

KG
11365
2

A.2

2. Transit Circle
1849

July 30th to Sept. 25th

KG 11365.2

(536)

1849.

Sept 23

Im 6034 B.H.C.

 $1'' = \text{Gr. Circle Micr} \approx 2.29 \text{ of time}$

Shall use 2.30 for the place of
the marks & the same value
in reducing azimuthal errors
So as to compensate for the 0.01

Note

The adopted values of the az. lev. & coll. are in
a separate book with a marbled yellow cover marked
Chronometric Expedition.

Note, Nov. 25, 1859.

The reduction of the observations in this book
may be found in a book marked No. 11. of the
Chronometric Expedition. The moon culminations
have been copied on sheets ready for publication.

A. H.

This book of the Chronometric Expedition contains the reduction of
the transit up to Feb. 20, 1859.

 18.53.55.81

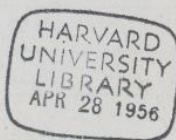
6.11

5.55

9.95

2.81

2.81



(537)

July 30

3 ophiuchi

0.46.0 - 24
 1. 0.7 - 0.58.7
 1. 15.0 1.13.0
 1. 26.2 1.27.2
 1. 43.5 1.41.5
 1. 57.6 1.53.6
 17. 12. 12.0 12.1 0.0

7/2040
 29.14
 -2

17. 11. 27.14
 12. 1. 45.72

9. 41.42

9. 41.64

13.06

9. 41.53

17. 11. 27.14

17. 02. 45.61

Ds 1st Limb

5 18.0
 5 33.0
 5 47.2
 6 2.0
 6 17.2
 6 32.2

17.36. 47.2
 1968
 150
 1768
 2.4
 -2

17.36. 00.40

9. 41.53

17.26. 18.87

7 ophi - 17.01 - 327.55

58 ophiuchi 17.34 - 333.54

4 Sagittarii 17.50 - 336.11

2 ophiuchi 17.27 - 299.46

W Sagitt - 18.04 - 333.28

D. 17.26

58 ophiuchi

3 25.6

3 40.0

3 54.6

4 9.2

4 24.2

4 38.8

17.44. 53.3

2451

180

7.65

17.44. 09.29

17.44. 07.29

17.34. 25.65

9.41.64

17.44. 07.29

9.41.53

17.34. 25.76

mer mark

Exp. microm

65 = 35

68 32

66 34

65 35

178

34

23

102

68

0.782

31st Am

2557 - 5. 5. 0

26 - 5. 7. 0.3

5. 9. 0

179 - 4. 59. 5.5

5. 13. 0

5. 16. 25

5. 10. 0

4. 42. 6

5. 0. 17. 4

7. 48. 0

7. 30. 6

5. 6. 0

424. 6. 55. 2.5

5. 10. 0

2419 - 5. 07. 48

6. 28. 0

333 - 6. 14. 5.5

6. 28. 0.0

9. 42. 6

6. 18. 17.6

6. 14. 5.5

4 12.1

4 3.5

24/188.6/7.8

168

206

5. 7. 0

2492.5. 7. 11.5

5. 11. 0

2440 - 4. 56. 38.6

5. 10. 0

5. 14. 5.5

6. 28. 0.0

9. 42. 6

6. 18. 17.6

6. 14. 5.5

4 12.1

4 3.5

24/188.6/7.8

168

206

34.5. 9.0

4. 59. 17.6

4. 59. 5.5

- 12.1

$$*R - \text{obs} T = A + B \tan \delta + C \sec \delta$$

See Aug 1st

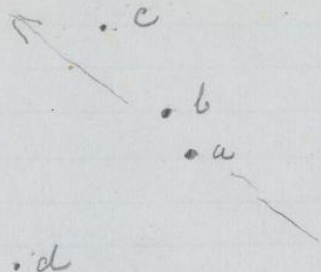
By this formula I found for Aug 1st from β Scorpii & Corona Borealis and δ Ursa Minoris $A = 9^m.47.01$ $B = +0.^s.30$ $C = -0.^s.46$ but there is sufficient reason for thinking that these are not safe values as the error by β Scorpii differs much from that by the other two stars. So that it is preferable to give the Tab. simply as observed. including the constant portion of the az. & lev. corrections with the chronometer error.

C seems to have been deduced right as appears by succeeding obs.

1868. Nov 7th

61 Cygni (539)

observed East of Paur



b is brightest

c & d are of the 14th mag

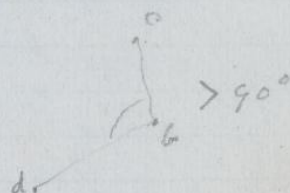
W. E. B.

Dist^a
 bc 44.635
 .590
 .535
 .635
 .652

 147
 44.609

Pos
 bc 254.52' Vernier must be scale
 254.37
 253.27 small
 254.31
 254.00

 1121.27
 254.17



measured
 in pos 65.30
 b.d. 41.367^a
 .373
 360
 150
 32

 11576
 41.314

bd 338.33
 339.25
 338.30
 338.25

 339.45

Clear & tolerably good
 definition
 Measures with illumina-
 nated wires

Pos
 ad 258.10
 258.47
 259.48
 254.08
 258.08

Dist
 ab 48.223
 48.237
 48.2113
 48.257
 48.210

 1140
 48.228

Nov 6 8 PM
 bc 252.47
 253.45
 3 32
 3 00
 3 30

 5/16 34
 253.19

bd 159.45
 159 10
 159 35
 159 27
 160 05
 159.27

 6/357.29
 159.34

1849.

(Plu East coll ¹⁵²⁰ 0.51 H₂O? see also Aug 7)
(This is doubtful why?)

August 1 -

27 Cor. Pm 7..21.2

7..37.0

7..52.0

8..7.5

8..23.0

8..38.6

15..38..54.4

2337

-1807

7/53.7

07.68

15..38..05.68

15..28..19.03

9..46.68

a Serpenti

5..59.0

46.54 6..12.5

6..26.4

6..40.5

6..54.2

7..7.8

15..47..21.7

2221

60

7/28.21

40.30

-2

15..46..38.30

36..51.62

5..46.68

58 Ophiuchi - 17.34 - 333.59

4 Sagittae - 17.50 - 336.11

D - 18.17 -

✓ 1 Sagittae - 18.18 - 337.53

✓ 2 Sagittae - 18.45 - 335.18

a Ophiuchi - 17.27 - 299.40

a Cor. Pm - 15.28 - 285.10

a Serpenti - 15.37 - 365.29

8 Urs min - 15.49 - 234.08

B' Scorpii - 15.56 - 331.46

8 Ophiuchi - 16.06 - 315.41

Antares - 16.20 - 338.28

D 1st limb - 19.09 -

p 1 Sagittae - 19.12 - 330.31

e 2 Sagittae - 19.33 - 328.57

8 Urs min.

56..0.0

57..6.3

58..14.6

59..21.8

60..29.5

61..37.4

16..2..44.7

1543

22.04

-2

15..59..20.06

15..49..33.84

9..46.20

B' Scorpii

5..46.9

6..1.4

6..15.9

6..30.4

6..45.0

6..59.5

16..07..14.0

7/2131

30.44

-2

16..06..28.44

15..56..42.02

9..46.42

9..46.61

15..56..41.83

8 Ophiuchi

5..35.3

5..49.2

-3.14 6..3.0

6..16.9

6..30.5

6..44.4

16..16..57.7

2370

1260

16..16..16.71

16..16..14.71

6..28.12

9..46.59

9..46.63

16..06..28.98

p 1 Sagittae

2..3.0

-18 2..17.2

2..32.2

2..46.0

3..1.0

3..15.5

19..23..30.2

1451

150

7/3251

19..22..46.44

19..22..44.44

19..12..57.31

9..47.13

19..22..57.47

D 1st limb

9..20.1

-18.38 9..35.0

9..50.0

0..5.0

0..20.0

0..34.8

19..20..49.8

2147

180

7/347.6

04.96

19..20..02.96

19..10..46.98

19..10..16.00

e 2 Sagittae

3..1.5

3..16.2

3..30.5

3..44.5

3..59.0

4..13.2

19..44..27.0

1919

1209

7/3119

44.56

19..43..42.56

19..33..55.45

2 Sagittae

7..45.

8..0.0

-25.30 8..15.2

8..30.8

8..46.0

9..1.5

18..29..16.4

1549

60

7/214.9

18..28..30.70

18..28..28.70

18..41..46.15

9..46.74

2 Sagittae

4..10.0

4..25.0

4..40.0

4..55.0

5..9.8

5..26.8

18..55..39.6

2036

180

7/383.6

54.80

18..54..52.80

18..45..05.87

9..46.53

unk 8 mag

25.8

40.3

55.0

10.5

25.5

40.1

18..59..55.0

1451

150

7/3251

19..22..46.44

19..22..44.44

19..12..57.31

9..47.13

(521)

August 2nd P.M.

2557 - 13.55.0 2557 - 13.56.0 13.57.0 13.58.0
 26 - 13.56.89 2419 - 13.53.50.4 2557 - 13.42.27.2 179 - 13.48.8

15.9.0 15.11.0 15.12.0 15.13.0
 2492 - 15.9.17 2440 - 14.56.27 10 - 15.01.36 333 - 14.58.39

15.14.0
 79 - 15.17.20

D 19.52
 a² Capricorn - 20.09 - 32.23

August 2nd

Ds 1 st Limb	a ² Capricorn	p Capricorn	
1 . 50.	8.52.0	9.25.8	19.57
2 . 4.8	9.6.2	9.40.2	312.27
2 . 19.7	9.20.3	9.54.6	252.26
2 . 34.2	9.35.0	0.9.0	
2 . 49.2	9.49.2	0.23.2	
3 . 4.1	0.3.1	0.37.5	
20.13.19	20.20.17	20.30.52.2	
1810	182.8	242.5	
60	7242.8	142.5	
72610	34.69	7152.5	
20.12.34.43	20.19.32.69	08.93	
20.12.32.43	20.09.43.04	20.30.06.53	
9.49.83	9.49.64	20.20.07.25	
20.02.44.80	20.09.43.05	9.59.64	
52.80		20.20.17.27	

Aug 1st

B. Scorpii	15.56.41.83	42.02	+0.19
δ Ophiuchi	16.06.28.08	28.12	+0.04
α 1 st Limb	19.10.16.00		
λ Sagittarii	18.18.41.83	41.96	+0.13
γ Sagittarii	18.45.05.88	05.87	-0.01
ρ Sagittarii	19.22.57.47	57.31	-0.16
ε Sagittarii	19.33.55.55	55.45	-0.10

Aug 2nd

a ² Capricorn	α 1 st Limb	α ² Capricorn	ρ Capricorn	
	20.02.42.80			
		20.09.43.05	43.05	0.00
		20.20.17.27	17.25	-0.02

1849

August 3.

57-

Arcturus.

V Aquila

7 57.6

8 20.0

8 12.0

8 34.5

8 26.7

8 48.3

8 41.3

9 2.3

8 55.8

9 16.5

9 10.3

9 30.5

14 19 25.1

19 49 44

2288

1961

60

150

7/288.8

7/161

41.26

.02.30

-2

-2

14 18 39.26

19 49 00.30

14 08 47.38

39 07.42

9 51.88

9 52.88

B Aquila

7 9.8

7 24.0

7 37.5

7 57.2

8 5.0

8 19.0

19 58 33.0

1795

150

7/359.5

51.36

19 57 59.36

47 56.33

9 53.03

a Capri - 20.9 - 325.23

p Capri - 20.20 - 330.42

D - 20.54

e Capri - 21.14 - 329.57

γ Capri - 21.31 - 329.43

γ Aquila - 19.39 - 302.08

a Aquile - 19.43 - 303.55

B Aquila - 19.47 - 306.21

a Aquila

2 40.0

2 54.1

3 8.0

3 22.3

3 36.2

3 50.0

19 54 4.0

2146

60

7/154.6

22.09

-2

19 53 20.09

43 27.53

9 52.56

August 3-

W East

(523) 0.51? W of S
Coll. (Soud. East) Why?See Aug 7th20" after observation
both limbs, no defect
of illumination.

α Capricorni	ρ Capricorni	Dis 1 limb	Dis 2 limb
8.55.3	9.28.7	4.7.7	6.17.2
9.9.5	9.43.2	4.22.2	6.32.0
9.23.7	9.57.2	4.30.8	6.46.6
9.37.6	0.11.3	4.57.3	7.1.2
9.52.1	0.26.3	5.6.2	7.15.8
0.6.0	0.40.2	5.21.0	7.30.3
20.20.20.0	20.30.55	21.05.35.5	21.07.45.0
2041	2619	1807	188.1
60	180	1807	188.1
7/264.1	7/81.4	7/360.7	21.07.01.16
37.73	11.70	9.52.78	9.52.78
20.19.35.73	20.30.09.70	20.54.58.75	20.57.08.38
20.09.43.03	20.20.17.25		
9.52.76	9.52.45		
20.09.43.03	20.20.16.98		

7-8 mm min. to horizon of moon entire	7-8 mm min. to horizon of moon entire
48.5	4.13.8
8.3.1	1.28.2
9.17.2	1.42.2
9.31.7	1.56.4
9.46.0	2.10.2
0.0.5	21.12.25.0
20.10.14.6	1508
161.6	3016
7/227.6	21.11.42.16
9.31.66	21.11.40.16
21.9.29.66	

α Capricorni	γ Capricorni
3.4.3	0.57.0
3.18.6	1.11.2
3.33.0	1.25.7
3.47.4	1.40.4
4.1.7	1.55.0
4.16.2	2.9.1
21.24.30.5	21.42.23.0
1577	2213
1807	60
7/331.7	7/281.3
47.39	21.41.40.19
21.23.45.39	21.41.38.19
21.13.52.61	21.31.45.75
9.52.78	9.52.44
82	85
21.13.52.57	21.31.45.34

Aug 3rd

α Capricorni	20.09.43.03	43.03 0.00
ρ Capricorni	20.20.16.98	17.25 + 0.27
α 1 st limb	20.54.58.73	
α 2 nd limb	20.57.08.38	
γ Capricorni	21.13.52.57	52.61 + 0.04
γ Capricorni	21.31.45.34	45.75 + 0.41

(524)

Aug ^{3^h} 4^{am} Saturday 1849

2557 5^h 37^m 00^s 179 = 5^h 28^m 00^s 179 = 5^h 29^m 00^s
 179 5^h 27^m 09.5 2492 5^h 38^m 10.8 10 = 5^h 28^m 20.8

179 = 5^h 30^m 00.0 2557 = 5^h 42^m 00^s 2557 = 5^h 42^m 30^s
 Barrand 333 = 5^h 25^m 12.4 2419 = 5^h 39^m 51.7 2440 = 5^h 27^m 49.4

August 5th

285.10

6.32.0
 6.47.4
 7.3.0
 7.17.8
 7.34.0
 7.49.5
 15.38.05
 1887
 601
 7128.7
 8.18.4
 2
 1537.16.40
 8.18.96
 9.57.44

2557 - 15.41.0
 2419 - 15.38.53
 25.41.0
 9.57.3
 15.31.02.7
 2419 15.38.53.0
 + 7.50.3
 7.30.6
 5) 19.7 (3.9
 155
 42

July 31

C to D = 13.715^s
 1st of air = 2.29^s

(375)

August 7th

Collimation of Transit circle

North mark to the Right of mid wire m

$$\text{Take zero} = \frac{1}{2}(0.000 + 0.014) = 0.007$$

micron	0.662	338	0.34
sec.	663	337	<u>23</u>
	655	345	<u>162</u>
	657	343	<u>68</u>
	<u>665</u>	<u>335</u>	<u>0.782</u>
	0.666	340	

$$\begin{array}{r} 0.346 \\ 0.101 \\ \hline \end{array}$$

$$0.441 = 2 \text{ coll.}$$

$$0.22 = \text{Coll. H.W. points WJW}$$

Axis Reversed

mark 0.900 - .100 to left of mid wire

sec W	895	- .105	101
	-890	- .110	<u>23</u>
660	-910	- .090	<u>363</u>
007	-900	- .100	<u>202</u>
347	-900	- .100	<u>2323</u>
	<u>14445</u>	- .0101	<u>101</u>
	0.899		<u>.239</u>
	<u>0.666</u>		<u>0.101</u>
	.239		

$$\text{H. East Transit circle points } 0.22 \text{ East of South} = 0.51$$

$$\text{Value of a revolution} = 35.0 = 2.32$$

Mid wire = zero

C to D = 6.00

$$6 \overline{) 13.9} \text{ approx } 2.32$$

$$1'' = 2.32$$

$$1'' = 35.0$$

$$\begin{array}{r} 70 \\ 70 \\ 770 \end{array}$$

$$\begin{array}{r} 464 \\ 464 \\ 510 \end{array}$$

value of 1st = 0.35 arc.

After adjustment

$$\text{Coll H.E. in E of S} = 0.043 = +0.098$$

Red. mean of wires

$$-0.032$$

H.E. Inst. col. E of S

$$+0.066$$

$$\left(\frac{83}{87} - 75^\circ \right)$$

After adjustment

(Collimation corrected)

H. West North mark appears to the right of mid wire

$$0.050$$

$$0.035$$

$$0.020$$

$$0.043$$

$$0.030$$

$$0.123$$

$$0.036$$

$$23$$

$$389$$

$$246$$

$$2829$$

$$0.0826$$

$$0.0947$$

$$0.88$$

$$88$$

$$89$$

$$89$$

$$89$$

$$89$$

$$0.88$$

$$0.12$$

$$0.04$$

$$0.08$$

$$12$$

$$12$$

$$11$$

$$11$$

$$11$$

$$11$$

$$11$$

$$11$$

$$11$$

$$11$$

$$\text{Coll after adjustment } 0.04$$

$$\text{H. East col} = \text{East of S.} = 0.093$$

$$12$$

$$12$$

$$11$$

$$11$$

$$11$$

$$11$$

$$11$$

$$50$$

$$0.50$$

$$0.50$$

$$0.50$$

$$0.50$$

$$0.50$$

$$36$$

$$12$$

$$24$$

$$12$$

$$36$$

$$60$$

$$60$$

$$60$$

$$12$$

$$24$$

$$12$$

$$36$$

$$60$$

(526)

Aug 7th

Antares.

81.2

46.0

01.5

16.5

322

42.

26. 3/ 3

1877

127.7

16.81

16. 30 = 14.81

August 8^t

$\begin{array}{r} 2557 \quad 4..49..0 \\ 16 - \underline{\underline{4..50..55}} \end{array}$

$\begin{array}{r} 4.53.0 \\ 10-4.42.20 \\ \hline \end{array}$
 $\begin{array}{r} 4.52.0 \\ 424-4.39.46 \\ \hline \end{array}$
 $\begin{array}{r} 4.55.0 \\ 4.58.12.5 \\ \hline \end{array}$
 $\begin{array}{r} 4.56.0 \\ 333-4.40.35 \\ \hline \end{array}$

$$\begin{array}{r} 196 - 4.57 - 0 \\ 7.39.19.5 \end{array}$$
$$\begin{array}{r} 4 \dots 56 \dots 0 \dots \\ 10 \dots 56 \\ \hline 4 \dots 45 \dots 54 \dots 4 \\ 40 \dots 35 \\ \hline - 5 \dots 19 \dots 4 \end{array}$$
$$\begin{array}{r} 41.137 \\ \underline{18.3} \\ 41.40.54.4 \\ 41.57.00 \\ - 10.05.6 \\ 3 \quad 9 \quad - 12.9 \\ \underline{5712.} \\ 2.56 \end{array}$$

(527)
All EastAugust 8th
179 B Orionis
6.56.0

7.9.7

7.23.8

7.37.8

7.51.8

8.5.5

5.08.14.3

2039

712639

37.70

-2

5.07.35.70

5.07.17.56

179 + 18.14

Am.
B Laueri
6.19.6

6.35.2

6.57.0

7.6.4

7.22.0

7.37.7

5.17.53.5

2254

71454

7.6.49

-2

5.17.4.49

45.97

18.52

Rate of 179 + 3.9

hly + 0.16

18.14
52
39
26

1131

18.33

3.4

22.1

E Orionis

8.12.9

8.26.3

8.40.5

8.54.0

9.7.8

9.21.3

5.29.35.4

1982

71378.2

54.0.3

-2

5.28.52.03

8.33.77

+ 18.26

Capella 5.5 - 266.33

B Orionis 5.7 - 320.46

B Laueri 5.16 - 283.55

B Orionis 5.24 - 312.48

E Orionis 5.28 - 313.41

α Orionis 5.47 - 305.01

Polaris 13. - 220.53

Spica 13.17.34 322.45

E Orionis when my 13.41 - 262.19

3.57.57.47 - 293.14

Archim 14.08 - 292.25

4.11.2

4.25.0

4.34.0

4.52.5

5.6

5.25.19.8

2110

60

712710

5.24.38.71 - 2

78.186

28.39

+ 18.39

13.43.01

2175

186

71397.5

56.79

13.41.54.79

34.93

+ 19.56

P.M.

No 179

Ther 78

Polaris S.P.

G 12.39.34.0

26.23.0

Spica 17.9.0

7.23.0

E 12.57.08.8

8.48.2

17.23.0

52.2

D 13.05.57.0

17.37.0

17.57.0

6.5

C 13.14.46.0

8.49.0

13.18.5.0

13.68.21.2

B

125.0

2

28.14

A 13.32.09.5

26.12.5

2500

24

1553

12

37.00

13.47.50.14 + 0.2

91.06

22

13.17.35.00 + 0.2

13.17.15.62

13.05.55.06

129

+ 19.38

+ 19.58

13.05.53.06 + 0.49

red. to mean

13.05.35.03

+ 18.03

13.05.35.03

+ 18.03

+ 18.03

+ 18.03

Mean of G - E, D, C, B, A = Mean of fall + 0.013 ued
 Mean of B, C, D, E, F = " + 0.023 ued
 Mean of G, E, D, C, B, A = " + 0.005 ued

(5718) 150

1849

August 9th Am

179 Jan 22.1

179 - 5 - 31 - 0

179 - 5 - 32 - 0

5 - 33 - 0

5 - 34 - 0

26 - 5 - 42 - 39.7

2557 - 5 - 42 - 45.5

2440 - 5 - 27 - 43.2

10 - 5 - 33 - 3.2

179 - 5 - 35 - 0

421 - 5 - 36 - 5

5 - 37 - 0

5 - 38 - 0

2492 - 5 - 45 - 16.2

421 - 5 - 36 - 4.5

179 - 5 - 49 - 55.8

333 - 5 - 31 - 9

179 - 5 - 39 - 0

196 - 8 - 26 - 56.5

179 July 31st = 12.1

Aug 8 Am + 18.4 Rate of 179

$$\begin{array}{r} 30.5 \\ 8 \overline{) 240} \\ \underline{24} \\ 65 \end{array}$$
9th

Polaris S.P.

Mc East

322 - 45

Gina

G 12 - 39 - 36.2

26 - 24.5

12.7

26.8

12 - 57 - 15.8

8 - 44.7

40.0

D 13 - 06 - 0.5

8 - 45.8

54.0

13 - 14 - 46.3

8 - 45.8

13 - 18 - 08.3

13 - 23 - 29.7

17 - 29.2

141.8

A 13 - 32 - 12.2

26 - 11.7

283.6

101.0

17 - 46.36

202.0

13 - 17 - 38.36

13 - 05 - 56.20

17 - 15.61

cor. to mean + 49

+ 22.75

13 - 05 - 56.69

omitting B.

$$\begin{array}{r} 12.021 \\ 13 - 6 - 1.0 \end{array}$$

J

August 13

Polaris S.P.

