ads-alphae.proj:...168

KG
113365
16

A. 16

Transit Circle
from
Feb 28, 1854
to
Aug. 15. 1854.

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1854phae.proj...16B

KG 11365.16

Variation of Magnetic Needles in this Book – May 10, 1854

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The instrument was not reversed during the time contained in this book ~~until~~

Polaris was observed

May 21/22
22
23/24
June 1/2
Aug. 2
3
8
9

$\sigma^1$ Cephei, 2 Ursae Minoris, 8 Ursae Minoris were not observed

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KG 11365.16

41.22
27.41
13.68
82.31

41.41
27.53
13.71
82.65

82.65
82.31
.34

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UNIVERSITY
LIBRARY
APR 28 1956

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(92)

# Wire-Intervals. 1854. Feb. 28th - Aug 15th.

From Observations of Polaris.

| Date | A to B | B to C | C to D | D to E. | D to F | D to G. |
|---|---|---|---|---|---|---|
| May 21/22 | | 17m 45s.7 | 8m 52s.4 | 8m 54s.2 | 17m 49s.9 | |
| 23/24 | 26m 48s.5 | 17 45.7 | 8 50.7 | 8 48.6 | 17 52.3 | 26m 55s.2 |
| 24 | 26 43.3 | 17 44.6 | 8 50.3 | 9 1.4 | 17 55.4 | 26 58.7 |
| June 1/2 | 26 47.1 | 17 50.1 | 8 52.3 | 8 59.3 | 17 50.6 | 26 53.4 |
| Aug. 3 | 26 49.5 | 17 49.5 | 8 54.9 | 8 58.8 | 17 52.9 | 26 55.9 |
| 7 | 26 52.5 | 17 49.9 | 8 54.1 | 8 56.8 | 17 51.3 | 26 54.3 |

| Red. to 88° 31' 40" | A | B. | C. | D. | E & F | G. |
|---|---|---|---|---|---|---|
| | 26m 48s.6 | 17 45.7 | 8 50.7 | 8 48.6 | 17 52.3 | 26 55.3 |
| | 43.4 | 17 44.7 | 8 50.3 | 9 1.4 | 17 55.5 | 26 58.8 |
| | 49.5 | 17 50.4 | 8 52.4 | 8 59.4 | 17 50.9 | 26 53.8 |
| | 49.0 | 17 49.1 | 8 54.7 | 8 58.6 | 17 52.5 | 26 55.4 |
| | 26 51.5 | 17 49.3 | 8 53.8 | 8 56.5 | 17 50.7 | 26 53.3 |
| | 26 48.0 | 17 47.8 | 8 52.4 | 8 56.9 | 17 52.4 | 26 55.3 |
| log. lin. - 4. | 3.26530 | 3.03806 | 2.72613 | 2.72718 | 3.02998 | 3.26726 |
| lin. | 41s.22 | 27s.41 | 13s.44 | 13s.71 | 27s.53 | 41s.41 |
| To mean | 41.28 ±.02 | 27.47 ±.02 | 13.74 ±.02 | 13.67 ±.03 | 27.48 ±.01 | 41.35 ±.01 |
| Red. to mean | | | +.067 | | | |

Distances to wire D.
Distances to Mean of Wires

In 1854 Concluded Distance Mk E of Mid wire to Mean of Wires. −0.s049
1848 to 1852 " By all previous Obs. from 1848. −0.045
1855 Micrometer Meas (See Book of Meas 1st) " −0.045
No sensible change has taken place.

A is here the first wire in Obs. above pole. M. E.

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nasa.phase.proj ... 16B



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1854

March 1/2 A.M.
C.W.S.
E.C.
a Aquilae
56.85
10.80
24.80
38.40
52.40
6.30
19 44 20.25
209.80
60
7) 269.80
19 43 38.54
19 43 38.22
.32

March 5/6 A.M.
C.W.S.
E.C.
a Lyrae
6.85
24.30
41.95
59.65
17.15
34.70
18 32 52.70
237.20
1m
7) 417.20
18 31 59.60
18 31 58.73
0.87

March 10/11 Am
J. A. Bate
E.C.
a Aquilae
last
12.55
26.70
40.35
54.40
8.25
19 44 22.25
142.25
60
5) 202.25
19 43 40.45
19 43 38.41
2.04

March 1/2 Am.
M.L. 22 22.00 E.C. 21 00 00
236 20 59 33.5 236 20 58 25.3
1 34.4 21 59 55.7
22 35 57.17 21 01 07.9 1 34.4
46.74
22 36 37.91 22 36 32.51
22 24 29.99
3 40 25
22 20 49.74
22 22 0m
1 10 26
1C
0 54 26

March 5/6 Am
M.L. 22 15 30 E.C. 21 12 00
236 21 8 42.0 236 21 10 19.5
1 39.8 21 11 59.3
22 51 37.38 21 10 21.8 1 39.8
46.74
22 52 24.12 22 32 24.12
22 17 57.68
3 39.18
22 14 18.50
22 15 8m
1 11 50
1C

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1854phae.proj...16B



1854

March 11 P.M.

| C.W.S. E.C. ξ Cancri | C.W.S. E.C. 83 Cancri | C.W.S. E.C. α Hydrae | C.W.S. E.C. Morris Chron | C.W.S. E.C. ε Leonis | C.W.S. E.C. α Leonis |
|---|---|---|---|---|---|
| 15.83 | 9.00 | 45.80 | 24.20 | 51.02 | 56.10 |
| 30.70 | 23.85 | 00.00 | 39.25 | 6.25 | 10.50 |
| 45.50 | 38.15 | 13.70 | 54.15 | 21.45 | 24.60 |
| 0.30 | 52.55 | 27.60 | 9.00 | 36.45 | 38.65 |
| 15.15 | 7.02 | 41.50 | 24.05 | 51.55 | 52.80 |
| 30.20 | 21.45 | 55.40 | 39.00 | 6.65 | 6.45 |
| 9.01.45.25 | 9.11.36.10 | 9.21.9.35 | 9.35.54.05 | 9.38.21.85 | 10.01.21.00 |
| 182.93 | 188.12 | 19335 | 24370 | 195.22 | 21010 |
| 180 | 180 | 00 | 180 | 60 | 60 |
| 293 | 368.12 | 19335 | 63.70 | 255.22 | 270.10 |
| 9.01.00.42 | 9.10.52.59 | 9.20.27.62 | 9.36.09.10 | 9.37.36.46 | 10.00.38.59 |

March 10/11 Am.

| | | | |
|---|---|---|---|
| Ed. | 20.17.00 | M.T. | 20,41,00 |
| 236 | 20.15.16.0 | 236 | 19,53,34.5 |
| | 20.17.00 | | 1.41.88 |
| corr. for diff. of ☆ | −0.08 | | 19.55.16.38 |
| | 20.16.59.92 | | 23.12.6.89 |
| | 20.15 12.04 | | 20.43.09.49 |
| 23.11.20.15 | 20.16.57.88 | | 3.23.66 |
| 46.74 | | | |
| 23.12.06.89 | 15.16 | | 20.39.45.83 |
| | 1.41.88 | | 20.41 ao |
| | | | 1.14.17 |
| | | | 16 |
| | | | 58.13 M.T.G. post of Boston |

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1854phae.proj...16B



March 11 P.M.
ε W.J.
E.G.
γ Leonis
14.00
28.95
43.55
58.02
13.00
27.50
10.. 12 42.25
227.27
180
7) 407.27
10.. 11.. 58.18

March 12/13
J.A. Bate
E.G.
α Aquilae
58.95
12.85
26.80
40.60
54.20
8.35
19.. 44.. 22.50
224.75
60
7) 284.75
19.. 43.. 40.68
19.. 43.. 38.47
2.21

March 15/16 A.M.
J.A. Bate
E.G.
α Aquilae
59.03
13.05
27.00
40.65
54.75
8.45
19.. 44.. 22.60
224.53
60
7) 284.53
19.. 43.. 40.64
19.. 43.. 38.53
2.09

March 12/13 A.M.
M.Z. 20.. 33.. 40
236 19.. 54.. 04.0
1.. 43.21
19.. 58.. 47.21
23 20.. 00.. 00
20.. 33.. 47.21
3.. 22.. 43
20.. 32.. 24.78
20.. 33.. 40
1.. 15.24
16
59.24

E.G. 19.. 57.. 00
236 19.. 55.. 14.5
19.. 57.. 00
— 0.08
19.. 56.. 59.92
2.21
19.. 56.. 57.71
19.. 55.. 14.5
1.. 43.21

23.. 19.. 13.26
46.74
23.. 20.. 00.00

March 15/16 A.M.
M.Z. 20.. 48.. 30
236 20.. 20.. 43.5
1.. 44.43
20.. 22.. 27.93
23.. 31.. 49.66
20.. 50.. 38.27
3.. 24.89
20.. 47.. 13.38
20 48.. 30
1.. 16.62
16
1.. 00.6

E.G. 20.. 26.. 00
236 20.. 24.. 13.4
20.. 26.. 00
— 0.08
25 59.92
2.09
20.. 25 57.83
20.. 24.. 13.4
1.. 44.43

23.. 31.. 02.92
46.74
23.. 31 49.66

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1854phae.proj...16B



March 19/20 A.M.

C.W.T.
236
α Cygni
43.5
30
22.2
41.5
1.0
20.1
20,, 35,, 39.9
171.2
12
7)291.2
41.60
2
20,, 34,, 39.60
20,, 36,, 25.73
1,, 46.13

March 20/21 A.M.

C.W.T.
E.C.
α Cygni
31.85
51.30
10.60
30.15
99.45
8.85
20 37,, 28.45
210.65
7)210.65
20,, 36,, 30.09
20,, 36,, 25.78
4.31

March 19/20 A.M.

M.Z.6. 20,, 54,, 00
236 20,, 41,, 57.0
1,, 46.13
20,, 43,, 43.13
23,, 46,, 49.13
46.74
23,, 47,, 35.87
20,, 56,, 07.26
3,, 25.78
20,, 52,, 41.48
20,, 54,, 00
1,, 18.52
16
1,, 2.52

March 20/21

E.C. 20,, 59,, 00
236 20,, 57,, 8.9
20,, 59,, 00
− 0.48
20,, 58,, 59.42
4.31
20,, 58,, 55.61
20,, 57 8.9
1,, 46.71

M.Z.6 21,, 06,, 45
236 20,, 58,, 40,0
1,, 46.71
21,, 00,, 26.71
23,, 51,, 32.42
21,, 08,, 54.29
3,, 27.87
21,, 05,, 26.42
21,, 6,, 45
1,, 14.58
16
1,, 2.58

23,, 50,, 45.68
46.74
23,, 51,, 32.42

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1854phae.proj...16B



1854

March 23/24 Am.
J. A. Bahr
E.C.
α Cygni

32.75
52.20
11.55
30.75
50.35
9.75
20 37 29.15
216.50
u
7) 216.50
20 36 30.93
20 36 25.86
5.07

March 26/27 Am.
J. A. Bahr
E.C.
α Cygni

last
"
"
"
"
11.55
20 37 31.20

March 27/28
J. A. B.
E.C.
α Cygni

last
54.00
13.65
33.25
52.75
12.05
20 37 31.45
166.20
0 0
5) 166.20
20 36 33.24
20 36 25.97
7.27

March 23/24 Am

N.P.C. 20 30 45
236 20 34 21.0
1 49.05
20 36 10.05
20 33 22.08
0 02 35.34 20 32 47.97
46.74 3 21.96
0 03 22.08
20 29 26.01
20 30 45
1 18.99
16
1 02.99

E.C. 20 38 00
236 20 36 05.8
1 49.05
20 38 00
— 0.08
20 37 59.92
5.07
20 37 54.85
20 36 5.8
1 49.05

March 26/27 A.M.

E.C. 20 32 00
236 20 30 00.2
20 32 00
— 0.08
20 31 59.92
7.00
20 31 52.92
20 30 00.2
1 52.72

N.Z.C. 20 18 00
236 20 33 19.0
1 52.72
20 35 11.72
0 15 11.71
0 14 25.00
46.74
0 15 11.79
20 19 59.98
3 19.86
20 16 40.12
20 18
1 19.88
16
1 3.88

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1854phae.proj . . 16B

(102.)101

March 29 P.M.

| E.C. a Aurigæ | E.C. C.W.J. β Tauri | E.C. C.W.J. ε Orionis | E.C. J.H.S. α Orionis |
|---|---|---|---|
| list- | | | |
| " | 24.00 | 14.40 | 41.70 |
| 41.40 | 39.60 | 28.35 | 56.65 |
| 1.70 | 55.40 | 41.95 | 9.45 |
| 21.30 | 10.85 | 55.75 | 23.40 |
| 40.60 | 26.70 | 9.45 | 37.15 |
| 5" 07" 0.55 | 42.15 | 23.10 | 51.00 |
| | 5" 17" 58.00 | 5" 29" 37.00 | 5" 48" 4.97 |
| | 256.70 | 21000 | 22332 |
| | 180 | 180 | 60 |
| | 7680 | 3900.00 | 16332 |
| | 5" 17" 10.96 | 5" 28" 55.71 | 5" 47" 23.33 |

March 27/28

| M.J.C. | | E.C. | |
|---|---|---|---|
| | 20" 06" 00 | | 20" 40" 00 |
| 23C | 20" 25" 13.0 | 236 | 20" 37" 59.2 |
| | 1" 53.45 | | |
| | 20" 27" 06.45 | | 20" 40" 00 |
| 0" 18" 21.56 | 0" 19" 8.30 | | - 0.08 |
| 46.74 | | | |
| 0" 19" 08.30 | 20" 7" 58.15 | | 20" 39" 59.92 |
| | 3" 17.85 | | 7.27 |
| | 20" 04" 40.24 | | 20" 39" 52.65 |
| | 20" 6" 00 | | 20" 37" 59.2 |
| | 1" 19.76 | | 1" 53.45 |
| | 16 | | |
| | 1" 3.76 | | |

M.J. Clock fast of Both

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1854

April 2/3 Am.

| C.W.S. Eb. α Aquilae | J.A.B. Eb α Cygni |
|---|---|
| lost | lost |
| 19.13 | " |
| 33.00 | 14.20 |
| 47.08 | 33.90 |
| 1.00 | 53.40 |
| 14.90 | 12.55 |
| 19 44 28.90 | 20 37 32.00 |
| 11 53.13 | |
| 120 | |
| 23 53.13 | |
| 19 43 47.087 | |
| 19 43 39.05 | |
| 7.98 | |

April 3 P.M.

| C.W.S. Eb. β Tauri | J.H.G. Eb. Nova's Hind | J.H.G. Eb. α Orionis | C.W.S. Eb. Sirius |
|---|---|---|---|
| 24.00 | 44.15 | 41.85 | 7.25 |
| 39.60 | 00.00 | 55.50 | int 21.87 |
| 55.15 | 15.35 | 9.50 | 36.10 |
| 10.90 | 30.85 | 23.20 | 50.40 |
| 26.60 | 46.65 | 37.15 | 4.80 |
| 42.15 | 2.16 | 50.90 | 19.05 |
| 5 17 57.75 | 5 37 17.60 | 5 48 4.75 | 6 39 33.70 |
| 25 15 | 15 76 | 22 85 | 173.17 |
| 180 | 60 | 60 | 180. |
| 7 15/88 | 216.76 | 162.85 | 353.17 |
| 5 17 10.73 | 5 36 30.96 | 5 47 23.26 | 6 38 50.45 |

