1851phae.proj.1144

KG
11365
144

G. 1

Chronometers
From October 6. 1851
to July 1st 1853

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1851

October 5/6 Am

3283-9..40..00 2964-9..42..00 2964-9..43..00 E.C. 20..46..00
2964-9..40..22.3 424-9..42..04.6 333-9..44..04.5 2964 9..43..32.4

16/7 Am 12..00

3283-8..41..00 2964-8..43..00 E.C.-19..43..00
2964-8..41..23.5 424-8..43..01.2 2964-8..44..20.2

7/8 Am

3283-8..55..00 2964-9..01..00 EC 19..57..00 2964-9..04..00
2964-8..55..24.2 424-9..00..56.6 2964 9..02..20.5 333-9..03..57.1

Oct. 8/9

3283 8..50..00 2964-8..52..00 2964-8..53..00 EC 19..46 00
2964 8..50..24.3 333-8..52..04 424-8..52..51.6 2964 8..55..16.5

Oct. 9/10

3283-8..57..00 2964 8..55..00 2964 9..00..00 E.C-19 49 00
2964-8 57..25.5 333 8..59..10.2 424 8..59..50.8 2964-9..02 15.3

Oct. 10/11 Am.

3283-8..50..00 2964 8..51..00 2964-8..52..00 EC. 19..37..00
2964-8..50..26.8 333 8..51..19.5 424-8..37..47.1 2964 8..54..11.5

Octobes 12/13 Am

3283-9..05..00 2964-9..06..00 2964-9..08..00 EC-19..44..00
2964-9..05..29.3 333-9..06..38.2 424-9..07..41.4 2964-9..09..09.3

October 13/14 Am.

3283-8..37..00 2964-8..39..00 E.C. 19..11..00
2964-8..37..30 424-8..38..27.6 2964-8..40..1.4

October 14/15 Am.

3283-9..42..00 2964-9..44..00 E.C. 20..12..00
2964-9..42..32.5 424-9..43..22.9 2964-9..45..10.7

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October 5/6 Am.

M.J.C 21..12..00
2964 - 10..09..47.7
39.53

12..54..15.46 / 10.. 10,, 27.23
46.74 / 12.. 55.. 02.20
12.55.02.20 21 ..15,,25.03
3.. 28,, 95
21,, 11..56,08
21,,12,,00.0
3.92

6/7 Am

M.J.C. 20.. 28.. 00
2964 - 9.. 29,, 38.6
360

72..58..12.01 9,, 30,,16.6
46.74 / 12,,58,,58,75
12585875 20,,31..17.85
3.. 21.72
20,, 27..56.13
20..28 00

3.87 fast of Comb
16
12.13 Slow Boston

7/8 Am

M.J.C 21..02..00
2964 10.. 07 ,,42.1

Oct 8/9 Am
M.J.C 19,,52,00
2964 9,,01 ,,27.6

9/10 Am
M.J.C. 19.. 53.. 00
2964 9 ,,06 ,,26

10 Pm,
E.C 00..32..00
2964 / 13.,46,, 02.0
3490

13.13.58.22 13,,46..36.90
46.74 13,,14,,44.96
13.1444.96 31..51.94
5.72
60,,31,,46,72
60,,32,,00.0
fast of Comb, / 13.28
16
E.C. Slow of Boston 2.72

10th Oct. E.C.

0 . 56..57.2 - open
57.57.2 - closed
58..57.2 - open
59.57.2 - closed
1.. 00 .57.2 - open
1..01..57.3 - closed
1..02..57.3 . open

Signal & answer

October 10/11 Am
M.J.C. 19..57..00
2964 9,,14 ,,24.9

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October 15/16

		coin
3283 - 9.. 28.. 00	2964 - 9.. 30.. 00	M.J.C - 20.. 30.. 30
2964 - 9.. 28 .. 34.6	424 - 9.. 29.. 20	2964 - 10.. 07.. 53.

October 16th

Telegraph Signals

2.C - 0 .. 58 .. 57.8	closed	
59 .. 57.8	— do —	
1 .. 00 .. 57.8	— do —	
1 .. 01 .. 57.8	— do —	
2 .. 57.8	— do —	bad last 2 or 3 seconds
3 .. 57.8	— do	— do
4 .. 57.8	— do	— good —
5 .. 57.9	— do	— good —
6 .. 58.8	— do	— good —
7 .. 58.8	— do	— good —

Broke circuit about 4h 1/2 each time

M.J.C - 5.. 11 .. 0 — 5.. 14 5

2964 - 18.. 49 .. 49 — 18.. 52 .. 54.5

M.J.C - 5.. 17 .. 5

2964 - 18.. 55 .. 55

October 16/17 Am.

3283 - 9.. 13.. 00	M.J.C. 19.. 43.. 45 — 19.. 46.. 50.
2964 - 9.. 13.. 36.6	2964 9.. 24.. 58.5 — 9.. 28 .. 04

October 17 Bon

M.J.C. 2..	41.. 25 — 2.. 44.. 25
2964 16..	43.. 47.5 — 16.. 26.. 48

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17 noon

EC — 0 .. 20 .. 15 — 0 .. 23 .. 15
2964 — 13 .. 02 .. 35 — 14 .. 05 .. 04

14 .. 05 .. 04
21.87
14 .. 05 .. 25.87
13 .. 42 .. 20.84
0 .. 23 .. 05.03
3.8
0 .. 23 .. 01 .23
EC. 0 .. 23 .. 15.00
Camb. +13.77
16
Boston — 2 .23

13 .. 41 .. 34.10
46.74
13 .. 42 .. 20 .84

E.C. Telegraph

0 .. 51 .. 57.8 broke circuit
52 .. 57.8 closed good
3 .. 30.0
53 .. 57.8 - closed good
45
54 .. 57.8 - closed good
40 - open
55 .. 57.8 closed good
40 open
56 .. 57.8 - closed good
40 open
57 .. 57.8 closed good

59 .. 57.8 closed good
heats
1 .. 2 .. 57.8 - closed good
40 open
3 .. 57.8 closed just good
4 .. 45 .. 57.8 closed bad

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October 17/18 Am
3283 – 9..13..00
2964 – 9..13..38.0

October 19/20
3283 – 10..57..00
2964 – 10..57..41.6

October 20/21 Am
3283 – 10..20..00
2964 – 10..20..43.0

20th
EC – 0..34..10
2964 – 14..27..55.5

14..27..55.5
16.68
14..28..12.18
13..54..10.50
00..34..01.68
0..34..10.00
+8.32
10
–7.68
0..34..01.68
5.6
0..33..56.08
EC 0..34..10.
Cam 6 + 13.92
16
Boston –2.08

13..53..23.76
46.24
13.54..10.50

20th
EC 0..57..58.0
56..58.1 good
1 – 0..58 good

October 21 Pm
EC 00..05..00
2964 – 14..02..39.3
14.08
14..02..53.38
13..58..07.05
00..04..46.33
8
00..04..45.53
00..05..00.
14.47 fast of Cambridge
16
1.53 slow of Boston

19..57..20.81
46.24
13 58 07 05

0..56..58.0
..57..58.5
58..58.5
59..58.5 X
1 – 0..58.5 good
1..3..58.7 good
4..58.5 good

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October 21/22 Am
3283 11.. 21.. 00 EC 21.. 22.. 00
2964–11.. 21.. 44.7 2964 11.. 23.. 10.7

No 1 / 69°
No 2
No 3

October 22/23 Am
3283–10.. 13.. 00 E.C. 20.. 12.. 50 coin M.N.C. 20.. 18.. 05
2964 10.. 13.. 46.5 2964 10.. 17.. 47.5 2964 10.. 23.. 15.5

October 23/24 Am
3283–10.. 48.. 00 M.N.C. 20.. 45.. 00 coin E C 21.. 00 00
2964–10.. 48 49.4 2964–10.. 54.. 14.2 2964–11.. 09.. 03.5

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October 24 Pm.

E.C. 00 „ 21 „ 35
2964 „ 14 „ 31 „ 12,0
6.9
14 „ 31 „ 18,9
14 „ 09 „ 56.71
00 „ 21 „ 22,19
03.5
00 „ 21 „ 18,69
00 „ 21 „ 35
16.31 fast of comb.

14 „ 09 „ 09.97
46.74
14 „ 09 „ 56.71

24 Pm.

h m s
1 00 „ 00 Boston time made circuit
1 " " "
2 " " "
3 " " "
4 " " "
5 " " "
6 " " "
7 " " "
9 " " "

October 26/27 tm
3283 - 11 „ 54 „ 00
2964 - 11 „ 54 „ 58.5

27/28 tm
3283 - 10 „ 33 „ 00
2964 - 10 „ 34 „ 01,7

27/28 tm
E.C. - 20 „ 24 „ 00
2964 - 10 „ 48 „ 50.0
4.99
10 „ 48 „ 45.61
14 „ 21 „ 46.37
20 „ 26 „ 59 „ 24
3 „ 21 „ 01
20 „ 29 „ 38.23
20 „ 24 „ 00.00
21.77
16
4.23 fast

October 28/29 tm.
3283 - 9 „ 35 „ 00
2964 - 9 „ 36 „ 03,5
Set no. 3283 to Halifax Sid. time
2964 — 10 „ 57 „ 0
3283 - 11 „ 21 „ 56.3
10 „ 57 „ 0
7.
10 „ 50 „ 53
11 „ 21 „ 56.3
+ 31 „ 03.3
diff Lon (Att + 30 „ 40
23.3
3283 fast of Hal

14 „ 20 „ 59.63
46.74
14 „ 21 „ 46.37

EC - 20 „ 36 „ 00
2964 - 11 „ 00 „ 5.2

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Sid. Chron. No 2964

			m s	s
October	5'	slow	00 38.53	+ 1.53
"	6	"	38.00	0.93
"	7	"	37.07	0.67
"	8	"	36.40	1.42
"	9	"	34.98	1.01
"	10	"	33.97	1.60
"	12	"	30 77	1.80
"	13	"	28.97	2.41
"	14	"	26.56	2.61
"	15'	"	23.95	1.86
"	16	"	22.09	1.25
"	17	"	20.84	2.09
"	19	"	16.67	2.01
"	20	"	14.66	2.36
"	21	"	12.30	2.32
"	22	"	09.98	+ 3.48
"	23	"	06.50	

Sidereal Chronometer No. 3283

			m s	
October	5'	3283 slow	1 01.83	+ 00.33
	6		1 01.50	+ 00.23
	7		1 01.27	+ 00.37
	8		1 00.70	+ 00.22
	9		1 00.48	+ 00.29
	10		1 00 77	
	12		1 00.07	− 00.35
	13		0 58.97	+ 1.10
	14		0 59.06	0.09
	15		0 58.55	
	16		0 58.69	
	17		0 58.84	
	19		0 58.27	
	20		0 57.66	
	21		0 57.00	
	22		0 56.48	
	23		0 55.90	
	26		0 56.90	
	27		0 57.12	
	28		0 56.43	

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1851. October 29 PM

2964 - 29 .. 29 .. 0
194 - 21 .. 31 .. 37

21 .. 29 .. 0
8.2

21 .. 28 .. 51 .8
194 - 21 .. 31 .. 37 .0

+2 .45 .2
+ 4.4

July y+

24
31
30
29
114

114) 160 .8 (1.41
114 1.1
46 8 0.31
456
120

R. F. Bonce sailed in the Steamer America Capt Shannon, this day before noon, abt half past eleven, for Halifax

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1851phae.proj - 144

Oct. 30-31 Am. Altering E C to Sidereal time, after comparing Expedition Chronometer & Transit of Leonis for time of 2964.

E C – 12..43..0
2964 – 12..42..57.5 neg and dec fact..4 at $12^h..54^m$ neg^0.

Sidereal
E C – 13..45..0
2964 – 13..45..0.7

E C – 15..27..0
2964 – 15..26..57.5
neg

E.C – 15..32..0
2964 15..32..0

E C – 21..42..0.4
2964 21..42..1.0

2964 – 21.. 40..0
365 – 7 .. 00..38

Oct. 31 Pm

M.J.C. 8.. 26.. 95
2964-23.. 05.. 39.5

November 4/5 Am.

E.C. +10.3

E.C. 10..39..00 — 10.. 40.. 00 2964 10.. 41.. 13 2964 10.. 43.. 00
2964 10.. 39.. 18.5 — 10.. 40.. 18.5 202 10.. 36.. 00 207 10.. 41.. 42.4

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November 5/6 tm

E.C. + 9.80 fors

E.C. 10..38..00 E.C. 10..40..00 E.C. 10..41..00 E.C. 10..55..15
2964 10..38..22.5- 207 10..39..02.3 202 10..36..06.2 1508 4..38..58.

1507 8..22..00 M.J.C. 20..09..10
1508 5..01..08.5- 2964 11..10..09.5

Nov. 7/8 tm

E.C. + 8.50 fors

E.C. 11..44..30 1507 9..27..00 E.C. 11..54..00 E.C. 11..55..00
1507 9..25-..26.5- 1508 6..05..57.2 202 11..54..07.2 2964 11..57..39.6

E.C. 11..58..00 E.C. 12..00..00
207 11..57..05.3 2964 12..00..30.5-

12..00..00
8.50
11..59..51.50
12..00..30.50
39.00

Nov. 7 Pm
2964 17..11..00
H365- 2..04..25.5-

Nov. 9/10 tm
E.C. 11..49..00
2964 11..49..38.2

Nov 12/13 tm
M.J.C. 19..20..00
2964 10..38..48.6
56.25-
10..37..52.35-
15..24..04.5-1 15..24..51.25-
46.79 9..13..01.10
15..24..51.25- 3.059
19..05..52.2
19..20..00
Comb + 7.8
16
Boston - 8.2

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November 10/11 Am

E.C. +7.00

Therm No 1-51°

Anerids

E C 11.,30..00	——	11,, 31 „20	1508- 6.. 17..00	No 5801	30,425
2964-11,, 30,, 42.5-	1508	6..15 „04	1507 - 9.. 38..16.2	6713	29.702

E C 11.. 37..00	——	11..39..00	——	11.45..00	E.C. 12,,33..00
194 - 11 „ 40 „07.0	202-11,, 34..06		207- 11..43„39.5-		2964 - 12..33 „42.7

Nov. 11/12 Am.

E.C. + 5.14 fast

E.C. 12.43,, 55	1508-7,, 37..00	E.C. 12..50,,00	E.C, 12,, 51.00	
1507 - 10,, 57,, 18.5-	1507-10..58 „21.9	207 12,,49 08.3	202 12,,46 „02.6	

E.C- 12.. 53..00	——	13 „20..00	——	15..31..00
194- 12..56„06.5-	194-13 „23„06.6		2964„15„31„45.7	

November 12/13 Am

E.C + 2.33

E C 12..16..00	——	12..18 „00	——	12..20..00
2964 12„16„53.3	207-12.17 „14.2		202- 12.. 15„06.6	

Therm No. 1-51

Anerids

No. 6713 29.357

5801 30.102

E C-12..22..00	1508 7.. 23..00		
1507- 10 „ 43..22.4	1507 10.. 44 „27.7		

15,,57.7

16..53.3

54.4

55.6

16

3.