12. 57. 33.00 $\frac{1}{2}$

D

13. 15. 04.0

2) 12. 37.0

mean

13. 06. 18.5

13. 06. 16.5

13. 05. 38.3

+ 38.2

Antares

0. 6.8

0. 21.7

0. 37.5

0. 52.3

1. 7.3

1. 23.0

16. 21. 38.4

187.0

146

7) 367.0

52.43

16. 20. 50.43

20. 11. 65

+ 38.78

Aug^e 14th.179 - 10. 49. 0 $\frac{1}{2}$ - 9. 31. 09.79

196 - 1. 15. 54.7

10. 49. 0.00

10. 48. 43.77

9. 31. 56.52

1. 16. 21.25

0. 59. 50.17

15. 57. 38

20. 94

1. 16. 08.74

1. 15. 59.7

- 9.04

18

- 25.04

(No. 179) (629)

8 Ophiuchi

6. 28.0

6. 41.5

6. 55.4

7. 9.2

7. 23.0

7. 36.7

16. 07. 50.5

2443

180

7) 643

09.19

16. 09. 07.19

16. 06. 27.46

+ 39.23

9th - + 22.75

4) 16. 48 / 4.12

39.23

42.23

8 Ophiuchi 16. 06 - 315.41

Antares - 16. 20 - 338.28

179 - 16. 46.0

2557 - 16. 55. 40.7

179 - 16. 47.0

26 - 16. 58. 32.6

179 - 16. 48.0

2492 - 16. 58. 24.5

179 - 16. 49.0

10 - 16. 47. 43.2

179 - 16. 50.0

333 - 16. 43. 10.8

179 - 16. 51.0

2440 - 16. 45. 19.7

179 - 16. 52.0

24 - 17. 04. 40

179 - + 42.23

179 - 10. 55. 0

196 - 1. 21. 59.2

10. 55. 0.00

42.23

10. 54. 17.77

9. 31. 56.52

1. 22. 21.25

0. 59. 50.17

21. 56. 39

20. 94

1. 22. 07.75

1. 21. 59.2

- 8.5

16

24.5

25.0

19.5

- 24.7

649

(179)

(532) 50

Aug 14 (15th Am) Ill. East

21 Eridani

a Tauri

1..4.9	27.26.0
1..19.2	7.35.8
1..33.3	7.50.0
B1 1..47.5	4..28..4.2
2..1.4	8.18.3
2..15.8	8.32.7
3..52..30.0	4..28..47.4
1521	309.4
180	782
7/332.7	729.4
1..47.46	4.20
-2	-2
3..51..45.46	4..28..02.20
50..00.21	27..16.98
45.25	+45.22

B Tauri

16..47
17..21.5
B1 17..18.0
17..33.5
17..49.3
18..50
5..18..20.4
175.7
60
7/235.7
33.67
-2
5..17..31.67
16..46.15
+45.52

8 Orion
4..24.0
4..38.3
4..52.2
B1 5..5.8
5..19.2
5..33.2
5..25..47.3
220.0
150
7/40.0
6.71
-2
5..25..03.71
24..18.49
-45.22

Capella
5..22.6
5..42.0
6..02.0
5..06..21.4
6..41.2
7..0.6
7..20.4
7/150.2
21.46
-2
5..06..19.46
5..05..33.95
+45.51

Y Eridani	3..50	-	326..20
a Tauri	4..27	-	296..12
Capella	5..5	-	266..33
B Orion	5..7	-	320..46
B Tauri	5..16	-	283..55
8 Orion	5..24	-	312..48
ε Orion	5..28	-	313..41
a Orion	5..47	-	305..01

B Orion
32.6
5..8..46.9
East

ε Orion	8..40.3
8..52.0	
B1 9..7.5	
9..21.0	
9..35.0	
9..49.0	
5..30..03.0	
209.8	
62	
7/149.8	
21.40	
2	
5..29..19.40	
28..33.94	
+45.46	

α Orion	7..6.4
7..20.2	
B1 7..34.2	
7..48.0	
8..1.8	
8..16.0	
5..48..29.7	
156.3	
150	
7/336.3	
48.04	
-2	
5..47..46.04	
47..00.67	
45.37	

(537)

Aug^r - 15th Am

179- 5.52.0 179- 5.53.0 179- 5.56.0 — 5.57.0
 66- 6.03.30.3 2492 6.03.27.5 10- 5.54.33.8 2440- 5.51.8
 179- 5.58.0 — 6.00.0 — 6.01.0 — 6.02.0
 2557- 6.07.39.6 14- 6.12.30.2 424- 5.57.41.2 333- 5.54.50.2

15²16⁺

8 Orion

4.29.0

4.42.5

4.56.2

B1

5.10.0

5.23.2

5.37.0

5.25.57.0

248.9

180

7168.9

09.84

5.25.07.84

5.24.18.57

16⁺ + 49.3316⁺ 45.22

714.11

2.05

Ill. East

8 Orion

44.3

457.8

9.11.2

B1

9.25.2

9.39.0

29.53.0

5.30.06.7

237.2

66

1177.2

.25.41

5.29.23.41

33.96

x 49.45

179- 5.31.0

333- 5.23.39

5.31.0

49.5

5.30.10.5

5.23.39.0

333 - 6.31.5

put faint - 6 m.

Pnt back Lc. 10^m (332)

1849

August 16th

Polaris L.P.

(Mr. East?)

Ce - 12..44..6

179-12..44..30.8

12..40 ..13.2 $\frac{1}{6}$ 17.812..49 ..03.0 17 28.0 *Spica*

12..57 ..48.0 8..43.0 7.25.8

13..06 ..31.0 D 7.40.0

13..15 ..20.0 8..49.0 7.54.0

13..24 ..0.3 17 24.3 8..8.0

13..32 ..48.7 A 26..17.7 8.22.0

7/45 ..44.2 8..36.0

13..06..32.03-2^o 13..18..50.0

Col - 7.64 235.8

Level - 2.92 180

Dev. + 11.96 7/55.8

13..06..31..43 02.97

13..05..40..40

179 fast - 51..03

Level

Mr East

East W

X 49.9 53.7

50.0 53.2 X

49.9 53.7

49.95 53.45

a Bootis 49.95

8..55.8 1.73

9..10.2

9..25.0

9..40.0

9..54.4

0..8.3

14..10..23.2

2/69

60

7/2769

39.56

-2

14..09..37.56

+21

+11

+17

14..09..38.65

14..08..47.15

179 + 50.86

b = 103.4

leo error = +0.11

corrected for bubble length

E Bootis

lost

8..46.2

9..1.6

9..17.0

9..32.7

9..48.2

14..40..03.6

1357

14..39..12.14

14..39..15.14

+23

+13

+12

14..39..15.62

14..38..24.27

+ 51.35

cor mean

wins

+02

r Polaris - 13..5..220..53

r Spica - 13..17..322..45

r 2nd Mag. - 13..41..262..19r 2nd Bootis - 13..47..293..14

r a Bootis - 14..08..292..26

E Bootis - 14..38..284..40

and libra - 14..42..327..48r B^{ar} min - 14..57..237..37r B^{ar} libra - 15..08..321..12and cor B^{ar} - 15..28..285..102nd Bootis

7.39.0

7.53.8

8..8.4

8..23.0

8..37.5

8..52.0

13..49..06.5

2202

60

7/1602

22.89

-2

13..48..20.84

+22

+11

+13

13..48..21.35

47..30.37

+51.06

B^{ar} min

49..26.2

50..18.2

51..09.3

52..02.0

52..52.8

53..47.0

14..54..39.8

1973

14..52..02.47

14..52..00.427

51 + 39

-0.84

14..52..00.7590

14..51..10.02

+50.738

45 0.167

4 0.083

40 6.041

15.24

327.49

16941

7/17347

B^{ar} libra

7..5.2

9..19.2

9..33.3

9..47.6

0..1.3

0..14.8

15..10..29

1502

180

7/330.2

47.17

15..9..45.17

+20

+102

+33

15..9..45.77

15..10..54.72

+51.05

(553)

16^L

a Cor 8. 25.4

8. 40.7

B1 8. 56.0

9. 11.4

9. 27.0

9. 42.3

15. 29. 58.0

260 8

182

3180.8

11.54

15. 29. 09.54

+1.22

+1.12

15. 29. 10.01

15. 28. 18.76

+51.25

Day of Arrival and first comparison of Chronometers
Illumination East -

16

Collimation (R East) East of South

0.20

Level Bias, west end too high

1.73 = 0.117

Deviation in Azimuth East of South

0.41

Equatorial value of 1" of micrometer = 2.243 - 1^d = 0.024

= 0.36 G & D

Aug. 16th - at 14^h - 179 - Fast of Sid time Camb - 50.4
Daily Rate of 179 on Sid time - 3.7Aug. 16th at 14^h 16^m 179. Fast of Sid t Camb - 51.06

Rate to 18.30 at 3.93 - 64

51.70

Fast by obs. at 18.30 - 57.78

Fast at 18.30 Sid - 51.74

So. 179 fast Aug. 16
at 12^h Sid time Camb

Polaris	-	50.88	x exp
Spica	-	50.84	
γ Bootis	-	50.77	
α Bootis	-	50.56	
ε Bootis	-	50.98	x exp
Buss. Min	-	50.36	x exp
β Libra	-	50.60	
a Cor Boon	-	50.73	
		57350	
		50.70	

(5321)

Aug 16

(179) Ill East

a Ophiuchi

M Sagitt

M M M

8.8.5

4.55.2

8.22.3

5.10.0

8.36.5

5.24.7

8.50.5

B1 5.39.4

9.5.0

5.54.4

9.18.8

6.9.0

17.29.33.0

18.06.23.8

174.6

216.5

180

60

1354.6

1276.5

.50.64

18.05.39.50

17.28.48.64

18.05.37.50

+1.20

+1.21

+1.10

+1.06

+1.21

+1.40

+1.15

18.05.38.17

+1.15

18.04.46.56

+1.15

+51.67

Bdyra

4.37.0

4.53.0

5.9.4

B1 5.26.0

5.42.7

5.59.0

18.46.15.6

242.7

60.7

7182.7

26.10

2

18.45.24.10

+1.24

+1.14

+1.08

18.45.24.56

18.44.32.57

+51.99

Bagnila

8.8.3

8.22.0

B1 8.36.0

8.49.8

9.3.5

9.11.2

19.49.31.0

167.8

160

71347.8

49.69

19.48.47.69

+1.20

+1.09

+1.25

19.48.48.23

19.47.56.57

+51.72

a Herminis 17.07-292.49

v a Ophiuchi 17.27-299.43

v a Sagittarii 18.04-333.28

v a Lyrae 18.32-273.45

B Lyrae 18.44-279.12

γ Lyrae 18.58-298.45

δ Lyrae 19.17-309.84

γ Aquila 19.39-302.08

a Aquila 19.43-303.55

B Aquila 19.47-306.21

a Lyra

1.52.3

2.10.0

2.27.7

B1 2.45.3

3.2.5

3.20.0

18.33.38.0

195.8

120

71315.8

45.11

18.32.43.11

+1.25

+1.15

+1.03

18.32.43.54

18.31.57.74

+51.80

a Aquila

3.39.2

3.53.0

B1 4.6.7

4.21.0

4.34.5

4.48.5

19.45.02.3

205.2

60

71145.2

20.74

19.44.18.74

+1.20

+1.10

+1.23

19.44.19.27

19.43.27.50

+51.77

(535)

Aug 16th 1849 Chronometers from LiverpoolTime 7^h 30^m P.M. Compared by W.C.B.
Coincidences

$$\begin{array}{rclclcl}
 1507 & 1^{13} & 28.09 = & 1 & 29.39 & = 1 & 31.11 = 1 & 32.40 \\
 179 & 17 & 06.30 = & 17 & 07.59.5 & - 17 & 09.31 = 17 & 10.59.5 \\
 & & 18 & 28.39 & 21.39.5 & 21 & 40 & 21.40.5 \\
 & & 4^{16} & 14.15 & 4^{16} & 15.56 & 0 & 4^{16} 18.57 \\
 179 & 19 & 51.40.5 & 19 & 53.21 & .5 & 19 & 56.21
 \end{array}$$

$$\begin{array}{r}
 4.24.59 \\
 20.02.21 \\
 \hline
 15.37.22
 \end{array}$$

$$\begin{array}{r}
 4.42.69 \\
 20.20.25 \\
 \hline
 22.44
 \end{array}$$

$$\begin{array}{r}
 4.36.63 \\
 20.14.21 \\
 \hline
 8.22.42
 \end{array}$$

$$\begin{array}{r}
 4.38.36 \\
 20.15.53.5 \\
 \hline
 2.42.5
 \end{array}$$

$$\begin{array}{r}
 4.39.66 \\
 20.17.23 \\
 \hline
 2.43
 \end{array}$$

$$\begin{array}{r}
 4.41.38 \\
 20.18.54.5 \\
 \hline
 2.43.5
 \end{array}$$

179 fast Aug 8th Am - 18.33
16. PM - 57.40

$$\begin{array}{r}
 33.47 \\
 - 2 \\
 \hline
 31.47 \\
 8 \overline{) 31.47} \quad \text{Rate} \\
 \hline
 74
 \end{array}$$

July 179
Daily Rate of 179, gaining + 3.93
at 18^h 30^m A.M. fast ——— 57.78
Rate for 14^h 20^m ——— 2.33
54.41

$$\begin{array}{r}
 24) 31.93 / .16 \\
 24 \\
 \hline
 153 .32 \\
 144 \\
 \hline
 9 \\
 12 \\
 \hline
 1.96 \\
 2.33
 \end{array}$$

1.45
1.40.5
1.41
1.40.5
3.01
3.00

53°

Aug 17th 1849.

$$179 = 7.34.15$$

$$196 = 9.49.42.8$$

$$1507 - 16.58.41 - 16.59.57 - 17.11.30$$

$$179 - 8.31.30 - 8.33.9.1 - 8.34.40$$

$$179 = 7.35.45$$

$$365 = 2.32.59.8$$

$$1507 - 16.52.55 - 16.53.56 - 16.56$$

$$150 - 15.35.17 - 15.36.02.5 - 2$$

$$3 \quad 57.0 \quad 3$$

$$2.5$$

$$1507 - 16.07.2 - 16.08.0 - 16.09.59 - 17.10.60 - 17.11.60$$

$$180 - 15.39.1 - 15.40.4 - 15.42.2.5 - 15.43.03 - 15.44.2.15$$

$$1.27.56.0 \quad 27.56.5 \quad 27.57 \quad .57.5$$

60
2

Lid. 179 - 8.53.6

Sol. 180 - 15.51.54.7

179 - 8.54.0

180 - 15.52.54.5

$$124$$

$$172$$

$$19) 572 (354$$

$$57$$

$$102$$

$$95$$

$$24) 320 (0.14$$

$$24$$

$$80$$

Aug 16th 8 P.M. Last 50.7

17th 3 P.M. 53.5

Daily Rate of 179 3.20

$$179 \text{ at noon } 52.76$$

$$17^{\text{th}}$$

So 179 at 8.53 Sid. t.

Last - 54.11

$$179 - 8.53.0.92$$

$$179 \text{ fast at comp. } 52.66.2$$

$$\text{Lid } 16^{\text{th}} \text{ noon } 9.39.49.63$$

$$23.12.17.71$$

$$22.56.13.92$$

$$11.58.03$$

$$16.95$$

$$11.08.29.61$$

$$180 - 15.51.54.7$$

$$+ 4.43.25.09$$

1.06.4

$$11.08.29.61$$

$$15.53.01.61$$

$$180 - 15.51.54.7$$

$$- 1.06.91$$

$$3.56.0$$

$$1.06.9$$

$$15.57.06.9$$

$$4.44.32$$

$$11.12.34.9$$

$$1519 - 15.55.47.8$$

$$4.48.12.6$$

$$24) 110 (0.04$$

$$24$$

$$96$$

$$179 - 8.54.6.00$$

$$\text{fast } 54.11$$

$$32.53.05.89$$

$$9.39.49.63$$

$$23.13.16.26$$

$$22.56.13.92$$

$$11.58.03$$

$$16.95$$

$$11.08.29.61$$

$$180 - 15.52.54.5$$

$$+ 4.43.26.49$$

$$4.44.32$$

$$- 1.05.51 - 0.90 = 1.06.41$$

1849. August 17th (30th 16th PM) Note Book No 3
 Comp of ^{are in R.Y. B. 1} 180 Flow of Greenwich - 0.1.07.91
 Comparison with Mean Solar Chro. Hutton No 180. com - 0.1.06.9
 No 180 East of Cambridge - m.s.t. 4.43.25.1 Gith - 1.05.57

180 - 15.56.0^x - 4.8.0^x - 4.10.0^x - 4.12.0^x
 1519 - 15.55.47.5 1570 - 4.5.36.9 1508 - 4.07.50.2 1506 - 4.12.8.2
 -12.5 -2.23.1 -2.09.8 +3.2

180 - 4.14.0^x - 4.15.0^x - 4.17.0^x - 4.18.0^x
 1505 - 4.14.19.7 } 1503 - 4.16.16.8 1127 - 4.16.36.4 1454 - 4.15.45.8.46
 +19.7 +1.16.3.2 -23.6 -2.14.1
 1488 - 4.15.32.4 1491 - 4.20.26.6 } 1492 - 4.25.36.8 1502 - 4.17.48.4
 -4.27.6 -1.33.4 +1.36.8 -8.11.6
 10 - 4.30.39.8 6755 - 4.36.84.5 6701 - 4.35.0^x - 4.38.0^x
 +39.7 +2.34.5 +4.41.4 +1.00.4
 1521 - 4.37.44.4 310 - 3.56.4.7 2857 - 5.08.4.7 715 - 4.46.13.5
 -1.15.6 -46.55.3 +0.24.04.7 +1.13.5
 2663 - 4.22.57.3 776 - 4.53.55 1109 - 4.46.28.5
 -24.08.7 +5.55.0 -2.31.5

180 - 4.52.0^x - 4.53.0^x - 4.55.0^x - 4.56.0^x
 258 - 4.51.10.7 250 - 4.51.17.7 230 - 5.00.10.2 227 - 4.52.19
 -49.3 -1.42.3 +5.10.2 -3.41.0
 180 4.59.0^x A - 4.59.43.2 B - 4.58.57.4 C - 5.0.44.5 D - 5.2.56
 +43.2 -1.08.6 -0.55.5 +56.0
 E - 5.4.0^x F - 5.5.0^x G - 5.7.0^x H - 5.9.0^x
 +17.6 +4.3 +43.5 -0.37.3
 I - 5.10.0^x J - 5.11.0^x K - 5.12.23.3 L - 5.12.28.2 O - 5.05.1.8 +10.2
 -0.19.6 +1.23.3 +28.2

Pocket

Int. Plan 80. Bar 30.07

180 - 5.39.0^x - 5.40.0^x - 5.41.0^x - 5.42.0^x
 653 - 5.40.31.6 2 - 5.44.28 906 - 5.42.30 4 - 5.42.24.2
 +1.31.6 +4.28.0 +1.30.0 +24.2
 2 5.43.0^x 190 - 13.02.49
 +1.09.2 -4.41.11

179 - 0.17.0
 180 - 7.15.20.7

12.17.0
 12.16.07.1
 9.43.46.2
 2.32.20.9
 1.59.40.34
 31.14.76
 19.95
 2.31.55.95
 4.44.52.95

Sid - 9.42.59.45
 9.43.46.18

7.16.27.95
 180 - 7.15.20.7
 -1.07.25 180 Flow of Gr.

15.56.0
 4.43.25.1
 11.12.34.9

Aug 16/17 199 - 8.54.0
 52.70 53.21
 32.53.07.30
 9.39.49.63
 23.13.17.67
 22.56.13.92
 12.57.87
 16.9.5
 11.09.29.47
 180 - 15.52.54.50
 4.43.25.09 +0.51
 at 11th 9 Camb.

(538)

(No 179)

Ill. East

Collimation E of S 0.2 - 3"

August 17th
Polaris S.P.

12 .. 40 .. 13.3

12 .. 49 .. 03.5

12 .. 57 .. 52.0

B1 Lost by clouds

13 .. 15 .. 22.0

13 .. 24 .. 10.0

13 .. 32 .. 50.0

13 .. 06 .. 35.0

13 .. 06 .. 33.0

- 2.64

+ 12.28

6 .. 34.72

5 .. 41.10

+ 53.62

14 .. 47.5

2 .. 9.0

2 .. 30.5

2 .. 52.0

3 .. 13.2

13 .. 43 .. 34.5

7/2130

.. 30.43

- 2

13 .. 42 .. 28.43

+ .31

+ .18

- .09

13 .. 42 .. 28.83

13 .. 41 .. 34.72

block error + 54.11

Micra

7.28.8

7.43.0

7.57.0

B1 8.10.9

8.24.8

8.38.7

13.18.52.5

2557

180

7/757

.. 10.81

- 2

13.18.08.81

+ .20

+ .07

+ .34

13.18.09.42

13.17.15.52

+ 53.90

E Bootes

8.33.4

8.49.0

9.4.4

9.20.0

9.35.3

9.57.0

14.40.06.4

19.95

13.95

19.93

14.39.17.93

+ .23

+ .12

+ .11

14.39.18.39

14.38.24.24

+ 54.15

9 Bootes

42.8

56.5

11.5

B1 25.8

13.49.09.60

cloud intercept

arcturus

8.59.0

9.13.6

9.28.0

9.42.5

9.57.3

10.12.0

14.10.26.4

2386

60

7/298.6

42.66

- 2

14.9.40.66

+ .21

+ .11

+ .17

14.09.41.18

14.08.47.17

+ 53.98

179-

14.12.0

53.46

14.11.06.56

9.43.46.18

4.27.20.36

3.59.20.68

26.55.58

19.94

13.6

4.26.36.56

9.10.1.3

4.43.24.74

4.44.32

180 hours

- 1.07.26

(339)

August 17

$$\begin{array}{rclclcl}
 1507 - 10.23.30 & - & 10.25.8 & - & 26.38 & - & 10.28.11 \\
 179 - 13.54.52.5 & - & 13.56.30 & - & 57.58.5 & - & 13.59.32 \\
 & & 3.31.22 & & 3.31.21.5 & & 3.31.21.0
 \end{array}$$

$$\begin{array}{rclclcl}
 150.7 - 10.29.60 & - & 10.31.61 & - & 10.32.62 & - & 10.33.63 \\
 180 - 8.59.23.5 & - & 9.01.23.5 & - & 9.02.24 & - & 9.03.24.5
 \end{array}$$

$$\begin{array}{rcl}
 1507 - & 60 \\
 180 - & 5.20.5
 \end{array}$$

$$\begin{array}{rclclcl}
 179 - 14.12.0 & - & 14.13.0 & - & 14.14.0 & - & 14.17.00.0 \\
 180 - 9.10.1.3 & - & 9.11.01.0 & - & 9.12.0.8 & - & 9.15.00.5
 \end{array}$$

$$\begin{array}{rcl}
 180 - 9.18.09 & \text{Coincidence} \\
 179 - 14.20.09 & \text{Coincidence}
 \end{array}$$

$$\begin{array}{rcl}
 14.20.09 & 9.42.59.45 \\
 \hline & 53.5 & 46.75
 \end{array}$$

$$\begin{array}{rcl}
 14.19.15.5 & 9.43.46.20
 \end{array}$$

$$9.43.46.2$$

$$4.35.29.3$$

$$3.59.20.68$$

$$34.54.27$$

$$28.92$$

$$4.34.44.17$$

$$4.44.32.0$$

$$9.19.16.17$$

$$9.18.09.0$$

$$\text{Error of } 180 = 1.07.17$$

$$\text{Blow of } 4.44.32.00$$

$$\text{part of } 4.43.24.83$$

$$14.20.09.00$$

$$53.99$$

$$14.19.15.01$$

$$9.43.46.19$$

$$4.35.28.82$$

$$45.13$$

$$4.34.43.69$$

$$180 = 9.18.09.00$$

$$180 + 4.43.25.31$$

part of Comb

(560)

Aug¹⁷

$$\begin{array}{rclclclcl}
 1507 - 15.040 & - & 01.41 & - & 02.41 & - & 41 & - & 06.43 & - & 7.43 \\
 1579 - 13.27.35.5 & - & 28.37 & - & 29.36.5 & \frac{35.5}{4.5} & - & 33.36.5 & - & 34.36 \\
 & & & & & & & & & & 07.0
 \end{array}$$

$$\begin{array}{rclclclcl}
 1507 - 8.09.42 & - & 10.40 & - & 11.42 & - & 14.41 & - & 17.45 \\
 1516 - 1.36.34 & - & 37.31.5 & - & 28.33 & - & 41.30.5 & - & 44.33 \\
 & & & & 8.5 & & 09 & & 10.5 \\
 1507 - 23.47 & - & 24.47 & & 26.48 \\
 1516 - 50.32 & & 51.31.5 & & 53.31.5
 \end{array}$$

$$\begin{array}{rclclclcl}
 1507 - 27.47 & - & 28.48 & - & 29.48 & - & 30.48 & - & 31.48 & - & 32.49 \\
 1319 - 54.30 & - & 55.30.5 & - & 56.30 & - & 57.29.5 & - & 58.29 & - & 59.29.5 \\
 & & 3.17.5 & & 3.18 & & 33.18.5 & & 3.19 & & 19.5
 \end{array}$$

$$\begin{array}{rclclclcl}
 1507 - 15.36.60 & - & 38.60 & - & 40.61 & - & 41.61 & - & 42.61 & - & 43.61 \\
 180 - 14.03.50 & - & 05.49 & - & 7.49 & - & 8.48.5 & - & 09.48 & - & 10.47.5 \\
 & & 3.10 & & 3.11 & & 3.12 & & 3.13 & & 32.13.5 \\
 & & 44.61 & - & 45.61 & - & 47.61 \\
 & & 11.47 & - & 12.46.5 & - & 14.45.5 \\
 & & 33.14 & & 33.14.5 & & 33.15.5
 \end{array}$$

1507 -
179 -

(561)

August 18

$26 - 5.34.0$ $179 - 5.36.0$ $179 - 5.37.0$
 $179 - 5.34.32.2$ $2557 - 5.45.37.6$ $1013 - 5.35.22.2$

$--- - 5.38.0$
 $2492 - 5.48.31$

Standard

30.140

70

Aneroid 67 -

30.125

70

Aneroid 2899

30.123

70

18th Mer. mark

micrometer.

