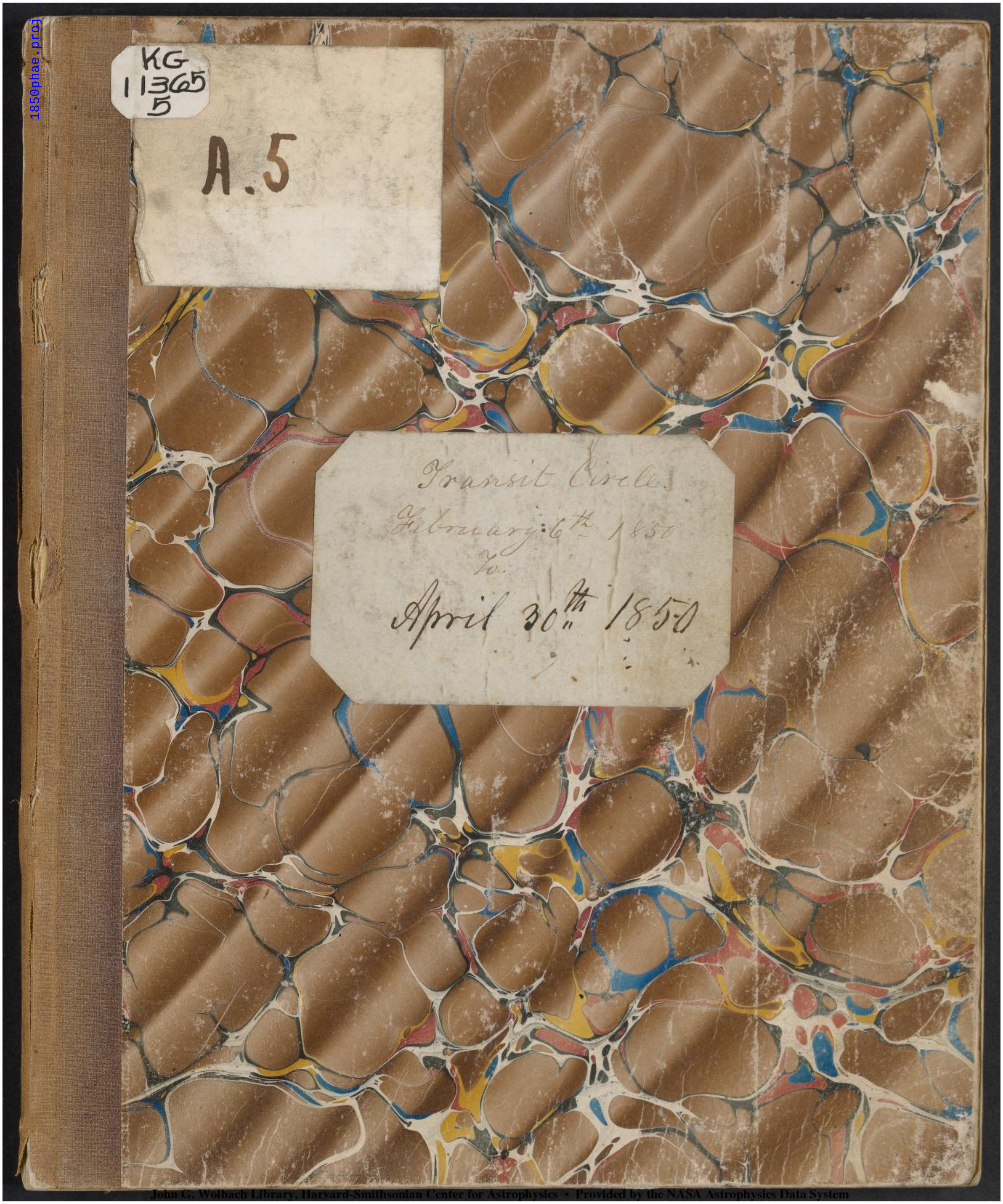

KG
11365
5

A.5

Transit Circle.
February 6th 1850
To.
April 30th 1850

KG 11365.5

312.22

occultations.

26 Feb
18 April
24 March
15 April

New Meridian Mark
April 22

KG 11365.5

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The transits contained in this book up to Feb. 26. are reduced in book No. 11 of the Chronometric Expedition.

The following Equatorial Intervals of the Wires are given in No 11. of the Chronometric Expedition

Ill. East.	Mean to	A	+ 41.132
	"	B	+ 27.487
	"	C	+ 13.752
	"	D	+ 0.032
	"	E	− 13.737
	"	F	− 27.423
	"	G	− 41.247

These intervals were used in reducing the time stars for the Chronometric Expedition of 1849.

I have used them in reducing the imperfect transits of the Mars Comparison Stars observed from Feb. 20, 1850 to March 11, 1850.

Hereafter, up to 1854, I shall use the intervals given below.