Nov. 13 Am MSC

Slow of Boston 8.2

Oct. 7th Am „ — „ 12.13

3.9 to.1

MSC. Slow 13th Am. 8.2

2 days rate — 2

8.0

11,,30.00

11,,29 59

11,,30.42.5

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Nov. 13 Pm

E C - 23.. 04.. 00 M J C - 7.. 36.. 00
2964-23.. 04 56.7 2964-23.. 06 52.5

Nov. 13/14 Am

E.C. — 0.22? slow this is uncertain

E C - 11.. 28.. 00 — 11.. 30.. 00 — 11.. 34.. 00 — 11.. 35.. 00
2964 - 11.. 29.. 00.7 194 - 11.. 33.. 21.2 207 - 11.. 33.. 19.4 202 - 11.. 30 09.6

E C - 11.. 37.. 00 1507 - 10.. 07.. 00 Aneroids Therm No. 1-47
1507 - 10.. 06.. 12.7 1508 - 6.. 45.. 27 No. 5801 30.010
6713 - 29.251

EC — 18.. 1.. 0
8829 - 2.. 15.. 55 coincidence

November 14/15 Am

E.C. slow 7.18

E.C. 12.. 48.. 00 — 12.. 50.. 00 — 12.. 52.. 50 Therm
2964 - 12.. 49.. 09.2 194 - 12.. 53.. 29.0 1508 - 8.. 08.. 55.5 No 1. 51

1508 - 8.. 11.. 00 E C - 12.. 59.. 00 — 1.. 00.. 00 Aneroids
1507 - 11.. 32.. 39.2 207 - 12.. 58.. 25.3 202 12.. 55.. 10.0 No 6713 28.053
5801 29.341

Nov. 15 Pm

Slow 9.20

E.C. 00.. 11.. 00 M J C - 8.. 36.. 00
2964 00.. 12 12.8 2964 - 00.. 15.. 01.6

Nov. 16/12 Am.

E.C. - 11.. 02.. 00 — 11.. 04.. 00 — 11.. 08.. 00 Aneroids
2964 - 11.. 03.. 25.3 194 - 11.. 07.. 42.2 207 - 11 07 35.6 No 5801 29.970
6713 29.230

E.C. - 11.. 12.. 10 1507 - 10.. 07.. 00 E. C. 11.. 36.. 00 Therm No. 1
1507 - 10.. 05.. 31.5 1508 - 6.. 45 .. 10.3 202 - 11.. 35.. 18.5 45.0

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Nov. 17/18 tm

M.J.D. 20.. 06.. 25
2964 11.. 55.. 22

16/17 tm

M.J.C 8.. 36.. 00
2964 00.. 15.. 01.6
1.. 03.6

15.. 35.. 54.17 00.. 13.. 58.. 0
46.79 15.. 36.. 40.91

15.. 36.. 40.91 8.. 37.. 17.09
1.. 24.74

8.. 35.. 52.35
8.. 36.. 00

first of B 7.65
16

Slow of B 8.35

17 Pm

M.J.C - 7.. 17.. 00
2964 23.. 03.. 48.7

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November 17/18 Am

E C slow 20.10

E C - 11..30..00 — 11..32..00 — 11..34..00 — 11..35..00
2964 - 11..31..33.4 194 - 11..35..49.5 202 - 11..33..22.5 207 11..34..41.2

— 11..38..00 1507 - 10..46..00 Thom 101,45° Anerich
1507 - 10..39..36.0 1508 - 7..24..04.0 No 6713 - 29.310
5801 - 30.070

Nov. 19 Pm

E C Slow 21.7

E C. 21..09..00 1106 5..17..30 — 5..19..00
202 21..09..27.5 202 41 — 21..12..11.2

Nov. 19/20 Am

E C. slow 28.5

E C. 12..40..00 — 12..42..00
194 - 12..41..04.4 202 - 12..42..28.6

Nov. 21/22 Am.

E C 40.72

E C. 12..16..00 — 12..18..00 — 12..20..00
202 - 12..16..39.3 194 12..19..20.2 207 - 12..20..04.4
1..20.7

E C. 12..21..00 — 12..21..45 1508 - 8..36..00.
1508 8..33..00.3 — 8..33..45.5 1507 - 11..58..14.5

Nov. 23/24 Am

E C. slow 50.05

E C. 11..29..00 — 11..30..00 — 11..31..00
202 11..29..49.4 194 - 11..31..35.3 207 - 11..31..15.6
1..35.3

E C - 11..32..45 1507 - 11..25..00
1507 - 11..22..58.5 1508 - 8..02..36.1

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1851phae.proj ...144

Dec. 3/4 Am.

E C slow 24.8

E.C. 13..35..00 — 13..36..00 — 13..38,,00 1507 2..51..00
202 13..35,,10.3 194 13..37,,39.4 207 13..38,,01.3 1508 11,,27..53.5
1..39.4

E.C. 13,,42..15.
1507 2,,52,,53.0

13..35..24.8
35,,10.7
14.5

Dec 5/6 Am

E C slow 35.12

E C 12,,08..00 — 12..11..00 — 12..12.00
194 12,,09,,53.2 202 12..11,,12.9 207 12,,12,,13,0
1..53.2

E C 12,,13,,40 1508 10..18..00
1508 10,,16,,41.5 1507 1,,41,,16.5

Dec. 7/8 Am.

E.C. slow 43.5

E.C. 13,,20..00 — 13..22..00 — 13..23..00 — 13,24,,20
194 13,,22,,07.0 202 13,,22,,16.0 207 13,,23,,25,1 1507 2,,07,,10.0
2..07.0

1507 3,,15,,00
1508 11,,51,,36.0

Dec 8/9 Am

E.C. 49.28

EC 12,,47,,00 — 12..49..00 — 12,,55.00 — 12,,57,,00
202 12,,47,,21.3 — 12,,49,,21.3 194 12,,57 15.0 207 12 57,,81.7
2..15.0

— 12,,59,,10 1507 2,,52..00
1507 2,, 49,,57.0 1508 11,,28..31.2

Dec. 10/11 Am

E.C. slow 57.5

E.C. 14,,31..00 — 14..32..00 — 14..34..00
194 14,,33,,30.6 202 14,,32 30.5 207 14,,34,,44.1
2..30.6

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1851phae.proj..144

Dec 15/16 Am

E.C slow 1m 20s. 12

E.C.	13.. 54.. 00	——	13.. 56.. 00	——	13.. 56.. 00	——	14.. 01.. 10.
202	13.. 54 39.5	194	13.. 56.02.0	207	13.. 57.. 11.5	1507	4.. 48 45.0
			3.. 02. 0				

1507 4.. 51.. 00
1508 1.. 27.. 01.2

Dec. 17/18 Am.

EC slow 1m 28s 00

Pole 220 –

E.C.	12.. 25.. 00	——	2.. 30.. 00	——	2.. 47.. 00	——	2.. 48.. 30
202	12.. 25 37.3	194	– 2.. 33 .. 13	207	– 2.. 48 .. 21.4	1507	5.. 52 .. 28.5
			3 .. 13. 0				

1507 6.. 54.. 00
1508 2.. 29.. 52.2

---

202 slow – 54s.74
35.6
SC 1.30.34

Dec. 18/19 Am

E.C. slow 1m 30s. 20

E.C.	13.. 05.. 00	——	13.. 06.. 00	——	13.. 08.. 00		
194	13.. 08.. 17.2	202	13.. 06.. 35.6	207	13.. 09.. 25.0		
	3.. 17. 2						
E.C	13.. 09.. 05.	1507	4.. 22.. 00				
1507	4.. 20.. 31.0	1508	12.. 57 .. 46.8				

Dec. 19/20 Am.

E.C. slow 1m 33s. 26

E.C	13.. 11.. 00	——	13.. 12.. 00	——	13.. 20.. 30		
202	13.. 11.. 36.3	194	– 13 15 .. 22.3	1508	1.. 15 .. 44.0		
			3.. 22. 3				
——	13.. 23.. 00	1508	1.. 19.. 00				
207	13.. 24.. 30.0	1507	4.. 43 .. 18.1				

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December 21/22 pm,
The chronometers have not been wound up for the last 48 hours. None of them run down.

Dec. 22/23 Am

E.C. 13..29..00 — 13..30..00 — 13..31..00
202 13..29..26.5 194 13..33..29.2 207 13..32..40.5
3..29.2

E.C. 13..32..30 1508 1..53..00
1508 1 51..34.0 1507 -3..17..33.2

Dec 23/24 Am.

E.C. Flow m s 1..42.86

N.Y.C. 13..19..00 — 13..20..00 — 13..22..00
202 - 13..19..29.9 194 - 13..23..33.7 207 - 13..18..44.7
3..33.7

— 13..23..30 1508 1..53..00
1508 1 ..50..28.5 1507 5..17..33.0

Dec. 25/26 Am.

Therm in box with above marks 22°

E.C. 14..53..00 E.C. slow m s 1..48.98 — 14..55..00
194 14..56..39.8 202 - 14 54..21.3 207 14 56..52.8
3..39.8

EC 14..59..00 1507 7..09..00
1507 7..07..11.5 1508 3,,44..11.4

Dec 26 Am
E.C. 00..40..00
202 00..40..18.8

Dec 26/27 Am
N.Y.C 19..12..00
202 13..31..42.1

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Dec. 26/27 Am.

E.C. 13..35..00 — 13..36..00 — 13..39..00
202 13..35..17.5 194 13..39..42.7 207 13..40..56.8
3..42.7

E.C. 13..40..20 — 1508 — 2..33..00
1508 — 2..31..09.5 — 1507 — 5..57..54.8

Dec. 28/29 Am. E.C. slow 1..58.53

E.C. 14..29..00 — 14..30..00 — 14..31..00 — 14..33..00
202 14..29..15.0 207 14..32..09.0 194 14..34..54.4 1507 7..05..08.0
3..54.4

1507 8..45..30
1508 5..20..22.4

Dec 29 Am } E.C. 22..28..00
202 22..28..15.7

Dec. 29/30 Am. E.C. slow 2..01.97

E.C. 13h 50m 00 — 13..54..00 — 13h 53m 00s
202 — 13..50..18.7 194 — 13..54..01.1 207 — 13..50..14.6
4..01.1

Dec 30/31 Am

E.C. 13..49..00 — 13..51..00 — 13..53..00 — 13..55..00
194 13..53..07.7 202 13..51..23.7 207 13..55..20.3 1507 — 6..43..05.5
4..07.7

1507 6..45..00
1508 3..19..47.7

1852 Jan. 1/2 Am. slow 2..15.08

E.C. 15..05..00 — 15..07..00 — 15..08..00
202 15..05..32.7 — 15..07..32.7 194 — 15..12..21.7
4..21.7

E.C. 15..10..00 — 15..11..00 — 15..13..35 1508 4..54..00
207 15..12..31.5 — 1508 — 4..52..00.0 1507 8..19..16.4

Jan 2nd Am E.C. slow 2..49.34

E.C. 5..15..00 — NJC 10..52..00
202 5..15..34.6 202 5..17..44.45

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Jan. 7/8

E.C. slow 2m 31.11

E.C. 14 27 00 — 14 29 00 — 14 30 00
202 14 27 41.7 194 14 33 57.8 207 14 33 00.2
4 51.8

EC 14 31 55 1508 5 00 00
1508 4 58 59.0 1507 8 25 42.4

Jan. 12/13 Am slow 2m 5s.51

E.C. 15 41 00 — 15 42 00 — 15 43 00
202 15 43 56.3 207 15 43 27.5 — 15 46 27.6

E.C. 15 52 00 — 15 54 05 1508 7 03 00
194 15 57 22.1 1508 7 01 32.0 1507 10 29 04.7
5 22.1

Jan. 13/14 Am. 15

E.C. slow 2m 55.08

EC. 15 44 00 — 15 46 00 — 15 48 00
202 15 46 55.3 194 15 51 28.0 207 15 51 33.4
5 28.0

EC. 15 48 40 1507 10 54 00
1507 10 30 16.5 1504 7 27 49.8

EC 16 22 00 — 16 23 00 — 16 25 00
194 16 27 41.4 202 16 26 01.5 207 16 28 45.3
5 41.4

EC 16 27 00 1508 8 00 00
1508 7 58 36.0 1507 11 26 20.8

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Jan. 16/17 Am.

E.C. slow 3..08.70

E.C. 15..56..00 — 15..57..00 — 16..00..00
202 15..59..02.3 154 16..02..47.1 207 16..03..30.7
5..47.1

E.C. 16..25..25 1508 8..06..00
1508 8..04..56.0 1507 11..32..26.0

Jan. 19/20 Am

E.C. slow m s 3..17.38

E.C. 15..11..00 — 15..12..00 — 15..15..00
202 15..13..43.7 154 15..17..50.8 207 15..19..02.3
5..50.8

E.C. 15..15..50 1507 10..46..00
1507 10..45..22.5 1506 7..21..15.2

21/22

Jan. 21/22 Am E.C. slow m s 3..26.28

E.C. 15..51..00 E.C. 15..56..00 — 15..58..00
202 15..53..35.4 154 16..02..00.8 207 16..02..15.0
6..00.8

4 15.0
3..26.3
48 7

E.C. 15 58..35 1508 8..19..00
1508 8 17..30.5 1507 11..45..54.5

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1852.

Janv. 13 Pla.

M.T.C – 0..59..6 — 1.. 0..0 — 7..13..6 — 7..14..6 — 20..21..0 — 20..22..0

211 – 5..44..36 215 – 5..45..14 211 – 7..58..36 215 – 11..59..18 211 – 13..06..43 215 – 13..07..29

14th Am

16th Am

17th Am

M.T.C – 20..45..0 — 20..46..0

215 – 13..30..34.3 211 – 13..31..45.2

5h

194 6.22.00
4.59.24.5

–1.24.35.5

4
–1.24.45.1
–1.24.35.5
+9,6
3
+6,6

202 6.25.00
6.26,12 + 35,6
+1,12
35.6
+36.4
7
29,4
3
+ 26.4

7,3
3.9
3,4
1,7
5,1

Feb. 10 Am. E.B. run down R.F.B. winds it up and sets it forwasd of true sidreal time one minute

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Sidereal Chronometers

Electric Clock — Ast. Time		Sidereal		Hutton 202 — Nov. 4		m s		Hutton 207 — Nov. 4		m s	
Nov. 4	fast	00..10.30			slow	4..44.00	−00.0		slow		
5	..	9.80	−.50	5		44.00	−00.35	5	−	00..49.90	+1.85
7	..	8.50	.65	7		4..44.70	−00.77	7		46.20	
10	..	7.00	.50	10		4..47.00		10			−0.09
11	..	5.14	1.86	11		4..52.26	−5.26	11		46.56	+3.09
12	..	2.33	2.81	12		4..51.07	−8.81	12		43.47	+2.64
13	slow	1.60	3.93	13		5..12.40	21.33	13		40.83	−1.05
14	..	7.18	5.58	14				14		41.88	+0.99
17	..	20.10	4.30	17		0..57.60		17		38.90	+0.64
19	..	28.50	4.20	19		00.00	−0.71	19			+0.93
21	..	40.72	6.11	21		0..01.42	+0.39	21		36.32	
23	..	50.05	4.63	23		0.65	−1.38	23		34.45	+1.09
Dec. 3	..	24.80	3.07	Dec. 3		0..14.50		Dec. 3		23.50	+0.69
5	..	35.12	5.15	5		22.22	−3.86	5		22.12	+1.86
7	..	43.50	4.19	7		27.50	−2.64	7		18.40	+0.82
8	..	49.28	5.78	8		00..27.98	−0.46	8		17.58	+2.09
10	..	57.50	4.11	10		00..27.00	+0.49	10		13.40	+0.96
15	..	1..20.12		15		00..40.60	−2.75	15		8.62	+1.01
17	..	28.00		17		00..50.70	−5.05	17		6.60	+1.40
18	..	30.20		18		00..54.30	−3.60	18		5.20	+1.94
19	..	33.26		19		00..56.96	−2.66	19		3.26	+1.84 +1.27
23	..	42.86		23		1..18.96	−5.50	23	fast	+1.84	
25	..	48.98		25		1..27.68	−4.51	25		3.32	+0.74
26	..	50.78		26		1..33.28	−5.60	26		6.02	+2.70
28	..	58.53		28		1..43.40	−5.06	28		11.47	+2.72
29	..	2..01.97		29		1..43.27	+0.13	29		12.63	+1.16
Jan. 1	..	2..15.08		Jan 1		1..42.38	+0.24	Jan. 1		16.52	+1.29
7	..	2..31.11		7		1..49.40	−1.12	7		29.09	+2.08
12	..	2..51.61		12	fast	4.80	−4.58	12		35.99	+1.38
13	..	2..55.08		13		0.22	2.17	13		38.32	+2.33
16	..	3..08.70		16	slow	0..6.30		16		42.00	+1.23
19	..	3..17.38		19		0..33.90	−9.20	19		44.92	+0.97
21	..	3.26.28		21		50.88	−8.49	21		48.72	+1.90
23	..	3..35.30		23		1..06.40	−7.76	23			
26	..	3..46.99		26		1..26.19	−6.54	26			
29	..	3..57.32		29		1..40.02	−4.61	29			

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Shutton 194

Nov.	7	fast	3m 08.10
	10		3.. 14.00 +1.97
	11		3.. 11.64 −2.36
	12		+4.16
	13		3.. 20.98 +0.84
	14		3.. 21.82
	17		3.. 29.40 +2.52
	19		
	21		3.. 39.98 +2.63
	23		0.. 45.25 +2.93
Dec.	3		1.. 14.60 +1.74
	5		1.. 18.08 +2.71
	7		1.. 23.50 +2.22
	8		1.. 25.72 +3.65
	10		1.. 33.10 +1.76
	15		1.. 41.88 +1.56
	17		1.. 45.00 +2.00
	18		1.. 47.00 +2.04
	19		1.. 49.04 +0.45
	23		1.. 50.84 −0.00
	25		1.. 50.82 +1.10
	26		1.. 51.92 +1.97
	28		1.. 55.87 +3.26
	29		1.. 59.13 +2.49
Jan.	1		2.. 06.62 +2.34
	7		2.. 20.69 +1.26
	12		2.. 27.00 +5.92
	13		2.. 32.92 +1.82
	16		2.. 38.40 −1.52
	19		2.. 33.42 +0.55
	21		2.. 34.52
	23		
	26		
	29		

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Chronometers sent to Charleston S.C.

