nrao6phae_proj_1468

KG
11365
146

G.3

Sidereal and
Mean Time Clocks.

April 21st 1855.

B

and

12 minute Comparators
No 1107 & 1508 & 1507.

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KG 11365.146

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1855 E.C. part of Sid. Angle by transits of
comparisons by 12" - comparators - 1107 and 1508.
April 21 Phil. Copy MJC comp in shut by themselves.

1508	7.. 07.. 12.5	1508	7 .. 09 .. 13.5	1508	7 .. 14 .. 31.5	1508	7.. 16 .. 02.0
MJC	3 .. 43 .. 50.0	MJC.	3 .. 45 .. 50.0	EC.	5 .. 50 10.0	EC.	5 .. 51 .. 40.0
1107	6 .. 33 .. 11.5			1508	8 .. 29 .. 16.5	1508	8 .. 30 .. 47.0
MC	3 .. 40 .. 50.0			EC.	7 .. 04 .. 30.0	EC.	7 .. 06 .. 0.0
				1508	8 .. 33 .. 35.5	1508	8 .. 34 .. 35.0
				MJC	5 .. 09 .. 30.0	MJC	5 .. 10 .. 30.0

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1855.
April 21st.
M.T. 6.0.. 37.. 00.0
1678.. 0.. 39.. 09.5

E.6 fast 25s.16
22 14
25.02

18t + 25.54
21 + 25.16
3) 42 / 0.14

April 22d. E.6. fast 25s.02

EC 6.. 45.. 0
236 6.. 44.. 30.6
6.. 45.. 0.0
25.02
6.. 44.. 34.98
6.. 44.. 30.6
22 −4.38
18 −2.42
4) 1.56 / 0.39
12
36

MT 4.. 46.. 15
236 6.. 48.. 57
6.. 48.. 57
4.36
6.. 49.. 01.38
2.. 00.. 41.61
4.. 48.. 19.77
3.. 59.. 20.68
47.. 52.15
18.95
.77
4.. 47.. 32.55
4.. 46.. 15
Lamb − 1.17.55
16
22 − 1.. 33.55
18 − 1.. 24.34
4) 5.17 / 1.29
4
17

1.. 59.. 54.87
46.74
2.00.41.61

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1856phae.proj..1468

E.C. fast 22.8

April 25th

EC 4..12..0 — E64..13..00 M.T.C. 2..00..00 — 2..02..00
236 4..11..30.2 — 4..12..30.3 236 4..14..7.0 — 4..16..7.2
4..12..0.0 2..14..7.0 2..14..7.2
22.8

4..11..37.2 4..14..7.0 2..11..44.54
236 4..11..30.2 7.0 46.74
-7.0 4..14..14.0 2..12..31.28
22° -4.38 2..12..31.28
3/2.62/0.87 2..01..42.72
1..59..40.34
59.64
41.88
.72
2 01..22.78
2..00..00
-1..22.78
16
-1..38.78

25th
EC- M.T.C.- 2..18..0
236 236. 4..32..10

M.T.C.- 2..20..0 M.T.C.- 2..19..0
204- 3..40..42.2 1678 2..21..11.3
2..20..0.0 2..19..0
1..38.78 1..38.78
2..21..38.78 2 20..38.78
204- 3..40..42.2 1678 2..21..11.3
204 fast of Boston 1..19..03.42 1678 + 32.52
1678 fast of B - 32.52
Diff. Long. 1..18..30.90 204 fast of 1678

1678 - 2..41..0.0 — 1678 - 2..42..0.0
204 - 3..59..30.2 — 204 - 4..00..29.8
1..18..30.2 1..18..29.8

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E.6. Fast. 22.4

April 27/28

E6 – 22.33.00
236 – 22.32.29.8
22.33.31
22.6
22 32.37.6
22.32.29.8
236 – 7.8

M76 – 20.06.0
236 – 22.31.01.0
22.31.01.0
7.8
22.31.08.8
2.20.24.39
20.10.44.41
19.56.43.41
9.58.36
43.88
.41
20.07.26.06
20.06
1.26.06
16
1.42.06
1.38.78
3) 3.28 41.09

2.19.37.65
46.74
2.20.24.39

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1855. May 3 E.C. fast 20ˢ.54

22.4
0 19 (-2

26-10.44. =

2557. 10 08.02.25

E.C fast 20.54

10 .43 .39 .46

2557. 10. 08 02.25

~~How~~. 35.37.21

2557 ~~How~~. ~~32.25.04~~

M.T. 6 8.01.11.0 = 8.03. =

2557. 10,12,30,5 = 10.14.19.75

10.12.30.50

35.37.21

10.48.07.71

2.44.03.72

8.04.03.99

7.55.41.36

3.59.34

3.99

.36

8.02.45.05

8.01.11.50

1.34.05

16

1.50.05 3ᵈ Pl

1.42.06

~~4~~) 8 (~~1.33~~

6

6) 7.4 (1.23

2.43.16.98

46.74

2.44.03.72

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1855

E. t. Fast - 20.78

May 5

EC - 20..31..0 EC - 20..46..0.0 - MT6 - 17..54..15 — 17..57..15

2557 - 20..16.0 2557 - 20..46..06.0 2557 - 20..51..11.5 — 20..54..12

20..31..0 20..46..0.0 20..51..11.5

20.78 20.78 26.78 2..57..10.09

20..30..39.22 20..45..39.22 20..50..44.72 46.74

2557 - 20.. 20..46..06.00 2..57..56.78 2..51..56.83

2557 fast 26.78 17..58..47.94

16..57..12.90

57..50.50

46.87

.94

17..55..51.21

17..54..15.0

1..36.21

16

MT6 slow of Boston 1..52.21 May 6th Am.

Rate to 7 1.2

1..53.4 7th Am

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1855

May 11/12

E.C. fast +18.55 − 0.55 = +18.0 at rate of −0.3)

E.C. − 21..55..0.0	M.S.C. − 16..37..0	— 18..40..0
2557 − 21..55..15.4	2557 − 21..57..57.5	— 22..00..58
21..55..0.0	28..57..57.5	
18	33.40	3..14..49.43
21.54.42.0	21..57..24.10	46.14
21..55..15.4	3..15..36.17	3.15..36.17
2557 fast 33 40	18..41..47.93	
	17..57..03.07	
	40..53.28	
	46.87	
	.93	
	18..38..44.15	
	18..37..00.0	
	m.S.C.−C −1..44.15	
	16	
	m.S.C.−13 −2..08.15	
	6th 1..52.21	

6/7.94 f 1.32 daily rate

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May $\frac{15}{16}$ Am. E6 Fast 19.04

E6 — 23.26.0 MT6 19.51.10 — 19.54.00
2557 — 23.26.23 2557 — 23.28.17.5 2557 — 23.31.08.0

23.26.0
19.04
23.25.40.96
23.26.23
+ 42.04

23.28.17.5
42.04
23.27.35.46
3.31.22.40
19.56.13.06

3.30.35.66
46.74
3.31.22.40

18.56.53.24
55.50.83
12.96
06
19.52.56.09
19.57.10
m M Hour 1.46.09
16
m J 6 Hour 2.02.09

15 + 19.04
17 + 18.80
19 + 18.56

May $\frac{18}{19}$ Am. E6 Fast 18.58

EC — 0.51.00
2557 — 0.57.29.2

0.51.00
18.56
0.50.41.42
0.57.29.2
2557 +47.78

MT6 — 21.1.0.0
2557 24.50.17.8

24.50.17.0
47.78
24.49.29.92
3.43.12.07
21.06.17.85
20.5

3.42.25.33
46.74
3.43.12.07

21.06.17.85
3.27.44
2.50.41
1.0.00
1.50.41 Camb
16
2.06.40
2.02.09
3) 4.31 1.44

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1856phae.proj..146B

1855

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

E.6 fast 19.01

E.6 — 21.. 28.. 0
2557 — 21.. 28.. 35.5
21.. 28.. 0
19.01
21 .. 27 .. 40.99
21.. 28. 35.5
2557 fast 54.51

M26 — 17.. 45 .. 35 — 17.. 57.. 35
2557 — 21.. 50 .. 17 — 21.. 56.. 18
21.. 50.. 17
52.57
21 .. 49 .. 22.49
3.. 58.. 58.30
17 .. 50 .. 24.19
16 .. 57 .. 12.90
49 .. 57.81
23.93
.19
17 .. 47 .. 28.83
45.. 35
1 .. 53.83
16
2 .. 09.83
19 2 .. 06.4
4/3.43 (0.86

3.. 58.. 11.56
46.74
3 .. 58 .. 58.30

24) 86 (03

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May 29th 1 PM E.C. Fast 18.3

E.C. 5.37.0
2557 – 5.37.47.6
5.87.0.0
18.3
5.36.61.7
5.37.47.6
1.05.9

M.S.C. 1.09.30 — 1.12.25
2557 – 5.39.20.5 — 5.42.16
5.39.20.5
1.59
5.38.14.6
4.26.34.20
1.01.39.40
0.59.50.17
10.58.20
38.89
40
1.11.27.66
1.09.30.0
1.57.66
16
2.13.66
08
2.13.58
2.09.83
6) 3.75 0.63

4.25.47.46
46.74
4.26.34.20

May 29/30 Am Put forward the m. Solar Clock
Two (2) minutes.

Sid Clock A/236 was last altered May 24th P.M.
Copy from Mem. on slips of paper in the top of
the Box.
May 22 – A 236 – altered rate fast of E.C. 15.5 at 0.25 E.C.
0.11.0
236 – 0.7.39.5
23d P.M. E.C. – 10.57.0
236 – 10.47.34.5

24th P.M. alt rate
236 + E.C. + 45.2

25th Am E.C. – 4.28.0
236 – 4.22.45.2

24.E.C. 55.0 – 5.21 =
0.50.17.5 – 5.16.04.5

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1855 May 30/31

Before Comparison

E.C. Fast +17ˢ.8 by Spica R.A.G. 30th P.M.

EC — 22..39..0 — MT6 — 18..20..20 — 18..23..15

2557 — 22..39..50.4 — 2557 — 22..55..00 — 22..57..55.5

EC — 23..01..55 — MT6 — 18..25..0 — 18..26..0

N°1-140 — 23..09..29 — N°1-140 — 23..06..24.7 — 23..07..24.7

4..41..24.7

Ney Fast — 4..41..24.42

EC, — 23..04..50 — 2557 — 22..55..00 — 4..29..44.02

T40 — 23..12..23.5 — 1..08.2 — 46.74

22..53..51.8 — 4..30..30.76

EC — 22..39..0.0 — 4..30..30.76

17.8 — 18..23..21..04

22.38.42.2 — 17..57..03.07

2557 — 22.39..50.4 — 22..56.23

+ 1..08.2 — 20.44

04

EC — 23..01..55.0 — 18..20..20.28 — MT6 = 18..25..0.28

17.7 — 18..20..20..00 — 140 — 23..06..24.7

23.01.37.3 — MT6 Slow 0..28 — 140 fast of Cam 4..41..24.42

4.30..30.76 — Lon (4..44..30.4

18.31.06.54 — T40 Slow of Cam 3..05..98

17..57..03..07

30..54.42

5.98

54

18.28..02..51

23..09..29.00

N°1 fast 4..41..24.42 of Camb

4..44..30.6

Slow of Lon 3..06.11

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Comparison of Chronometers with M 76 - by aid of Chro No $\frac{1}{140}$

May 30/31st — No 1 - Slow of Guth - 3m 06.0 — Lon 4.44.30.66

1	12 09 00.0	1	12 16 0.0	1	12 23 0.0	1	12 30 0.0
2a	12 09 30.2	9	12 13 6.9	16	12 22 32.7	23	12 30 22.0
	+ 30.2		− 2 53.1		− 27.3		+ 22.0
	− 3 06.2		− 3 06.0		− 3 06.0		3 06.0
	− 2 35.8		− 5 59.1		− 3 33.3		− 2 34.0
1	12 10 0.0	1	12 17 0.0	1	12 24 0.0	1	12 31 0.0
3	12 6 43.8	10	12 15 25.2	17	12 24 26.3	24	12 29 40.7
	− 3 16.2		− 1 34.8		+ 0 26.3		− 1 19.3
	− 3 06.0		− 3 06.0		− 3 06.0		− 3 06.0
	− 6 22.2		− 4 40.8		− 2 39.7		− 4 25.3
1	12 11 0.0	1	12 18 0.0	1	12 25 0.0	1	12 32 0.0
4	12 8 2.3	11	12 16 14.5	18	12 21 38.5	25	12 29 3.8
	− 2 57.7		− 1 45.5		− 3 21.5		− 2 56.2
	− 3 06.0		− 3 06.0		− 3 06.0		− 3 06.0
	− 6 03.7		− 4 51.5		− 6 27.5		− 6 02.2
1	12 12 0.0	1	12 19 0	19	12 26 0.0	1	12 33 0.0
5	12 14 48.0	12	12 16 5	19	12 25 38.4	26	13/12 12 12.5
	+ 2 48.0		− 0 55.0		− 0 21.6		+ 39 12.5
	− 3 06.0		− 3 06.0		− 3 06.0		− 3 6.0
	− 0 18.0		− 4 01.0		− 3 27.6		− 36 6.5
1	12 13 0.0	1	12 20 0.0	1	12 27 0.0	1	12 36 0.0
6	12 7 35.5	13	12 19 43.7	20	12 27 56.1	27	12 36 59.5
	− 5 24.5		− 0 16.3		+ 56.4		+ 59.5
	− 3 6.1		− 3 6.1		− 3 6.2		− 3 6.2
	− 8 30.6		− 3 22.4		− 2 10.1		− 2 6.8
1	12 14 0.0	1	12 21 0.0	1	12 28 0.0	1	12 37 0.0
7	12 16 33.8	14	12 21 32.0	21	12 28 5.0	28	12 37 15.7
	+ 2 33.8		+ 0 32.0		+ 0 05.0		+ 0 15.7
	− 3 06.0		− 3 06.0		− 3 06.0		− 3 06.0
	− 0 33.2		− 2 34.0		− 3 01.0		− 2 50.3
1	12 15 0.0	15	12 22 0.0	1	12 29 0.0	1	12 38 0.0
8	12 13 10.2	15	12 23 57.2	22	12 28 17.3	29	12 40 48.3
	− 1 49.8		+ 1 57.2		− 0 42.7		+ 2 48.3
	− 3 06.0		− 3 06.0		− 3 06.0		− 3 06.0
	− 4 55.8		− 1 08.8		− 3 48.7		− 0 17.7

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May 30/31

Therm. Syst.

1 – 64.5
2 – 64.5
3 – 64.5
4 – 64.6
5 – 63.5
6 – 57.0
7 – 64.2
May – 64.5

E.C. Fast 17.8

Ec 6 – 0.51.00 — 0.54.00
T 40 – 0.58.16 — 1.01.15.5

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1856phae.proj..146B

Continued comparison of Chronometer May 30/31

86 Fast — 1/140 Slow 3..6..0

1	12..39..0.0	1	12..48..0.0				
30	12..42..13.0	2	14..57..27.8				
	+3..13.0		+2..9..27.8				
	−3..06.0		−3..6.0				
	+0..07.0		+2..6..21.8				
1	12..40..0.0						
31	10..56..4.9						
−1	..43..50.1						
−	3..06.0						
+1	..46.56.1						
1	12..41..0.0						
32	12..44..57.6						
	+3..51.6						
	−3..06.0						
	+0..45.6						
1	12..42..0.0						
33	12..47..42.6						
	+5..42.6						
	−3.06.0						
	+2..36.6						
1	12..43..0..0						
34	12..45.36.0						
	+2..36.0						
	−3..06.0						
	−0.30.0						
1	12..44..0.0						
35	12..47..52.5						
	+3..52.5						
	−3..06.0						
	+0..46.5						
1	12..45..0..0						
36	12,,44..9.7						
	−0..50.3						
	−3..06.0						
	−3.56.3						
1	12..46..00						
11	6..19..29						

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June 2 Am. E.6. Fast of Sid. 17.3

E.C. 3..10..00 M.T.C. 22,,25.40 MT6 = 22..41..00.0
2557 3..10..54.8 2557 3.. 8..59.5' T40 — 15..22..21.8

E.6 — 3.. 27 ..20 3..10..0.0
T40 — 13.. 26 ..14 17.3
3..27..20.0 3..9..42.7
— 17.3 2557-3.10..54.8
27..27)..02.7 2557 fast 1..12.1

2557) - 3..08..59.5
1..12.1
27..07..47.4 - 4..37..37.14
4..38..23.88 46.74
22..29..23.52 4.38.23.88
21..56..23.75
28..55.25
22.94
.75
22..25..42.69
MT6 22..25..40
— 2.69

11 Am
Thorne.
1 — 59.5
2 — 59.3
3 — 59.5
4 — 59.0
5 — 60.0
6 — 60.5
7 — 60.0
May 62.0

MT6 — 10..41..00.0
2.7
10 41 02.7
15.. 22..21.6
1/T40 fast 4..41..19.1
4..44..30.6
— 3..11.5

MT6 — 10..41..00.0
2.7
10 41 02.7
Lu 4 44 30.6
5 56 32.1

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1856phae.proj..146B

1855 June 2 Am — No 1/140 — Slow 3..11.5

								Boot Thermos
1	15/3..29..0	1	3..36..0.0	1	3..43..0.0	1	3.50..00.0	1 – *63°
2	3..29..35.2	9	3..33..2.2	16	3..42..36.0	23	3..50..16.0	2 – 59.5
	+ 35.2		– 2..57.8		– 0..22.0		+0..16.0	3 – 59.3
	– 3..11.5		– 3..11.5		– 3..11.5		– 3..11.5	4 – 59.4
	– 2..36.3		– 6..09.3		– 3..33.5		– 2..55.5	5
1	3..30..0.0	1	3..37..0.0	17	3..44..0.0	1	3..57..0.0	6 – 59.7
3	3..26..33.0	10	3..35..21.0	17	3..44..24.7	24	3..49..45.8	7 – 59.5
	– 3..27.0		– 1..39.0		+0..24.7		– 1..14.2	8 – 59.5
	– 3..11.5		– 3..11.5		– 3..11.5		– 3..11.5	9 – 59.7
	– 6..38.5		– 4..50.5		– 2..46.8		– 4..25.7	10 – 59.5
1	3..31..0.0	1	3..38..0.0	1	3..45..0.0	1	3..52..0.0	11
4	3..27..42.0	11	3..36..13.0	18	3..41..25.3	25	3..49..49.0	12 – 59.2
	– 3..18.0		– 1..47.0		– 3..34.7		– 3..00.0	13 – 59.5
	– 3..11.5		– 3..11.5		– 3..11.5		– 3..11.5	14 – 59.5
	– 6..29.5		– 4..58.5		– 6..46.2		– 6..11.5	15 – 59.7
1	3..32..0.0	1	3..39..0.0	1	3..46..0.0	1	3..53..0.0	16 –
5	3..34..48.4	12	3..37..58.6	19	3..45..36.5	26	4 32..17.2	17 – 59.8
	+2..48.4		– 1..01.4		– 0..23.5		+39..17.2	18 – 59.6
	– 3..11.5		– 3..11.5		– 3..11.5		– 3..11.5	19 – 59.7
	– 0..23.1		– 4..12.9		– 3..35.0		+36..05.7	20 – 59.5
1	3..33..0.6	1	3..40..0.0	1	3..47..0.0	1	3..54..0.0	21 – 59.5
6	3..27..36.8	13	3..39..43.7	20	3..48..0.4	27	3..54..57.0	22 – 59.4
	– 5..23.2		– 0..16.3		+1..00.4		+0..57.5	23 – 59.5
	– 3..11.5		– 3..11.5		– 3..11.5		– 3..11.5	24 – 60.5
	– 8..34.7		– 3..27.8		– 2..11.1		– 2..14.0	25 – 59.7
1	3..34..0.0	1	3..41..0.6	1	3..48..0.0	1	3..55..0.0	26 – 59.6
7	3..36..40.0	14	3..41..34.0	21	3..48..7.0	28	3..55..10.2	27 – 60.3
	+2..40.0		+0..34.0		+0..07.0		+0..10.2	28 – 60.0
	– 3..11.5		– 3..11.5		– 3..11.5		– 3..11.5	29 – 59.5
	– 0..31.5		– 2..37.5		– 3..04.5		– 3..01.3	30 – 59.5
1	3..35..0.0	1	3..42..0	1	3..49..0.0	1	3..56..0.0	31 – 59.6
8	3..33..0.2	15	3..43..59.0	22	3..48..14.4	29	3..56..50.0	32 – 59.6
	– 1..55.8		+1..59.0		– 0..45.6		+2..50.0	33 – 59.5
	– 3..11.5		– 3..11.5		– 3..11.5		– 3..11.5	34 – 59.7
	– 5..07.3		– 1..12.5		– 3..57.1		– 0..21.5	35 – 59.8
								36 – 59.5
								☆ – 59.5
							Boot Thur	☽ – 59.5
							2 – 59.5	μ – 60.0