A. H.

+ 41.142
+ 27.474
+ 13.758
+ 0.045
− 13.726
− 27.431
− 41.262

Mars Comp Stars

the W cor zero −¼'

			AR	Dec	circle	mag	
1850	Jan	10th	5..11..03	26..16..24	286°..06'	10th	
		4	5..17..47	26..27..06	285..55	7	
		1	5..21..41	26..28..00	285..54	7.8	
1849	Dec	30	5..22..34	26..34..10	285..48	8,9	
		28	5..25..46	26..27..15	285..55	~~8~~ 7th	
		27	5..29..34	26..32..04	285..50	~~7~~5,6	
		21	5..36..21	26..29..50	285..52	9	
		18	5..41..58	26..29..35	285..52	9th..10th	(another *9th s.f. S.AR = 4.2s d.Dec 3'S)
		17	5..43..00	26..28..40	285..52	~~8,9th~~ 7th	
		12	5..52..01	26..19..55	286..02	13th	
		*11	5..54..01	26..16..30	286..06	10th	
	Nov	7	6..00..44	26..10..40	286..11	11th	could not see it wrong dec
		*6	6..02..15	26..09..10	286..13		another follows 9s = 8"S a br star
		6	6..02..24	26..09..00	286..13		
	Dec	6	6..03..14	26..04..24	286..18		
	Nov	30	6..11..37	25..45..34	286..36	9th	
		*27	6..15..56	25..41	286..41	11th	wants a dec
		26	6..16..50	25..35..44	286..46	9th	Bessel star
		21	6..21..04	25..14..36	287..07	9th	
		*16th	6..25..44	25..02..27	287..20	8th	

1850 Feb 6/7

1491 17..21..00
1503 20..11 45.0

1503 20..13..00
258 24..56..52.3

258 has been exposed During last night at a mean temperature of less than +10°
I believe It was yesterday in some part put in order.

1503 20..20..00
258 1..03..52.3

Evr
1503 — 8..20..0
150^{258}8? 13..03..52.2

1503 — 8..21..0.0
258 — 13..04..52.2

258 - was returned to the warm temperature, this morn'g —

Feb 7/8 Friday A.M. 1850 312..22

1 20 7
1491 17..00..00 21..08..59.94
1503 19..46..52.2 4675
16..58..39.3 21..09..46.69
21..09..46.7
19..48..52.6
3..14.76
19..45..37.8
19..46..52.2
1503 + 1..14.4 of C
16
+ 58.4 of Boston

16..06 345..48
16..20 338..28

Cb – 17..39..0
1491 – 17..37..29.4

B Scorpii
22.0
36.3
51.0
05.5
19.8
34.5
15 58..44.3
2184
384
5.49
15..58..03.49
15..56..42.82
1491 +1..20.67.

Feby-7/8h Am

Ther 56

1503- m s
fast- 8..14.4

1491-17.. 40..20 — 17..43..20
1503- 8..27..05.5 — 8..30..05

1503- 8..32..0 — 8..34..0 — 8..36..0 — 8..40..0
250- 13..03..38 227-13.12..30 258-13..19..52.0 180-13..20..12
— 8..41..0 — 8..42..0 8..44..0 — 8..45.0
1492 13..29..46.8 230-13..35..40.3 310.12..39..19.2 222-13..28..25

1491- 18..05..0 — 18..06.6 — 18..8..0
2557- 18..09..24.2 2440-17..44..52.7 2419- 18..20..9.6
The above on Trial

1491
fast 1.. 20.67

1503- 8..47.0 — 8..48..0 — 8..50.0
150-13..30..50.7 1035- 13..29..18.3 190-15..50.58.8
1491- 18..10..0 — 18..11..0 — 18..12..0
194- 18..09..58.4 J.G- 18..31..21.2 B10- 18..08..22.3
1491- 18..14..0 — 18..15..0 — 18..16.0
333- 18..09..49.2 2492- 18..29..16.2 424- 18..12..49.2

Dents also on Trial

1503- 9..13..0 — 9..14..0 — 9..15..0 — 9..16..0
2239- 13..54..24.5 2227- 13..47..48.0} 2167 14..02..23.7 2257- 14..01..44.3
— 9..17..0 — 9..18..0 — 9..19..0 — 9..20..0
2207- 13..58..42.7 2248-14..04..20.9 2186- 13..54..2.2 2222 13..57..37.4
— 9..21..0 — 9..22..0 — 9..23..0
2224. 14..03..33 2245-14..04..7.3 2246- 14..05..19.6

(189)

Monday Feb $\frac{10}{11}$ 1850 H.E.

7)130
7)370.5
52.9

312..22
78..15
234..07

34.5
40.7

δ Oph	16..06	315..40
Ant	16..20	338..28
ε Ur. Min	17..01	230..06
δ Ur. Min.	18..20	

1491

δ Ophiuchi

13
26.8
40.5
54.3
08.0
21.7
16 08.. 35.5

194.5
18
379.5
54.21
16.. 07.. 52.21
16.. 06.. 28.80
1 ..23.41

Antares

52.3
07.5
22.8
38.1
53.5
08.6
16.. 22..23.8
2066
266.6
38.09
16.. 21.. 36.09
16.. 20.. 12.50
1 .. 23.59

ε Ursae Min.