0.855

0.852

0.777

0.800

0.820

104

0.821

0.821

0.014

0.193

Zero 014

0.441

0.193

23

0.579

386

4439

(522)

August - 20th Ann

1507 - 3..32..10 — 3..33..45 — 3..35..11

179 - 6..41..50 179 - 6..43..24.5 179 - 6..44..50

1507 - 3..37..24 — 3..38..22 — 3..39..23

180 - 13.34..16 180 - 13.35..13.5 180 - 13.36..14

26 - 6..52..0 179 - 6..56..0 79 - 6..57..0 179 - 6..59..0

179 - 6..52..34.6 2492 - 7..06..34.3 18 - 6..55..16.7 2440 - 6..52..36.3

179 - 7..0..00
2557 - 7..9..35.7 79 - 7..2..0
79 - 7..14..1.21507 -
26 -

at g. 50 Am. Camb. 523

Aug 20th No 180 East of Cambridge $4 \frac{1}{2} \text{ m } 20.8$ Flow of gw. $1 \frac{1}{2} \text{ m } 11.2$
 1507 - 4.06.42 179 - 7.21.20 180 - 2.14.27 179 - 7.30.20
 179 - 7.16.10.5 180 - 14.08.28 179 - 7.27.20 180 - 2.17.26.5

Comparison

180 - 2.27.0 180 - 2.34.0 180 - 2.35.0 2.38.0
 850 - 2.28.16.6 853 - 2.35.26.3 190 - 9.53.55 3 - 2.39.41

180 - 2.40.0 2.41.0 2.42.0 2.46.0
 365 - 9.56.59 2960 - 2.41.20.7 P.H.P. 14.46.35 1579 - 2.45.57.8

2.56.0 2.59.0 } 3.1.0 3.5.0
 1510 - 2.53.37.8 1508 - 2.56.49 } 1506 - 3.1.9.8 1505 - 3.5.28.3
 3.13.0 3.16.0 3.17.0 3.19.0
 1503 - 3.12.22.7 1127 - 3.15.44.4 1454 - 3.14.49.5 1485 - 3.14.31.4
 3.22.0 3.25.0 3.26.0 3.30.0
 1491 - 3.20.28.5 1492 - 3.26.48 1502 - 3.17.38.8-10 3.30.34.4 }
 3.32.0 3.34.0 3.36.0 3.41.0
 6755 - 3.34.40.3 6701 - 3.38.55.8 1522 - 3.37.13.7 1521 - 3.39.48.4
 3.45.0 3.47.0 3.49.0 3.51.0
 310 - 2.58.3.7 2857 - 4.11.29.5 715 - 3.58.11.1 2663 - 3.26.38.6
 3.56.0 3.58.0 } 4.0.0 4.31.0
 176 - 4.2.2.4 1109 - 3.55.26 } 258 - 3.59.7 250 - 4.32.11.8
 4.35.0 4.37.0 4.43.0 4.44.0
 230 - 4.40.21 227 - 4.33.21.5 D - 4.44.4 A - 4.44.46.3
 4.46.0 4.47.0 4.48.0
 B - 4.49.53 C - 4.46.48.5 F - 4.48.4.5

2257 E stop'd after running nine hours since Sunday morn'g
 main spring is broken

G - 4.54.0 4.56.0 4.58.0 4.59.0
 4.54.57.2 H - 4.55.24.8 I - 4.57.43.7 K - 5.00.30.8
 5.1.0 5.2.0
 L - 5.1.32 2246(10) - 5.3.9.3

10.23.3 - 15
 179 - 10.29.15 10.26.12 1507 - 7.20.35 22.35 - 23.36
 180 - 5.22.52.5 5.12.49 180 - 5.15.35.5 17.34.5 - 18.35
 5.09 5.2.5
 1507 - 7.24.57 26.28 27.58 29.36 31.0
 179 - 10.33.19.5 34.50 36.19.5 37.57 39.20.5
 1.31 1.30 1.32 1.30

(179) (524) Collimation $0.20 = 3''$ East, $90''$ East
 Azimuth 0.42 East -
 Level - 0.12 N, high $322 \dots 45$

August 20th Illumination East

Polaris Sub. pole.

Spica

B1
 12.40 26.0 26.23.0 7.38.4
 12.49 18.0 17.31.0 7.52.7
 12.58 01.0 8.48.0 8.6.7
 13.06 29.0 8.43.0 8.20.7
 13.15 32.0 8.43.0 8.34.6
 13.24 20.0 17.31.0 8.48.5
 13.33 06.0 26.17.0 13.15.02.4

7147.320

6.47.43

13.06.45.43

- 7.64

- 8.00

+ 12.13

13.06.46.92

13.05.42.4

1.04.02

Reversed

Illumination West

2 hrs. min. above Pole

Pluto

179

a Heron

7.8

21.5

17.09.36.5 East

16.57.39.0

16.59.21.3

17.01.03.5

17.02.46.3

17.04.28.0

17.06.10.0

17.07.52.0

17.07.52.0

17.07.52.0

17.07.52.0

17.07.52.0

17.07.52.0

17.07.52.0

17.07.52.0

17.07.52.0

17.07.52.0

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17.07.52.0

17.07.52.0

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17.07.52.0

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17.07.52.0

17.07.52.0

17.07.52.0

17.07.52.0

17.07.52.0

17.07.52.0

17.07.52.0

a Cor. Box

8.38.0

8.53.5

B1 9.9.0

9.24.6

9.39.8

9.55.2

15.30.10.7

230.8

230.8

230.8

230.8

230.8

230.8

230.8

230.8

230.8

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230.8

230.8

1.3.16

3.22

43

9.54.49.11

46.73

9.55.35.84

179 - 13.29.28.0

179 East - 1.03.43

13.28.24.57

9.55.35.84

3.32.48.73

2.59.30.51

31.54.76

47.87

3.32.13.87

180 - 8.15.34.5

180 East of Canb - 4.43.20.63

"Flank of G2 - 1.11.4

at 400

180 Hour of G2

17.07.9

1.11.4

1.07.9

1.11.16

1.07.9

1.11.16

1.07.9

1.11.16

1.07.9

1.11.16

1.07.9

1.11.16

(565) 12501

August 20th - Then 71 Bar4th P.M. Ill. East -
Wire D appears west of mark
Microm Reads -

80.2	206
80.0	<u>23</u>
	618
80.6	<u>412</u>
	4738
81.3	
<u>82.0</u>	

0.808	0.192
0.014	+ 0.014
	0.206

0.206 = 0.474 Ill E

0.073 Ill W

Instrument reversed - Ill west

Wire D appears west of mark

Microm reads Trans Coin

0.060	.020	.036
.052	.014	<u>23</u>
.050	.010	108
.050	.017	<u>22</u>
<u>.040</u>	<u>.010</u>	0.0728
0.050	.014	

0.014

0.036 = Wire left of mark Ill W

0.206 " Ill E

0.170

34
<u>6</u>
0.40

0.20

23

0.17

23

161

.391

0.196 E of S Ill E

0.032 cor mean of wires

= 0.164 E of S

Coll of mean of wires Ill E

Ill East

E

W

51.5	53.5 X
X 50.0	55.5
52.5	52.3 X
X 49.7	55.2
52.2	52.3 X
X 49.8	55.0 X
<u>6/3057</u>	<u>6/238</u>
50.93	53.91
53.93	
<u>2.04</u>	
1.67	

1.67 weak too high lev. = +0.10

Wire appears left of North mark

Level W + 0.09

Coll = 0.20 E of S when Ill. is East

Ill. West (52/21/179)

August 20th

a Lyra
 2.5.4
 2.23.0
 2.40.6
 B' 2.58.0 B' 3.16.1
 3.33.7
 18.33.57.0
 2277
 1867
 7/407.7
 58.24
 2
 18.32.56.24
 18.31.51.67
 1.04.57

B Lyra
 4.49.6
 5.6.2
 5.22.0
 5.38.8
 5.56.6
 6.12.0
 18.46.28.3
 2129
 609
 7/2729
 38.99
 2
 18.45.36.99
 44.32.51
 1.04.48

x a Lyra - 18.31 - 273.44
 x B Lyra - 18.44 - 279.12
 x g Aquila - 18.58 - 298.44
 x d Aquila - 19.17 - 309.34
 y Aquila - 19.39 - 302.08
 u Aquila - 19.43 - 303.55
 B Aquila - 19.47 - 306.21
 a² Capricorn 20.09 - 325.23

24/325.14
24
87

Col. West - 0.20 9.30103
 Level + 0.12 9.06819
 Az East - 0.42 9.99908

g Aquila
 8.54.6
 9.9.0
 9.23.0
 B' 9.37.1 B' 59.57.5
 09.55.5
 19.00.19.5
 200.2
 66
 7/260.2
 37.17
 2
 18.59.35.27
 58.30.52
 1.04.68

d Aquila
 8.20.7
 8.34.5
 8.49.0
 B' 9.2.3 B' 9.16.0
 9.29.7
 19.19.43.0
 1952
 150
 7/152
 2.17
 2
 19.19.00.17
 17.55.53
 1.04.64

a Aquila
 9.32
 9.46.0
 0.0.1
 B' 0.14.0 B' 0.28.0
 0.42.0
 19.40.55.9
 2180
 120
 7/980
 14.0
 2
 19.40.12.00
 9.07.36
 1.04.64

a Aquila
 3.52.4
 4.6.2
 B' 4.20.2 B' 4.34.0
 4.48.0
 5.2.0
 19.45.15.7
 1785
 60
 7/238.5
 34.07
 2
 19.44.32.07
 43.27.48
 1.04.59

B Aquila 21.2 1
 35.2 2
 Clouds 2
 03.3 4

Cloud

Col. West - 0.20
 Level 0.12 West High
 Az 0.42

Aug^y 20 (21 Am)

(567) ..

$\gamma r \quad \delta r$

Elcan May 6..	52	—	341..09
B. Gunnin	7..	11	— 290..08
a ² gun	- 7..	24	— 280..10
a can Min	7..	31	— 306..47
B. Gunnin	7..	36	— 284..00

I think these comparisons were made on the night of the 24th

179- 7¹⁹ " 17 " 39
180- 14 " 00 " 47

179-7¹⁹ 20.15
180-14.03 22.5

20th June 1921

$1507 - 3^{15} \cdot 58 \cdot 60 \sim 4 \cdot 0 \cdot 31 \sim 4 \cdot 1 \cdot 60 \quad 1507 - 16 \cdot 3 \cdot 44 \quad 44$
 $179 - 7^{19} \cdot 0 \cdot 31 \cdot 5 \sim 7 \cdot 2 \cdot 02 \sim 7 \cdot 3 \cdot 30 \cdot 5 \quad 150 - 13 \cdot 48 \cdot 24 \quad 24 \cdot 5$

1507-16.5.45 1507-
180-13.50.24

$$\begin{array}{r} 71, 20, 15 \\ 1, 4, 6 \\ \hline \sim 19, 10, 4 \end{array}$$

31

5 .. 13..55.2
5 .. 16.52

(568)

August 21st Am

Ther 74°

No 180 Flow of Greenwich - 1..12.4

180- 2..27..0 180- 2..30..0 2..32..0 2..33..0
 179- 7..43..56.4 776- 2..36..4.6 2663- 2..07..35 1109- 2..30..25
 310- 2..35..0 2..36..0 2..38..0 2..40..0
 310- 1..48..3.2 2657- 3..0..37.7 227- 2..34..22.2 230- 2..45..24.2
 250- 2..42..0 2..43..0 2..45..0 2..47..0
 250- 2..40..9.6 258- 14..02..5.4 715- 14..46..10.3 } 10- 2..47..31.3
 6755- 2..49..0 2..50..0 2..52..0 2..53..0
 6755- 2..51..42.4 6701- 2..55..1.2 1522- 2..53..18 1521- 2..51..49.8
 1579- 2..56..0 2..58..0 2..59..0 3..1..0
 1579- 2..55..53.3 1570- 2..55..38.2 1508- 2..56..48.2 1506- 3..1..12.5
 1505- 3..2..0 } 3..3..0 3..5..0 3..7..0
 1505- 3..2..31.4 } 1503- 3..2..24.6 1127- 3..4..47.8 1454- 3..4..50.6
 1488- 3..8..0 3..10..0 3..11..0 3..13..0
 1488- 3..3..31 1491- 3..08..29 1492- 3..12..57.6 1502- 3..04..35.7
 A 3..15..0 3..16..0 3..17..0 ? 3..18..0
 A 3..15..47.4 B 3..14..53 C 3..16..49.8 } D 3..19..6.5
 3..19..0 3..22..0 3..24..0 3..25..0
 F 3..19..4.5 G 3..22..53.5 H 3..23..25.3 I 3..24..44.7
 3..26..0 3..28..0 3..29..0
 K 3..27..32.7 L 3..28..33.2 0.2246- 3..30..9

Pocket

180- 3..35..0 3..37..0.0 3..39..0 3..40..0
 850- 3..36..20X 2960- 3..37..19.7 P.T.P- 3..43..37.4 906- 3..41..45
 3..42..0 3..44..0
 150- 11..00..56 653- 3..45..26.4

(569)

Trial of Dent's Chronometers in position. June 29th 1849, London
By Richard F. Bond.

A. No 2.. 47.. 49.75 = ~~6.5~~³ III up
5.. 16.. 50.4 = -6.3 -III up
7.. 13.. 49.8 = +7.4 -IX up
9.. 20.. 49.8 = ±0.0 -XII up
11.. 55.. 49.8 = ±0.0 VI up
20.. 04.. 49.3 = +1.5 on back.

B No 2.. 49.. 21.2
5.. 18.. 23.5 -22.4 III up.
7.. 15.. 23.2 +3.7 -IX up
9.. 22.. 24.6 -16.0 XII up
11.. 55.. 24.6 ±0.0 VI up
20.. 05.. 24.9 = -0.9 on back

C No 2.. 50.. 51.8
5.. 19.. 15.6 = -37.0 -III up
7.. 15.. 15.2 = +5.0 -IX up
9.. 24.. 14.7 = +5.6 XII up
11.. 57.. 18.9 = -10.0 VI up
20.. 06.. 19.1 = -0.6 on back

D. No 2.. 53.. 8.5
5.. 21.. 9.1 = -5.9 -III up
7.. 19.. 9.4 = -3.7 IX up
9.. 26.. 8.5 = +10.3 -XII up
12.. 00.. 9.3 = -7.5 -VI up
20.. 06.. 09.0 = +0.9 on back

E No 2.. 54.. 7.65 -
5.. 24.. 7.4 = +2.5 III up
7.. 18.. 7.75 = -4.5 -IX up
9.. 30.. 8.8 = -11.5 -XII up
12.. 02.. 7.2 = +15.3 -VI up
20.. 07.. 06.7 = +1.5 on the back

F No 2.. 55.. 45.25 =
5.. 25.. 45.5 = -2.5 III
7.. 16.. 45.7 = -2.6 IX up
9.. 22.. 45.8 = -1.1 XII
12.. 05.. 45.8 = ±0.0 VI
20.. 07.. 46. = -0.6 back

Hutton No 180

3.. 2.. 36.2 =
5.. 12.. 35.6 = +6.9 III up
7.. 09.. 36.7 = -13.7 IX up
9.. 18.. 36.9 = -2.3 XII up
11.. 50.. 37.55 = -6.2 -VI up
20.. 02.. 37.55 = -0.0 on back
0.. 20.. 37.6 = -0.0 do
10.. 00.. 36.15 = +3.5
10.. 00.. 36.15 =

Lukens No 190 -

July 9 to 10 - III up +3.3
10.. 11 - IX up +2.7
11.. 12 - XII up +8.3
12.. 13 - VI up -18.1
13.. 14 - Back up +0.1
14.. 15 - Face up +1.3

August 21 (22nd Am)

(179) (570)

Ill. West.

South set 5' left

Aldhebaran

Capella

7 565.0

5.45.8

7 59.5

6 55.7

8 14.0

6 25.7

8 28.0

6 45.3

8 42.4

7 5.6

8 56.5

7 24.8

4 29 10.8

5 07 44.3

256.2

1966

60

1200

7 19 6.2

7 37 66

28.03

45.23

-2

-2

4 28 26.03

5 06 43.23

27 17.19

5 05 34.23

+ 1 08.84

1 09.00

a Orionis

7 30

7 44.0

7 57.8

8 11.7

8 25.3

8 39.4

5 48 53.2

2614

180

7 81.4

11.63

-2

5 48 09.63

5 47 00.82

+ 1 8.81

Collimation up to this date
 the same as Aug 20th viz
 Coll = 0.20 W of S Ill West

179 - 6 34 08.0

1 8.88 - 1.09.08

30 32 59.12 - 0.20

9 59 32.42 - 0.20

20 33 26.70 - 0.20

19 56 43.41

32 54.59

25.93

70

8 30 04.63 - 0.20

13 13 23.1

4 43 18.37 + 0.20

4 44 32.00

- 1 13.63

9 58 45.67

46.75

9 59 32.42

20 33 26.50

3 22.47

20 30 04.43

25 13 23.00

180 + 4 43 18.57

8.84
 9.00
 8.81
 126.65
 1 8.88

(571)

August, 22 Am

No 180. Flow of Guts 1.13.8

1507-13.19.0 1507-13.21.6 ~ 25.30 ~ 26.60 ~ 28.30

179-4.13.26.7 179-4.15.30 ~ 19.52.5 ~ 21.22 ~ 22.57.5

22

179-5.42.0

5.43.0

5.44.0

5.45.0

2492 5.52.37.4 10th 5.41.9.6 2557-5.53.35.3 2440-5.38.24.8gg-5.46.0
5.57.47.5

1507-2.56.58

14.58.29

179-5.50.50

179-5.52.20.5

1507-3.11.60 3.13.32 1507-3.14.55 3.16.29

179-6.5.47 179-6.7.18.5 2557-6.18.16.5 2557-6.19.50

179-6.12.0

179-60

20.0

42 6.25.20

2557-6.21.35.4

180-17

37.0

58.5 6.04.36.5
20.43.5

179-6.13.27.0

179-6.31.10

179-6.34.8

180-1.06.16.2

180-6.10.25.5

180-1.13.23

5.20.43.8

5.20.44.5

5.20.45

Then 73

180-1.19.0

1.21.0

1.22.0

1.24.0

1570-1.16.38.3 1579-1.20.54.4 1508-1.19.47.6 1506-1.24.14.7

180-1.25.0

1.27.0

1.28.0

1.30.0

1505-1.25.34.5 1507-1.26.26.5 1127-1.27.57.4 1454-1.27.57.7

180-1.31.0

1.33.0

1.34.0

1.36.0

1488-1.26.30.3 1491-1.31.29.7 1492-1.35.55.1 1502-1.27.32.8

1.39.0

1.44.0

1.45.0

1.47.0

Cy 10-1.39.25 6755-1.46.44.3 6761-1.50.6 1522-1.48.22.3

1.48.0

1.50.0

1.51.0

1.52.0

1521-1.46.51.2 776-1.56.7.2 2663-1.26.31.2 2857-14.16.45.7

1.53.0

1.54.0

1.57.0

1.58.0

310-1.06.3.2 1109-1.51.24.3 227-1.53.22.7 230-2.03.27.6

2.0.0

2.1.0

2.2.0

2.6.0

250-1.58.07.6 258-2.0.3.8 715-2.3.8.7 906-2.7.49

2.7.0

2.8.0

2.9.0

2.10.0

2690-2.7.18.8 P28.0 P-2.12.37.4 190-9.27.58.5 830-2.11.23.5

2.14.0

2.24.0

2.25.0

2.26.0

653-2.15.26 A-2.24.47. B-2.23.53.4 C-2.25.57.5 D-2.27.0

2.28.0

2.29.0

2.30.0

2.31.0

E-2.28.4.2 0.22462 30.103 G-2.30.56 H-2.30.25.8 I-2.31.45.7

2.33.0

2.34.0

179-8.58.03

179-8.0.60

K-2.34.34.8 L-2.34.34 180-2.37.0.9 180-2.40.0.5

(572)
mark very distinct & steadyAugust 22 Am 11^h After the morning observations and comparison of Chronometers.

Set the micrometer when the movable wire corresponded to D, to read 100 or zero. Reduced the collimation and obtained the following Readings of the micrometer

Mid. wire D - To the left hand of the north central dot.

Read - d	mid wire	minimum of light	Sum of left & right
0.100 000	0.986.026 Left	.028 Right	0.004
.095 005	.970 .030 "	.037 - "	004
.097 003	.967 .033	.030 - "	- 002
.100 000	.980 .020	.028 - "	004
.097 .003	.972 .028	.035 - "	003
0.098 - 0.003 = 0.095	0.974	.032	Mean coin. with mid wire = 0.003

Micrometer wire bisects the central dot

at -	0.095	05
	.082	
	.085	admirable definition
	.085	
	.090	coin
	.9437	
	.087	- 0.003
		0.084

The Right hand dot bisected

at Reading -	1 st 355	readings increase from zero with the distance
	1.354	
	1.353	
	1.356	
	1.350	

Left hand dot bisected

at Reading -	1.837	= 1.163
	1.835	1.165
	1.836	1.170
	1.845	1.155
	1.837	1.168

Find no Δ for determining the coll. error from Aug 20 to Aug 30th But it is stated above that the readings have been reduced & on Aug 27 to have been

Retrest = 0.042 W of S
red mean for Aug 27 = 0.032
Int. coll. = 0.010 W of S
He W

August 22 -

(179) (573)

Polaris & P

Ill. West.

Polaris - 13.05

220.56

clouds

Spica

Spica - 13.17

- 322.45

B 12.49 12.8

7.45.0

C 12.57 59.2

7.59.0

D 13.06 45-D

8.13.0

E 13.15 31

8.26.9

F 13.24 17

8.41.0

1650

8.54.9

3300

13.19 08.6

12

2484

45.00

7.188.4

-2

26.91

13.06 43.00

05.43.99

13.18 24.91

59.01

13.17 15.47

+ 1.09.44

179-13.27.10

179.13.29.0

180-8.05.16

180-8.07.5.7

1507-10.38.39-10.39.39

180-8.08.02.5-8.09.02

1507-10.41.23-10.44.26

179-13.32.40-13.35.42

13.27.10

10.02.42.22

1.09.44

46.75

13.26.00.56

10.03.29.97

10.03.28.97

3.22.31.59

2.59.30.51

21.56.40

30.92

3.21.58.42

4.44.37

8.06.30.42

8.05.16.0

0.01.14.42

a Boeth. 14.08-292.21

E Boeth. -14.38-284.37

a² Libra -14.42-327.44

B. hrs. min -14.57-237.34

B Libra -15.09-321.09

150 Stowfgr. at 3.20

Change in Azimuth

Micrometer - Central dot

0.142

Coincidence at mid wire D

.140

1st -0.995.005 + .005

.150

.000.000 + .000

.150

1st - .992.008 + .008

.145

1st - .493.007 - .007

.145

1st - .490.010 - .010

5.22.7

0.994

0.145

0.087

0.058

Change

arcturus

9.15

E Boethis

8.49.4

a² Libra

3.2.0

B hrs. min

14.49.44.8

B Libra

24.5

9.29.3

9.4.7

3.16.3

50.37.5

38.8

9.44.0

9.20.3

3.30.5

51.29.4

12.6

9.58.8

9.36.0

3.45.0

52.21.5

6.5

0.13.2

9.57.4

3.59.4

53.13.8

0.28.0

0.7.0

4.13.5

54.06.2

15.10.34.0

14.10.42.4

14.40.22.3

14.66.27.5

54.58.3

2307

191.1

194.2

211.5

180.7

60

190

60

7.410.7

7.25.11

7.314.2

7.151.5

58.67

35.88

44.90

21.64

14.09.56.67

14.39.33.88

14.43.42.00

14.52.19.64

14.08.47.10

38.24.16

42.33.36

51.09.55

1.09.57

1.09.72

1.09.54

1.10.09

(574)

Aug^t 22 (23 Am)

189 - 5.. 43.. 0 10.. 2.. 42.22
 8th - 7.. 35 12.5 10.. 3.. 28.95
 5.. 43.. 0
 1.. 10.9
 29.. 41.. 49.1
 10.. 03.. 28.95
 19.. 38.. 20.15
 18.. 56.. 53.24
 37.. 53.77
 19.94
 .15
 7.. 35.. 07.10
 7.. 35.. 12.5
 canb - + 05.4
 1.6
 Boats + 10.6.