April 2/3 Am.

| M.Z.C. | | Eb. | |
|---|---|---|---|
| 236 | 21 24 54.0 | 236 | 21 26 54.8 |
| | 1 57.14 | | 21 29 00 |
| 0 42 00.88 | 21 26 51.14 | | - 0.08 |
| 46.74 | | | |
| 0 42 47.62 | 0 42 47.62 | | 21 28 59.92 |
| | 20 44 03.52 | | 7.98 |
| | 3 23.81 | | 21 28 51.94 |
| | 20 40 39.71 | | 21 26 54.8 |
| | 20 42 00 | | 1 57.14 |
| | 1 20.29 | | |
| | 16 | | |
| | 1 04.29 | | |

April 3/4 Am

| Eb. | |
|---|---|
| | 20 16 00 |
| 236 | 20 13 54.6 |
| | 20 16 00 |
| | - 0.08 |
| | 20 15 59.92 |
| | 8.2 |
| | 20 15 51.72 |
| | 20 13 54.6 |
| | 1 56.1 |

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April 4 P.M.
W.J. Eb
Eb
μ Gem
30.05
45.00
00.00
14.85
29.70
44.40
6.. 14.. 59.40
223.40
12
7) 103.40
6.. 14.. 14.77
6.. 14.. 7.14
7.63

See next Page

Pt. Pole Hr. Sun
W.J. Eb.
α Can. min
5.65
19.35
33.05
47.00
32 00.85
14.45
7.. 32 .28.05
145.43
18
2) 327.43
7.. 31.. 46.92
7.. 31.. 39.35
7.13.4

7 = Limit first set - clouds

Moon's Limit
Eb
40.30
56.10
11.55
27.07
42.90
58.20
25" lost 14.05
250.20
60.
7) 190.20
25 27.17

W.J.
Eb
β Gem.
43.02
58.90
14.40
7.. 36. 29.95
45.64
1.33
47.11
7) 210.35
0
7) 210.35
36 30.05

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1854

April 4 Pm.

Ill East

| G.M.T. | G.M.T. | G.M.T. | G.M.T. | G.M.T. | G.M.T. |
|---|---|---|---|---|---|
| E.C. | E.C. | E.C. | E.C. | E.C. | E.C. |
| μ Gem. | Moon's 1 limb | Divins | ε Canis Maj. | 3 Gem. | γ Gem. |
| 30.05 | 4.10 | 7.20 | 13.95 | 50.25 | 10.02 |
| 45.00 | 20.00 | 21.70 | 29.60 (5.65) | 4.95 | 26.02 |
| 00.00 | 35.65 | 36.00 | 45.20 (5.60) | 19.50 | 41.90 |
| 14.80. | 51.25 | 50.20 | 1.00 (5.80) | 34.07 | 57.85 |
| 29.75 | 6.97 | 4.70 | 16.60 (5.60) | 49.00 | 13.80 |
| 44.45 | 22.45 | 18.95 | 32.20 (7.82) | 3.70 | 29.70 |
| 6.. 15.. 59.40 | 6.. 31 .. 38.27 | 6.39.. 33.40 | 6.. 53 .. 48.02 | 6.. 55 .. 18.45 | 7.. 02.. 45.80 |
| 223.45 | 1786.9 | 1721.5 | 1866.57 | 1782 | 2250.9 |
| 120 | 80 | 80 | 180 | 60 | 180 |
| 103.45 | 35.869 | 35.215 | 36.57 | 239.82 | 405.09 |
| 6.. 15.. 14.78 | 6.. 30.. 51.24 | 6.. 38.. 50.31 | 6.. 53.. 00.94 | 6.. 55.. 34.26 | 7.. 01.. 57.87 |

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1854phae.proj...16B

(1854)

April 7 P.M.

| C.W.Y. E.C. α Aurigæ | C.W.Y. E.C. β Tauri | C.W.Y. E.C. ε Orionis | C.W.Y. E.C. α Orionis |
|---|---|---|---|
| 1.80 | lost | 14.00 | 41.40 |
| 21.20 | lost | 27.80 | 55.36 |
| 41.00 | 55.00 | 41.55 | 9.10 |
| 1.00 | 10.75 | 55.30 | 23.00 |
| 20.60 | 26.25 | 9.40 | 37.00 |
| 40.35 | 42.00 | 23.00 | 50.87 |
| 5h 7m 0.10 | 5h 17m 57.83 | 5h 29m 36.96 | 5h 48m 5.00 |
| 12605 | | 208.01 | 221.62 |
| 120 | | 180 | 60 |
| 6.05 | | 388.01 | 7)161.62 |
| 5h 06m 00.86 | | 5h 28m 55.43 | 5h 47m 23.09 |
| | | | 47m 15.44 |
| | | | 7.65 |

April 7 P.M.

M.T.C. 4h 55m 00 E.C. 5h 42m 00
236 5h 55m 00.3 236 5h 39m 54.1
1m 58.25

| | | |
|---|---|---|
| 1m 01m 43.64 | 5h 56m 58.55 | 5h 42m 00 |
| 46.74 | 1m 2m 30.38 | 7.65 |
| 1m 230.38 | 4h 54m 28.17 | 5h 41m 52.35 |
| | 48.24 | 5h 39m 54.1 |
| | 4h 53m 39.93 | 1m 58.25 |
| | 4m 55m 00 | |
| | 1m 20.07 | |
| | 16 | |
| | 1m 4.07 | |

α April 7th 5h 30m P.M.
236 Set forward 2 min

E.C. 5h 42m 00
7.65
5h 41m 52.4
5h 41m 54.1
1.7

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1854phae.proj...16B

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1854 April 7th P.M. Ill East

| C.W.J. E.C. γ Caneri | C.W.J. E.C. ε Hydrae | C.W.J. E.C. ν Caneri | C.W.J. E.C. Moon's I limb | C.W.J. E.C. α Hydrae | C.W.J. E.C. ϒ Leonis |
|---|---|---|---|---|---|
| 13.40 | 28.90 | 34.15 | 48.80 | 51.03 | 12.20 |
| 28.25 | 42.80 | 49.60 | 3.90 | 6.25 | 26.40 |
| 43.00 | 56.60 | 4.60 | 19.00 | 19.00 | 40.60 |
| 57.80 | 10.45 | 19.65 | 34.00 | 32.85 | 55.00 |
| 12.75 | 24.40 | 35.00 | 49.00 | 46.75 | 9.15 |
| 27.50 | 38.10 | 50.10 | 4.00 | 0.50 | 23.25 |
| 8 „ 35 „ 42.45 | 8 „ 39 „ 52.10 | 8 „ 55 „ 5.40 | 9 „ 13 „ 19.20 | 9 „ 21 „ 14.50 | 9 „ 36 „ 37.65 |
| 22515 | 25335 | 18750 | 17790 | 16988 | 20425 |
| 180 | 180 | 60 | 60 | 60 | 180 |
| 7)4061.5 | 7335 | 137.50 | 23790 | 22988 | 38425 |
| 8 „ 34 „ 57.88 | 8 „ 39 „ 10.48 | 8 „ 54 „ 19.64 | 9 „ 12 „ 33.98 | 9 „ 20 „ 32.84 | 9 „ 35 „ 54.89 |

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1854phae.proj...168



April 7/8 A. M.
W. C. Bond
E.C.
a Aquilae
lost
"
33.00
47.00
0.96
14.70
19 „ 44 „ 28.75

April 11 P. M.

| C.W.J. | C.W.J. | C.W.J. |
|---|---|---|
| E.C. | E.C. | E.C. |
| β Orionis | β Tauri | a Orionis |
| 56.95 | 24.00 | 41.90 |
| 10.97 | 39.90 | 55.90 |
| 24.80 | 55.35 | 9.70 |
| 38.80 | 11.10 | 23.50 |
| 52.60 | 26.70 | 37.35 |
| 6.40 | 42.15 | 51.10 |
| 5 „ 08 „ 20.45 | 5 „ 17 „ 58.00 | 5 „ 48 „ 5.30 |
| 21097 | 25720 | 224.75 |
| 60 | 180 | 60 |
| 27097 | 7720 | 7/164.75 |
| 5 „ 07 „ 38 99 | 5 „ 17 „ 11.03 | 5 „ 47 „ 23.53 |
| | | 5 „ 47 „ 15.38 |
| | | 8.15 |

April 8 P.M
E.C. 4 „ 46.00
236 4 „ 45 „ 58.8

April 11 P.M.
M.J.C. 6 „ 13.10
236 7 „ 31 „ 8.3
1.05
7 „ 31 „ 07.45
1 „ 18 „ 16.60
6 „ 12 „ 50.85
1 „ 1.07
6 „ 11 „ 49.78
6 „ 13 „ 10
1 „ 20.22
16
1 „ 04.22

E.C. 7 „ 33 „ 00
236 7 „ 32 „ 52.9
7 „ 33 „ 00
8.15
7 „ 32 „ 51.85
32 „ 52.9
1.05

Burton

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1854

Ill. East

April 13 P.M.

| C.W.J. E.C. a Aquilae | C.W.J. E.C. β Tauri |
|---|---|
| 1·85 | 24.07 |
| 21·80 | 39.85 |
| 41·50 | 55.40 |
| 1·10 | 11.00 |
| 21.00 | 26.65 |
| 40.75 | 42.14 |
| 5„ 07„ 0.60 | 5„ 17„ 58.00 |
| 128.60 | 257.21 |
| 120 | 180 |
| 7) 8.60 | 7) 77.11 |
| 5„ 06„ 01.23 | 5„ 17„ 11.02 |
| 5„ 5„ 53.18 | 17„ 2.88 |
| 8.05 | 8.14 |

April 18 P.M.

| C.W.J. E.C. a Hydrae | C.W.J. E.C. a Leonis |
|---|---|
| lost | 3·00 |
| „ | 17.15 |
| 20·30 | 31·20 |
| 34.20 | 45.15 |
| 48·10 | 59.40 |
| 2·00 | 13·40 |
| 9„ 21„ 16.00 | 10.01„ 27.85 |
| | 197.15 |
| | 180 |
| | 7) 317.15 |
| | 10„ 00„ 45.31 |
| | 10.00„ 36.13 |
| | 9.18 |

N.B. The pendul. of E.C. was touched April 18 at 8h mid. time accidentally

April 13 P.M.

| M.Z.C. | | E.C. | | M.Z.C. | |
|---|---|---|---|---|---|
| 236 | 3„ 47„ 15 | 236 | 5„ 21„ 00 | 236 | 4„ 35„ 50 |
| | 5„ 12„ 42.5 | | 5„ 20„ 52.3 | | 6„ 1„ 25.5 |
| | 4 | | 5„ 21„ 00 | | 4 |
| 1„ 25„ 22.97 | 5„ 12„ 42.1 | | 8.1 | | 6„ 01„ 25.1 |
| 46.84 | | | | | |
| 1„ 26„ 09.71 | 1 26„ 9.71 | | 5„ 20„ 51.9 | | 1 26„ 9.71 |
| | 3„ 46.32.39 | | 5„ 20„ 52.3 | | 4„ 35„ 15.39 |
| | ~~3„ 47„ 15~~ | | 0.4 | | 46.10 |
| | ~~42.61~~ | | | | 4„ 34„ 30.29 |
| | 3„ 46„ 32.39 | | | | 4„ 35 5'0· |
| | 37.10 | | | | 1„ 19.71 |
| | 3„ 45„ 55.29 | | | | 16 |
| | 3„ 47„ 15 | | | | 1„ 03.71 |
| | 1„ 19.71 | | | | |
| | 16 | | | | |

M.Z.C. just of Boston

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(110).491

April 19 P.M.

| C.W.S. E.C. β Tauri | C.W.S. E.C. α Leonis |
|---|---|
| 25.45 | 42.80 |
| 40.70 | 56.85 |
| 56.20 | 10.80 |
| 12.90 | 24.55 |
| 27.70 | 38.45 |
| 43.10 | 52.10 |
| 5 17 58.90 | 5 48 6.20 |
| 263.95 | 231.75 |
| 180 | 60 |
| 7) 83.95 | 7) 171.75 |
| 5 17 11.99 | 5 47 24.53 |
| 5 17 2.80 | 47 15.28 |
| 9.19 | 9.25 |

April 19/20 A.M.

| C.W.S. E.C. α Cygni |
|---|
| lost |
| 57.20 |
| 16.60 |
| 36.00 |
| 55.45 |
| 14.60 |
| 20 37 34.30 |
| 179.85 |
| 00 |
| 5) 179.85 |
| 20 36 35.97 |
| 20 36 26.77 |
| 9.20 |

April 21 P.M.

| C.W.S. E.C. α Canis Min. |
|---|
| 7.50 |
| 21.20 |
| 35.10 |
| 48.85 |
| 2.60 |
| 16.40 |
| 7 32 30.40 |
| 162.05 |
| 160 |
| 7) 342.05 |
| 7 31 48.86 |
| 7 31 39.01 |
| 9.85 |

accidentally April 18 at Sid. time

Apr. 18/19 Am

M.T.G. 19 59 00 Eq. 21 46 00
236 21 46 49.4 236 21 45 47.6
3.15

1 45 05.74
46.74
1 45 5.248

21 46 50.55 Eq. 46 00
1 45 52.48 9.25
20 00 58.07 21 45 50.75
316.75 45 47.6
19 5741.32 3.15
19.59
18.68
16
2.58

April 19 P.M.

M.T.G. 4 24 00 Eq. 6 15 00
236 6 13 10.5 236 6 14 47.5
3.3

6 13 13.8
1 49 49.03
1 49 02.29
46.74
1 49 49.03

6 15 00
9.2
6 14 50.8
6 14 47.5
3.3

4 23 24.77
43.67
4 22 41.60
4 24 00
1 1840
16
1 02.40

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(111)

April 23/24 A.M.

| C.W.J. E.C. a Aquilae | C.W.J. E.C. β Aquilae |
|---|---|
| 9.60 | 38.90 |
| 23.70 | 52.75 |
| 37.50 | 6.45 |
| 51.30 | 20.35 |
| 5.30 | 34.20 |
| 19.00 | 47.93 |
| 19 „ 44 „ 33.30 | 19 „ 49 „ 02.40 |
| 179.70 | 209.96 |
| 180 | 60 |
| 7 ) 359.70 | 149.96 |
| 19 „ 43 „ 51.38 | 19 „ 48 „ 20.48 |
| 19 „ 43 „ 39.69 | 19 „ 48 „ 8.67 |
| 11.69 | 11.85 |

April 24/25 A.M.

| C.W.J. E.C. a Aquilae | C.W.J. E.C. β Aquilae |
|---|---|
| 10.40 | 39.60 |
| 24.40 | 53.45 |
| 38.15 | 7.15 |
| 52.00 | 21.00 |
| 6.10 | 34.85 |
| 19.90 | 48.45 |
| 19 „ 44 „ 34.00 | 19 „ 49 „ 2.65 |
| 184.95 | 207.15 |
| 180 | 60 |
| 7 ) 364.95 | 147.15 |
| 19 „ 43 „ 52.13 | 19 „ 48 „ 21.02 |
| 19 „ 43 „ 39.72 | 19 „ 48 „ 8.60 |
| 12.41 | 12.42 |

April 19/20 Am.