17.. 57.. 47.0
59.. 28.0
01.. 11.0
02 53.0
04 .. 34.5
06 16.7
17.. 08 00.3
1905
1020
1210.5
17..02..52.93
17.. 02.. 50.93
17.. 01.. 26.38
1 .. 24.55

190.5
18
7)3705
52.93

Level

ε	W ×
84.4	84.8 ×
84.0	84.9 ×
83.4	85.0 ×
× 87.0	81.0
× 87.	80
× 87.0	79.5
85.4	82.5
82.5	
29	

+1.″5 ε + = ε + 0.^{s}10

Lev. −0.11

Rate +1.^{s}5

(190)

Feb 11 Am

Cl E 8h Am

~~737~~
~~747~~ Transit Circle

Zero

71	.290	.020		25	.750
71	.290	016		22	.780
73	.270	013		27	.730
72	.280	.023		26	.740
713	.287	020		24	.760
.717	.283	0.018		.25	= 75
		717		.018	018

24
25

301

N mark from = $0^r.301$
midwire 23
= $0^s.690$ 87

South = $0^r.732$ = ~~1.703~~ = $1^s.684$

mark from Mid-wire

732
29
2388
1464
1.703

.732
23
2196
1464
1.6836

Ic East (191)'
1491

Feby. 11th Am

α Aquila
4 .. 9.9
4 . 24.0
4 . 38.0
4 . 52.0
5 . 5.9
5 .. 19.7
19 ..45 .. 33.6
1831
180
7) 3631
51.87
– 2
19 .44 ..49.87
43 . 26.45
+1 ..23 .42

α Aquila ..19..43 – 303..54
α Cygni - 20..36 –
S.P. c Urs Maj – 20..49 – 181..0
α Cephei – 21..15 –
β Cephei – 21..26 –
S.P. α Urs Maj 22..54 –

1491 – 18..52..40
1..23.42
42..51..16.6
21..21..36.3
21..29..40.3
3..31.3
291..26..09.0
1503 . 9..27..28
+1 .19.0

21..20..49.60
46.75
21.21..36.35

Feb 11/12th Ast.

1..24.5
1491 17..05..00
150 24..19..49.7
17..03..35.5
21 25..32.91
19..38..02.6
3 13.0
19..34..49.6
24..19..49.7
4..45..00.1
16
4..44..44.1

1..24.5 +1..24.5
1491 16..57..00 21..24..46.16
1503 19..28..11.3 46.75
16..55.35.5 21..25..32.91
21..25..32.9
19 .30..02.6
3..11.7
19..26.50.9
28..11.3
1503 +1..20.4 of Camb

1503 19..33..00
150 24..16..39.8
4..43..39.8
1..20.4
4..45..00.2
16
150 +4..44..44.2
fast of Boston

Mag. El. 19..41..00
1503 19..43..22.7

Feby 10/11th Am. Mean Temp 60 for the past.

1491 – 18 .. 52 .. 40 — 18 .. 55 .. 40 1503 – 10 .. 3 .. 0
1503 – 9 .. 27 .. 28 — 9 .. 30 .. 27.5 16 — 10 .. 01 .. 40.4

1503 – 9 .. 40 .. 0 — 9 .. 41 .. 0 — 9 .. 42 .. 0 — 9 .. 43 .. 0
2239 – 14 .. 21 .. 18.4 2227 – 14 .. 14 .. 41.5 2257 – 14 .. 27 .. 40.5 2167 – 14 .. 30 .. 25.6
— 9 .. 44 .. 0 — 9 .. 45 .. 0 — 9 .. 46 .. 0 — 9 .. 47 .. 0
2257 – 14 .. 29 .. 40.5 2207 – 14 .. 26 .. 41.5 2248 – 14 .. 32 .. 21.5 2186 – 14 .. 21 .. 48.9
— 9 .. 48 .. 0 — 9 .. 49 .. 0 — 9 .. 50 .. 0 — 9 .. 51 .. 0
2222 – 14 .. 25 .. 32.7 2224 14 .. 31 .. 27.5 2245 – 14 .. 32 .. 4.7 ?} 2246 – 14 .. 33 .. 14
— 9 .. 54 .. 0 — 9 .. 55 .. 0 — 9 .. 57 .. 0 — 9 .. 59 .. 0
180 – 14 .. 34 .. 8.5 1492 14 .. 43 .. 41.4 230 – 14 .. 50 .. 43.3 250 – 14 .. 30 .. 25.4
— 10 .. 0 .. 0 — 10 .. 1 .. 0 — 10 .. 4 .. 0 — 10 .. 5 .. 0
227 – 14 .. 38 .. 29.5 258 – 14 .. 44 .. 47.5 310 – 13 .. 59 .. 12.8 222 – 14 .. 48 .. 24
— 10 .. 7 .. 0 — 10 .. 8 .. 0 — 10 .. 9 .. 0 —
α 190 – 17 .. 7 .. 53.3 150 – 14 .. 51 .. 43 1035 – 14 .. 50 .. 5 /