* No 1 has been out of the Box for some time

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June 2 Am

1–140. Slow 3..11.55

1	3..57..0.0	1	3..56..0.0	1	3..57..0.0	1	4..0..0.0
30	4..00..16.2	31	2..14..8.0	32	4..02..55.0	33	4..5..52.8
	+3..16.2		−1..43..52.0		+3..55.0		+5..52.8
	−3..11.5		−3..11.5		−3..11.5		−3..11.5
	+0..04.7		−1..47..03.5		+0..43.5		+2..41.3
1	4..1..0.0	1	4..2..0.0	1	4..3..0.0	1	4..4..0.0
34	4..03..42.8	35	4..5..56.5	36	4..2..8.3	37	10..2..23.8
	+2..42.8		+3..56.5		−0..51.7		
	−3..11.5		−3..11.5		−3..11.5		
	−0..28.7		+0..45.0		−4..03.2		
1	4..5..0.0						
2	6..16..54.3						

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1855. June 3d 4h Am E.C. Fast. 1/140 Slow, Solar − 3m.14s.2

E.C.	23..11..15	E.C.	23..14..20	1	11..24..0.0	1	11..32..0.0	Therm
1	23..02..55.5	1	23..06..00	16	11..23..42.3	24	11..30..56.2	1-59°.0
					−0..17.7		−1..09.8	2-58.8
					−3..14.2		−3..14.2	3-58.5
					−3..31.9		−4..24.0	
1	23..10..0.0	1	11..17..0-0	1	11..25..0.0	1	11..33..0.0	4-58.5
2	11..10..39.6	9	11..13..57.5	17	11..25..23.6	25	11..29..56.7	5-59.0
	+0..39.6		−3..02.5		+0..23.6		−3..03.3	6
	−3..14.2		−3..14.2		−3..14.2		−3..14.2	7-59.0
	−2..34.6		−6..16.7		−2..50.6		−6..17.5	
1	11..11..0.0	1	11..18..0.0	1	11..26..0.0	1	11..34..0.0	Mag. 60.8
3	11..07..23.4	10	11..16..17.0	18	11..22..13.7	26	12..13..27.0	
	−3..36.6		−1..43.0		−3..46.3		+39..21.0	
	−3..14.2		−3..14.2		−3..14.2		−3..14.2	
	−6..50.8		−4..57.2		−7..00.5		+36..06.8	
1	11..12..0.0	1	11..19..0-0	1	11..27..0.0	1	11..35..0.0	
4	11..8..24.3	11	11..17..8.6	19	11..26..34.7	27	11..35..52.0	
	−3..35.7		−1..51.4		−0..25.3		+0..54.0	
	−3..14.2		−3..14.2		−3..14.2		−3..14.2	
	−6..49.9		−5..05.6		−3..39.5		−2..20.2	
1	11..13..0.0	1	11..20..0-0	1	11..28..0-0	1	11..36..0.0	
5	11..15..48.7	12	11..18..53.0	20	11..29..4.5	28	11..36..5.0	
	+2..48.7		−1..07.0		+1..4.5		+0..5.0	
	−3..14.2		−3..14.2		−3..14.2		−3..14.2	
	−0..25.5		−4..21.2		−2..09.7		−3..09.2	
1	11..14..0..0	1	11..21..0.0	1	11..29..0-0	1	11..37..0.0	
6	11..08..37.3	13	11..20..43.1	21	11..29..8.4	29	11..39..51.1	
	−5..22.7		−0..16.9		+0..8.4		+2..51.1	
	−3..14.2		−3..14.2		−3..14.2		−3..14.2	
	−8..36.9		−3..31.1		−3..05.8		−0..23.1	
1	11..15..0-0	1	11..22..0.0	1	11..30..0.0	1	11..38..0.0	
7	11..17..45.2	14	11..21..35.2	22	11..29..11.7	30	11..41..17.7	
	+2..45.2		−0..24.8		−0..48.3		+3..17.7	
	−3..14.2		−3..14.2		−3..14.2		−3..14.2	
	−0..29.0		−3..39.0		−4..02.5		+0..03.5	
1	11..16..0	1	11..23..0.0	1	11..31..0-0	1	11..39..0.0	
8	11..13..57.5	15	11..25..0.5	23	11..31..11.0	31	9..55..6.6	
	−2..08.5		+2..0.5		+0..11.0		−1..43..53.4	
	−3..14.2		−3..14.2		−3..14.2		−3..14.2	
	−5..22.7		−1..13.7		−3..03.2		−1..47..07.6	

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1855. June 4th Am 1–140 Slow of Gut. 3h 14m 25

1	11..40..0.0	1	11..41..0.0	1	11..42..0.6	1	11..43..0.0
32	11..43.57.5	33	11..47..0.7	34	11..42.49.6	35	11..46 59.5
	+3..57.5		+6..0.7		+2..49.6		+3..59.5
	−3..14.2		−3..14.2		−3..14.2		−3..14.2
	+0.43.3		+2.46.5		−0..24.6		+0.45.3
1	11..44..0.0	1	11..45..0.0	1	11..46..0.0		
36	11..43..6.8	11	18..05..18.0	2	14..00..9.0		
	−0..53.2						
	−3..14.2						
	−4.07.4						

E.C. Comps of 6 hrs.

June $\frac{4}{5}$ Am Mer 57.5

1	10..0(9)..0.0	5.5
2	10..10..0.0	5.5

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June 4th P.M.

EC — 13h 50m 0
201 — 8h 55s.56.1

Dmly ☾ 11.23.52 0 1107 = 11.12.12.5
1107 11.11.11.0 ☾☾ = 11.24.53.0

☾☾ = 16.21.45.0 ☾☾ = 16.23.10.0
1107 = 11 16.38.5 1107 = 11.18.04.0

5th Am. 1/140 3.16.61
3.18.3
1.7

June 5 Am — E.C. fast

June 4/5

by 4 Stars EC — 18.07
EC. Fast + 17.83 by ☾ Regul. ✕ α Aquarii

EC — 22.28.0 M.T.G 17.36.00 — 17.38.0
1/140 — 22.15.49.5 1/140 — 22.17.18 — 22.10.19.17.9

22.28.0.0
17.83
22.27.42.17
4.50.13.55
17.37.28.75
16.57.12.90
36.53.44
27.92
.75
17.34.35.51
22.15.49.5
4.41.13.99
4.44.30.6
3.16.61

— 4.49.26.81
46.74
4.50.13.55

4.49.26.81
46.70
4.50.13.55

22.17.18.0
41.13.98
17.36.04.82
17.36.00
— 4.02
16.
m T.G Stars 20.02 q/3

22.28.0.0
17.95
22.27.42.05
4.50.13.55
17.37.28.50
16.57.12.90
36.53.44
27.92
50
17.34.35.26
4.44.30.6
22.19.05.86
22.15.49.5
obs. W.G.D — 3.16.36
Rate .5 — 3.18.3
1.94

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June 4/5 — No. 140. Slow of Greek. 3m 16.6 losing 2.5

1	10 44 0.0	1	10 52 0.0	1	11 0 0.0	1	11 8 0.0	
2	10 44 42.0	10	10 50 14.8	18	10 56 7.7	26	11 47 23.2	
	+42.0		−1 45.2		−3 52.3		+39 23.2	
	−3 16.6		−3 16.6		−3 16.6		−3 16.6	
	−2 34.6	−36.3 +1.7	−5 01.8	3.5	−7 08.9	10.5	+36 06.6	+4.9
1	10 45 0.0	1	10 53 0.0	1	11 01 0.0	1	11 09 0.0	
3	10 41 14	11	10 57 6.2	19	11 00 32.8	27	11 09 52.4	
	−3 42.0		−1 53.8		−0 27.2		+0 52.8	
	−3 16.6		−3 16.6		−3 16.6		−3 16.6	
	−6 58.6	−60.3 +1.7	−5 10.4	12.1	−3 43.8	45.5	−2 23.8	25.4
1	10 46 0.0	1	10 54 0.0	1	11 2 0	1	11 10 0.0	
4	10 42 14.7	12	10 52 50.0	20	11 3 6.7	28	11 10 2.0	
	−3 45.3		−1 10.0		+1 06.7		+0 02.0	
	−3 16.6		−3 16.6		−3 16.6		−3 16.6	
	−7 01.9	−3.6 +1.7	−4 26.6	28.3	−2 09.9	11.6	−3 14.6	16.2
1	10 47 0.0	1	10 55 0.0	1	11 3 0.0	1	11 11 0.0	
5	10 49 48.7	13	10 54 43.0	21	11 3 9.2	29	11 13 53.4	
	+2 48.7		−0 17.0		+0 09.2		+2 53.4	
	−3 16.6		−3 16.6		−3 16.6		−3 16.6	
	−0 27.9	−29.6 +1.7	−3 33.6	35.3	−3 07.4	9.1	−0 23.2	24.9
1	10 48 0.0	1	10 56 0.0	1	11 4 0.0	1	11 12 00	
6	10 42 37.5	14	10 56 35.8	22	11 3 10.3	30	11 15 18.2	
	−5 22.5		+0 35.0		−0 49.7		+3 18.2	
	−3 16.6		−3 16.6		−3 16.6		−3 16.5	
	−8 39.1	−40.8 +1.7	−2 41.6	42.5	−4 06.3	8.0	+0 01.7	−00.1
1	10 49 0.0	1	10 57 00.0	1	11 5 0.0	1	11 13 0.0	
7	10 57 48.0	15	10 59 1.4	23	11 5 8.2	31	9 29 6.0	
	+2 48.0		+2 01.4		+0 08.0		−1 43 54.0	
	−3 16.6		−3 16.6		−3 16.6		3 16.6	
	−0 28.6	−30.3 +1.7	−1 15.2	16.9	−3 08.6	10.2	−1 47 10.6	12.2
1	10 50 0.0	1	10 58 0.0	1	11 6 0.0	1	11 14 0.0	
8	10 47 47.0	16	10 57 45.0	24	11 4 52.5	32	11 17 59.0	
	−2 13.0		−0 15.0		−1 07.5		+3 59.0	
	−3 16.6		−3 16.6		−3 16.6		−3 16.6	
	−5 29.6	−31.3 +1.7	−3 31.6	33.3	−4 24.1	25.8	+0 42.4	+40.7
1	10 51 0.0	1	10 59 0	1	11 7 0.0	1	11 15 0.0	
9 X	10 47 49.4	17	10 59 23.5	25	11 3 54.8	33	11 21 5.1	
	−3 10.2		+0 23.5		−3 05.2		+6 05.1	
	−3 16.6		−3 16.6		−3 16.6		−3 16.6	
	−6 26.8	−28.5 +1.7	−2 53.1	54.8	−6 21.8	23.4	+2 48.5	−46.8

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June 4/5 — 1/140 Slow of Gut. 3m 16.65 — Thermo-Gebm

	11..17..0.0	1	11..20..0	1	11..21..0.0		1_58.5
4	11..19..52.5	2	17..52..7.4	2	13..36..24.0		2_58.7
	+2..52.5				+2..15..24.0		3_58.5
	_3..16.6				_ 3..16.6		4_58.3
	_0.24.1	25.8			+2..12..07.4		5_58.6
35	11..18..0.0						6_.
35	11..22 1.0						7_58.5
	+4.01.0						max 59.5
	_3..16.6						
	+0.44.4	42.7					
1	11..19..0.0						
36	11..18..6.3						
	_0.53.7						
	_3.16.6						
	_4.10.3	11.9					
					For the above E.C. fast_		

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1856phae.proj.146B

June 5-6 Thermometer in box of 15-08 64°

M.Z.C = 2.25.41.0 | 15-08, 2,49,43.0
X=15-08 = 2.48.34.5 | M.Z.C. 2,26.37.0
22..53.5 | 23..06.0

These comparisons are to be used with those on the two following pages-
They were all made by R.F.B.

Assumed Error of E.C. +16.^{s}10 — Rate 0.^{s}0

EC = 7.24.40.0 | 1508 = 2 54 11.5 | EC = 7,27,42.0
1508 = 2,52.39.0 | EC = 7.26.12.0 | 1508 2 55 42.0
M.S. 2..32..48.7
+ 22.53.3

E.C. 7.27.42.0
Error 16.1
7.27 29.9
4..52..10.09
2..33 13.81
1..59..40.34
32 54.59
12.96
.81
2 32 44.70

1508 gains 29.^{s}63 pr. hour on M.S.T. i.e 0.^{s}497 pr. minute

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June 5th Comparisons with comparator № 1508.

1508 = 3h 04m 17s.0	1508 = 3h 07m 14s.0	1508 = 3h 08m 24s.0
1 = 7h 22m 33.0	2 = 7h 26m 11.5	3 = 7h 22m 54.0
M.S. 7h 25m 50.04	M.S. 7h 28m 45.57	M.S. 7h 29m 54.99
− 3m 17.04	− 2m 34.07	− 7m 0.99
1508 = 3h 09m 50.0	1508 = 3h 11m 57.0	1508 = 3h 12m 57.0
4 = 7h 24m 14.5	5 = 7h 32m 6.5	6 = 7h 24m 47.0
M.S. 7h 31m 20.28	M.S. 7h 32m 34.65	M.S. 7h 33m 26.22
− 7m 5.78	− 28.15	− 8m 39.22
1508 = 3h 18m 40.0	1508 = 3h 20m 05.0	1508 = ~~3h 00m 0~~ 3h 24m 00.0
7 = 7h 39m 38.0	8 = 7h 35m 58.5	9 = ~~7h 01m 5~~ 7h 39m 00.5
M.S. 7h 40m 5.88	M.S. 7h 41m 30.18	M.S. 7h 45m 23.23
− 27.88	− 5m 31.68	− 6m 22.73
1508 = 3h 25m 40.0	1508 = 3h 26m 59.0	1508 = 3h 28m 15.0
10 = 7h 41m 59.5	11 = 7h 43m 09.0	12 = 7h 45m 08.0
M.S.T. 7h 47m 2.40	M.S.T. 7h 48m 20.75	M.S.T. 7h 49m 36.12
− 5m 2.9	− 5m 11.75	− 4m 28.12
Thermo in case 60°		
1508 = 3h 30m 36.0	1508 = 3h 31m 28.0	1508 = 3h 32m 37.0
13 = 7h 48m 22.0	14 = 7h 50m 6.5	15 = 7h 52m 52.5
M.S.T. 7h 51m 55.95	M.S.T. 7h 52m 47.52	M.S.T. 7h 54m 9.83
− 3m 33.95	− 2m 41.02	− 1m 15.33
1508 = 3h 34m 19.0	1508 = 3h 35m 4.0	1508 = 3h 36m 35.0
16 = 7h 52m 6.0	17 = 7h 53m 28.0	18 = 7h 50m 40.5
M.S.T. 7h 55m 37.1	M.S.T. 7h 56m 21.73	M.S.T. 7h 57m 51.97
− 3m 31.1	− 2m 53.73	− 7m 11.47
Thermo № 1 60°		
1508 = 3h 39m 13.0	1508 = 3h 40m 8.0	1508 = 3h 41m 40.0
19 = 7h 56m 45.0	20 = 7h 59m 14.0	21 = 7h 59m 47.0
M.S.T. 8h 0m 28.67	M.S.T. 8h 1m 23.21	M.S.T. 8h 2m 52.45
− 3m 43.67	− 2m 9.21	− 3m 7.45
1508 = 3h 43m 5.0	1508 = 3h 44m 9.0	1508 = 3h 45m 44.0
22 = 8h 00m 11.5	23 = 8h 02m 12.0	24 = 8h 02m 33.0
M.S.T. 8h 4m 18.75 — − 4m 7.25	M.S.T. 8h 5m 22.21	M.S.T. 8h 6m 56.43
	− 3m 10.21	23.43

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Therm. No 3. 60°.3

1508 =	3 46 34.0	1508	3 50 33.0	1508	3 57 34.0	1508	3 52 26.0
2.5 =	8 03 22.0	26	8 47 50.0	27	8 10 18.5	28	8 10 19.0
M.S.T.	8 9 45.02	M.S.T.	8 11 23.03	M.S.T.	8 12 43.52	M.S.T.	8 13 35.10
	− 6 23.02		+ 36 6.97		− 2 25.02		− 3 16.10
1508	3 55 3.0	1508	3 59 10.0	1508	4 01 00.0	1508	4 02 00.0
29	8 15 47.5	D8	8 27 40.0	A	8 27 10.0	U8	2 56 25.6
M.S.T.	4 16 10.79	S.T.	8 30 30.69	S.T.	8 32 20.07	M	
	− 23.29		− 2 50.69		− 5 10.07		
1508	4 04 30.0	1508	4 06 00.0	1508	4 07 45.0	1508	4 10 18.0
36	8 21 22.0	35	8 27 47.0	34	8 28 23.5	33	8 34 08.0
M.S.T.	8 25 33.10	M.S.T.	8 27 2.35	M.S.T.	8 28 46.48	M.S.T.	8 31 18.22
	− 4 11.1		+ 44.65		− 22.98		+ 2 49.78
1508	4 11 27.0	1508	4 13 10.0	1508	4 15 03.0		
32	8 33 09.0	31	6 46 57.5	30	8 36 02.0		
M.S.T.	8 32 26.64	M.S.T.	8 34 8.79	M.S.T.	8 36 0.85		
	+ 42.36		− 1 47 11.29		+ 1.15		
E-E	8 49 24.0	E6	8 51 00.0			M.E.6	3 57 20
1508	4 17 51.5	1508	4 19 28.0			1508	4 20 59.5
X		M.S.T.	3 55 53.06				
			+ 23 34.94				
			8 8 51 0.0				
			Error 18.1				
M.E.6.	3 58 19.0		8 50 41.9				
1508	4 21 29.0		4 54 10.09				
			3 56 31.81				
			2 59 30.51				
			55 50.43				
			30.91				
			.81				
			3 56 53.06				

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1855. June. 5th Last comparison before embarcation
observers W.C.B. D

1	8.. 49.. 00.0	5.5	
2	8.. 50.. 00.0	10.5	
3	8.. 46.. 00.0	5.5	
4	8.. 47.. 00.0	5.5	
5	8.. 54.. 00.0	5.5	D
6	8.. 47.. 00.0	5.5	
7	8.. 57.. 00.0	5.5	one mark
8	8.. 53.. 00.0	5.5	
9	8.. 53.. 00.0	5.5	
10	8.. 55.. 00.0	5.5	B
11	8.. 56.. 00.0	5.5	
12	8.. 57.. 00.0	5.5	
13	9.. 00.. 00.0	5.5	
14	9.. 2.. 00.0	5.5	
15	9.. 4.. 00.0	5.5	DB
16	9.. 3.. 00.0	5.5	
17	9.. 4.. 00.0	5.5	
18	9.. 0.. 00.0	5.5	
19	9.. 5.. 00.0	5.5	
20	9.. 7.. 00.0	5.5	BD
21	9.. 7.. 00.0	5.5	
22	9.. 7.. 00.0	5.5	
23	9.. 9.. 00.0	5.5	
24	9.. 8.. 00.0	5.5	
25	9.. 8.. 00.0	5.5	DBD
26	9.. 52.. 00.0	5.5	
27	9.. 14.. 00.0	5.5	
28	9.. 14.. 00.0	5.5	
29	9.. 18.. 00.0	5.5	
30	9.. 20.. 00.0	5.5	BDB
31	9.. 34.. 00.0	5.5	
32	9.. 23.. 00.0	5.5	
33	9.. 26.. 00.0	5.5	
34	9.. 24.. 00.0	5.5	
35	9.. 26.. 00.0	5.5	DDB
36	9.. 22.. 00.0	5.5	
A	9.. 32.. 00.0	5.5	
D	9.. 35.. 00.0	5.5	
a	16.. 02.. 00.0	5.5	double mark
Z	11.. 42.. 00.0	5.5	5.5 D

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1856phae.proj..146B

June 5th

EC

No. 7 9..31..00.0 5.5 Remarked

June 5 4h PM

Thermo

1 61.4

2 61.4

3 61.4

4 60.5

5 ~~60.5~~

6

7 61.7

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1856phae.proj..146B

June 8/9 1856

E.6 Fast 18ˢ.3

E.6 — 22..18..0
2557 — 22..19..7.3
22..18..0.0
18.3
22..17.41.7
22..19..07.3
+ 1..25.6

M.T.C. 17..18.. 45 — 17..27 ..45
2557 — 22..25 .. 6.5 — 22..32 .. 7
22..25 ..06.5
1..25.6
22..27 ..40.9
5.. 5.. 59.78
17..21..41.12
16..57..12.89
40.89
.12
17..18..50.46
17..18..45.00
m.t.c.c. — 5.46
-16.00
6 — 21.46

5.. 5..13.04
46.74
5.5.59.78

M.T.C. 18..18..0
1678 — 18..18..11.3
18..14..0
21.46
18..18..21.46
18..14..18.3
-10.16

M.t.c. 18..19..0
201 — 18..19.. 1.6
18..19..21.46
18..19..01.6
-19.86
10.16
9 m.t.c.c.