N.J.C. 19 57 „ 45 E.C. 22 „ 20 „ 00
23C 21 „ 49 „ 29.0 23C 22 „ 19 „ 47.4
3.3

| | | |
|---|---|---|
| 21 „ 49 „ 32.3 | 22 „ 20 „ 00 | |
| 1 „ 49 „ 49.03 | 9.2 | 1 „ 49 „ 02.29 |
| 19 „ 59 „ 43.27 | 22 „ 19 „ 50.8 | 46.74 |
| 3 „ 16 „ 54 | 22 19 „ 47.4 | 1 „ 49 „ 49.03 |
| 19 „ 56 „ 26.33 | 3.3 | |
| 19 „ 57 „ 45 | | |
| 1 „ 18.67 | | |
| 16 | | |
| 1 „ 2.67 | | |

April 23/24 A.M.

N.J.C. 17 „ 45 „ 40 E.C. 19 „ 55 „ 00
23C 19 „ 52 „ 49.0 23C 19 „ 54 „ 45.3
2.9

| | | |
|---|---|---|
| 2 „ 04 „ 48.51 | 19 „ 52 „ 51.9 | 19 „ 55 „ 00 |
| 46.74 | 2 „ 5 „ 35.25 | 11.8 |
| 2 „ 06 „ 35.25 | 17 „ 47 „ 16.65 | 19 „ 54 „ 48.2 |
| | 2 „ 54.84 | 19 „ 54 „ 45.3 |
| | 17 „ 44 „ 21.81 | 2.9 |
| | 17 „ 46 „ 40 | |
| | 1 „ 18.19 | |
| | 16 | |
| | 1 „ 2.19 | |

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May 1st A.M.

| G.M.T. ε Pegasi | | G.M.T. a Aquarii | |
|---|---|---|---|
| lost | | lost | |
| 48.50 | | 4.95 | |
| 2.30 | | 18.60 | |
| 16.20 | | 32.20 | |
| 30.20 | | 46.20 | |
| 44.15 | | 59.80 | |
| 58.10 | | 13.60 | 21.. 59.. |
| 21.. 37.. | | 161.75 | |
| | 141.35 | 00 | |
| | 60 | 5) | 161.75 |
| 5) | 81.35 | 21.. 58.. | 32.25 |
| 21.. 37.. | 16.27 | 21.. 58.. | 16.50 |
| 21.. 37 | 0060 | | 15.75 |
| | 15.67 | | |

April 24/25 A.M.

M.S.C. 20..04..30 E.C. 22..18..00

236 22..15..58.5 236 22..17..44.4

3.15

22..16..01.65 22..18..00

2..08..45.06 2 9..31.80 12.45

46.74

2..09..31.80 20..06..29.85 22..17..47.55

3..17.65 22 17..44.4

20 03..12.20 3.15

20 4 30

1..17.80

16

1..01.80

May 1st Am.

M.S.C. 20..12..00 E.C. 22..51..00

236 22..47..10.6 236 22..50..41.3

3.0

22..47..13.8 22..51..00

2..33..11.13 15.70

2..32..24.39 20..14..02.67 22..50..44.30

46.74 3..18.89 22..50..41.3

2..33..11.13 20..10..43.78 3.0

20 12..00

1 16.22

16

1..00.22

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1854

May 1/2 A. M.

23[illegible]

C.W.J. obs. W.B.B. rec.

α Pegasi

lost-

"

"

25.8 – obb

39.9

34.1

23 h 58 m 18.4

23 h 57 m 25.8

23 h 57 m 28.67

2.87

May 3 [illegible] M.S.T.

E.C. 2 h 47 m 00

236 2 h 46 m 41.2

E.C. stopped after this comparison and the pendulum taken down

May 1st P.M.

M.Z.C. 3 h 0 m 5 m 40

236 5 h 41 m 58.0

3.0

2 h 36 m 20.95

46.74

2 h 37 07.69

5 h 42 m 01.0

2 h 37 7.69

3 h 04 m 53.31

30.28

3 h 04 m 23.03

3 5 40

1 m 16.97

16.0

1 m 00.97

M.Z.C. 3 h 19 m 00

236 5 h 55 m 20.2

3.0

5 h 55 m 23.2

2 h 37 m 7.69

3 h 18 m 15.51

32.48

3 h 17 m 43.03

3 h 19

1 m 16.97

16

1 m 00.97

May 1/2 A.M.

M.Z.C. 21 h 56 m 00

236 0 35 24.0

2.87

2.36.20.95 0 h 35 m 26.87

46.74 2 h 37 m 07.69

2,37.07.69 21 h 58 m 19.18

3 m 35.97

21 h 54 m 43.21

21 h 56

1 m 16.79

16

1 m 0.79

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Ill East

May 5 P.M.

| C.W.Z. E.C. δ Leonis | C.W.Z. E.C. δ Hydrae et Crateris | C.W.Z. E.C. β Leonis | May 5/6 A.M. C.W.S. E.C. α Aquarii |
|---|---|---|---|
| last | 22.15 | 56.00 | 34.60 |
| 52.95 | 36.40 | 10.25 | 48.45 |
| 7.90 | 50.60 | 24.45 | 2.15 |
| 22.40 | 4.80 | 38.80 | 15.95 |
| 37.35 | 19.00 | 53.00 | 29.80 |
| ink! | 33.15 | 7.40 | 43.40 |
| 11.07 „07.00 | 11.12.47.40 | 11.42.21.80 | 21.58.57.40 |
| | 23.50 | 211.70 | 231.75 |
| | 180 | 60 | 120 |
| | 33.50 | 271.70 | 111.75 |
| | 11.12.04.78 | 11.41.38.81 | 21.58.15.96 |
| | 11.12. 3.24 | 11.41.37.47 | 21.58.16.71 |
| | 1.54 | 1.34 | 0.75 |

May 5 P.M.

| | | |
|---|---|---|
| M.Z.C. 23C | 8.22.30<br>11.15.27.5 | E.C. 11.18.00<br>23C. 11 17 „ 56.8 |
| | 1.80 | |
| 2.52.07.17 | 11.15.29.30 | 11.18.00 |
| 46.94 | 2 52. 53.91 | 1.40 |
| 2.52.53.91 | 8.22.35.39 | 11.17.58.60 |
| | 1.22.34 | 11.17. 56.8 |
| | 8.21.13.05 | 1.80 |
| | 8.22.30 | |
| | 1.16.95 | |
| | 16 | |
| | 1.00.95 | |

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May 7/8 A.M. E.C. stopped sometime after the transit of a Aquarii

G.W.T.
E.C.
a Aquarii
26.00
38.80
52.60
6.30
20.10
33.75
21.58.47.70
224.25
16
7) 44.23
21.58.06.32
21.58.16.78
10.46

May 5/6 A.M.

El. 22.28.00 M.T.E. 19.35.00
234.22 27 59.3 236 22.29.48.0
1.6
22.28.00 22.29.49.6 2.52.07.17
.9 2.52.53.91 46.74
22.28.00.9 19.36.55.69 19.52.53.91
22.27.59.3 3.12.80
1.6 19.33.42.89
19.35 00
17.11
16
1.01.11

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Mo

Mey. D/δ Ann

Eb 22„58„00 M.T.b 20„01„00
23b 22„58„7.8 23b 23„3„43.7

22„58„00
10.70
22„58 10.70
22„58 7.8
2.90

2.9
23„03„46.6
3„00„47.02
20„02„59.58
3„17„00
19„59„42.58
20„1
17.42
16
1„07.4

3„00„00.28
46.74
3„00„47.02

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Dust Beg EC 11h 35m

| | | | |
|---|---|---|---|
| r Virg | 11h 38m | 305° 03′ | 284.07 |
| π " | 11.53 | 304.58 | 28.17 |
| α Ł | 12.11 | ~~345.45~~ | 312.24 |
| γ Virg | 12.12 | 312.15 | 7 21 |
| γ " | 12.34 | 313.03 | |

β Leonis 11.41
γ Ursæ Maj 11.46
β Corvi 12.26

May 8 P.M.

| G.P.B. Moon's I limb E.C. | G.P.B. β Corvi E.C. | G.P.B. & r Virginis 37.05 |
|---|---|---|
| 8.60 | 1.30 | 50.85 |
| 22.40 | 16.20 | 4.60 |
| 36.40 | 31.20 | 18.35 |
| 50.50 | 46.10 | 32.00 |
| 4.65 | 1.00 | 45.70 |
| 18.65 | 15.80 | 12.29.59.60 |
| 12.06.32.90 | 12.22.30.85 | 248.15 |
| 174.10 | 1425 | 120 |
| 180. | 180 | 7)128.15 |
| 7)354.10 | 7)322.45 | |
| 12 5 50.57 | 12 21 46.06 | 12 29 18.31 |

May 9 11h 3/4 P.M. E.C. stopped and ~~adjusted~~ [illegible] rate

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# "Variation of Magnetic Needle"

1854

May 10th 10h A.M. Observations made in the "Magnetic Pavillion" of the Camb. Observatory, by Lieut. Ives, of Lieut. Whipple's Surveying Expedition", with a Fox' Dip Circle, give for the Magnetic Dec. by Needle A - West 9°.47'; by Needle B - West 9°.45'. Mean 9°.46'

May 11/12 A.M

E.C. 2..59..00
23 2..58..11.8

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May 11/12 Am
W.C.B.
E.C.
Polaris
lost-
0.. 47.. 17.65-
56.. 10.95-
5.. 7.60
14.. 0.60
1.. 22.. 54.00
lost-

May 12 P.M.
E.W.S.
E.C.
12 Can. Venat.
4.90
22.70
40.50
58.30
16.00
33.25-
12.. 49.. 51.40
22705-
168
7) 407.05-
12.. 48.. 58.15
49.. 13.00
14.85-

May 13
J.H.S
E.C.
1 Visae Majoris
50.80
11.65-
32.55-
53.40
14.10
34.95-
8.. 48.. 55.85-
253.50
120
7) 873.50
8.. 48.. 53.06
8.. 49.. 11.18
17.82

J. H. S.
E.C.
a Leonis
34.60
48.45-
2.45-
16.75-
30.80
44.90
10.. 00.. 59.10

May 14/15 9h A.M. Rate of E.C. changed 5° screws moved forward.

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May 15 P.M.
C.W.J.
E.C
α Aurigæ
33.10
52.85
12.40
32.20
52.40
11.70
5 „ 06 „ 31.35
226.00
00
7) 226.00
5 „ 05 „ 32.28
5 „ 5 „ 52.93
20.65

May 16 P.M.
C.W.J.
E.C.
β Gem.
lost
31.03
46.75
2.25
17.90
33.55
7 „ 36 „ 49.40
131.48
120
5) 11.48
7 „ 36 „ 02.29
7 „ 36 „ 21.92
E. slow 19.63

C.W.J.
E.C.
β Leonis
35.05
49.55
3.65
17.85
32.20
46.40
11 „ 41 „ 0.95
185.65
60
7) 125.65
11 „ 40 „ 17.95
11 „ 41 „ 37.37
19.42

May 15 P.M.
E.C. 5 „ 26 „ 00
236 5 „ 26 „ 16.3

5 „ 26 „ 00
20.65
5 „ 26 „ 20.65
26 „ 16.3
4.35

M.J.C. 4 „ 15 „ 30
236 7 „ 47 „ 8.5
4.35
7 „ 47 „ 12.85
3 „ 32 „ 19.47
4 „ 14 „ 53.38
41.75
4 „ 14 „ 11.63
4 „ 15 „ 30
1 „ 18.37
16
1 „ 02.37

3 „ 31 „ 32.73
46.74
3 „ 32 „ 19.47

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May 16 P. M.

M. T. 4 h 32 m 00 Eq. 8 m 06.00

23 G 6 h 7 m 37.0 23 G 8 m 06.14.8

4.83

3 h 35 m 29.29 8 h 07 m 41.83 8 m 06 m 19.63

46.74 6 m 14.8

3 h 36 m 16.03 4.83

4 h 31 m 25.80

44.46

4 h 30 m 41.34

4.32

1 m 18.66

16

1 m 2.66

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1854. May 16/17 E.C. Ill. East.

| | a Andromedæ. | | a Can Maj |
|---|---|---|---|
| J.A.B. | 0.. 0.. 0.0 | W.C.B. | 6.37.40.1 |
| | 0..15.7 | | 54.5 |
| | 0..31.2 | | 38..08.9 |
| | 0..46.9 | | 23.3 |
| | 1..02.3 | | 37.8 |
| | 5)156.1 | | 51.9 |
| | 0..0..31.22 | | 39 6.4 |
| | cor — .34 | | 222.9 |
| | 0..0..30.88 | | 60 |
| N.A. | 0..0..50.10 | | 7)162.9 |
| E.C Slow | 19.22 | | 6..38..23.27 |
| | | | cor = — .42 |
| | | | 6..38..22.85 |
| | | N.A. | 6..38..41.98 |
| | | E.C Slow | 19.13 |

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1854 May 19th E C Ill East

ε Can Maj a² Gem

| | | |
|---|---|---|
| HB | 6 38 42.4 | 7 24 10.15 |
| | 56.7 | 26.7 |
| | 38 11.0 | 42.9 |
| | 25.4 | 59.2 |
| | 39.6 | 25 15.4 |
| | 54.2 | 31.5 |
| | 39 08.6 | 25 48.1 |
| | 237.9 | 233.95 |
| | 60 | 180 |
| | 7)177.9 | 7)4213.95 |
| | 6 38 25.41 | 7 24 59.13 |
| | cor − .30 | |
| | 6 38 25.11 | |
| NA | 6 38 42.01 | |
| | EC slow 16.90 | |

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1854 May 20th  ε ℓ  Ill East  In Circle

West Transit Procyon

7 30 42.75
52.75 − 10.00
55.25 − 2.55
57.80 − 2.55
31 00.40 − 2.60
02.55 − 2.15
08.00 − 5.45
10.40 − 2.40
12.75 − 2.35
15.50 − 2.75
18.20 − 2.70
22.95 − 4.75
25.75 − 2.80
27.95 − 2.20
30.80 − 2.85
32.95 − 2.15
38.25 − 5.30
40.85 − 2.60
43.10 − 2.25
45.80 − 2.70
48.25 − 2.40
53.40 − 5.05
55.90 − 2.50
58.25 − 2.35
32 00.95 − 2.70
03.70 − 2.75
7 32 13.85 − 10.15
Mean 2.49

NW 6 13 observed with West Transit

Pollux

7 35 19.90
35.40
51.00
36 06.40
22.15
37.90
53.80

Regulus

9 59 38.3
52.3
10 00 06.4
20.7
34.6
48.8
10 01 03.0

ε ℓ

Bl Comæ 12 25 44.7
25 57.5 − 8
26 10.5
γ H 1 26 29.4
26 44.0
26 59.0
27 14.1
γ 45 25.2
12 26 29.31
.3
12 26 29.01
26 26.30
ε ℓ Mean 15.29

Polaris S.P.

