar. —.21
lev —.06

lev —.086
cal +.114
ar —.215

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1850phae.proj....

Feb. 7 Pm.

E C r Cet	E C	E. C.	E. C.	E. C.
	B Orionis	B Tauri	δ Orionis	α Leporis
2 „ 34 „ 39.85	5 „ 06 „ 27.9	5 „ 15 „ 52.90	5 „ 23 „ 29.55	5 „ 25 „ 28.10
4 „ 53.90	6 „ 41.9	6 „ 08.55	3 „ 43.35	5 „ 42.25
+3° 5 „ 07.70	−8° 6 „ 55.8	+28° 6 „ 23.90	∓ ∞ 3 „ 57.10	5 „ 56.70
5 „ 21.45	7 „ 09.8	6 „ 39.70	4 „ 10.90	6 „ 11.25
5 „ 35.20	7 „ 23.7	6 „ 55.30	4 „ 24.50	6 „ 25.70
5 „ 49.00	7 „ 37.4	7 „ 11.00	4 „ 38.10	5 „ 6 „ 39.75
2 „ 36 „ 02.55	5 „ 7 „ 51.2	5 „ 7 „ 26.25	5 „ 4 „ 51.90	ε = 23.75
209.65	247.7	216.60	255.40	cor = −43.40 / 6 | 16.35 / 26.72
60	180	60	180	30 / 56.72
2 | 149.65	2 | 67.7	2 | 276.60	2 | 75.40	5 „ 25 „
2 „ 35 „ 21.52	5 „ 06 „ 09.67	5 „ 16 „ 39.51	5 „ 24 „ 10.77	
cal. +.13	cal. +.13	cal +.15	cal. +.13	
arr. −.13	arr. −.05	arr. −.07	arr. −.13	
lev. −.05	lev. −.04	lev. −.06	lev. −.04	
2 „ 35 „ 21.47	5 „ 07 „ 09.63	5 „ 16 „ 39.53	5 „ 24 „ 10.81	
2 „ 35 „ 34.36	5 „ 07 „ 22.81	5 „ 16 „ 52.70	5 „ 24 „ 24.05	
12.89	13.18	13.17	13.24	

21.47
13.08
34.55

13
21
06

86
114
213

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1850phae.proj....

(325) 25

Feb. 7 Pm.

E C		E. C.	
ε Orionis		α Orionis	
5h	27m 44.9	5h	46m 11.75
	7 58.9		6 25.20
	8 12.4	+7°	6 39.65
−1	8 26.1 −		6 53.45 −
	8 39.8		7 07.20
	8 53.75 −		7 21.10
5 −	9 07.35 −	5h	7 34.75 −
	243.20		193.60
	60		180
	7)183.20		7)373.60
5h	28m 26.17	5h	46m 53.37
5h	28m 39.51	5h	47m 06.65
	13.34		13.32
	cal. +.10		cal. +.13
	ann. −.14		ann. −.13
	lev. −.04		lev. −.05 −
	13.26		13.27

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1850phae.proj....

Feb. 11 P.M. Ill. West (3262) I Temp +39°

Meridian Marks Level

excellent seeing

North	South	Zero	East	West
0.442	0.87	1.01	78	- 80+
.445	875-	02	79	80+
.445	87	02	+ 82	75
.446	875-	015	+ 89	75
.450	.870	065	82	310
2228	4360	1.016	80,5	77,5
447	.872		77,5	
.012	.016		3.0	
.431	.856		1.50	
2,3	2,3		- .10	
1293	2568			
862	1712			
.9913=m	1,9668=s			
	9913=m			
	2,9601=m+s			
	.9775=s-m			
	1.4800=$\frac{m+s}{2}$			
	.4887=$\frac{s-m}{2}$			

cal = −1,384 + 1.480 = +0.096
az = −0.700 + 0.488 = −0.212

lev. = −0.11

cal = +0.096
az = −0.212
lev = −0.106

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1850phae.proj....

Feb. 11 Bon.

daily rate of ∫ G = + 6°

1. Oculation of 57 Orionis

Im J. G. 6h 38m 01.0 − 12 beats

5.0

6h 37m 56.0

40.17

6h 37m 15.83

q 4

30h 37m 15.83

21h 24m 35.33

9h 12m 40.48

1h 30.54

9h 11m 09.94

EC 6h 42m 00

JG 6h 42m 52.3

6h 42m 00

12.11

6h 42m 12.11

6h 42m 32.3

40.19

02

40.17

21h 29m 48.61

46.74

21h 24m 35.87

Im. 57 Orionis

9h 11m 09.94 M.S.G.

G.B.B. 5 ft. Equatoreal

cal + .04

ar − .21

lev − .10

cal + 0.096

ar − .212

lev − .100

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1850phae_proj...

(528)

Feb. 11 P.m.

Spring Observations

E.C. 11 Orionis	E C 15 Orionis	E.C. B Orionis	E.C. B Tauri	E.C. δ Orionis	E C ε Orionis
4h 53m 08,80	5h 00m 13,15	5h 06m 29,35	5h 15m 53,44	5h 23m 30,4	5h 27m 45,9
5m 22,85	0m 29,65	06m 43,05	6m 09,40	3m 44,2	7m 59,7
5m 36,75	00m 43,50	06m 56,95	6m 24,75	3m 57,8	8m 13,4
+75° 5m 51,10	+15° 00m 57,80	−8° 7m 11,00	+28 6m 40,79	−00 4m 11,6	−1° 8m 27,3
6m 05,45	1m 12,75	7m 24,85	6m 56,45	4m 25,5	8m 40,9
6m 19,65	1m 27,00	7m 38,80	7m 12,05	4m 39,2	8m 54,8
4m 56m 33,75	5m 1m 41,00	5m 7 52,40	5m 17 27,20	5m 4m 52,6	5m 9m 08,4
176,35	227,05	856,43	2424,02	264,3	2504
16	16	16	6	16	6
958,95	407,05	7)76,43	7)284,02	2)81,3	19 0,4
4m 55m 51,19	5m 00m 58,15	5m 07m 10,94	5m 16m 40,57	5m 24m 11,63	5m 28 27,20
cal +,10	cal +10	cal +10	cal +11	cal +,10	cal +,09
az −,11	az −,11	az −,16	az −,07	az −,14	az −,14
lev −,09	lev −,09	lev −,06	lev −,12	lev −,07	lev −,07
4m 55m 51,29	5m 00m 58,25	5m 07m 11,06	5m 16m 40,65	5m 24m 11,50	5m 28m 27,32
12,16	12,10	5m 07m 22,83	12,11	5m 24m 24,00	5m 28m 39,45
4m 56m 03,39	5m 01m 40,35	11,77	5m 16m 52,76	12,50	12,13
4m 56m 03,50	5m 01m 10,50		5m 16m 52,73		12 46
+,11	+,15		−,03		12,08
					11,77
					8,44
					5h 16m 00 = 12,p 2