From next page

	At	2h 39m 20s.0	
1.41.00		40.50	M.S.C.
17.73	Sid. Time	2 38 39 50	
1 40 42 27	M.S.C.	5 02 40 00	
1 41 23 10		2 24 00 50	M.S.C. fast of Sid. Time
215 fast +40.83	J. Camb.	+ 32.48	Int. of Sid. Time on
		− 01	cor. rate
	M.S.C. fast of	2 24 32 97	at M.S.C. 1 44 55
1 44 55	Sid. Time	− 1.31	8m 00
5 02 40			1 52 55
3 17 45		− 0.64	3 55
32.48			1 56 50
3 18 17 48		− 0.68	4 08
			2 00 58

1 44 55		2 24 32 97	
17.73		31.66	
1 44 37.27	int. on c.t.	31.02	= Sid. Times of Comparisons
17.2		30.34	At M.S.C. fast of Sid. Time
1 44 54.47	int. sid. time		
21 34 40.83		1 44 55.00	
46.74		1 52 55.00	
21 35 27.57		1 56 50.00	
17.19		2 00 58.00	
21 35 44.76	M.S.C. fast		
17.73		23 20 22.03	
21 35 27.03		28 23.34	
2 24 32.97	M.S.C. fast of Sid. Time	32 18.98	Sid. Times at Comparisons
	at M.S.C.	36 27.66	
	1h 44m 55s		
	202	23 19 34.00	
	207	23 28 04.00	
	1507	2 43 21.50	
	1508	4 11 39.50	

At Sid. Time				+2.30
Feb. 14d 23h 20m	202 Slow	− 48.03		202 gains daily +2.23
23 28	207 "	− 19.34	of Sid. Time Camb.	207 loses " −0.60
23 32 19.0	1507 fast	+3h 14m 02.52		
23 36 27.7	1508 "	+4 35 11.84		

Feb 14d 1h 40m M.S.C. 215 fast of Camb. m.s.t. 40s.83 gains daily +1s.67

14d 2h 00m 40s.3 " 1508 " 2h 10m 59s.23 gains daily +11m 58s.32 — on M.S.C.

14d 1 56 32.3 " 1507 " 0 46 49.23 " +12 00.24 "

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Feb. 11/12 Am.

E.C. 19..24..00 — 19..25..00
207 19..23..16.8 — 19..24..16.8

12 Pm
E.C. 5..32..00
207 5..31..43.8

207 — 18.02..18.4
207 Slow 19.2
18.02 36 6
EC 18.03.00 0
23.4

Feb. 12/13 Am.
E.C. 18..03..00 — 18..04..00
207 18..02..18.4 — 18 03..18.4

13 Pm.
E.C. 5..34..00
207 5..33..19.2

1852. February 14th 2h P.M.

Chronometers which are going to Londonderry S.C. via New York this afternoon.

M.E. fast of Camb. mean St 17.73

M Time Clock	1.41.00	1.42.00	
Hutton 215	1.41.23.1	1.42.23.1	Mean Solar

M.T. Clock	1.44.55	1.47.55		1.52.55	1.54.00
202 Sid	11.19.34	11.22.34.5	#207	11.28.04.	11.29.04.3 Sid
M.T.C	1.56.50.0	1.57.51.0		2.00.58	2.01.59.0
1507 =	2.43.21.5	2.44.23.0	1508	4.11.39.5	4.12.41.0

1507 & 1508 are comparatives on gaining 12 minutes daily.

2..00..58.00
17.73
2.00.40.27
4.11.39.50
1508 + 2..10 59.23

Pm
Feb. 14 194 set forward 6 min.

21..34 40.83
46.84
35 27 57

14 Pm			Pm
E.C. 2..38..00	M.E. 5..02..40		E.C. — 6..43..00
194 2..38..20.5	194 — 2..39..20.0		194 6..43..20.3
194 fast 40.41	40.55 — .50 corr = 0.05		
2..37 40.09	2..38..39.45		
EC fast 19.91	21..35..27.57		
	5..03..11.88		
	49.67		
	5 02..22,21		
	5 02..40		
	17.79 05		

1.56..50.0
17.73
1..56..32.27
2..43..21.50
0..46..49.23

M.E. 1.74 fast of Boston by corrected Transits

1.79 fast of Boston

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Feb. 15/16 Am.
M.T.G. 20..50..00 E.C. 18..36..00
194 18 33 ..08 194 18..36..16.8

Feb. 16 Pm.
E.C. 3..25..00
194 3..25..16.8

215 Feb 1..20h Fast of Comb 18.7
14..2 .. 40.8
13.6 13.25 28.1 (1.67
1325
885
745
400

215 gains daily 1.67

207 Sidereal

	Sid Time		Error	Rate
Feb 5/6	17..52	207	- 14.38	
6/7	17..27	"	- 15.19	- 0.8
9/10	17..52	"	- 17.17	- 0.7
11/12	19..43	"	- 17.48	- 0.20
12/13	17..52	"	- 18.18	- 0.8
13 P.M.	6..38	"	- 18.73	- 1.0
14 P.M.	23..38	"	- 19.34	- 0.8

6d 17h 52m - 14.38
14 23..38 - 19.34
8 5.46 = 8.2) 4.96 (.60
492
40

1.8) 3.82 (2.1
36
22

) 11.12
5) 11.52
2 30

207 loses daily 0.60

202

Feb 9d 4h Sid	202 Slow	- 55.15	+2.4
12d 5h	"	- 51.85	
14d 0	"	- 48.03	+ 2.1

202 gains daily 2.30

M.T.C.
Feb 3/4d 8..37..44
M.T.C. - Fast of Comb 18.8
8..37..25.2
1508 8..46..00.0
8.34.8

12..00..00
1.68
11..58..32

(1508)
Feb 8/9d
1..8..29.6
8..34.8
59..54.8
5d 5h 60.. 2.62
5) 7.82
1.56

M.T.C.
8..42..58
18.11
8..42..39.9
9..51..05.5
1..8..29.6

Feb 13/14d
9..12..11
2..08..35.2
1..08..29.6
60..05.6
60.14.60
5) 9.0
1.80

9..12..11
17.7
9..11..53.3
14..20..28.5
2..08..35.2

9..12..11
2..00..58
4..48..47
2m..24..40
37 Rate
2..24..03
2..08..35.2
2..10..59.23
By comp 2..10..59.23

Feb 10/11d
8..07..05.0
+ 18.10
8..06..46.9
8..14..40.5
7..53.6

13/14
9..07..50
+ 17.7
9..07..323
9..51..57.0
44..24.7

7..53.6
44..24.7
36..31.1
36..30.38
3) 0.72
0.24

10d 8..06..46.9
13d 9..07..32.3
3d 1h 00m 454
12..00..00
0.24
12..00..24

9..07..50
1..56..50
4..49..00
2..24..50
5
2..24..55
0..44..24.70
0..46..49.25
By Comp-

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Feb. 14

The following are the errors of M.S.C. and E.C. derived from immediate comparison with the observing Chronometer. These comparisons were made at the time of transit of stars.

M.S.C. fast of Boston				
Feb. 6	20h	+ 2.18		
" 9	5	+ 2.46		
" 9	20	+ 3.43	2.11	
" 11	22	+ 2.13	2.06	
12	8	+ 1.81		
12	20	+ 1.68		
13	9	+ 1.87		
15	7	+ 1.36		
16	20	+ 1.18		
17	5	+ 1.20		
18	5	+ 1.14		
20	21	+ 0.39		
23	22	− 0.39		
25	20	− 0.36	0.39	
March 2	[illegible]	− 2.73	0.41	
3	21	− 3.64		
9	7	− 5.73		
15	21	− 9.10		
18	21	10.36		
22	5	11.97		
28	20	16.00		

E.C. Sidreal Clock					
Feb. 9	2sid h	slow	4m 33s.98		rate
" 11	19h	fast	0. 25.89	E.C. run down.	Adjusted
" 12	5h	"	24.46		
" 12	18h	"	23.29		
" 13	5h	"	22.19		
14	6	"	19.60		
16	3	"	17.94		
17	3	"	15.70		
18	3	"	13.12		
19	3	"	10.60		
20	3	"	7.40		
20	18	"	5.74		
22	20	"	0.01		
23	20	slow	2.45		
25	[illegible]	"	05.82	− 1.35	
27	3	"	11.20	− 1.34	
March 2	7	"	17.96		
3	20				
9	7	"	23.00	1.33	
15	20		31.10		
16	20		32.31		
19	00		32.40		
22	5		34.71		

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Feb. 17 Pm

E.C. 2..59..00
194 2..59..16.8

18 Pm

coin
E.C 2..38..00
194 2..38 16.5

18/19 Am.

E.C. 19..48..00
194 19..48..16.4

19 Pm

EC 2..58..00
194 2..58..16.5

19/20 Am.

E.C. 18..58..00
194 18..58..16.3

20 Pm

E.C. 3..42..00
194 3..42..15.3

20/21 Am

E.C. 18..40..00
194 18..40..15.0

rate of E.C. — 2.8 daily

Feb. 22/23 Am.

E.C. 20..44..00
194 20..44..15.2
15.14

22..06.13.26
46.74
22.07.00.00

20..44..00.01
22..07..00..00
2..37.00.01+
23.72
22..36..34.29
2..23..25.71
23.44
2..23.49.20
20..44..00.01
23..07.49.21
.28
23.07.49.49

E.C. = 22..06..59.75
12
22.06.59.63 E.C. at 1h Camb.
16.05
22.06 43.58 = " 1h Boston
5.06.82
22..01..42.76 at 12..55

22.10..09.82
46.74
22..10 56.56
1..00..09.86
23..11..06.42
16.
23..10 50.42
28
23..10 50 14

22..10..09.82
.18
22,10 09.64
1..09 9 86
23..10..19 50
12
EC 23..10 19.38 at 1h Pitt Camb
16.04
EC 23 10 03.34 at 1h Boston
46.74
23 10 50.08

EC will mark at 0h

23..5..02.52 at 12..55
6..02.70 56
7..02.85 57
8..03.01 58
9..03.18 12..59
10..03.34 1..00

25 Pm
E.C. 3..32..00
194 3..32..17.3
12 0
0..05 3

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23 Phl at noon

MSC	0..27..30	EC	22..40..00
194	22..38..30.5	194	22..40..15.2
	1..48..59.5		
	15.0		
	1..49..14.5		
32m..30s	6.2		
	1..49 08.3		
	10		
	1..49..7.3		
	22..10 52.7		

	22..38..30.5		
	15.2		
EC	22 38..15.3		
MSC	0..27..30.0		
	22..10..45.3		
	10		
	22..10..44.3		
	5.74		
	23..10 50.5		

23..	5..49.3	0.55
	6..49.4	0.56
	7..49.6	0.57
	8..49.7	0.58
	9..49.9	0..59
23..10..50.1		at 1h

Feb. 23/24 Am

EC. 20..31..00
194 20..31..16.2
13.75-
20..31..02.45

Tuesday 24 22..14..06.37
46.74
22..14..53.11 at sun Camb.
1..00..05.86
23..15..02.97 at 1h Camb
16.05
23..14..46.92 at 1h Boston
2.70
23..14..44.22 EC. at 1h Boston

23..10..50.1		h	m s
3..56.55		0.55	9..43.4-
23 14 46.65		56	10..43.6-
2.4		57	11..43.7-
23..14..44.2		58	12..43.9-
		59	13..44.1
		1..00	14..44.2

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Feb. 26/27 Am.

E.C. 18..38..00
194 18..38..19.3

March 2nd 1 Pm

E.C. 7..16..00
194 7..16..15.2

M.J.C. 8..57..45
194 7..41..26.0
2.76
7..41..28.76
22..42..28.98
8..58..59.78
1..28.9
8..57..31.48
8 57..45
13.52
16
2.48

22..41..42.24
46.74
22..42..28.98

7..16.00
17.96
7..16..17.96
15.2
2.76

2/3 Am
EC 27..17..00 — 21..18..00
1942 1..16..56. — 21..18..13.7
4.25
21..18..17.95
18.00
17.40

3 Pm
E.C. 23..28..00
194 23..28..13.6

22..45..58.79
46.74
22..46..25.53 at 12h
1..00..04.86
23..46..30.39 at 1h
17.54
23..46..17.85 E.C. at 1h
16.04
23..46..01.81 Boston 1h

March 3rd 1852

	must E.C. =
12h..55	23h..41..01.0
56	42..01.2
57	43..01.3
58	44..01.5
59	45..01.6
1.00	46..01.8

Time sent to Boston by Telegraph.