12 38 29.0
12 47 23.7
γ H 12 56 15.6
13 05 12.2
13 14 05.1
13 23 03.6
13 32 01.8
36 31.0
13 05 13.0

Spica

13 16 34.5
16 48.7
17 02.7
γ H 1 17 16.5
17 30.6
17 44.4
17 58.7
236.1
124
γ 116.1
13 17 16.59
−21
13 17 16 38
13 17 31.47
ε ℓ Mean 15.60

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1852. May 21/22 Am.

Polaris

E.C. 1 wire 38 2012

0 .. 47 .. 23.0
0 .. 56 .. 16.3
J.A.B. 1 .. 05 .. 08.7
1 .. 14 .. 02.9
1 .. 22 .. 58.6

Last 32's 3.6 omitted

5 .. 25 .. 133.3
1 .. 05 .. 60.9

7 ) 73.3
1 05 10.47

Ill. East

α² Geminorum

Last.
Last.
7 .. 24 .. 46.6
J.A.B. 25 .. 02.5
25 .. 18.9
25 .. 35.1
25 .. 51.5

Procyon

7 .. 30 .. 44.4
30 .. 58.20
31 .. 12.1
W.C.B. 31 .. 25.9
31 .. 39.7
31 .. 53.5
32 07.5

241.3
6
7 ) 181.3

7 .. 31 .. 25.90
- .17

7 .. 31 .. 25.73
7 .. 31 .. 38.65
12.92

β Geminorum

E.C. 7 .. 35 .. 22.3
35 .. 38.0
35 .. 53.5
J.A.B. 36 .. 09.2
36 .. 24.9
36 .. 40.2
7 .. 36 .. 56.0

244.1
1 80
7 ) 64.1

7 .. 36 .. 09.16
- .11

7 .. 36 .. 09.05
36 .. 21.86
E.C. - 12.81

3 .. 59 .. 08.63
46.74
3 .. 59 .. 55.37

E.C. 9 .. 14 .. 0.00
236 - 9 .. 14 .. 4.75

9 .. 14 .. 0.0
12.86
9 .. 14 .. 12.86
14 .. 0.75
236 - -8.11

M.T.C. 5 .. 25 .. 25 — 28.25
236 - 9 .. 24 .. 44.5 — 27.45

9 .. 24 .. 44.5
8.11
9 .. 24 .. 52.61
3 .. 59 .. 55.37
5 .. 24 .. 57.24
- 53.08
- .15
5 .. 24 .. 04.01
5 .. 25 .. 25.00
E.C. - Com. 1 .. 20.99
16
B — 1 .. 04.99

4 .. 59 .. 10.85
23 .. 56.07
56.84
.24
5 .. 24 .. 04.00
5 .. 25 .. 25.00
1 .. 21.00
16

20th 15.15
12.86
2 ) 2.29
26 + 1.14 Rate E.C. gaining
.05 Lowly

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1854. May 22 Phila. M.E.

| E.C | β Leonis | γ Ursae Majoris | β Corvi | Polaris Sp. | Spica |
|---|---|---|---|---|---|
| | 11 40 42.0 | 11 44 45.5 | 12 25 47.1 | 12 ~~37~~ 38 23.8 ~~71.3~~ | 13 16 36.8 |
| | 40 56.2 | 45 9.3 | 26 2.0 | 47 27.9 | 16 50.9 |
| | 41 10.3 | 45 33.3 | 26 16.9 | 56 20.8 | 17 4.5 |
| J.H.S | 41 24.5 | J.H.S. 45 56.5 | J.H.S 26 31.8 | J.H.S 5 15.1 | J.H.S 17 19.0 |
| | 41 38.8 | 46 20.0 | 26 46.7 | 14 3.0 | 17 32.9 |
| | 41 53.0 | 46 43.9 | 27 1.4 | 22 55.8 | ~~18~~ 17 46.6 |
| | 11 42 7.5 | 11 47 7.7 | 12 27 16.4 | 32 3.~~8~~ | 13 18 0.7 |
| | 232.3 | 216.2 | 162.3 | 149.6 | 191.4 |
| | 60 | 180 | 60 | 60 | 300 |
| | 7) 172.3 | 7) 396.2 | 7) 222.3 | 7) 89.6 | 7) 191.4 |
| | 11 41 24.61 | 11 45 56.60 | 12 26 31.76 | 13 5 12.80 | 13 17 18.77 21 |
| R | 11 41 37.31 | 11 46 9.32 | 12 26 44.28 | | 13 17 31.47 |
| E.C | -12.70 | -12.72 | -12.52 | | -12.70 21 |
| | | | | | 12.51 |

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1854 May $\frac{22}{23}$ Am

Ill East

| EC | α Andromeda | ε Persei | Leonis | β Hemmonum |
|---|---|---|---|---|
| | 23..59..51.2 | 3..12..38.3 | 6..37..47.1 | 7..35..23.4 |
| | 24..00..07.0 | 2..59.1 | 8..81.6 | 5..39.1 |
| JAB | 22.7 | JAB 3 20.3 | JAB 8..16.0 | JAB 5..54.7 |
| | 38.3 | 3 41.0 | 8..30.2 | 6..10.2 |
| | 53.8 | 4 02.4 | 8..44.5 | 6..26.0 |
| | 01..09.4 | 4 23.1 | 8..59.0 | 6..41.1 |
| | 25.3 | 3..14..44.6 | 6..39..13.4 | 7..36..57.2 |
| | 207.7 | 228.8 | 21/.8 | 251.7 |
| | 60 | ~~+10~~ | 60 | 180 |
| | 7)267.7 | ) 18.8 | 7) 211.8 | ) 71.7 |
| | 24..00..38.24 | 3..13..41.26 | 6..38..30.26 | 7..36..10.2 |
| | cor = − .10 | | | |
| | 24..00..38.14 | | | |
| NA | 24..00..50.29 | | | |
| | EC slow 12.15 | | | |

| | α Urs. maj. | δ Leonis | δ Hy. Abest. |
|---|---|---|---|
| EC | 10..53..59.8 | 11..05..25.2 | 11..11..09.3 |
| | 4..30.7 | 5..40.0 | 11..23.4 |
| | 5..00.2 | 5..54.7 | 1..37.5 |
| | 5..30.3 | 6..09.5 | 1..51.7 |
| | 6..00.5 | 6..24.2 | 2..06.0 |
| | 6..29.8 | 6..38.9 | 2..19.9 |
| | 10..7..00.2 | 11..06..53.7 | 2..34.2 |
| | 151.5 | 246.2 | 182.0 |
| | 60 | 180 | 180 |
| | 7)211.5 | 66.2 | 7)362.0 |
| | 10..55..30.21 | 11..06..09.46 | 11..11..51.71 |

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May 23.

| | β Leonis | Ill. East- γ Virg. Maj. |
|---|---|---|
| E.C. | 11.. 40.. 43.1 | 11.. 44.. 46.3 |
| | 0 .57.4 | 5 ..10.4 |
| | 1 ..11.7 | 5 ..34.1 |
| | 1 ..25.9 | 5 ..57.9 |
| | 1 ..40.1 | 6 ..21.7 |
| | 1 ..54.3 | 6 ..45.1 |
| | 11 ..42 ..08.9 | 11 ..46 ..08.9 |
| | 241.4 | 224.4 |
| | 60 | 180 |
| | 181.4 | 404.4 |
| | 11.. 41.. 25.92 | 11.. 45.. 57.77 |

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1854 May 23/24 Mt. East

| | α Andromedae | | Polaris, unsteady | | α Arietis | | Sirius |
|---|---|---|---|---|---|---|---|
| EC | lost | | 0 .. 38 .. 23.0 | | lost | | 6 .. 37 .. 48.6 |
| | lost | | 0 .. 47 .. 25.8 | | lost | | 8 .. 03.0 |
| | 0 .. 00 .. 24.1 | | 0 .. 56 .. 20.8 | | 1 .. 58 .. 30.6 | | 8 .. 17.3 |
| I A B | 00 .. 39.8 | I A B | 1 .. 05 .. 11.5 | I A B | 8 .. 45.4 | I A B | 8 .. 31.5 |
| | 00 .. 55.4 | | 1 .. 14 .. 10.1 | | 9 .. 00.4 | | 8 .. 46.0 |
| | 01 .. 11.0 | | 1 .. 23 .. 03.8 | | 9 .. 15.3 | | 9 .. 00.0 |
| | 0 .. 01 .. 26.5 | | 1 .. 32 .. 06.7 | | 1 .. 59 .. 30.3 | | 6 .. 39 .. 14.9 |

161 3
60
2213

6 .. 38 .. 31.61
− 23

6 .. 38 .. 31.38
6 .. 38 .. 41.94
EC − 10.56

| | α² Geminorum | | Procyon | | β Geminorum | | Polaris S.P. |
|---|---|---|---|---|---|---|---|
| | 7 .. 24 .. 16.4 | | 7 .. 30 .. 47.2 | | 7 .. 35 .. 24.7 | | 12 .. 38 .. 27.4 |
| | 4 .. 32.8 | | 1 .. 01.1 | | 5 .. 40.5 | | 47 .. 30.7 |
| | 4 .. 49.0 | | 1 .. 15.0 | | 5 .. 56.0 | | 56 .. 24.7 |
| I A B. | 5 .. 05.1 | I A B | 1 .. 28.8 | I A B | 6 .. 11.5 | I A B | 13 .. 05 .. 26.1 |
| | 5 .. 21.5 | | 1 .. 42.5 | | 6 .. 27.3 | | 14 .. 16.4 |
| | 5 .. 37.7 | | 1 .. 56.2 | | 6 .. 42.6 | | 23 .. 10.7 |
| | 7 .. 25 .. 54.1 | | 7 .. 32 .. 10.0 | | 7 .. 36 .. 58.6 | | 13 .. 32 .. 09.4 |
| | 216.6 | | 200.8 | | 261.2 | | |
| | 180 | | | | 180 | | |
| | 36.6 | | | | 81.2 | | |
| | 7 .. 25 .. 05.23 | | 7 .. 31 .. 28.69 | | 7 .. 36 .. 1.60 | | |
| | − 10 | | 2/2 | | − 10 | | |
| | 7 .. 25 .. 05.13 | | 7 .. 31 .. 28.47 | | 7 .. 36 .. 11.50 | | |
| | 7 .. 25 .. 15.98 | | 7 .. 31 .. 38.65 | | 7 .. 36 .. 21.85 | | |
| | − 10.85 | | − 10.28 | | − 10.35 | | |

10.85
10.28
10.35
31.48
10.49
− 32
10 17

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May. 24th Ill. East

α Virg.

EC 13..16..39.6
6..53.6
7..07.6
I.A.B. 7..21.6
7..35.7
7..49.6
13..18..03.7

211/4
60
7151 4

13..17..21.63
−.21

13..17..21.42
13..17..31.46
−10.04

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May 29th

Procyon

EC −7..30..54.2
1..08.0
1..21.7
MCB 1..35.6
1..49.3
2..03.2
−7..32..17.1
189.1
60
249.1
7..31..35.58
−21
7..31..35.37
7..31..38.62
EC −3.25

Ill. East
B Geminorum

7..35..31.75
5..47.30
6..03.10
MCB 6..18.60
6..34.20
6..49.80
−7..37..05.50
190.25
−60
7/130.25
7..36..18.61
−.14
7..36..18.47
7..36..21.82
EC −3.35

This sheet was given to
M. de Hamel

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May 31 Ill East

| | Procyon | | β Geminorum |
|---|---|---|---|
| EC | 7.30.57.3 | | 7.35.35.0 |
| | 1.31.2 | | 5.50.6 |
| | 1.25.0 | | 6.06.1 |
| JAB | 1.39.1 | JAB | 6.21.7 |
| | 1.52.5 | | 6.37.3 |
| | 2.06.3 | | 6.52.9 |
| | 2.20.2 | | 7.08.5 |
| | 211.6 | | 212.4 |
| | 60 | | -60 |
| | 2)1.6 | | 2)152.4 |
| | 7.31.38.80 | | 6.21.77 |
| | -17 | | .11 |
| | 7.31.38.63 | | 7.36.21.66 |
| | 7.31.38.61 | | 7.36.21.81 |
| | E.C. +.02 | | -.15 |

May 31/32.

Polaris

1.04.02.9 mirom = +.00

WCB 1.05.25.0 mid. wire

1.07.05.5 Mic = +.00

1 05 26.0 = mean of wires, from mid wire.

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1854 June 1st. Ill. East

| | α Geminorum | Procyon | β Gem^ni |
|---|---|---|---|
| EC | 7..24..28.1 | 7..30..54.0 | 7..35..36.3 |
| | 4 .44.7 | 1 .12.7 | 5 .52.2 |
| | 5 .00.8 | 1 .26.6 | 6 .07.8 |
| J.A.B. | 5 .16.9 | J.A.B. 1 .40.3 | J.A.B. 6 .23.3 |
| | 5 .33.2 | 1 .54.1 | 6 .39.0 |
| | 5 .49.6 | 2 .07.8 | 6 .54.7 |
| | 7..26 .06.0 | 7..32.21.8 | 7..37.10.3 |
| | 179.3 | 222.3 | 223.6 |
| | 60 | 60 | 60 |
| | 7)119.3 | 7)282.3 | 7)163.6 |
| | 7..25..17.04 | 7..31..40.33 | 7..36..23.37 |

α Leonis

| | |
|---|---|
| EC | 9..59..58.1 |
| | 00.09.2 |
| | 0..23.3 |
| G.M.T. | 0..37.3 |
| | 0..57.4 |
| | 1..05.5 |
| | 10 01 7.19.8 |

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1854 June 1–2?