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1856phae.proj..146B

June 12. 3.30 Rec E.C. fast 18.8s

EC – 9..19..0 M.T.G 4..00..30 — 4..3..25
2557 – 9..20..13.5 2557 – 9..24..84 — 9..27..29.5

9..19..0
18.9
9..18..41.1
9..20..13.5
2557 fast – 1..32.4

9..24..34
1..32.4
9..23..01.6
5..21..46.02
4..01..15.58
3..59..20.68
59.83
14.96
58
4..00..36.05
mTC 4..00..30
– 6.05
–16.
–22.05

5..20..59.24
46.74
5..21..46.02

15/16– E.C. Fast 19.1s

EC – 23..3..0 — MTG 17..31..00 — 17..33..55
2557 – 23..4..18.7 – 2557 – 23..9..12.5 – 23..12..08

23..03..0.0
19.1
23..02..40.9
2557 – 23..04..18.7
1.37.8

23..09..12.5
1.37.8
23..07..34.7
5..33..35.69
17..33..59.01
16..57..12.90
32..54.59
58.84
01
17..31..06.34
17..31..01 vc
6.34
16.05
13 – 22.39

5..32..48.95
46.74
5..33..35.69

MTC 18..06..0.0
16?8 – 18..06..5.1
16..06..22.39
18..06..05.1
16?8 Slow – 17..29 of 13

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1855 June 18/19.

E-6+19.4s

C 23..59..0
2557 -24..00..24.0
23..59..0
19.4
23..58..40.6
24..00..24.0
2557 fast 1..43.4

M.T.C - 18..13..00
2557 - 24..3..15
24..3..15
1..43.4
24..01..31.6
5..45..25.37
18..16..06.23
17..57..03.07
15..57.38
5.94
.23
18..13..06.66
18..13..02.00
M.T.C - 6.66
16.00
mt.C slow of 13 - 22.66

5..44..38.63
46.74
5..45..25.37

18/19
M.T.C - 19..42..0
1678 - 19..42..4.7
19..42..22.66
19..42..04.7
1678 slow - 17.96

22/23° Am

EC - 23..25..0
1678 - 5..20..28
23..25..0
19.8
23..24..40.2
6..01..11.60
17..23..28.60
16..57..12.90
22..56.23
27.92
.60
17..20..37.65
17..20..28
9.65
16
1678 slow of Boston 25.65

EC - fast 19.8

6..0..24.86
46.74
6..01..11.60

M.T.C - 17..28..0
1678 - 17..27..57.5
2.5
25.65
17..28..23.15
17..28..0
M.T.C slow 13 - 23.15

19/20 E.C - 23..34..0
1678 - 5..41..20.2
E.C fast sid - 19.5
1678 slow of Boston m.sol - 20.5.01

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1856phae.proj..146B

June 26/27

EC. fast – 19.9

EC – 0 .. 25 .. 30
1678 – 18 .. 05 .. 0.1

EC – 0 .. 39 .. 0
2557 – 0 .. 40 .. 39.3

MG – 0 .. 42 .. 21.5
2557 18 .. 20 .. 45.5

MG – 18 .. 21 .. 0.0
1678 – 18 .. 20 .. 52.7

EC – 0 .. 57 .. 00
2557 – 0 .. 52 .. 39.4

MG – 18 .. 35 .. 5 – 18 .. 38 .. 05
2557 – 0 .. 57 .. 14 – 0 .. 00 .. 14.5

MG – 18 .. 23 .. 0.0
1678 – 18 .. 21 .. 54.7
2e 0 . 25 . 30
19.9
24 .. 25 .. 10.1
6 .. 16 .. 57.84
18 .. 08 .. 12.26
17 .. 57 .. 03.07
7 .. 58.69
11.97
.26
18 . 05 .. 13.99
1678 18 .. 05 . 00.1
.13.89
16
29.89

6 .. 16 .. 11.10
4674
6 . 16 . 57 . 84

18 . 20 . 52.7
19.9
18 . 21 . 24.6
18 . 21 . 0 . 0
MG – 24.6

B 6 – 1 .. 19 .. 0
1678 – 6 .. 58 . 21
1 .. 19 .. 0
19.9
25 .. 18 . 40 . 1
6 .. 16 .. 57 . 84
19 . 01 . 42 . 26
18 .. 56 . 53 . 24
59.83
41.88
26
18 . 58 .. 35 . 21
18 .. 58 . 21 . 00
14.21
16.00
30.21

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1855. June 29/30

E.C. fast by rate 20.80 by obs

E.6 — 0..22..0 — 0..23..0
1678 — 17..49..43.0 — 17..50..47.8
24..22..0
20
24..21..40
6..29..47.57
17..52..52.49
16..57..12.90
57..57.48
57.85
.49
17..49..56.72 — 55.92
1678 17..49..42.80 — 42.80
13.92 — 13.12
16 — 16
29.92

6..28..0.77
46.74
6.28.47.51

25..9..0
18..36..50.2
EC — 25..11..0
1678 — 18..36..35
25..11..0
20.80
25..10..39.20
6..28..47.57
18..41..51.69
17..57..03.07
40..53.28
50.86
69
18..38..47.90
18..38..35.0
12.90
16
28.90

M.T.C — 18..50..0 — 18..57..0.0
1678 — 18..49..57.5 — 18..50..57.6
18..49..57.5
28.9
18..50..26.4
m96 — 18..57..0
m.T.C slow 26.4

July 2/3

E.C. fast 21.1 by rate

EC — 0..11..0
1678 — 17..26..59.2
0..11..0.0
21.1
24..10..38.9
6..40..37.19
17..30..01.71
16..57..12.90
29..55.08
1.71
17..27..09.69
1678 17..26..59.2
— 10.49
16
1678 Slow of Both 26.49

6..39..50.45
46.74
6..40..37.19

M.T.C — 16..53..0
1678 — 16..53..3.75
16..53..3.75
1678 Slow of B — 26.49
16..53..30.24
53 00.0
M.C. Slow 30.24

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1855

July 4^{t}. E.C. fast by 3 stars Ill avert

direct	by Sp.Sign
EC – 5..25..0	EC —
2557 – 5..26..53.3	2557 —

M.T.C 22..44..25
By Coincidence 2557 5..35..14

M.T.C – 22..47..25
2557 – 5..38..14.5

July 10/11 E.C. Fast – 25^{s}.5

EC – 1..36..0
1678 – 6..20..14.4
1..36..0
25.5
25..35..34.5
7..12..09.65
18..23..24.85
17..57..03.0)
22..56.23
23.93
85
18..20..24.08
1678 – 18..20..14.4
1678 Slow C – 9.68
– 16
B .25.68
12.5
m.T.C – 38.18

7..11..22.91
46.74
7.12.09.65

M.T.C – 18..32 – 0
1678 – 18..32..12.5
m.T.C – 18..36-0-0
18.36.12.6
1678 18.36.12.60
1678 Slow of B – 25.68
18.36.38.28
M.T.C – 18..36..50.00
M.T.C Slow of B 38.28
3^{d} Slow – 30.24
8) 8.04 ∠1.0

30.000-69

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1855.

E. C. Fast.

E.C. 6, Rate 29.78

July. 15/16

EC 1..32..0.0 — 1..33..0
U.S.N. 5..57 ..20.0 — 5..58..19.8
1..32..0.0
29.78
25..31..30.22
7..31..52.46
1)..59..37.74
16..57..12.90
58..50.33
36.90
.74
5..56..40.87
5..57..20.00
U.S.N. fast of Eam +39.13
16
and N fast of Boston 23.13

7..31..05.70
46.74
7..31..52.44

M.T. E — 18..07..0
U.S.N. — 18..08..4.0
18..08..4.0
23.13
7..40.87
M.T. slow 40.87
10/11 .. .. 36.28
5/2.5 q +0.52

July. 19/20

EC fast — 31.0 (5)

EC 2..37..0.0
1678 — 6..25..41.6
2..37..0.0
31
26..36..29.0
7..47..38.68
18..48..50.32
17..57..03.07
47..52.14
49.86
32
6..45..45.39
41.6
−3.79
16
1674 slow of B. 19.79

EC — 3..49..0
1678 — 7..57..29.7
7..46..53.94
46.74
7..47..38.68

M.T.C — 20..4..0 — 20..5..00.0
1678 — 20..4..26.2 — 20..5..26.2
20..4..26.1
19.79
20..4..45.89
20th M.T. slow 45.89
16 .. .. 40.87
4/5.02 / 1.25

25th/26th 1678 slow of B 22.57
M.T.C —
1678

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1855.

July $\frac{25}{26}$. E.C. fast. 36.14

E.C. — 2..23..0.0 EC — 2..29..0.0

1678 — 6..07..58.6 1678 — 6..13..37.5

EC. 26..23..0.0

36.14

26..22..23.86

8..11..18.02

18..11..05.84

17..57..03.07

10..58.19

4.99

84

c m.sol. t 18..08..07.09

1678. 18..07..58.60

8.49

16

24.49

8..26..17.57

46.24

8..27..04.25

MTC — 18..23..0

1678 — 18..23..29.7

MTC — 18..24..0

1678 — 18..23..29.6

1678 — 18..24..29.6

21.87

18..24..51.47

MTL 18..24..00.0

51.47

30+

July $\frac{25}{26}$ MTC Slow 49.89

4/2.58/0.64

18..27..25.4

24.49

18..27..49.89

MTC 18..27..0

49.89 by MTC Slow

MTC — 18..27..0 — 18..28..0.0

1678 — 18..27..25.4 — 18..28..25.5

July $\frac{29}{30}$. EC by Rate fast — 38.98

EC — 2..44..0

1678 — 6..13..11.3

2..44..0

38.98

26..43..21.02

8..27..04.25

18..16..16.77

17..57..03.07

15..57.38

15.95

.77

18..13..17.17

18..13..11.3

— 5.87

16

1678 Slow of B. 21.87

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1855

July 31/32 Jetm

E C fast 38.40

E C – 3..3..0.0
1678 – 18..24..36.4
3..3..0.0
38.40
27..2..21.60
8..34..57.36
18..27..24.24
17..57..03.07
26..55.58
23.93
24
18..24..22.62
36.4
1678 fast of Camb 13.58
16
1678 Slow of Boston 2.42

M 86 – 18..21..0.0 – 18..22..0.0
1678 – 18..21..57.6 – 18..22..57.65
18..22..57.65
2.42
M 76 Slow of B – 54.07
28d Slow 45.89
12)8 18 +0.7

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1855
Aug. 2 Therm 70°.7

M.T.C. 2.. 28 „ 30 — 2.. 29.. 28 E.C. 11 .. 15.. 50 — 11.. 16.. 55
1107 — . 3 . 56 .. 34 — 3 .. 57 „ 32.5 1107 — 3 . 54 : 22.5 — 4 .. 00 „ 28

Aug. 2/3 A.M.

M.T.C. 20.. 41 „ 30 — 20.. 43.. 25 E.C. 5.. 34.. 35 — 5.. 36.. 00
1107 .10.. 18.. 47.5 — 10.. 20.. 43.5 1107 5.. 24.. 21.5 — 5.. 25 47.0

Aug. 3/4 A.M.

M.T.C. 20.. 58.. 00 — 20.. 58.. 55 E.C. 5 .. 56 „ 30 — 5 .. 57 „ 55
1107 10.. 47.. 35.0 — 10.. 48.. 30.5 1107 10.. 54 .. 34 — 10 55 „ 59.5

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1856phae.proj.:140B

Aug. 3/4 A.M. E 6 fast - 39.5?

E.C. 6 05 30.0 — 6 08 10.0 — 7 26 55 — 7 30 00
140 1 54 5.5 — 1 56 45.0 — 3 15 17.0 — 3 18 21.5
S.T. Fast 39.5? S.T. Fast 39.59

8 46 47.01
6 7 30.43
21 20 43.42
— 3.29.41
21 17 13.61
4 44 30.6
2 1 44.21
1 56 45.0
— 4 59.21
Err of C. 1 on Greenwich Time

Assumed Long W Greenwich
4 44 30.6

7 29 20.41
8 46 47.01
22 42 33.42
— 3 23 22
22 38 50.18
4 44 30.60
3 23 20.78
3 16 21.5
— 4 59.28
Error of No. 1

59.6

Aug 6/7 E.6 fast 42.2

EC — 2 48 0
2557 — 2 48 04.7
2 48 0
42.2
2 47 17.8
2 48 04.7
2557 fast 46.9

MYC — 18 01 55 — 18 05 0.0 — 18 8 0
2557 — 3 04 57.5 — 3 08 3.0 — 3 11 3.5
3 02.5 03 3.0 3 3.5
3 04 57.5 8 57 49.96
46.9 46.74
2 04 10.6 8 58 36.70
8 58 36.70
18 05 33.90
17 57 03.07
4 59.18
32.91
90
18 02 36.06
MY 18 01 55
41.06
16
M.T.C slow — 57.06
Aug. 1 " — 57.07
6/2.94 /0.498

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1855

August 3/4 – Direct comparisons

2	2..16..00	1	2..25..00	1	2..29..00	1	2..36..30				
2	2.. 42..14.9	10	2.. 21..21.9	18	2..18..52.3	26	3..18..13.4				
	+ 26.. 14.9		− 3..34.1		− 10.. 7.7		+ 41..43.4				
	− 4..59.2		− 4..59.2		− 4.. 59.2		− 4..59.3				
	+ 21.. 15.7		− 8..37.3		−15.. 6.9		+ 36..44.1				
1	2..17..00	1	2..25..30	1	2..29..30	1	2..37..00				
3	2.. 7.. 45.8	11	2.. 22..10.9	19	2.. 28. 5.0	27	2.. 36..47.0				
	− 9.. 14.2		− 3..19.1		− 1..25.		− 0..13.0				
	− 4.. 59.2		− 4..59.2		− 4..59.2		− 4..59.3				
	−14.. 13.4		− 8..18.3		−6..24.2		−5..12.3				
1	2..18..00	1	2..26..00	1	2..30..00	1	2..37..30.0				
4	2.. 4..56.0	12	2.. 21.. 5.3	20	2.. 35.. 32.8	28	2.. 35,,57.7				
	− 18..04.0		− 4..54.7		+ 5..32.8	1	− 1..32.3				
	− 4..59.2		− 4..59.2		− 4..59.2		− 4..59.3				
	− 18.. 9.2		− 9..53.9		+ 33.6		− 6.31.6				
1	2.. 18..30	1	2..26..30	1	2..33..30	1	2..38..00				
5	2.. 22..22.8	13	2..26..17.2	21	2.. 35..54.6	29	2.. 42.. 8.6				
	+ 3..52.8		− 0..12.4		+ 2.. 24.6		+ 4.. 5.6				
	− 4..59.2		− 4..59.2		− 4..59.2		− 4..59.3				
	− 1..6.4		−5..12.0		− 2.34.6		− 50.7				
1	2.. 19..00	1	2..27..00	1	2.. 34..00	1	2..38..30				
6	2 14..33.3	14	2.. 26..45.8	22	2.. 32..20.7	30	2.. 44.. 3.5				
	− 4.. 26.7		− 0..14.2		− 1..39.3		+ 5..33.5				
	− 4.. 59.2		− 4..59.2		− 4..59.2		− 4..59.3				
	− 9.. 25.9		− 5.. 13.4		− 6.38.5		+ 34.2				
1	2..19..30	1	2..27..30	1	2.. 34..30	1	2..39..30				
7	2..24..55.4	15	2.. 29.. 30.0	23	2.. 32 27.7	31	00.. 54.. 29.7				
	+ 5..25.4		+ 2.. 0.0		− 2.. 2.3		− 1..45 0.3				
	− 4.. 59.2		− 4..59.2		− 4..59.2		− 4.. 59.3				
	+ 26.2		− 2..59.2		− 7..1.5		+ 1..49 59.6				
1	2..20..00	1	2..28..00	1	2.. 35..00	1	2.. 41..00				
8	2.. 12..44.7	16	2 31..20.8	24	2.. 37..54.8	32	2.. 46..39.5				
	− 7..15.9		+ 3..20.8		+ 2..54.8		+ 5..34.5				
	− 4.. 59.2		− 4..59.2		− 4..59.2		− 4..59.3				
	−12.. 14.5		− 1..38.4		− 2.. 4.4		+ 35.2				
1	2..20..30	1	2..28..30	1	2..35..30	1	2..41..30				
9	2..15.. 5.0	17	2..28..44.6	25	2.. 31.. 6.6	33	2..51..44.9				
	− 5.. 25.0		+ 0..14.6		− 4.. 23.4		+ 10..14.9				
	−4.. 59.2		− 4..59.2		− 4..59.2		− 4..59.3				
	− 10.. 24.2		− 4..44.6		− 9..22.6		+ 5..15.6				

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Aug 3
4

1	2..42..00		1	2..46..00		1	2..49..00
34	2..50..25.2	A		6..52..12.6		37	2..52..52.5
	+ 8..25.2						+ 3..52.5
	− 4..59.3						− 4..59.3
	+ 3..25.9						− 1..06.8
1	2..42..30		1	2..46..30		1	2..49..30
35	2..48..48.0	D		6..55..2.5		38	2..52..50.4
	+ 6..18.0						+ 3..20.4
	− 4..59.3						− 4..59.3
	+ 1..18.7						− 1..35.9
1	2..43..00		1	2..47..00		1	2..50..00
36	2..41..41.7	Z		5..36..21.7		39	2..54..24.0
	− 1..18.3			+2..49..21.7			+ 4..24.0
	− 4..59.3			− 4..59.3			− 4..59.3
	− 6..17.6			+2..44..22.4			− 35.9
				4 h.. 30.6			
1	2..44..00		1	2..47..30		1	2..50..30
X	10..27..25.4	Z		5..36..51.7		11	9..26..55.6
				+2..49..21.7			
				− 4..59.3			
				+2..44..22.4			

Room

1	65°.3
2	65.5
3	65.5
4	65,0
5	66.0
6	65.2
7	65.8

Outside

6 R	66.2
11	66.2 } Iron sunshade
10	66.2 } box

Comparison of Aneroids
at 6..20 P.M. Aug 4

68 ——— 29.918-)8
13,610 ——— 30.025.7)
11.835 ——— 30.026

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Aug. 5th. 6.30 Am.

Therm°

1 — 66.0
2 — 66.2
3 — 66.0
4 — 66.2
5 — 67.0
6 — 66.0
7 — 66.3
outside 68.7
10 — 67.2
11 — 67.5

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1856phae.proj.146B

Aug. 5/6 A. M.