M.J.C. 19..48..00
194 18..37..20.8

M.J.C. 1
239-0 .55 .27.9
56 .28.2
57 .28.0
58 .28.1
59 .27.9
00 .27.9
28.0
28.
.5

239 East of Boston
M.J.C. 0..50..0
239-0 .50..30.0
0..50..0
2.44
49 57.52
4.96
2.48
30..5
27

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March 3/4 tm

E E.C. 19..48..00
194 19..48..11.7
70
187

~~E C Slow of 194~~
M'

March 8d Noon

23..05..21.56
46.74
23,06,08.30 at
1..00..09.82
23,06.18.16 at h
25.20
23..05..52.96
16.05
00,05,36.91
4. 6.7
3 6.6
2 6.5 begun 00..56 h m
00,01,36.4 at ~~00..55~~
00 1.2 00..55

EC 5.3 Slow of 194
MSC 1h09m00s
194 12..14..51.8

1..09..00.0
4.0
1..09..04.0
12..14..51.8
54 12.2
0 0.5
54..13.7
5.2
54..18.9
0..05..36.9
0..59..55.8

Time was sent in at EC marking 0h05m36s.9 for 1h Boston

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March 9 8m

EC 11.. 49.. 00
194 11.. 49.. 04.0

Com
MC. 0.. 42.. 44.0
194 11.. 52.. 26.5

23.. 09.. 18.11
46.74
23.. 10.. 04.85
1.. 00.. 09.86
00.. 10.. 14.71
26.5
00.. 09.. 48.21
16.04
00.. 09.. 32.17 at 1h Boston

5.	8		used
00..	04.. 31.37	at 12.. 55m	0.. 04.. 33.4
	5.. 31.57		5.. 33.6
	6.. 31.67		6.. 33.7
	7.. 31.85		7.. 33.9
	8 32.00		8.. 34.0
	9.. 32.27		9 .. 34.3

March 10 8m

23.. 13.. 14.66
46.24
23.. 14.. 01.40
1.. 00.. 09.66
00.. 14.. 11.26
24.6
00.. 13.. 46.66
16 04
00.. 13.. 30.62 at 1h Bost

5	8		
00..	08.. 29.62	at 62.. 5	5
	9.. 30.00		56
	10.. 30.15		57
	11.. 30.35		58
	12.. 30.50	12.	59
	13.. 30.6	1..	00

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March 9 Pm

E.C. 6.. 55.. 00
194 6.. 55 ,03.8
19.2
6.. 55,, 23.0
55

10 Pm

E.C. 7.. 20.. 00
194 7.. 20.. 03.4

10/11 Am

E.C. 20.. 44.. 00
194 20.. 44 .. 02.3

March 10th Pm

Comparisons of J & S. Standard Thermometer with Bond & Son No 1, & 2 Copper cases

Standard	No 1.	No 2	
-4°	- 5.	- 6	Changed position in the bowl
- 4.	5.	- 6 1/2	Changed position in the bowl
4 1/2	4 1/2	6 1/2	
3 1/2	3 1/2	5 1/2	
2 1/2	3 1/2	4 1/2	

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March 11 Pm.

Rate of E.C. -3.9 daily

23..17..11.22
46.74
23..17..57.96
1..00..09.85
00..18..07.81
24.72
00..17..43.09 E.C. at 1h
16
00..17..27.09 E.C. at Bost-
5..008
00 12..26.29 at 12.55
13..26.45 56
14..26.60 57
15..26.80 58
16..26.95 59
17..27.10 1..00

3..58..54
4
3..55.6
7 00..40.00
mtc 00..36.385

12hr E C time to send to Boston

0.. 16..21.9
17.. 22.1
18..22.2
19..22.4
20..22.6
1h B.m.s.t. = 21.. 22.7

March 15 Pm

M.C. 7..49..00
194 7..23.. 22.4

E.C. 7..29..00
194 7..28..58.9
31.2
29. 30.1

March 15/16 Am

E.C. 21..10..00
194 21..09..58.3

18/19 Am

E.C. 20..40..00
194 - 20 39 52.1
40.21
40.32.31

19/20 Am.

E.C. 20..43 00
194 20..42..50.3

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March 16 Pm.

23,, 36.. 53,98
46.74
23,,37.4 0.72
1,,00,, 05.86
0 0..37,,50.58 at th Bomb.
16
00,,37.34.58 at h B
31,35
00,,37,,03.23 at l^h
5,,00 8
00,,32,,02.43 make cir.
3,, 02.60
4,, 02.75
5,, 02.90
6,, 03.10
00,,37,,03.20

March 19 Pm.

23.48..43.64
46.74
23,,49,,30.38
1,,00,,05.86
0.49,,40.24
16
00,49,,24,24
32,40
00,,48,,51.84 at 1^h Bottom
5,,00 8
00 48,,51.04 54
4,,51.20 56
5,,51.35 57
6,,51.50 58
7,,51,70 59
8,,51.84

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March 22 Pm

	h	m	s
E.C.	5	10	00
194	5	09	49.9
			51.41
	5	10	34.71

March 25 Pm

E.C.	4	59	00
194	4	58	39.8

26/27 Am

EC	20	31	00
194	20	30	37.3

April 13 Pm

55.4
08.9
29.0
36.5
50.5
04.9
9 19 18.4

March 24

00..08..26.40
46.74
00..09..13.14
1..00..09.86
1..09..23.00
16
1..09..07.00
35.90
1..08..31.10
5..008
1..03..30.30 55
04 30.45 54
5..30.70 57
6..30.90 58
7..31.00 59
08..31.10 1..00

March 27 Pm

00..20..16.06
46.74
00..21..02.80
1..00..09.86
1..21..12.66
16
1..20..56.66
40.73
1..20..15.93
5..008
1..15..15.10
16..15.30
17..15.45
18..15.60
19..15.80
20..15.93

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April 12/13 Am.

E.C. 22..18..00
194 22..16..58.9

13 Pm

E.C. 4..41..00 — 5..24..00 — 7..13..00
194 4..39..53.3 — 5..22..53.3 — 7..11..52.8

13 Pm
E.C. 9..25..00
194 9..23..52.5

13/14 Am
E.C. 23..56..00
194 23..54..49.95

April 16 Pm
E.C. 7..34..00 — 7..41..00
194 7..32..45.2 — 7..39..45.2

16 Pm
EC 12..46..00
194 12..44..44.7

16/17 Am.
EC 22..00..00
194 21..58..43.8

17 Pm E.C. came near running down
E.C. 9..23..00
194 9..21 42.8
— 1..56.18
9..23..38.98
— 38.98

17 Pm
E.C. 12..30..00
194 12..28..42.2
194 Stars 1..56.73
12..30 38.93
EC — 38.93

April 22 Pm
E.C. 10..05..00 — 10..07..00
194 10..03..29.2 — 10..05..29.2

April 24 Pm.
E.C. 10..12..00
194 10..09..37.6

April 27 Pm.
E.C. 7..31..00
194 7..28..31.5

28 Pm
E.C. Has been

28/29 Am
E.C. 00..02..00
194 00..01..01.2

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April 30 Pm

E.C. 11..18..00 — 12..54..00
194 11..16 57.5 — 12..52..57.25

May 2/3 Am

E.C. 23..30..00
194 23..28 52.8
2..31.68
23..31..24.48
23..30..00.00
1..24.48

May 3 Pm

E.C. 11..09..00
194 11..07..51.6
2..32 93
11..10..24.68
EC 11.. 9 00
53
EC Slow -1.. 24.60

3/4 Am

E.C. 22..58..00
194 22..56..50.0
2..34.14
22..59..24.14
22..58..00.00
-1..24.14

4 Pm

	h	m	s		h	m	s
E.C.	6..	00..	00	—	6..	21..	00
194	5..	58..	49.4	—	6..	19..	49.3
		2..	35.3			2..	35.33
	6..	01..	24.7		6..	22..	24.63
EC	—	1..	24.70		—	1..	24.63

May 4 Pm

E.C. 6..55..00
194 6..53..49.35
2..33.32
6..56 24.69

4/5 Am.

E.C. 22..54..00
194 22..52..47.8

May 8 E.C. Rundown this morning

May 10 Pm

E.C. 9..33..00
194 9..31..08.8

May 11 Pm.

E.C. 12..17..00 — 12..18..00
194 12..15..07.0 12..16..07.0
2..49 20
12 18..56.20
12..16..
56.20 slow

16/17 Am E.C. run down

May 17 Pm

E.C. 3..39..00
194 3,56..06.3

17/18 Am

E.C. 23..03..00
194 23..00..04.8
3..3.88
23..03..8.68
22..03..
E.C. slow 8.68

E.C. 3..48..00
194 3..45 4.3
3..4,33
48..8 63

18 Pm

E.C. 10..03..00
194 10..05..03.8
1..54.8
03 8.09.0
03 5.00
.920
.46 daily

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May 17 Pm.
M.T.G. 6.. 11.. 00
194 9.. 51.. 33.8

May 19 Pm
E.G. 9.. 04.. 00 — 10.. 05.. 00
194 9.. 6..01.8 — 10.. 07.. 01.9

1 h after

19/20 Am.
E.G. 00.. 03.00
194 00.. 05.00.3
1.. 50.7
00.. 03..09.6
00 3.. 00.
9.6

May 20 Pm.
coin coin
E.G. 9.. 23.. 00 — 9.. 24.00
194 9.. 24..59.5 — 9.. 25.. 59.5
1.. 49.80
9.. 24..09.7
24 or
9.7

May 22 Pm
E.G. 10.. 06 .. 00
194 10.. 07 ..55.4
1.. 45.. 04
10.. 06.. 10.76
9.7
1.06
.59

May 23/24 Am
E.G. 3.. 16.. 00
194 3.. 17 ..53.8
1.. 40.94
3.. 16.12.86
3.. 16. ——
12.66 by 194
12.00 by its rate
12..20

rate of 194 − 2.5
rate of EG − 0.6

May 24 Pm.
E.G. 9.. 25..00
194 9.. 26..53.4
1.. 41.5
9.. 25.. 11.9

12.60
10.76
1.84
.4

May 25 Pm
EG 10.. 36.. 00
194 10.. 37.. 51.9
1.. 38.66
10.. 36..12 44

25
11.9
14.9
3.0
.45
12

12.44

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Mean Time Clock

Ast. day	slow of Boston m h m	s	
March 28	20.14	0.16.0s	
" 31	19.40	18.4	
April 1	19.43	19.0	
" 2	20.25	19.4	
" 10	3.16	22.0	
" 13	7.59	23.9	
" 16	20.29	25.3	
" 22	8.09	27.7	
" 22	19.57	28.2	
" 27	3.30	30.3	
" 30	10.21	32.5	
May 2	19.52	34.0	
" 3	19.13	34.3	—
" 5	20. 6	36.1	—0.s64
" 10	6. 8	38.9	
" 17	6.11	44.4	
" 17	19.26	44.7	
" 18	5.39	45.2	
" 19	20.17	46.5	
" 24	5.15	49.7	
" 26	5.49	50.7	
" 30	20. 3	52.5	

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May 17 Pm.

h m s

E.C. 4 22 00

194 4 19 6.3

3.02.32

4 22 08.62

4 22 00

8.62

3 41 20.32

46.74

3 42 07.06

8.62

3 41 58.44 at 12 h

1 00 09.86

4 42 08.30 at

16

4 41 52.90

58.52

4

42.5-2

May 18 Pm.

3 45 16.87

46.74

3 46 03.61

8.6

3 45 55.01 at 12 h

1 00 9.86

4 46 04.87 at 1 h 6

16.04

4 45 48.83 at 1 h 8

5 8

4 40 48.03

1 48.20

2 48.30

3 48.50

4 48.65

E.C. 5 48.83 at 1 h Boston

18 Pm.

N.J.C. 00 14 45

194 3 58 15.5

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May 20 Pm
Send the Camb. Time to Boston
to-day at 1h

3h..53m..09.59
46.74
3..53..56.73
9.68
3..53..47.05 at 12h Camb.
1..00..9.86
4..53..56.91 at 1h Camb.
5 8
4..48 56.11
49..56.25
50..56.40
51..56.60
52..56.75
53..56.91

May 24 Pm

4..08.56.21
46.74
4..09..42.95
12.30
4..09..30.65 at 12 h Camb.
1..00..09.86
5..09..40.51 at 1h Camb
16
5..09..24.51 at 1h Boston
5.. 8
5h04..23.71
5..23.85
6..24.00
7..24..15
8..24.30
5..09..24.50

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M.J.C. slow at 1h 52.55

May 26 Pm

E.C. 10..05..00
194 10..06..49.3
1..36.7
10..05..12.6
10..05
12.60

4..20..45;88
46.74
4..21..32.62
12.90
4..21..19.72 at 12 C
16
4..21..09.72 at 12 B
1..00..09.86
5..21..13.58 at 1h Boston
5.. 8
5..16..12.78
17..12,90
14 18..13.10
01 19..13..25
20..13..46
5..21..13.58

May 31 Pm

4..36..32,11 = sid C-B m sun
46.74
4..37..18.85 = sid t on m lamb.
1..00..9.86
5..37..28.71 at 1h Pm Lamb
14.81 errors of E C
5..37..13.90
16. reduc. to Boston time
5..36..57.90 E.C. at 1h Boston
5.. .82
5..31..57.08
32..57.25
33..57..40 two late .5
34..57..55
35..57..75 zu spät .2
36..57.90 at 1h Boston .1

June 3 Pm.

4..48..21.78
46.74
4..49..08.52
16.60
E.C. at 12 hm. C 4..48..51.92
1..00 9.86
E.C. at 18m. C 5..49..01.78
16
E.C. at 18m. B 5..48..45.78
5.. 82
12h..55m 5..43..44.96
56 44..45.15
57 45..45.30
58 46..45.45
59 47..45..60
1..00..00 48..45..78

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daily rate of E.C. = $-\overset{s}{0}.44$

May 28 Pm.
E.C. 11..46..00
194 11..47..45.5

May 30/31 Am
E.C. 23..43..00 — 00..17..00 — 2..02..00
194 23..44..41.3 — 00..18..41.3 — 2..03..41.1
1..26.6
23..33..14.7
23..48..00.0
14.7

1..26.40
2..02 | 4.7.0
2

June 2/3 Am
E.C. 2..05..00
194 2..06..37.04
1..29.47
5..16.87

E.C. slow at 1^h Pm
by 194 $17.\overset{s}{2}0$
by M.S.C. 16.87
by obs. rate 16.40
47

June 4 Pm.
E.C. 14..35..00
194 14..36 35.7

June 4/5 Am.
E.C. 00..37..00
194 00..38..34.8
1..17.5
00..37..17.3

June 5 Pm
E.C. (Gr. M) 10..04..00 — (A.O.B.) 10..18..00
194 10..05..33.80 — 10..19..33.75
E.C. (B.M.M.) 11..17..00
194 11..18..33.8

June 6/7 Am
E.C. 23..54..00
194 23..55..30.7
1..12.6
23..54.18.1
23..54
18.1
17.3
.8

June 9/10 Am
E.C. 1..55..00
194 1..56..27.5

1..55..00
20.87
1..55..20.00
1..56..27.5
1..07.50

June 11/12 Am
E.C. 2..11..00
194 2..12 23.5

2..11..20.31
2..12..23.5
1..03.19

June 13 E.C. Run down

June 13/14 Am.
E.C. 2..03..00
194 2..04..04.0

2..03..00
5.22
2..03..05.22
2..04..04

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Electric Clock

Sid. day		h		slow of Cambridge
July	1st	00	slow	12.06
"	7	6	"	16.98
"	8	22	"	18.24
"	14	00	"	24.75
"	18	23	"	27.09
"	19	23	"	28.31
"	24	7	"	31.57
"	28	10	"	34.60
August	2	00	"	37.20
"	3	20	"	38.12
"	9	00	"	40.85
"	12	00	"	41.80
"	16	00	"	43.95
"	19	00	"	45.60
"	23	00	"	46.53
"	26	00	"	47.73
Septemb.	2	00	"	49.30
"	6	00	"	51.00
"	9	00	"	52.37
"	10	00	"	52.50
"	13	00	"	53.50
"	16	00	"	53.26
"	20	00	"	53.80
* "	22	00	"	54.04
"	30	2	"	5.66
Oct.	4	21	"	4.64
	7	00	"	4.00
	9	00	"	3.40
	11	00	"	4.00
	14	00	"	4.10
	19	00	"	2.00
	23	00	"	1.20
	25	00	"	0.64
	28	00	"	1.30

		h				
Nov.	3d	00	fast	2.05		
"	4	00	"	2.40		
"	8	00	"	5.65		
"	11	00	"	8.11		
"	13	00	slow	49.30		
"	15	00	"	47.30	+ 0.94	
"	18	00	"	44.60		
"	22	00	"	49.75	0.52	
"	24	00	"	48.60	.52	
"	29	00	"	46.10		
Dec.	2	00	"	45.42		
	6	00	"	43.00		
	7	00	"	42.50		
	9	00	"	41.10		
	13	00	"	38.20	0.75	
	16	00	"	36.83	0.54	
	20	00	"	34.40	0.64	
	23	00	"	31.30	1.20	
	26	21	"	27.20	1.29	
	28	21	"	24.96	1.10	
Jan.	4	21	"	17.27	1.36	
	9	20	"	10.46	1.73	
	10	21	clock adjusted	8.90		
	14	21	"	9.05		
	16	21	"	5.10	1.82	
	18	21	"	1.76		

* E.C. run down

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June 7 Pm

5.. 04.. 08,01
46.74
5.. 04.. 54.75
1.. 00.. 9.86
6.. 05.. 04.61
18.18
6.. 04.. 46.43 E.C. at 1h Camb.
16
6.. 04.. 30.43 E.C. at 1h Boston
h 5.. 82
5 59 29.61
6 00 29.80
1.. 29.95
2.. 30.10
3.. 30.30
6.. 4.. 30.43

June 10 Pm.

h m s
5.. 15.. 57.69
46.74
5.. 16.. 44.43
1.. 9.86
6.. 16.. 54.29
20.06
6.. 16.. 34.23 E.C. at Camb 1h 8m.
16
6.. 16.. 18.23 E.C. at 1h Boston
5.. 82
6.. 11.. 17.41
6.. 12.. 17.60
13.. 17.76
14.. 17.90
15.. 18.05
6.. 16.. 18.23

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June 12 Pm.