42.22

50.04

7 42

42.22

19.09

23.13

Friday Aug 24 1849 Coll =

All went

Sub Polo Polaris all but the ~~two~~ last wire but one were lost

17.31.8

17.31.0

17.28.0

17.30.3

winch

2557 13.. 33.. 59.0 - 4 beats
 red to red wire 17.. 30.3
 13 16.. 28.7 - 4 beats

26.. 17.8

26.. 23.0

26.. 17.8

26.. 24.3

26.. 24.3

26.. 24.3

26.. 24.3

26.. 24.3

26.. 24.3

26.. 24.3

26.. 24.3

26.. 24.3

26.. 24.3

26.. 24.3

26.. 24.3

26.. 24.3

26.. 24.3

26.. 24.3

26.. 24.3

26.. 24.3

26.. 24.3

26.. 24.3

26.. 24.3

26.. 24.3

26.. 24.3

26.. 24.3

E Boats 14.. 38 - 284.. 37

Adlibra 14.. 42 - 327.. 44

Bun min 14.. 57 - 237.. 34

Bun min

14.. 59.. 25.4

15.. 00.. 18.7

01.. 10.9

2.. 3.3

2.. 56.0

3.. 48.2

4.. 40.2

14 202.7

22.7

03.78

15.. 02.. 01.24

202.7

18..

22.7

3.24

18.52

17.25.2

17.09

14.. 49.. 15.88

38.. 24.34

10.. 51.55

Aug 24th

(575)

$$180 - 9 \cdot 26 \cdot 35$$

$$2557 - 15 \cdot 06 \cdot 20$$

$$1507 - 12 \cdot 24 \cdot 23 - 12 \cdot 25 \cdot 22$$

$$150 - 9 \cdot 28 \cdot 56 - 9 \cdot 29 \cdot 54.5$$

$$1507 - 12 \cdot 27 \cdot 3 - 12 \cdot 28 \cdot 38$$

$$2557 - 15 \cdot 11 \cdot 20.5 - 15 \cdot 12 \cdot 55$$

$$\underline{2 \cdot 44 \cdot 17.5} \quad \underline{2 \cdot 44 \cdot 17}$$

August 24 (25 Am)

Abruzzo

~~2557~~

$$7 \cdot 31.6$$

$$7 \cdot 45.4$$

$$7 \cdot 59.3$$

$$8 \cdot 33.0$$

$$8 \cdot 27.0$$

$$188 \cdot 41.0$$

$$5 \cdot 8 \cdot 54.7$$

$$2720$$

$$180$$

$$7192$$

$$18 \cdot 13.14$$

$$5 \cdot 8 \cdot 17.14$$

$$5 \cdot 7 \cdot 17.99$$

$$10 \cdot 53.15$$

1849phae.proj...

Chro 2557. Int. ~~Fluorination~~ west
(576)

August 26 (2nd Am) Jan - 63

Aldebaran

Capella

6.34.3

4.35.1

6.48.5

4.55.0

7.3.0

5.15.0

7.47.2

5.34.7

7.32.0

5.54.2

7.46.0

6.13.7

4.28.00.0

5.6.33.3

181.0

7241.0

60

100

121.0

34.43

17.29

5.05.32.43

2

5.05.34.43

4.27.15.29

4.27.17.34

2.05

2.00

Aldebaran 4.27 - 296.08

Capella - 5.05 - 266.30

Borionis - 5.07 - 320.43

B. Tauri - 5.16 - 283.52

δ Orionis - 5.24 - 312.45

ε Orionis - 5.29 - 313.48

α Orionis - 5.47 - 304.58

μ Geminorum 6.13 289.45

Sirius 6.34 328.51

Borionis

2557 - 4.41.0

196 - 6.18.18.1

17.7

31.6

46.0

5.07.59.5

1.05 1.75
1.60

312.20

22.35

289.45

312.20

16.31

328.51

28.46

341.06

6.52

2557

19.5

33.7

47.1

01.2

15.0

28.7

5.47.42.5

187.7

1.10

5.46.59.10

5.47.00.82

-1.72

B2

difficult 3.15.7

3.20.9

3.36.0

3.50.9

4.05.3

4.20.5

6.14.35.4

174.7

180.1

1354.7

50.67

13.48.67

13.50.61

-1.94

B2 7.47.3

8.01.8

16.16.0

8.30.5

8.44.5

8.59.0

6.39.13.0

7212.1

8.30.30

6.38.28.30

30.25

-1.95

B2 7.54.8

8.10.5

2.26

2.42.3

2.57.5

3.13.2

6.53.28.9

233.2

60

7293.2

41.89

2

6.52.39.89

41.81

-1.92

Ill. West (577) 26) 45. (0.2 50

Aug 26 1849

312.20

22.15

290.05

20.13

12

98
270.0
45

8 Gen 7.11 290.05
2 Gen 7.24 280.08
Procyon 7.31 306.44
B Gen 7.36 283.58

4.87
2636
2266

B2 32.12

280.08

5.31

306.44

28.22

283.58

1507 11.27.54

2557 13.37.29

1507 11.30.54

2557 13.40.28

constrained position

B2

10.5

26.0

41.8

58.4

14.5

30.8

7.25 47.0

2290

4090

58.43

7.24 56.43

43.0

B2 +6° 57.0

10.6

24.5

38.58

52.0

7.32 05.8

1726

3452

7.31 22.52 -0.04 + 0.08 + 0.22 = +0.26

7.31 24.20

-1.68

Polaris Sub. Pol

Spica

34.0

B 12.48.07.5

B 2 12.56.55.0

D 13.05.39.8 D

E 13.14.25.0

F 13.23.08.5

G 13.32.00.5

B2 6.47.8

-10.01.9

16.0

30.0

44.0

13.17 57.7

B2 16.5

33.9

49.4

64.9

20.5

35.8

7.36 11.6

2146

34.6

04.94

7.36 02.94

B2

+6°

51.0

21.0

51.0

10 55 20.3

Clouds

1548

30.96

10 54 18.96 -0.09 + 0.22 - 0.23 = -1.0

10 54 20.18 -1.22

Ar by Polaris & P + Spica

East of South 0.35 = 4.35

Collimation W of S = 0.04

Level error W too high 1.7 = 0.11

2557 Stars corrected for ex. lev. cald. rate to 12h

My Procyon = -1.68 + 0.26 + 0.50 = -0.92

Ar by Polaris = -1.22 - 0.10 + 0.12 = -1.20

Polaris = -9.70 + 8.88 - 0.10 = -0.98

Spica = -1.55 + 0.32 - 0.13 = -1.36

At 12h Sid 2557 Slow 0.01.1

Col -0.04

lev +0.07

WZ +0.29

1.19

11.63
2.77
8.86

(578)

August 27th P.M.

$$2557 - 16.57.3 \quad 2557 - 17.03.4.7$$

$$180 - 11.10.0 \quad 180 - 11.22.0$$

$$4.38.57$$

$$5.41.03$$

$$1507 - 3.3.6$$

$$2557 - 17.11.29$$

$$1507 - 14.58.34 - 3.0.0$$

$$180 - 11.26.53 - 17.8.24$$

August 27th - (28 Am)

Thur

$$1507 - 2.13.17$$

$$2.2.14.37 - 2.16.10$$

$$1507.14.17.40$$

$$2557 - 4.17.46.5$$

$$4.4.19.16 - 4.20.48.5$$

$$180 - 10.39.20$$

$$2.04.39.5$$

$$2.04.39.0$$

$$2.04.38.5$$

$$1507.14.20.41$$

$$180.10.42.19.5$$

$$aldabran \quad \text{light} \quad \text{---}$$

$$2557 \quad \text{light} \quad \text{---}$$

$$180 \quad \text{light} \quad \text{---}$$

$$B' \quad 33.3$$

$$48.0$$

$$4.28.02.7$$

$$1.3$$

$$1.1$$

$$5.6$$

$$2.0$$

$$2.3$$

$$1.87$$

$$2.7$$

$$2.2$$

$$2.00$$

$$2.0$$

$$2.9$$

$$1.95$$

$$41.43$$

$$-1.83$$

$$+1.0$$

2557. Ill west

Capella

Clouds

$$B' \quad 35.6$$

$$5.56.5$$

$$5.6.35.5$$

Clouds

Aug. 27 - P.M. 6^{hr} 2557. Glow - 0.7

$$2557 - 16.57.3.0$$

$$180 - 10.22.24.98$$

$$16.51.37.0$$

$$10.23.11.73$$

$$6.27.51.97$$

$$5.59.01.02$$

$$26.55.58$$

$$50.86$$

$$6.26.48.43$$

$$180 - 11.10.00$$

$$4.48.17.57$$

$$4.44.32$$

$$-1.20.43$$

$$1507 \quad 17.40.00$$

$$\text{diff to make } 2557 \quad 2.04.38.00$$

$$10.22.24.98 \quad 4.22.18.00$$

$$46.74 \quad .13$$

$$10.23.11.72 \quad 4.22.17.9$$

$$10.23.11.72$$

$$17.59.06.18$$

$$2.56.78$$

$$17.56.09.40$$

$$22.39.20.00$$

$$180 + 4.43.10.6$$

a orionis

$$6.21.0$$

$$6.35.4$$

$$6.49.3$$

$$7.2.8$$

$$7.16.7$$

$$7.30.6$$

$$5.47.44.5$$

$$2003$$

$$180$$

$$7.20.3$$

$$2.90$$

$$-2$$

$$5.47.00.90$$

$$5.47.01.02$$

$$2557 \text{ Glow} - 0.12$$

$$2557 - 6.05.14.9$$

$$6.05.15.02$$

$$\text{Ill W Col. W} - 0.042$$

$$11.21.6$$

$$4.44.32.4$$

$$5.17.02.6$$

(579)

August 27 (28th Am)No 180 Slow of Gth 1^m 21.6

$$\begin{array}{rcl}
 180 - 0.22.0 & 2 & 1507 - 4.6.57 - 4.8.34 - 4.9.52 \\
 2557 - 6.5.14.9 & \} & 2557 - 6.10.58.5 - 6.12.35 - 6.13.52.5 \\
 & & \quad \quad \quad 2.04.01 \quad \quad \quad 2.04.00.5
 \end{array}$$

$$\begin{array}{rcl}
 1507 - 4.11.21 & 1607 - 16.12.55 & - 16.13.55 - 16.14.55 \\
 2557 - 6.15.21 & 180 - 12.33.37.5 & - 12.34.37 - 12.35.36.5
 \end{array}$$

$$\begin{array}{rcl}
 150.7 & 164.46.13 & - 4.45.13 \quad 1507 - 4.46.18 - 4.47.19 - 4.48.20 \\
 2239 A - 13.5.27 & - 1.06.26.5 & 2227 B - 1.5.36 - 1.6.36.5 - 1.7.37
 \end{array}$$

$$\begin{array}{rcl}
 & - 4.49.27 - 4.50.26 & 1507 - 4.51.42 - 1507 - 4.52.45 \\
 2241 C - 1.9.53 & - 1.10.57.5 & D2167 - 1.13.30 - D2167 - 1.14.32.5
 \end{array}$$

$$\begin{array}{rcl}
 & - 4.54.31 & - 4.55.30 \\
 F2207 - 1.15.0.5 & - 1.15.59
 \end{array}$$

$$\begin{array}{rcl}
 1507 - 4.58.03 & - 4.59.01 & - 5.00.2 \quad 1507 - 5.1.11 - 5.2.10 \\
 G2248 - 1.19.34.5 & - 1.20.32 & - 1.21.32.5 \quad 2186 H - 1.20.56.5 - 1.21.55
 \end{array}$$

$$\begin{array}{rcl}
 1507 & 5.03.11 & \} 1507 - 5.04.35 - 5.05.36 - 5.06.37 \\
 H - 1.22.55.5 & \} & 2222 II - 1.24.41.5 - 1.25.42 - 1.26.42.5
 \end{array}$$

$$\begin{array}{rcl}
 1507 - 5.08.39 & - 4.09.40 & - 4.10.40 \quad 4.12.0 - 5.13.0 \\
 2224 K - 1.30.41.5 & - 1.31.42 & - 1.32.41.5 \quad I2245 - 1.32.52.5 - 1.33.52
 \end{array}$$

$$\begin{array}{rcl}
 & 5.14.0 & - 5.15.11 \quad 5.17.15 - 4.18.14 - 5.19.16 \\
 II - 1.34.57.5 & - 1.35.52 & 2246.0 - 1.38.46.5 - 1.39.45 - 13.40.46.5
 \end{array}$$

$$\begin{array}{rcl}
 1507 - 5.26.10 & - 5.27.35 & - 5.30.34 \quad 1507 - 5.32.07 - 5.33.8 \\
 2557 - 7.29.45 & - 7.31.09.5 & - 7.34.07.5 \quad 180 - 13.52.10 - 13.53.10.5 \\
 & & \quad \quad \quad 39.57 \quad \quad \quad 9.57.5
 \end{array}$$

$$\begin{array}{rcl}
 1507 - 5.35.5.0 \\
 180 - 13.55.6.5 \\
 \quad \quad \quad 58.5
 \end{array}$$

6^m

$$6.10.58.6$$

$$\begin{array}{rcl}
 4.44.52.0 \\
 1.21.66 \\
 \hline
 43.10.34
 \end{array}$$

$$\begin{array}{rcl}
 6.05.14.9 & 10.22.24.98 \\
 \quad \quad \quad 0.12 & \quad \quad \quad 46.75
 \end{array}$$

$$6.05.15.02 \quad 10.23.21.78$$

$$10.23.11.73 \quad 4.44.32.0$$

$$19.42.03.79 \quad 19.38.47.66$$

$$18.56.53.24 \quad 0.23.21.66$$

$$40.53.28 \quad 0.22.00.0$$

$$52.85$$

$$19.38.49.66$$

$$-1.21.66 \quad 180 \text{ Slow of } G^{\text{th}} \text{ Aug } 27.19.40^{\text{m}}$$

1849

(580)

August 28th Am

Lirius

H_g 0

—

—

—

01.0

Winds

Clouds

Clouds

Clouds

6.39 15.0

Lirius 6.38 - 328.17

E Can Mag. - 6.52 - 341.06

S Gemini 7.11 - 290.05

a Gemini 7.24 - 280.08

a Can Min - 7.31 - 306.44

B Gemini 7.36 - 283.57

4.44.22.0
1.21.9
40.1August 28th P.M.

No. 180. Part of Cambridge

Slow of Greenwich - 1.21.9

180 - 7.19.00 - 7.20.00 - 7.21.00 - 7.22.00

A. 2239 - 7.19.47 B. 2227 - 7.18.58 C. 2241 - 7.21.17 D. 2167 - 7.23.25.5

X180 - 7.22.44.5 - 7.24.00 - X180 7.24.04.3.8
1507 - 11.05.28 2207 - 7.24.7.7 1807 11.07.28.0
+ 47 - 1.08.2 + 1.7180 - 7.27.00 - 7.28.00 - 7.29.00 - 7.30.00
G 2248 - 7.28.11.9 2186 - 7.27.27.2 2222 - 7.28.50 2224 7.31.48.2
+ 1.11.9 - 0.32.8 - 0.10.0 + 1.48.2
H 2245 - 7.31.00 - 7.32.00 - X180 - 7.33.2
2246 - 7.33.21.3 2557 - 13.17.29
+ 39.3 + 1.21.3

These No 2239 - 2227 - 2241 - 2167 - 2207 - 2248

2186 - 2222 - 2224 - 2245 - 2246 - By Dent

and Comparing Chronometer by Fletcher No. 1507. were
this afternoon put on board the Steamer Hibernia
Capt Stone and placed in his State Room under the
Captains own charge.24.11
177 / 3

(581)

Aug ²⁸/₂₉th 18497^h.40^m Am

Comparison of Capt. Lee's Chronometer.

2557 6.05

2440 6.59.09.4

— 6.05.30

Glover 10 6.04.44.7

— 6.06.00

P272492 6.18.17.7

2557 6.06.30

J. Gibson 5 18.50.3

H

W

(582) 200

August 29th (5..15 P.M. (amb.))No 180 Flow of Gwth - ^{on} 1..24.0

180 - 9.58.42 - 10.02.10

2557 - 15.47.34 - 15.51.02.5

180 - 10..5..0 — 10..6..0 — 10..7..0 — 10..8..0

1579 - 10..5..3.3 1570 - 10..3..41 1488 - 10..2..28.2 1454 10..6..0.8

1502 - 10..9..0 — 10..11..0 — 10..13..0 — 10..15..0

1491 - 10..09..34.5 1521 - 10..12..2.4 1522 - 10..16..56.2

6701 - 10..16..0 — 10..17..0 — 10..18..0 — 10..20..0

6755 - 10..19..57.2 } 1492 - 10..20..22 ¹⁰ 67 - 10..19..50.2

776 - 10..23..0 — 10..24..0 — 10..26..0 — 10..27..0

775 - 10..24..57.9 2663 - 10..00..57.7 2857 - 10..52..47.2

310 - 10..29..0 — 10..31..0 — 10..35..0 — 10..36..0

1109 - 10..28..16.4 1127 - 10..35..30.3 1506 - 10..36..33.2 }

230 - 10..38..0 — 10..39..0 — 10..40..0 — 10..42..0

250 - 10..36..50.9 258 - 10..38..47.7 227 - 10..38..25.9

1503 - 11..14..0 — 11..16..0 — 11..18..0 — 11..23..0

1505 - 11..16..56 1508 - 11..15..43.2 850 - 11..24..44.2

190 - 11..20..0 — 11..22..0

653 - 11..23..25.2

180 - 11.29.7 - 11.31.57

2557 - 17.18.13 - 17.21.04.5

August 30 - 6..30 Am

2557 - 5..6..0 2557 - 5..8..0

2492 - 5..18..18.3 B-10 - 5..7..13.2

Let back 2492

2557 - 8..36..0

2492 - 8..36..18.5

(583) No 180 Flow of Gwh. 1..26.4

August 31 - 5.30 P.M. Temp 77 Bar 29.925 Aneroid
29.900 A. & B. Bar

2557 - 16..7..0 2557-16..8..0 Ce. - 16..12..0
2492 - 16..7..20.8 10B - 16..7..11 2557-16..11..14.2

180 - 10..15..45 10..18..0 10..19..0 10..21..0
2557-16..12..41 655-10..19..23.5 850-10..20..50.2 190-5..40..19.8

180 - 10..23..0 10..24..0 10..25..0 10..27..0
1505-10..24..1.7 1503-10..23..45 1508-10..22..42.4 1579-10..27..6.5

10..28..0 10..29..0 10..30..0 10..31..0
1510-10..25..42.4 1488-10..24..28.2 1454 10..28..4 1502-10..22..2.2

180 - 10..33..0 10..35..0 10..37..0 10..40..0
1491-10..31..35.8 106y-10..34..40 1492-10..39..29.6 1491-10..38..35.8

10..42..0 10..44..0 10..46..0 10..47..0
1521-10..41..5.8 1522-10..46..6.2 6901-10..51..51.6 755-10..50..1

12..43..0 12..45..0 12..46..0 12..47..0
776-12..49..28.5 715 12..45..52.2 2857-13..12..4.7 2663 12..21..4.7

12..48..0 12..50..0 0..52..0 12..54..0
310-12..01..0.8 1109-12..47..14.5 1127-0..52..42.3 1506-12..54..39.2

12..56..0 0..57..0 0..58..0 0..59..0
230-13..02..2.5 250-12..54..46.4 258-0..56..42.2 227-0..55..2.7

1849 August 30⁺
Polaris Sub. Polo(584)
In Quest
(2557) Spica

12.39.32.0
 12.48.15.5
 12.57.01.7
 13.05.47.0
 13.14.35.0
 13.23.20.0
 13.32.10.3
 7/40.41.5
 5.48.8
 13.05.46.8
 13.05.48.4
 +19.6

6.00.00.0
 7.9.6
 7.23.3
 7.37.3
 7.57.3
 13.18.05.2
 23.39
 2
 13.17.21.39
 13.17.15.38
 +6.01

13.42.46.4

Spica 13.17 - 322.42
 7 hrs. Mag. 13.41 - 262.16
 7. Bootes 13.47 - 243.11
 2. Bootes 14.18 - 292.21
 2. Bootes 14.38 - 284.37
 2. Libra 14.42 - 327.44
 7 hrs. Mag.
 59.8
 21.3
 43.0
 4.5
 .25.6

27/12.3 (45)
 108
 150

3/28 25.6
 2.6

Rate +2.6

7. Bootes
 38.1
 53.0
 7.3
 13.48.22.0

180 - 8.30.14 - 20
 2557 - 14.22.42 - 58
 5.52.38
 180 - 8.33.20
 2557 - 14.25.58.5
 5.52.38.5

3 mm min 14.57 - 237.34
 2. Libra 15.09 - 321.09

2. Bootes
 8.11.0
 8.26.0
 8.40.4
 8.55.1
 9.10.0
 9.24.5
 14.09.39.0
 206.0
 180
 7/386.0
 55.14
 2
 14.08.53.14
 14.08.46.98
 +6.16

2. Bootes
 7.45.3
 8.1.4
 8.16.8
 8.32.5
 8.48.0
 9.3.7
 14.39.19.0
 166.7
 60.1
 7/226.7
 32.39
 2
 14.38.30.39
 38.24.03
 +6.36

Azimuth from
 Polaris and Spica
 East 6.27 = 4.05

Aug. 30

(585)
Illumination West

Ill. East

North mer. mark
Coincidence
with mid wire

0.000	0.000
.005	+0.005
-0.995	-
-0.993	-
0.000	-
	17
	-0.001

mid wire to the left of mark
mean of wires

0.121
.135
.120
.157
.152
.145
.137
.329
.1233
.274
.274
.31373

Illumination West.

Instrument
Reversed

North mer. mark
mid wire left of mark

0.450
.830
.865
.870
.860
.0.850
2.29
.15
.145
.225
.3635
.47.37
.49.07

mean of wires 0.01392
 0.032
 0.008 W of S

E	W
47.0	49.5X
47.0	50.0X
45.0	51.0X
46.5	50.5
46.5	50.5
46.4	50.3
46.3	
46.5	
46.0	
47	
47	
47	
46.7	

Cross West

Ill. E. col. of mean of wires = 0.018 W. of S.
Illumination East

Collimation 0.014 East of South

Ill. East after reversal

E	W
49X	52.5
49X	52.5
49X	52.5
49X	52.5
49.5	52.0
49.1	52.4
49.5	52.5X
49.0	52.7X
49.0	52.60
49.0	53.0X
49.0	53.0X
49.1	52.8

East

Antares — East

0	3.2
0	19.0
0	34.2
0	49.0
16.21	05.3
	18.79
	2
16.20	16.79
20	11.35
	5.45

The levelings before & after reversal
show that the pivots are sensibly equal
Illumination pivot larger by 0.085
seconds of the.

Azimuth adjusted
Before Antares.

August 30th Per

Mc. East (586)

57th 2 hrs. min

a Herculis

16.58 ..22.2 42.5
 60 ..04.7 41.6
 61 ..46.3 43.0
 63 ..29.3 41.9
 65 ..11.2

7.13.5
 7.27.3
 7.41.6
 7.55.4
 8.9.8
 8.24.2

113 7₂

17.8.38.5

227.4

210.3

247.4

180

17.01 ..44.74

71390.3

17.01 ..34.75

55.75

+9.99

-2

B Lyra

17.07 ..53.75

18.32 ..53.2

3 ..52.5

17.07 ..47.40

241.5

4 ..8.0

+6.35

4 ..24.5

180

4 ..40.8

71421.50

4 ..59.4

50.21

5 ..14.0

8 Aquila

18.31 ..58.21

18.45 ..30.2

7.22.5

18.31 ..51.47

227.4

7.36.5

+6.74

610

7.50.0

71287.4

8.4.0

41.05

8.17.5

-2

8.31.6

18.44 ..39.05

19.18 ..45.0

18.44 ..32.34

207.1

+6.71

180

7127

3.86

-2

19.18 ..01.86

19.17 ..55.43

+6.43

31

2557 - 5 ..29.0

196 - 6 ..50.3.8

Mc Mean of wires of 2 wire = mean of 5 + 0.025 sec
 sec

Aug 31st

2557 - 5.30.0 — 5.31.0

2492 - 5.30.20 10¹⁰ - 5.30.11.7

5.30.0

6.4

5.29.53.6

20

26.4

lev = 0.12 W+

Mc calc = 0.02

az = 0.82 E of S

Qu? was not the instrument
 moved in the wrong direction in az.