12 0.3

Feb. 11

	Sid. Time	Feb. h
11 Orionis	4m 56m 03.39	03.50 +.11
15 Orionis	5m 01m 10.35	10.50 +.15
B Tauri	5m 16m 52.76	52.73 −.03
☾ I limb	5m 42m 14.80	

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Feb. 11 Pm

E C.

α Orionis

5h 46m 12.95s
6m 26.45s
−7° 6m 40.40
6m 54.50
7m 08.00
7m 21.80
5h 7m 35.60
299.70
180
7)379.70
5h 46m 54.24
cal +.10
az −.13
lev −.08
5h 46m 54.35
5h 49m 06.64
12.29

E.C.

Moon's first limb.

5h 41m 17.78
1m 32.73
1m 47.50
+20° 2m 02.80
2m 17.60
2m 32.70
5h 2m 47.45
198.56
180
7)18.56
5h 42m 02.65
cal +.10
az −.09
lev −.10
5h 42m 02.74
12.16
5h 42m 14.90

Reduction see preceding page

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Feb. 13 Pm

E.C. α Geti	E.C. α Persei	E C α Aurigæ	E C ζ Gem.	E.C. δ Gem.
2..53..35.2	3..12..26.4	4..26..27.0	6..54..20	7..10..16.8
3..49.1	47.7	41.4	34.9	31.4
4..02.9	08.2	55.6	49.5	46.5
4..16.6	29.9	clouds	55 04.3	11 01.2
4..30.3	50.8	—	19.1	16.1
4..44.1	11.8	—	33.9	31.0
2..54..57.6	14..32.7	—	6..55- 48.4	7..11..45.6
55.8	206.5		209.1	188.6
120	av		180	180
7)115.8	7)206.5		7)29.1	7)8.6
2..54..16.54	3..12 29.50		6..55- 04.13-	7..11..01.23
2..54..29.07				
12.53				

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1850phae.proj....

Feb. 16/17 Am

E. C.

a Lyrae

very faint & cloudy and unsteady

1..05.5
1..22.5
1..40.6
1..57.9
2..15.7

18 32..33.0

142.2

60

5)909.2

18..31..40.55
18..31..52.22

11.67

E. C.

β Aquilae

unsteady

18..57..38.0
7..52.2
8..06.4
8..20.2
8..34.5
8..48.7

18..59..02.8

202.8

60

7)149.8

18..58..20.40
18..58..32.30

11.90

a Aquilae

very unsteady

19..42..35.6
2..49.6
3 03.4
3 17.3
3 30.9
3 45.2

19..43..59.0

241.0

120

7)1210

19 43..17.28
19..43..29.23

11.95

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(533)

Feb. 17 Pm. Ill. West

Meridian Marks

North	South	Zero	East	Level West
0r4160	0r880	1.02	+91	80
470	880	.01	+91	79
475	880	02		
.475	.875	02	85	86 +
.470	.874	4.07	85	85+
2350	4389	1.017	352	330
.4700	.8778		88.0	82.5
0170	0170		825	
.4530	.8608		55	
23	23		273	
13590	25824		−.190	lev. = −0.22
9060	17216			
1.04190	1.99984 s			
	1.04190 n			
	.93794 = s − n			
	3.02174 = s + n			
	.46897 = $\frac{s-n}{2}$		cal = −1.384 + 1.511 = + 0.127	
	1.51087 = $\frac{s+n}{2}$		az = −0.700 + 0.469 = − 0.231	

cal. = +0.127
az. = −0.231
lev. = −0.017

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1850phae.proj....

Feb. 18 Sm

E. C. η Gemini		E. C. α Lyrae		E. C. β Lyrae	
3.. 37. 39.9		18.. 30.. 46.9		18.. 43.. 31.5	
7. 55.6		1.. 04.4		3.. 47.9	
8 09.8		1.. 21.7		4.. 04.3	
8 24.8	−	1 39.6	−	4.. 21.0	−
8 39.7		1 57.4		4.. 37.4	
8 54.6		2 14.6		4.. 53.5	
3 39.. 09.7		18.. 32.. 32.4		18.. 5.. 10.0	
293.5		217.0		205.6	
60		60		60	
7)1735		7)2770		7)1456	
3.. 38.. 24.78		18.. 31.. 39.57		18.. 44.. 20.80	
3.. 38.. 37.63		18.. 31.. 52.30		18.. 44.. 33.39	
12.85		12.73		12.59	

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1850phae.proj....

Feb. 19 Pm.

E C	E.C.	E.C.
a Ceti	a Persei	1161 B.A.G
2.. 53.. 34.7	3.. 12.. 23.7	3.. 26.. 31
3.. 48.5	2.. 46.9	45.9
4.. 02.2	3.. 07.6	7.. 01.1
4.. 16.–	3.. 29.0	15.9
4.. 29.8	3.. 50.0	31.0
4.. 43.5	4.. 10.9	45.9
2.. 54.. 57.2	3.. 14.. 32.1	3.. 38.. 00.7
231.9	202.2	191.5
120	120	60
7)111.9	7)82.0	191.5
2.. 54.. 15.98	3.. 13.. 28.85	15.93
2.. 54.. 29.00	3.. 13.. 41.90	3 27 15.93
13.02	13.05	

Feb. 22 Pm.

E C		
η Cassi		γ Eridani
7.. 39.5		0.. 08.9
7.. 54.6		0 23.0
8.. 09.6		0 37.0
8.. 24.5–		0 51.2
8.. 39.5		1 05.5–
8.. 54.6		1 19.5–
3.. 39.. 09.5		3.. 51.. 33.6
291.8		178.7
60		120
7)171.8		7)358.7
3.. 38.. 24.54		3.. 50.. 51.24
3.. 38.. 37.57		3.. 51.. 04.22
13.03		12.98

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1850phae.proj....