5.. 23.. 50.80
46.74
5.. 24.. 37.54
1.. 0.. 9.86
6.. 24.. 47.40
20.30
6.. 24.. 27.10 E.B. at 1h Camb.
16
6.. 24.. 11.10 .. Boston
5.. 82
6.. 19.. 10.28 Boston Time
20.. 10 40
21.. 10.60
22.. 10.75
23.. 10.95
6.. 24.. 11.10

June 14 Pm.

5.. 31.. 43.92
46.74
5.. 3230.66
1.. 9.86
6.. 32.. 40.52
5.30
6.. 32.. 35.22 E.B. at 1h Camb.
5.. 82
6.. 27.. 34.40 Camb. Time
28.. 34.55
29.. 34.70
30.. 34.90
31.. 35.05
32.. 35.22

June 17 Pm.

5.. 43.. 33.55
46.74
5.. 44.. 20.33
1.. 9.85
6.. 44.. 30.19
7.20
6.. 44.. 22.99
16
6.. 44.. 06.99 E.B. at 1h Boston
5 82
6.. 39.. 06.17 00.. 55
40.. 6.30 56
41.. 6.50 57
42.. 6.65 58
43.. 6.80 59
44.. 08.00 1.. 00

June 19 Pm.

5.. 51.. 26.71
46.74
5.. 52.. 13.45
1 9.86
6.. 52.. 23.31
7.85
6.. 52.. 15.46
16
6.. 57.. 59.46
5.. 82
6.. 46.. 58.64
47 58.80
48.. 59.00
49.. 59.15
50.. 59.30
51.. 59.46

June 21 Pm.

5.. 59.. 19.82
46.74
6.. 00.. 06.56
1.. 9.86
7.. 00.. 16.42
8.90
7.. 00.. 07.52
16
6.. 59.. 51.55 at 1h Boston
5 82
6.. 54.. 50.73
6.. 55.. 50.85
56.. 51.00
57.. 51.20
58.. 51.35
6.. 59.. 51.55

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June 16 Pm
E.C. 11..37..00
194 11..38..01.2
1..01.2

16/17 Am.
E.C. 2..28..00
194 2..29..01.1

2..28..07.08
29..01.1
54.02

18/19 Am
E.C. 1..36..00
194 1..36..58.8

June 20/21 Am.
E.C. 00..48..00
194 00..48..56.45

22/23
E.C. 1..48.00 — 3..21..00
194 1..48..54.25 — 3..21..54.00

June 23/24 Am.
E.C. 3..06..00.0
194 3..06..51.8
9.

3..06..00.0
9.21
3..06..09.21
3.. 6..51.8
42.59

17 54.02
26 - 48.00
9 - 6.02

June 25/26 Am
E.C. 3..52..00
194 3..52 48.0

3..52..09.48
3..52..48.00
38 52

9
48.0
6
42

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June 24 Pm.

6.. 11.. 09.49
46.74
6.. 11.. 56.23
1.. 9.86
7.. 12.. 06.09
9.21
7.. 11.. 56.88
16
7.. 11.. 40.88
5 82
7.. 06.. 40.06
7.. 40.20
8.. 40.35
9.. 40.55
7.. 10.. 40.75
7.. 11.. 40.88

June 26 Pm.

6.. 19.. 02.61
46.74
6.. 19.. 49.35
1.. 9.86
7.. 19.. 59.21
9.56
7.. 19.. 49.71
16
7.. 19.. 33.71
5 82
7.. 14.. 32.89
15.. 33.10
16.. 33.20
17.. 33.40
18.. 33.55
19.. 33.71 at 1 Boston

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Diurn for Barton

June 28th	Camb.	M.S.	Barton
Sid time at 1h M.T. =	7h 27m 52.33		
	10.46		
By QC	7h 27m 41.87	= 1m.00	7h 27m 25.8
	26m 41.70	0s.59	26m 25.7
	25m 41.54	58	25m 25.5
	24m 41.37	57	24m 25.3
	23m 41.21	56	23m 25.2
	7h 22m 41.85	0s.55	22m 25.0

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July 1st 1852

6.. 38.. 45.40 — -11.60
46.74 — rate 46
6.. 39 .. 32.14 — EC -12.06
1.. 0 9.86
7.. 39 42.00 — Dif time 1h Camb m s t
EC Slow 12.06
7.. 39 .. 29.94 — EC "
16.04
7.. 39 .. 13.9 — EC at 1h Boston m.s.t
38 .. 13.7
37 .. 13.5
36 .. 13.3
35 .. 13.2
34 .. 13 .0

3.. 56.555
7.. 53.100
11.. 49.655
1.60
11.. 48.05
7.. 27.. 25.8
7.. 39 .. 13.45

July 2nd

EC 7 .. 43 .. 10.0 — at 1h Bost. m.s.t.
42 .. 09.8
41 .. 09.6
40 .. 09.4
39 .. 09.3
38 .. 09.1

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1852 E.C. roundown July 3?
wound up and set by C-194.

EC- 6.38.0
194- 6.38.41.3

July 5th PM

MPC 5..49..00
194 12..46..24.7

6..54..31.63 25.15
46.74 12..45..59.55
6..55..18.37 6..55..18.37
5..50..41.18
57.45
5..49 43.73
5..49-00-00
43.73
16
MPC slow of Bat. - 59.73

July 7th PM

MPC 5..39..00
194 12..44..13.9

coincidence
MPC 5..39..20
194 12 44..34

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1.67
1164

July 8th 1 PM EC Slow −17.5 6
16.0
of Bort −33.6 Sid. Time

7h 6m 21.30
46.74
7h 7m 08.04
1m 0m 9.86
Sid. time 8h 7m 17.90 1 PM
EC Slow 33.6
8h 6m 44.3
5m 44.1
4m 44.0
3m 43.8
2m 43.7
1m 43.5

1h 00m 00s Boston M.S.?

12h 58m 00s M.S.D.

July 9th 1 PM

EC. 8h 10m 40.1
9m 40.0
8m 39.8
7m 39.7
6m 39.5
5m 39.4

July 13th 1 PM
Sent

E.C. 8h 26m 23.4 − 1.40
25m 23.3
24m 23.1
23m 23.0
22m 22.8
21m 22.7

3h 56m 555
6
23h 39m 330
5
23h 34m 33
7h 43m 10.0
1h 00m 8h 06m 44 3
By time on 2nd

8h PM? 7h 6m 21.3
46.75
7h 7 08.05

M.T.C 5h 37m 00.0
194 12h 46m 09.2
194 +20.8
12h 45m 48.4
7h 7m 8.0
5h 38m 40.4
55.48
5h 37 44.92
5h 60m 60.00
44.92
16
Of Bort 1h 00.92

3h 56m 55
Rate of EC −73 1.08
3h 55.82
4
15h 43.28
corr for −1.40
Rate to 14/15 15 41.88

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July 14/15th 1852

235 is the new Dillercal Chronometer
for observing – without hour hand.

		194	6.48.00
		235	11.15.35.7
	4.27.35.72		4.27 35.7
	194 + 13.14		
July 14/15	235 fast + 4.27 48.86	235	11.17.00
		194	6.49.24.25
			4.27.35.75

3.56.55
108
3.55 47
7.50.94
−1 40
7.49 54
8.26.23.40
8.34 .12.94

	7.30.00.65	MTC	23h.16.00
	46.74	194	6.51.38.5
	7.30 47.39		13.14
	1 0 9 86		6.51.25.36
	8 30 57 25		7.30.47.39
EC	−24.75		23.20.37.97
Long. Bost	−16.00		3.49.46
14/15	8.30.16.50		23.16.48.51
	3.56.55		23.16.00.00
15th	8.34.13.05		48.51
			16.00
		MTC	−1.04.51

July 14/15 Add of Boston
4/5 " 0.59.6
14.9
Daily Rate of M.T.C. − 0.49

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July 15th

EC 8h 34m 13.0 at 1h Boston

33. 12.8

32. 12.7

31. 12.5

30. 12.4

8. 29 12.2

July 19th 1852

EC 8h 49m 56.8 at 1h Boston m s t

48. 56.6

47. 56.5

46. 56.3

45. 56.2

44. 56.0

3. 56.555

4

15. 46.220

2.43

15. 43.79

8. 34. 13.0

8. 49. 56.8

EC has lost since 15th

7. 49. 43.43

46.74

7. 50. 30.17

1. 00. 9.86

8. 50. 40.03

Ec slow - 27.09

Long. - 16.00

8. 49. 56.94

194 8. 29. 00

235 12. 56. 27.7

6.5

8. 28. 53.5

19h 235 +4. 27. 34.2

15h 4. 27. 48.9

4/147

Rate of 235 losing -3.68

MPC 0. 29. 00

194 8. 28. 31.2

MPC 0. 31. 25

194 8. 22. 56.5

6.5

8. 22. 50.0

7. 50. 30.17

0. 32. 19.83

5.16

0. 31. 14.67

0. 31. 25.0

MPC -49.67 of Earth = -1m 05.7 of Berst

EC 8. 18. 00.0

194 8. 18. 33.6

33.6

EC -27.1

194 +6.5 19

13.0 15

4/6.5

Rate of 194 -1.62

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July 20^{d}

3.. 56. 55
6s
3.. 55. 9
~~8.. 49.. 56. 8~~
~~8. 46 00. 9~~
8.. 53 .. 52. 7
52.. 52, 5
51 .. 52, 4
50 .. 52. 2
49 .. 52 . 1
48 .. 51. 9

8.. 53.. 52. 7
3 56
7 - 48. 7

July 21st

7.. 57.. 36, 54
46. 7 3
7.. 58 .. 23. 27
1.. 00 .. 9. 86
8.. 58 33. 13
EC - 28. 7
Long - 16.
8.. 57. 48 . 4
56 .. 48 . 2
55 .. 48 , 1
54 .. 47 . 9
53 .. 47 . 8
52 .. 47 . 6
51 .. 47 . 5

EC 6.. 40.. 00
194 6.. 40.. 32. 3 194 Just
- 32. 3 + 35. 6
EC - 28. 7
M.T.C 22.. 42.. 55
194 6.. 41.. 59. 5

M.T.C 0.. 17.. 00
194 8.. 16.. 20

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Saturday July 24th 1852 P.M.
After transit of Arcturus.

194 14.. 20.. 0
235 18.. 47.. 16.95

M.T.C 6.. 13.. 00.0
194 14.. 25.. 5.75

coincidences
M.T.C 6.. 14.. 5.0
194 14.. 26.. 11.0

Aug. 2 Pm

h m s
8.. 44.. 55. 28
46. 74
8.. 45.. 41.96
1.. 00 09.. 86
9.. 45.. 51. 82
37. 2
9.. 45.. 14. 62
16
9.. 44.. 58. 62 At 1 Pm. Boston
5.. 82
9.. 39.. 57, 80
40.. 57. 95
41.. 58. 10
42.. 58. 30
43.. 58, 50
44.. 58. 62

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July 26th 1852

EC 24h	14h Sid	− 31.57	0.84	
last to 26h	9 "	− 1.48	1.68	
		33.05	20	
	EC 21st	28.7	1 48	
		4.35		

4.. 56.555
5
24 .. 42 .77
4.35
24 .. 38 .42
8 .. 57 .. 48.4
9 .. 22 .. 26.8
21 .. 26.6
20 . 26.5
19 . 26.3
18 . 26.1
17 . 26.0

3.. 56
56
6 16

44
10 .. 16

54 .. 46
9. 24 .. 14. 3
10. 18 .. 30 3
17
10 .. 07 . 30.3

July 29 Bost
8h 29m 08s.99
46.94
8 .. 25 .. 55 .73
1 .. 00 9.88
9 .. 30 .. 05 .59
34.48
9. 29 .. 31 .. 1 1
16
9. 29 .. 15.11 at 1h Sm Boston
5 82
9. 24 .. 14 .29 12 .. 55
25 . 14.45 56
26 .. 14.60 57
27 .. 14.80 58
28 . 14.95 59
29 .. 15.11 1 .. 00 Boston

Aug. 9th
h m s
9 .. 12 .. 31.10
46.74
9 .. 13 .. 17.84
1 .. 00 9.88
10 .. 13 .. 27.70
40.85
10 .. 12 .. 46.85
16
10 .. 12 .. 30.85 at 1h Boston
5 82
10 .. 07 .. 30.03
8 .. 30 .. 20
9 .. 30 .. 35
10 .. 30 .. 50
11 .. 30 .. 70
12 .. 30.85

4m 3.. 56.55
3.. 56
15 .44
24 1 4 3
9 .. 39 58 3

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July 27/28 Am.

h m s

E.C. 6„57„00

194 5„57„29.0

Aug 22/23 Am.

EC – 46.44

E.C. 7„35„00

194 7„35„07.7

7. 35„46.44

7„35„07.7

38.74

Aug. 9/4 Am.

E.C. 5„52„00

194 5„52„25.3

M.T. 20„59„35

194 5„58„25.5

5 . 53 . 25 . 5

23 . 5

29 . 53 . 49 . 0

9 . 21 „ 10 . 95

20 . 32 . 38 . 05

19 . 56 „ 43 . 41

Aug. 11/12 Am

E.C. 18„46„00

194 18„46„18.2

+ 18.2

9 . 20 . 24 . 21

46.74

9 . 21 . 10 . 95

18 . 46 „ 00

41.70

18„46„41.70

18„46„18.20

– 23.60

M.E. – 0 . 39 . 00 . 0

194 – 10 . 04 „ 57.5

M.E. – 0 „ 42 „ 0 . 0

194 – 10 „ 07 „ 53.0

10 . 07 . 53.0

23.7

10 . 08 . 16.7

9 „ 21 „ 10 . 95

0 „ 47 „ 05 . 75

3 „ 56 . 57

0 „ 43 . 09 . 18

7.06

0 43 02.24

42

1 . 02 . 18

16

1 . 18 . 18

Aug. 12 Am.

9„24„20.77

46.74

9„25„07.51

1„00„9.86

10„25„17.37

41.80

10 24„35„57

16

10„24„19.57

5„00„82

10„19„18.75

20„19„90

21„19 00

22„19.20

23„19 35

10 24„19.57

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Aug. 16 Pm

9..40..06.99
46.74
9..40..53.73
1..00..9.86
10..41..03.59
43.95
10..40..19.64
16
10..40..03.64
5..00.82
10..35..02.82 54
36..02.55 56
37..03.15 57
38..03.30 58
39..03.45 59
10..40..03.64 1.00

Aug. 23 Pm.