1491 – 19 .. 37 .. 56
1503 – 10 .. 12 .. 36.5

1491 – 19 .. 39 .. 0 — 19 .. 40 .. 0 — 19 .. 41 .. 0 — 19 .. 48 .. 0
2557 – 19 .. 43 .. 27 2440 19 .. 28 .. 50.3 2419 – 19 .. 53 .. 06 194 – 19 .. 47 .. 55.6
1491 – 19 .. 50 .. 0 — 19 .. 51 .. 0 — 19 .. 53 .. 0 — 19 .. 54 .. 0
Jy – 20 .. 10 .. 35.2 β10 – 19 .. 47 .. 27.6 2419 – 20 .. 07 .. 38.4 424 – 19 .. 50 .. 31.7
— 19 .. 55 .. 0
333 – 19 .. 50 .. 43.6

(193) Ill: East
1491.)

Feb 12/13 Ath 1850

ζ Ur. Min.
15.. 47.. 37.5
48.. 44.8
49.. 51.6
B² 50.. 59.5
52.. 07.8
53.. 14.3
54.. 22.0
237 5
18
417.5
54.64
15.. 50.. 57.64
15.. 49.. 30.08
1.. 27.56

B² β' Scorpii
28.8
43.4
57.8
12.4
× 27.0
41.6
15.. 58 56.4
267 4
87.4
12.49
15.. 58.. 10.49
15.. 56.. 42.95
1.. 27.54

B² δ Ophiuchi
17.0
31.0
44.6
58.5
12.0
25.8
08.. 39.6
228 5
408.5
..58.36
07.. 56.36
06.. 28.86
1 .27.50

B² Antares
56.4
11.6
26.7
42.0
57.5
12.5
16.. 22.. 28.1
2348
2948
42.11
16.. 21.. 40.11
16.. 20 12.56
1 .27.55

			312.. 28
78.. 15	ζ Ur. Min	15.. 49	234.. 07
−19.. 28	β' Scorpii	15.. 56	331.. 45
−13.. 78	δ Oph	16.. 06	315.. 40
−26.. 05	Antares	16.. 20	338.. 27
82.. 16	ε Ur. Min	17.. 01	330.. 06
86.. 36	δ ,,	18.. 20	225.. 46

ε Ur. Min
16.. 57.. 51.5
59.. 32.2
B² 01.. 14.5
02.. 57.0
04.. 38.8
06.. 21.0
17 08.. 04.0
219 0
18
399 0
57.0
17.. 02.. 55.00
17.. 01.. 26.70
1 ..28.30

Ile E, (194)

N mk — S Mark — Inv 24 — Level — Feb 13th Hill

N mk		Zero		S Mark	
.708	.292	.023	.977	.30	.700
.712	.288	.013	.987	.30	.700
.703	.297	.020	.980	.29	.710
.700	.300	.023	.977	.30	.700
700	.300	.020	.980	.29	.710
705		.020	.980	.296	

1.005

mill-wire 0.300 from N

2.3

945

630

690 = $0^{s}.690$

~~cor mean of wires~~

.704

.005

mill wire 0.709 S Mk

23

2027

1368

1.5807

E	W
x	
x 95	86.7
x 95	86
x 95	86
91	89.2 x
90.3	89.5 x
90.0	89.7 x
92.72	87.85
87.85	
4.87	

E + 2″.43 Inst. points S alt 0°

lev. − $0^{s}.20$

E	W
90	87 x
89	88 x
88	88 x
x 91	85
x 91	84
x 91	84
90.0	86.0
86.0	
4.0	

E + 2″.0 Inst points N alt 30° = 35

lev E + = $0^{s}.15$ lev. − $0^{s}.16$

Ill East(195)
1491

Feby 13t

α Andromedæ
1 .. 20.3
1 . 36.0
1 . 57.5
B 2 .. 7.0
2 . 22.7
2 . 38.6
0 .. 02 .. 54.2
230.3
180
7) 50.3
7.19
−2
0 . 02 . 05.19
0 . 0 .. 37.45
+1 .. 27.74

α Cassiopeæ
2 . 17.0
2 .. 41.2
3 .. 5.4
B 3 .. 30.0
3 .. 54.5
4 .. 19.0
0 .. 34 .. 43.2
7/210 3
30.04
−2
0 .. 33 .. 28 .. 04
32 .. 00 .. 47
+1 .. 27.57

α Andromeda 0 . 0 – 284 . 07
γ Pegasi – 0 . 5 – 298 . 02
α Cassiopeæ – 0 .. 32 – 256 .. 40
β Ceti – 0 .. 36 – 331 .. 08
α Urs min – 0 .. 39 – 223 .. 53
α Arietis – 1 .. 59 – 284 .. 38

(B) Polaris
A 0 .. 39 .. 54.0
B. 0 .. 48 .. 44.5
C 0 .. 57 .. 31.2
D 1 .. 06 .. 20.6
E 1 .. 15 .. 11.8
F 1 .. 24 .. 02.0
G 1 .. 32 .. 53.5
7| 44 37.6
6 .. 22.51
−2
1 .. 06 .. 20.57
1 .. 06 .. 20.51
1 .. 04 .. 48.53
1 .. 39.98

(196)

Feby - 13^{t} P.M. Reversed Transit Circle Thr 35°

1503 - 3 .. 25 - 0
1492 - 8 .. 01 .. 6.4

Cle East

Level Cle E.