If so it seems to have been re-
 stored before Sept. 1st

(587)

Sept-1st Am

2557-5.46.0

196-7.03.20.4

Polaris seen between wires at low
culmination but clouds prevented bySept. 1st P.M. - 5.15

26-15.58.5 - 20

180-9.6.26.5 - 41.5

26-16.01.0 - 15 - 16.4.5

180-16.59.21 - 36 - 10.02.25.5

180-10.06.07 - 10.9.5

2557-16.07.02 - 16.10.0.5

No 180 part of Caml

4.43.04.34 flow of gun 1.27.66
4.43.04.33

180-10.14.0	10.15.0	10.16.0	10.17.0
1503-10.13.47	1519-10.15.7.2	1488-10.11.28.2	1454-10.15.5.3
-13	+7.2	-4.31.8	-1.54.7
10.18.0	10.19.0	10.21.0	10.22.0
1492-10.20.32.8	1491-10.17.36.3	1510-10.20.34.9	1502-10.12.59
+2.32.8	-1.23.7	-25.1	-9.01.0
10.23.0	10.25.0	10.47.0	10.49.0
6755-10.26.2.3	6701-10.30.54.7	1522-10.49.10.8	1521-10.48.7.4
+3.02.3	+9.54.7	+2.10.8	-0.52.6
10.52.0	10.53.0	10.54.0	10.55.0
2857-11.18.13	715-10.53.52.5	776-11.00.30.3	2663-10.29.44
+26.13.0	+52.5	+6.30.3	-25.16.0
10.56.0	10.57.0	10.58.0	10.59.0
310-10.09.01	1109-10.54.13.4	1127-10.58.47.5	1506-10.59.41.3
-46.59.0	-2.46.6	+0.47.5	+0.41.3
11.0.0	11.01.0	11.2.0	11.3.0
230-11.6.57	250-10.58.44	258-11.0.39.5	227-10.59.27.5
+6.05.7	-2.16.0	-1.20.5	-3.32.5
11.6.0	11.7.0	11.8.0	11.10.0
1510-11.3.42.7	1508-11.4.41.6	1505-11.9.4.2	190-6.29.23.2
-2.17.3	-2.18.4	+1.04.2	-4.40.36.8
11.11.0	11.12.0	11.13.0	
653-11.12.22.6	850-11.13.52.8	1013-11.14.05.5	
+1.22.6	+1.52.8	+6.00.15.5	
180-11.17.58	11.20.58		
2557-17.19.5	2557-17.22.05.5		

1849 September 1

M East (588)

B draconis

V Draconis

DE 1.13884

DF 1.43865

last, Dy 1.61570

D 3.21.0 mid 0.20600

E 3.44.2 22.12 = 1.34484

F 4.05.8 44.12 = 1.64465

G 17.54.28.2 66.33 = 1.82170

D 3.21.0

E 22.1

F 21.7

G 21.9

* B Draconis - 17.26 - 259.58

* V Draconis - 17.53 - 260.53

* M Sagittarius - 18.04 - 333.28

* adyca - 18.31 - 273.45

* B Lyrae - 18.44 - 279.12

* S Aquila - 18.58 - 298.45

* D Aquila - 19.17 - 309.34

* V Aquila - 19.39 - 302.08

* a Aquila - 19.43 - 303.55

* B Aquila - 19.47 - 306.21

4/27 67 1/2 weight to y draconis

Dec 52° dt = 12.07 - 0.05 + 0.19

S Aquila - 21 = 11.76 - 0.03 + 0.05

very lost

56

9.4

23.2

36.8

19.18.50.4

V Aquila

8.39.5

8.53.2

9.6.7

9.21.0

9.35.0

9.49.0

19.40.03.0

20.7.4

11.47.4

21.06

19.39.19.06

39.07.24

+11.76

admirable from B draconis

and M Sagittarius

East of f - 0.21 = 0.28

we corrected for low red. = 0.28 E of S

B' 21

+52.24

7.16.4

7.38.8

8.1.2

17.28.24

17.5.1

17.5.1

17.5.1

17.5.1

17.5.1

17.5.1

17.5.1

17.5.1

17.5.1

17.5.1

17.5.1

17.5.1

17.5.1

17.5.1

17.5.1

17.5.1

17.5.1

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17.5.1

17.5.1

17.5.1

17.5.1

17.5.1

17.5.1

17.5.1

17.5.1

17.5.1

17.5.1

17.5.1

17.54.28.2

17.53.21.07

17.53.19.07

17.53.07.45

+12.22

17.53.21.07

17.53.21.07

17.53.21.07

17.53.21.07

17.53.21.07

17.53.21.07

17.53.21.07

17.53.21.07

17.53.21.07

17.53.21.07

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17.53.21.07

17.53.21.07

17.53.21.07

17.53.21.07

17.53.21.07

17.53.21.07

17.53.21.07

17.53.21.07

17.53.21.07

17.53.21.07

17.53.21.07

B Lyrae

3.57.0

4.13.0

4.30.0

4.46.5

5.3.0

5.19.0

18.45.35.5

204.0

120

713240

46.29

-2

18.44.44.29

18.44.32.30

11.99

7.29.0

7.42.5

7.56.3

8.10.2

8.24.2

8.38.1

19.48.57.5

251.8

180

771.8

10.26

-2

S Aquila

8.1.7

8.15.8

8.30.3

8.44.3

8.58.1

9.12.3

18.59.26.5

189.0

120

13090

44.14

18.58.42.14

58.30.37

+11.77

-03

+11.78

+11.76

+19

-05

+12.14

+11.76

+11.76

+11.76

+11.76

+11.76

+11.76

+11.76

B Lyrae

3.57.0

4.13.0

4.30.0

4.46.5

5.3.0

5.19.0

18.45.35.5

204.0

120

713240

46.29

-2

18.44.44.29

18.44.32.30

11.99

7.29.0

7.42.5

7.56.3

8.10.2

8.24.2

8.38.1

19.48.57.5

251.8

180

771.8

10.26

-2

S Aquila

8.1.7

8.15.8

8.30.3

8.44.3

8.58.1

9.12.3

18.59.26.5

189.0

120

13090

44.14

18.58.42.14

58.30.37

+11.77

-03

+11.78

+11.76

+19

-05

+12.14

+11.76

+11.76

+11.76

+11.76

+11.76

+11.76

+11.76

B Lyrae

3.57.0

4.13.0

4.30.0

4.46.5

5.3.0

5.19.0

18.45.35.5

204.0

120

713240

46.29

-2

18.44.44.29

18.44.32.30

11.99

7.29.0

7.42.5

7.56.3

8.10.2

8.24.2

8.38.1

19.48.57.5

251.8

180

771.8

10.26

-2

S Aquila

8.1.7

8.15.8

8.30.3

8.44.3

8.58.1

9.12.3

18.59.26.5

189.0

120

13090

44.14

18.58.42.14

58.30.37

+11.77

-03

+11.78

+11.76

+19

-05

+12.14

+11.76

+11.76

+11.76

+11.76

+11.76

+11.76

+11.76

1849 September 3 (Mon) Ill. East

level W

312.23
16.30
328.53

Capella

δ Orionis

α Orionis

2557	4	54.0	19.3	3	56.0	6	37.0	α Cent	7.24	-280.11
B	5	13.3	18.9	4	9.8	6	51.0	Procyon	7.31	-306.47
+46	5	32.2	20.0	0	4.23.2	+7	7.5.2	B Gemin	7.36	-282.00
	5	53.0	19.5	4	37.2		7.19.2	15 Argus	8.01	-336.15
	6	12.5	19.5	4	50.9		7.33.1	Urs Maj	8.48	-263.46
	6	32.0	20.0	5	4.4		7.47.0			
5	6	152.0		5	25.18.2	5	48.01.0			
		240.0			20.07		193.5			
		12.4			26.7		60			
		7/309.0			7/250.7		7/133.5			
		5.52.71			37.1.0		19.07			
		2			32		12			
5	05	50.71		5	24.35.10	5	47.17.07			
5	05	34.41			24.18.97		17.00.96			
		+16.30-.05+19			+16.73		+16.11			

B Juv

Sirius

α Gemin

Procyon

6	15.5	8	5.3	4	28.1	1	1.0		
6	34.0	8	19.6	4	44.2	1	15.0		
+28°	6	49.0	8	33.8	5	0.4	1.28.7		
	7	5.0	-16°	8	48.1	+32°	5	16.7	1.42.5
	7	20.3		9	2.3		5	32.7	1.56.4
	7	36.0		9	16.7		5	49	2.09.8
5	17	57.8	6	39	31.4	7	26	05.4	7.32.24.3
		213.4			157.2			176.5	177.7
		140			180			160	126
		7/339			7/337.2			7/116.5	7/297.7
		17			48.17			16.64	42.53
		-2			-2			2	2
5	17	02.85.88	6	38	46.17	7	28	14.64	7.31.140.53
5	16	46.73	6	38	30.43			24.58.34	31.24.34
		+16.11			+15.74			+16.30	+16.19

B Juv

15.77

East of fourth

Capella & Sirius give $w_2 = 0.37$ E of S!

But Sirius seems out of the way.

after these observations,
changed the azimuth.

7	37	10
		222.5
		60
		7/162.5
		23.21
7	36	27.21
		31.24.99

(590)

 Averaged 30.362 Bond
 30.325 Barker

849.

Sept-3rd Am - 8.30 Am 20.00³ Ther - 60
 180 - 1¹³.13.53 - 180 - 14.19.52 - 180 - 14.11.22.56
 2557 - 7.21.30 - 2557 - 8.27.38 2557 - 8.30.34.5
 6.07.37 7.48 7.38.5

El - 8.36.10 - 8.38.48 - 4 El - 8.41.32 - 42.0
 180 - 2¹⁴.27.46 - 2.30.20.5 - 39.5 180 - 2.33.07 - 33.35
 6.8.24 6.8.24.5 24.5 6.08.25 08.25

Sept-3rd Am 10 Cambr. N^o 180. Flow of G^W - 1st 29.5 180. Fast of Cambridge 4.43.02.52

180 - 2.40.0 - 2.41.1.0 - 2.42.0 - 2.46.36.52
 653 - 2.41.25.3 850 - 2.42.56.8 190 - 10.01.27.6 10B - 8.53.23.37
 140 - 2.48.00 - 2.50.0 - 2.51.0 - 2.53.0
 1508 - 2.45.40 1505 - 2.51.5.5 1510 - 2.48.42 1503 - 2.52.49.2
 1579 - 2.54.8.7 1488 - 2.50.28.4 } 1492 - 2.58.38.5 1454 - 2.55.7.3
 1491 - 2.56.37.5 1410 - 2.59.29 1502 - 2.57.53.2 6755 - 3.5.6.2
 6701 - 3.3.0 1522 - 3.6.19.2 1521 - 3.4.10.4 1109 - 3.05.9.7
 715 - 3.9.50.2 2663 - 2.44.38.3 776 - 3.17.35.6 2857 - 3.38.28
 310 - 2.26.0.4 1127 - 3.15.56.3 1506 - 3.16.45 230 - 3.23.11.7
 250 - 3.15.39.5 258 - 3.17.36 227 - 3.16.28.4

Adjusted the Transit in Azimuth

180 - 5.55.0 - 180 - 6.03.58 180 - 6.06.52
 2557 - 12.03.14 - 2557 - 12.12.13.5 2557 - 12.15.08
 6.08.14 6.08.15.5 6.08.16

180 fast of Cambr

h m s
 4.43.02.81
 4.44.32.00
 1.1.29.19

September 3-

Polaris S.P.

2557 - Shield wires

12 .. 39 .. 57.5 G

12 .. 48 .. 50.0 F

12 .. 57 .. 33.6 E

13 .. 06 .. 21.0 D

13 .. 15 .. 06.3 C

13 .. 23 .. 52.5 B

13 .. 32 .. 39.0 A

7/44 .. 19.9

13 .. 06 .. 19.99

13 .. 06 .. 17.99

13 .. 05 .. 50.42

+ 27.57

Pol. S.P. & Spica - 0.37 = 5.5

Spica

6 .. 53.0

7 .. 6.8

7 .. 20.3

7 .. 34.5

7 .. 48.7

8 .. 2.3

13 .. 18 .. 16.3

1879

7/247.9

34.56

13 .. 17 .. 32.56

17 .. 15.35

+ 17.27

29

Illumination East

whole revolutions of the

micrometer screw - 50 to 50

12 .. 30 .. 31.0

12 .. 31 .. 58.0

33 .. 23.0

34 .. 36.8 - 30 instead of 50

12 .. 36 .. 23.2 & begin here

37 .. 49.0

39 .. 17.5

40 .. 48.2

42 .. 17.0

43 .. 40.7

45 .. 09.0

46 .. 35.0

48 .. 04.0

49 .. 35.0

51 .. 02.0

52 .. 29.0

53 .. 56.5

55 .. 24

56 .. 53

58 .. 20.2

59 .. 46.2

13 .. 01 .. 15

02 .. 42.5

04 .. 07.0

05 .. 36.5

07 .. 03.0

08 .. 30

09 .. 58

11 .. 25

12 .. 54

14 .. 17.5

5th wire

Spica

Polaris l.p. 13.5 - 220.53

Spica - 13.17 - 322.45

Theor 68

13 .. 20 .. 12.2

21 .. 62.0

23 .. 8.6th wire

24 .. 35.0

26 .. 01

27 .. 32.2

28 .. 59.5

30 .. 27.0

31 .. 55.0

33 .. 24.0

34 .. 44.2

36 .. 20

8.27 - 8.5833704

8.4142045

6.9975749 = 3.25.1 = 13.667

1.27 = 21.45 - 7.70 / 1825

88.30.14 8.4142045

6.1153870

27" = 1.800

Polaris & Spica give

az = 0.30 West of S.

Transit adjusted in azimuth

adjusted in azimuth.

(592)

1849.

Sept 3 M. East. new azimuth

a Cor Bor

a Serpenti

7 . 51.2

6 . 28.5

8 . 6.5

6 . 42.5

8 . 22.0

6 . 56.5

8 . 37.3

7 . 10.3

8 . 53.0

7 . 24.0

9 . 8.4

7 . 38.0

15 . 29 . 23.7

15 . 37 . 51.7

202.1

251.5

60

-180

7/2621

7/715

37.44

10.21

12

-2

15 . 28 . 35.44

15 . 37 . 08.21

15 . 28 . 18.42

15 . 36 . 51.11

+17.02

+17.10

Sophinchi

E. h. Min

6 . 5.4

16 . 56 . 48.6

6 . 18.8

16 . 58 . 30.0

6 . 33.0

17 . 00 . 72.0

6 . 46.6

17 . 01 . 55.2

7 . 0.5

17 . 03 . 37.0

7 . 14.0

17 . 05 . 19.0

16 . 07 . 28.0

17 . 07 . 01.3

1463

7/13.23.1

180

1.54.73

7/3263

2

46.61

17.01 . 52.73

2

17.01 . 34.04

16 . 06 . 44.61

+18.69

15 . 06 . 27.63

+16.98

6.31

East of South 4.42 - adj^o in azimuth.4th Ann

180 - 2 . 36 . 6

22.5

1491 - 2 . 34 . 35.2

?

x a Cor Bor 15.28 - 285.10

x a Serpenti - 15.36 - 305.29

x B^h Serp - 15.56 - 331.46x S^h Sophinchi 16.06 - 315.41

a Scorpii - 16.20 - 338.28

γ Draconis - 16.21 - 250.32

E. h. Min - 17.01 - 230.06

a Herculis - 17.07 - 297.49

B^h Draconis 17.26 - 259.58B^h Serpenti

6 . 46.6

7 . 0.4

7 . 15.3

7 . 29.5

15 . 57 . 44.2

15 . 57 . 0.57

15 . 56 . 58.57

15 . 56 . 41.48

+17.09

B^h Draconis

6 . 14.5

6 . 36.3

6 . 54.0

7 . 21.5

7 . 44.0

8 . 6.4

17.28 . 29.0

21.07

6.07

7/150.7

27.21.53

2

17.27 . 19.53

.02.37

+17.16

E. h. Min & Serp.

w = 0.25 E of S.

corrected for w & c

(Am?
no,
Reason

(594)

Ther 58

Sept-4⁺

$$180 - 4.46.17$$

$$1491 - 10.58.17$$

$$\underline{6.12.0}$$

$$2557 - 11.0.2.75$$

$$1491 - 11.0.0$$

$$180.4.09.23$$

$$180.4.52.20$$

$$1491 - 10.01.22.5$$

$$1491.11.02.21$$

$$\underline{6.11.54.5}$$

$$1491 - 11.7.0$$

$$2557 - 11.7.2.5$$

$$180 - 4.58.20 - 5.1.22$$

$$1491 - 11.10.22 - 11.13.24.5$$

$$5.04.23 - 11.19.23.37$$

$$11.16.36 - 5.07.26.40$$

$$180 - 5.10.34 - 5.13.39 - 5.16.44 - 5.19.46$$

$$1491 - 11.22.38 - 11.25.43.5 - 11.28.49 - 11.31.51.5$$

$$\underline{6.12.04} \quad \underline{6.12.04.5} \quad \underline{6.12.05} \quad \underline{6.12.05.5}$$

Admitted Fletcher

No 1491 to Siderical

Time. Am the 4th

$$180 - 5.28.37 - 180 - 5.32.0$$

$$2557 + 11.40.47$$

$$\underline{6.12.10}$$

$$1491 - 11.44.7.5$$

$$\underline{6.12.7.5}$$

$$180 - 5.38.0$$

$$1491 - 11.50.8.5$$

$$\underline{6.12.8.5}$$

$$2557 11.52.32$$

$$\underline{6.12.12}$$

$$180 - 5.40.20$$

$$1491 - 13.53.0$$

$$2557 - 13.53.3.2$$

$$1491 - 11.54.0$$

$$2557 - 11.54.3$$

$$1491 - 13.53.0$$

$$2557 - 13.53.3.2$$

$$1491 - 11.54.0$$

$$2557 - 11.54.3$$

$$1491 - 13.53.0$$

$$2557 - 13.53.3.2$$

$$1491 - 11.54.0$$

$$2557 - 11.54.3$$

$$1491 - 13.53.0$$

$$2557 - 13.53.3.2$$

$$1491 - 11.54.0$$

$$2557 - 11.54.3$$

$$1491 - 13.53.0$$

$$2557 - 13.53.3.2$$

$$1491 - 11.54.0$$

$$2557 - 11.54.3$$

$$1491 - 13.53.0$$

$$2557 - 13.53.3.2$$

4th Pile

$$180 - 10.31.57.5 - 10.32.58 - 10.33.57.5$$

$$1508 - 10.31.59 - 10.33.00 - 10.34.0$$

$$\underline{1.5} \quad \underline{2} \quad \underline{2.5}$$

$$180 - 10.38.58 - 10.39.54 - 10.40.52$$

$$1508 - 10.39.0 - 10.39.54.5 - 10.40.58$$

$$\underline{5} \quad \underline{5.5} \quad \underline{6}$$

$$180 - 10.38.58 - 10.39.54 - 10.40.52$$

$$1508 - 10.39.0 - 10.39.54.5 - 10.40.58$$

$$\underline{5} \quad \underline{5.5} \quad \underline{6}$$

$$180 - 10.38.58 - 10.39.54 - 10.40.52$$

$$1508 - 10.39.0 - 10.39.54.5 - 10.40.58$$

$$\underline{5} \quad \underline{5.5} \quad \underline{6}$$

$$180 - 10.38.58 - 10.39.54 - 10.40.52$$

$$1508 - 10.39.0 - 10.39.54.5 - 10.40.58$$

$$\underline{5} \quad \underline{5.5} \quad \underline{6}$$

$$180 - 10.38.58 - 10.39.54 - 10.40.52$$

$$1508 - 10.39.0 - 10.39.54.5 - 10.40.58$$

$$\underline{5} \quad \underline{5.5} \quad \underline{6}$$

$$180 - 10.38.58 - 10.39.54 - 10.40.52$$

$$1508 - 10.39.0 - 10.39.54.5 - 10.40.58$$

$$\underline{5} \quad \underline{5.5} \quad \underline{6}$$

$$180 - 10.38.58 - 10.39.54 - 10.40.52$$

$$1508 - 10.39.0 - 10.39.54.5 - 10.40.58$$

$$\underline{5} \quad \underline{5.5} \quad \underline{6}$$

$$180 - 10.38.58 - 10.39.54 - 10.40.52$$

$$1491 - 16.50.0$$

$$2557 - 16.50.4$$

$$1491 - 16.50.0$$

$$2557 - 16.50.4$$

$$1491 - 16.50.0$$

$$2557 - 16.50.4$$

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$$2557 - 16.50.4$$

$$1491 - 16.50.0$$

$$2557 - 16.50.4$$

$$1491 - 16.50.0$$

(59.2)(5)

In 3^m. 02.6 mean solar time, the sidereal time will advance - 0.4999

$$\begin{array}{rcl} \text{m.s.l.} & & \text{sidereal} \\ 3 & = & 3.0 \frac{.4928}{.0072} \\ 3\text{-sid.t} & = & 2.54.5085 \end{array}$$

Sept 4 (5th Am 6.30)

180-11.12.33 — 13.32-11.14.33
1508-11.18.53.5 1508 19.532-11.20.54.5

180-11.53.44
1508-12.0.25

Sept 5th P.M.

1508-10.13.52 180-10.12.21 180-10.13.21 180 20
2557. 16.19.04.2 1508-10.24.10 1508-10.25.10.5 150 10
11.49 11.49.5

180-10.18.20 180-10.21.20-10.22.20-10.23.20-10.24.20
1508-10.30.13 1508-10.33.13.5-10.34.14-10.35.14.5-10.36.15

180-10.25.19 — 10.26.19 — 10.27.18 — 10.28.19 — 10.29.19
1508-10.37.14.5 — 10.38.15 — 10.39.14.5 — 10.40.16 — 10.41.16.5
5.5

180 10.30.18 — 10.31.19 — 10.32.19-10.33.18-10.34.19
1508 10.42.16 — 10.43.17.5 — 10.44.18-10.45.17.5-10.46.19
180-10.41.19 — 10.42.19 11.59. 11.59.5 12.00
1508 10.53.22.5 — 10.54.23 180-10.43.18 — 10.44.18
12.03.5 1508-10.55.22.5 — 10.56.23
12.04.5 05.0

The Comparing Chronometer (No 1508) is gaining on No 180, Eleven minutes and fifty seven seconds, or its rate is losing 3 seconds on 180 after allowing for the twelve minutes daily gain which it was intended to do.

Daily rate of 180 is

(596)

Sept 5th cont. Ill. East.2557) β Draconis

6..15.8

6..42.2

7..4.9

7..27.0

7..49.6

8..12.0

17..28..34.8

1901

27.16

17..27..25.66

27..02.30

+22.86

2557-17..13.0

180-10..55..54.3

5.7

180-10..57..0

2557-17..14..5.5

180-10..59..30

2557-17..16..36

2557-17..30.0

1491-17..29..57.5

8.5

1491-17..31.0

2557-17..31..8.3

 β Draco - 17..26-259..58 α Lyra - 18.31-273.45 β Lyra - 18..44-279.12 δ Aquilae - 18.58-298.45

west 2.5

9

$$\begin{array}{r}
 17..30..0 \\
 \underline{22.5} \\
 17..29..37.3 \\
 17..29..57.5 \\
 \underline{+14.2}
 \end{array}$$

$$\begin{array}{r}
 18.58 \\
 312.23 \\
 \hline
 292.25
 \end{array}$$
 α Lyra

1..24.0

1..41.0

1..57.7

2..16.0

2..34.0

2..57.2

18..33..8.8

232.7

120.7

112.7

16.10

-2

18..32..14.10

31..51.33

22.77Sept 6th afternoon

2557- Polaris S.P.

12..57..37.5 E

13..06..24.0 D

13..15..11.0 C

3/19..12.5

6..24.17

-2

13..06..22.17

13..05..51.75

+30.42

microm 7- 12..56..12.5
from mid wire

Spica 13.17-322..45

Spica

17..0.7

17..15.0

17..29.0

17..42.7

17..56.8

18..10.7

13..18..24.8

179.7

120

299.7

42.81

-2

13..17..40.81

13..17..15.23

+25.58

-14

25.44

25.72

$$\begin{array}{r}
 391 \\
 23 \\
 1173 \\
 782 \\
 \hline
 8993
 \end{array}$$

west of south 2.5 = 0.17

after the above observations

Adj in Azimuth 3^d of the Micrometer,
micrometer reads

60.2

mark west of wire

61.

62.0

60.5

13.7

60.9

= 39.1 mid wire at 100 or zero = 0.900

(597)

Sept 6th Pm 3.

1508 - 8.12.53 1508 - 8.13.53 - 1508 - 8.18.57 1508 - 8.20.7
 180 - 7.50.17.5 180 - 7.51.17 - 180 - 7.56.18.5 2557 - 14.18.4

1508 - 8.21.46 1508 - 8.23.15 1508 - 8.28.26 1508 - 8.29.55
 2557 - 14.19.42.5 2557 - 14.21.11 1491 - 14.26.8.5 1491 - 14.27.87

180 - 8.08.59 180 - 8.11.57
 2557 - 14.29.37 2557 - 14.32.29.5

No 180 -

Fast of Camb - 4. 42.58.63 + 0.24
 4. 42.58.60 + 0.24

Slow of QWZ - 1.33.24

2557 - 14.38.0
 B 10 - 14.36.58.8

Rev 72.5 Anvnd 30.025

180 - 8.19.0 180 - 8.20.0 — 8.23.0 — 8.25.0
 190 - 15.38.41 1505 - 8.21.16 1510 - 8.20.40.3 1454 - 8.23.12
 — 8.26.0 — 8.30.0 — 8.31.0 — 8.33.0
 1492 - 8.28.49.5 1488 - 8.25.27.8 1579 - 8.31.12.4 1503 - 8.32.53.8
 — 8.36.0 — 8.38.0 } — 8.40.0 — 8.41.0
 1069 - 8.35.15.3 1502 - 8.28.43 } 6755 - 8.43.13 6701 - 8.47.14.7
 — 8.42.0 — 8.44.0 } — 8.47.0 — 8.48.0
 1522 - 8.44.35 1521 - 8.43.16.3 776 - 8.53.44.8 715 - 8.48.45.3
 — 8.49.0 — 8.50.0 — 8.51.0 — 8.52.0 }
 2663 - 8.23.26.7 2857 - 9.16.56.8 310 - 8.04.0.5 1109 - 8.49.6.3 }
 — 8.55.0 — 8.56.0 — 8.57.0 — 8.58.0
 1127 - 8.16.14.5 1506 - 8.56.52.2 230 - 9.03.23.3 250 - 8.55.30.5
 — 9.0.0 — 9.1.0
 258 - 8.58.28.8 227 - 8.57.30.4

180 - 9.4.0 180 - 9.5.31
 2557 - 15.24.47.2 2557 - 15.26.18.5

50 - 11.01.50.51
 46.73
 11.02.37.24

2557 - 14.29.37.00
 25.68
 14.29.11.32
 11.02.37.24
 3.26.34.08
 2.59.30.51
 25.55.74
 33.91
 1.08
 3.26.00.24
 180. 8.08.58.76
 4.42.58.76
 4.44.32.00
 - 1.33.24

(598) Illumination East

Sept 7th 9:30 Am. Lit. Then 73 Ext. Then 72.8 Arrived 29.800

D appears west of mer. mark

Micrometer at 100 on D

Fine definition.