E.C. 5.. 32.. 35` —— 5`.. 35`.. 43`
140 1.. 13.. 21.0 —— 1.. 16 .. 30.5`

Before comparison

Therm°-
1 — 68
2 — 68
3 — 68
4 — 69 outside
5 — 68
6 — 68
7 — 68
6 outside 69.5
10 — 67
11 — 67

E.C. 6..42..20 —— 6.. 45`.. 15`
140 2..22.. 54.5` —— 2.. 25`. 49.0 After comparison

5.. 35.. 45.0
41.2
5.. 35.. 3.80
6.. 54 .. 40.13
20.. 40.. 23.67
19.. 56.. 43.41
39.. 53.45
22.94
.67
20.. 37.. 0.47
4.. 44.. 30.6
green ell. 5.5. 1.. 21.. 31.07
1/140 1.. 16.. 30.5`
— 5 0.57

Comparison of Aneroids
Aug^t 6^th A.M.
No 68 - 29.866 - 7.0
13,610 - 29.925 - 64½
11.835 - 29.952 ~

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1855

August $\frac{5}{6}$ Am

2	1..36..00	1	1..40..00	1	1..44..00	1	1..47..30
	2.. 2..14.6	10	1..36..13.5	18	1..33..36.8	25	1..43.. 3.2
	26..14.6		−3..46.5				
	5..00.6		−5.. 0.6				
	+21.14.0		−8..47.1				
1	1..36..30	1	1..40..30	1	1..44..30	1	1..48..00
3	1..27..00.0	11	1..37.. 4.4	19	1 43 .. 2.3	26	2.. 29..46.1
			−3..25.6				
			−5.. 0.6				
			−8..26.2				
1	1..37..00	1	1..41..00	1	1..45..00	1	1..48..30
4	1..23..36.1	12	1..35..51.0	20	1..50..45.7	27	1..48..13.5
			−5..9.0		+5..45.7		
			−5..0.6		−5..0.6		
			−10..9.6		+45.1		
1	1..37..30	1	1..41..30	1	1..45..30	1	1..49..00
5	1..41..24.0	13	1..41..15.0	21	1..47..59.0	28	1..47..24.6
					+2..29.0		
					−5..0.6		
					+2 31.6		
1	1..38..00	1	1..42..00	1	1..46..00	1	1..49..30
6	1..33..34.2	14	1..41..42.6	22	1..43..19.0	29	1..53..38.8
			−17.4				+4..6.8
1	1..38..30	1	1..42..30	1	1..46..30	1	1..50..00
7	1..43..58.3	15	1..44..27.7	23	1..44..26.0	30	1..55..37.4
							+5..37.4
							−5..00.6
							+36.8
1	1..39..00	1	1..43..00	1	1..47..00	1	1..50..30.
8	1..31..32.7	16	1..46..28.1	24	1..50..3.5	31	12..5..25.2
							−1..45..4.8
							−5..0.6
							−1..50..5.4
1	1..39..30	1	1..43..30		1..		
9	1..33..58.3	17	1..43..42.6				

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1856phae.proj:.146B

1	1h 51m 00	1	1h 52m 30	1	1h 54m 00	1	1h 56m 00
32	1h 56m 35.3	35	1h 58m 52.5	A	6h 7m 59.0	37	1h 59m 45.3
	+5m 35.3						
	−5m 00.6						
	+34.7						
1	1h 51m 30	1	1h 53m 00	1	1h 54m 30	1	1h 56m 30
33	2h 1 49.4	36	1h 51m 40.3	D	6h 10m 52.8	38	1h 59m 44.3
1	1h 52m 00	1	1h 53m 30	1	4 1h 55m 00	1	1h 57m 30
34	2h 00m 36.8	X	10h 0m 34.7	Z	~~6~~h 45m 15.5	39	2h 1m 20.8
	+8m 36.8				+2m 50 15.5		
					−5m 0.6		
					+2m 45m 14.9		
1	1h 57m 30				A 4h 42m 30.6		
2C	8h 57m 31.5				7h 29m 45.5		
					21h 15m 30.0		

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1856phae.proj..146B

Aug 6/7

M.T.C – Slow of Comb −41.3.92

Therm°

1	65.5	MTC – 8..38..0.0
2	65.7	239 – 8..38..0.3
3	65.5	+ 7..30..16.68 Err. of Z
4	65.7	239 – 9..49..0.0 — 9..51..0.0
5	66.0	147 – Z — 16..19..58.3 — 16..21..58.4
6	65.5	9..30..58.3 7..30..58.4
7	66.0	1 – 1..35..0
8	68.0 outside	2 – 2..01..15.1 Set N°2 – 11 down – must
9	68.0 "	+ 26..15.1 inclined
10	67.0	5..01.5
11	67.5	21..13.6

Aug 7th

M.T.C Slow of Comb – −42.3.02

Therm°

1 – 66	MTC – 4..57..30 239 – 4..59..0
2 – 66	239 – 4..57..30 Z – 12..30..10.3
3 – 66.2	7..31..10.3
4 – 65.5	239 – 5..0..0 + 7..30..24.28 Err. of Z
5 – 66.0	Z – 12..31..10.3 horizontal
6 – 65.5	7..31..10.3
7 – 66.0	7th Pole 1 — 9..44..0 — 9..46..0
8 – 69.0 outside	2 — 10..10..39.0 2 – 10..12..38.8
9 – 69.0 " "	Then changed to 5 down, lips melted
10 – 67.0 In small	1 – 9..48..0
11 – 67.0 Refrigerator	2 – 10..14..39

8th Ans

1 – 11..08..0

2 – 11..34..33.6

N°2 then changed to 11 down – withdrawn for correction – N° 234 – 8 day Hutton substituted, and marked N° 26

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1856phae.proj..146B

Aug. 8/9 A.M.

	Before Comparison		After Comparison	
E.C.	7.. 02.. 10	— 7.. 05.. 25	— 7.. 35 .. 35	— 7.. 38 .. 30.0
1/(140)	2.. 30.. 49.0	— 2.. 34 .. 03.5	— 3.. 04 .. 8.5	— 3.. 07 .. 3.0

7.. 5.. 25.0
43.71
7 .. 4 .. 41.29
9 .. 6 .. 29.80
21 .. 58 .. 11.49
20 .. 56 .. 33.58
57 .. 50.50
10.97
.49
21 .. 54 .. 35.54
4 .. 44 .. 30.60
Green. cll. S.T. 2 .. 39 .. 6.14
1/140 2 .. 34 .. 3.5
— 5 .. 2.64

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Aug 8/9 A. M.

No 1 Slow — 5m 2.6

1	2.. 39.. 30.0	1	2.. 43.. 30.0	1	2.. 47.. 00.0	1	2.. 50.. 30.0
2	9.. 59.. 19.6	9	2.. 37.. 48.3	16	2.. 50.. 40.8	23	2.. 48.. 24.5
1	2.. 40.. 00.0	1	2.. 44.. 00.0	1	2.. 47.. 30.0	1	2.. 51.. 00.0
3	2.. 30.. 5.5	10	2.. 39.. 55.6	17	2.. 47.. 41.0	24	2.. 54.. 17.7
			− 4.. 4.4				
			− 5.. 2.6				
			− 9.. 7.0				
1	2.. 41.. 00.0	1	2.. 44.. 30.0	1	2.. 48.. 00.0	1	2.. 51.. 30.0
4	2.. 27.. 4.8	11	2.. 40.. 37.5	18	2.. 37.. 14.0	25	2.. 46.. 58.6
			− 3.. 52.5				
			− 5.. 2.6				
			− 8.. 55.1				
1	2.. 41.. 30.0	1	2.. 45.. 00.0	1	2.. 48.. 30.0	1	2.. 52.. 00.0
5	2.. 45.. 27.0	12	2.. 39.. 22.2	19	2.. 46.. 59.6	26	3.. 33.. 51.4
			− 5.. 37.8				
			− 5.. 2.6				
			− 10.. 40.4				
1	2.. 42.. 00.0	1	2.. 45.. 30.0	1	2.. 49.. 00.0	1	2.. 52.. 30.0
6	2.. 37.. 36.1	13	2 45.. 12.7	20	2.. 55 8.3	27	2.. 52.. 8.2
					+ 6.. 6.3		
					− 5.. 2.6		
					+ 1.. 5.7		
1	2.. 42.. 30.0	1	2.. 46.. 00	1	2.. 49.. 30.0	1	2.. 53.. 00.0
7	2.. 48.. 3.3	14	2 45.. 39.2	21	2.. 52.. 6.7	28	2.. 51.. 19.7
					+ 2.. 36.7		
					− 5.. 2.6		
					− 2.. 25.9		
1	2.. 43.. 00.0	1	2.. 46.. 30	1	2.. 50.. 00.0	1	2.. 53.. 30.0
8	2.. 35.. 14.2	15	2.. 48 23.0	22	2.. 48.. 16.2	29	2.. 57.. 40.0

* The Chro. Numbered 2 was withdrawn for correction and # No 234 substituted and marked No 2b

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1956phae.proj..146B

1	2.. 54.. 00	1	2.. 56.. 30.0	1	3.. 00.. 00.0
30	2.. 59.. 44.6	35	3.. 3 00.3	39	3.. 4.. 19.6
1	2.. 54.. 30.0	1	2.. 57.. 00	1	3.. 01.. 00
31	1.. 9.. 19.0	36	2.. 55.. 40.6	37	3.. 4 .. 35.4
	- 1.. 45.. 11.0				
	— 5.. 2.6				
	1.. 59 13.6				
1	2.. 55.. 00.0	[illegible]	2.. 58.. 00.0		
32	3.. 00.. 35.5	Z	5.. 49.. 57.5		
			+ 2.. 51.. 51.5		
			— 5.. 2.6		
			+2.. 46.. 48.9		
1	2.. 55.. 30.0	1	2.. 58.. 30.0		
33	3.. 5 54.8	37	3.. 2.. 5.8		
1	2.. 56.. 00.0	1	2.. 59.. 30.0		
34	3.. 4.. 57.0	38	3.. 2.. 37.7		

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1856phae.proj..146B

855. Aug 9
Ana 10-

EC fast 44.38

EC 5..26..0
2557 - 5..26..9.2
5..26..6
44.38
5..25..15.62
5..26..09.20
2557 fast +53.58

MC - 20..14..30 — 20..17..30
2557 - 5..29..52.5 — 5..32..53
5..29..52.50
53.58
29..28..58.92
9..10..26.39
20..18..32.53
19..56..43.41
17..57.05
31.91
41
20..15..82.78
20..14..30
M.T.C. Slow 42.78
16
m TC slow of 13 58.78
slow y^d 57.06
3)172(0.57

9..09..39.65
4674
9.10..26.39

aug 7^h + 42.2
10..44.38
3)214.
+0.73

58.78
2.28
61.06

Aug 11^h - Pul — 6^h..20.
Time by No 1 - 10^h..57^m
Therm^o
1 — 65.5
2 - 66.0 } front
3 - 66.2
4 - 65.8 }
5 - 66.2 } back row
6 - 65.8 }
7 - 67.0 with Mer Circ
8 - 65.5 outside
9 - 65.8 outside
10 - 66.0 - with new lens
11 - 65.7 with 3585

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1856phae.proj..1463

August 9/10 Comp of chronometer Thomas Adams No 3585

Ther 71 (form No 7) 74° 9

6h	55m	0s	5s.5	6.. 55.. 4.1 — 9.6
6h	56m	0s	5.5	6.. 56.. 4.0 — 9.6

D 13

Ther 79°.0

8h	1m	0s	5s.5	8.. 1.. 4.15 — 9.70
8h	2m	0s	5s.5	8.. 2.. 4.10 — 9.70
8h	3m	0s	5.5	8.. 3.. 4.10 — 9.70

13 D

Ther 80°.1

9h	0m	0s	5.5	9.. 00.. 4,20 — 9.70
9h	1m	0s	5.5	9.. 1.. 4.20 — 9.70
9h	2m	0s	5.5	9.. 2.. 4.20 — 9.65

D 13 D

Ther 71°.0

15h	13m	0s	5s.5	15.. 13.. 4.50 — 9.95
15h	14m	0s	5.5	15.. 14.. 4.45 — 9.95
15h	15m	0s	5s.5	15.. 15.. 4.45 — 9.95

R D 13

Aug 10/11 Ther 66.2

3585 — 3..	38..	0 — 5.5	3.. 38.. 5.1 — 10.65
	39..	0 — 5.5	3.. 38.. 5.0 — 10.65

long set.

	6h	24m	0s	5.5	6.. 24 .. 5.35 — 10.85
Th 68	6h	24	30	35.5	6.. 24 .. 35.25 — 40.80
	6h	25m	0s	5.5	6.. 25 .. 5.30 — 10.85
	6h	25m	30	35.5	6.. 24 .. 35.25 — 40.80
	6h	26m	30	5.5	6.. 26 .. 5.30 — 10.80

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1856phae.proj..146B

1855. Comparator y. (No 1107) (copied from the paper found in the top)

May. 27d Am.
M.T.C - 8..45..0
y 6..49..50.5

July 18th Am Therm° 82
M.T.C - 19..43..00.
y - 4..17..15.7

July. 22/23 Am-
M.T.C - 20..00..00
y — 4..00..00.5

Augs 13 PM
M.T.C — 5..04..35.
y — 8..47..50.5

E.C. 14..36..10.0
y - 8..50..50.5

Comparisons of y with M.T.C. for daily rate

1855-
May. 27 Am - M.T.C. 18..57..57.5
y - 16..58..16.0

" 29/30 m.T.C. 20..27..40 — 20..29..0.0
y 07..06..44 — 19..08..45.6

" 30/31. m.T.C. 19..17..40. May 31st PM - mT6 - 3..01..25 Ther. 71°
y - 18..08..22 y - 1..55..56.5

June 1st. Am m.T.C - 19..33..00 — 19..34..0
y - 18..36..53.5 — 18..36..54

" 2d. Am - mTC - 19..56..25 Ther 67.5
y - 19..11..39

" 3 - Am. mT.C - 19..33..30 Ther. 68.5
y 19..00..41

" 4 - Am. mT.C. 19..22..40 Ther. 67.0
y - 19..01..53.5
" " — " mT.C. 19..33..30
y - 19..12..49

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1856phae.proj..140B

Comparator-y No 1107.

1855

June 7t. Am M.T.C- 18..54..50 Th 65.5
y 19.. 10.. 12.5

" — 8t - " - M.T.C- 19-57..30 Th- 68
y 20..24..31

" — 9 — " M.T.C- 18..26..50 Th- 65.3
y 19.. 05.. 13

July- 18 — " M.T.C- 19..43..00 Th- 82
y 25 4.16 17.. 15.7

" 23 — " M.T.C- 20..00..0 Th- 66 Run down
y — 4..00..0.5

Aug t 1- " M.T.C — 20..10..45.0 Ther. 70
y — 21..23.. 29.0

" 13 PM- M.T.C- 5..04..35.0 — E.C- 14..36..10
y 8..47..50.5 — y - 8..50..50.5

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1856phae.proj..146

1855
Aug. 13/14

E.C. — 5..38..0
2557 — 5..38..14.2

5..38..0
48.21
5..37..11.79
5..38..14.2
2557 + 1..2.41

E.C. fast + 48.21
M.T.C 20..9..50 — 20..12..45
2557 — 5..41..10.0 — 5..44..05.5

5..41..10.6
1..02.41
29..40..07.59
9..26..12.59
20..13..55.00
19..56..43.41
12..57.87
54.85
20..10..36.13
20..10..50.00
46.13
16
1..02.13
10ᵗʰ 58.78
4/3.35/0.84
32
15

9..25..25.85
46.74
9..26..12.59

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1 — 8 „ 31 „ 18.0
8.6.- 13 „ 23 „ 30.0
— 48.51
13 „ 22 „ 41. 49
9 „ 30 „ 9. 14
3 „ 52 „ 32. 35
2 „ 59 „ 30.51
51 „ 51.48
31.91
.95
3 „ 51 „ 54.25
4 „ 44 „ 30.6
8 „ 36 „ 24.85
8 „ 31 „ 18.00 — 5 „ 6, 85

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1856phae.proj..146

1855 E.C fast +48ˢ.51 EC − 13ˢ.23ˢ.30 − M.T.G − 3ˢ.53ˢ.0

Aug. 14ᵗʰ PM − 1 — 8ˢ.31ˢ.18.0 1 — 8ˢ.33ˢ.10.0

2	9ˢ. 06ˢ.00	1	9ˢ.02ˢ.30	1	8ˢ.58ˢ.00	1	8ˢ.53ˢ.30
	4ˢ.26ˢ. 9.7	9	8ˢ.56ˢ.31.2	16	9ˢ. 2ˢ. 4.0	23	8ˢ.51ˢ.21.0
	4ˢ.39ˢ.50.3		− 5ˢ.58.8		+ 4ˢ.4.0		− 2ˢ. 9.0
	5ˢ. 6.8		− 5ˢ. 6.8		− 5ˢ.6.8		− 5ˢ. 6.8
	4ˢ.44ˢ.57.1		− 11ˢ. 5.6		− 1ˢ.2.8		− 7ˢ.15.8
1	9ˢ. 06ˢ.30	1	9ˢ. 03ˢ.00	1	8ˢ. 58ˢ.30	1	8ˢ. 54ˢ.00
3	8ˢ. 55ˢ.54.0	10	8ˢ. 58ˢ. 15.0	17	8ˢ. 58ˢ. 38.8	24	8ˢ. 57ˢ. 42.6
	− 10ˢ.36.0		− 4ˢ.45.0		+ 0ˢ. 8.8		+ 3ˢ. 42.6
	− 5ˢ. 6.8		− 5ˢ. 6.8		− 5ˢ. 6.8		− 5ˢ. 6.8
	− 15ˢ.42.8		− 9ˢ. 51.8		− 4ˢ.58.0		− 1ˢ.24.2
1	9ˢ. 07ˢ.00	1	9ˢ. 03ˢ.30.0	1	8ˢ. 59ˢ. 00	1	8ˢ. 54ˢ.30
4	8ˢ. 52ˢ. 11.0	11	8ˢ. 58ˢ. 45.0	18	8ˢ. 47ˢ. 36.4	25	8ˢ. 49ˢ. 52.2
	− 14ˢ.49.0		− 4ˢ.45.0		− 11ˢ. 23.6		− 4ˢ. 37.8
	− 5ˢ. 6.8		− 5ˢ. 6.8		− 5ˢ. 6.8		− 5ˢ. 6.8
	− 19ˢ.55.8		− 9ˢ. 51.8		− 16ˢ. 30.4		− 9ˢ. 44.6
1	9ˢ. 07ˢ.30	1	9ˢ. 04ˢ.00	1	8ˢ. 59ˢ.30	1	8ˢ. 38ˢ.00
5	9ˢ. 11ˢ. 32.8	12	8ˢ. 57ˢ. 30.5	19	8ˢ. 57ˢ 54.6	26	9ˢ. 20ˢ. 00.4
	+ 4ˢ. 2.8		− 6ˢ.29.5		− 1ˢ.35.4		+ 42ˢ. 0.4
	− 5ˢ. 6.8		− 5ˢ. 6.8		− 5ˢ. 6.8		− 5ˢ. 6.8
	− 1ˢ. 4.0		− 11ˢ. 36.3		− 6ˢ. 42.2		+ 36ˢ.53.6
1	9ˢ. 08ˢ.00	1	9ˢ. 04ˢ.30	1	8ˢ. 52.00	1	8ˢ.38ˢ.30
6	9ˢ. 3ˢ.40.0	13	9ˢ. 4ˢ. 9.9	20	8ˢ. 58 54.8	27	8ˢ. 37ˢ. 58.7
	− 4ˢ.20.0		− 0ˢ.20.1		+ 6ˢ.54.8		− 0ˢ. 31.3
	− 5ˢ. 6.8		− 5ˢ. 6.8		− 5ˢ. 6.8		− 5ˢ. 6.8
	− 9ˢ.26.8		− 5ˢ.26.9		+ 1ˢ. 4.0		− 5ˢ. 38.1
1	9ˢ. 08ˢ.30	1	8ˢ. 57ˢ.00	1	8ˢ. 52. 40 30	1	8ˢ. 39ˢ.00
7	9ˢ. 14ˢ.12.2	14	8ˢ. 56ˢ. 31.4	21	8ˢ. 53ˢ. 22.4	28	8ˢ. 37ˢ. 11.5
	+ 5ˢ.42.2		− 0ˢ. 28.6		+ 3ˢ. 22.4 2 52.4		− 1ˢ. 48.5
	− 5ˢ. 6.8		− 5ˢ. 6.8		− 5ˢ. 6.8		− 5ˢ. 6.8
	+ 0ˢ. 35.4		− 5ˢ. 35.4		− 1ˢ. 44.4 2 4 4		− 6ˢ. 55.3
1	9ˢ. 07ˢ.00	1	8ˢ. 57ˢ. 30	1	8ˢ. 53.00	1	8ˢ. 39ˢ. 30
8	8ˢ. 53ˢ. 43.2	15	8ˢ. 59ˢ. 17.0	22	8ˢ. 51ˢ. 12.5	29	8ˢ. 43ˢ. 39.4
	− 8ˢ. 16.8		+ 1ˢ. 47.0		− 1ˢ. 47.5		+ 4ˢ. 9.4
	− 5ˢ. 6.8		− 5ˢ. 6.8		− 5ˢ. 6.8		− 5ˢ. 6.8
	− 13ˢ. 23.6		− 3ˢ. 19.8		− 6ˢ. 54.3		− 0ˢ. 57.4