Ill East

| | Fomalhaut 3 middlewires | Polaris | α Aquilæ |
|---|---|---|---|
| EC | 22..49..21.8 | 0..38..43.1 | 1..58..14.3 |
| WCB | 9..37.7 | 0 47..40.1 | 6..29.3 |
| | 9 .53.7 | 0 56.379 | 8..44.2 |
| | 7/113.2 | 1..05..30.2 | 8..58.9 |
| | 22..49..37.73 | 1 ..14..29.5 | 9..13.9 |
| | 22..49..34.84 | 1 ,23..20.8 | 9..28.8 |
| | EC + 2.89 | 1 32..23.6 | 1.59 .438 |
| | | 7/38..45.2 | 233.2 |
| | | 1..05..32.2 | 180 |
| | | | 7/413.2 |
| | | | 1..58..59.03 |
| | | | 1..58..56.22 |
| | | | EC + 2.81 |

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1854. June 2d. Ill. East.

| W.C.B. Sirius | T.H.S. Regulus | T.H.S. α Leonis | T.H.S. α Ursae Majoris |
|---|---|---|---|
| 6 38 1.5 | 9 59 56.6 | 57.5 | 10 53 14.9 |
| 15.9 | 10 0 10.3 | 42.4 | 44.7 |
| 30.4 | 24.6 | 27.4 | 54 14.7 |
| 44.8 | 38.7 | 42.2 | 44.5 |
| 59.0 | 52.8 | 57.1 | 55 14.2 |
| 39 13.2 | 1 6.6 | 10 13 12.3 | 44.0 |
| 6 39 27.8 | 10 1 21.0 | 10 13 27.0 | 10 56 13.8 |
| 192.6 | 210.6 | 235.9 | 190.8 |
| 120. | 60 | 60. | 120 |
| 7)312.6 | 7)270.6 | 7)295.9 | 7)310.8 |
| 6 38 44.66 | 10 0 38.66 | 10 12 42.27 | 10 54 44.40 |
| 38 41.91 | 0 35 59 | | 14 |
| +2.75 | 3.07 | | 10 54 44.46 |
| | | | 54 41.74 |
| | | | 2.72 |

2.75
3.07
2.72
3)8.54
2.85

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(1364

Jome 2. E.
T. ll. S
8 Limit
11 5 39.3
54.2
6 8.8
23.8
38.5
53.0
7 8.3
225.9
60.
165.9
11 6 23.70

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1854phae.proj...163



1854. June 5$^{t}$ – Ill. East.

| | Procyon | α Leonis | β Corvi | γ Virginis |
|---|---|---|---|---|
| EC | 7.. 31.. 03.8 | 9.. 59.. 59.9 | 12.. 26.. 6.3 | 12.. 33.. 42.1 |
| | 1.. 17.. 9 | 0.. 14.. 0 | 21.3 | 55.8 |
| T.H.S. | 1.. 31.. 6 | J.A.B. 0.. 28.. 0 | T.H.S. 36.2 | T.H.S. 34 9.6 |
| | 1.. 45.. 3 | 0.. 42.. 2 | 26 50.9 | 23.2 |
| | 1.. 58.. 9 | 0.. 56.. 3 | 5th wire lost 27 ~~7.0~~ [5.9] 5.8 | 36.9 |
| | 32.. 12.. 6 | 1.. 10.. 2 | 20.5 | 50.7 |
| | 7.. 32.. 26.9 | 10.. 01.. 24.6 | 12. 27 ~~35.7~~ | 12 35 4.7 |
| | 197.0 | 235.2 | 176.8 | 223.0 |
| | 120 | 60 | +180 | −60 |
| | 7)317.0 | 7)295.2 | 7)356.8 | 7)163.0 |
| | 7.31.45.29 | 10.00.42.17 | 12 26 50.97 | 12 34 23.29 |
| | −.10 | .11 | | |
| | 7.31.45.19 | 10.00.42.06 | | |
| | 7.31.38.60 | 10.00.35.56 | | |
| | EC +6.59 | +06.50 | | |
| | 2$^{p}$ .. .. 2.85 | | | |
| | 3)3.74/1.25 | | | |

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1854, June 5. M.T.

| ☿ I. | δ Virginis | β Virginis |
|---|---|---|
| 12.. 36.. 51.7 | 12 47 41.1 | 13. 1. 50.0 |
| 37 5.8 | 55.0 | 2 3.9 |
| 19.7 | 48 8.7 | 17.2 |
| 33.9 | 22.2 | 31.2 |
| 47.9 | 36.5 | 44.9 |
| 12 38 2.0 | 50.3 | 2 58.8 |
| 15.9 | 12 49 4.0 | 13 3 12.9 |
| 176.9 | 217.8 | 218.9 |
| +60 | −6 | 0 |
| 7) 236.9 | 7) 157.8 | 7) 218.9 |
| 12 37 33.84 | 12 48 22.54 | 13 2 31.27 |

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| | | | |
|---|---|---|---|
| | 312.25 | 312.25 | |
| | + 4.12 | − 8.37 | |
| | − 4.46 | − 9.36 | |
| | − 8.37 | −15.26 | |
| | − 9.36 | −10.49 | |
| 12h.48 | 308.13 | 321.02 | 13.59 = 95 Virg |
| 13.02 | 317.11 | 322.01 | 14.05 = κ " a 14.20 |
| 13.59 | 321.02 | 327.51 | 14.42 = α² Libræ |
| | 322.01 | 323.14 | 14.48 = ζ² " |

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1854phae.proj ..16B

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1854. June 9th

Ill. East.

δ Leonis

EC_ 11..05..48.3

6..03.0

6..17.6

WCB. 6..32.3

6..47.3

7..01.8

11..07..16.7

167.0

60

7227.0

11..06..32.43

11

11..06..32.32

11..06..20.71

E.C. fort — 11.61

EC_11..36..00

236_11..35..37.5

11..36..00

−11.61

11..35..48.39

236-11..35..37.5

−10.89

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June 9th 1854 Ill East

| | | | | |
|---|---|---|---|---|
| α Cor. Bor. | 15ʰ 28 | | | |
| η Libræ | 15ʰ 35 | −15°.12 | 312°.25 | 327°.37 |
| ψ " | 15ʰ 45 | −16°.18 | 312°.25 | 328°.43 |
| δ Ophi. | 16ʰ 06 | | | |
| $a_1$ 1st | 16ʰ 17 | | | |
| ~~α Scorpii~~ | ~~16ʰ 20~~ | | | |
| τ Scorpii | 16ʰ 26 | −27°.55 | 312°.25 | 340°.20 |

All the above excepting α Scorpii were observed

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1854 June 9th Ill East.

| | ε Coronæ Borealis | γ Librae | α Librae | δ Ophiuchi |
|---|---|---|---|---|
| EG | 15 ″ 27 ″ 57.9 | 15 ″ 35 ″ 23.1 | 15 ″ 45 ″ 02.2 | 16 ″ 06 ″ 14.4 |
| | 28 ″ 13.4 | 5 . 37.3 | 5 . 16.4 | 6 . 28.3 |
| | 28.9 | 5 . 51.4 | 5 . 30.7 | 6 ″ 41.9 |
| GPB | 44.3 | GPB 36 . 05.8 | GPB 5 ″ 44.9 | GPB 6 ″ 55.8 |
| | 59.9 | 6 . 20.0 | 5 ″ 59.4 | 7 ″ 09.7 |
| | 29 ″ 15.1 | 6 . 34.3 | 46 ″ 13.5 | 7 . 23.3 |
| | 30.9 | 36 ″ 48.7 | 46 ″ 28.0 | 7 ″ 37.3 |
| | 2504 | 220.4 | 195.1 | 210.7 |
| | 60 | 180. | 120. | 180. |
| | 7 ) 370.4 | 7 ) 40.4 | 7 ) 315.1 | 7 ) 390.7 |
| | 15 . 28 . 44.34 | 15 36 5.77 | 15 45 45.01 | 16 6 55.81 |
| | ± 15 . 28 . 32.14 | | | |
| | 12.20 | | | |

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1854phae.proj...16



1854 June 9 Ill East

| | Moon I$^{st}$ Limb | γ Scorpii |
|---|---|---|
| E6 | 16 20 07.6 | 16 26 15.3 |
| | 20 23.0 | 6 31.2 |
| | 20 38.5 | 6 46.7 |
| | 20 53.8 | 7 2.3 |
| | 21 09.2 | 7 17.7 |
| | 22 24.5 | 7 33.3 |
| | 22 40.1 | 7 49.0 |
| | 196.7 | 196.5 |
| | 180. | 180. |
| | 16.7 | 16.5 |
| | 16 20 53.81 | 16 27 2.36 |

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1854phae.proj...168



1854. June 12. Ile-East-

Prosyon

236 — 7. 30. 48. 5 — 46.
2.2
16.1
31. 29. 8
43.5
57.3
7. 32. 11.2
7/208.6
29.80
−2
7. 31. 27.80
−10
7. 31. 27.70
7. 31. 38.57
236 −10.89

EC — 7. 34. 0.0
236 — 7. 33. 33.65

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1854phae.proj...16B



1854. June 16.

| | α Cor. Bor | | ν Serpentis. |
|---|---|---|---|
| EC | 15..28..07.4 | | 15..36..46.4 |
| | 22.5 | | 00.0 |
| | 38.2 | | 14.1 |
| T.A.S. | 53.6 | T.A.S. | 27.9 |
| | 09.3 | | 41.8 |
| | 24.4 | | 55.4 |
| | 29..40.2 | | 38..09.9 |
| | 195.6 | | 195.5 |
| | 180 | | 15..37..27.93 |
| | 3)315.6 | | 11 |
| | 60 | | |
| | 73)15.6 | | |
| | 15..28..53.86 | | 15..37..27.82 |
| | 15..28..32.12 | | 15..37..06.33 |
| | EC. +21.54 | | EC. +21.49 |

16/17 Am.

| | | | | | |
|---|---|---|---|---|---|
| EC | 0..13..0.0 | MJG | 18..37..10 | MJG. 19.. | —..11..10.0 |
| 236 | 0..12..26.7 | 236 | 0..16..55.5 | 236 | 24.. —51..01.0 |

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1854phae.proj...16B



June 18/19 $^{d}$ Sm.
α andromedæ

29.3
45.1
0.6
16.3
31.4
47.4
0 02 03.2
173.8
7/113.8
0 01 16.26
0 00 52.28
23.98

June 24. Phe
β Leonis.
EC. 11.41.27.8
1.41.9
1.56.2
2.10.6
2.24.7
2.38.9
42.53.2
253.3
-180.0
7/73.3
11.42.10.47
-.10
11.42.10.37
11.41.36.98
EC. +33.39

26 $^{d}$ Sm
α arietis.
EC. 1.58.35.2
49.7 14.5
WCB 4.3 14.6
1.59.18.7 14.465
33.4 14.7
47.9 14.5
2.00.02.4 14.55 14.52
191.6
-60
7/131.6
1.59.18.80
-1
1.59.18.70
1.58.56.94
21.76 !! gu

26 $^{d}$ Sm (Aug)
α Ceti
2.54.33.7
4.47.4
5.01.3
WCB 5.14.8
5.28.8
5.42.2
55.56.7
224.9
120.0
7/104.9
.14.99
2.55.14.89
2.54.38.81
EC +36.08

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1854phae.proj...163



1854 J

June 26th

Ill. East.

| | α Ursæ Maj. | δ Leonis | β Leonis |
|---|---|---|---|
| C | 10 .. 53 .. 48.1 | 11 .. 06 .. 13.3 | 11 .. 41 .. 31.2 |
| | 54 .. 18.1 | 6 .. 27.9 | 45.5 |
| | 54 .. 47.9 | 6 .. 42.8 | 59.7 |
| | 55 .. 17.8 | 6 . 56.6 + | 14.0 |
| | 55 .. 47.3 | 7 .. 12.4 | 28.3 |
| | 56 .. 17.4 | 7 .. 27.0 | 42.4 |
| | 10 . 56 .. 47.4 | 11 . 07 .. 41.8 | 11 . 42 .. 56.8 |
| | 243.8 | 221.8 | 277.9 |
| | −126 | 180. | 180 |
| | 7 / 123.8 | 7 / 401.8 | 7 / 97.9 |
| | 10 . 55 .. 17.69 | 11 6 57.40 ? | 11 42 13.99 |

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1854phae.proj...163



June 27. Ill. Each

| | α Leonis | α Ursae Majoris | δ Leonis | |
|---|---|---|---|---|
| El. | 10 0 31.7 | 10 53 49.5 | 11 7 14.7 | — 1m Gee check |
| | 45.8 | 54 19.6 | 29.4 | |
| WB. | 0 59.8 | WS 54 49.5 | WS. 44.2 | |
| | 1 13.9 | 55 19.0 | 7 58.9 | |
| | 27.8 | 55 49.1 | 8 13.7 | |
| | 41.9 | 56 18.9 | 28.5 | |
| | 10 1 56.4 | 10 56 48.9 | 11 8 43.3 | |
| | 277.3 | 254.5 | 232.7 | |
| | 180 | 120 | 180 | |
| | 7) 97.3 | 7) 134.5 | 7) 412.7 | |
| | 10 1 13.90 | 10 55 19.21 | 11 7 58.96 | — 1m |

| | | | |
|---|---|---|---|
| R. Obs. | 10. 0 35.40 | 10 54 40.99 | 11 6 20.54 |

* L.F.W.

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1854phae.proj...168

1854

(149)

June 28/29 Am

Je East

| ω Cassiopeiae | γ Pegasi |
|---|---|
| 0h 0m 45.58 | 0h 5m 42.56 |
| 1.54 | 56.8 |
| 17.2 | 11.0 |
| 32.6 | 25.7 |
| 46.2 | 39.2 |
| 3.9 | 53.2 |
| 0 2 19.7 | 7 7.9 |
| 7)168.8 | 235.8 |
| 60 | 60 |
| 7)224.8 | 175.8 |
| 0 1 32.69 | 0 6 25.11 |
| 0 0 51.52 | 0 5 43.96 |
| EC + 41.17 | EC + 61.15 |

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1854phae.proj...168



1854

July 3 Am

γ Pegasi.

EC 0..05..49.7
6..03.9
6..17.9
WGB 6..32.1
6..46.7
7..00.6
0..7..16.9
165.8
60.0
7/225.8
0..06..32.26

Ill. East

July 4th

α Tauri.

EC 4..27..39.1
7..53.2
8..07.7
WGB 8..22.0
8..36.3
8..52.7
4..29..05.0
214
−60
7/154
4..28..22.00

α Aurigæ.

5..05..44.1
6..04.0
6..23.4
WGB 6..43.2
7..03.0
7..22.9
5..7..43.0
183.8
+120.0
7/303.8
5..05..43.40

0..05..44.12
EC + 48.14

4..27..32.40
EC + 49.60

5..05..53.77
EC + 49.63

Between these observations the Thermometer has been on the average nearly 80°.

July 4th Ill. East W. C. 13

Dist. 1st Limb.

EC 13..56..24.7
38.9
53.1
WGB 07.3
21.7
35.9
13..57..50.2
231.8
180.
7/51.8
13 57 7.40

κ Virginis

14..05..16.1
5..30.2
5..44.0
WGB 5..57.8
6..12.0
6..25.7
14..06..39.8
2256
−42
7/2214
14..05..57.94

λ Virginis

lost − 21.9
14..11..36..0
11..50.1
WGB 12..04.2
12..18.3
12..32.3
14..12..46.5
209.3
180
7/29.3
14 12 4.19

14..05..47.93
+50.01

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1854phae.proj...168

1854 (1572.