Central dot .638 = .362

Left hand dot

Right hand dot

$$\begin{array}{r} .356 \\ 23 \\ \hline 1068 \\ 712 \\ \hline .8186 \end{array}$$

.645 .355 from D

.880 from D .120

1st 373 = 1.627 from D

.648 .352

880 .120

375 1.625

.645 .355

878 .122

374 1.626

.648 .352

882 .118

377 1.623

.646 .354

878 .122

377 1.623

.637 .363

0.644 = .356 = 0.819

order Illumination East from Right to Left Object North

above pole

Micrometer Intervals of wires

G to F

F to E

E to D

D to C

C to B

B to A

6.065

5.970

6.020

5.993

6.010

5.970

6.040

5.975

6.020

5.990

6.020

5.950

6.065

5.978

6.030

6.000

6.005

5.975

6.035

5.999

6.030

5.990

5.990

5.950

6.0476.0006.0325.9856.0085.9501252729.9225132729.9587257295

6.050

5.984

6.026

5.992

6.005

5.959

5.959

6.005

5.992

0.091

0.021

0.034

The order of the wires A.B.C. &c. is that in which an Equatorial star passes, when the object end is South

Ill. East

Polaris 1st from B - No 25570.50^u

12.47.29.0

2.48.19

2557 Polaris S.P.

12.48.57.5 F

12.57.42.7 E

13.06.28.8 D

13.15.16.5 C

13.24.02.6 B

1375

13.06.27.50

13.05.52.2

+ 35.3

Green

77.8

32.0

45.7

59.5

13.18.13.5

1585

3170

12

13.17.43.70

13.17.15.32

+ 28.38

28.28

2557 - 16.30.0

180 - 10.05.2

2557 - 16.31.0

180 - 10.06.1.8

azimuthal deviation
West 0.13 = 1.95

No 180 East of M.S. E

4^h 42^m 57.284^h 42^m 57.20

(599)

Intervals by Polaris S.P.

	G to D	F to D	E to D	D to C	D to B	D to A	
Sept 3	26..23.5	17..31.0	8..47.4	8..45.3	17..31.5	26..18.0	Ill. East
Aug 30	26..23.3	17..32.0	8..48.0	8..45.3	17..31.5	26..15.0	" West
" 27	26..20.7	17..28.7	8..45.2	8..44.8	17..32.3	lost	" West
" 22		17..22.0	8..46.0	8..45.8	17..32.2	—	" West
" 20	26..23.0	17..31.0	8..48.0	8..43.0	17..31.0	26..17.0	" East
" 16	26..17.8	17..28.0	8..43.0	8..49.0	17..29.3	26..17.7	" East
" 9	26..24.3	lost	8..44.7	8..45.8	17..29.2	26..11.7	" East
" 8	26..23.0	lost	8..48.2	8..49.0	lost	26..12.5	
	26..22.2	17..28.8	8..46.3	8..46.0	17..31.0	26..15.3	Mean East & West

Dec of Polaris for the middle time
 Aug^r 21 - 88° 30' 09"
 Decline - 8.41171948

G to D	Equatorial	10.05.3	= 40.355 x
F to D	"	6.50.7	= 27.379
E to D	"	3.25.8	= 13.721
D to C	"	3.26.1	= 13.740
D to B	"	6.57.4	= 27.427
D to A	"	10.16.2	= 41.080 x

Aug 16	^E 26..17.8	17..28.0	8..43.0	8..49.0	17..29.3	26..17.7	γ wires	41.080
20	^E 26..23.0	17..31.0	8..48.0	8..43.0	17..31.0	26..17.0	γ —	40.355
22	West	17..32.2	8..45.8	8..46.0	17..32.0	5 —	—	27.5
30	^m 26..15.0	17..31.5	8..45.3	8..48.0	17..33.0	26..23.3	γ —	27.427
Sept 3	^E 26..23.5	17..31.0	8..47.4	8..45.3	17..31.5	26..18.0	γ —	27.379
7	^E	17..31.3	8..46.1	8..47.7	17..33.2	5 —	—	648
8	^E	17..30.5	8..46.0	8..46.0	17..33.5	5 —	—	13.740
11	^E 26..23.5	17..31.5	8..44.7	8..47.5	17..32.7	26..19.5	E to D	13.721
13	^E							.019

1 revolution of the Micrometer Screw
 is equal to — 30.43 in arc, or ³⁰2.03 Equatorial
 1 division = 0.304

Mean	^m 26..22.2	^m 17..31.0	^m 8..46.2	^m 8..46.2	^m 17..31.9	^m 26..17.4	
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180 fast (600)

Sept. 7th 4 P.M.

4..42..57.57

9..09..60.00

15..26..02.43

2257 9..10..31.2

fast 4..44..28.77

No 180 fast of Cambridge m.p.t.

4..43..07.24 42.57.24

4..44..32

1..34..86 *

1..34..4

E 2257- 9..10..31.2

180- 9..56..5

1508-10..31..40.5

180- 9..55..0

190- 5..17..42.1

180-10..0..0 — 10..1..0

1454- 9..58..13.7 1492 10..2..53.6

180- 10..2..0

— 10..3..0

— 10..4..0

180- 10..7..0

1488- 9..57..28

1579- 10..3..13.8

1503- 10..3..56

E- 10..8..31.2

— 10..9..0

— 10..10..0

227- 10..5..30.7

258- 10..08..25.8

(601)

Sept 7th 5.30 P.M.

Comparative Chronometer no 186

186-10.12..9	—10.13..8	186-10.14..9	—10.16..7	—10.17..9
1508-10.47..52.5	—10.48..52	1508-10.49..53.5	—10.51..52.5	—10.53..55
<u>35.43.5</u>	<u>35.44</u>	<u>35.44.5</u>	<u>35.41.5</u>	
186-10.18..8	—10.19..8	—10.20..7	—10.21..8	—10.22..7
1508-10.53..54.5	—10.54..55	—10.55..54.5	—10.56..56	—10.57..55.5
<u>35.52.5</u>	<u>35.53</u>	<u>35.53.5</u>	<u>35.54</u>	<u>35.54.5</u>
186-10.24..7	—10.25..8	—10.26..7	—10.27..8	—10.28..7
1508-10.59..56.5	—10.00..58	—11.01..57.5	—11.02..59	—11.03..58.5
—11.04..59				
186-10.30..08	—10.31..08	—10.32..7	—10.33..5	—10.34..5
1508-11.6..00.5	—11.7..01	—11.8..00.5	—11.8..59	—11.9..59.5
<u>35.52.5</u>	<u>35.53</u>	<u>35.53.5</u>	<u>35.54</u>	<u>35.54.5</u>

11.58.5
24
 35.58.5
35.53
 255/27

(603)

Sept 8th Ther 67.0

Baran America 30.12 Ekt Ther

4th 35 Camb. m. s. t

No. 180, East of Gardn 4..42..56.37 - flow of Gut 7..35.63

180-8..57..8 — 9..00..2 2557-15..32..0 — 2557-15..33..0
 2557-75..25..55.5 — 15..28..50. 424-15..31..55 13 10-15..31..47.5

180-9..6..0 180-9..8..0 180-9..10..33 — 9..12..29
 190-4..25..44.5 E 2257-9..9..31.8 1508-9..57..42.5 — 9..59..34.5

180-9..13..30 180-9..15..0 — 9..17..0 — 9..18..0
 1508-10..0..41 1454-9..13..15.5 1442-9..19..57.3 1488-9..13..27.7

180-9..19..0 — 9..21..0 — 9..23..0 — 9..25..0
 1519-9..19..15 1503-9..20..57.7 } 1521-9..22..20 1522-9..27..45.4

— 9..26..0 — 9..28..0 — 9..29..0 — 9..31..0
 6701-9..32..24.2 6755-9..31..17.5 1502-9..19..36.7 09 10-9..30..4.9

— 9..35..0 — 9..37..0 — 9..38..0 — 9..39..0 }
 1505-9..36..21.5 1510-9..34..41.4 715-9..38..42.2 776-9..45..50 }

— 9..41..0 — 9..42..0 — 9..43..0 — 9..44..0
 2663-9..15..18.2 2857-10..09..14.5 310-8..56..13 1109-9..41..3.7

— 9..46..0 — 9..47..0 — 9..48..0 — 9..49..0
 227-9..42..31.5 258-9..45..24 250-9..45..25 230-9..55..30.7

— 9..50..0 — 9..51..0
 1506-9..50..57.5 1127-9..52..26.3

Comparison Chronometer and No 180

180-9..56..40 — 9..57..40 — 9..58..40 — 10..09..42
 1508-10..44..12.5 — 10..45..13 — 10..46..13.5 — 10..57..21
 47.32.5 47.33 47.33.5

180 10 10 41 — 10 11 42 — 10 12 42 — 10 13 41
 1508-10..58..20.5 — 10..59..22 — 11..00..22.5 — 11..01..22

180-10..14..41 — 10..15..41 — 10..16..41 — 10..17..41 — 10..18..41
 1508-11..2..22.5 — 11..03..23 — 11..04..23.5 — 11..5..24 — 11..6..24.5

180-10..20..41 — 10..20..41 — 10..21..41
 1508-11..07..25 — 11..8..26.5 — 11..09..26
 47.44 44.5 47.45.0

180-10..59..47
 1508-11..47..51
 48.04

180-11..00..45
 1508-11..48..49.5

11.53.8
 36
 4753.8
 45
 8.5
 378.9
 2.97

(604)

Sept 8th

returned

Lent S. C. W.

Astr. Nach. ~~682, 683, 684, 685~~
Astr. Soc. Notice ~~1849~~

Sept 9 (10 Am)

2557
B Jan 6 37.1
6 52.2
7 8.0
7 23.5
7 39.2
17 55.0
5 18 10.5
2255
60
71655
23.64
-2
5 17 21.64
16 47.01
34.63

Sinus
24.3
38.7
53.2
7.6
21.9
36.0
6 39 50.3
2318
1518
6 39 54.0
6 38 30.59
+34.81

8 unius
14.8
28.4
42.3
55.5
4.7
5.25 23.5
159.4 211.3
24 180
31887 291.3
55.88 55.90
5 24 53.88 55.90
14.22
+34.66
5 09 13.86
5 28 39.16
+34.70

8 Jan 6
8 32.
8 46.4
9 1.0
9 15.8
9 30.8
29 45.2
5 30 00.0
1760
1144
5 09 13.86
5 28 39.16
+34.70

2 2 Limb
6 120.4
6 55.0
7 10.0
7 25.0
7 39.7
7 54.2
5 48 9.8
2335
173.5
5 47 22.79

2 Limb
54.0
6.3
22.7
37.1
57.1
6.0
6 30 20.5
199.9
60
7 259.8
37.13
6 29
2557 6 56.0
365 7 37.53,5

(605)

Sept 10th Dec 1849

2557 7. 09
180 12. 33. 36.4

2557 7. 09. 30
1491 7. 09 03.8

2557 7. 14. 00.
1508 1. 42. 22.0

Chronometer 1507 Error on Greenwich Mean Solar Time. from the Liverpool comparisons.

		Time by 1507		
1849	July 26 th at	0 ^h 58 ^m 02 ^s	1507 slow of Gr.	-2 ^h 58 ^m 00 ^s 0
	" 26 at	3 ^h 49 ^m 22 ^s	" "	-2 ^h 56 ^m 34 ^s 7
	July 31 st at	3 ^h 50 ^m 17 ^s	" "	-1 ^h 56 ^m 51 ^s 4
	" 31 at	5 ^h 52 ^m 43 ^s	" "	-1 ^h 55 ^m 50 ^s 5
	Aug 2 nd at	17 ^h 45 ^m 31 ^s	" "	-1 ^h 26 ^m 02 ^s 5
	" 3 rd at	7 ^h 35 ^m 09 ^s	" "	-1 ^h 19 ^m 09 ^s 5

Daily Rate = +11^m 56^s 61 using its own day.

It seems to have gone very uniformly

(606)

2557 Sept. 10th
a Herculis 43.3

7 .. 57.7

8 .. 11.0

8 .. 25.3

8 .. 39.6

8 .. 53.4

17 .. 09 .. 07.6

237.3

610

711773

25.33

17 .. 08 .. 23.33

17 .. 07 .. 47.22

36.11

180 2557 10 .. 44 .. 16

2557 180 17 .. 24 .. 22

180 2557 10 .. 47 .. 17 180

2557 180 17 .. 24 .. 23.5 2557

180 - 10 .. 50 .. 17

2557 - 17 .. 27 .. 24

6 .. 37 .. 07.0

180 - 10 .. 53 .. 18

2557 - 17 .. 30 .. 25.5

6 .. 37 .. 07.5

17 .. 7 - 297.49
B Draconis 17 .. 26 - 259.5810th (11th Am)

a Orionis - 5 .. 46 - 305.01

μ Geminorum 6 .. 13 - 289.48

δ Geminorum 6 .. 55 - 291.36

δ Geminorum 7 .. 11 - 290.08

α Geminorum 7 .. 25 - 280.11

α Canmin 7 .. 31 - 306.47

β Geminorum 7 .. 36 - 284.00

Mc East

10th (11th Am)

2557 - a Orionis

6 .. 59.9

7 .. 13.4

7 .. 27.5

7 .. 41.7

7 .. 55.6

8 .. 9.0

5 .. 48 .. 23.0

229.5

610

71289.5

41.36

-2

5 .. 47 .. 39.36

5 .. 47 .. 01.41

37.95

5 .. 47 .. 01.44

μ Geminorum

3 .. 46.5

4 .. 1.3

4 .. 16.0

4 .. 31.0

4 .. 46.0

5 .. 0.7

6 .. 15 .. 15.3

156.8

610

71216.8

30.97

6 .. 14 .. 28.97

6 .. 13 .. 57.03

37.94

6 .. 13 .. 51.02

Sirius

8 .. 28.3

8 .. 42.0

8 .. 56.0

9 .. 19.5

9 .. 25.0

9 .. 39.2

6 .. 39 .. 53.7

254.7

186

7174.7

10.67

6 .. 39 .. 08.60

30.65

37.95

D 22 Linc.

9 .. 13.0

9 .. 27.7

9 .. 42.5

9 .. 57.5

0 .. 12.5

0 .. 27.4

6 .. 50 .. 42.4

223.0

180

71403

57.57

6 .. 49 .. 55.57

-37.95

6 .. 49 .. 17.62

α Orionis - 5 .. 47 .. 01.44

μ Geminorum 6 .. 13 .. 57.04

D 22 Linc. - 6 .. 49 .. 17.62

α Geminorum 7 .. 24 .. 58.49

β Geminorum 7 .. 36 .. 05.19

37.95
34
35
32
31
37
37
6) 49 24/82
44
14

21

-37.95

Sept 10 Pm ^{h m} 5.55 (607)

180-10.35.10 — 10.36.10 180-10.55.14 — 10.56.14
 1508-11.46.54.5 — 11.47.55 1508-12.07.8.5 — 12.08.09
 180-10.57.14 — 10.58.13 — 10.59.13 — 11.00.13 — 11.01.12
 1508-12.09.9.5 — 12.10.09 — 12.11.9.5 — 12.12.10 — 12.13.9.5
 1.11.55.5
 180-11.2.10 — 11.3.10 — 11.04.11 — 11.5.10 — 11.06.10
 1508-12.14.8 — 12.15.8.5 — 12.16.10 — 12.17.9.5 — 12.18.10
 1.12.00

Sept 10/10 Ill East

2557 22 Gemini	Procyon	B Geminorum	180-0.22.40
4.50.0	1.23.5	5.58.0	2557-7.02.03
5.6.2	1.37.2	6.14.0	180-0.25.30
5.22.2	1.51.0	6.29.6	2557-7.04.53.5
5.38.3	2.4.9	6.44.9	180-0.28.34
5.52.3	2.18.4	7.0.7	2557-7.07.58
6.10.7	2.32.5	37.16.4	2557-7.59.0
7.26.27.0	7.32.46.4	7.37.32.0	365-8.36.42.7
2087	2139	195.6	2557-8.01.0
60	150	120	365-8.38.42.3
7/268.7	7/339	7/315.6	8.01.0.0
38.39	04.84	45.09	37.95
7.25.36.39	7.32.02.84	7.36.43.09	32.00.22.05
7.24.58.57	31.24.53	36.05.12	11.18.23.45
+ 37.82.50	38.31	+ 37.97.90	20.41.58.60
7.24.58.49		7.36.05.19	19.56.43.41
			40.53.28
			57.84
			.60
			8.38.35.13
			366-8.38.42.7
			Hand. + 7.57
			16.0
			- 8.43
			2557-7.07.58.0
			37.89
			31.07.20.11
			11.18.23.45
			29.48.56.66
			19.56.53.24
			47.52.74
			55.85
			.66
			7.25.22.09
			12.28.34
			+ 4.42.51.97
			4.44.32
			- 1.46.09

Therm. 66.5
 anel

E W

+	58.5	-	65.5
+	58.3	-	62.3 +
+	59.4	-	64.0
+	58.5	-	61.5 +
+	59.0	-	63.7
+	57.5	-	62.0 +
+	58.7	-	63.7
+	57.0	-	61.7 +
+	58.5	-	63.3
+	56.5	-	61.5 +

347
 1047
 694
 7487

Micrometer measures
 of Meridian Mark -

$$0.635 = 0.365$$

$$.660 .340$$

$$.662 .338$$

$$643 - .347 = 0.799$$

Bad seeing

west end too high - 2.36 = 0.16

$$\text{lev.} = + 0.16$$

(608) altered the second hand

Sept. 11 - 9^h Am

180 2557 - 1.37.0 2557 - 1.40.0
 2557 180 - 6.16.35.5 180 - 8.19.36
 6.39.35.5

2557 - 9.41.0
 1491 - 9.40.28.5
 -31.5
 5th slow - 8.5
 23
 17
 6) 17 (1st loom

Comparisons with No 180. and 1508
 No 180 Slow of Gwh - 7.39.9

180 - 2.31.9 180 - 2.32.10 1508 - 3.53.45 1508 - 3.55.25 1508 - 3.56.53.
 1508 - 3.50.49 1508 - 3.51.50.5 2557 - 9.13.58.5 2557 - 9.15.28 2557 - 9.16.55.5
 3.5 3. 2.5
 1508 - 3.58.20
 2557 - 9.18.22
 2

1508 - 4.01.08.5 1508 - 4.03.3 - 4.04.32 1508 - 4.06 4 1508 - 4.07.30.
 1491 - 9.21.34.0 1491 - 9.22.32 - 9.24.0.5 1491 - 9.25.32 1491 - 9.26.57.5
 40.37 -31.5 32
 1508 - 4.08.57 1508 - 4.10.27 - 4.11.54 - 4.13.29
 1491 - 9.28.24 1491 - 9.29.53.5 - 9.31.20 - 9.32.54.5 - 4.14.56
 40.33 40.33.5 40.34 40.34.5 40.35

1508 4.16.22 1508 - 4.17.57 1508 - 4.19.15
 2557 - 9.36.18 2557 - 9.37.46.5 2557 - 9.39.10
 40.04 40.04.5 40.05

Then 66

1508 - 4.22.55 1508 - 4.23.55 4.25.37 4.26.38
 1492 - 3.6.06 1492 - 3.07.5.5 776 - 3.12.47 776 - 3.13.47.5
 1508 - 4.36.38 - 4.36.38 - 4.37.37 - 4.38.38 - 4.39.38
 227 - 3.12.08 - 3.13.9.5 - 3.14.08 - 3.15.8.5 - 3.16.08
 1.23.28 23.29.5 23.29 23.29.5 23.30

1508 - 4.43.12 1508 - 4.44.11 1508 - 4.45.20 - 4.46.20 - 4.48.06
 258 - 3.21.26 258 - 3.22.24.5 250 - 3.22.31 - 3.23.30.5 230 - 3.34.38.5

1508 - 4.49.8 - 4.50.7 1508 - 4.52.28 - 4.53.30 - 4.54.30
 230 - 3.35.40 - 3.36.38.5 1506 - 3.33.21.5 - 3.34.23 1506 - 3.35.22.5
 1.13.28 1.13.28.5 1.19.06.5 1.19.07 1.19.07.5

1508 - 4.56.50 - 4.57.50 1508 - 5.1.038 - 5.2.40 - 5.03.40
 1127 - 3.38.20.5 - 3.39.20 1109 - 3.38.23 - 3.39.24.5 - 3.40.24
 1.18.29.5 1.18.30 1.23.15 1.23.15.5 23.16

1508 - 5.05.20 - 5.6.20 - 5.7.20 1508 - 5.8.55 - 5.09.55
 310 - 2.58.07 - 2.59.06.5 - 3.0.06 2857 - 4.16.16.5 - 4.17.16
 2.07.13 2.07.13.5 2.7.14 52.38.5 52.39

1508 - 5.11.56 1508 - 5.14.57 - 5.15.57 1508 - 5.17.40 - 5.18.40
 2857 - 4.19.16 2663 - 3.28.39.5 - 3.29.39 715 - 3.57.56 - 3.58.55.5
 52.40 1.46.11.5 1.46.12 1.19.44 1.19.44.5

(609)

11th No 180 at 7^h 38^m slow of GWT - 1^h 39.85
 Am 7.39 - " - 1^h 40.09
 Am 2.45 - " - 1^h 40.21

Sept. 11th

gu 10/11

$$1508 - 5.23.21 - 5.24.21 - 5.25.21$$

$$1454 - \frac{4.1.15}{1.22.06} - \frac{4.2.14.5}{1.22.06.5} - \frac{4.3.14}{1.22.07}$$

$$\left. \begin{array}{l} 1508 - 5.27.25 \\ 2557 - \frac{10.46.57.5}{40.27.5} \end{array} \right\} \begin{array}{l} 1508 - 5.28.52 \\ 2557 - \frac{10.48.24}{40.28} \end{array} \left\} \begin{array}{l} 5.30.20 \\ 10.49.57.5 \\ 40.28.5 \end{array} \right\} \begin{array}{l} 1508 - 5.32.15 \\ 180 - \frac{4.11.14.5}{1.20.30.5} - \frac{4.12.14}{1.20.31} \end{array}$$

$$\begin{array}{llll} 1508 - 5.34.15 & 2557 - 10.55.15 & 180 - 4.18.15 & 180 - 4.20.13 \\ 780 - \frac{4.13.43.5}{1.20.31.5} & 180 - \frac{4.15.13}{-6.40.02} & 2557 - \frac{10.58.17.5}{6.40.02.5} & 2557 - \frac{11.01.16}{6.40.03} \end{array}$$

6.40.23

No 180 Slow of GWT - 1^h 40.2

180. Direct Comparison of Chronometers to go this afternoon
 on Board the Caldonia Capt Litch Ther - 68

$$\begin{array}{llll} 180 - 4.27.0 & - & 4.28.0 & - & 4.29.0 & - & 4.30.0 \\ 227 - \frac{4.23.34.3}{-3.25.7} & 258 - \frac{4.26.20}{-1.40.0} & 250 - \frac{4.26.18}{-2.42.0} & 230 - \frac{4.36.41.2}{+6.41.2} \\ - & 4.31.0 & 4.32.0 & 180 & 4.33.0 & - & 4.36.0 \\ 1506 - \frac{4.32.4.2}{+1.04.2} & 1127 - \frac{4.33.43.7}{+1.43.7} & 1127 & 4.34.43.5 & 1109 - \frac{4.33.0.2}{-2.59.8} \\ - & 4.37.0 & - & 4.38.0 & - & *4.39.0 & - & 4.40.0 \\ 776 - \frac{4.44.7.4}{+7.07.4} & 310 - \frac{3.51.42}{-46.55.8} & 2857 - \frac{5.06.40.7}{+27.40.7} & 2663 - \frac{4.14.10.3}{-25.49.7} \\ - & 4.42.0 & * & \text{Dent No 257 was substituted for this} \\ 715 - \frac{4.42.39.2}{+0.39.2} & \text{These twelve go in the Caldonia} \end{array}$$

$$\begin{array}{llll} 180 - 4.45.00 & - & 4.46.0 & - & 4.47.0 & - & 4.48.0 \\ 1488 - \frac{4.40.27.4}{-4.32.6} & 1454 - \frac{4.44.20}{-1.40.0} & 1492 - \frac{4.50.7.3}{+3.07.3} & 1519 - \frac{4.48.18.5}{+0.18.5} \\ - & 4.49.0 & - & 4.52.0 & - & 4.53.0 & - & 4.54.0 \\ 1503 - \frac{4.49.2}{+0.02.0} & 1521 & \frac{4.51.26.4}{-0.33.6} & 1522 - \frac{4.56.0.4}{+3.00.4} & 6701 - \frac{5.00.35}{+6.35.0} \\ - & 4.55.0 & - & 4.57.0 & - & 4.58.0 & - & 4.59.0 \\ 6755 - \frac{4.58.24.2}{+3.24.2} & 1502 - \frac{4.47.28.6}{-9.31.4} & 6910 - \frac{4.56.53.2}{-1.06.8} & 1570 - \frac{4.58.40.3}{-2.19.7} \\ - & 5.2.0 & * & 5.5.0 & - & 5.6.0 & - & 5.7.0 \\ 1505 - \frac{5.3.28.2}{+1.28.2} & 2557 - \frac{5.6.33.5}{+1.33.5} & 190 - \frac{12.25.56.2}{-4.40.03.8} \end{array}$$

$$\begin{array}{lll} 2557 - 11.48.0 & 2557 - 11.51.0 & 2557 - 11.52.0 \\ 6310 - \frac{11.46.36.5}{-1.23.5} & 2440 - 11.44.14.7 & 2492 - 11.52.40.8 \end{array}$$

$$\begin{array}{lll} 180 - 5.14.56 & 180 - 5.18.20 & 180 - 5.20.55 \\ 2557 - \frac{11.55.8}{6.40.12} & 2557 - \frac{11.58.32.5}{6.40.12.5} & 2557 - \frac{12.01.08}{6.40.13} \end{array}$$

(610)

Sept 11

He East

$$\begin{array}{r} 40 \ 11 \ 21 \ 33 \ 27 \ 24 \\ 46 \ 75 \\ \hline 11 \ 22 \ 20 \ 02 \end{array} \quad \begin{array}{r} 40 \ 17 \ 6 \\ 34 \\ \hline 160 \ 1 \ 02 \end{array}$$

2557 Polaris S.P.

G 12 40 19

F 12 49 11

E 12 57 8

D 13 06 42.5

C 13 15 30.0

B 13 24 15.2

A 13 33 02.0

746 57.5

6 42.5

13 06 40.5

13 05 53.9

46.6

Pol- 13 06 40.5

Apr- 13 17 54.20

11 13 70

11 21 40

7 70

13 00 52.3 = 12 57 57.8

Guia

7 14.2

7 28.3

7 42.3

7 56.2

8 10.1

8 24.1

13 18 38.2

20 34

180

7 39 3.4

56.20

13 17 54.20

13 17 15.30

+ 38.90

7 13 27.8

6 43.9

2557-14 10 04.50

38.90

14 9 25.60

11 22 20.02

2 47 05.58

1 19 40.34

46 52.30

4 99

58

2 46 38.21

180-7 29 30.0

4 42 51.79

4 44 32.00

-1 40.21

22.6

1

240

1 57.5

2 57.5

28

17

27 11.5

28.39

30.06

2 54.5

13 00 52.3

57 57.8

3) 8 47.5

2 55.8

00 57.3

57 56.5

14.