N

Feb. 24/25 Am

E C

α Lyrae

18 30 48.0
1 05.6
1 23.4
1 40.9
1 58.5
2 16.0
32 33.4
225.6
60
7)285.6
18 31 40.80
18 31 52.48
11.68

25 Pm.

E C

Polaris

00 37 31.8
46 49.9
55 40.0
1 05 30.9
14 27.5
23 13.5
33 02.7
216.3
30.90
1 04 30.90

α Arietis

1 57 49.3
58 04.3
58 19.0
58 34.0
58 49.1
59 03.9
1 59 18.8
178.4
60
7)298.4
1 58 34.05
1 58 45.87
11.82

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1850phae.proj...

(537) Acc.

Feb. 26 Pm.

E C Polaris		E C α Arietis	E C α Ceti	α Persei
Cloudy		1 .. 57 .. 49.0	2 .. 53 .. 35.6	3 .. 12 .. 26.3
00 .. 46 .. 48.4		8 .. 04.0	3 .. 49.2	2 .. 47.4
00 .. 55 .. 41.6		8 .. 19.0	4 .. 03.1	3 .. 08.2
1 .. 04 .. 35.2		8 .. 33.9	4 .. 16.8	3 .. 24.5
1 .. 13 .. 24.1		8 .. 48.9	4 .. 30.4	3 .. 50.5
1 .. 22 .. 14.8		9 .. 03.6	4 .. 44.3	4 .. 11.8
1 .. 31 .. 04.1		1 .. 59 .. 18.4	2 .. 54 .. 57.9	3 .. 14 .. 32.4
171	168.2	184.8	297.3	7) 206.1
120		60	180	3 .. 13 .. 29.44
51		7) 236.8	7) 117.3	3 .. 13 .. 41.67
1 8	58.03	1 .. 58 .. 33.83	2 .. 54 .. 16.75	12.23
cos − 4	25.84	1 .. 58 .. 45.85	2 .. 54 .. 28.86	
1 4	32.19	12.02	12.11	

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1850phae.proj....

March 1st Am.

E C α Lyra	E.C. ξ Aquilæ	E.C. δ Aquilæ	E.C. γ Aquilæ	E C α Aquilæ
very muddy	faint muddy	faint muddy	faint	very faint
0 „ 47.5		05.0	8 15.4	36.1
1 „ 05.5	7 „ 52.7	7 18.7	8 29.8	50.0
1 „ 23.0	8 „ 06.6	7 32.2	8 43.5	8 03.9
1 „ 40.3	8 „ 20.9	7 46.1	8 57.5	3 18.0
1 „ 58.0	8 „ 35.0	8 00.0	9 11.2	3 „ 31.7
2 „ 15.6	8 „ 49.2	8 13.8	9 25.5	3 „ 45.5
18 „ 32 33.2	18 „ 57 „ 03.0	19 „ 16 „ 27.2	19 „ 39 „ 39.4	19 „ 43 „ 59.3
223.1	164.4	293.0	222.3	244.5
60	60	120	180	120
7)283.1	5)104.4	7)329.0	7)402.3	7)124.5
18 „ 31 „ 40.44	18 „ 58 „ 20.88	19 „ 17 „ 46.14	19 „ 38 „ 56.43	19 „ 43 „ 17.78
18 „ 31 „ 52.60	18 „ 58 „ 32.61	19 „ 17 „ 57.89	19 „ 39 „ 09.29	19 „ 43 „ 29.50
12.16	11.73	11.75	11.86	11.72

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1850phae.proj....

(539) 12

March 1st Pm

E C Polaris	E. C. α Arietis	E. C. η Tauri
	1.. 57.. 49.2	3.. 37.. 40.5
00.. 46.. 50.9	8 .. 04.4	7.. 53.7
0 .. 55. 40.2	8.. 19.1	8.. 10.5
1 .. 04.. 30.3	8.. 34.0	8.. 25.5
1 .. 13.. 25.5	8.. 49.1	8.. 40.6
1 .. 22.. 18.2	9.. 03.6	8.. 55.6
1.. 31.. 03.2	1.. 59.. 18.4	3.. 39.. 10.5
171 168.3	177.8	238.9
1 8 38.05	60	60
4 25.71	7)217.8	7)1778.9
1 4 32.34	1.. 38.. 33,97	3.. 38.. 25,56
	1.. 58.. 45. 79	3.. 38.. 37,40
	11.82	11,84

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1850phae.proj....

(320)

March 4 Sm.

E.C.
ε Hydra
8.. 38.. 02.1
8.. 16
8.. 29.8
38.. 43.7 –
8.. 57.4
9.. 11.3
8 39.. 25.
185.3
120
7) 305.3
8.. 38.. 43.61
8.. 38.. 53.66
1065

E.C.
ι Ursae Majoris
8.. 47.. 47.3
8 08.2
8 29.
8 49.8 –
9 10.5
9 31.4
8.. 49.. 52.1
228.3
120
7) 948.9
8.. 48.. 49.76
8.. 48.. 59.77
10.01

March 5 Am

E.C.
γ Aquilæ
Hazy
clouds
1 9 38.. 46
9.. 00.3
9.. 14.
9.. 27.8
1 9.. 39.. 41.9
1 9.. 39.. 00.3
1 9.. 39.. 04.37
9.07

130.0
60
70.0
14.0
cor. 13.96
19 39 0.04

E.C.
α Aquilæ
19 42.. 38.7
2 52.5 –
3 06.4
3.. 20.2
3.. 34.2
3 .. 48.1
19.. 44.. 02.0
202.1
60
7) 142.1
19.. 43.. 20.30
19.. 43.. 29.62
9.32

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1850phae.proj....

March 5th Sun.