10..07..42.87
46.74
10..08..29.61
1 00 9.86
11..08..39.47
46.53
11..07..52.94
16
11..07..36.94
5..00.82
11 02..36.12
3..36.30
4..36.45
5..36.65
6..36.80
11..07..36.94

Aug 24/25 Am

E.6.18..39..00
J.D. 161 18..40..30.7

Aug. 19 Pm

9..51..56.65
46.74
9..52..43.39
1 00.. 9.86
10..52..53.25
45.60
10..52..07.65
16.00
10..51..51.65
5..00.82
10..46..50.83
47..50..55
48..51..15
49..51 30
50..51 45
51..51.65 at 1h Boston

10..51..51.65
3..56.65
10..55..48.20
.50
10..55..47.70
5..00.82
10..50..46.88
51..47.00
52..47.20
53..47.35
54..47.50
10..55..47.70

Aug. 20 Pm

9..55..53.21
46.74
9..56..39.95
1..00..09.86
10..56..49.81
46.20
10..56..03.61
16.00
10..56..47.61 at 1h Boston

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Aug. 26 Pm.

h m s
10 19 32.53
46.74
10 20 19.27
1 00 9.86
11 20 29.13
47.43
11 19 41.70
16
11 19 25.70
5 00.82
11 14 24.88
15 25.00
16 25.20
17 25.35
18 25.45
19 25.70

Aug. 31 Pm
E.C. 15 24 00
194 15 23 58.3

Sept. 1/2 Am
M.S.C. 20 47 30
194 7 34 22.0
53.0
7 35 15.0
10 43 58.54
20 51 16.41
3 24.98
20 47 51.43
20 47 30
1 21 43
16
1 37.26

Sept. 1/2 Am,
E.C. 7 33 00
194 7 32 56.2
53.0
7 33 49.2
7 33 00
49.2

Sept 2 Pm
16 47 08.40
46.74
10 47 55.14
1 00 9.86
11 48 06.00
49.8
11 47 16.7
16
11 47 00.8
5 82
11 47 57.88
43 00.00
44 00.50
45 00.50
46 00.55
11 47 00.50

M.S.C.
Sept Am 2 — 1 37.26 — 0.91
Aug 12 — 1 18.18 — 0.49
July — 15 — 1 04.51 — 0.49
" 5 — 0 56.60

M.S.C. Sept 4 Am — 1 38.52
Mean daily rate — 0.63

Sept 1/2 Am
M.S.C. 21 36 50
194 8 23 50
58.1
8 24 43.1
10 43 58.55
21 40 44.51
3 33.09
21 37 11.42
21 36 50
21.42
16

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Sept. 6 Pm.

11..02..54.62
46.74
11..03..41.36
1..00 9.86
12.03..51.22
57.0
12..03..00.22
16
12..02..44.22
5..00.82
11..57..43.40
58.. 43.53
59.. 43.65
12..00..43.80
1..44.00
12..2..44.20

Sept 8/9 tm

E.C. 5..11..00
194 5..10..49.8
1 2.57
5..11..52.37

Sept. 9 Pm

11..14..44.28
46.74
11..15..31.02
1 0.. 9.86
12..15..40.88
52.37
12..14..48.51
16
12..14..32.51
5..00.82
12 9,31.69
10..31.80
11..31.95
12..32.60
13..32.30
12..14..32.51

Sept 9/10 tm.

E.C. 7..40..00
194 7..39..48.8
1.. 3.7
7..40..52.5

Sept. 10 Pm

11..18..40.83
46.74
11..19..27.57
1.. 9,86
12..19..37.43
52.5
12..18..44.93
16
12..18..28.93
5 82
12..13..28.11
14..28.30
15..28.50
16.. 28.65
17.. 28.75
12.. 18.. 28.93

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Sept. 12/13 Ann.

E.C. 10.. 03.. 00
154 10.. 02.. 45.8
1.. 7.7
10.. 03.. 53.5

Sept. 15/16 Ann.

E.C. 7.. 27.. 00
154 7.. 26.. 39.8

7.. 27. 53. 26
26. 39. 8
1.. 13.46

Sept. 13 Ann

11.. 30.. 30.49
46.74
11.. 31.. 17.23
1 9.86
12.. 31.. 27.09
53.5
12.. 30.. 33.59
16
12.. 30.. 17.59
5.. 00.82
12.. 25.16.77
26.16.90
27.17.10
28.17.80
29.. 17.85
12.. 30.. 17.59

Sept. 16 Ann

11.. 42.. 20.15
46.74
11.. 43.. 06.89
1.. 9.86
12.. 43.. 16.75
53.26
12.. 42.. 23.49
16
12.. 42.. 07.49
5 82
12.. 37.. 06.67
38.. 6.80
39.. 6.95
40.. 7.10
41.. 7.25
42.. 7.49

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1851phae.proj..194

Sept. 19/20 Am.

EC. 7..41..00
194 7..40..31.4

7..41.53.7
40 31.4
1..22.3

Sept. 20 Pm

11..58..06.36
46.74
11..58..53.10
1 00 9.86
12..59..02.96
53.8
12..58 09.16
16
12..57..53.16
5 82
12 52 52.34
53..52.50
54..52.70
55..52.86
56..52.95
12 57..53.16

Sept 21/22 Am

EC 10..07..00
194 10..06..28.8
1..25.74
10..07..54.04

Sept. 22 Pm.

12..05..59.46
46.74
12..06..46.20
1 9.86
13..06..56.06
54.04
13..06..02.02
16
13..05..46.02
5 82
13..00..45.20
1..45.40
2..45.60
3..45.80
4..45.95
13..05..46..02

Sept 22/23 Am.

EC. 9..50..00
194 9..49..26.8
1..27.3
9..50..54.1

Sept. 23 Pm

12..09..56.02
46.74
12..10..42.76
1 9.86
13..10..52.62
54.1
13..09..58.52
16
13..09..42.52
5.. 82
13..04..41.70
5..41.85
6..42.00
7..42.20
8..42.40
13..09..42.52

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Sept 30th – 2 P.M.

EC – 14 13 . 0
194 – 14 11 . 23.5
14 . 11 . 23.5
1 . 42.16
14 13 05.66
E.C – 14 . 13 . 00.00
E C Slow – 5.66

M.S.C – 1 .. 25 .. 57 (Con) — 1 . 36 . 25
194 – 14 . . 14 „ 35 — 14 15 09.1
14 . 14. 35
1 . 42. 16
14 . 16 . 17 . 16
12 . . 38 . . 18. 62
1 . 37 . . 58 . 54
0 . 59 . . 50 . 17
36 . . 53 . 94
57 . 84
.54
1 . . 37 . . 42 . 49
M.C – 1 . . 35 . . 57 . 0
1 . . 51 . 49
16
Dr. T.C. slow of B – 2 . . 07 . 49
22 – 2 . . 00 . 45
7) 7 . 04 (0.88
7
2
1.76
2.48
Oct 2 – 2 . . 0 . 25
239 – 2 . 8 . 7
.5

12 . . 37 . 31.88
46.74
12 . 38 . . 18 . 62

2 „ 07. 49
2 .. 8. 90
1.41
.76
2
1,52

October 4th P.m.
M.S.C. slow of Boston at 1h P.m.

2 „ 08. 9
1.52
2 „ 10.42 slow of B

M.S.C 00 . . 44 . . 00
Watch 00 46 15.8
00 . 44 . . 00
2 . . 10 . 4

Watch 00 . . 56 . . 05.3
56 . . 05.3
57 . . 05,3
58 . . 05.3
59 . . 05.3
1 . . 00 . . 05.3

00 „ 4 6 , 1 0 4
46 . . 15.7
5,3

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1851phae.proj .194

Oct. 4/5 Am.

E.C. 9..25..00
194 9.. 23.. 11.7

9..25..04.64
9.. 23.. 11.7
1.. 52.94

M.J.C. 20..26..20
194 9.. 23..48.5
1.. 52.94
9.. 25.. 40.44
12.. 54.. 04.84
20.. 31..36.60
3.. 21.76
20.. 28..14.84
20..26..20
1.. 54.84
16
2.. 10.84

12..53..18.10
46.74
12..54..04.84

Oct. 6 Pm

E.C. 19.. 03.. 00
194 19.. 01.. 07.6

M.J.C. 5..57..35
194 19.. 02.. 31.5

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October 6/8 Am

EG. 11.. 01.. 00
194 10.. 59.. 06.0
1.. 58.0
11.. 01 .. 04.0
13.. 01.. 11,20 13.. 01.. 57.94
46.74 11.. 59.. 06.06
13.. 01 57.94

M.S.G. 21.. 56.. 00
194 11.. 01.. 32.5
1.. 58.0
11.. 03.. 30.5
13.. 01.. 57.94
22.. 01.. 32.56
3.. 30.50
21.. 57.. 56.06
21.. 56.. 00
1.. 56.06
16
2.. 12.06

14
9
126
12
24.6
16
.08

121
2.11.3

13.. 05.. 07.75
46.74
13.. 05.. 54.49
1.. 00. 9.86
14.. 06.. 04.35
4.00
14.. 06.. 00.35
16
14.. 05.. 44.35 At 1st Boston
5 82
14.. 00.. 43.53
1.. 43.65
2.. 43.75
3.. 43.96
4.. 44.10
14.. 05.. 44.35

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1851phae.proj . 144

October 9 Pm.

13.13.00.86.
46.74
13.13.47.60
1.00.9.86
14.13.57.46
3.4
14.13.54.06
16
14.13.38.06
5 82
14.08.37.24
9.37.40
10.37.60
11.37.80
12.37.95
13.38.06

Oct. 11 Pm.

13.20.53.97
46.84
13.21.40.71
1 0. 9.86
14.21.50.57
4.
14.21.46.57
16
14.21.30.57
5 82
14.16.29.75
17.29.85
18.30.00
19.30.20
20.30.40
14.21.30.57

Oct. 18 Pm.

E.C. 00.05.00 M.J.C. 10.13.00
194 00.04.34.8 194 00.05.34.5

October 18/19 Pm.

E.C. 10.23.00 M.J.C. 20.30.45
194 10.22.34.0 194 10.25 00.5
25.05

October 14 Pm.

13.32.43.63
46.74
13.33.30.37
1 00. 9.86
14.33.40.23
4.1
14.33.36.13
16
14.33.20.13
5 .82
14.28.19.31
29.19.50
30.19.70
31.19.90
32.20.00
33.20.13

October 18 Pm.

13.48.29.84
46.74
13.49.16.58
1 9.86
14.49.26.44
4
14.49.22.44
16
14.49.06.44
5 82
14.44.05.62
45.05.80
46.05.95
47.06.10
48.06.26
14.49.06.44

Oct. 19 Pm.

13.52.26.39
46.74
13.53.13.13
1.00. 9.86
14.53.22.99
2.98
14.53.20.99
16
14.53.04.99
5. 82
14.48.04.17
49. 4.30
50. 4.50
51. 04.70
52. 04.85
14.53.04.99

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Oct. 22 8m

M.T.G. 8,, 51,, 40	E.G. 23,, 03,, 00
194 22 59,, 42.5-	19423,02 ,,26.5-

Oct 23 Am

M.T.G — 0633.10
194 — 8.42.47.5-

October 22/23 tm

E.G. 11,, 45,, 00	M.T.G. 21,, 43,, 10.0
194 11,, 44,, 25.3	194 11,, 53,, 18.5-
35.92	
95,, 01.22	
45,, 00	
1.22	

Oct 23 Pm

14,, 08,, 12.61
46.94
14,, 08,, 59.35-
1 00, 9.66
15,, 09,, 09.21
1.2
15,, 09,, 08.01
1C
15,, 09,, 52.01
5 82
15,, 03,, 51.19
4,, 51 35-
5,, 51.55-
6,, 51.75-
7,, 51.85-
15,, 8,, 52,01

25 Oct

25 M.T.G. 9,, 11,,
194 — 9,, 26 34.5
39.75-
9,, 29,, 14.25

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October 24/25 Am.

E.C. 11..45..00 M.T.G. 21.. 29.. 00
194 11..44 20.9 194 11 .. 46.. 57.0
35,74
11.. 45 00.64
45.. 00
.64

14.. 16..05.72
46.84
14.. 16.. 52.56
1.. 00 .. 6.86
15.. 17..02.32
.64
15.. 17..01.68
16
15.. 16..45.68
5 52
15.. 11.. 44.86
12.. 44.95 -
13.. 45.16
14.. 45.35 -
15.. 45.55 -
16.. 45.68

October 27/28 Am.
E.C. 1,3 slow

E.C. 12..04..00
M.T.G. 15 12.. 3.. 47.8
13 5
11.. 56.. 21.. 35.. 50
16 15 12.. 6..07.0
13.5 -
12.. 06.. 20.5
14..24..45.57
21..41..34.93
3.. 33.23
21.. 38 01.70
21.. 35.56.
2.. 11.70
16
2.. 27.70 by watch 2..27.54

14.23..55.83
46.84
14.24..45.67

14..27..55.38
46.74
14..28..42.12
1 00.. 9.86
15..28..51.98
1.30
15.. 28 50.68
16
15.. 28.. 34.68
5.. 00.82
15.. 23.. 33.86
24.. 34.00
25.. 34.20
26.. 34.40
27. 34.55 -
28.. 34.68

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Nov. 2/3 Am

MJB. 20.. 55.. 10
286 11.. 46.. 15.0

EB. 11 49.. 00
286 11.. 47 .. 56.4

11..49..00
2.05
11..48..57.95
11..47..56.4
1..01.55
11..46..15 0
11..47..16,55
14..48..24,89
20..58..51.66
3..26.23
20..55..25.43
20..55..10.
15.43
16
31.43 of Boston

Nov. 3 Pm.
14..51..34.71
46.74
14..52..21.45
1 9.86
15..52..31.31
2,05
15..52..33.36
16
15..52..17.36
5..04.82
15..47..16.54
48..16,70
49..16.90
50..17.10
51..17,25
52..17.36

Nov. 3/4 Am.

EB. 11..56..00
1615 11..48..16.8

MJB 20..57..00
1615 11..51..23.5
1..40.82
11..58..04.32
14..52..21,45
21..00..42.87
3..26.53
20..57..16.34
20..57..0
16,34
16
32.34

11..48..16.8
1..40.82
11..49..57,62
11..50.0
EB fest 2.38

Nov. 4 Pm.
14..55..31.26
46.74
14..56..18.00
1 9.86
15..56..27.86
2.4
15..56..30.26
16
15..56..14.26
5 0.82
15..51..13.44
52..13.60
53..13.80
54..13.95
55..14.10
15..56..14.26

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1852.

Nov. 6th Am

E.C. 11..23..0
1615 - 11..21..25.5

Nov. 6th Pm

E.C. 18..46..00 — 18..47..00
1615 18..44..27.2 — 18..45..27.0

dila Σ C

ΣC - 19..42..0
1615 - 19..40..26.8

Nov. 8/9 Am

E.C. 11..51..00
1615 11..49..38.5
1.21.5

ΣC 11..45..13
1.21.5
11..46..33.5
46.30.8
ΣC + 2.7

45.35.5
1.21.5
11..46..57.0
54.4
+2.6
-2
0.6

45.59.5
1.21.5
47..21.0
18.20
+2.80
+2.60
+2.70
+2.7 gain
-2
0.7 gain

Nov. 8 Pm.