7 22.0

1 40.3

7 23 40.3

33.6

6.7

2557-14 01 0

E 2257-7 22 0.8

2557-14 04 44.5

180-7 24 12

6 40 32.5

180-7 22 0

E 2257-7 23 33.6

180-7 26 38

2557-14 07 12

6 40 34

7 29 30

14 4 10 04.5

6 40 34.5

September 11th Dent No 2257 was packed in the case of 1507 & sent in place of P & F No. 2857 per Calidonia

Dent 2257 has had a new main spring.

Note. They were taken in an early Carriage by way of Charlestown (avoiding the Pavement, except at a short crossing) and Chelsea, to the Steamer Calidonia and were safely placed in the lower Berth of the State Room next to the Gentlemen's Cabin.

This was found a long route, and worse road in June than thro Boston, the road were dry and in their best trim, But evidently will not answer our purpose in wet weather or after heavy rains.

(611)

Sept 11-

1491 - 15..12..0

Mr East

2557 - 15..12..32.3

B Aquila

a Cor. Brn

8..13.1

8..28.5

8..44.0

8..59.5

9..15.0

9..30.2

15..29..45.4

2357

180

7/415.7

59.39

-2

15..28..57.39

28..18.27

+ 39.12

58.3

8..10.

8..24.0

8..38.2

8..52.0

9..5.7

19..49..20

206.2

60

7/266.2

38.03

2

19..48..36.03

19..47..56.07

+ 39.96

a Cor. Brn - 15..28.. 285..09

a Serpenti - 15..36 - 305..29

Sept 11th 5 PM

1504 11..14..09

1491 4..31..15

1504 11..15 20

180 9..52 00

Sept 12/13 Am

2557 7..5.8

7..19.5

7..33.5

7..47.2

8..1.0

8..14.8

5..48..24.0

1508

180

7/330.8

47.26

2

5..47..45.26

5..47..01.46

43.86

12/13 2557 - 5..27 - 0

6357 5..57..07.2

11..25..29.82 365 5..27..0.0

46.73 43.80

11..26..16.55 29..26..16.20

11..26..16.55

17..59..59.65

16..57..12.90

58..50.33

58.84

-65

5..58..02.72

365 5..57..07.2

+ 4.5

16

Boston - 11.5

(6/12)

1849 Sept. 13th
Polaris L.P.

2557

Ill. East

G ~ 12 .. 40 .. 23
 F 12 .. 49 .. 13.3 50.3
 E 12 .. 58 .. 00.5 47.2
 D 13 .. 06 .. 57.3 50.8
 C 13 .. 15 .. 36.0 44.7
 B 13 .. 24 .. 22.0 46.0
 A 13 .. 33 .. 06.7 44.7

147 .. 328

13 .. 06 .. 47.54

13 .. 06 .. 45.5

5 .. 54.7

13 .. 06 .. 45.5

13 .. 06 .. 36.56

5 .. 54.7

44.86

E Wrs. min.

17 .. 00 .. 36.0

02 .. 18.2 D

03 .. 59.8

76 .. 54.0

2 .. 78.0

17 .. 02 .. 16.0

17 .. 01 .. 32.25

43.75

17 .. 02 .. 16.0

+ 97

17 .. 02 .. 16.97

17 .. 01 .. 32.25

+ 44.72

Rate .. 25

44.47

Polaris
 13 .. 06 .. 45.5
 13 .. 06 .. 41.56
 13 .. 18 .. 00.09
 11 .. 18.53

Tab diff - 11 .. 20.58
2.05

Spica

7 .. 20.2

7 .. 34.0

7 .. 48.0

8 .. 2.0

8 .. 16.0

18 .. 29.8

13 .. 18 .. 44.0

194.0

16.0

14.

2.0

2

13 .. 18 .. 00.00

13 .. 17 .. 15.28

+ 44.72

-1644.56

a Herulis

7 .. 51.4

8 .. 5.8

8 .. 20.6

8 .. 34.2

8 .. 48.2

9 .. 2.3

17 .. 09 .. 16.5

1784

60

7238.4

34.06

2

17 .. 08 .. 32.06

17 .. 08 .. 31.96

17 .. 07 .. 47.14

44.85

Rate .. 3

44.55

Spica

13 .. 18 .. 00.00

level + 0.9

0.9

Standard 77.5

E ~ 77.7

F ~ 78.0

E Wrs. min - 17 .. 01 - 230 .. 06

a Herulis - 17.07 - 297.49

180 - 9 .. 48 .. 27

2557 16 .. 37 .. 28.5

180 - 9 .. 50 .. 41

2557 - 16 34 .. 40

2557 - 16 .. 39 .. 40.8

11.29 .. 26.38

11.30 .. 13.15

16.38 .. 55.2

11.30 .. 13.13

5.08 .. 42.07

4.59 .. 10.85

7.08 .. 69

41.88

107

42 .. 5.07 .. 51.49

15.57 .. 18 9 .. 50.41

11.26 .. 16.5 4.42 .. 49.51

4.31 .. 01.5180 - 1.42.49

44.5 79w2

4.30 17.0

3.56 .. 44.3

33.32.7

Dec. West 0.076 = 1.09

Col. West 0.042 = 0.6

Level Error - 2.36 west too high
 = 0.157 Log 9.19590

Azimuth 0.073 = 1.09 - 8.86221

No 2557. fast at 18^h

L. Polaris - 44.74 46.67

Spica - 44.75 46.67

E Wrs. min 44.38 44.84

a Herulis - 44.63 46.56

Sept 13th Sept - Then 77° (63) Bar = 30.Newman
Standard

Loughton & Simms

E F G

77.5	77	77.4	
32.4	32.2	32.4	32
+6.5	8.5		
+5.0	2.7	3.7	4.5
+5.5	3.7	4.7	5.0
33.3	32.4		
25.0	25.0	25.0	25.0
61	60.5	60.5	60
77.7	76.8	77.0	76.5
94.5	92.5	93.5	93.5
112.5	110.0	110	110.5
111.0	109	109	109

11.29.26.38
46.73
11.30.13.11

Sept 13th

180 East of Cambridge - 4.42.49.4

2557 - 16.39.40.0

180 - 9.56.18	9.57.18	9.59.18
1508 - 11.43.33.5	11.44.34	11.46.35
1.47.15.5	1.47.16	1.47.17
	1.47.33	
	5) 1.7.3.4	
	1.5	
	20	

44.7
16.38.55.30
11.30.13.11
5.08.42.19
4.59.10.552
7.58.65
41.88
19
5.07.51.61

180 - 10.04.20
1508 - 11.51.39.5

180 - 10.05.19
1508 - 11.52.39
1.47.19.5
1.47.45
8) 25.5 / 3.2

180 - 9.50.41
4.42.49.4
4.44.32
9.02 - 1.42.6

180 - 10.31.26	10.33.25	10.34.24	10.35.24
1508 - 12.18.59	12.20.59	12.21.58.5	12.22.59
1.47.33	1.47.34	1.47.34.5	1.47.35

180 - 10.54.23	10.55.24	10.57.23	10.59.23	11.00.23
1508 - 12.42.07.5	12.43.09	12.45.09	12.47.10	12.48.10.5
1.47.44.5	1.47.45	1.47.46	1.47.47	1.47.47.5
180 -				
1508 -				

1.17.44.5
38
1.47.44.5
1.47.35
9.5

1849 Sept. 14th P.M.

(614)

$$\begin{array}{r}
 180 - 9.43.04 - 9.46.10 \\
 2557 - 16.36.02 - 16.39.08.5 \\
 \hline
 6.52.58 \quad 6.52.58.5
 \end{array}$$

$$\begin{array}{r}
 2557 - 16.41.0 \\
 1419 - 16.40.15.5 \\
 \hline
 1491^e
 \end{array}$$

$$\begin{array}{r}
 2557 - 16.45.0 \\
 1419 - 16.44.15.5 \\
 \hline
 1491^e
 \end{array}$$

$$\begin{array}{r}
 180 - 9.57.05 - 9.58.04 - 9.59.03 - 10.00.04 \\
 1508 - 11.56.18 - 11.57.17.5 - 11.58.17 - 11.59.18.5 \\
 \hline
 1.59.13 \quad 1.59.13.5 \quad 1.59.14 \quad 1.59.14.5
 \end{array}$$

a theoculis

$$\begin{array}{r}
 180 - 10.21.8 \\
 1508 - 12.20.33 \\
 \hline
 1.59.25
 \end{array}$$

$$\begin{array}{r}
 180 - 10.22.0 - 10.25.5 \\
 2557 - 17.15.4.5 - 17.18.10
 \end{array}$$

2557

$$7.54.3$$

$$8.8.2$$

$$8.22.5$$

$$8.36.3$$

$$8.57.0$$

$$9.5.4$$

$$17.09.19.5$$

$$1972$$

$$60$$

$$772572$$

$$17.08.36.74$$

$$-2$$

$$17.08.34.74$$

$$17.08.34.64$$

$$17.07.47.12$$

$$+47.52$$

$$180 - 10.42.0 - 10.43.0 - 10.44.0 - 10.45.0$$

$$1492 - 10.45.19 \quad 1488 - 10.48.26.3 \quad 1519 - 10.44.21.8 \quad 1454 - 10.43.24.7$$

$$10.46.0 - 10.48.0 - 10.49.0 - 10.50.0$$

$$1503 - 10.46.10.2 \quad 1521 - 10.47.33 \quad 1522 - 10.52.17 \quad 6701 - 10.56.48$$

$$10.51.0 - 10.53.0$$

$$6755 - 10.54.31.3 \quad 1502 - 10.43.18.4 \quad 10.54.6 - 10.57.0$$

$$10.56.0 - 10.58.0$$

$$1570 - 10.53.40 \quad 190 - 6.17.54.3$$

$$2557 - 17.53.0$$

$$2557 - 17.54.0$$

$$2557 - 17.55.0$$

$$2440 - 17.45.54.8$$

$$2492 - 17.54.53$$

$$1310 - 17.53.28.5$$

$$2557 - 17.56.0$$

$$84 - 18.06.35.3$$

$$\begin{array}{r}
 2557 \\
 47.552 \\
 2.5 \\
 \hline
 15^{\text{th}} + 50.02
 \end{array}$$

No 180 fast of Camb. $4^h 42^m 48^s.4$ Guli - $1.43.6$

(615)

Sept 15^t

$$2557 - 13..02..0$$

$$2857 - 13..02..19.8$$

$$13..02..0$$

$$13..01..10.0$$

$$2857 - 13..02..19.8$$

$$1..09.8$$

1st

Dorion

lost

35.2

49.0

$$5..25..03.0$$

McC East
No. 1491

17

$$\begin{array}{rcl} \text{Dorion} & - 5..24 & - 312..48 \\ \text{2 Dorion} & - 5..29 & - 313..48 \\ \text{a Dorion} & - 5..47 & - 305..08 \\ & & 289.49 \end{array}$$

No 1491

a Dorion

$$5..21.8$$

$$6..36.0$$

$$6..49.9$$

$$7..4.0$$

$$7..17.5$$

$$7..36.4$$

$$5..47..45.3$$

$$2059$$

$$1809$$

$$71259$$

$$3.70$$

$$-2$$

$$5..47..01.70$$

$$5..47..1.57$$

$$+ .13$$

$$1491 - 6..42..0$$

$$365 - 6..56.48.7$$

$$6..42..0.0$$

$$30..41.59.87$$

$$11..42..02.76$$

$$18..59.57.11$$

$$17..57..03.07$$

$$58..50.33$$

$$56.84$$

$$.11$$

$$6..56.50.35$$

$$365 - 6..56.48.7$$

$$\text{camb} - 1.65$$

$$16$$

$$17.65$$

$$11..41..16.03$$

$$46.73$$

$$11..42..02.76$$

$$1491 - 6..46..0$$

$$196.7..00.43.7$$

$$6..46..0.0$$

$$13$$

$$30..45.59.87$$

$$11..42..02.76$$

$$19.03.57.11$$

$$18..56.53.24$$

$$2..56.51$$

$$56.65$$

$$.12$$

$$17..00.49.72$$

$$196.7..00.43.7$$

$$-6.0$$

$$1491 - 6..52..0$$

$$196 - 7..06..43.2$$

$$6..52..0.0$$

$$13$$

$$30..51.59.87$$

$$11..42..02.76$$

$$19.09.57.11$$

$$18..56.53.11$$

$$8.56.52$$

$$1.47.34.5$$

$$1.59.34.5$$

$$31.5$$

$$3.0$$

(616) (N)

Sept 16/17 Am

11. East

α Gem

4.12.0
4.28.0
4.44.2
5.0.3
5.16.7
5.33.0

1322

7.25.49.5
1837
7.3.7
00.53
-2

7.24.58.53
Collim. - 05
In + 20
Az - 03
7.24.58.65
24.58.75
+ .10

a Can. min.

0.45.2
0.59.3
1.12.9
1.27.0
1.41.0
1.54.6

7.32.08.3
248.3
60
7.188.3
26.90
-2

7.31.24.90
-04
+14
-09
7.31.24.91
31.24.68
+ .23

β Gem

5.20.4
5.36.1
5.57.5
6.7.2
6.22.7
6.36.3

7.36.54.0
230.2
180
7.50.2
7.17
-2

7.36.05.17
-05
+ .19
-04
7.36.05.27
36.05.29
-0.2

α² Gem 7.24 - 280.10
a Can min 7.31 - 306.49
β Gem 7.36 - 284.00

Collimation West 0.042
Inclination N. high - 0.17 2.53
Azimuth West - 0.132

1492 - 7.43.38.05
31.43.38.05
11.42.02.76
20.01.35.29
19.56.43.41
59.84
34.90
29

Camb. 7.58.17.44
180 - 12.41.04.5
4.42.47.06

17th PM

180 East of Cambridge - 4.42.47.06

180-10.54.32 180-10.55.32 180-10.56.33 180-10.57.34
1508-13.30.04.5 1508-13.31.05 1508-13.32.06.5 1508-13.33.08
35.32.5 2.35.33 2.35.33.5 2.35.34

180-10.58.34 180-10.59.34 180-11.00.34
1508-13.34.08.5 1508-13.35.09 1508-13.36.09.5
2.35.34.5 2.35.35 2.35.35.5

180
Aug 17th slow of 1902

13th

1.47.45
48
2.35.45
2.35.33
4) 12/3.

Sept 17 - 1.44.94
31/37.04 (1.2 Rate losing)
15
21

2.70
2.36
1106
15/253/17
183
105

Sept. 17 Am

Then (617) Meroid Bar

1492-7.43.38 — 7.46.40
180-12.41.04.5 — 12.44.06
4.57.26.5 58.26

1491-7.49.0
2557-7.49.53

1491-7.50.0
2557-7.50.52.8

Sept 17th 11 Am Therm.

North Mark to the Right of the mid. wire

Mic. on mid wire reads Ill. East

mid wire 0.985 mark 662 Diff of mark & mid wire

.980 650 0.323

.976 652 .330

.985 652 .326

.985 652 .333

.985 652 .33.2

5/24.11 5/26.9

0.982 0.654

0.328 mean of North mark on the right of mid wire

Level Ill East coin. mid-wire .982 50s Level Ill. West

W E W E

+ 52 47 mean .986 +

+ 51.5 46.5 Ill. E N mark dist 0.332 +

52.2 45.5+ Ill. W " 0.369 +

52.0 45.5+ 0.019 2/0.037 +

4/7.7 4/24.0 2.07 0.019 +

51.9 46.0 0.0437 +

46.0 2/5.9 0.032 = mean of wires +

2.9 = 0.19 0.076

Coll of mean of wires = 0.076 E of S Ill. West.

lev. = +0.16

Int Reversed

Ill. West North of Mer

Mic. on mid wire Mark

0.995 .005 0.370 = .365

0.985 .015 0.360 = .345

0.985 .015 0.337 .322

1.000 .000 0.352 .352

0.985 .015 0.359 278 .344

0.990 0.355

0.365 Mark right of mid wire Ill. West

0.328 " " Ill. East

0.037

0.085

0.042

Mean coin 0.986
0.355
0.369

1.47.45.0
48
1.35.45.0
1.35.33.6
12

849 Sept-17/1882

He west (688)

No 1491

8 Gemminorum

4 11

a Can min

3 Gemini

7 49.2
 8 3.6
 8 17.8
 8 32.4
 8 46.6
 9 0.9
 6 39 15.2
 16.57
 607
 7/2 25.7
 32.24
 -2
 6 38 30.24
 30.88
 -59

0.24
 0.39.0
 0.53.8
 1.8.8
 1.23.5
 1.38.4
 7 11 53.2
 240.7
 180
 7/607
 8.67
 -2
 7 11 06.67
 7.44
 -77

4 11
 4 27.5
 4 43.6
 5 0.0
 5 16.2
 5 32.4
 7 25 48.5
 1792
 24 59.89
 -2
 7 24 57.89
 58.78
 -89

0.44.4
 0.58.5
 1.12.2
 1.26.2
 1.40.0
 1.53.7
 7 32 07.2
 242.2
 60
 7/182.2
 26.03
 -2
 7 31 24.03
 24.71
 -68

5.19.3
 5.35.0
 5.57.0
 6.6.5
 6.22.0
 6.37.8
 7 36 53.2
 2248
 180
 7/144.8
 06.40
 2
 7 36 04.40
 5.32
 -92

He west

Polaris I.P. No. 1491-

Sun has been heating the
Polaris -

B - 12 48 44

Polaris

48.5

D - 13 06 15.7

2.4

16.3 min

F 13 23 47
 3/18 467
 13 06 15.57
 -2
 13 06 13.57
 5 56.35
 17.22

30.2
 13 17 44.2
 1816
 2
 2632
 -12
 13 17 14.32
 13 17 15.25
 93

Polaris 322.45

180 - 5 29 42
 1491 - 12 36 59.5
 7 07 17.5
 180 - 5 35.37
 1491 - 12 42 55.5
 7 07 18.5

180 - 5 48 00
 1491 - 12 55 20.5
 7 07 20.5

180 - 5 54 00

1491 - 13 1 21.5
 07 21.5

11 49 09.13
 46.45
 11 49 55.58
 8

13 01 21.5
 9
 13 01 22.4
 11 49 55.58
 1 11 26.82
 252
 0.59 50.17
 10 58.20
 25.93
 .8252
 1 11 15.124.82
 180 - 5 54 00
 4 42 44.88
 4 44 32
 1 48.18
 1 46.82

(619)

Sept-18th Am 8^h 30

Polaris S.P. Hl East

Aug-16th mid wire - 13..06..31.00 ✓mean 17 - $\frac{13..06..32.03}{+ 1.03}$

20 - mid - 7 13..06..49.00 ✓

mean - 7 $\frac{13..06..47.43}{- 1.57}$

22 - mid — 13..06..45.00

mean 5 — $\frac{13..06..45.00}{\pm}$

30 Hl. West

mid - 13..05..47.0 ✓

mean - 7 - $\frac{13..05..48.8}{+ 1.8}$ Sept 3 - mid — Hl East
13..06..21.0 ✓mean 7 - $\frac{13..06..19.99}{- 1.01}$ 8^h mid — Hl. East
13..06..35.5mean - 5 - $\frac{13..06..34.1}{- 1.4}$ 11 - mid 7 — Hl East
13..06..42.5 ✓mean 7 — $\frac{13..06..42.5}{\pm .0}$ 13 - mid — Hl East
13..06..57.3 ✓mean 7 - $\frac{13..06..47.5}{- 3.8}$ 17th mid — West
13..06..15.70Bd & F mean 3 — $\frac{13..06..15.57}{- .13}$ 18th mid — East
13..06..02.0mean 7 — $\frac{13..05..56.6}{- 5.4}$ 25 — Mid — East
13..07..04.5mean 7 — $\frac{13..07..01.4}{- 3.1}$ Amoid. B. 30.027 - 62^h 65^m
C.P. - 30.015 - 63

Hl East

+ 1.03

- 1.01

- 1.40

± 0.00

- 3.80

- 0.84

Hl West

- 1.57

± 0.00

+ 1.80

+ 2.3

+ 0.08

7 wires

East

+ 1.03

- 1.01

± 0.00

- 3.80

- 3.88

- 0.94

West

- 1.57

+ 1.80

+ 2.3

+ .13

- .94

0.40

5 wires

East

± 0.0

- 1.6

+ 1.4

0.7

West

(620) 1200

Sept-18⁺

Mer

1491-14.27.0 — 14.29.50 — 14.54.55 — 14.36.0
 180-7.19.24.5 — 7.22.14 — 7.37.18.5 — 7.28.23

180-7.52.38 — 7.55.39 180-7.58.38 — 8.01.40
 1491-14.00.19 — 14.53.20.5 1491-3.06.20 1491-15.9.22.5
07.41 7.41.5 7.42

180-8.03.27 — 8.04.27 — 8.05.28
 1508-10.49.31.5 — 10.50.32 — 10.51.33.5
2.46.04.5 2.46.05 2.46.05.5

1.59.14
45
 2.47.14
2.5
 11.5

so 180. Fast of Cambridge - 4.42.45.23

Slow of Greenwich - 1.46.77

180-9.29.0 180-9.30.0 — 9.31.0 — 9.32.0
 1503-9.29.20.2 1492 9.33.33.2 1488 9.26.24.8 1579-9.32.26.7
 — 9.33.0 — 9.34.0 — 9.35.0 — 9.36.0
 1454 9.31.81 1505-9.35.44.8 1510-9.32.40.3 1521-9.35.40.2 }
 — 9.37.0 — 9.38.0 — 9.39.0 — 9.40.0
 1522-9.40.37.5 6701-9.45.6.2 6755-9.42.39.3 1502-9.30.5.4

— 9.42.0 — 9.45.0
 Cy-10-9.40.9.2 190-5.05.11

1491-16.54.0 — 16.55.0 — 16.56.0 — 16.57.0

24-17.05.14.5 2440-16.48.38.8 2557-16.56.57.7 2492 16.59.4.8

1491-16.59.0
 B 10-16.58.14.2

45.8
46.7

J.H.S. B No 10

Mer 67

180-9.59.50 10.0.51 — 10.01.50
 1508 12.46.52.5 1247.56 1708-12.48.53.5
2.47.2.5 47.03 2.47.03.5

a Hoopii

a Heronuli

16.18.39.0 1491 7.3.5
 8.54.0 1491 7.17.5
 9.9.2 7.31.5
 9.24.4 7.46.0
 9.39.5 8.0.0
 9.55.0 8.14.0
 20 10.0 17.08.28.5
23.1.1 14.1.6
26 14.1.6
7.12.1.1 3.27.0
 16.19.24.44 17.07.43.86
47.04
-3.18

11.49.9.13 1491-15.9.22.5
46.73
 11.49.55.86 15.9.23.5
11.49.55.86 11.49.55.86
3.19.27.64
2.58.30.31
18.56.89
26.93
.64
3.18.54.77
 180-8.01.40.00
4.42.48.23
4.44.32.00
-1.46.77

(621) 522

Sept-18th

180-10.31.55	180-10.31.54	180-10.32.54	180-10.33.54
1508-13.18.13	1508-13.19.12.5	1508-13.20.13	1508-13.21.13.5
<u>2.47.18</u>	<u>2.47.18.5</u>	<u>2.47.19</u>	<u>2.48.19.5</u>

18/19 Sept.