δ Geminorum	α² Gem.	α Canis Minoris	β Geminorum
10.. 19.4	4 07.3	7.. 30.. 39.4	7.. 35.. 13.4
0 34.5	4.. 23.5	0 53.4	5.. 31.3
0 49.0	4 39.5	1 07.1	5.. 46.8
1 04.0	4.. 55.8	1.. 21. —	6.. 02.5
1 18.9	5.. 12.0	1 34.6	6.. 18.0
1 33.7	5.. 28.2	1.. 48.6	6.. 33.7
7.. 11.. 48.4	7.. 23.. 44.4	7.. 32.. 02.3	7.. 36.. 49.3
207.9	210.7	206.4	197.0
180	180	60	180
7)27.9	7)30.7	7)146.4	7)17.0
7.. 11.. 03.98	7.. 24.. 55.81	7.. 31.. 20.91	7.. 36.. 02.43
7.. 11.. 13.59	7.. 25.. 05.55	7.. 31.. 30.33	7.. 36.. 11.94
9.61	9.74	9.42	9.51

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March 10 Pm.

E C
α Canis Minoris
7 30 45 8
0 54.6
1 13.5
1 27.2 –
1 41.0
1 54.7
7 32 08.3
250.1
60
7)190.1
7 31 27.15
7 31 30.25
3.10

E.C.
β Geminorum
7 35 21.7
5 37.5
5 53.0
6 08.7
6 24.2
6 39.8
7 36 53.3
240.2
180
7)60.2
7 36 08.60
7 36 11.87
3.27

E.C.
ε Hydræ
8 38 08.9
8 22.8
8 36.5
8 50.2
9 04.0
9 17.9
8 39 31.6
171.9
180
7)351.9
8 38 50.27
8 38 53.61
3.34

E.C.
ι Ursæ Majoris
8 47 53.9
8 15.
8 35.7
8 56.5
9 17.2
9 38.1
49 58
225.2
120
7)395.2
8 48 56.46
8 48 59.70
3.24

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1850phae.proj...

(523)

March 10/11 Am.

Ill. West

E.C. γ Aquilæ	E.C. α Aquilæ	E.C. β Aquilæ	E.C. α Cygni
19..38..25.0	19..42..45.6	19..47..14.6	20..36..19
8 34.3	2..55.6	7..28.6	5..38.5
8 53.1	3..13.6	7..42.5	5..57.8
9 07.1	3..27.4	7..56.2	6..17.4
9..21.1	3..41.1		6..36.6
9..35.0	3..55.0	8 29.9	6..55.8
19..39..48.9	19..44..08.9	19..48..37.1	20..37..15.2
229.5	251.2	209.8	240.3
180	60	120	120
7)149.5	7)191.2	3289.8	7)120.3
19..39..07.07	19..43..27.31	54.97	20..37..17.19
19..39..09.52	19..43..29.74	2.32	20..36 19.78
2.45	2.43	57.29	2.59

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March 11/12 Am.

E.C.	E.C.	E.C.	E.C.
ζ Aquilae	δ Aquilae	γ Aquilae	α Aquilae
7.. 53.1	7 33.6	8 30.3	2..51.0
8.. 07.4	7 47.0	8 44.2	3..04.8
8.. 21.5	8.. 00.9	8 58.2	3..18.6
8.. 35.8	8 14.7	9.. 12.3	3..32.7
8.. 49.7	8 28.4	9.. 26.1	3..46.3
9.. 03.8	18.. 42.0	9.. 40.0	4..00.2
18.. 59.. 17.9	19.. 18	19.. 39.. 54.0	19.. 44.. 14.0
169.2		265.1	167.6
60		180	60
7) 249.2		7) 85.1	2) 276
18.. 58.. 35.60		19.. 39.. 12.15	19.. 43.. 32.51
18.. 58.. 32.81		19.. 39.. 09.53	19.. 43.. 29.75
2.79		2.62	2.76

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1850phae.proj....

Ill. West (525)

March 12 Sun. Meridian Marks Temp. 25°

North	South	Zero	Level East	Level West
or 471	or 930	1.02	84	+ 86
480	902	1.02	84	+ 86
472	895	1.03	92+	82
479	908	1.03	93+	83
1.896	3.635	4 10	353	337
.474	.9087	1.025-	88.2	84.2
.025-	3.025-		84.2	
.449	.6837		4.0	
2.3	2.3		2.0	
.1347	26611		−.13	
898	17674			
1.0327 n	2.033510			
	1.03270			
	1.00081 = 1 − n			
	3.06621 = 1 + n			
	.50040 = $\frac{1-n}{2}$			
	1.53310 $\frac{1+n}{2}$			

lev. = −0.16

ecl = −1.384 + 1.483 = +0.099

wz = −0.700 + 0.450 = −0.250

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1850phae.proj....

March 12 P.m.

β Orionis J.G.	β Tauri J.G.	δ Orionis J.G.	ε Orionis J.G.
6h 35m 2 – 4 beats	16h 00	3h 36.4	5h 27m 52.3
6h 49.2	16h 15.6	3 50.9	8h 06.2
7h 03.3	6h 31.2	4 04.8	8h 20 0
7h 17.1	6h 47.0	4h 18.2	8h 34 0
7h 30.8	7h 02.4	4h 32.1	8h 47.4
7h 44.7	7h 18.1	4h 45.9	9h 01.5
5h 07m 58.9	5h 17m 33.6	5h 24m 59.1	5h 29m 15.0
239.2	147.9	247.4	176.4
120	180	120	60
7)119.2	7)327.9	7)127.4	7)236.4
17.03	5 16m 46.84	18.20	33.77
1.6	1.6	– 1.6	1.6
5h 07m 15.43	5h 16m 45.24	5h 24m 16.60	5h 28m 32.17
5h 07m 22.32	5h 16m 52.19	5h 24m 23.52	5h 28m 38.97
6.89	6.95	6.92	6.80

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1850phae.proj....

(527)

March 12 Pm.

J. G. + Leminosm	J. G. r Gem.
3 06.4	19 17.2
3 22.3	9 32.3
3 36.4	9 47.4
3 51.2	0 01.8
4 06.1	0 16.2
4 21.2	0 30.7
6 14 36.1	6 20 45.2
179.7	190.8
180	180
7)359.7	7)10.8
51.38	01.54
−1.6	1.5
6 13 49.78	6 19 59.94
6 13 36.69	
6.91	

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1850phae.proj....

March 13/14 Am.

J.G. γ Aquilae	J.G. α Aquilae	J.G. α Cygni
8.23.2	4.43.3	20.35.17.0
8.37.1	4.57.2	5.36.4
8.51.1	3.11.2	5.55.6
9.04.9	3.25.1	6.13.3
9.19.0	3.39.0	6.34.5
9.32.9	3.53.0	6.53.6
19.39.47.0	19.44.06.8	20.37.13.0
215.2	235.6	225.4
180.	60	120
7) 35.2	7) 175.6	7) 105.4
19.39.05.03	25.08	20.36.15.05
−1.6	−1.6	−1.6
19.39.03.43	19.43.23.48	20.36.13.45
19.39.09.58	19.43.29.80	20.36.19.84
6.15	6.32	6.39

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1850phae.proj...