July 4/5 Am. Fr. C. B. Ill. East.

| | α Tauri. | | α Aurigæ |
|---|---|---|---|
| h | 4 | | 5 |
| m | 27 | | 05 |
| s | 39.9 | | 45.0 |
| | 7.54.4 | | 6.05.0 |
| | 8.08.7 | | 6.24.8 |
| Fr C B | 8.22.8 | Fr C B | 6.44.6 |
| | 8.37.3 | | 7.04.2 |
| | 8.51.7 | | 7.23.9 |
| | 4.29.06.0 | | 5.07.43.7 |
| | 2208 | | 7191.2 |
| | 7/1680.8 | | 120 |
| | | | 311.2 |
| | 4.28.22.97 | | 5.06.44.46 |
| | 4.27.32.43 | | 5.05.53.80 |
| | +50.54 | | +50.66 |

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1854phae.proj...168



1854. July 5th

| Spica | Ill. East. D's 1st Limb | W. C. B. ζ Libræ | γ Libræ |
|---|---|---|---|
| 13..17..40.4 | 14..50..05.2 | 15..20..11.5 | 15..27..32.0 |
| 7 54.3 | 50..19.7 | 0 25.7 | 7 46.0 |
| 8 08.2 | 50..34.3 | 0 40.0 | 8 00.2 |
| 8 22.2 | 50..49.0 | 0 54.3 | 8 14.3 |
| 8 36.3 | 51..03.6 | 1 08.8 | 8 28.7 |
| 8 50.2 | 51..18.2 | 1 22.9 | 8 42.9 |
| 19..04.2 | 14..51..33.0 | 15..21..37.3 | 15..28..57.2 |
| 215.8 | 163.0 | 200.5 | 221.3 |
| 60 | 160 | 180 | 120 |
| 7)1558 | 7)3430 | 7)3605 | 7)1013 |
| 13..18..22.26 | 14..50..49.0 | 15..20..54.36 | 15..28..14.47 |

13..17..31.26
E.C. + = 51.00

15..20..03.35
+ 51.01

15..27..23.45
+ 51.02

| β Scorpii T. H. S. | S Ophiuchi Tels. | Antares T. H. S. |
|---|---|---|
| 15..57..55.5 | 16 6 52.3 | 16 20 34.0 |
| 20.0 | 7 6.3 | 49.0 |
| 34.7 | 19.9 | 21 4.2 |
| 49.3 | 33.6 | 20.3 |
| 58 3.7 | 48.6 | 35.0 |
| 18.1 | 8 2.2 | 49.4 |
| 15 58 33.0 | 16 8 14.9 | 22 5.9 |
| 184.3 | 175.8 | 197.8 |
| 180 | 60 | 60 |
| 7)364.3 | 7)235.8 | 7)137.8 |
| 15 57 50.19 | 16 7 33.69 | 16 21 19.69 |
| | | 20.83 |

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1854phae.proj...168



1854

July 6th

Ill. East.

| | X | β Leonis | Spica | α Bootis | γ Librae. |
|---|---|---|---|---|---|
| E.C | | 11 .. 41 .. 46.1 | 13 .. 17 .. 41.3 | 14 .. 09 .. 09.6 | 15 .. 20 .. 12.5 |
| | | 2 00.5 | 7 .. 55.4 | 9 .. 24.1 | 0 26.7 |
| | | 2 14.7 | 8 .. 09.3 | 9 .. 38.8 | 0 41.5 |
| WCB | | 2 28.9 | WCB 8 .. 23.3 | WCB 9 .. 53.3 | WCB 0 55.6 |
| | | 2 43.2 | 8 .. 37.3 | 10 .. 8.0 | 21 .. 09.7 |
| | | 2 57.4 | 8 .. 51.2 | 10 .. 22.7 | 1 .. 23.9 |
| | | 11 .. 43 .. 11.8 | 13 .. 19 .. 05.2 | 14 .. 10 .. 37.3 | 15 .. 21 .. 38.5 |
| | | 7)202.6 | 7)163.0 | 193.8 | 2084 |
| | | 11 .. 42 .. 28.94 | 13 .. 18 .. 23.30 | 194 7)3738 | 168 7)3544 |
| | | | | 14 .. 09 .. 53.40 | 15 .. 20 .. 55.69 |
| | | 11 .. 41 .. 36.87 | 13 .. 17 .. 31.16 | 14 .. 09 .. 01.32 | |
| EC fast | | 52.07 | + 52.14 | + 52.08 | 15 .. 20 .. 03.34 |
| | | | | | + 52.15 |

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1854phae.proj...168

(1574.5

1854

Inbg. 6th  Ill. East  Daily Rate of EC. 5".14

| | γ Libræ | | δ Ophi. | | ♑ spot. | | β Scorpii | | α Scorpii |
|---|---|---|---|---|---|---|---|---|---|
| EC — | 15 .. 27 .. 33.0 | | 15 .. 48 .. 37.9 | | 15 .. 50 .. 40.1 | | 15 .. 57 .. 07.5 | | 16 .. 20 .. 35.9 |
| | 47.2 | | 58 53.4 | | 0 55.2 | | .. 22.1 | | 0 .. 57.4 |
| | 28 .. 01.3 | | 49 .. 08.3 | | 1 10.2 | | .. 36.4 | | 1 .. 06.6 |
| WCB. | 8 15.7 | WCB | 9 .. 23.7 | WCB | 1 25.4 | WCB | .. 51.2 | WCB. | 1 .. 21.9 |
| | 8 29.9 | | 9 .. 38.6 | | 1 40.4 | | 8 .. 05.9 | | 1 .. 37.0 |
| | 8 44.0 | | 9 .. 53.7 | | 1 55.7 | | 8 .. 20.4 | | 1 .. 52.4 |
| | 15 .. 28 .. 58.4 | | 15 .. 50 .. 09.1 | | 15 .. 52 .. 10.9 | | 15 .. 58 .. 35.0 | | 16 .. 22 .. 07.9 |
| | 229.5 | | 224.7 | | 237.9 | | 178.5 | | 213.1 |
| | −120 | | 60 | | −60 | | 180 | | 60 |
| | 109.5 | | 164.7 | | 177.9 | | 358.5 | | 153.1 |
| | 15 .. 28 .. 15.64 | | 15 .. 49 .. 23.53 | | 15 .. 51 .. 25.41 | | 15 .. 57 .. 51.21 | | 16 .. 21 .. 21.87 |

| | | | |
|---|---|---|---|
| | 15 .. 27 .. 23.45 | 15 .. 56 .. 58.96 | 16 .. 20 .. 29.66 |
| EC + | 52.19 | +52.25 | +52.21 |

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1854phae.proj...168



July 7th 1854 G.M.S. Obs. Ill. East:

| EC d Scorpii | α₁ 1st | A Ophiuchi | b Ophiuchi |
|---|---|---|---|
| | | | 13.1 |
| 37.3 | 43.0 | 32.1 | 28.5 |
| 52.8 | 58.9 | 47.3 | 43.4 |
| 7.9 | 14.4 | 2.7 | 58.8 |
| 23.2 | 29.9 | 18.1 | 13.8 |
| 38.6 | 45.6 | 33.5 | 28.9 |
| 54.1 | 00.9 | 48.7 | 17.. 14.. 44.1 |
| 16.. 22.. 9.3 | 16.. 54.. 16.9 | 17.. 08.. 3.9 | 230.6 |
| 223.2 | 209.6 | 188.3 | 180 |
| 60 | 00 | 60 | 7)410.6 |
| 7)163.2 | 209.6 | 7)126.3 | 17 13.. 58.66 |
| 16.. 21.. 23.31 | 16.. 53.. 29.94 | 17.. 07.. 18.04 | |

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1854phae.proj ... 168

(156).

July 8th 1854 G.P.B obs. Ill. East

EC

| α Ophiuchi | | α Draconis | | Gr. Lat. | | μ Sagittarii | | λ Sagittarii | |
|---|---|---|---|---|---|---|---|---|---|
| | 24.1 | | 4.0 | | 36.0 | | 14.9 | | 9.3 |
| | 38.4 | | 28.2 | | 52.0 | | 29.8 | | 24.7 |
| | 52.5 | | 48.2 | | 7.9 | | 44.7 | | 39.9 |
| | 6.5 | | 10.3 | | 23.9 | | 59.3 | | 55.2 |
| | 20.5 | | 32.5 | | 40.0 | | 14.0 | | 10.4 |
| | 34.6 | | 54.5 | | 55.8 | | 28.9 | | 25.4 |
| 17 | 29 49.0 | 17 | 55 16.8 | 18 | 3 12.8 | 18 | 06 43.6 | 18 | 20 40.8 |
| | 225.6 | | 192.5 | | 227.4 | | 235.2 | | 205.7 |
| | 180 | | 120 | | 60 | | 180 | | 180 |
| | 45.6 | | 72.5 | | 167.4 | | 55.2 | | 25.7 |
| 17 | 29 06.51 | 17 | 54 10.36 | 18 | 02 23.91 | 18 | 05 59.31 | 18 | 19 55.10 |

α Oph. 17 28
ζ Drac. 17 53
α 1st 17 57
μ Sagit 18 05
λ Sagit. 18 19

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1854phae.proj...168

1854

(157)

July 11th P.M. Ill. East.

α Ophiuchi.

EC — 17.. 28.. 28.4
8.. 42.5
8.. 56.6
G.P.B. 9.. 10.7
9.. 24.7
9.. 38.8
17 .29.. 53.0
7)254.7
180
74.7
17 .29 .. 10.67

17 .. 28 .. 11.37
+ 59.30

July 13th Am.

α Aquilæ.

EC. 1 .. 59. 14.0
9.28.9
WCB — 9..43.7
9.58.5
00.13.0
00..28.5
2 ..00..43.5
230.1
1820
7)410.1
2 ..59..58.58

— 2 .. 58 .. 57.54
1 .. 01.04

July 15 P.M.

C.W.J.

E.C.

α Bootis

23.0 lost in work
52.1
6.9
20.5
36.0
14..10.. 50.9

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1854phae.proj . . 168

(157)

1854. July 17d

Ill. East.

| | Spica | | Arcturus |
|---|---|---|---|
| | 13 .. 17 .. 58.1 | | 14 .. 09 .. 26.3 |
| | 18 .. 12.1 | | 9 .. 41.0 |
| | 8 .. 26.1 | | 9 .. 55.8 |
| WCB | 8 .. 40.1 | C.W.I. | 10 .. 10.3 |
| | 8 .. 54.0 | | 10 .. 25.0 |
| | 19 .. 07.9 | | 10 .. 39.5 |
| | 13 .. 19 .. 22.1 | | 14 .. 10 .. 54.3 |
| | 220.4 | | 252.2 |
| | 60 | | 18 |
| | 7)280.4 | | )270 |
| | 13 .. 18 .. 40.06 | | 14 .. 10 .. 10.31 |

| | |
|---|---|
| 13 .. 17 .. 31.04 | 14 .. 09 .. 01.17 |
| EC 1 .. 09.02 | EC +1 .. 09.14 |

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1854phae.proj...168



1854 July 17 18h m

Ill. Cast

| | α Arietis | ☽ 2d limb | α Tauri | Capella |
|---|---|---|---|---|
| EC | 1 .. 59 .. 22.4 | 2 .. 43 .. 46.4 | 4 .. 27 .. 59.7 | 5 .. 06 .. 4.8 |
| | 9 .. 37.6 | 4 .. 00.8 | 13.9 | 24.7 |
| | 9 .. 52.5 | 4 .. 15.3 | 28.4 | 44.3 |
| WCB | 2 .. 00 .. 07.4 | WCB 4 .. 29.7 | WCB 4 .. 28 .. 42.6 | WCB 07 .. 04.0 |
| | 0 .. 22.3 | 4 .. 44.2 | 56.8 | 23.7 |
| | 0 .. 37.1 | 4 .. 58.4 | 11.3 | 43.4 |
| | 2 .. 00 .. 52.2 | 2 .. 45 .. 13.1 | 4 .. 29 .. 25.7 | 5 .. 08 .. 03.4 |
| | 231.5 | 207.9 | 238.4 | 148.3 |
| | −180.0 | 2 .. 44 .. 29.70 | 60.0 | 120. |
| | 7/51.5 | | 7/298.4 | 28.3 |
| | 2 .. 00 .. 07.36 | | 4 .. 28 .. 42.63 | 5 .. 07 .. 04.04 |
| NA | 1 .. 58 .. 57.71 | | 4 .. 27 .. 32.78 | 5 .. 05 .. 54.21 |
| EC | +1 .. 09.65 | | 1 .. 09.85 | 1 .. 09.83 |

× Sirius

6 .. 39 .. 08.7
23.7
37.7
WCB. 39 .. 52.3
06.4
20.6
6 .. 40 .. 35.3
184.7
180
7/364.7
6 .. 39 .. 52.1

6 .. 38 .. 42.26
EC 1 .. 09.84

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1854phae.proj . . 168



1854 July 19 P.M. Ill. East

| | α Bootis | ε Bootis |
|---|---|---|
| E.C. | 14 .. 09 .. 29.15 | 14 .. 39 .. 03.15 |
| | 43.70 | 18.75 |
| | 58.25 | 34.10 |
| W.C.B | 14 .. 10 .. 13.00 | W.C.B 14 .. 39 .. 49.75 |
| | 27.75 | 04.30 |
| | 42.10 | 20.80 |
| | 14 .. 10 .. 57.00 | 14 .. 40 .. 36.40 |
| | 270.95 | 167.15 |
| | 180 | 180 |
| | 7)90.95 | 7)347.15 |
| | 14 .. 10 .. 12.99 | 14 .. 39 .. 49.59 |

Ill. East

20th Am.

| | α Arietis |
|---|---|
| E.C. | 1 .. 59 .. 25.7 |
| | 9 .. 40.6 |
| | 9 .. 55.4 |
| W.C.B | 2 .. 00 .. 10.3 |
| | 0 .. 25.2 |
| | 0 .. 40.0 |
| | 2 .. 00 .. 55.2 |
| | 252.4 |
| | 180 |
| | 7)72.4 |
| | 2 .. 00 .. 10.34 |

Ill. East

21st Am.

| | 2 α Arietis. |
|---|---|
| | ~~~ |
| | ~~~ |
| E.C. | 2 .. 59 .. 56.6 |
| | .11.5 |
| | .26.4 |
| | .41.3 |
| | 2 .. 00 .. 56.3 |

21/22 July

α Arietis last

1 .. 59 .. 43.0
57.9
2 .. 00 .. 12.7
27.8
2 .. 00 .. 42.8 last wire omitted

July 25th P.M.

Spica Ill. East 5 wires

| | | ψ Bootis |
|---|---|---|
| E.C. | 13 .. 18 .. 23.1 | |
| | 18 .. 37.2 | 13 .. 48 .. 21.3 |
| W.C.B | 18 .. 57.0 mid. | 8 .. 36.0 |
| | 18 .. 05.2 | 8 .. 50.3 |
| | 13 .. 19 .. 19.2 | 13 .. 49 .. 04.8 |
| | 136.2 | 9 .. 19.4 |
| | 120 | 9 .. 33.9 |
| | 5)256.2 | 13 .. 49 .. 48.1 |
| | 13 .. 18 .. 51.04 | 214.4 |
| | | 180 |
| | | 7)34.4 |
| | | 13 .. 49 .. 04.91 |
| | 13 .. 17 .. 30.96 | 13 .. 47 .. 44.81 |
| | E.C. + 1 .. 20.08 | E.C. + 1 .. 20.10 |

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1854phae.proj...168



| | | |
|---|---|---|
| July 26th PM | | Ill. East |
| | B Libra | α Cor. Bor. |
| 2C | 15 .. 09 .. 50.9 | 15 .. 29 .. 07.3 |
| | 4.7 | 22.7 |
| | 18.5 | 38.1 |
| WCB | 15 .. 10 .. 32.3 | 15 .. 29 .. 53.7 |
| | .46.6 | .09.0 |
| | 00.3 | 24.4 |
| | 15 .. 11 .. 14.2 | 15 .. 30 .. 40.0 |
| | 167.5 | 195.2 |
| | 60 | 180 |
| | ) 227.5 | ) 375.2 |
| | 15 .. 10 .. 32.50 | 15 .. 29 .. 53.60 |

Signal record on Spring-governor.