15..11..17.48
46.74
15..12..04.22
1..00..5.46
16..12..14.08
5.65
16 12..19.73
4
16..12..03.79
13 82
16..07..02.91
8..03..10
9..3..30
10..03..50
11..03..60
16..12..03.73

E.C. 10..03..00
1615 10..01..33.7

M.T.C. 18..53..00
1615 10..03..11.8
1..20.7
10..04..32.3
15..08..07.67
18..56..24.83
3..6..19
18..53..18.66
16..53..00
18.66
16
34.66

E.C. 10..03..00
5.6
10..02..544
10..01..33.7
1..20.7

15..07..20.93
46.74
15..08..07.67

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Nov. 10 Pm.

~~1615~~ M.T.G. 7,, 40,,50 E.G. 23..05..00
~~1615~~ 1615 23,, 01,, 16.0 1615 23,, 03,, 45.2

Nov. 10/11 Am.

M.T.G 21,, 59 ,,20 E.G. 13,,26,,00
1615 13,, 22,, 11.0 1615 13,,24,,48.2
1..03.69
13,, 23,,14.69 13,,26..00
15,,19,,10.60 15,, 19,, 57.34 8.11
46.94 22,,03,,17.35 13,, 25,,51.89
15,19,57.34 3,, 36.79 24,, 02.2
21,,59,,40.56 - 1..03.69
21..59.20
20,56
16
36.56 slow of Bartw

9.59.20
13.22.11
3.22.51

Nov. 11 Pm.

15,,23,,07.15
46.94
15,,23,,53.89
1 0,,09.86
16,,24,,03.75
8,11
16,,24,,11.86
16
16,,23,,55.86
5 82
16,,18,,55,04
19,,53,,20
20..53.40
21..53,65
22,,53,75
16,,23,,53.86

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1852. Nov 11/12.

M.T.C. 20..50..0 M.T.C being 5.6 slow 21.16

1615 – 12..16..42.5

20..50..21.16

20..03..17.13

50..08.21

21.06

.16

20..53..46.56

15..23..53.89

12..17..40.45

12..16..42.5

1615 Slow 12 stm 57.9

... " 11 stm — 63.7

1685 gaining 5.8

15..23..07.15

46.74

15..23..53.89

12..16..42.5

12..16..42.5

8..50..00.0

3..26..42.5

3..22..51.0

3..51.5

3..55.02

+3.52

21..59..20.0

20..50..00.0

23..50..40.0

3..46.70

8.21

11

3..55.02

MTC. 21..55..0

1615 – 13..21..53.5

26..53.5

22..51.0

4..02.5

3..55.9

6.6

.7

1615 gain 5.9

21..59..0

13..25..54.1

Nov. 12 Pm.

E.C. 00..16..00

1615 00..15..54.8

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Nov. 12/13 Am.

11.76 21.. 52.. 10
1615 13.. 23.. 06.0
51.7
13.. 23.. 57.7
15.. 27.. 03.71 15.. 27.. 50.45
46.74 21.. 56.. 07.25
15.. 27.. 50.45 3.. 35.61
21.. 52.. 31.64
21.. 52.16
21.64
16
37.64 slow of B

1615 13.. 24 57.6
Eb. 13.. 25.. 00
Eb. slow 49.8
13.. 25.. 49.3
13.. 24.. 57.6
51.7

Nov. 13 Pm

15.. 31.. 00.26
46.74
15.. 31.. 47.00
1 9.86
16.. 31.. 56.86
Eb. slow 49.30
16.. 31.. 07.56
16
16.. 30.. 51.56
5 82
16.. 25 50.74
26.. 56.90
27.. 51.05
28.. 51.20
29.. 51.35
16.. 30.. 51.56

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Nov. 14/15 Am.

G.C. 11.. 56..00
1615 11.. 56..07.8

11.. 56. 47.5
1615 slow ,39.7

M.Z.C. 20..19..00
1615 11..57..47.0
39.7
11..58..26.7
15..34..56.82
16.74
15..35..43.56
15..35..43.56
20..22..43.14
3.. 20.90
20.. 19..22.84
20.. 19..
22.84
16
38.84 slow of Boston

Nov. 15 Pm.
15..38.53.38
46.84
15..39 40.12
1.. 9.86
16..39..49.98
47.30
16..39..02.68
16
16..38..46.68
5 82
16..33..45.86
34..45.95
35..46.15
36..46.35
37.. 46..50
16..38..46.68

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Nov. 18 Pan. 1h

15..50..43.04
46.74
15..31..29.78
9.86
16..51..39.64
44.60
16..50..55.04
16
16..50..39.04
5 ,82
E.C. 16..45..38.22
46..38.45
47..38.60
48..38.80
49..38.95
16..50..39.04

1615 — — 16..12..38.5
M.S.C — 0..21..5
16..12..38.5
23.95
16.13.02.45
15..57..29.78
0..21..32.67
20..56.56
31.90
.67
0..21..20.13
0..21..
24.13
16.
40.13

E.C. 16..24..0
1615-16..24..20.7
.207
44.65
1615 -23.95

3) 1.3 1.4

Nov. 21/22 Pan. This comps. wrong

E.C. 11..44..00
1615 11..44 34.5
7.38
11..44.41.88

E.C. 14..13..60
1615 14..13..42.82
7.18

Nov. 22 Pan.
16..06..29.27
46.74
16..07..16.01
9,86
17..07..25,87
49.75
17..06..36.12
16
17..06..20.12
5 82
17..01..19.30
2..19.45
3..19..60
4..19.75
5..19 95
17..06..20.12

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Nov. 23 Pm.

M.T.G. 3 „ 22 „ 25
1615 19 „ 34 „ 30.5

EG. 19 „ 36.00
1615 19 „ 36 42.0
7.3
49.3 = EG. slow Nov 23 Pm
.68

3 „ 22 „ 25
26.91
3 „ 22 „ 51 91 11.87
33.32
3 „ 23 „ 26.23
16 „ 11 „ 12.57
19 „ 34 „ 37.80
19 „ 34 „ 30.5
1615 slow — 7.30

16 „ 10 „ 25.83
46.74
16 „ 11 „ 12.57

Nov. 23/24 Am.

EG. 13 „ 05 „ 00
1615 13 „ 05 „ 40.8

M.T.G. 20 „ 52 „ 45
1615 13 „ 07 „ 42.5
7.92
13 „ 07 „ 50.42
16 „ 11 „ 12.57
20 „ 56 „ 37.85
3 „ 25.86
20 „ 53 „ 11.99
20 „ 52 „ 45
26.99
16
42.99

EG. 13 „ 05 „ 00
slow 48.72
13 05 48.72
13 „ 05 40.8
1615 slow = 7.92

M.T.G. 22 „ 35 „ 00
1615 14 „ 50 „ 14.5
7.5
14 „ 50 „ 22.4
16 „ 11 „ 12.57
22 „ 39 „ 09.83
3 „ 42.66
22 „ 35 „ 27.17
35 „ 00
27.17
16
43.17

16 „ 10 „ 25.83
46.74
16 „ 11 „ 12.57

15 - 38 84
22 - 43.17
4) 4.33
3.6
7.2

3.84
43.17
4) 47.01

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Nov. 24 Pm

16.14.22.98
46.74
16.15.09.12
1 9.86
17.15.18.98
48.60
17.14.30.38
16
17.14.14.38
5 82
17.09.13.56
10.13.70
11.13.90
12.14.00
13.14.15
17.14.14.38

Nov. 29 Pm

E.B. 00.42.00
16 15 00 42.43.5

M.J. 6.8.08.10
16 15 00 44.59.5

Nov. 29/30 Am

E.B. 14.22.00
16 15 14 22.44.8
1.8

29/30 Am.

16.34.05.17
46.74
16.34.51.91
1. 9.86
17.35.01.77
46.10
17.34.15.67
16
17.35.55.67
5. 82
17.28.58.85
29.59.95
30.59.10
31.59.25
32.59.45
17 33.59.67

29/30

16.34.05.17
46.74
16.34.51.91
22. 3.36.84
38 38 28.75
14.38.28.75
46.10
14.37 42.65
16
14.37.26.65
5. 82
14.32.26.83
33.26.00
34.26.20
35.26.35
36.26.45
37.26 65

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Dec. 1/2 hm.

E.C. 14..47..00
1615 14 47.. 47.4

14..47..45.42
1615 fast 2.0

Dec. 2 Pm
16..45..54.84
46.84
16.46.41.58
5.86
17..46..51.44
45.42
17..46..06.02
16
17..45..50.02
5 8.2
17..40..49.20
41.. 49.40
42..49.55
43..49.70
44..49.85
17 45..50.00

Dec. 2/3 hm.

E.C. 15..06..00
1615 15..06..49.0

Chronometer 1615 has been in the dome all night

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1851phae.proj..144

Dec. 5/6 Am

E.C. 13 „ 25 „ 00 1°
1615 13 „ 25 „ 54.3

17 „ 01 „ 41.07
46.74
17 „ 02 „ 27.81
1 9.86
18 „ 02 „ 37.67
43.00
18 „ 01 „ 54.67
16
18 „ 01 „ 38.67
5 „ 82
17 „ 56 „ 37.85
57 „ 38.00
58 „ 38.15
59 „ 38.30
18 „ 00 „ 86.45
18 „ 01 „ 38.67

Dec. 7 Pm.

17 „ 05 „ 37.69
46.74
17 „ 06 „ 24.37
1 9.86
18 „ 06 „ 34.23
42.50
18 „ 05 „ 51.73
16
18 „ 05 „ 35.73
5 .82
18 „ 00 „ 34.91
1 „ 35.10
2 „ 35.30
3 „ 35.45
4 „ 35.60
18 „ 5 „ 35.73

Dec. 8/9 Am.

E.C. 14 „ 22 „ 00 14 „ 22 „ 41.20
1615 14 „ 23 „ 03.0 23 03.0
21,8

M.J.B. 21 „ 11 „ 45
1615 14 „ 26 „ 34.0

Dec. 9 Pm
17 „ 13 „ 30.75
46.74
17 „ 14 „ 17.49
1 9.86
18 „ 14 „ 27.35
41.10
18 „ 13 „ 46.25
16
18 „ 13 „ 30.25
5 82
18 „ 08 „ 29.43
9 „ 29.60
10 „ 29.75
11 „ 29.90
12 „ 30.10
18 „ 13 „ 30.25

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Dec. 12/13 Am.

E.C. 14.22.00
1615 14.23.162
14.22.38.31
23.16.2
37.89

Dec. 13 Pm.

17.29.16.98
46.74
17.30.03.72
1 9.86
18.30.13.58
38.20
18.29.35.38
10
18.29.19.38
5 82
18 24.18.56
25.18.70
26.18.85
27.19.00
28.19.15
18.29.19.38

Dec. 16 Pm

17.41.06.65
46.74
17.41.53.39
1 0 9.86
18.42.03.25
35.83
18.41.27.42
16
18.41.11.42
5 82
18.36.10.60
37.10.80
38.10.95
39.11.05
40.11.20
17.41.11.42

Dec. 20 Pm.

17.56.52.88
46.74
17.57.39.62
1 9.86
18.57.49.48
34.40
18.57.15.08
16
18.56.59.08
5 82
18.51.58.26
52 56.35
53.58.50
54.58.65
55.58.85
18.56.59.08

Dec. 22/23 Am

E.C. 16.21.00
1615 14.22.42.7

16.21.31.43
1615 fast 1.11.27

Dec 23 Pm.

18.08.42.56
46.74
18.09.29.30
1 9.86
19.09.39.16
31.30
19.09.07.86
16
19.08.51.86
5 82
19.08.51.04
7.51.20
8.51.40
9.51.55
10.51.70
At 10 o'clock 19.10.51.86

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Dec. 26/27 Am

E.C. 14 53 .. 00 — 14 .. 56 .. 00
1615 14 .. 56 .. 48.0 — 14 .. 57 .. 44.0

14 .. 55 .. 27.15
1 .. 20.85

27 Pm.

18 .. 24 .. 28.99
46.74
18 .. 25 .. 15.53
1 9.86
19 .. 25 .. 25.39
27.00
19 .. 24 .. 58.39
16
19 .. 24 .. 42.39
5 82
19 .. 19 .. 41 57
20 .. 41.70
21 .. 41.85
22 .. 42.00
23 .. 42.15
19 .. 24 .. 42.39

Dec. 30 Pm.

18 .. 36 .. 18.46
46.74
18 .. 37 .. 05.20
/ 9.84
19 .. 37 .. 15.04
23.60
19 .. 36 .. 51.44
16.
19 .. 36 .. 35.44
5 82
19 .. 31 .. 34.62
32 .. 34.80
33 .. 34.95
34 .. 35.15
35 .. 35.33
19 .. 36 .. 35.44

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Jan. 8 Pm.

18..52..04.70
46.74
18..52..51.44
1 9.86
19..53..01.30
19.36
19..52.41.94
16
19..52..25.94
5 82
19 47..25.12
48..25.30
49..25..55
50..25..70
51..23..85
19..52..23.94

Jan. 5 Pm.

18..59..57.81
46.84
19..00..44.55
1 9.86
20..00..54.41
17.18
20..00..37.24
16
20..00..21.24
5 82
19..55..20.42
56.20.55
57..20.70
58..20.90
59..21.10
20..00..21.24

Jan. 10 Pm.

19..19..40.60
46.74
19..20..27.34
1 9.86
20..20..37.20
10.30
20..20..26.90
16
20..20..10.90
5 82
20..15..10.08
16..10.20
17..10.40
18..10..60
19..10..75
20..20..16.90

Jan. 13 Pm.

19..31..30.27
46.74
19..32..17.01
1 9.86
20..32..26.87
6.5
20..32..20.37
16
20..32..04.37
5. .82
20..27..03.55
28..03.70
29..03.85
30..03.95
31 04.15
20..32..04.37
1176 Sun 1..16..54

1851phae_proj..144

Jan. 17

19..47..16.50
46.74
19..48..03.24
1 9.86
20..48..13.10
4.9
20..48..08.2
16
20..47..52.2
5 .82
20..42..51.38
43..51.50
44..51.70
45..51.90
46..52.05
20..47..52.20

Jan. 20

19..59..06.17
46.74
19..59..52.91
1 9.86
21..00 02.77
0.30
21..00..02.47
16
20..59..46.47
5 .82
20..54..45.65
55..45.80
56..46.00
57..46.15
58..46.30
20..59..46.47

Jan. 24

20..14..52.40
46.74
20..15..39.14
1 9.86
21..15..49.00
5.7
21..15..54.7
16
21..15..38.7
5 .82
21..10..37.88
21..11..38.00
12..38.20
13..38.40
14..38.55
21..15..38.70

Jan. 26

20..22..45.51
46.74
20..23..32.25
1 9.86
21..23..42.11
7.95
21..23..50.06
16
21..23..34.06
5 .82
21..18..33.24
19..33.40
20..33.60
21..33.75
22..33.85
21..23..34.06

Jan. 31 Pm.

20..42..28.25
46.74
20..43..15.03
1 9.86
21..43..24.89
14.95
21..43..39.84
16
21..43..23.84
5 .82
21..38..23.02
39..23.15
40..23.30
41..23.45
42..23.65
21..43..23.84

Feb. 3 Pm.

20..54..17.96
46.74
20..55..04.70
1 9.86
21..55..14.56
19.50
21..55..34.06
16
21..55..18.06
5 .82
21..50..17.24
51..17.40
52..17.60
53..17.75
54..17.90
55..18.05

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1653

Feb. 9 Pm

21..17..57.25
46.74
21..18..44.03
1 9.86
22..18..53.89
26.70
22..19..20.59
16
22..19..04.59
5 82
22..14..03.77
15 3.90
16.. 4.10
17.. 4.25
18..04.40
22..19..04.59

Feb 14 Pm.