March 14

J.G.
Procyon

	0	44.6
	0	58.4
+6°	1	12.1
	1	25.8
	1	39.6
	1	53.3
7	32	07.1
		240.9
		60
7		180.9
		25.84
		1.6
7	31	24.24
	cal.	+.10
	αz.	−.08
	lev.	−.10
7	31	24.16
7	31	30.20
		6.04

J.G.
α Hydrae

9	30	24
9	44	7
9	58	2
−8° 6	12	1
0	26	0
0	40	0
9	20	53.8
		265.0
		180
2		85.0
		12.14
		1.6
9	20	10.54
	cal.	+.10
	αz.	−.19
	lev.	−.08
9	20	10.37
9	20	16.65
		6.28

J.G.
ε Leonis

6	34.	
6	49.1	
7	04.2	
+25° 7	19.5	
7	34.7	
7	49.8	
9	38	04.6
		195.9
		60
7		135.9
		19.41
		−1.6
9	37	17.81
	cal.	+.11
	αz.	−.04
	lev.	−.14
9	37	17.74
9	37	23.88
		6.15
		28
		04
		47

J.G. h m 6.47 = −6.16

h	m
9	20
9	37
7	31
25	48
8	47

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1850phae.proj....

March 14 Ill. West

J.G. δ Caneri		J.G. Moon 1st limb		J.G. a Leonis		J.G. γ Leonis	
	25.2		32.8		40.0		57.4
	40.0		47.3		54.1		12.0
+19°	54.5	+17°	02.1	+13°	08.0	+21°	26.8
	09.2		16.9		22.0		41.6
	23.7		31.4		36.1		56.2
	38.0		46.2		50.3		11.0
	52.5		01.0		04.1		25.7
	243.1		177.7		294.6		230.3
	180		60		60		60
7)	63.101	7)	117.7	7)	154.6	7)	290.3
	09.+4		16.81		22.08		41.47
	1.6		1.6		1.6		1.6
	8h 36m 07.54		9h 28m 15.21		10h 00m 20.48		10h 11m 39.87
	cel. +.10		cel. +.10		cel. +.10		cel. +.11
	az. −.11		az. −.11		az. −.12		az. −.10
	lev. −.12		lev. −.12		lev. −.12		lev. −.13
	8h 36m 07.41		9h 28m 15.08		10h 00m 20.34		10h 11m 39.75
	6.18		6.14		6.12		6.11
	8h 35m 13.59		9h 28 21 22		10h 00m 26.46		10h 11m 45.86
	8h 35m 13.19				10h 00m 26.74		10h 11m 45.89
	.40				.28		.03

March 14

	Sid. Time	Tab. R	
δ Caneri	8h 36m 13.59	13.19	−.40
☾ 1 limb.	9h 28m 21.22		
a Leonis	10h 00m 26.46	26.74	+.28
γ Leonis	10h 11m 45.86	45.89	+.03

lev −.130
coll +.100
az −.214

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March 14/15 Sm

J.G.
α Aquilæ

	2.. 44.0
	2.. 58.0
+8°	3.. 11.8
	3.. 25.8
	3.. 39.7
	3.. 53.2
19.. 44.. 07.1	
	239.6
	60
	7)179.6
	25.65
	−1.6
19.. 43.. 24.05	
19.. 43.. 29.81	
	5.76
	col +.10
	az. −.15
	ha. −.11
	5.92

There has been cloudy weather from the 14th to the 21st.
The clouds have never been broken up enough, to allow us to observe a transit until this afternoon (March 21 Sm).

J. Hutton a new sidereal chron. has been introduced in this transit.

March 21 Sm.
J. Hutton 202
α Tauri

7.. 20.3	
7.. 34.9	
7.. 49.0	
8.. 03.4	
8.. 16.0	
8.. 31.9	
4.. 28.. 46.2	
	203.7
	180
	7)23.7
	03.39
	7)+27
4.. 28.. 01.39	
4.. 27.. 21.72	
	39.67

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March 21 P.m. Ill West

202	202	202	202
β Orionis	δ Orionis	ε Orionis	α Orionis
7„ 21.9	4„ 23.4	8„ 38.9	7„ 04.9
7„ 36.0	4„ 37.2	8„ 52.8	7„ 19.4
7„ 49.9	4„ 50.9	9„ 06.4	7„ 33.5
8„ 03.8	5„ 04.9	9„ 20.4	7„ 47.4
8„ 17.6	5„ 18.4	9„ 33.9	8 01.4
8„ 31.5	5„ 32.3	9„ 47.9	8„ 14.9
5„ 08„ 45.0	5„ 25„ 45.9	5„ 30„ 01.4	5„ 48„ 29.0
205.7	213.0	201.7	150.5
180	180	160	180
7) 25.7	7) 33.0	7) 141.7	7) 330.5
03.67	04.71	20.24	47.21
−2	−2	2	−2
5„ 08„ 01.67	5„ 25„ 02.71	5„ 39„ 18.24	5„ 47„ 45.21
5„ 07„ 22.16	2„ 24„ 23.36	5„ 28„ 38.81	5„ 47„ 06.09
39 51	39.35	39.43	39.19

1850phae.proj....

March 21

202 δ Geminorum	202 Procyon	202 ε Hydræ
1.. 09.5	1.. 30.	8.. 53.1
1.. 24.5	1.. 43.5	9.. 07.0
1.. 39.4	1.. 57.4	9.. 20.4
1.. 54.	2.. 11.3	9.. 34.3
2.. 09.	2.. 25.0	9.. 48.0
2.. 23.8	2.. 38.8	0.. 02.1
7.. 12.. 36.5	7.. 32.. 52.3	8.. 40.. 16.0
196.6	238.3	180.9
180	180	60
3)396.6	2)178.3	3)240.9
54.08	11.19	34.41
−2	−2	−2
7.. 11.. 52.08	7.. 32.. 09.19	8.. 39.. 32.41
7.. 11.. 13.33	7.. 31.. 30.09	8.. 38.. 53.49
38.75	39.10	38.92

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1850phae.proj....