W. C. Bond – for Beginning – dots,
– End – dots break, dots break, dots break

J. H. Safford – for beginning dots, break, dots,
for End – break, dots, break.

C. W. Tuttle – beginning . dots.
End dots, break, dots break . dots

George P. Bond – beginning – break dots.
End – dots break.

S Coolidge beg. dots
end break

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July 27th BM Ml. East.

| | β Leonis | | Spica | Arcturus. | ε Bootis | α² Librae |
|---|---|---|---|---|---|---|
| Ms. | 11 42 17.3 | Ms. | 13 18 13.6 | | | |
| | 31.5 | | 27.6 | | | |
| | 45.8 | | 41.4 | | | |
| | 43 0.0 | | 55.3 | | | |
| | 14.4 | | 19 9.4 | | | |
| | 28.5 | | 23.2 | | | |
| | 11 43 43.0 | | 13 19 37.4 | | | |
| | 180.3 | | 207.9 | | | |
| | 180 | | 180 | | | |
| | 7) 0.3 | | 7) 387.9 | | | |
| | 11 43 0.04 | | 13 18 55.41 | | | |

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W. 353.

1854. July 27. Rk. Mer. East. (T.H.S.) 8 Mg. 7. 9/10.

Declination +0°27′ +0°18′ +0°27′5

| γ Draconis | | μ Sagittarii | | (α) | | (β) | | (γ) | |
|---|---|---|---|---|---|---|---|---|---|
| 17 53 | 32.4 | ~~18~~ | 44.0 | | 43.3 | | 34.7 | | 11.5 |
| 53 | 54.8 | | 58.9 | | 57.8 | | 47.7 | | 25.4 |
| 54 | 16.9 | | 13.6 | | 11.3 | | 2.0 | | 39.3 |
| 54 | 38.8 | | 28.0 | | 25.0 | | 15.9 | | 53.0 |
| 55 | 0.8 | | 43.0 | | 39.1 | | 29.3 | | 6.5 |
| | 23.0 | | 57.5 | | 52.2 | | 43.0 | | 20.5 |
| 17 55 | 45.3 | 18 7 | 12.4 | 18 12 | 6.4 | 18 18 | 57.0 | 18 22 | 33.7 |
| | 212.0 | | 257.4 | | 234.1 | | 229.6 | | 189.9 |
| | 60. | | 60 | | 60 | | 120 | | 180 |
| | 7)272.0 | | 7)197.4 | | 7)174.1 | | 7)109.6 | | 7)369.9 |
| 17 54 | 38.86 | 18 6 | 28.20 | 18 11 | 24.87 | 18 18 | 15.66 | 18 21 | 52.84 |

~~Declinat~~

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1854phae.proj...168



| 8. | 7. | |
|---|---|---|
| $+0^{\circ}\,29'.5$ | $+0\,17'.5$ | |
| (δ) | (ε) | α Lyræ. |
| 49.9 | 58.8 | 33.0 |
| 4.0 | 12.0 | 50.4 |
| 17.7 | 26.0 | 8.2 |
| 31.4 | 39.7 | 25.8 |
| 45.2 | 53.8 | 43.5 |
| 58.9 | 7.0 | 1.0 |
| 18 27 12.9 | 27 21.0 | 18 24 18.6 |
| 7) 220.0 | 218.3 | 180.5 |
| 0 | 278.3 | 0 |
| 18 26 31.43 | 18 26 39.76 | 7) 180.5 |
| | | 18 33 27.79 |

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1854 July 28. P.M. M. East.

| | | | | | | |
|---|---|---|---|---|---|---|
| | | ☽ L.S. | | | ☽ L.S. | |
| | | γ Ursae Majoris | | | Spica. | |
| | | | | | 14.5 | 2 |
| | | 45.9 | | | 28.4 | |
| | | 9.1 | | | 42.3 | |
| | | 33.0 | | | 56.3 | |
| | | 56.8 | | | 10.2 | |
| | | 20.0 | | | 24.2 | |
| 11 | 48 | 44.1 | 12 | 19 | 38.3 | |
| | | | | | 214.2 | |
| | | | | | 180. | |
| | | | | | 394.2 | |
| | | | 12 | 18 | 56.31 | |

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1854phae.proj...168



Dr. Brunnow.

44.2
58.6
12.7
26.7
40.8
55.0
17 . 10 9.5

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1854phae.proj...168



1854

July 30/31
α Ceti

EC 2.. 55.. 27.9
5.. 41.8
5.. 55.5
6.. 9.2
6.. 22.8
6 36.7
2.. 56.. 50.7
2446
−180
7)64.6
2.. 56.. 09.23

July 31 P.M. Ill. East

| | Spica | Moons Limb | η Bootis | α Bootis |
|---|---|---|---|---|
| EC | 13.. 18.. 19.2 | 38.. 43.4 | 48.. 31.3 | 47.5 01.9 |
| | 33.2 | 57.7 | 45.7 | 16.6 |
| WCB | 47.1 | 11.8 | 0.3 | 31.2 |
| | 1.2 | 25.9 | 14.9 | 45.9 |
| | 15.0 | 40.0 | 29.5 | 0.4 |
| | 29.0 | 54.3 | 43.8 | 14.. 11.. 15.1 |
| | 13.. 19.. 43.1 | 13.. 40.. 8.6 | 13.. 49.. 58.6 | |
| | 187.8 | 241.7 | 224.1 | 158.6 |
| | 180. | 60 | 120. | 60. |
| | 7)7.80 | 7)181.7 | 7)104.1 | 7)218.6 |
| | 13 19 1.11 | 13 39 25.96 | 13 49 14.87 | 14 10 31.23 |

2 54 39.86
EC +1 29.37

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1854phae.proj...168



July 31
E Brooks

39.. 21. 2
36. 9
52. 3
7. 8
23. 5
38. 8
14.. 40.. 54. 5
235. 0
180.
55. 0
4 40 y. 31

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1854phae.proj...168



July 21. Zero-Stars for Catalogues.

| Reg. | α Hercules | | δ + Dec. | | ε + Dec. | | ζ + Dec. | |
|---|---|---|---|---|---|---|---|---|
| | | 49.1 | | 50.0 | | 13.4 | | 1.6 |
| | | 2.3 | | 3.0 | | 2.3 | | 15.3 |
| | | 17.4 | | 16.5 | | 41.2 | | 28.9 |
| | | 31.3 | | 30.6 | | 55.0 | | 42.7 |
| | | 45.9 | | 44.5 | | 9.0 | | 56.4 |
| | | 0.0 | | 56.5 | | 22.4 | | 10.3 |
| 17 | 10 | 14.3 | 17 | 19 11.9 | 17 | 23 36.8 | 17 | 27 23.9 |
| | | 161.3 | | 213.0 | | 205.1 | | 179.9 |
| | | 60 | | 0. | | 180 | | 120. |
| | | 221.3 | | 213.0 | | 385.1 | | 299.9 |
| 17 | 9 | 31.61 | 17 | 18 30.43 | 17 | 22 55.01 | 17 | 26 42.73 |

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1854phae.proj... 168



| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | 9 | | | 9 | | | 9 |
| | | + 0° 25' 5 | | | + 0° 26' | | | + 0° 33' |
| | | 33.43 | | | 45.6 | | | 21.2 |
| | | 47.20 | | | 59.3 | | | 34.7 |
| | | 1.07 | | | 13.0 | | | 48.4 |
| | | 14.90 | | | 26.5 | | | 1.9 |
| | | 28.57 | | | 40.2 | | | 15.8 |
| | | 42.23 | | | ~~42~~ 54.1 | | | 29.4 |
| 17 | 38 | 56.56 | 17 | 43 | 7.9 | 17 | 44 | 43.7 |
| | | 223.96 | | | 246.6 | | | 195.1 |
| | | 120 | | | 60. | | | 20. |
| | | 7) 103.96 | | | 7) 186.6 | | | 7) 15.1 |
| 17 | 38 | 14.85 | 17 | 42 | 26.66 | 17 | 44 | 2.16 |

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1854phae.proj...168

1854



August 1 & 2 — Ill. East

| | η Urs. Maj | η Bootis | α Bootis | Moon's I limb | β Librae |
|---|---|---|---|---|---|
| E.C. 13.. | [14.9] | 32.6 | 48.7 | [30.4] | 10.. 00.5 |
| | [36.2] | 47.2 | 3.3 | [44.9] | 14.3 |
| | 57.8 | 1.7 | 17.8 | 59.5 | 28.3 |
| J.H.S. | 19.0 | J.H.S. 16.3 | J.H.S. 32.5 | J.H.S. 14.2 | W.C.B. 42.2 |
| | 40.4 | 30.8 | 47.0 | 28.3 | 66.1 |
| | 1.8 | 45.3 | 1.7 | 43.0 | 9.9 |
| | 13.. 44.. 23.0 | 13.. 50.. 00.0 | 14.. 11.. 16.4 | 14.. 30.. 57.7 | 15.. 11.. 24.0 |
| | 193.1 | 173.9 | 164.4 | 278.0 | 175.3 |
| | 60 | 60 | 60 | 180 | 120 |
| | 7 ) 133.1 | 7 ) 113.9 | 7 ) 224.4 | 7 ) 98.0 | 7 ) 295.3 |
| | 13 43 19.01 | 13 49 16.27 | 14 10 37.49 | 14 30 14.00 | 15 10 42.19 |

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1854phae.proj... 168



August 2d. M. East.

| + Spica | + Polaris S.P. | + η Ursæ Majoris | + η Bootis | + Arcturus |
|---|---|---|---|---|
| 21.5 | 41 6.1 | 16.4 | 33.8 | ~~19.4~~ ~~49.4~~ |
| 35.7 | 50 9.2 | 37.6 | 48.3 | 4.5 |
| 49.6 | 59 4.8 | 58.9 | 2.7 | 19.1 |
| WCB. 3.5 | WCB. 8 1.9 | WCB. 20.3 | WCB. 17.4 | 33.7 |
| 17.6 | 16 54.5 | 41.6 | 32.0 | 48.1 |
| 31.5 | 13 25 50.5 | 2.9 | 46.5 | 2.8 |
| 13 19 45.7 | 13 24 49.9 | 13 44 24.6 | 13 50 1.2 | 14 11 17.7 |
| 205.1 | 176.9 | 202.3 | 181.9 | 175.3 |
| 180 | 240 | 60 | 60 | 60 |
| 7) 25.1 | 7) 416.9 | 7) 142.3 | 7) 121.9 | 7) 235.3 |
| 13 19 3.59 | 13 7 59.56 | 13 43 20.33 | 13 49 17.41 | 14 10 33.61 |

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1854phae.proj...168

1852.



August 2d

Ill. East.

| | $\alpha$ Libræ | B Mon. min. | $\beta$ Libræ | Moon, 1 limb |
|---|---|---|---|---|
| E.C. | 14 .. 49 .. 39.4 | 14 .. 50 .. 07.7 | 15 .. 10 .. 01.7 | 15 .. 24 .. 14.6 |
| | 3 .. 53.8 | 57 .. 00 .. 0 | 15.7 | 29.4 |
| | 4 .. 8.0 | 57 .. 52.4 | 29.4 | 44.4 |
| WCB- | 14 .. 44 .. 22.2 | 52 .. 44.6 | 43.4 | 59.2 |
| | 4 .. 36.8 | 53 .. 36.9 | 57.4 | 14.2 |
| | 4 .. 50.8 | 54 .. 29.1 | 11.3 | 29.2 |
| | 14 .. 45 .. 05.2 | 14 .. 55 .. 21.9 | 15 .. 11 .. 25.3 | 15 .. 25 .. 44.2 |
| | 216.2 | 192.6 | 184.2 | 235.2 |
| | 60. | 120. | 120. | 180. |
| | 7) 156.2 | 7) 312.6 | 7) 304.2 | 7) 415.2 |
| | 14 14 22.31 | 14 52 44.66 | 15 10 43.46 | 15 24 59.31 |

14 .. 42 .. 49.56
EC +1 .. 32 .. 75

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1954phae.proj...168



| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 15 | 50 | 50.3 | | | | 16 | 21 | 16.4 |
| | | 5.7 | | | | | | 31.7 |
| | | 20.8 | | | | | | 47.1 |
| | | 36.1 | | | | | | 2.3 |
| | | 51.5 | | | | | | 17.6 |
| | 52 | 6.7 | | | | | | 32.8 |
| 15 | 52 | 22.0 | 15 | 59 | 15.4, | 16 | 22 | 48.3 |
| | | 193.1 | | | | | | 196.2 |
| | | 60 | | | | | | 180. |
| | 7) | 253.1 | | | | | 7) | 16.2 |
| 15 | 51 | 36.16 | | | | 16 | 22 | 2.31 |

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1854phae.proj...168

1854.

(175)

August 3d.

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | M. Est. | E.C. put back one minute, | | | |
| | | | | Polaris S.P | soon after the observation of β Leonis. | | | |
| | β Leonis | | | Spica — | 13 | 17 | 23.9 | |
| | | 27.8 | | 12 | 40 | 8.3 | | |
| | | 42.3 | | | 49 | 11.3 | | 37.0 |
| | | 56.4 | | | 58 | 5.4 | | 51.0 |
| | | 10.7 | | 13 | 7 | 4.2 | | 5.0 |
| | | 25.0 | | | 15 | 59.1 | | 19.0 |
| | | 39.2 | | | ~~21~~ | 53.7 | | 32.8 |
| 11 | 43 | 53.7 | | 13 | 33 | 53.7 | 13 | 18 ~~47.0~~ |
| | | 255.1 | | | | 195.7 | | |
| | | 180. | | | | | | |
| | | 75.1 | | | | | | |
| 11 | 43 | 10.73 | | | | | | |

41 36.67
E.C. + 1 34.06
— 1.
E.C. 0 34.06

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1854phae.proj...168

(176)

August 3. continued

| η Ursae Majoris | | η Bootis. 1st wire bot |
|---|---|---|
| 2 | 17.2 | 49.7 |
| N.Bur. | 38.9 | 4.2 |
| | 0.3 N.Br. | 18.5 |
| | 21.8 | 33.3 |
| 5th wire bot | 43 S | 47.7 |
| | 44.4 | 2.4 |
| 13 43 | 26.0 | 13 49 1 |

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1854phae.proj.166B

1854

(177)

Aug. 3. continued M. E.