21..37..40.06
46.74
21..36..26.80
1 9.82
22..38..36.66
35.65
22..39..12.31
16
22..38..56.31
5 82
22..33..55.49
4..55.60
5..55.75
6..55.90
7..56.10
22..38..56.31

Feb. 17. Pm.

21..49..29.92
46.74
21..50..16.46
1 9.86
22..50..26.32
40.60
22..51..06.92
16
22..50..50.92
5 .82
22..45..50.10
46..50.30
47..50.50
48..50.70
49..50.80
22..50..50.92

Feb. Pm.

22..05..15.94
46.74
22..06..02.68
1 9.86
23..06..12.54
47.80
23..07..00.34
16
23..06..44.34
5 82
23..01..43.52
2..43.70
3..43.75
4..43.90
5..44.05
6..44.34

Feb. 24 Pm.

22..17..05.60
46.74
22..17..52.34
1 9.86
23..17..42.48
52.3
21..18..34.78
16
21..18..18.78
5 82
21..13..17.96
14 18.05
15..18.20
16..18.40
17..18.55
18..18.78

23

22..17..05.60
46.74
22..17..52.34
1 9.86
23..18..02.20
52.3
23..18..54.50
16
23..18..38.50
5 .82
23..13..37.68
14..37.80
15..37.95
16 38.10
17..38 30
23..18..38.50

Feb. 26 Pm.

22..24..58.71
46.74
22..25..45.45
1 9.86
23..26..55.31
55.50
23..26..50.81
16
23.25..34.81
5 .82
23.20..33.99
21 34.10
22..34.25
23..34 40
24..34.60
23..25..34.81

Feb. 28 Pm.

22..32..51.82
46.74
22..33..38.56
1 9.86
23..33..48.42
58.70
23..34..47.12
16
23..34..31.12
5 .82
23..29..30.30 30.30
30..30..45 30,5
31..30..55 30.7
32..30..45 30.5
33..30..50 31.0
23..34..31.10 31.12

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March 3 Pm

22..44..41.48
46.74
22..45..28.22
1 9.86
23..45..38.08
1..01.7
23..46..39.78
16
23..46..23.78
5 82
23..41..22.96
2..23.10
3..23.25
4..23.40
5..23.55
23..46..23.78

March 7 Pm.

23..00..27.69
46.74
23..01..14.43
1 9.86
24..01..24.29
1 6.7
24 02.30.99
16
24..02..14.99
5 .82
23..57..14.17
58..14.30
59..14.50
0..14.65
1..14.80
24..02..14.99

March 10

23..12..17.35
46.74
23..13..04.09
1 9.86
24..13..13.95
1..11.5
24..14..25.45
16
24..14..09.45
5 .82
24..09..08.63
10.. 8.80
11.. 8.95
12..9.10
13..09.25
14..09.45

March 14th

23..28..03.56
46.74
23..28..50.30
1 9.86
24..29..00.16
1..16.05
24..30..16.21
16
24..30..00.21
5 .82
24.24.59.39
25 59.45
26..59.60
27..59.80
28..59.95
30..00.10
~~30..00.21~~

March 17 Pm

23..39..53.22
46.74
23..40..39.96
1 9.86
24..40..49.82
1..22.10
24..42..11.92
16
24..41..55.92
5 82
24..36..55.10
37..55.20
38..55.35
39..55.50
40..55.70
41..55.92

March 19

23..47..46.32
46.74
23..48..33.06
1 9.86
24..48..42.92
1..26.10
24..50..09.02
16
24..49..53.02
5 82
24..44..52.20
45 52.40
46..52.55
47..52.75
48..52.90
49..53.02

March 24 Pm

0h..07m..29.09
46.74
0..08..15.83
1 9.86
1..08..25.69
1..34.25
1..09..59.94
16
1..09..43.94
5 .82
1..04.43.12
5.43.25
6..43.35
7..43.50
8..43.70
1..19.43.94

March 28

00..23..15.30
46.74
00..24..02.04
1 9.86
1..24..11.90
1..41.6
1..25..53.50
16
1..25..37.50
5 82
20.36.68
21.36.80
22.36.95
23..37.10
24..37.30
1..25..37.50

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March 31 Pm

0..35..04.96
46.74
0..35..51.70
/ 9.86
1..36..01.56
1..47.88
1..37..49.44
16
1..37..33.44
5 82
1.. 32.32.62
33..32.80
34..32.98
35..33.10
36..33.30
37..33.44

April 4 Pm

M 16. 00..47..00
286 1.. 40..20.3

E 16. 1..42..00
236 1.. 41..39.6

At April 6 Pm

0..58..44.28
46.74
0..59..31.02
2..01.80
1..01..32.82
9.86
1..01..42.68
16
2..01..26.68
5 82
1.. 56..25.86
57..25.95
58..26.1
59..26.3
2..00..26.45
2..1..26.68

April 10

1..10..33.94
46.74
1..11..20.68
1.. 9.57
2..11..30.54
2.08.7
2..13..39.24
16
2..13..23.24
5 82
2..08..22.42
9..22.60
10..22.80
11..23.00
12..23.15
2..13..23.24

1..06..37.38
46.74
1..07..24.12
1 9.86
2..07..33.98
2 05.00
2..09..38.98
16
2..09..22.98
5 82
2..04..22.16
5..22.20
6..22.40
7..22.60
8..22.75
9..22.98

April 11 Pm

1..18..27.04
46.74
1..19..13.78
1 9.86
2..19..23.64
2 13.75
2..21..37.39
16
2..21..21.39
5 82
2..16..20.57
17..20.70
18..20.90
19..21.10
20..21.20
21..21.39

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April 15

1..34..13.26
46.74
1..35..00.00
9.86
2..35..09.86
2..19.95
2..37..29.81
16
2..37..13.81
5 82
2..32..12.99
33..13.10
34..13.25
35..13.40
36..13.60
2..37..13.81

Apr 18

1..46..02.92
46.74
1..46..49.66
9.86
1..46..59.52
EC first 25.15
1..47..24.67
16
1..47..08.67
5. 0 82
EC 1..42..07.75 = 0h..55m.. mist
43..07.86
44..08.00
45..08.20
46..08.46
47..08.60

April 23

2..05..45.69
46.74
2..06..32.43
1 9.86
3..06..42.29
EC for 32.95
3..07..15.24
16
3..06..59.24
5 82
3..01..58.42
2..58.57
3..58.72
4..58.90
5..59.05
6..59.24

April 25

2..13..38.80
46.74
2..14..25.54
1 9.86
3..14..35.40
36.15
3..15..11.55
16
3..14..55.55
5 82
3 9..54.73
10..54.90
11..55.05
12..55.20
13..55.36
3..14..55.45

April 28

2..25..28.47
46.74
2..26..15.21
1 9.86
3..EC..25.07
41.40
3..27..06.47
16
3..26..50.47
5 82
3..21..49.65
22..49.80
23..49.95
24..50.20
25..50.30
26..50.47

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May 2 Pm.

2.. 41.. 14·69
46·74
2,42,01,43
1 9.86
3,42,11,29
46.36
3,,42,,59.65
16
3,,42,,43.65
5 82
3,,37,,42.83
38,,43,,00
39,,43,14
40,,43,30
41,,43,45
42,,43,65

May 5 Pm.

2,,53,,04·35
46·74
2,,53,,51·09
1 9.86
3,,54,,00.95
53.60
3,,54,,54.75
16
3,,54,,38.75
5 82
3,,49,,37.93
50,,38,,10
51,,38,25
52,,38,40
53,,38,55
3,,54,,38.75

May 9 Pm.

3,,08,,50·58
46·74
3,,09,,37·32
1 9.86
4,,09,,47·18
1,,00.9
4,,10.48.08
16
4,,10,,32·08
5 82
4,,05,,31,26
6,,31,43
7,,31,59
8,,31,75
9,,31,90
4 10,,32 08

May 12 Pm.

3,,20,,40.24
46·74
3,,21,,26.98
1 9.86
4,21,,36.84
1 7.90
4,,22,,44·74
16
4,,22,,28·74
5 82
4,,17,,27.92
18,,28.07
19,,28 22
20,,28.37
21,,28.52
22,,28.74

May 14 Pm.

3,,28,,33.36
46·74
3,,29,,20,10
1 9.86
4,,29,,29.96
1,,14.06
4,,30,,44·02
16
4,,30,,28·02
5 82
4,,25,,27.20
26,,27,35
27,,27,50
28,,27,65
29,,27,80
29,,27,95
30 28.02

May 14 Pm.

M.C – 0,,27.30
236 – 3,,56,,38.5

3,,56,,38.5
38.6
3,,57,,17,1
3,,29,,20.1
27,,57.0
4,58
0,,27,,52.42
27,,30,,00
22.42
16
38·4

C.C – 4,,1,,0
236 – 3,,59,,7·4

4,,01,,00
1,,14.0
3,,59,,46.0
3,,59,,07.4
38.6

8.85
3,,56.55
15,,46.20
8.85
15,,55.05
25,,27.20
4 1 ,,22.25

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May 18

EC +1m 22s.91

3.45.06.32
46.74
1.09.86
4.45.16.18
1.22.91
4.46.39.09
16
4.46.23.09
5.0.82
4.41.22.27
42.22.42
43.22.58
44.22.74
45.22.90
1h Dy EC 46.23.07

6.2
5.5

1.27.2
5.5
1.32.7

May 23

EC 5.01.15.1
2.15.26
3.15.42
4.15.58
5.15.74
1h Bart MST 6.15.90

23
EC 5.10.0
236 5.07.50.5
5.10.0.0
1.32.7
5.08 27.3
5.07.50.5
-36.8

4.04.237
46.74
4.04.49.11

MSC 1.05.30
236 5.10.16
5.10.16.0
36.8
5.10.52.8
4.04.49.11
1.06.03.69
0.59.50.17
5.59.02
2.99
69
105.52.87
30
22.87
16
38.87

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1853.

May 27/28 EC fast at $0^h 0^m .40.37$ gaining $\begin{matrix}1.942\\1.883\end{matrix}$ 1.88 in h = 0.08

EC — 0 .. 50 .. 0.0 MSC — 20 .. 27 .. 55

236 — 0 .. 47 .. 45.15 236 — 0 .. 57 .. 39

0 .. 50 .. 0.0

1 .. 40.44

24 .48 .. 19.56 — 4 .. 19 .. 48.59

46.74

236 .24 .47 .. 45.15 4 .. 20 .. 35.33

236 Hour Bid. Cam — 34.41

24 .. 57 .. 39

34.41

24 .52 .. 13.41

4 . 20 . 35 33

20 .. 31 .. 38.08

19 .. 56 .. 43.41

30 . 54 . 92

37.40

.68

20 .28 .16.31

m.s.C 20 .27 .. 55.0

Cam. 21.31

16

28th B — 37.31

20 . 31 . 38.08

3 . 21 . 77

20 . 28 . 16 . 31

20 27 . 55

21.31

1 . 40 . 69

16

24.69

3 . 21 . 61

16

3 . 21 . 77

28th

4 .. 23 . 45 . 15

46.74

4 .. 24 .. 31.89

1 . 24 69

at 0^h B, EC — 4 . 25 56.58

1 . 00 9.86

at 1h B 5 .. 26 . 06 . 44

5 .. 00 . 82

5 .. 21 .. 05 62

22 . 05 . 79

23 5 . 95

24 6 . 12

25 6 . 28

5 . 26 .. 6 . 44

EC fast of Camb at 0 m.t. 1.40.69

4 .. 20 .. 35.33

1 .. 09 9.86

5 . 20 .. 45 . 19

1 .. 40 . 69

5 .. 22 .. 25 . 88

5 .. 00 82

5 .. 22 .. 09 . 88

5 00 82

27th

0^h .. 55m 5 .. 17 .. 09 . 06

.16

28th

Sid. Time 0^h Camb	4 .. 24 .. 31 . 89
Sid int for 1h Mean Time	1 .. 00 .. 09 . 86
Sid Time at 1h m.s.t Camb	5 .. 24 . 41 . 75
EC fast of Camb	1 .. 40 . 69
EC mark at 1h m s t Camb	5 .. 26 . 22 . 44
Dif. Lon. Camb & Bost	16.00
EC mark at 1h m s t Bost	5 .. 26 .. 06 . 44
	5 .. 00 82
EC mark at 0^h .. 55m m s t Bost	5 .. 21 .. 05 . 62
	22 05 . 78 .16
	23 05 . 95 .17
	24 06 . 16 .16
	25 06 . 28 17
EC at 1h .. Bost	5 .. 26 06 . 44 16

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June 1st 9 Am
EC fast 1.47.77 gaining 1.88 (08
20
1.47.97

noon 0.15
EC – 4.55.0
236 – 4.52.39.1
4.55.0
–1.47.97
4.53.12.03
236 4.52.39.10
236 slow –32.93
32° 4.39.31.35
46.76
4.40.18.12
1.00.9.86
5.40.27.98
1.47.97
5.42.15.95
16.
5.41.59.95
5.00.82
5.36.59.13
5.37.59.29
38.59.46
39 59.62
40.59.79
41.59.95

MSC – 0.14.10
236 4.54.19.5

ASC – 0.17.15
236 – 4.57.25.0
4.57.25.0
32.93
4.57.57.93
4.40.18.12
0.17.39.81
0.16.57.21
38.59
.81
0.17.36.91
mSC – 0 17.15
C – 21.91
16
B – 37.91

3.56.555
30.560.5.55
15.280.02.77
4
19.42.77
12 00
19.54.77

EC gains on MS 2m 5s MS days
June 1st to 6th Aft

3 58.95
15 55 82
35 50.59
5.26.06.44
6.01 57.03

5.44.59.95
19.54.77
5.01 54.72

3.36.59.13
88
3 3)01.01 0
3.56.56 23
3.40.57.57

mSC slow
May 23 – 38.87 + .31
24 – 37 31 – .15
June 1 – 37.91
3)46
.11
56

June 11th noon
M.S.C – 0.35.0
239 – 0.35.39.5
M.S.C estimated slow
of Boston 40s
gave the time 59.2

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June 15/16 Am 6h 40m - E.C. fast 25.94 - M.T.C. slow Cam. 25.95
16
" - Bos - 41.95

at noon

E.C. - 6.18.0 M.T.C. - 0.40.00
236 - 6.17.7.4 236 - 6.19.36
6.18.0 6.19.36
29.24 23.36
6.17.30.76 6.19.59.36
236 6.19 7.4 5.39.26.49
-23.36 40.32.8)
39.53.45
31.91
67
40.25.23
40.0c
25.23
16
41.23

5.38.39.25
46.34
5.39.26.49

41)7.72 1.43

E.C. June 20th Old fast - 36.96 gain 5.85
1/2
20/21st Am 38.1
M.T.C. - 23.38.0.4
236 - 5.37.11.0

June 20/21 Am
E.C. - 5.27.0
236 - 5.25.59.5
5.27.0
E.C. fast 38.1
5.26.21.9
5.25.59.5
236 slow -22.4

E.C. fast

5.54.25.98
46.34
5.55.12.72

5.37.11.0
22.4
29.37.33.4
5.55.12.72
23.42.20.68
22.56.13.92
41.53.12
19.44
.68
23.38.27.66
23.34.00
M.T. -27.66
16
-43.66

June 25 - E.C. fast of Camb. 5 44.90
E.C. - 6.46.0 M.T.C. 0.31.10 — 0.34.15
236 - 6.44.53.6 236 6.46.19 — 6.49.24.5
6.46.0 6.46.19
44.9 21.5
6.45.15.1 6.46.40.5
236 6.44.53.6 6.14.55.51
-21.5 0.31.44.99
0.30.54.92
43.67
99
0.31.39.58
0.31.16.6
-29.76
-16
M.T.C. 45.76
2.10
30th 47.86
1.2
49.06

6.14.05.77
46.34
6.14.55.51

47.46
4

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