Ill West

Hydra 8.38 - 305.22
 Can. Mag. 8.48 - 263.42
 Hydra 9.20 - 320.20
 Can. Mag. 9.22 - 260.60

1491 8 Gemini
 7.4 D
 22.0
 37.0
7.11.52.0

ar Gemini

4.9.9
 4.26.2
 4.42.4
 4.58.6
 5.14.8
 5.30.9

Procyon

0.43.0
 0.58.0
 1.11.0
 1.24.8
 1.38.7
 1.52.4

B Gemini

34 F
 49.3 E
 5.1 D
 20.8 C

7.25.47
229.8
180.
7.40.68
58.54
2
7.24.56.54
24.58.81
-2.27

7.32.06.2
233.1
60.
7.173.1
24.73
2
7.31.22.73
31.24.73
-2.00

7.36.36.3 B
1355
2710
24
7.36.03.10
36.05.35
-2.25

1.59.31.6
48
2.47.31.0
19.5
3
2.47.31.0

Ill East coll mean of wires = 0.034 W

Can. Mag. 8
 30.3
 57.0
 11.6

8.49.32.3
1250
2
2500
24
8.48.44.00
57.04
-2.04

app Ill - West.

Ther. 52

Level

W E

+ 70.5 - 64.5
 67.5 - 67 +
 + 70 64.5
 67.5 - 67 +
 + 70 - 64
 67 - 67 +
 6/412.5 134
68.85
65.40
2/3.15
1.55

180 - 1.48.20 180 - 1.51.20
 1491 - 8.58.57.5 1491 - 9.01.58
 180 - 1.54.38
 2537 - 9.06.17

202
 23
 406
 604
 645

Mid. wire zero - 0.000

Ill. West micrometer readings

Ill. W. W. end high 1.55 0.30
 2 3.55 .31
 2.00 .29
 1.00 .31

North
 0.30.2 mer. mark = 0.695

Ill. East micrometer reading

0.71 = 0.29

70 = .30

68 = .32

71 = .29

North
 0.30 mer. mark

Coll = 0.091 = .690

Level

W E Ther 53

+ 69 - 63.5
 70.5 61 +
 + 69 - 63
 69.5 62 +
 + 69 63
 69.5 61.5 +

Revised the axis

Ill. East.

6/56.5 6/14.0
69.4
62.3
2/2.1
3.55
1.55
2/5.10
2.55

Lev. W + 0.17 + 0.10 = +0.12

lev. = +0.24

West End too high

(622)

1829. Sept. 18/19

a. m. m. g.

10.55

50.2

19.7

10.55 - 49.5

M. East.

a. lrs. maj - 10.54 - 249.49
 8 Leonis - 11.06 - 291.02

Sept 19th

a. Herculis

7.3.8

7.18.0

7.32.3

7.46.5

8.0.5

8.14.7

17.08 - 29.0

144.8

150

7/324.8

46.40

17.07 - 44.40

7.47.04

-2.64

a. Bootis

8.2.4

8.17.0

8.31.5

8.46.0

9.01.0

9.15.5

14.09 - 30.0

143.4

150

7/323.6

46.20

14.08 - 44.20

46.74

-2.54

Σ un min

17.01 - 30.5

17.01 - 28.5

17.01 - 31.85

-2.85

180 - 10.03.10

1491 - 17.15.08.5

7.11.58.5

180 - 10.06.07

1491 - 17.18.06

180 - 10.09.10

1491 - 17.21.09.5

D & E are both ⁻⁵ apparently from the intervals
⁵ too large.

Polaris L.P.

G - 12.39.21.2

F 12.48.20.0

E 12.57.08.0

D 13.06.02.0

C 13.14.42.5

B 13.23.36.0

A 13.32.15.8

7/41.35.5

13.05.54.50

13.05.56.4

-1.9

Polaris

47.0

0.8

14.8

29.2

13.17.42.7

124.5

249.0

12

13.17.12.90

17.15.25

-2.35

B lrs. min.

14.48.30.0

49.22.2

50.14.0

51.06.3

51.59.0

52.57.0

53.43.5

226.0

150

7/16.6

6.57

-2

14.51.06.57

51.07.62

-3.05

a. Corone

7.31.1

7.46.7

8.2.3

8.17.5

8.33.0

8.48.5

15.29.04.0

183.1

150

7/18.3.1

17.59

-2

15.28.15.59

18.14

-2.55

γ lrs. maj. 13.41 - 262.19

γ Bootis - 13.47 - 293.14

a Bootis - 14.08 - 292.25

β lrs. min. 14.51 - 237.37

β Libra - 15.08 - 321.12

a Cor. Bor. 15.28 - 285.10

a Serpentes 15.36 - 305.29

Σ un min. 17.01 - 230.06

a Herculis 17.06 - 297.49

a Serpentes

6 9.0

6 22.7

6 36.5

6 50.1

7 4.0

7 18.0

15.37 - 32.0

172.3

150

1352.3

50.33

-2

15.36.48.33

36.50.87

-2.54

Rate

-1.4

Sept. 19th

(6231)

24/11/0.046

180 - 10 - 11 .. 48 — 10 .. 12 .. 48
 1508 - 13 - 10 .. 52.5 — 13 .. 11 .. 53

1491 - 17 .. 15 .. 08.5 11 .. 49 .. 9.13
 2.55 46.75
 11.49.55.88
 11.53.05.64
 46.75
 11.53.52.44
 17.15.11.05
 5.21.18.61
 4.59.10.85
 20.56.56
 17.95
 .61
 5.20.25.97
 180-10.03.10
 4.42.44.03
 4.44.32.00
 -1.47.97

20 Am

180 - 12 .. 36 .. 0 180 - 12 .. 41 .. 0
 196 - 7 .. 53 .. 8.5 196 - 7 .. 58 .. 8.5
 12 .. 36 .. 0
 12.37.49.1
 4.44.32
 7.53.17.1
 7.53.17.1 How of Lamb - 8.5
 Lamb - 8.6 - 16
 196 How 13 24.6 - 24.5

No 180 at noon
 Aug 17th - 1 .. 07.9 - 1.5.51
 20 - 1 .. 11.2 - 1.1

22 - 1 .. 13.8 - 1.3

Sept 1 - 1 .. 27.4 - 1.4

6 - 1 .. 33.0 - 1.1

8 - 1 .. 35.4 - 1.2

11 - 1 .. 40.1 - 1.6

13 - 1 .. 42.4 - 1.1

14 - 1 .. 43.4 - 1.0

18 - 1 .. 46.5 - 0.8

19 - 1 .. 47.8 - 1.3 -

B

5/13
2.6

9

14
 19
 33
 1.47.8
 11.5.5
 33/42.3 / 1.29
 33
 66
 270

-1.2
 26
 24/3.8 (1.16
 24
 140

60/16 (.0027

3 .493

2^s .006

.499

.0072

(624)

Sept 20th
a Serpents

Ill East

a Serpents 15.36 - 305.29

1491 - 6.7.12
 6.21.0
 6.34.8
 6.48.7
 7.2.4
 7.16.4
15.37.30.3
160.8
161
71340.8
48.69
2
15.36.46.69
15.36.50.84
-4.15

180 - 8.27.12 - 20
 1491 - 15.42.57 - 59
7.15.39 - 39

180 - 8.30.10
 1491 - 15.45.49.5
7.15.39.5
 11.57.02.24
46.73
11.57.48.97

1491 - 15.45.49.5
4.15
15.45.53.65
11.57.48.97
3.48.04.68
2.59.30.51
47.52.14
3.99
.68
3.47.27.32
 180 - 8.30.10
4.42.42.68
4.44.32
 180.6 - 1.49.32

No 180. Flow of Cur - 1.49.3

180 - 8.41.0 — 8.42.0 — 8.44.0 — 8.45.0
 1492 - 8.44.39.7 1488 - 8.37.23.7 1579 - 8.44.28.2 1454 - 8.43.34.5
 — 8.46.0 — 8.47.0 — 8.49.0 — 8.50.0
 1505 - 8.47.48.8 1510 - 8.44.39.1 1521 - 8.48.44.5 1522 - 8.53.47.7
 — 8.51.0 — 8.52.0 — 8.54.0 — 8.55.0
 6701 - 8.58.13.4 6755 - 8.55.43.1 1502 - 8.43.59.3 1064 - 8.53.0.6
 180 - 8.57.0
 1503 - 8.57.23
 Break together.
 1491 - 16.16.0
 2557 - 16.17.6
16.16.4.15
16.17.6.00
 2557 - +1.01.85

180 - 8.58.0
 190 - 4.18.18.2

Ill. East.

Southern Mer. Mark.

Left of mid wire 0.10.0 = 0.90.0

0.120 - 0.880

0.097 0.903

0.110 - 0.890

0.107 0.893

14466

.893 = 2.05

1.49.3
5.5
1.52.8
1



54
 23
 267
 178
2047

(625)

Sept 21 - ⁸²Am

$$\begin{array}{r}
 1491 - 12.43.0 \\
 2557 - 12.44.9
 \end{array}
 \quad
 \begin{array}{r}
 2557 - 15.57.0 \\
 333 - 15.56.4
 \end{array}$$

22⁰ Am

$$\begin{array}{r}
 2557 - 7.32.0 \\
 333 \quad 7.57.57.2 \\
 \quad \quad 2.8 \\
 \quad \quad 4.8 \\
 \quad \quad 6.8 \\
 \quad \quad 7.52.0.0 \\
 \quad \quad 7.50.54.3 \\
 \quad \quad 7.57.57.
 \end{array}
 \quad
 \begin{array}{r}
 7.59.0 \\
 7.57.57.2 \\
 7.59.0 \\
 7.57.54.3 \\
 7.57.57.0 \\
 + 2.7 \\
 8.4 \\
 5.7 \\
 2.8 \\
 - 8.5
 \end{array}$$

22⁰ Am

$$\begin{array}{r}
 2557 - 8.14.2.2 \\
 1491 - 8.14.0.0
 \end{array}
 \quad
 \begin{array}{r}
 180 - 14.1.0 \\
 1141 - 9.50.32
 \end{array}
 \quad
 \begin{array}{r}
 180 - 14.2.0 \\
 1122 - 14.03.47.5
 \end{array}$$

$$\begin{array}{r}
 180 - 2.05.42 \\
 1491 - 9.29.20.5 \\
 \quad \quad 7.23.38.5
 \end{array}
 \quad
 \begin{array}{r}
 180 - 2.09.0 \\
 1491 - 9.32.39 \\
 \quad \quad 7.23.39
 \end{array}
 \quad
 \begin{array}{r}
 2.12.0 \\
 9.35.39.5 \\
 \quad \quad 7.23.39.5
 \end{array}$$

22⁰ Pm

$$\begin{array}{r}
 180 - 9.58.49 \\
 1508 - 13.33.34
 \end{array}
 \quad
 \begin{array}{r}
 9.59.48 \\
 13.34.33.5
 \end{array}
 \quad
 \begin{array}{r}
 10.00.50 \\
 13.35.36
 \end{array}
 \quad
 \begin{array}{r}
 10.01.49 \\
 13.36.35.5 \\
 3.34.46.5
 \end{array}$$

$$\begin{array}{r}
 18 - 2.47.03.5 \\
 48 \\
 3.35.03.5 \\
 3.24.46.5 \\
 4) 17.0/4.2
 \end{array}$$

23⁰ 9 am Anuridis

$$\begin{array}{r}
 B - 29.515 \\
 C.J - 29.480 \\
 \quad \quad 0.35
 \end{array}$$

- 23⁰ Pm Imm of B.A.C 6034

$$\begin{array}{r}
 1491 - 8.31.26 - 4 \\
 \quad \quad 8.31.24 MCB
 \end{array}$$

$$\begin{array}{r}
 1491 - 8.31.27 - 4 \\
 \quad \quad 8.31.25 R.F.B.
 \end{array}$$

$$\begin{array}{r}
 1491 - 8.46.0 \\
 2557 - 8.46.6.3 \text{ or } 4
 \end{array}$$

no. 1491 fast. 1.0.95

24th Am

$$\begin{array}{r}
 180 - 12.27.0 \\
 1454 - 2.25.39.8 \\
 \quad \quad 12.27.0 \\
 \quad \quad 1.52.8 \\
 \quad \quad 12.28.52.8 \\
 1454 - 12.25.39.8 \\
 \quad \quad 3.13.0
 \end{array}
 \quad
 \begin{array}{r}
 12.27.0 \\
 1.53.8 \\
 12.28.53.8 \\
 12.25.39.8 \\
 3.14.0
 \end{array}$$

Observed Immersion of B.A.C No 6034
Sept. 23⁰

MCB with No. 1491 - 20.31.24

R.F.B. - " - 20.31.25

m.v.t. - 8.19.22.4 MCB

8.19.22.4 R.F.B

1849

Dec. East (626)

Sept 23/24th Am.

No. 1491.

<i> Sirius</i>	<i> Argemionum</i>	<i> Procyon</i>
8 57.0	5 13.0	1 46.4
9 5.5	5 29.4	2 00.0
9 19.7	5 45.7	2 14.6
9 34.0	6 2.0	2 27.9
9 48.2	6 16.2	2 41.7
0 2.5	6 34.5	2 55.5
6 40 17.0	7 26 50.5	7 33 9.2
1779	1933	71947
22379	150	27.90
33.99	1.90	7 32 25.90
6 39 31.99	7 25 59.90	31 24.86
38 31.00	24 58.97	+1 01.04
+1 00.99	+1 01.03	

Polaris SP

F 12 49 26.2

Clouds

13 18 43.2-8^m
 13 20 12.5-9^m from D
 13 21 39.7-10^m

B 13 24 35.0

A 13 33 21.0

25th 180-1 22 10 - 1 23 8 - 1 24 6 - 1 26 5 180-1 27 6 - 1 29 5
 1508-5 28 24.5 - 5 29 25 - 5 30 23.5 5 32 23.5 1508-5 33 25 - 5 35 25
 66.17.5 406.18.5 4.06.19 4.06.20

1491-5 07 44 1491-4 9 10 1491-9 10 35

1508-5 38 43 1508-5 40 9.5 1508-5 41 35

1508-5 44 50 1508-5 46 20.5 1508-5 48 46 1508-5 49 16.5 5 50 52

26-9 14 45 26-9 16 15 26-9 18 40 26-9 19 10 - 20 45
 30 05 30 05.5 39 06 - 30 06.5 30 07

1508-5 53 48 1508-5 55 13.5

26-9 23 40 26-9 25 5
 30 08 30 08.5

Sept 25th - 9. Am

Day of Departure

Sirius 6.38 - 328.57
 Elan mag. 6.52 - 341.06
 Argemionum 7.11 - 290.05
 Argemionum 7.24 - 280.08
 Aln. min. 7.31 - 306.44
 Argemionum 7.36 - 283.57

Argemionum
 6 21.5 1491-7 41 49.5 50
 6 37.0 180-12 10 37 2.5
 6 52.5 4 28 47.5
 7 8.4 180-12 16 34
 7 24.0 1491-7 47 47.5
 7 39.6 4 28 46.5
 7 37 54.8
 2376
 180
 7 57 6
 8.23
 2
 7 37 06.23
 36 05.50
 +1 0.73

Arcturus Dec 14.58
 14.8 Q.D. 70.02
 Deneb 38.38
 18.31 P.D. 51.22

(627)

Sept 24⁺ adyra

Personal Equation of M.C.B. and R.F.B.

B' leads

B³ leads

B'	R	
54.3	06.5	12.2

R	B'	
37.4	49.3	11.9

22.7	34.7	12.0
------	------	------

56.9	9.0	12.1
------	-----	------

6.8	18.8	12.0
-----	------	------

37.5	48.8	11.3
------	------	------

6.0	17.9	11.9
-----	------	------

34.5	46.0	11.5
------	------	------

3.7	15.8	12.1
-----	------	------

34.7	46.4	11.7
------	------	------

3.0	15.0	12.0
-----	------	------

39.4	50.8	11.4
------	------	------

19.6	31.8	12.2
------	------	------

50.9	2.0	11.1
------	-----	------

21.0	33.3	12.3
------	------	------

50.8	2.5	11.7
------	-----	------

39.0	41.0	12.0
------	------	------

8	12.7
---	------

9	18.7
---	------

11.58

12.68

12.08

8	16.7
---	------

50

12.08

.25

B' Leads

Change Sides

R. Leads

B'	R	
----	---	--

R	B	
---	---	--

11.0	23.0	12.0
------	------	------

36.9	49.0	11.1
------	------	------

12.3	24.4	12.1
------	------	------

40.3	52.0	11.7
------	------	------

20.2	32.0	11.8
------	------	------

49.5	1.3	11.8
------	-----	------

24.9	37.0	12.1
------	------	------

2.3	14.0	11.7
-----	------	------

40.3	52.2	11.9
------	------	------

20.9	32.6	11.7
------	------	------

58.3	10.3	12.0
------	------	------

35.3	47.0	11.7
------	------	------

20.6	32.8	12.2
------	------	------

52.2	4.0	11.8
------	-----	------

24.2	36.2	12.0
------	------	------

21.5	33.2	11.7
------	------	------

55.5	7.4	11.9
------	-----	------

28.4	40.0	11.6
------	------	------

6.6	18.5	11.9
-----	------	------

34.2	45.9	11.7
------	------	------

19.9

11.65

11.99

11.65

34

.17

(628)

Sept-24-

180-9.35.10 — 9.36.10 — 9.37.10 — 9.38.10
 1508-13.33.35.5 — 13.34.36 — 13.35.36.5 — 13.36.37
3.58.25.5 3.58.26 3.58.26.5 3.58.27

180-9.43.0 — 9.44.0 — 9.45.0 — 9.46.0
 1488-9.38.29.9 1492 9.47.52.3 1521-9.44.53.3 1510-9.43.35.4

1522 9.47.6 — 9.48.0 } 1505-9.49.0 — 9.50.0
 9.47.9 6701-9.55.29 } 9.50.55.8 1502-9.39.47.2

1510-9.57.0 — 9.52.0 — 9.53.0 — 9.55.6
 9.48.44.6 6755-9.55.50.6 1519-9.53.31.4 190-5.15.34.7

180-10.20.19 180-10.21.19
 1508-14.19.07 1508-14.20.07.5

180-10.22.19 180-10.23.19
 1508-14.21.08 1508-14.22.08.5

180-10.18.58
 1491-17.51.50.5
2.32.52.5
 180-10.25.40
 1491-17.58.33.5
32.53.5

180-10.28.26
 1491-18.01.20
32.54

180-10.31.15
 1491-18.04.9.5
32.54.5

180-12.0.45.75 180-12.9.16
 1491-7.41.13.5 1491-7.44.25

1491-7.40.0 1491-7.46.0
 2557-7.40.11 2557-7.46.11

180-12.13.54.5 1491-8.4.41
 180-7.50.0 180-8.05.0
 180-12.25.2.5 1491-8.5.4.1
 180-8.01.10 180-8.6.0

Sept 24/25

See East
 No. 1491

B Gunner

a Gunner	Procyon	B Gunner
5.12.6	59.2	6.21.21
5.28.9	13.2	6.36.4
5.45.0	27.3	6.52.0
6.1.2	41.2	7.7.7
6.17.3	7.32.54.9	7.23.3
6.33.6	18.58	7.34.0
7.26.50	34.16	7.37.54.7
188.6	7.32.25.16	28.41
180	31.24.89	140
7.8.6	+1.00.27	7.54.1
1.23		7.73
2		7.37.05.73
7.25.59.23		36.05.53
7.24.58.99		+1.00.20
+1.00.24		

(629)

24 Dec 1891 Sheppard Rowland

Babtonian

Dist Limb

Mc East

Alt 18.28.30.11

8.48.0

T Sagitt. 19.00.48.93

48.99 + 0.06

obagitt

18.15 - 334.20

9.31

dark hurried

T Sagitt - 19.0 - 333.39

9.17.5

adyna - 18.31 - 273.44

9.33.0

Badyra - 18.44 - 279.12

9.47.5

Shquila - 18.58 -

0.3.0

S Aquila -

18-30.17.7

169.7

66

7224.7

32.81

18.29.30.81

1.00.70

18.29.30.11

a Lyrae

18.2

36.0

53.3

11.9

18.33.28.7

138.1

195.6

276.9

24

51.62

18.31.50.89

+1.00.73

18.31.50.92

us

mmure

T Sagitt

1.7.4

1.22.0

1.37.0

1.57.6

2.6.4

2.21.0

19.02.36

1814

180

7361.4

51.63

19.01.44.63

19.0.48.99

+1.00.64

1.00.70

19.00.48.93

1508-6.20.37

1522-2.18.07

1508-6.28.53

1570-14.19.41.5

1508-6.33.29

1579-2.27.12.5

1508-6.44.58

1502-2.27.48.5

1508-6.51.5

6701-2.51.38.5

1508-6.57.39

1491-10.26.14.5

180-2.58.25

1508-7.5.30

180-3.4.0

1492-3.7.55

48.99 + 0.06

obagitt

18.15 - 334.20

T Sagitt - 19.0 - 333.39

adyna - 18.31 - 273.44

Badyra - 18.44 - 279.12

Shquila - 18.58 -

S Aquila -

Sept. 25 to Ann

1508-6.00.59 - 6.02.28

1491-9.12.52.5 - 9.31.21

31.06.5

1508-6.03.54 - 6.05.25

1491-9.32.46.5 - 9.34.17

7.5

180-2.2.46 - 2.03.45

1508-6.4.23 - 6.10.22.5

180-2.5.45 - 2.06.45

1508-6.12.23.5 - 6.13.24

1508-6.15.5 - 6.16.05

1508-2.10.22 - 2.11.21.5

1508-6.17.35 - 6.18.37

1522-2.15.06.5 - 2.16.08

1508-6.25.14 - 6.26.14 - 6.27.14

1521-2.18.24 - 2.19.23.5 - 2.20.23

1508-6.28.53 - 6.29.53 - 6.30.52

1570-14.19.41.5 - 2.20.41 - 2.21.39.5

1508-6.33.29 - 1508-6.41.46 - 1508-6.42.45 - 1508-6.43.58

1579-2.27.12.5 - 6755-2.38.45 - 6753-2.39.43.5 - 1502-2.26.49

1508-6.44.58 - 1508-6.47.0 - 1508-6.49.0 - 6.50.0

1502-2.27.48.5 - 6710-2.37.45.7 - 1488-2.37.24 - 2.38.23.5

1508-6.51.5 - 6.52.5 - 1508-6.53.25 - 6.54.25 - 6.55.25

6701-2.51.38.5 - 6701-2.52.38 - 1492-2.50.21 - 2.51.20.5 - 2.52.20

1508-6.57.39 - 6.58.59 - 1508-7.00.36 - 1508-7.02.0 - 7.03.30

1491-10.26.14.5 - 1491-10.27.32 - 1491-10.29.03.5 - 1491-10.30.33 - 10.32.02.5

180-2.58.25 - 2.59.24 - 2.60.24

1508-7.5.30 - 7.6.29.5 - 7.07.30

See other Book for the

P.M. Comparisons

Put on board the Europa.