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1	8h 37m 00.0	1	8h 49m 30.0	1	8h 44m 00
30	8h 42m 59.0	37	8h 52m 45.2	A	13h 30m 41.7
	+ 5m 59.0		+ 3m 15.2		
	− 5m 6.8		− 5m 6.8		
	+ 0m 52.2		− 1m 57.6		
1	8h 40m 00	1	8h 50m 00	1	8h 44m 30
31	8h 54m 39.5	38	8h 52m 51.2	D	13h 34m 6
	+ 14m 39.5		+ 2m 51.2		
	− 5m 6.8		− 5m 6.8		
	+ 9m 32.7		− 2m 15.6		
1	8h 40m 30	1	8h 43m 30	1	8h 45m 00
32	8h 46m 7.7	39	8h 47m 46.7	X	6h 31m 51.3
	+ 5m 37.7		+ 4m 16.7		
	− 5m 6.8		− 5m 6.8		
	+ 0m 30.9		− 0m 50.1		
1	8h 47m 30	1	8h 36m 00	1	8h 45m 30
33	8h 58m 4.3	2	11h 30m 1.4	y	8h 00m 15.7
	+ 10m 34.3		+2h 54m 1.4		
	− 5m 6.8		− 5m 6.8		
	+ 5m 27.5		+2h 48m 54.6		
1	8h 48m 00		4h 44m 30.6		
34	8h 57m 27.4		+3h 33m 25.2		
	+ 9m 27.4		3h 56m 36.2		
	− 5m 6.8				
	+ 4m 20.6				
1	8h 48m 30				
35	8h 55m 13.3				
	+ 6m 43.3				
	− 5m 6.8				
	+ 1m 36.5				
1	8h 49m 00				
36	8h 47m 44.0				
	− 1m 16.0				
	− 5m 6.8				
	− 6m 22.8				

Comparison of Aneroids

No 68	30m 136 − 76
13,610	30.227 − 76
11.835	30.248 −

45 Chronometers in 8 Boxes taken in Carriages to the Ship Africa - left at 4h 50m.

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Sid. Chronometer No 3585.

1855.

			Ther
Augst 4^h	Am — with EC	— 0.0	
"	Pk — 7^{hrs} Slow of EC	— 0.3	80°
5^h	Am — "	— " — 0.4	
6	— " —	" — " — 1.0	
"	— Pk —	" — " — 1.2	78
10	— Am —	" — " — 4.1	— 74.9
"	— Pk —	" — " — 4.4	80.0
11	— Am —	" — " — 5.3	— 66.2
12	— " —	" — " — 7.2	

The 13th Am Richards compares

EC	5.22.00
3585	5.28.52.2
	5.22.00
	46.4
Camb. Sid	5.21.13.6
	5.28.52.2
	39.1

Chron. losing on E.C. 4^h to 5 — 0^s.4
6 — 0.6
10 — 0.8
11 — 1.2
12 — 1.9

4 9) 0.61
+0.84
+.14

EC aug^t 4 fast. 39.6 +
10 " — 44.3 + 0.74
13 — " — 47.2 + 0.97
15 — " — 48.8 + 0.80

11) 9.2
0.84

46.2
7.2
39 0

No 3585:
Aug^t $\frac{11}{12}$ — 17th fast. 39^s.0 gaining +.14

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Ang^r - 15^h - Pll

E6 — 18..49..0
1678 — 9..12..39.2

18..49..0.0
49.4
18.48.10.6
9..34..05.70
9..14..04.90
8..58..31.53
13..57.71
3.99
.90
mtc 9..12.34.13
1678 : 9..12..39.2
5.07
16
−10.93

E.6. fast 49.4
MTC — 9..2..0
1678 — 9..2..52.5

9..33..18.96
46.74
9..34.05.70 mtc

9..2..52.5
10.93
9..3.03.43
9..2..00..0
− 1.03.43

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Aug. 17/18

E.C. - 5 " 33 0
2557 - 5 " 33 20.7
+ 20.7
E.C fast + 51.75
2557 " 1.12.45

E.C. fast 57.75

M.T.C - 19 " 52 " 48. - 19 " 55 . 50
2557 - 5 " 40 " 5. - 5 " 43 " 7.5
1 " 12.45
5 " 38 " 52.55
9 " 41 " 58.81
19 " 56 53.74
18 " 56 " 53.24
55 " 50.82
52.86
.74
M.S.T. 19 " 53 " 37.66
M.S.C. 19 " 52 " 48.
- 49.66
16.
- 1 " 5.66

Aug 20/21
EC - 4 " 42 " 0
2557 - 4 " 42 " 24.5

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Ang $\frac{24}{29}$

Ecart 62.69

EC 5.34.0.0
2557 5.34.34.75
5.34.0.0
1.2.69
5.32.57.31
5.34.34.75
2557 +1.37.44

MtC 19.07.25
2557 5.38.29
5.34.29
1.37.44
29.36.51.56
10.25.20.92
19.11.30.64
18.56.53.23
10.54.20
29.97
64
19.08.21.99
19.07.25.00
56.99
16
1;12.99
1.05.66
11) 7.33 (0.67)

10.24.34.18
46.74
10.25.20.92

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Errors of Chronometers on Greenwich m.S.T.

No. of Chronom.	May 30/31 at 0h 36m	June 4/5 at 10h 45m before sailing	June 14½ 17/20 30m at 14h 30m arrival at Liverp.	July 20 at 2h 30m before sailing	Aug. 3/4 at 2h 10m arrival at Camb.	Aug. 14 at 8h 45m before sailing
1	− 3m 6.2	− 3m 16.3	− 3m 44.5	− 4m 39.5	− 4m 59.2	− 5m 6.8
2	− 2m 35.8	− 2m 34.3	− 2m 35.1	+ 20m 58.6	+ 21m 15.7	
3	− 6m 22.3	− 6m 58.3	− 8m 45.9	− 12m 27.0	− 14m 13.4	− 15m 42.8
4	− 6m 3.8	− 7m 1.6	− 9m 52.0	− 15m 26.8	− 18m 3.2	− 19m 55.8
5	− 0m 18.0	− 0m 27.6	− 0m 52.6	− 1m 1.9	− 1m 6.4	− 1m 4.0
6	− 8m 30.5	− 8m 38.8	− 9m 6.7	− 9m 22.2	− 9m 25.9	− 9m 26.8
7	− 0m 33.2	− 0m 28.3	− 0m 17.6	+ 0m 1.4	+ 0m 26.2	+ 0m 35.4
8	− 4m 55.9	− 5m 29.3	− 7m 7.1	− 10m 35.8	− 12m 14.5	− 13m 23.6
9	− 5m 59.1	− 6m 26.5	− 7m 26.8	− 9m 30.0	− 10m 24.2	− 11m 5.6
10	− 4m 40.8	− 5m 1.5	− 5m 58.1	− 7m 49.7	− 8m 37.3	− 9m 51.6 ×
11	− 4m 51.5	− 5m 10.1	− 5m 56.6	− 7m 34.7	− 8m 18.3	− 9m 51.8 ×
12	− 4m 1.0	− 4m 26.3	− 5m 45.6	− 8m 28.7	− 9m 53.9	− 11m 36.3 ×
13	− 3m 22.3	− 3m 33.3	− 4m 4.2	− 4m 54.1	− 5m 12.0	− 5m 26.9
14	− 2m 34.0	− 2m 40.5	− 3m 10.1	− 4m 36.0	− 5m 13.4	− 5m 35.4
15	− 1m 8.8	− 1m 14.9	− 1m 37.6	− 2m 32.7	− 2m 59.2	− 3m 19.8
16	− 3m 33.3	− 3m 31.3	− 3m 19.9	− 2m 32.2	− 1m 38.4	− 1m 2.8
17	− 2m 39.7	− 2m 52.8	− 3m 28.3	− 4m 26.2	− 4m 44.6	− 4m 58.0
18	− 6m 27.5	− 7m 8.5	− 9m 8.0	− 13m 15.5	− 15m 6.8	− 16m 30.4
19	− 3m 27.6	− 3m 43.5	− 4m 34.4	− 5m 56.3	− 6m 24.2	− 6m 42.2
20	− 2m 9.9	− 2m 9.6	− 1m 56.0	− 0m 38.5	+ 0m 33.6	+ 1m 28.0
21	− 3m 1.0	− 3m 7.1	− 3m 20.0	− 2m 56.1	− 2m 34.6	− 2m 14.4
22	− 9m 48.7	− 4m 6.0	− 4m 58.5	− 6m 12.3	− 6m 38.5	− 6m 54.9
23	− 2m 34.0	− 3m 8.2	− 4m 15.2	− 6m 23.9	− 7m 1.4	− 7m 15.8
24	− 4m 25.8	− 4m 23.8	− 4m 8.8	− 2m 57.2	− 2m 4.4	− 1m 24.2
25	− 6m 2.2	− 6m 21.4	− 7m 21.9	− 8m 47.1	− 9m 22.5	− 9m 44.6
26	+ 36m 6.5	+ 36m 6.9	+ 36m 7.8	+ 36m 34.3	+ 36m 44.1	+ 36m 53.6
27	− 2m 6.5	− 2m 23.4	− 3m 13.3	− 4m 34.2	− 5m 12.3	− 5m 38.1
28	− 2m 50.3	− 3m 14.2	− 4m 25.6	− 5m 53.0	− 6m 31.5	− 6m 55.3
29	− 0m 17.7	− 0m 22.9	− 0m 40.6	− 0m 52.4	− 0m 50.7	− 0m 57.4
30	+ 0m 7.0	+ 0m 1.9	− 0m 20.8	+ 0m 8.3	+ 0m 34.2	+ 0m 52.2
31	− 1m 46m 56.1	− 1m 47m 10.2	− 1m 47m 55.4	− 1m 49m 23.7	− 1m 49m 59.6	+ 1m 50m 27.3
32	+ 0m 0m 45.6	+ 0m 42.7	+ 0m 29.7	+ 0m 35.5	+ 0m 35.2	+ 0m 30.9
33	+ 2m 36.6	+ 2m 48.8	+ 9m 28.3	+ 4m 32.5	+ 5m 15.6	+ 5m 27.5
34	− 0m 30.0	− 0m 23.8	+ 0m 9.9	+ 2m 19.1	+ 3m 25.9	+ 4m 20.6

× 10-11-12 losing violently!
× 20 is gaining &c.

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35	$+0^m.46^s.5^{-2}$	$+0^m.44^s.7^{0}$	$+0^m.39^s.1^{-.9}$	$+0.58.0^{-1}$	$+1.18.7^{-2}_{+1}$	$+1.36.5^{-6}$
36	$-3.56.3^{-1}$	$=4.9.9^{-1}$	$-4.51.6$	$-5.51.4^{+2}_{+5}$	$-6.17.5^{-}_{+4}$	$-6.22.8^{+2}$
37		$-$		$+0.4.2$	$-1.6.8$	$-1.51.6^{+1.6}$
38				$-0.33.8^{+4}$	$-1.38.9^{+4}$	$-2.15.6^{+1.3}$
39				$-0.6.5^{+2}_{-3}$	$-0.35.3^{+2}$	$-0.50.1^{+.5}$
☌	$-5.2.3^{+6}$ *	$-5.9.6$ +	$-5.14.4^{0}_{-1}$ ≠	$-4.51.9$ §	$-4.41.4$ ※	$-4.44.1^{+2}$ b
☍	$-2.42.3^{+16}$ *	$-2.50.3$ +	$-3.7.0$ ≠	$-2.47.3$ §	$-2.23.1$ ※	$-1.49.7^{-1.8}$ b
☿	$+2.6.21.8$	$+2.12.7.4$	$+2.29.6.3$	$+2.38.13.8$	$+2.44.22.4$	$+2.48.54.6$
	* On Cambr. Sid. time at 11^h (S.S.) May 31	+ at 0^h S.S. June 4/5	≠ at 20^h S.S. June 17/20	§ at $5^h 45^m$ S.S. July 20	※ at $6^h 30^m$ Aug. 2/3	b at 13^h Aug. 14

	Obs. Camb. by sol.	Less of Camb. by				
	if sol. outward passage	homeward passage		outward passage	homeward passage
Aa	1 $4^h.42^m.29^s.83$	$4.44.30.32$	21	$4.44.40.35$	$4.44.52.10$
	2 $4.44.35.90$	Replaced	22	$4.44.39.80$	$4.44.41.50$
	3 $4.44.30.60$	$4.44.14.75$	23	$4.44.15.30$	$4.44.28.35$
	4 $4.44.31.60$	$4.44.19.85$	24	$4.44.30.75$	$4.44.27.60$
	5 $4.44.38.95$	$4.44.34.65$	25	$4.44.35.25$	$4.44.28.20$
	6 $4.44.43.65$	$4.44.31.90$	26	$4.44.37.05$	$4.44.44.50$
	7 $4.44.31.90$	$4.44.16.35$	27	$4.44.33.25$	$4.44.29.25$
	8 $4.44.26.10$	$4.44.25.35$	28	$4.44.44.40$	$4.44.29.50$
X	9 $4.44.19.05$	$4.44.23.00$	29	$4.44.37.65$	$4.44.20.95$
	10 $4.44.28.10$	$4.43.54.50$	30	$4.44.52.70$	$4.44.25.25$
	11 $4.44.24.75$	$4.43.39.55$	31	$4.44.32.60$	$4.44.23.75$
	12 $4.44.31.15$	$4.43.58.35$	32	$4.44.39.30$	$4.44.29.35$
	13 $4.44.32.55$	$4.44.24.95$	33	$4.44.25.45$	$4.44.13.40$
	14 $4.44.29.00$	$4.44.30.05$	34	$4.44.38.90$	$4.44.37.00$
	15 $4.44.30.35$	$4.44.27.85$	35	$4.44.36.15$	$4.44.27.90$
	16 $4.44.34.20$	$4.44.14.95$	36	$4.44.35.90$	$4.44.37.80$
	17 $4.44.32.20$	$4.44.24.70$	37		$4.44.34.40$
	18 $4.44.26.80$	$4.44.17.40$	38		$4.44.40.65$
	19 $4.44.36.25$	$4.44.24.60$	39		$4.44.37.20$
	20 $4.44.20.15$	$4.44.33.60$	☌	$4.44.33.90$	$4.44.27.45$
			☍	$4.44.40.25$	$4.44.19.60$

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1855
Aug 24 Pm

EC — 15 .. 22 .. 00
2557 — 15 .. 22 .. 29.3
15 . 22 . 0
58.06
15 . 21 . 01.94
15 . 22 . 29.3
2557. + 1 . 27 . 36

E.C. fast 58.06

M.T.C — 5 .. 22 .. 30 — 5 .. 25 .. 30
2557 — 15 .. 35 .. 20 — 15 .. 38 .. 20.5
15 .. 35 .. 20
1 .. 27.36
15 .. 33 . 52.64
10 .. 09 .. 34.70
5 .. 24 .. 17.94
4 .. 59 .. 10.85
23 .. 56.07
16.95
.94
5 . 23 . 24.81
5 . 22 . 30.60
— 54.81
— 16
M.T.C slow 1 . 10.81
18 1 .. 06.08
6) 4.73 (0.79 rate losing
42
53

10 .. 8 .. 47.96
46.74
10 . 9 .. 34.70

24h at 5.30 Pm

1855. Aug 31 / 32

EC — 5 .. 11 .. 0
2557 — 5 . 11 .. 37.2
5 . 11 .. 0
1 . 6.81
5 . 09 . 53.19
5 . 11 .. 37.2
1 .. 44.01
1 .. 27.36

EC — 5 .. 53 . 0 . 0
2557 — 5 .. 53 .. 37.25
5 . 53 .. 0 . 0
1 . 6.81
5 . 51 . 53.19
5 . 53 . 37.25
2557 fast 1 . 44.06

EC fast 1 .. 06.81 m

M.T.C — 18 .. 34 .. 52 — 18 . 34 .. 40
2557 — 5 .. 14 .. 44.5 — 5 .. 17 .. 35
5 .. 14 .. 44.5
1 .. 44.01
29 . 13 . 00.49
10 .. 37 .. 10.58
18 . 35 . 49.91
17 .. 57 .. 03.07
36 .. 54.26
48.87
.91
18 . 32 . 47.11
18 .. 31 .. 50
57.11
1.16
1 . 13.11
1 .. 10.81
24 .. 2.30

10 . 36 . 23.84
46.74
10 . 37 .. 10.58

25h — 1 .. 11.6

1 — 1 . 13.11
1.15.92
3) 2.81 (0.94
27
11
1 .. 13.5

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1855

Sept. 2/3

EC – 5.44.00 m.t.c – 18..56..40
2557 – 5.46.40.15 2557 – 5..47..38.5

Sept. 4th – P.M. EC Fast 1..11.05

EC – 18..46..0
2557 – 18..46..41.5
18 46..00
1..11.05
18..44..48.95
18..46..41.5
2557 fast 1..52.55

M.T.C – 7..58..15
2557 – 18..55..23
18..55..23
1..52.55
18..53..30.45
10..52..56.80
8..00..33.65

7..58..41.36
32.91
.65
7.59..14.92
7..58..15
..59.92
16
mt ℄ slow 01..15.92
1 – .. – 1..13.5
3) 02.4 (0.80

EC – 18..57..0
2557 – 18..57..41.5
10..52..10.06
46.74
10.52.56.80

1..15.92
1..14.51
3) 2 59 (86

9th P.M. m.t.c slow 1..18.57 . Rate 86
44
8th A.M. 1..18.95
~~11. A.M.~~ ~~1 19 60~~
~~465 0.33 Rate of~~

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Errors of Chronometers on Greenwich M.S.T.