N mark				S mark		E	W
68	.320	995	64	29	.710	83	83 ×
68	.320	995	64	28	.720	83	83 ×
68	.320	100	66	27	.730	83	83 ×
67	.330	100	65	29	.710	× 86	81
67	.330	100	65	27	.730	× 86	81
67	.330	100	—	29	.710	× 86	80
.675		.100	65	28		845	81.8
325				72		81.8	
						27	

1. 25

E + 1".1
— .09 lev. - 0̊.11

N mark direct. Cle West

N mark direct.		S mark
50	1	85
50		87
49		84
50		87
48		87
49		86

0.32
23
0.96
64
938
86
23
258
1.72
~~1.88~~
1.978

49
23
1.27
48
1.427

Cle East

				Zero
64	.360	34	.660	1.01
70	.300	30	.700	1.00
68	.320	32	.680	1.00
68	.320	33	.670	1.01
69	.310	30	.700	1.00
71	.290	31	.690	
.68		32		
32		0.68		

17
23
151
34
493
.247

Cle East			Cle West		
N mark	0^{r}.32	W of mid wire	N mark	0^{r}.49	W of mid wire
S ..	0.70	"	S "	0.86	"

2c = 0^{r}.17 = 0^{s}.391
2c = 0.16 = 0.368
2c = 0.38
c = 0^{s}.19
Wires cor. mean 0.03
0.22 W of S

0.736
1.610

Coll of Mean of Wires = 0^{s}.22 W of S. Cle East.

1.127
1.978

Ill East (199)
149

Feb 13th P.M.

312..22
97 44
14..38

312 22
101..45
210..37

1st wire ζ Ur. min S.P. 3h..47 210..37
~~1st wire ε Ur Min S.P 4..57 214..38~~
-17..56 α Leporis 5..26 330..18
-34..09 α Columbae 5..34 346..31

ζ Ur. Min S.P.	ε Ur. Min S.P.
3..47..36.7	4..57..45.0
48..44.5	4..59 32.2
49..52.1	5..01..13.8
50..59.3	..02..56.0
52..07.0	..04..37.2
53..14.1	..06..19.0
54..20.5	5..08..01.8
2342	2090
414.2	389
59.17	55.57
3..50..57.17	5..02..53.57
15..49..30.14	17..01..26.78
1..27.03	1..26.79
cor rate -.70	-.70
-1..26.33	-1..26..09 at 15h Sid.12th

δ Orionis α Leporis

10.3	54.4
24.0	08.8
37.7	23.5
51.5	37.6
05.2	52.3
18.9	06.5
5..26..32.5	5..28..21.2
1801	2043
3601	2843
51.44	37.76
5..25..49.44	5..27..35.76
5..24..21.14	5..26..07.40
1..28..30	1..28.36

13/14th Ast

α Lyrae 18h..31 - 273°..44

α Lyrae
13

28.6
46.0
3.5
21.0
39.0
56.0
18..34..13.7
234 8
120 8
11.4
20.69
18..33..19.11
18..31..50.29
1..28 40

6.8

207.8
A60
147.8
21.11
19.11

Feby. 14th Am

1491 – 17 .. 19 .. 0
1492 – 12 .. 19 .. 23.8
17 .. 10 .. 6
1 .. 28.5
41 .. 08 .. 31.5
21 .. 33 .. 26.0
19 .. 35 .. 05.5
3 .. 22 .. 5
9 .. 31 .. 53.0
12 .. 19 .. 23.8
+ 4 .. 47 .. 30.8
– 16
4 .. 47 .. 14.8

21 .. 32 .. 39.26
46.75
21 .. 33 .. 26.01

1503 – 7 .. 41 .. 0
1492 – 12 .. 27 .. 5.9
7 .. 41 .. 0
1.23
7 .. 39 .. 37
12 .. 27 .. 5.9
47 .. 28.9