(534)

March 21/22 Am. Ill. West

202				202				202				202			
ζ Aquilæ				ϑ Aquilæ				γ Aquilæ				α Aquilæ			
8	30.6			7	57.2			9	07.4			3	28.0		
8	45.1			8	11.0			9	21.4			3	42.1		
8	59.1			8	24.4			9	35.5			3	56.2		
9	13.0			8	38.5			9	49.4			4	10.2		
9	27.0			8	52.5			0	03.6			4	24.2		
9	41.6			9	06.1			0	17.6			4	37.7		
18	55	55.6		19	19	19.7		19	40	31.7		19	44	51.8	
		272.0				209.4				166.6				250.2	
		180				60				180				180	
7		92.0		2		269.4		7		346.6		7		70.2	
		13.14				38.48				49.51				10.03	
		−2				−2				2				2	
18	55	11.14		19	18	36.48		19	39	47.51		19	44	06.03	
18	58	33.21		19	17	58.41		19	39	09.78		19	43	30.00	
		37.93				38.07				37.73				36.03	

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1850phae.proj....

(535) (NC)

March 21/22 Am.

202
α Pegasi
clouds

7 „ 29.9
7 „ 44.1
7 „ 58.5
8 „ 12.4
22 58 „ 26.2
clouds

171.1
120
5) 291.1
−58.22
−2
22 57 „ 56.22
22 „ 57 „ 19.67
37.15

March 22 Pm.

202
α Tauri
7 17.2
7 31.5
7 45.4
8 00.1
8 14.3
8 28.4
4 „ 28 42.8
179.7
180.0
59.7
−2
4 „ 27 „ 57.7
4 „ 27 „ 21.74
35.96

202
δ Geminorum
11 „ 06.4
1 „ 21.5
1 „ 36.4
1 „ 51.7
2 „ 06.2
2 „ 21.2
7 12 „ 35.4
178.8
180
7) 358.6
51.26
−2
7 „ 12 „ 49.26
7 „ 11 „ 13.31
35.95

202
Procyon
31 „ 25
1 „ 40.4
1 „ 54.4
2 „ 08.0
2 „ 21.9
2 „ 36.0
7 „ 32 „ 49.5
230.2
180
7) 50.2
07.17
−2
7 „ 32 „ 05.17
7 „ 31 „ 30.07
.3510

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1850phae.proj....

March 24 Sun.

202 α Ceti	202 α Tauri	202 β Orionis	202 δ Orionis
4" 19.4	7" 10.9	7" 12.4	4" 14.0
4" 33.5	7" 25.5	7" 26.5	4" 28.0
4" 47.2	7" 39.5	7" 40.6	4" 42.2
5" 01.2	7" 54.1	7" 54.7	4" 53.9
5" 15.1	8" 08.0	8" 08.0	5" 09.0
5" 28.5	8" 22.5	8" 22.1	5" 23.2
2" 55" 42.1	4" 28" 36.4	5" 08" 36.3	5" 25" 36.7
187.0	196.9	200.6	209.0
180	180	180	180
7)7	7)376.9	7)380.6	7)389.0
1.00	53.84	54.37	55.57
2	−2	−2	−2
2" 54" 59.00	4" 27" 51.84	5" 07" 52.37	5" 24" 53.57
2" 54" 28.56	4" 27" 21.70	5" 07" 22.10	5" 24" 23.30
30.46	30.14	30.27	30.27

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1850phae.proj....

202
ε Orionis

8 29. 5-
8 43.4
8 57.0
9 11.0
9 24.6
9 38.6
5 29 52.0
2561
180
7) 761
10.87
-2
5 29 08.87
5 28 38.75-
30.12

202
α Orionis

6 55.5-
7 10.6
7 24.0
7 37.9-
7 52.1
8 06.2
5 48 19.6
2069
60
7) 2669
381.3
-2
5 47 36.13
5 47 05.97
30.16

202
Regulus

10 16.5-
0 30.4
0 44.5-
0 59.3-
1 12.4
1 27.3
10 01 41.2
2511.6
180
7) 4116
58.80
-2
10 00 56.80
10 00 26.68
30.12

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1850phae.proj....

March 24/25 Am

202
γ Aquilæ

very unsteady

8	59.0
9	12.6
9	26.4
9	40.4
9	54.5
0	08.4
19 40	22.5
	223.6
	60
7	283.8
	40.54
	−2
19 39	58.54
19 39	09.87
	28.67

202
α Aquilæ

very unsteady

3	19.1
3	33.2
3	47.3
4	01.0
4	14.5
4	28.5
19 44	42.6
	186.2
	180
7	106.2
19 44	00.188
	2
19 43	58.88
19 43	30.08
	28.80

March 25 Pm.

202
β Orionis

7	10.4
7	24.
7	37.5
7	51.4
8	05.5
8	19.8
5 08	33.0
	181.6
	180
	361.6
	51.66
5 7	51.66

202
δ Orionis

4	11.5
4	25.
4	38.4
4	52.4
5	06.0
5	20.
5 25	33.5
	186.8
	180
7	366.8
	52.40
	−2
5 24	50.40
5 24	23.28
	27.12

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1850phae.proj...

(559)

March 25 Pm.

202 ε Orionis	202 α Orionis	202 Regulus
8 " 27.	6 " 53.5	
8 " 44.6	7 " 07.4	
8 " 54.6	7 " 21.4	
9 " 08.0	7 " 35.0	
9 " 22.5	7 " 49.1	
9 " 35.6	8 " 03.0	
5 " 29 " 49.7	5 " 46 " 16.6	
238.0	186.0	
180	60	
7) 58.0	7) 246.6	
08.28	35.14	
−2	−2	
5 " 29 " 06.28	5 " 47 " 33.14	
5 " 28 " 38.73	5 " 47 " 05.55	
27.55	27.19	

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1850phae.proj....

(560) 1850

March 25/26 Sm.