Chron.	May 31 at noon Greenwich	June 5 at noon Greenwich	June 20 at noon Greenwich	July 20 at noon Greenwich	Aug 4 at noon Greenwich	Aug 18 at noon Greenwich
1	− 3m 6.2	− 3m 16.4	− 3 45.3	− 4 39.4	− 4 59.1	− 5 6.6
2	− 2 36.0	− 2 34.3	− 2 35.1			
3	− 6 22.4	− 6 58.7	− 8 48.9	−12 26.3	−14 12.7	−15 39.6
4	− 6 8.9	− 7 2.2	− 9 56.6	−15 25.7	−18 2.2	−19 52.4
5	− 0 18.2	− 0 27.7	− 0 53.1	− 1 1.9	− 1 7.3	− 1 4.9
6	− 8 30.6	− 8 35.9	− 9 7.3	− 9 22.2	− 9 25.9	− 9 26.8
7	− 0 33.4	− 0 28.3	− 0 17.3	+ 0 1.3	+ 0 26.1	+ 0 35.1
8	− 4 56.0	− 5 29.6	− 7 9.8	−10 35.1	−12 13.9	−13 21.2
9	− 5 59.2	− 6 26.7	− 7 28.4	− 9 29.6	−10 23.8	−11 4.1
10	− 4 40.9	− 5 1.7	− 5 59.6	− 7 49.4	− 8 36.8	− 9 49.1 ×
11	− 4 51.7	− 5 10.3	− 5 57.9	− 7 34.4	− 8 17.8	− 9 26.5 ×
12	− 4 1.1	− 4 26.6	− 5 47.8	− 8 28.1	− 9 53.2	−11 32.7 ×
13	− 3 22.5	− 3 33.4	− 4 5.0	− 4 54.0	− 5 11.9	− 5 26.4
14	− 2 34.2	− 2 40.6	− 3 11.0	− 4 35.8	− 5 18.2	− 5 34.6
15	− 1 9.0	− 1 15.0	− 1 38.3	− 2 32.5	− 2 59.0	− 3 19.0
16	− 3 33.5	− 3 31.3	− 3 19.5	− 2 32.5	− 1 38.7	− 1 4.1
17	− 2 39.8	− 2 52.9	− 3 29.2	− 4 26.1	− 4 44.5	− 4 57.5
18	− 6 27.5	− 7 8.9	− 9 11.8	−13 14.7	−15 6.1	−16 27.4
19	− 3 27.7	− 3 43.7	− 4 35.7	− 5 56.1	− 6 24.0	− 6 41.5
20	− 2 10.1	− 2 9.6	− 1 55.4	− 0 38.9	+ 0 33.0	+ 1 45.4
21	− 3 1.2	− 3 7.2	− 3 20.1	− 2 56.2	− 2 34.8	− 2 15.1
22	− 3 48.8	− 4 6.2	− 4 59.8	− 6 12.1	− 6 38.3	− 6 53.7
23	− 2 34.1	− 3 6.5	− 4 17.0	− 6 23.6	− 7 1.2	− 7 15.3
24	− 4 25.5	− 4 23.8	− 4 8.2	− 2 57.5	− 2 4.7	− 1 25.6
25	− 6 2.3	− 6 21.6	− 7 23.4	− 8 46.9	− 9 22.3	− 9 43.8
26	+ 36 6.3	+ 36 6.9	+ 36 7.9	+ 36 8.2	+ 36 8.0	+ 36 8.3
27	− 2 6.6	− 2 23.6	− 3 14.6	− 4 33.9	− 5 12.1	− 5 37.2
28	− 2 50.4	− 3 14.5	− 4 27.3	− 5 52.7	− 6 31.3	− 6 54.5
29	− 0 17.9	− 0 23.0	− 0 41.0	− 0 52.4	− 0 50.7	− 0 57.2
30	+ 0 6.8	+ 0 1.4	− 0 21.1	+ 0 8.2	+ 0 34.0	+ 0 51.5
31	−1 46 56.2	−1 47 10.3	−1 47 56.6	−1 49 23.4	−1 49 59.4	−1 50 26.3
32	+ 0 45.4	+ 0 42.6	+ 0 29.5	+ 0 35.5	+ 0 35.2	+ 0 31.0
33	+ 2 36.5	+ 2 48.9	+ 3 29.3	+ 4 32.2	+ 5 15.4	+ 5 27.1
34	− 0 30.2	− 0 23.7	+ 0 11.1	+ 2 18.7	+ 3 25.5	+ 4 18.6

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35	+ 0m 46.3	+ 0s 44.7	+ 0 39.1	+ 0 57.4	+ 1 18.5	+ 1 35.9
36	− 3 56.4	− 4 10.0	− 4 52.5	− 5 51.2	− 6 17.4	− 6 22.6
37				+ 0 4.7	− 1 6.4	− 1 50.0
38				− 0 33.4	− 1 38.5	− 2 14.3
39				− 0 6.3	− 0 35.1	− 0 49.6
☌	− 5 1.7	− 5 9.6	− 5 14.4	− 4 52.2	− 4 40.9	− 4 43.9
☉	− 2 41.5	− 2 50.3	− 3 7.1	− 2 48.0	− 2 21.3	− 1 47.9
	0h May 30/31	0h June 4/5	0h June 19/20	0h July 19/20	0h Aug. 3/4	
	Camb. Sid. Time	Cam. S. T.	Cam. S. T.	Cam. S. T.	Cam. S. T.	

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Sept. 10/11 Am

E.b. fast 1.. 18. 41

E.b. – 5.. 54.. 00.0
2557 – 5.. 54.. 57.6

5.54.00.0
1.18.41
5.52.41.59
5.52.57.66
2 16.01

M.J.C – 18. 38. 50 — 18,, 41 ,, 40
2557 – 6 .01,, 45 — 6 .04 . 35.5

6.01.45.0
2.10.07
29.59.34.99
11.16.36.12
18.42.58.87
17.57.03.07
41.53.12
57.84
67
18.39.54.90
18.38.50
1.04.90
16
M.J.C Slow, B-1 ,, 20.9
1.. 18.95
3) 1.95 / 0.65

11.. 15.49.38
46.74
11.. 1636.12

Am

22.55
27.22
4.27

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1856phae.proj...140B

1853 Sept 11/12

E. b. Fast.

J.F.Fl

E-b- 8..39..0 W.C.B. — 8..40..0.0 Ec — 8..41..0

2557- 8..39..53.65 — 8..40..53.7 2557- 8..41..53.7

J.F.F.

M.T.C- 21..20..45 — 21..23..45 M76- 21..35.57.0 -21..34..57

2557-20/8..48..07 — 8..51 07.5 2557- 9.. 3..21.5 9..6..22

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1856phae.proj..146B

1855 Sept. 12 P.M.

	E.C.	14 „ 23 „ 50	—	14 „ 26 „ 15
1 —	140	7 „ 36 „ 36.5	—	7 „ 39 „ 1.0

M.T.C	3 „ 01 „ 00	—	3 „ 02 „ 00
140	7 „ 41 „ 10.3	—	7 „ 42 „ 10.3

E.C	14 „ 38 „ 40	—	14 „ 41 „ 30
140	7 „ 51 „ 24.0	—	7 „ 54 „ 13.5

12 „ 41 „ 30
1 „ 19.8
14 „ 40 „ 10.2
11 „ 24 „ 29.21
3 „ 15 „ 40.97
2 „ 59 „ 30.51
14 „ 57.54
40.88
Cam. M.S.T. 3 „ 15 „ 8.93
4 „ 14 „ 30.6
Green. M.S.T. 7 „ 59 „ 39.53
1/140 7 „ 54 „ 13.5
— 5 „ 26.03

11 „ 23 „ 42.49
46.74
11 „ 24 „ 29.23

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1956phae.proj..140B

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1856phae.proj..146B

1855. Sept. 12. 3.30 PM Run by Africa Capt. Harrison.

1	8.19.00	1	8.23.30	1	8.28.0	1	8.32.30
2	3.41.17.4	10	8.14.59.7	18	8.13.39.0	26	9.15.7.3
	−4 37 42.6	1	− 8 3.9		− 14.21.0		+ 42.37.3
	− 5.26.0		− 5.26.		− 5.26.		− 5.26.
−1.3	−4.43.8.6	+2.7	− 13.29.3	+2.5	−19.47.0	−2	+ 37.11.3
1	8.19.30.0	1	8.24.30.0	1	8.28.30.0	1	8.34.00
3	8.05.33.3	11	8.15.17.2	19	8.26.37.7	27	8.32.36.5
	− 13.56.7		− 9.12.8		− 1.52.3		− 1.23.5
	− 5.26.		− 5.26		− 5.26.		− 5.26.
+2.7	− 19.22.7	+3.3	− 14.38.8	+.3	− 7.18.3	+8	− 6.49.5
1	8.20.0	1	8.25.0.0	1	8.29.0.0	1	8.34.30.0
4	8.0.30.0	12	8.13.50.8	20	8.42.13.3	28	8.32.2.3
	− 19.30.0		− 11.9.2		+ 13.18.3		− 2.29.7
	− 5.26		− 5.26		− 5.26.		− 5.26.
+3.5	− 24.56.0	+3.5	− 16.35.2	−4.5	+ 7.47.9	+5	− 7.33.7
1	8.21.0.0	1	8.25.30.0	1	8.30.30.	1	8.35.0.0
5	8.25.31.8	13	8.25.20.7	21	8.35.25.1	29	8.38.36.0
	+ 4.31.8		− 9.1.9		+ 5.25.1		+ 3.36.0
	− 5.26.		− 5.26.		− 5.26.		− 5.26.
−.4	− .54.2	+.1	− 5.35.3	−.3	− 0.0.9	+1.0	− 1.50.0
1	8.21.30.0	1	8.26.0.0	1	8.30.30.0	1	8.35.30.0
6	8.17.38.0	14	8.26.49.5	22	8.28.26.0	30	8.43.7.6
	− 3.52.0		− 1.10.5		− 2.4.0		+ 7.37.6
	− 5.26.	+.7	− 5.26.	+.3	− 5.26.	−1.1	− 5.26.
−.1	− 9.18.0		− 6.36.5		− 7.30.0		+ 2.11.6
1	8.22.0.0	1	8.26.30	1	8.31.0.0	1	8.36.0.0
7	8.28.53.0	15	8.27.43.7	23	8.29.10.0	31	6.50.7.0
	+ 6.53.0		+ 1.13.7		− 1.50.0		−1.45.53.0
	− 5.26.		− 5.26.		− 5.26.		− 5.26.
−.4	+ 1.27.0	+.6	− 4.12.3	+.6	− 7.16.0	+.5	− 1.51.19.0
1	8.22.30.0	1	8.27.0.0	1	8.31.30.0	1	8.36.30.0
8	8.11.25.0	16	8.33.44.2	24	8.37.52.0	32	8.42.17.8
	− 11.5.0		+ 6.44.2		+ 6.22.0		+ 5.47.4
	− 5.26		− 5.26		− 5.26.		− 5.26.
+2.1	− 16.31.0	−1.8	+ 1.18.2	−1.7	+ 56.0	9	+ 21.8
1	8.23.0.0	1	8.27.30.0	1	8.32.0.0	1	8.37.0.0
9	8.15.36.6	17	8.27.3.8	25	8.26.41.0	33	8.49.10.0
	− 7 23.4		− 26.2		− 5.19.0		+ 12.10.0
	− 5.26.		− 5.26.		− 5.26.		− 5.26.
+1.2	− 12.49.4	+.2	− 5.32.2	+.6	− 10.45.0	−.9	+ 6.44.0

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1	8.37.30.0		1	8.38.0.0		1	8.40.0.0		1	8.40.30.0		1	8.42.00		
34	8.50 05.6		35	8.46.6.0		36	8.38.59.5		37	8.41.59.0		38	8.43 27.2		
	+12.35.6			+ 8.6.0			- 1.0.5			+ 1.29.0			+ 1.27.2		
	- 5.26.			- 5.26.			- 5.26.			- 5.26			- 5.26.		
-2.4	+ 7.9.6		-.4	+ 2.40.0		0	- 6.26.5		+1.3	- 3.57.0		+1.1	- 3.58.8		
1	8 42.30		1	8.45.30		1	8.46.0.0		1	8.46.30.0		1	8.48.0.6		
39	8.49 39.6		40	8.50.30		41	8.51.0.2		42	8.51,56.5		43	8.53.18.1		
	+ 6.36.0			+ 5.0.0			+ 5.0.2			+ 5.26.5			+ 5.18.1		
?	- 5.26.		?	- 5.26			- 5.26.			- 5.26			- 5.26.		
	+ 0.10.0			- 26.0		+.6	- 25.4		0	+ 0.0.5		+.4	- 7.9		
1	8.50.0.0		1	8.54.0.0		1	8.57.30.0		1	8.52.00		1	8.53.0.0		
44	8.55.41.0		44	11.19.17.0		x	12.27.46.0		y	2.00 12.0		Z	12.00.19.2		
	+ 5.41.0			- 1									+3.07.19.2		
-6	- 5.26.												- 5.26.0		
	+ 15.0												+3.1.53.2		
													4.44.30.6		
39			1	8.44.30.0					1	8.49.0.0			+7.46.23.8		
			39	8.49.24.7					45	8.54.52.4					
				+ 4.54.7						+ 5.52.4					
				- 5.26.						- 5.26.0			8.47.34.		
			?	- 31.3					-7	+ 26.4			- 4.3.3.4		

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1855. Sept- 13/14 Am E.C. fast 1..21.21

E6 – 7..16..0 M.J.6-19.45..40 E6 – 7..17..0
2557 – 7..16..57.8 2557-19..20..47 1678 – 7..44..43

7..16..00.00
1..21.21
7..14..38.79
7..16..57.80
2..19.01
19..20..47.00
19..18..27.99
31..18..27.99
11..28..25.78
19..50..02.21
18..56..53.24
49..37.81
1.99
21
19..46..47.25
19..45..40.00
Slow of Camb 1..07.25
16
.. Boston 1..23.25 13/14 Th
1..20.90 10/11 th
3) 2.35
Losing Daily 0.78

Sept. 14/15. 8..15 Am
Them in west Basement
2 – 65.0
4 – 65.0
5 – 65.0
10 – 64.5
6 – 65.0 outside
7 – 65.0

N01 – 1..6..0
43 – 1..11..14.3

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1855 Sept. 14/15 m. Q.86. 0 9.5.5

1	2 " 2 . 0	1	2 " 6 . 30	1	2 " 10 " 30	1	2 " 14 " 30
24	9 " 24 28.6	10	1 " 57 . 35.1	18	1 " 55 " 47.6	26	2 " 5 7 " 9.2
	− 4 " 37 " 31.4		− 8 " 54.9		− 14 " 42.4		+ 42. 39.2
	− 5 " 25.9		− 5 " 25.9		− 5 " 25.9		− 5 " 25.9
	− 4 " 42 " 57.3		− 14 " 20.8		− 20 " 8.3		+ 37 " 13.3
1	2 " 3	1	2 " 7	1	2 " 11	1	2 " 15
3	1 " 48 " 40.3	11	1 " 57 " 18.2	19	2 " 9 " 57.2	27	2 " 13 " 30.0
	− 14 " 19.7		− 9 " 41.8		− 1 " 54.8		− 1 " 30.0
	− 5 " 25.9		− 5 " 25.9		− 5 " 25.9		− 5 " 25.9
	− 19 " 45.6		− 15 " 7.4		− 7 " 20.7		− 6 " 55.9
1	2 " 3 " 30	1	2 " 7 " 30	1	2 " 11 " 30	1	2 " 15 " 30
4	1 " 48 " 31.5	12	1 " 55 " 51.2	20	2 " 25 " 21.1	28	2 " 12 " 58.1
	− 19 " 58.5		− 11 " 38.8		+ 13 " 51.1		+ 2 " 31.9
	− 5 " 25.9		− 5 " 25.9		− 5 " 25.9		− 5 " 25.9
	− 25 " 24.4		− 17 " 4.7		+ 8 " 25.2		− 7 " 57.8
1	2 " 4 . 0	1	2 " 8	1	2 " 12	1	2 " 16
5	2 " 8 " 34.2	13	2 " 7 " 49.0	21	2 " 17 " 27.6	29	2 " 19 " 27.6
	+ 4 " 34.2		− " 11.0		+ 5 " 27.6		+ 3 " 27.6
	− 5 " 25.9		− 5 " 25.9		− 5 " 25.9		− 5 " 25.9
	− 51.7		− 5 " 36.9		+ 1.7		− 1 " 58.3
1	2 " 4 " 30	1	2 " 8 " 30	1	2 " 12 " 30	1	2 " 17 " 00
6	2 " 0 " 39.4	14	2 " 7 " 13.6	22	2 " 10 " 23.6	30	2 " 24 " 46.6
	− 3 " 50.6		− 1 " 16.4		− 2 " 6.4		+ 7 " 46.6
	− 5 " 25.9		− 5 " 25.9		− 5 " 25.9		− 5 " 25.9
	− 9 " 16.5		− 6 " 42.3		− 7 " 32.3		+ 2 " 20.7
1	2 " 5	1	2 " 9	1	2 " 13	1	2 " 17 " 30
7	2 " 11 " 56.6	15	2 " 10 " 8.8	23	2 " 11 " 5.0	31	17 " 31 " 32.8
	+ 6 " 56.6		+ 1 " 8.8		− 1 " 55.0		− 1 " 45 " 57.2
	− 5 " 25.9		− 5 " 25.9		− 5 " 25.9		− 5 " 25.9
	+ 1 " 30.7		− 4 " 17.1		− 7 " 20.9		− 1 " 51 " 23.1
1	2 " 5 " 30	1	2 " 9 " 30	1	2 " 13 " 30	1	2 " 18
8	1 " 54 " 7.2	16	2 " 16 " 29.5	24	2 " 20 " 8.6	32	2 " 23 " 48.0
	− 11 " 22.8		+ 6 " 59.5		+ 6 " 38.6		+ 5 " 48.0
	− 5 " 25.9		− 5 " 25.9		− 5 " 25.9		− 5 " 25.9
	− 16 " 48.5		+ 1 " 33.6		+ 1 " 12.7		+ 22.1
1	2 " 6	1	2 " 10	1	2 " 14	1	2 " 18 " 30
9	1 " 58 " 26.7	17	2 " 9 " 31.5	25	2 " 8 " 36.2	33	2 " 31 " 48.1
	− 7 " 33.3		− 28.5		− 5 " 23.8		+ 13 " 18.1
	− 5 " 25.9		− 5 " 25.9		− 5 " 25.9		− 5 " 25.9
	− 12 " 59.2		− 5 " 54.4		− 10 " 49.7		+ 7 " 52.2

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1856phae.proj...146B

1	2.19	1	2.23	1	2.27
34	2.31 .55.5	42	2.28 .26.1	y	7.8 .31.0
	+ 12 .55.5		+ 5 .26.1		
	− 5 .25.9		− 5 .25.9		
	+ 7 .29.6		+ 0.2		
1	2.19.30	1	2.28.30	1	2.27.30
35	2.27 .42.2	43	2.28 .44.25	Z	5 .35 .36.2 + 7 .47 .12.9
	+ 8 .12.2		+ 5 .14.25		3 .8 .8.2
	−5 .25.9		−5 .25.9		− 5 .25.9 21.37.33.5
	+ 2 .46.3		− 11.65		3 .2 .42.3
					4 .42.30.6
1	2.20	1	2.24	ε.ℓ	9 .26 .45.20 − 50.75 Err. of ε.ℓ
36	2 .18 59.6	44	2.29 .46.0	ℓ	2 .28 .30 5.5 + 1 .22.5
	− 1 .0.4		+ 5 .46.0		
	−5 .25.9		−5 .25.9		9 .26 .45.20
	− 6 .26.3		+ 20.1		1 .22.5
1	2.20.30	1	2.24 .30		9 .25 .22.70
37	2.21 .47.7	45	2.30 .27.8		11 .32 .22 .32
	+ 1 .17.7		+ 5 .57.8		21 .53 .0 .38
	− 5 .25.9		− 5 .25.9		20 .56 .38.56
	− 4 .6.2		+ 31.9		52 .54.32
					.38
1	2.21	1	2.25		21 .49 .25.24
38	2.22 .18.1	ℓ1	9 .16 .40.6		4 .44 .30.6
	+ 1 .18.1			gr. m. s. T.	2 .33 .55.88
	− 5 .25.9			1	2 .28 .30
	− 4 .7.8				− 5 .25.88
1	2.21.30	1	2.25.30		
39	2.26 .28.8	D	9.24 .18.2		
	+ 4 .58.8				
	− 5 .25.9				
	− 27.1				
1	2.22	1	2.26		
40	2.27 .4.6	U	5 .27 .7.8		
	+ 5 .4.6				
	− 5 .25.9				
	− 21.3				
1	2.22.30	1	2.26.30		
41	2.27 .25.0	V	6 .35 .39.6		
	+ 4 .55.0				
	− 5 .25.9				
	− 30.9				

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1856phae.proj..146B

1855. Sept. 16/17 Before Companion EC — Dec — 7h 48m 52.55 — 58.0
Electric No. 1 — 12h 43m 00 — 5.5
Corr. of 8.6 + 1m 25.15