1491 fast – 1m .. 28.4
1503 " – 1 .. 24.5

1491 – 17 .. 59 .. 10
1503 – 8 .. 22 .. 19.5

1503 – 8 .. 29 .. 0 — 8 .. 30 .. 0 — 8 .. 31 .. 0 — 8 .. 32 .. 0
2248 – 13 .. 15 .. 22.2 2186 – 13 .. 04 .. 36 2222 – 13 .. 8 .. 28.5 2224 13 .. 14 .. 23.6
— 8 .. 33 .. 0 — 8 .. 34 .. 0 — 8 .. 37 .. 0 — 8 .. 38 .. 0
2245 – 13 .. 15 .. 1.7 2246 – 13 .. 16 .. 8.2 2239 – 13 .. 18 .. 13.2 2227 13 .. 11 .. 34.7
— 8 .. 39 .. 0 — 8 .. 40 .. 0 — 8 .. 41 .. 0
2167 – 13 .. 26 .. 27.4 2257 – 13 .. 25 .. 35.8 2207 – 13 .. 22 .. 40.7

The above removed for trial in high Temperature in the work Room, over the Register

1491 – 18 .. 23 .. 20 — 18 .. 35 .. 50
1503 – 8 .. 46 .. 25.5 — 8 .. 58 .. 53.5

E.C. – 21 .. 03 .. 0
1503 – 21 .. 01 .. 39.7
1 .. 20.3

1503 – 9 .. 3 .. 0
454 – 13 .. 48 .. 49.3

1503 – 0 .. 44 .. 0
5710 – 0 .. 44 .. 34.3

1503 0 .. 45 .. 6 — 0 .. 46 .. 6
1508 3 .. 5 .. 36 — 3 .. 6 .. 36.5

	Temperature
9 Am	68.3
10	86.0
11	93.0
12 .. 30	98
1 .. 15	96
2 .. 40	93
3 .. 20	93
4 .. 30	98
5 .. 30	103
6 .. 15	102.5
8 .. 0	99
8 .. 40	98.5

E C was put back

Feby. 14 – after 12 hours exposure to Temp of 95

1503 – 8 .. 42 .. 0 — 8 .. 45 .. 0 — 8 .. 46 .. 0 — 8 .. 47 .. 0
2248 – 13 . 28 .. 22.8 2186 – 13 .. 19 .. 34.5 2222 . 13 . 23 .. 28.9 — 13 . 24 .. 28.1
— 8 .. 48 .. 0 — 8 .. 49 .. 0 — – 8 .. 50 .. 0 — – 8 .. 51 .. 0
2224 – 13 .. 30 .. 23.6 2224 – 13 . 31 .. 23.5 – 2245 – 13 .. 32 0.4 2246 – 13 . 33 . 7.1
— 8 .. 52 .. 0 — 8 .. 53 .. 0 — 8 .. 54 .. 0 — 9 .. 55 .. 0
2239 13 .. 33 .. 11.8 2227 – 13 .. 26 .. 33 2167 – 13 .. 41 .. 27 2257 – 13 .. 40 .. 33.4
— 8 . 56 . 0
2207 – 13 .. 37 .. 40

1491 – 6 .. 40 .. 45 — 6 .. 43 .. 45
1503 – 9 .. 1 .. 50 — 9 .. 04 .. 49.5

13/14 .

Sid 13h
21 .. 32 .. 39.26
46.75
21 . 33 .. 26.01

1491 – 17 .. 59 .. 10.0
1 .. 28.4
47 .. 57 .. 41.6
21 .. 33 .. 26.0
20 .. 24 .. 15.6
3 .. 20.6
8 .. 20 .. 55.0
1503 8 .. 22 .. 19.5
+ 1 .. 24.5

Feby. 15th
1503 – 7 .. 33 .. 0
δ 190 – 14 .. 33 .. 58

α Lyrae
18 . 32 .. 30.1

68.0

Feby. 15th Am

Temp of W.R. Dent & Co

1491–17..45..30–17..48..25
1503–8..4..46.5–8..07..41

1503–fast Cam–$\overset{m}{1}..\overset{s}{26}.2$

mean Temp 64 in Library

1503–8..9..0 — 8..10..0 — 8..12..0 — 8..13..0
230–13..2..46.4 222–12..53..20.8 258–12..55..39.7 227–12..51..27.4
— 8..15..0
250–12..46..10.2

Removed shipped to warm Temp. Ther 93°

1503–8..25..0 — 8..26..0 — 8..27..0 — 8..28..0
2248–13..11..24 2186–13..00..33 2222–13..04..27.8 2224–13..10..23.3
— 8..29..0 — 8..30..0 — 8..32..0 — 8..33..0
2245–13..10..59.7 2246–13..12..1 2239–13..13..10.9 2257–13..18..32.2
— 8..34..0 — 8..35..0 } — 8..36..0
2167–13..21..27 2227–13..08..31.3 } 2207–13..17..39.7