202 γ Aquilae	202 α Aquila	202 α Pegasi	202
8.54.6	3.14.6	7..02.8	7..03.0
9 08.5	3..28.8	7..16.5	7..19.6
9 22.5	3..42.5	7..30.5	7..33.2
9 36.8	3..56.6	7..45.0	7..47.1
9 50.7	4 10.5	7..59.0	8..01.2
0 04.3	4 24.	8..13.0	8..14.5
19..40 18.	19..44..38.2	22..58..27.1	5..08..28.6
185.4	145.2	193.9	149.5
60	180	120	180
7)255.4	7)325.2	7)313.9	7)329.5
36.48	46.45	44.71	47.07
−2	−2	−2	−2
19..49..34.48	19..43..54.45	22..57..42.71	5..07..45.07
19..39..09.90	19..43..30.11	22..57..19.19	
24.58	24.34	23.52	

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1850phae.proj....

26 Pmn.

202
α Orionis

6.. 49 0
7.. 03.4
7.. 17.0
7.. 31.0
7.. 44.6
7.. 58.0
5.. 48.. 12.3
215.3
vv
2)215.0
30.71
-2
5.. 47.. 28.71
5.. 47.. 05.94
22.77

202
ε Hydræ

8.. 36.0
8.. 50.0
9.. 04.2
9.. 18.3
9.. 32,0
9.. 45.6
8.. 39.. 59.7
245.8
126
2)125.8
17.47
-2
8.. 39.. 15.97
8.. 38.. 53.41
22.56

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1850phae.proj....

(562) ED

March 26 Pm. Ill West

E.C. β Tauri	E.C. δ Orionis	EC ε Orionis	E C α Orionis
6.. 12.6	3.. 49.4	8.. 05.1	6.. 32.0
6.. 28.3	4.. 03.5	8.. 18.8	6.. 46.0
6.. 44.0	4.. 17.1	8.. 32.5	6.. 59.8
6 59.7	4.. 30.8	8.. 46.5	7.. 13.7
7 15.1	4.. 44.5	9.. 00.3	7.. 27.4
7 30.8	4.. 58.2	9.. 13.8	7.. 41.1
5.. 17.. 46.4	5.. 25.. 12	5.. 29.. 27.4	5.. 47.. 54.8
2366.9	2155	1441.4	2748
180	000	180	180.
7)4169	7)2155	7)324.4	7)94.8
5.. 16.. 59.56	5.. 24.. 30.78	5.. 28.. 46.54	5.. 47.. 13.54
5.. 16.. 51.91	5.. 24.. 23.27	5.. 28.. 38.72	5.. 47.. 05.94
7.65	7.51	7.62	7.60

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1850phae.proj....

(563)

March 26

E. C.
Sirius

7 " 59.2
8 " 13.7
8 " 28.0
8 " 42.6
8 " 56.7
9 " 11.0
5 " 3 9 " 23.3
236.5
60
7) 296.5
5 " 9.8 42.36

March 27

202
ε Hydræ

8 " 32.5
8 " 46.4
8 " 59.8
9 " 14.1
9 " 28.1
9 " 42.2
8 " 39 " 55.7
278.8
180
7) 98.8
14.11
− 2
8 " 39 " 12.11
8 " 38 " 53.41
18.70

202
α Hydræ

9 " 55.5
0 " 09.8
0 " 23.5
0 " 37.5
0 " 51.1
1 " 05.0
9 " 21 " 19.1
201.5
60
7) 261
37.3
− 2
9 " 20 " 35.3
9 " 20 " 16.53
18.77

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1850phae.proj...

(564) (052)

March 28 Sun Temp +50° Ill West

Meridian Marks

North	South	Zero 1020
0°400	0920	020
403	923	015~
410	925~	1.015~
404	921	4.080
408	923	1.017
0.400	925~	
2425~	55-37	
0.404	0.923	
017	.017	
0.382	0.906	
2.8	2.3	
11 86	2738	
784	1822	
.8406	2.084-81	
	0.8406 m	
	2.9764 s+m	
	1.1947 s-m	
	1.4882 $\frac{s+m}{2}$	
	0.5978 $\frac{s-m}{2}$	

col. = +0.114
alt. = −0.103
bv. = −0.120

col = −1.384 + 1.498 = +0.114
alt = −0.700 + 0.597 = −0.103

Level

East	West
+76	66
+76	66
70	+72
69	+73
291	277
72.7	69.2
69.2	
3.5	
1.75~	
−.12	

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1850phae.proj....

March 28 P.m.

E.C. Capella		E.C. Rigel	E.C. β Tauri	E.C. δ Orionis	E.C. α Leporis
4 49.9			6 13.6	3 50.8	5 34.2
5 09.7			6 29.2	4 04.5	5 48.9
5 29.4		16.9	6 44.9	4 18.2	6 03.3
5 49.0		30.8	7 00.7	4 31.9	6 17.7
6 08.6		44.8	7 16.1	4 45.5	6 32.1
6 28.4		58.1	7 31.9	4 59.3	6 46.5
5 06 47.9		5 08 12.0	5 17 47.5	5 25 13.0	5 27 00.9
222.9		162.6	183.9	223.2	189.6
120		2 42.6	180	060	60
7) 342.9		44.52	7) 03.9	7) 223.2	7) 129.6
5 05 48.98	cor	-13.87	5 17 00.56	5 24 31.88	5 26 17.65
5 05 40.43	5	7 30.65	5 16 57.87	5 24 23.23	5 26 09.03
8.55			8.69	8.65	8.62

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1850phae.proj....

(566) 1 (c)

March 28 Pm.

E C
ε Orionis

8.. 06.3
8.. 20.
8.. 33.4
8.. 47.5
9.. 01.2
9.. 13.0
5.. 25.. 28.5
149.9
180
7)329.9
5.. 28.47.13
5.. 28.38.67
8.46

E C
α Orionis

6.. 33.0
6.. 47.0
7.. 00.6
7.. 14.4
7.28.3
7.42.2
5.. 47.. 56.0
221.5
120
7)101.5
5.47.14.50
5.. 47.. 5.87
8.69

E. C.
ε Hydra

8.. 20.5
8.. 34.5
8.. 48.4
9.. 02.1
9.. 16.0
9.. 29.8
8.. 39.. 43.6
194.9
180
7)14.9
8.. 59.. 02.13
8.. 38.. 59.35
8.77

E. C
α Hydra

9 43.7
9 57.6
0 11.4
0 25.5
0 39.2
0.. 53.0
8.. 21.. 07.0
237.4
60
7)177.4
9.. 20.. 25.34
9.. 20.. 16.52
8.82

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(588) (1852)

March 28/29 Am.