2	12h 44m	1	12h 47m 30	1	12h 51	1	12h 54m 30
	8h 6m 35.5	9	12h 39m 48.5	16	12h 58m 9.6	23	12h 52 30.8
	− 4m 37 24.5		− 7m 41.5		+ 7m 9.6		− 1m 59.2
	− 5m 24.8		− 5m 24.8		− 5m 24.8		− 5m 24.8
	− 4h 42m 49.3		− 13m 6.3		+ 1m 44.8		− 7m 24.0
1	12h 44m 30	1	12h 48	1	12h 51m 30	1	12h 55
3	12h 29m 53.6	10	12h 34m 46.0	17	12h 50 57.8	24	13h 1m 48.0
	− 14m 36.4		− 9m 14.0		− 32.2		+ 6m 46.0
	− 5m 24.8		− 5m 24.8		− 5m 24.8		− 5m 24.8
	− 20m 1.2		− 14m 34.8		− 5m 57.0		+ 1m 23.2
1	12h 45	1	12h 48m 30	1	12h 52	1	12h 55m 30
4	12h 24m 40.3	11	12h 38 27.5	18	12h 37m 3.4	25	12h 50m 2.0
	− 20m 19.7		− 10m 2.5		− 14 56.6		− 5m 26.0
	− 5m 24.8		− 5m 24.8		− 5m 24.8		− 5m 24.8
	− 25m 44.5		− 15m 27.3		− 20m 21.4		− 10m 52.8
1	12h 45m 30	1	12h 49	1	12h 52m 30	1	12h 56
5	12h 50m 4.3	12	12h 36m 59.6	19	12h 50m 33.0	26	13h 38m 39.5
	+ 4m 34.3		− 12m 0.4		− 1m 57		+ 42m 39.5
	− 5m 24.8		− 5m 24.8		− 5m 24.8		− 5m 24.8
	− 50.5		− 17m 25.2		− 7m 21.8		+ 37m 14.7
1	12h 46	1	12h 49m 30	1	12h 53	1	12h 56m 30
6	12h 42 9.1	13	12h 49m 17.0	20	13h 7 18.2	27	12h 54m 54.6
	− 9m 50.9		− 13.0		+ 14m 18.2		− 1m 35.4
	− 5m 24.8		− 5m 24.8		− 5m 24.8		− 5m 24.8
	− 9m 15.7		− 5m 37.8		+ 8m 53.4		− 7m 0.2
1	12h 46m 30	1	12h 50	1	12h 53m 30	1	12h 57
7	12h 53m 28.6	14	12h 48m 39.3	21	12h 58 59.0	28	12h 54m 23.3
	+ 6m 58.6		− 1m 20.7		+ 5m 29.0		− 2m 36.7
	− 5m 24.8		− 5m 24.8		− 5m 24.8		− 5m 24.8
	+ 1m 33.8		− 6m 45.5		+ 4.2		− 8m 1.5
1	12h 47	1	12h 50m 30	1	12h 54	1	12h 57m 30
8	12h 35 24.4	15	12h 51m 35.0	22	12h 51m 49.2	29	13h 00 49.7
	− 11m 35.6		+ 1m 5.0		− 2m 10.8		+ 3m 19.7
	− 5m 24.8		− 5m 24.8		− 5m 24.8		− 5m 24.8
	− 17m 0.4		− 4m 19.8		− 7m 35.6		− 2m 5.1

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1	12..58	1	12..58..30	1	12..59	1	12..59..30
30	13..5 49.0	31	18..12..28.2	32	13..4..46.3	33	18..11..52.7
	+ 7..49.0		− 1..46..1.8		+ 5..46.3		+ 12..22.7
	− 5..24.8		− 5..24.8		− 5..24.8		− 5..24.8
	+ 2..24.2		− 1..51..26.6		+ 21.3		+ 6..57.9
1	13..00	1	13..00.30	1	13..1	1	13..1..30
34	13..13..8.2	35	13..8..45.3	36	12..59 59.7	37	13..2 38.3
	+ 13..8.2		+ 8..15.3		− 1..0.3		+ 1..8.3
	− 5..24.8		− 5..24.8		− 5..24.8		− 5..24.8
	+ 7..43.4		+ 2..50.5		− 6..25.1		− 4..16.5
1	13..2..30	1	13..3	1	13..3..30	1	13..4
38	13..3..40.7	39	13..8..1.0	40	13..8 31.0	41	13..8 50.3
	+ 1..10.7		+ 5..1.0		+ 5..1.0		+ 4..50.3
	− 5..24.8		− 5..24.8		− 5..24.8		− 5..24.8
	− 4..14.1		− 23.8		− 23.8		− 34.5
1	13..4..30	1	13..5	1	13..5..30	1	13..6
42	13..9..55.0	43	13..10..13.5	44	13..11..18.4	45	13..12 0.7
	+ 5..25.0		+ 5..13.5		+ 5..48.4		+ 6..0.7
	− 5..24.8		− 5..24.8		− 5..24.8		− 5..24.8
	+ 0.2		− 11.3		+ 23.6		+ 35.9
S.C.	8..13..39.0−42.5	R.	8..14..11.60−1).05	1	13..9..30	1	13..10
A	8..7..0 − 5.5	D	8..15..0.00 − 5.5	M	16..33 59.5	X	17 42 33.7
	− 6..39		+ 48.4				
	+ 1..25.15		+ 1,,25.15				
	− 5..13.85		+ 2..13.55				
1	13..10..30	1	13..11		S.C. − 8..24..58.5 − 4.0		
Y	7..15..43.0	2	~~4~~..20..20.0		dol − 1..19..0 − 5.5		
			3..9..20.0		Data		
			− 5..24.8		7..48..52.55		8..24..58.5
			3..3..55.2		41.25.15		1..25.15
			4..44..30.6				
			+ 7..48..25.8		7..47..27.40		8..23.33.35
			20..21..4.6		11..40..15.43		11..40..15.43
	Therm° before comparison				20..7..11.97		20..43..17.92
	1 −	9 −			19..56..43.41		19..56..43.41
	2 − 64.5°	10 − 64.0			6..58.45		42..52.96
	3 −				10.97		16.95
	4 − 64.3				.97		.92 1..24..24.84
	5 − 65.0				20..3..54.20		20..39..54.24 1..19..
	6 − 64.5	gr. M.S.	0..48..24.8		4..44..30.6		4..42..30.6 − 5..24.84
	7 − 64.5		1 0..43..00		0..48..24.4		gr.M.S. 1..24.24.84
	8 − 65.0		− 5..24.8				

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1856phae.proj..146B

855 Sept 17th PM. EC fast 1.25.78

18.52.00.00
1.25.78
18.50.34.22
18.53.03.00
+ 02.28.78

2557 - 18.55.52.50
02.28.78
18.53.25.72
11.44.12.00
7.09.13.72
6.58.57.19
8.58.53
12.96
72
7.08.03.40
7.06.53.00
+.08.40
16
Slow of Boston - 1.24.40 17th
1.23.60 14th
3).80
Losing Daily 0.26

Sept. 18th Noon.
Received back Chro. B & S No 139. This was formerly No 2 - and was replaced during the second voyage by 8 day Chronometer. J Hutton No 234.

18th - M.T.C - 0.11.0
139 - 4.56.27

M.T.L - 7.14.0
slow - 1.10.2
7.15.10.2
4.44.30.6
11.59.40.8
2a No 139 - 11.59.26.7
-14.1

18/19 Am M.T.C - 7.14.0
No 2a 139 - 11.59.26.7 - No 2a replaced in trial box.

Sept. 20th. Received back Chro 10-11 and 12 which have been examined - on acc of some spots of rust appearing - on the B. Sp 8
put them in the Box and compared with No 1,
No 1 - 5.11.30 No 1 - 5.12.30 No 1 - 5.13.0
10 - 5.15.31.5 11 - 5.16.39.6 12 - 5.14.37.5

Sept. 20th 4 PM
No 1 - 8.31.30 - No 1 - 8.32.30 No 1 - 8.33.0 No 1 - 8.34.30
10 - 8.35.28 11 - 8.36.37.6 - 12 - 8.34.36.5 2a - 8.39.39.5

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1856phae.proj...146B

Sept. 18/19

1855 Sept 19/20th EC + 1h 28.27

Ther.
2 - 65
4 - 65
7 - 65
5 - 65
10 - 65 5.13
6 - 64.3 outside

	EC	MTC
2557	8h 10m 00.00	20h 15m 15.00
	8h 08m 49.60	8h 12m 08.00
	8h 10m 00.00	8h 12m 08.00
	1h 28.27	17.87
	8h 08m 31.73	32h 11m 50.13
	8h 08m 49.60	11h 52m 05.11
	17.87	20h 19m 45.02
		19h 56m 43.41
		18h 56.89
		44.88
		.02
		20h 16m 25.20
		20h 15m 15.00
		MTC Slow of Camb 1h 10.20
		16
		" " Boston 1h 26.20 19th
		1h 24.40 17th
		2) 1.80
		Daily Rate - 0.90

8. 34. 30

5 .. 9.5
5 - 23.4
13.9

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Comp. of Chronom. Sept. 17/18 1865

D.S.6.6 J.S.S.

1	2h 8m 30	1		1	2h 14m 40	1	2h 17m 20
2	9h 31m 9.3	10		16	1h 59m 34.5	26	3h 00m 00
	−4h 37m 20.7				− 15m 5.5		+ 42m 40
	− + 5m 24.3				−5m 24.3		−5m 24.3
	−4h 42m 45.0				−20m 29.8		+ 37m 15.7
1	2h 9	1		1	2h 15	1	2h 17m 40
3	1h 54m 13.9	11		19	2h 13m 2.0	27	2h 16m 1.2
	− 14m 46.1				− 1m 58.0		− 1m 38.8
	− 5m 24.3				−5m 24.3		−5m 24.3
	−20m 10.4				−7m 22.3		−7m 3.1
1	2h 9m 30	1		1	2h 15m 20	1	2h 18
4	1h 48m 58.9	12		20	2h 29m 32.9	28	2h 15m 21.3
	− 20m 31.1				+ 14m 32.9		− 2m 38.7
	− 5m 24.3				−5m 24.3		− 5m 24.3
	−25m 55.4				+9m 8.6		− 8m 3.0
1	2h 10	1	2h 12m 30	1	2h 15m 40	1	2h 18m 20
5	2h 14m 34.7	13	2h 12m 16.5	21	2h 21m 10.2	29	2h 21m 35.2
	+ 4m 34.7		− 13.5		+ 5m 30.2		+ 3m 15.2
	− 5m 24.3		−5m 24.3		−5m 24.3		− 5m 24.3
	− 49.6		−5m 37.8		+0m 5.9		−2m 9.1
1	2h 10m 30	1	2h 13	1	2h 16	1	2h 18m 40
6	2h 6m 39.2	14	2h 11m 37.0	22	2h 13m 47.2	30	2h 26m 31.2
	− 3m 50.8		− 1m 23.0		− 2m 12.8		+ 7m 51.2
	− 5m 24.3		−5m 24.3		−5m 24.3		−5m 24.3
	− 9m 15.1		−6m 47.3		−7m 37.1		+ 2m 26.9
1	2h 11	1	2h 13m 30	1	2h 16m 30	1	2h 19m 20
7	2h 17m 59.6	15	2h 14m 33.0	23	2h 14m 29.5	31	12h 33m 18.7
	+ 6m 59.6		+ 1m 3.0		− 2m 0.5		− 1m 46m 4.3
	− 5m 24.3		− 5m 24.3		−5m 24.3		− 5m 24.3
	+ 1m 35.3		− 4m 21.3		−7m 24.8		−1m 51m 28.6
1	2h 11m 30	1	2h 16	1	2h 16m 45	1	2h 19m 40
8	1h 59m 47.1	16	2h 21m 15.2	24	2h 23m 38	32	2h 25m 25.5
	− 11m 42.9		+ 7m 15.2		+ 6m 53.0		+ 5m 45.5
	− 5m 24.3		−5m 24.3		−5m 24.3		−5m 24.3
	−17m 7.2		+ 1m 50.9		+1m 28.7		+ 21.2
1	2h 12	1	2h 14m 20	1	2h 17	1	2h 20
9	2h 4m 14.6	17	2h 13m 47.0	25	2h 11m 29.8	33	2h 32m 25.6
	− 7m 45.4		− 33.0		− 5m 30.2		+ 12m 25.6
	− 5m 24.3		−5m 24.3		−5m 24.3		− 5m 24.3
	− 13m 9.7		−5m 57.3		−10m 54.5		+ 7m 1.3

Chronom.

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1	2..20..20	1	2..23..20	1	2..27..30
84	2..33..35.2	42	2..28..44.6	A	9..30..55.1
	+ 13..15.2		+ 5..24.6		
	− 5..24.3		− 5..24.3		
	+ 7..50.9		+ 0.3		
1	2..20..40	1	2..24..00	1	2..28
85	2..28..57.5	43	2..29..12.1	D	9..39..3.7
	+ 8..17.5		+ 5..12.1		
	− 5..24.3		− 5..24.3		
	+ 2..53.2		− 12.2		
1	2..21	1	2..24..20		
86	2..19..59.6	44	2..30..10.0		
	− 1..0.4		+ 5..50.0		
	− 5..24.3		− 5..24.3		
	− 6..24.7		+ 25.7		
1	2..21..20	1	2..24..40		
87	2..22..23.5	45	2..30..42.6		
	+ 1..3.5		+ 6..2.6		
	− 5..24.3		− 5..24.3		
	− 4..20.8		+ 38.3		
1	2..22..00	1	2..26		
98	2..23..7.0	91	6..3..8.2		
	+ 1..7.0				
	− 5..24.3				
	− 4..17.3				
1	2..22..20	1	2..25..30		
89	2..27..22.2	92	7..10..43.1		
	+ 5..2.2				
	− 5..24.3				
	− 22.1				
1	2..22..40	1	2..26..30		
40	2..37..39.4	93	4..44..32		
	+ 14..59.4				
	− 5..24.3				
	+ 9..35.1				
1	2..23	1	2..27		
41	2..27..48.0	94	5..36..54.1		
	+ 4..48.0		3..9..54.1		
	− 5..24.3		− 5..24.3		
	− 36.3		3..4..29.8		
			4..44..30.6		
			+ 7..49..0.4		
			21..37..5.1		

Error of δ.δ + 1..26.34

1 − 2..28..30 − 5.5

δ.δ. − 9..38..37.1 − 42.7

+ 1..26.34

9..37..10.8

11..44..11.98

21..52..58.82

20..56..33.58

51..51.48

57.84

.82

21..49..23.72

2..28..30.

4..39..6.28

4..44..30.6

− 5..24.32

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1855 Sept. 19/20 D.S.C & J. F. F.

absent.

1	3h 0m 15s	1	3h 3m 15s	1	3h 4m 15s	1	3h 6m 15s
26	10h 28m 2	10		18	2h 48m 54.6	26	3h 48m 55.6
	−4m 37s 13.0				−15m 20.4		+42m 40.6
	−5m 23.6				−5m 23.4		−5m 23.4
	−4h 42m 36.4				−20h 43.6		+37m 17.2
1	3h 0m 30s	1	3h 3m 30s	1	3h 4m 30s	1	3h 6m 30s
3	2h 45m 27.5	11		19	3h 2m 29.6	27	3h 4m 45.5
	−15m 2.5				−2m 0.4		−1m 44.5
	−5m 23.4				−5m 23.4		−5m 23.4
	−20h 25.9				−7h 23.6		−7h 07.9
1	3h 0m 45s	1	3h 3m 45s	1	3h 4m 45s	1	3h 6m 45s
4	2h 39m 52.1	12		20	3h 19m 47.0	28	3h 4m 2.0
	−20m 52.9				+15m 2.0		−2m 43.0
	−5m 23.6				−5m 23.4		−5m 23.4
	−26h 16.3				+9m 38.6		−6m 6.4
1	3h 1m	1	3h 3m	1	3h 5m	1	3h 7m
5	3h 5m 35.2	13	3h 2m 44.8	21	3h 10m 33.0	29	3h 10m 6.0
	+4m 35.2		−15.2		+5m 33.0		+3m 6.0
	−5m 23.4		−5m 23.4		−5m 23.4		−5m 23.4
	−48.2		−5m 36.6		+9.6		−2m 17.4
1	3h 1m 15s	1	3h 3m 15s	1	3h 5m 15s	1	3h 7m 15s
6	2h 57m 24.3	14	3h 1m 47.5	22	3h 2m 59.1	30	3h 15m 11.5
	−3m 50.7		−1m 27.5		−2m 15.9		+7m 56.5
	−5m 23.4		−5m 23.4		−5m 23.4		−5m 23.4
	−9m 14.1		−6m 50.9		−7m 39.3		+2m 33.1
1	3h 0m 30s	1	3h 3m 30s	1	3h 5m 30s	1	3h 7m 30s
7	3h 8m 32.2	15	3h 4m 29.1	23	3h 3m 26.0	31	1h 21m 21.4
	+7m 2.2		+0m 59.1		−2m 4.0		−1h 46m 8.6
	−5m 23.4		−5m 23.4		−5m 23.4		−5m 23.4
	+1m 38.8		−4m 24.3		−7m 27.4		−1h 51m 32.0
1	3h 1m 45s	1	3h 3m 45s	1	3h 5m 45s	1	3h 7m 45s
8	2h 49m 49.0	16	3h 11m 12.0	24	3h 12m 48.0	32	3h 13m 29.0
	−11m 56.0		+7m 27.0		+7m 3.0		+5m 44.0
	−5m 23.4		−5m 23.4		−5m 23.4		−5m 23.4
	−17m 19.4		+2m 3.6		+1m 39.6		+20.6
1	3h 2	1	3h 4	1	3h 6	1	3h 8
9	2h 54m 6.3	17	3h 9m 24.0	25	3h 0m 25.2	33	3h 20m 31.0
	−7m 53.7		+−36.0		−5m 34.8		+12m 31.0
	−5m 23.4		−5m 23.4		−5m 23.4		−5m 23.4
	−13m 17.1		−5m 59.4		−10m 58.2		+7m 7.6