These have been during the last 24 hrs in a Temp of at the mean + 24 hours

1503–9..50..0
454–14..35..51.7

1503–9..40..0 1491–19..29..0
160–14..20..3.7 194–19..28..48.8

at 9..20 – 96°
10..20 – 92
12..30 98
PM 3..00 101
8..40 – 90
5) 477
95.4

15th Eve 6

1491–6..35..15
1503–8..52..25

1503 fast $\overset{m}{1}..\overset{s}{27}.1$

after trial at Temp of 95°.4 12 hours

1503–8..54..0 — 8..56..0 — 8..57..0 — 8..58..0
250–13..25..8.2 222–13..39..20.3 230–13..50..47 227–13..36..26.8
— 8..59..0
258–13..42..38.5

returned to the Library

1503
Feby 8th +1.14.4
14 +1.24.5
6) 10.1 (1.7
1.24.5
15th +1.26.2

Feby. 15/16 Am

20.9
3.6
24.5

α Herculis
39.6
53.6
7.5
21.7
36.0
50.0
17..10..4.2
2126
1526
2180
17..09..19.80
17..07..47.80
1..32.00

1491–17..15..0
194·17..14..47.4
1..32
1491–17.32..35
1503.7..47..57.5
17..31..03
21..41..19.11
19..49..43.89
3..14.91
19..46..28.98
19..47..57.5
1503 + 1..28.52
4..44..32
4..43..03.5
–5
4..43..3.0

1..32.0
1491 17..49..00.0
1503 20..04..19.8
17..47..28.0
21..41..19.12
20..06..08.88
3..17.60
20..02..51.28
20..04..19.80
1503 fast of Camb. 1..28.52

21..40..32.37
46.74
21 41 19.17

α Herculis 17..07 297..49
α Ophiuchi 17..27 300..43

1503–7..20..0
454–12..05..53.4

1503–7..27..0
484–12..12..53.4

1503–7..28..0
310–11..23..1.3

— 7..29..0
180–12..09..3

EC 20..01..00
1503 20..02..40.7
1..28.5
20 01..12.2
EC slow 12^{s}.2

EC 20..07..00
1503 20..08..40.7
1..40.7
1..28.5
12.2
cor az, lev &c 0.5
EC +11.7

Electric Clock ~~fast~~ slow of Camb +11^{s}.7
Feb 16..8^{h} A.M

(204) E 1503 fast − 1..28.52

Feby 16th Am

Mean Temp 60

1503 − 8..15..0 — 8..16..0 — 8..17..0 — 8..18..0
2239 − 12..56..8.7 2257 − 13..01..31 2167 − 13..4..28 2227 − 12..51..28
— 8..19..0 — 8..20..0 — 8..21..0 — 8..22..0
2207 13..00..39.3 2248 − 13..06..24.9 2186 − 12..55..29.8 2222 − 12..59..27 }
— 8..23..0 — 8..24..0 — 8..25..0
2224 − 13..05..21.6 2245 − 13..05..58.8 2246 − 13..07..4.6

1503 8..28..00 1503 8..29 8..30 — 8..31
230 1..21..47.4 222 1..12..20.7 250 1..01..06.7 258 1..14..38.2

1503 8..32..00
227 1..10..26.9

2239
1503 8..15..0
4..43..3
12..58..03
12..56..8.7
−1..54.3
56.1
6)1.8

2257
8..16..0
4..43..3
12..59..03
13..01..31
+2.28

2167
8..17..0
4..43..3
13..00..03
13..04..28
+4..25
36
6)11/1.9

2227
8..18..0
4..43..3
13..01..3
51..28
−9..35.0
46.7
6)11.7/1.9

2207
8..19..0
4..43..3
13..02..3
00..39.3
−1..23.7
1..16.2
6)7.5 +1.2

2248
8..20..0
4..43..3
13..03..03
13..06..24.9
+3..21.9
29.7
18.2/ −1.6

2186
8..21..0
4..43..3
13..04..03
12..55..29.8
−8..33.2
50.5
6)17.3/2.9

2222
8..22..0
4..43..3
13..05..03
12..59..27
−5..36
34.0
)20 +0.3

2224
8..23..0
4..43..3
13..06..03
13..05..21.6
−41.4
44.6
6)3.2/0.6

2245
8..24..0
4..43..3
13..07..03
5..58.8
−1..04.2
2.2
6)2.0/0.3

2246
8..25..0
4..43..3
13..08..03
13..07..4.6
−.58.4
63.2
6)4.8

Hc East (205.)
1491

Feby. 17/18th Am

α Lyrae
2 . 33.9
2 . 57.0
3 . 9.0
3 . 26.3
3 . 44.0
4 . 1.4
18 . 34 . 18.8
18.44
26.34
− 2
18 . 33 . 24.34
18 . 31 . 50.39
+1 . 33.95

21 . 48 . 25.48
46.75
21 . 49 . 12.23

1491 − 18 . 48 . 30 — 1491 − 18 . 50 . 30 EC 22 . 39 . 00
1503 − 8 . 55 . 49 — E.C. − 20 . 56 . 06 1503 22 . 40 . 42.7

18 . 48 . 30
1 . 33.9
42 . 46 . 56.1
21 . 49 . 12.2
20 . 57 . 43.9
3 . 26.1
8 . 54 . 17.8
1503 − 8 . 55 . 49.0
+1 . 31.2

α Lyrae 18h . 31m − 273° . 44′
β Lyrae − 18 . 44 − 279 . 12

0 . 06 . 00.0
1 . 31.2
0 . 04 . 28.8
4 . 49 . 20.5
4 . 44 . 51.7
4 . 44 . 32
222 +19.7 of Gr.