202			202			202		
α Aquilæ			α Cygni			α Pegasi		
	2.. 05.5			5" 39.0				
	3.. 19.5			5" 58.4			7 .. 07.2	
	3.. 33.6			6 .. 17.6			7 21.3	
	3.. 47.2			6 .. 37.0			7 35.8	
	4.. 01.0			6 .. 56.5			7 50.0	
	4.. 15.0			7 .. 16.0			6.. 04.3	
19 .. 44 .. 29.3			20 .. 37" .. 35.3			22 58 .. 18.0		
	15 1.1			25 9.8			118.6	
	180			060			60	
7)	331.1		7)	259.8		5)	178.6	
	47.30			37.11			35.72	
	−2			−2			−2	
19 .. 43 .. 45.90			20 .. 36 .. 35.11			21 57 .. 33.72		
19 .. 43 .. 30.20			20 .. 36 .. 20.27			22 .. 57 .. 19.17		
	15.10			14.84			14.55	

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1850phae.proj....

March 29 Pm.

202 δ Orionis		202 ε Orionis	
3..	57.4	8,,	13.6
4..	09.9	8,,	27.6
4,,	25.0	8,,	40.6
4,,	38.8	8,,	54.0
4,,	52.4	9,,	08.1
5,,	06.2	9,,	22.9
5,, 25,,	20.3	5,, 29,,	35.8
	210.0		202.0
	60		180
7)	270.0	7)	382.0
	38.57		54.57
	-2		-2
5,, 24,,	36.57	5,, 28,,	52.57
5,, 24,,	23.20	5,, 28,,	38.66
	13.37		13.91

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1850phae.proj....

(570)

March 31 Pm.

202
α Leporis

5	50.5
6	05.0
6	19.5
6	33.5
6	48.0
5.. 27..	02.5
	156.5
	60
5	96.5
	19.30
	−2
5.. 26..	17.30
5.. 26..	8.98
	8.32

202
ε Orionis

8..	07.5
8..	21.5
8..	35.7
8..	49.1
9..	03.3
9..	16.6
5.. 29..	30.0
	162.7
	180
7	342.7
	48.95
	−2
5.. 28..	46.95
5.. 28..	38.64
	8.31

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1850phae.proj....

(571) 0 (2)

March 31 Pm.

E.C. Aldebaran	E C β Orionis	E.C. β Tauri
6" 48.0	6" 49.9	6" 14.6
7" 02.4	7" 03.8	6" 30.3
7" 16.7	7" 17.8	6" 45.9
7" 31.0	7" 31.4	7" 01.3
7" 45.3	7" 45.3	7" 17.1
7" 59.7	7" 59.2	7" 32.6
8" 13.9	8" 13.0	7" 49.2
217.0	220.4	191.0
7	7	7
7) 217.0	7) 220.4	7) 191.0
4" 27" 31.00	5" 07" 31.49	5" 17" 01.57
4" 27" 21.61	5" 07" 21.99	5" 16" 51.82
9.39	9.50	9.75

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April 1st Am.

202
ie Aquila
+8°

2" 58.2	
3" 12.2	
3" 25.7	
3" 39.5	
3" 53.6	
4" 07.6	
19" 44" 21.2	
218.0	
60	
7)278.0	
39.71	
−2	
19" 43" 37.71	
19" 43" 30.28	
7.43	
col. + .07	
ax. − .04	
lev. − .10	
7.36	

202
α Cygni
+44°

5" 31.7	
5" 51.2	
6" 10.9	
6" 29.7	
6" 49.0	
7" 08.0	
20" 37" 27.6	
208.1	
60	
7)2081	
29.73	
−2	
20" 36" 27.73	
20" 36" 20.06	
7.67	
col. + .08	
ax. − .00	
lev. − .16	
7.59	

April 1st Pm.

202
α Orionis
+7°

6" 31.7	
6" 46.0	
7" 00.0	
7" 14.1	
7" 27.8	
7" 41.6	
5" 47" 55.7	
206.8	
12	
7)66.8	
13.83	
−9	
5" 47" 11.83	
5" 47" 05.83	
6.00	
col. + .07	
ax. − .04	
lev. − .09	
5.94	

col. +.070
ax. −.071
lev. −.130

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(173) (116)

April 2/3 Am.

E.C.
α Andromeda

+28°
00.. 04.1
00.. 19.5
00.. 35.2
00.. 50.8
01.. 06.2
01.. 22.0
00.. 01.. 37.4
175.2
180
7) 355.2
00.. 00.. 50.74
00.. 00.. 40.24
10.50
cul. +.08
az. −.00
lev. −.14
10.44

April 3 Pm.

202
β Orionis

−8°
6.. 43.7
6 57.6
7.. 11.1
7.. 25.0
7.. 39.1
7.. 53.2
5.. 08.. 06.8
236.5
60
2) 176
25.21
−2
5.. 07.. 23.21
5.. 07.. 21.93
1.28
cul. +.07
az. −.05
lev. −.04
1.22

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April 3/4 Am 4th Pm.

202 a Aquilæ		202 α Pegasi		202 β Orionis		202 β Tauri	
+8°	2 50.2	+14	6 37.5	−8°	6 40.1	+28°	6 04.6
	9 04.3		6 51.5		6 54.1		6 20.0
	9 17.5		7 06.2		7 08.3		6 36.1
	9 31.4		7 20.2		7 21.7		6 51.5
	9 45.5		7 34.2		7 35.6		7 07.0
	9 59.7		7 48.5		7 49.5		7 23.0
	19 44 18.8		22 58 02.5		5 08 03.1		5 17 38.2
	227.4		200.6		212.4		180.4
	000		60		60		180
7	221.4	7	140.6	7	152.4	7	360.4
	31.63		20.08		21.77		51.49
	−2		−2		−2		−2
	19 45 29.69		22 57 18.38		5 07 19.27		5 16 49.49
	19 43 30.36		22 57 19.25		5 07 21.42		5 16 51.75
	.73		.88		2.15		2.26
cul	+.06	cul.	+.06	cul.	+.06	cul.	+.06
az	−.04	az.	−.03	az.	−.05	az.	−.01
lev	−.10	lev.	−.11	lev.	−.06	lev.	−.14
	.81		.96		2.22		2.35

cul. +.056
az. −.060
lev. −.120

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