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1	3ᵘ 8ᵐ 15ˢ	1	3ᵘ 10ᵐ 15ˢ	1	3ᵘ 12ᵐ 00ˢ	1	3ᵘ 1ᵐ 5ˢ
34	2ᵘ 21ᵐ 43.5ˢ	42	3ᵘ 15ᵐ 38.5ˢ	4	9ᵘ 54ᵐ 43.7ˢ	2/147	3ᵘ 20ᵐ 10.0ˢ
	+ 13ᵐ 28.5ˢ		+ 5ᵐ 23.5ˢ				+ 5ᵐ 10.0ˢ
	− 5ᵐ 23.4ˢ		− 5ᵐ 27.4ˢ				− 5ᵐ 23.6ˢ
	+ 8ᵐ 5.1ˢ		+ 0.1ˢ				− 13.4ˢ
1	3ᵘ 8ᵐ 30ˢ	1	3ᵘ 10ᵐ 30ˢ	1	3ᵘ 12ᵐ 30ˢ		
35	3ᵘ 16ᵐ 51.2ˢ	43	3ᵘ 15ᵐ 40.1ˢ	2	6ᵘ 23ᵐ 35.5ˢ		
	+ 8ᵐ 21.2ˢ		+ 5ᵐ 10.1ˢ		3ᵘ 11ᵐ 5.5ˢ		
	− 5ᵐ 27.4ˢ		− 5ᵐ 27.4ˢ		− 5ᵐ 27.4ˢ		
	+ 2ᵐ 57.8ˢ		− 13.3ˢ		3ᵘ 5ᵐ 42.1ˢ		
					4ᵘ 44ᵐ 30.6ˢ		
1	3ᵘ 8ᵐ 45ˢ	1	3ᵘ 10ᵐ 45ˢ	1	+ 5ᵐ 50.12.7ˢ		
36	3ᵘ 7ᵐ 46.1ˢ	44	3ᵘ 16ᵐ 37.5ˢ		22ᵐ 22.36.0ˢ		
	− 58.9ˢ		+ 5.52.5ˢ				
	− 5ᵐ 27.4ˢ		− 5ᵐ 23.4ˢ				
	− 6ᵐ 22.3ˢ		+ 29.1ˢ		Error of 1 b. — + 1ᵐ 28.75ˢ		
1	3ᵘ 9ᵐ	1	3ᵘ 11ᵐ		1 — 2ᵘ 56ᵐ 30ˢ — 5.5ˢ		
37	3ᵘ 9ᵐ 54.0ˢ	45	3ᵘ 17ᵐ 5.6ˢ		ℰ.b — 10ᵐ 14ᵐ 36.2 − 41.8ˢ		
	+ 52.0ˢ		+ 6ᵐ 5.6ˢ				
	− 5ᵐ 23.4ˢ		− 5ᵐ 27.4ˢ		1 — 3ᵘ 13ᵐ 00ˢ − 5.5ˢ		
	− 4ᵐ 29.4ˢ		+ 42.2ˢ		ℰ.b — 10ᵐ 31ᵐ 8.9 − 12.5ˢ		
1	3ᵘ 9ᵐ 15ˢ	1	3ᵘ 11ᵐ 15ˢ				
38	3ᵘ 10ᵐ 15.1ˢ	A	10ᵐ 22ᵐ 36.5ˢ		2/147 − 3ᵘ 19ᵐ 30ˢ − 5.5ˢ		
	+ 1ᵐ 0.1ˢ		+ 11ᵐ 21.5ˢ		ℰ.b − 10ᵐ 32ᵐ 29.1 − 34.7ˢ		
	− 5ᵐ 23.4ˢ						
	− 4ᵐ 23.3ˢ						
1	3ᵘ 9ᵐ 30ˢ	1	3ᵘ 11ᵐ 30ˢ		10ᵐ 14ᵐ 36.25ˢ		10ᵐ 31ᵐ 8.95ˢ
39	3ᵘ 14ᵐ 35.0ˢ	D	30 51.8ˢ		1ᵐ 28.75ˢ		1ᵐ 28.75ˢ
	+ 5ᵐ 5.0ˢ				10ᵐ 13ᵐ 7.5ˢ		10ᵐ 29ᵐ 40.20ˢ
	− 5ᵐ 27.4ˢ				11ᵐ 52ᵐ 5.09ˢ		11ᵐ 52ᵐ 5.09ˢ
	− 14.6ˢ				22ᵐ 21ᵐ 2.41ˢ		37ᵐ 35.11ˢ
1	3ᵘ 9ᵐ 45ˢ	1	3ᵘ 11ᵐ 45ˢ				
40	3ᵘ 14ᵐ 40.8ˢ	H	4ᵘ 73ᵐ 15.6ˢ		21ᵐ 56ᵐ 23.75ˢ		
	+ 4.55.8ˢ				20ᵐ 56.56ˢ		
	− 5ᵐ 27.4ˢ				1.99ˢ		
	− 27.6ˢ				.41ˢ		
1	3ᵘ 10ᵐ	1	3ᵘ 12ᵐ 15ˢ		22ᵐ 17.22.71ˢ		
41	3ᵘ 14ᵐ 43.5ˢ	Y	9ᵘ 54ᵐ		2ᵐ 56.30ˢ		
	+ 4ᵐ 43.5ˢ		8ᵘ 21ᵐ 54.1ˢ		4ᵐ 39ᵐ 7.29ˢ		
	− 5ᵐ 27.4ˢ				4ᵐ 44ᵐ 30.66ˢ		
	− 39.9ˢ				− 5ᵐ 23.57ˢ		

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1855 Sept 21/22 D.S.C.& D.F.F.

1	3h 55m 00	1	3h 57m 00	1	3h 59m 00	1	4h 1m 00
2	11h 17m 54.0	10	4h 00m 55.5	18	3h 43m 24.6	26	4h 43m 41.2
	4 37 06.0		23 55.5		15 35.4		42 41.2
	5 05 22.4		5 22.4		5 22.4		5 22.4
	4 42 28.4		1 26.9		20 57.8		37 18.8
1	3h 55m 15	1	3h 57m 15	1	3h 59m 15	1	4h 1m 15
3	3h 39m 55.2	11	4h [illegible] 22.1	19	3h 57m 12.5	27	3h 59m 23.4
	15m 19.8		4m 7.1		2m 3.5		1m 51.6
	5m 22.4		5m 22.4		5m 22.4		5m 22.4
	20 42.2		1m 15.3		7m 25.9		7m 14.0
1	3h 55m 30	1	3h 57m 30	1	3h 59m 30	1	4h 1m 30
4	3h 34m 15.7	12	3h 59m 5.2	20	4h 15m 2.1	28	3h 58m 41.7
	21m 14.3		1m 35.2		15m 32.1		2m 48.3
	5m 22.4		5m 22.4		5m 22.4		5m 22.4
	26m 36.7		3m 47.2		10m 9.7		8m 10.7
1	3h 55m 45	1	3h 57m 45	1	3h 59m 45	1	4h 1m 45
5	4h 00m 20.2	13	3h 57m 28.2	21	4h 5m 20.5	29	4h 4m 39.6
	4m 35.2		16.8		5m 35.5		2m 54.6
	5m 22.4		5m 22.4		5m 22.4		5m 22.4
	47.2		5m 39.2		13.1		2m 27.8
1	3h 56m 00	1	3h 58m 00	1	4h 00m 00	1	4h 2m 00
6	3h 52m 8.6	14	3h 56m 24.2	22	3h 57m 40.6	30	4h 10m 1.6
	3m 51.4		1m 31.8		2m 19.4		8m 01.6
	5m 22.4		5m 22.4		5m 22.4		5m 22.4
	9m 13.8		6m 54.2		7m 41.8		2m 39.2
1	3h 56m 15	1	3h 58m 15	1	4h 00m 15	1	4h 2m 15
7	4h 3m 20.7	15	3h 59m 11.2	23	3h 56m 8.0	31	2h 16m 1.7
	7m 05.7		56.2		2m 7.0		1h 46m 13.3
	5m 22.4		5m 22.4		5m 22.4		5m 22.4
	1m 45.3		4m 26.2		7m 29.4		1h 51m 35.7
1	3h 56m 30	1	3h 58m 30	1	4h 00m 30	1	4h 2m 30
8	3h 44m 20.5	16	4h 6m 8.2	24	4h 7m 43.0	32	4h 8m 11.5
	12m 09.5		7m 38.2		7m 13.0		5m 41.5
	5m 22.4		5m 22.4		5m 22.4		5m 22.4
	17m 31.9		2m 15.8		1m 50.6		19.1
1	3h 56m 45	1	3h 58m 45	1	4h 00m 45	1	4h 2m 45
9	3h 48m 43.1	17	3h 58m 5.6	25	3h 55m 5.2	33	4h 15m 21.0
	8m 1.9		39.4		5m 39.8		12.360
	5m 22.4		5m 22.4		5m 22.4		5m 22.4
	13.24 3		6m 01.8		11m 02.2		7m 13.6

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1856phae.proj..1408

1	4 3 00	1	4 5 00	1	4 7 00
34	4 16 40.6	42	4 10 22.3	χ	9 41 7.5
	13 40.6		5 22.3		
	5 22.4		5 22.4		
	8 18.2		0.1		
1	4 3 15	1	4 5 15	1	4 7 15
35	4 11 40.0	43	4 10 23.6	ψ	11 14 43.9
	8 25.0		5 08.6		
	5 22.5		5 22.4		
	3 02.5		13.8		
1	4 3 30	1	4 5 30	1	4 7 30
36	4 2 33.0	44	4 11 22.5	Z	16 20 36.1
	57.0		5 54.5		3 13 6.1
	5 22.4		5 22.4		5 22.4
	6 19.4		32.1		3 9 43.7
					30.6
					+7 52 14.9
					23 17 37.0
1	4 7 45	1	4 5 45		1 — 3 5 4 30 — 5.5
37	4 8 25.0	45	4 11 53.6		6.6 — 11 20 40.05 — 45.65
	43.0		6 08.6		
	5 22.4		5 22.4		
	4 39.4		46.2		
1	4 4 00	1	4 6 00		
38	4 4 53.6	2a	4 11 10.0		
	53.6		5 10.0		
	5 22.4		5 22.4		
	4 28.8		12.4		
1	4 4 15	1	2 6 15		
39	4 9 22.5	01	11 25 34.8		
	5 7.5		7 19 19.3		
	5 22.4		5 22.4		
	14.9		7 13 56.9		
1	4 4 30	1	4 6 30		
40	4 9 22.1	①	11 34 12.2		
	4 52.1		7 27 42.2		
	5 22.4		5 22.4		
	30.3		7 22 19.8		
1	4 4 45	1	4 6 45		
41	4 9 23.5	21	9 32 41.1		
	4 38 5				
	5 22.4				
	43.9				

Sept. 22 P. 10.

E.C. 15 33 50.

140 8 06 58.5

1 31.0

15.36.20

1 31.0

15.34.49.0

12 3.54.77

3.30.54.23

34.55

3.30.19.68

8 9.28.00

4.39.08.32

4.44.30.66

E.C. 15 36.20

140 8 9 28.0

No. I slow 5 22.34 of Greenwich

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1856phae.proj..146B

Sept. 23/24 — E. 6. fast. 1m 32s.73

E.C. — 8h 24m 0s
2557 — 8h 22m 55s.8
8h 24m 0s
1s.32.73
8h 22m 27s.27
2557 8h 22m 55s.60
+ 28.53

M.T.C. — 20h 16m 20s
2557 — 8h 29m 11s.5
8h 29m 51s.5
28.53
32h 28m 42s.97
12h 07m 57s.32
20h 20m 51s.65
19h 56m 43s.41
19h 56s.72
50.86
.65
20h 17m 31s.64
16m 20s
1m 11s.64
16
1m 27s.64
19/20 — 1m 26s.20
4) 1s.44 (0s.36

Sept. 27 P.M.

E.C. 15h 42m 00s
2557 15h 41m 2s.2

15h 42m 00s
1m 35s.9
15h 40m 24s.1
15h 41m 2s.2
35s.1

12h 22m 50s.79
46.74
12h 23m 37s.53

M.T.C. 3h 17m 30s
2557 15h 43m 31s.5-
38.1
15h 42m 53s.4
12h 23m 37s.53
3h 19m 15s.87
32.65
3h 18m 43s.22
3h 17m 30s
1m 13s.22
16
1m 29s.22 Slow of Boston

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1855 Oct 4/5th EC 9..49..00.00 EC fast 1..45.09
2557 9..48..15.00

9..49..00.00
1..45.09
9..47..14.91
9..48..15.00
1..00.09
10..10..09.50
10..09..08.41
24
34..09..08.41
12..57..13.41
21..17..55.00
20..56..33.58
16..57.21
57.85
21..14..25.64
21..13..10.00
1..15.64
16
Slow of Boston 1..31.64

1..31.64 4/5
1..29.22
8)2.42
Losing Daily 0.30

Oct 7/8th In YC 18..58..00.00 EC 8..09..00.0 EC+1..48.52
1678 18..59..31.35 1678 7..01..15.0
1.97
8 09..00.0
1..48.52
8..07..11.48
32..07..11.48
13..03..03.07
19..04..08.41
18..56..53.24
3..39.34
7.98
41
19..01..00.97
7..01..15.00
1678 + 14.03
16
1.97

18..59..33.32
18..58..00.00
1..33.32 Slow of Boston

1..33.32 7/8
1..31.64 4/5
3)1.68
0.56 Daily Rate

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1855 Sept^r 24/25 Direct comparison of Chronometers on Tuesday before they were put on board the Africa

1	1.. 22.. 00	1	1..30..30	1	1..34..30	1	1,,38..00	Mean
2a	1..27.. 9.7	9	1..22..16.8	16	1..42..25.0	23	1..36..49.0	1 – 61
	+ 5..09.7		– 8..13.2		+ 7..55.0		– 2..11.0	2 – 60.5
	5..20.9		– 5..20.9		– 5..20.9		– 5..20.9	3 – 60.5
0	– 11.2	+2	– 13..34.1	–4	+ 2..34.1	+1	– 7..31.9	4 – 60.5
1	1..27..30	1	1..31..00	1	1..35..00	1	1..38..30	5 – 60.5
3	1..11..46.2	10	1..34..47.7	17	1..34..14.8	24	1..45..57.4	6 – 60.3
	– 15..43.8		+ 3..47.7		– 45.2		+ 7..27.4	7 – 60.5
	5..20.9		– 5..20.9		– 5..20.9		– 5..20.9	8 – 60.5
+.5	– 21.047	+.1	– 1..33.2	+.1	– 6.067	–.4	+ 2..06.5	9
1	1..28..00	1	1..31..30	1	1..35..30	1	1..39..00	10 – 59.5
4	1.. 6..13.3	11	1..35..33.5	18	1..19..33.5	25	1..33..12.4	11 – 60.
	– 21..46.7		+ 4..03.5		– 15..56.5		– 5..47.6	12 – 60 Ext
	– 5..20.9		– 5..20.9		– 5..20.9		– 5..20.9	
+.6	– 27..07.6	0	– 1..17.4	+5	– 21..17.4	+.2	– 11 08.5	
1	1..28..30	1	1..32..30	1	1..36..00	1	1..39..30	Ext. Th 60.0
5	1..33.. 4.4	12	1..34..2.3	19	1..33..55.0	26	2..22..11.6	
	+ 4.344		+ 1..32.3		– 2..05.0		+ 42..41.6	
	– 5..20.9		– 5..20.9		– 5..20.9		– 5..20.9	
0	– 46.5	0	– 3..48.6	0	– 7..25.9	–1	+ 37..20.7	
1	1..29..00	1	1..33..00	1	1..36..30	1	1..40..00	
6	1..25.. 7.6	13	1..32..41.4	20	1..52..45.9	27	1..37..59.5	
	– 3..52.4		– 18.6		+ 16..15.9		– 2..00.5	
	– 5..20.9		– 5..20.9		– 5..20.9		– 5..20.9	
0	– 9..13.3	0	– 5..39.5	–1.1	+ 10..55.0	+2	– 7..21.4	
1	1..29..30		1..33..30	1	1..37..00	1	1..40..30	
7	1..36..40.7	1	1..31..53.0	21	1..42..40.0	28	1..37..34.5	
	+ 7..10.7	14	– 1..37.0		+ 5..40.0		– 2..55.5	
	– 5..20.9	14	– 5..20.9		– 5..20.9		– 5..20.9	
–1	+ 1..50.2	+1	– 6..57.9	–.1	+ 19.1	+1	– 8..16.4	
1	1..30..00	1	1..34..00	1	1..37..30	1	1..41..00	
8	1..17..32.0	15	1..34 52.2	22	1..35.. 5.8	29	1..43..37.6	
	– 12..28.0		+ 52.2		– 2..24.2		+ 2..37.6	
	– 5..20.9		– 5..20.9		– 5..20.9		– 5..20.9	
+.4	– 17.48.9	+1	– 4..28.7	+1	– 7.451	+.4	– 2..43.3	

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1	1..41..30	1	1 44..30	1	1..46..30	1	1..48..30
30	1..49..36.2	34	1..58..27.4	38	1..47..14.0	42	1..53..50.2
	+ 8..06.2		+ 13..57.4		+ 44.0		+ 5..20.2
	− 5..20.9		− 5..20.9		− 5..20.9		− 5..20.9
−1	+ 2..45.3	−.5	+8..36.5	+2	−4..36.9	0	− 0.7
1	1..43..00	1	1..45..00	1	1..47..00	1	1..49..30
31	11..56..39.3	35	1..53..29.5	39	1..52.12.1	43	1..54..36.0
	−1..46 29.7		+ 8..29.5	+	+ 5..12.1	+	+ 5..06.0
	− 5..20.9		− 5..20.9		− 5..20.9		− 5..20.9
+1	−1..58 46.9	−2	+3.08.6	−2	− 8.8	0	− 14.9
1	1..43..30	1	1..45..30	1	1..47..30	1	1..50..30
32	1..49..7.5	36	1..44..36.6	40	1..52..16.4	44	1..56..27.5
	+ 5..37.5		− − 53.4		+ 4.46.4		+ 5..57.5
	− 5..20.9		−5..20.9		− 5.20.9		− 5..20.9
+1	+ 16.6	−1	−6..14.3	+1	− 34.5	−1	+0 36.6
1	1..44..00	1	1..46..00	1	1..48..00	1	1..51..00
33	1..56..42.2	37	1..46..27.0	41	1..52..32.0	45	1..57..13.0
	+ 12..42.2		+ 27.0		+ 4..32.0		+6 ..13.0
	− 5..20.9		− 5..20.9		− 5..20.6		−5..20.9
−2	+ 7..21.3	+4	−4..53.9	+1	− 48.6	−2	+ 52.1
1	1..54..00	1	1..55..00	1	1..55..30	1	1..56..00
A	9..24..40.0	N	6..55..46.5	X	8..4..34.6	Y	9..38..47.0
			5 00..46.5		6 09..04.6		7 ..42..47.0
			5..20.9		5..20.9		5..20.9
			+5 ..04..34.4		+6 ..03..43.7		7 ..37..26.1
1	1..34..30	1	1..52..30	1	1..22..30		
D	9..34..7.2	Z	5..8..33.1	26	8..45..33.8		
			3 ..16..03.1		−4 ..36..56.2		
			5..20.9		− 5..20.9		
			8 ..10..42.2	−2	−4..42..17.1		C.M.T.
			8..44..00.0	1	1..06 26.5	1	1..10..01
			1..33.75	Eccm 13	8..44..00.0	El	8..47..35.0
			8..42..26.25				
			12..11..47.87	MJC	20..33..00	MJC	20..34..00
			20..30..38.38	1	1..13..21.8	1	1..14..21.8
			3..21.61				
			20..27..16.77				
			1 6 26.5				
			4..39..09.73				
			4..44..30.66				
			No I Aberr of Gran 5..20.93				

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The Coast Survey Chronometer Expedition.

The chronometers left the ports of Boston and Liverpool as follows. and arrived

1855 Ship America	Cambridge. the 5. Pill Left Boston	June	5/6th	abt noon
	Arrived at Liverpool	June	17	
Ship Asia	Sailed from Liverpool	July	28	
	arrived at Cambridge	Augst	4	
Ship Asia	Sailed from Cambridge	Augt	14/15	
	arrived at Liverpool	Aug	26	
Ship Africa	Sailed from Liverpool	Septr	1st	
	Arrived at Cambridge	Septr	12	
Ship Africa	Sailed from Cambridge	Septr	25/26	
	Arrived at Liverpool	Octr	06	
Ship Africa	Left Liverpool	Octr	13	
	Arrived at Cambridge	Octr	25/26	

In charge of R. F. Bond and P. S. Coolidge

In charge of P. S. Coolidge and Chas. W. Tuttle

In charge of P. S. Coolidge and J. F. Flagg.

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Angles measured with the Bar. Transit, over a stake 31.2 feet South of the transit Circle.
and feet East of the centre of the Dome.

1854. October 5th - by W.C.B.

South Meridian Mark Azimuth at Reading	Spire of unitarian meeting house	Cupola of Harvard Hall	Acorn of the State House	Spire of Hollis St. meeting Ho. Boston	Bunker hill monument.
169° 58′ 20″	125° 10′ 50″	121° 04′ 0″	105° 47′ 30″	113° 34′ 40″	85° 40′ 0″
169° 57′ 50″	125° 10′ 30″	121° 03′ 30″	105° 47′ 20″	113° 34′ 50″	85° 40′ 0″
169° 57′ 30″	125° 10′ 50″	121° 03′ 50″	105° 47′ 20″	113° 34′ 50″	85° 40′ 20″
169° 57′ 40″	125° 10′ 43″	121° 03′ 47″	105° 47′ 23″	113° 34′ 47″	85° 40′ 07″
169° 57′ 50″	169° 57′ 50″	169° 57′ 50″	169° 57′ 50″	169° 57′ 50″	169° 57′ 50″
169° 57′ 50″	44° 47′ 07″	48° 54′ 03″	64° 10′ 47″	56° 23′ 03″	84° 17′ 43″

Flag Staff on Bunker hill Dorchester	North Meeting ho. in Dorchester. (Dr Harris.)
135° 48′ 0″	136° 08′ 10″
169° 57′ 50″	169° 57′ 50″
34° 09′ 50″	33° 49′ 40″

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