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arcturus | | | | ε Bootis | | | | β Ursae Minoris | | | | α Coronae | | | |
| 14 | 8 | 51.2 | | | | 25.0 | | 14 | 49 | 8.8 | | 15 | 28 | 19.5 | |
| | | 5.8 | | | | 40.8 | | | | Clouds. | | | | 34.8 | |
| | | 20.3 | | | | 56.1 | | | 50 | 53.5 | | | | 50.3 | |
| Ms. | | 34.9 | | Ms. | | 11.8 | | Ml. | 51 | 45.4 | | Ml. | | 6.0 | |
| | | 49.6 | | | | 27.3 | | | 52 | 37.9 | | | | 21.2 | |
| | | 4.2 | | | | 42.6 | | | 53 | 20.6 | | | | 36.6 | |
| 14 | 10 | 18.9 | | 14 | 39 | 58.3 | | 14 | 54 | 22.9 | | 15 | 29 | 52.2 | |
| | | 184.9 | | | | 261.9 | | | | | | | | 220.6 | |
| | | 60 | | | | 180 | | | | | | | | 180 | |
| | 7) | 244.9 | | | 7) | 81.9 | | | | | | | 7) | 40.6 | |
| 14 | 1 | 9 | 34.99 | 14 | 39 | 11.70 | | | | | | 15 | 29 | 5.80 | |

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1854phae.proj...16B



Aug. 3. conf. Mk. East.

| | α Serpentis | β Scorpii | δ Ophiuchi | Antares | Theorem I. |
|---|---|---|---|---|---|
| | ~~58.8~~ | 49.3 | 36.4 | 18.0 | 56.4 |
| | 12.5 | 3.9 | 50.2 | 33.0 | 12.6 |
| | 26.4 | 18.3 | 3.7 | 48.5 | 27.2 |
| | Mk. 40.2 | Mk. 32.9 | Mk. 17.4 | Mk. 3.5 | Mk. 42.4 |
| | 54.4 | 47.7 | 31.1 | 18.9 | 58.1 |
| | 7.9 | 2.2 | 44.9 | 34.3 | 13.4 |
| 15 | 38 21.8 | 15 58 16.9 | 16 7 58.9 | 16 21 49.2 | 16 24 28.9 |
| | 222. | 171.2 | 242.6 | 205.4 | 238.4 |
| | 60 | 60. | 120 | 180 | 60. |
| | 7) 282 | 7) 231.2 | 7) 122.6 | 7) 25.4 | 7) 298.4 |
| 15 | 37 40.29 | 15 57 33.03 | 16 7 17.51 | 16 21 3.63 | 16 23 42.77 |

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1854phae.proj ..168

1854

(179)

| Aug 5. Phr. M.L. | | Arcturus | | μ Sagittarii | | δ Sagittarii | | α Lyrae | |
|---|---|---|---|---|---|---|---|---|---|
| η Ursae Majoris | | | | 1st and 2d last. | | | | | |
| | | 54.3 | | 26.8 | | 31.3 | | 46.3 | |
| | 41.9 | 8.9 | | 41.6 | | 47.3 | | 4.0 | |
| | 3.2 | 23.7 | | 56.6 | | 3.0 | | 21.3 | |
| MS. | 24.6 | MS. 38.1 | MS. | 11.2 | MS. | 19.0 | MS. | 39.2 | |
| | 46.1 | 53.0 | | 26.2 | | 34.6 | | 56.9 | |
| | 7.3 | 7.3 | | | | 50.5 | | 14.3 | |
| 18 43 | 29.1 | 14 10 | 22.1 | 18 6 | | 18 13 | 6.4 | 18 33 | 32.0 |
| | | | 207.4 | | 232.2 | | 192.1 | | 214.0 |
| | | | 60 | | 160. | | 60 | | 60 |
| | | 7) | 267.4 | 7) | 292.2 | 7) | 132.1 | 7) | 274.0 |
| | | 14 9 | 38.20 | 18 5 | 41.34 | 18 12 | 18.3 | 18 32 | 39.14 |

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1854phae.proj...168

(188)

| | α' | δ Sagittarii | ε Sagittarii | ξ Aquilae |
|---|---|---|---|---|
| | 35.7 | 6.8 | 11.9 | 39.2 |
| | 51.7 | 22.0 | 27.8 | 53.5 |
| | 7.7 | 37.2 | 43.2 | 7.5 |
| Ms. | 23.5 | Ms. 53.0 | Ms. 59.3 | Ms. 21.7 |
| | 39.7 | 8.0 | 15.5 | 35.9 |
| | 55.6 | 23.6 | 31.2 | 49.9 |
| 18 38 | 11.9 | 19 47 39.0 | 19 54 47.1 | 20 0 4.7 |
| | 225.4 | 189.6 | 236. | 211.8 |
| | 60 | 180 | 180 | 60 |
| | 7) 165.4 | 7) 369.6 | 7) 416 | 7) 151.8 |
| 18 37 | 23.63 | 19 46 52.80 | 19 53 59.43 | 19 59 21.69 |

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1854phae.proj...168



1854

Aug $\frac{6}{7}$

| Capella. | | α Orionis | | Sirius | |
|---|---|---|---|---|---|
| | bot | 5 .. 47 .. 14.3 | | 6 .. 38 .. 39.3 | |
| E.G | 5 .. 5 .. 55.2 | | 7 .. 28.2 | | 8 .. 53.7 |
| | 6 .. 14.8 | | 7 .. 42.1 | | 9 .. 08.2 |
| WCB | 6 .. 34.4 mid | WCB | 7 .. 55.9 | WCB | 9 .. 22.3 |
| | 6 .. 54.2 | | 8 .. 09.8 | | 9 .. 36.8 |
| | 5 .. 07 .. 13.9 | | 5 .. 48 .. 23.8 | | 9 .. 50.9 |
| | 5/1725 | | 5 .. 48 .. 37.7 | | 6 .. 40 .. 05.6 |
| | 5 .. 06 .. 34.50 | | 211.8 | | 216.8 |
| | | | 180 | | −60.0 |
| | | | 7/391.8 | | 7/156.8 |
| | | | 5 .. 47 .. 55.97 | | 6 .. 39 .. 22.40 |
| | 5 .. 05 .. 54.78 | | 3 | | |
| | EC + 39.72 | | 5 .. 47 .. 16.23 | | 6 .. 38 .. 42.59 |
| | | | EC + 39.74 | | EC + 39.81 |

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1854phae.proj...168



1854 Ang[L] 8[I]

Ill. East.

| Polaris L.P. | Spica | γ Ursæ Maj. | γ Bootis |
|---|---|---|---|
| 13.. 40.. 25.2 | 13.. 17.. 30.8 | 13.. 41.. 25.0 | — |
| 49.. 26.8 ? | 7 .. 44.7 | 1 .. 46.3 | — |
| 58. 19.1 | 7 .. 58.7 | 2 .. 07.8 | — |
| WCB γ Last 19.0 | 8 .. 12.7 | 2 .. 29.5 | — |
| 16.. 11.7 | 8 .. 26.7 | 2 .. 50.7 | 48 .. 41.2 |
| 25.. 6.9 | 8 .. 40.7 | 3 .. 12.0 | 8 .. 55.5 |
| 13 .. 34 .. 8.0 | 13 .. 18 .. 54.8 | 13 .. 43 .. 33.5 | 13 .. 49 .. 10.2 |

7) 116.7

13 / 16.77

2691
166
7)891
13 .. 18 .. 12.73

17 .. 30 .. 80
+ 41 .. 93

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1054phae.proj...16B



1857.

Aug. 8th  Ill. East.

| | $\alpha^2$ Librae | | $\beta$ Mon. min. | | $\beta$ Librae. | | $\alpha$ Cor. Bor |
|---|---|---|---|---|---|---|---|
| C. | — lost | | 14..49..15.7 | | 15..09..10.6 | | 15..28..27.2 |
| | — lost | | 50..08.1 | | 24.7 | | 42.5 |
| | 14..43..17.2 | | 57..00.0 | | 38.5 | | 57.9 |
| IHS. | 31.2 | IHS | 57..52.7 | IHS. | 52.3 | IHS. | 13.4 |
| | 45.7 | | 52..45.1 | | 6.3 | | 28.9 |
| | 59.8 | | 53..37.0 | | 20.3 | | 44.3 |
| | 44..14.2 | | 14..54..29.8 | | 15..10..34.2 | | 15..29..59.8 |

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1854phae.proj...168

(1854)

1854

Aug.t 8th -

| | β Scorpii | | δ Scorpii |
|---|---|---|---|
| EC | 15..56..56.9 | | 16..06..44.0 |
| | 11.4 | | 57.7 |
| | 26.2 | | 11.6 |
| W.C.B | 40.7 | W.C.B | 25.2 |
| | 55.4 | | 39.1 |
| | 09.8 | | 52.8 |
| | 15..58..24.4 | | 16..08..06.8 |

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1854phae.proj...168

1854.

(1854)

Aug. 8/9. Ill. East.

| | γ Ceti. | α Ceti | α Persei | β Tauri | α Orionis |
|---|---|---|---|---|---|
| EC | 2.. 35.. 46.7. | 2.. 54.. 41.9 | 3.. 13.. 35.3 | 5.. 17.. 00.0 | 5.. 47.. 17.7 |
| | 6.. 0.8 | 4 55.5 | 3.. 56.8 | 7.. 15.6 | 7.. 31.3 |
| | 6.. 14.5 | 5 09.1 | 4.. 17.7 | 7.. 31.6 | 7.. 45.8 |
| WCB | 6 .28.0 | WCB 55.. 22.9 | WCB 3 .14 .39.0 | WCB 7.. 46.9 | W.C.B 7.. 59.3 |
| | 6 .41.8 | 5 36.8 | 14 .59.8 | 8.. 02.7 | 8.. 13.3 |
| | 6 .55.7 | 5 50.5 | 15.. 20.4 | 8.. 18.1 | 8.. 27.0 |
| | 2.. 37.. 09.5 | 2.. 56.. 04.4 | 3.. 15.. 42.6 | 5.. 18.. 34.9 | 5.. 48.. 41.0 |

149.8
180
7)329.8

5.17.47.10
7 04.35
+42.75

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1954phae.proj...168

1854 (1862.

Aug. 9

Ill. East.

| | Polaris S.B. | Spica | γ Urs. Maj. | γ Bootis | Arcturus. |
|---|---|---|---|---|---|
| EC | 12..40..26.2 | 13..17..32.3 | 13..41..26.3 | — Lost | 14..09..60.3 |
| | 12 49..29.2 | 46.2 | 1..48.0 | 47..59.0 | 15.0 |
| | 12 58..23.7 | 00.2 | 2..09.3 | 48..13.4 | 29.7 |
| WCB | 13 ..07..20.5 | WCB 14.2 | W.C.B. 2..30.7 | W.C.B. 8..28.0 | W.C.B — 44.2 |
| | 13 16..14.6 | 28.2 | 2..52.2 | 8..42.5 | 58.9 |
| | 13 25..10.4 | 42.1 | 3 .13.4 | 8..56.9 | 12.4 |
| | 13 .34.13.0 | 13..18..56.2 | 13..43..35.1 | 13..48..11.9 | 14..10..28.3 |
| | 91 ..51..7.6 | | | | |
| | 13..07..18.2 | | | | |

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1854phae.proj...168

1854

(187)

Aug 11 h

Ill. East

Sophuichi

| | |
|---|---|
| EC − | 16 .. 06 .. 48 . 6 |
| | 7 . 02 . 3 |
| | 7 .. 16 . 1 |
| | 7 .. 29 . 8 |
| | 7 .. 43 . 8 |
| | 7 .. 57 . 4 |
| | 16 .. 08 .. 11 . 3 |
| | 7 ) 209 . 3 |
| | 16 .. 07 .. 29 . 90 |
| | 16 . 06 .. 43 . 25 |
| EC + | 46 . 65 |

Aug 13/14

| α Tauri | β Orionis | β Tauri |
|---|---|---|
| 4 .. 27 .. 41 . 0 | 5 .. 07 .. 40 . 5 | —— lost |
| 7 .. 55 . 3 | 7 . 52 . 5 | —— lost |
| 8 .. 9 . 6 | 8 .. 8 . 5 | 17 .. 34 . 3 |
| 8 .. 24 . 0 | 8 .. 22 . 2 | 7 .. 54 . 9 |
| 8 .. 38 . 3 | 8 .. 36 . 2 | 8 .. 10 . 8 |
| 8 .. 52 . 6 | 8 .. 50 . 1 | 8 .. 26 . 0 |
| 4 .. 29 .. 06 . 9 | 5 . 09 . 04 . 0 | 5 .. 18 .. 41 . 9 |

227 . 7
60
7 ) 167 . 7
4 . 28 .. 23 . 96
7 . 33 . 57
49 . 39

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1854phae.proj ... 168



1854.

| August. 13/14. | Ill. East. | |
|---|---|---|
| δ Orionis | ε Orionis | α Orionis |
| 5.. 24.. 42.5 | 5.. 28.. 58.0 | 5.. 47.. 25.5 |
| 4.. 56.5 | 9.. 11.7 | 39.2 |
| 5.. 10.3 | 9.. 25.5 | 53.0 |
| 5.. 23.8 | 9.. 39.3 | 5.. 48.. 06.9 |
| 5.. 37.8 | 9.. 52.9 | 20.9 |
| 5.. 57.4 | 30.. 06.7 | 34.7 |
| 5.. 26.. 05.2 | 5.. 30.. 20.6 | 5.. 48.. 48.6 |
| 226.5 | 214.8 | |
| 60 | 60 | |
| 7 \| 169.5 | 7 \| 274.7 | |
| 5.. 25.. 23.93 | 5.. 29.. 39.24 | |

24.. 33.. 42
+ 50 51

28.. 48.. 76
+ 50.48

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1854. Aug$^t$ 14. Ill. East

| | α Bootis | | β Ursæ min | | Aug$^t$ 14/15 ☽'s 2$^d$ Limb. |
|---|---|---|---|---|---|
| EC | 14 .. 09 .. 07.9 | | 14 .. 49 .. 25.8 | EC | 3 .. 14 .. 26.8 |
| | 22.5 | | 50 .. 37.2 | | 41.0 |
| | 36.2 | | 57 .. 09.3 | | 55.8 |
| W.C.B | 52.0 | W.C.B | 52 .. 01.5 | W.C.B | 10.9 |
| | 06.7 | | 52 .. 54.0 | | 25.5 |
| | 21.0 | | 53 .. 45.8 | | 40.1 |
| | 14 .. 10 .. 35.8 | | 14 .. 54 .. 38.5 | | 3 .. 15 .. 54.8 |
| | | | | | 254.7 |
| | | | | | 180 |
| | | | | | 74.7 |
| | | | | | 3 .. 1 .. 10.67 |

Aug$^t$ 15$^{th}$ Ill East.

| | α Lyræ | | β Lyræ | | ✱ Lyræ 7/8 mag. |
|---|---|---|---|---|---|
| | 18 .. 32 .. 20.6 | | 18 .. 44 .. 48.2 | | 18 .. 44 .. 50.0 |
| | 37.7 | | 4.6 | | 6.5 |
| | 55.3 | | 20.7 | | 22.6 |
| T.H.S | 13.4 | T.H.S. | 37.3 | T.H.S. | 39.2 |
| | 30.7 | | 53.9 | | 55.7 |
| | 18 .. 33 .. 48.5 | | 10.2 | | 12.0 |
| | | | 18 .. 46 .. 26.7 | | 18 .. 46 .. 28.5 |

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