4/5.5
+1.4

8 . 7 . 0
1 . 31.2
8 . 5 . 28.8
258 − 12 . 50 . 35.5
4 . 45 . 06.7
4 . 44 . 32
+34.7

0 . 6 . 0
1 . 31.2
0 . 04 28.8
222 . 4 . 49 . 20.5
4 . 44 . 51.7
32
+19.7
0 . 7 . 0
1 . 31.2
0 . 05 . 28.8
4 . 37 . 58.2
4 . 35 . 29.4
4 . 44 . 32
250 − 9 . 02.6

1850 Feby. 17/18th Ass (206)

h m s
1491 - 17 .. 47 .. 45 — 17 .. 50 .. 48 1503 fast C - 1m .. 31s.2
1503 - 7 .. 55 .. 14 — 7 .. 58 .. 16.5

(1503 - 8 .. 0 .. 0 — 8 .. 3 .. 0 v — 8 .. 4 .. 0 v — 8 .. 5 .. 0 v
497 - 8 .. 00 .. 2.2) 230 - 12 .. 56 .. 48.3 222 - 12 .. 47 .. 20.4 250 - 12 .. 35 .. 58.8
— 8 .. 7 .. 0 — 8 .. 8 .. 0 — 8 .. 9 .. 0 — 8 .. 10 .. 0
258 - 12 .. 50 .. 35.5 227 - 12 .. 46 .. 24.7 (1035 - 12 .. 49 .. 49.8) 3710 - 8 .. 11 .. 22.7)
— 8 .. 14 .. 0 v — 8 .. 15 .. 0 v — 8 .. 17 .. 0 v — 8 .. 18 .. 0 v
2239 - 12 .. 55 .. 4.6 2257 - 13 .. 0 .. 30.9 2167 - 13 .. 04 .. 28.5 2227 - 12 .. 51 .. 21.2
— 8 .. 19 .. 0 v } — 8 .. 20 .. 0 v — 8 .. 22 .. 0 v — 8 .. 23 .. 0 v
2207 - 13 .. 00 .. 39 } 2248 - 13 .. 06 .. 24.1 2186 - 12 .. 56 .. 21.2 2222 - 13 .. 00 .. 24.3
— 8 .. 24 .. 0 v — 8 .. 25 .. 0 v — 8 .. 26 .. 0 v
2224 - 13 .. 06 .. 16.5 2245 - 13 .. 06 .. 56.1 2246 - 13 .. 8 .. 0

1503 - 9 .. 0 .. 48 — 9 .. 1 .. 48
1508 - 12 .. 07 .. 16 — 12 .. 8 .. 16.5

1491 - 21 .. 51 .. 20 — 21 .. 54 .. 20
1503 - 11 .. 58 .. 09 — 12 .. 1 .. 8.5

1503 - 0 .. 5 .. 0 — 0 .. 6 .. 0 — 0 .. 7 .. 0
230 - 4 .. 58 .. 48.3 222 4 .. 49 .. 20.5 250 - 4 .. 37 .. 58.2
— 0 .. 09 .. 0 — 0 .. 11 .. 0 — 0 .. 12 .. 0 — 0 .. 13 .. 0
2239 - 4 .. 50 .. 4.5 2257 - 4 .. 56 .. 31.1 2167 - 4 .. 59 .. 28.5 2227 - 4 .. 46 .. 20.7
— 0 .. 14 .. 0 — 0 .. 15 .. 0 — 0 .. 16 .. 0 } — 0 .. 17 .. 0
2207 - 4 .. 55 .. 39 2248 - 5 .. 01 .. 24.2 2186 - 4 .. 50 .. 20.7 } 2222 - 4 .. 54 .. 24
— 0 .. 18 .. 0 — 0 .. 19 .. 0 — 0 .. 20 .. 0
2224 - 5 .. 00 .. 16.1 2245 - 5 .. 00 .. 55.8 2246 - 5 .. 01 .. 59.6

since the first comparison
These Chros. have been taken in a carriage
about 14 miles over Roads - rather rougher
than an average; the time they were in motion
was about equal to three transportations to
the Steamer.

Halo - 23°
22
22°.30′

Feb 19th 1850

Im of 48 Tauri
1491 4" 27" 43.5 - 10 beats

Blows a gale of wind from N.N.W.
yet the definition is by no
means bad

As the wind increased we

Hight of Newman Barometer above the mean Level of the Ocean, at the Dry Dock. Charlestown Navy yard – x70 feet – Jany 1850.
measured by way of the Fitchburg Rail Road under the direction of Mr Felton. Porter's Station
See another Note with particulars

71.34 ft

In March 1857 Mr Bardwell gave 75.04 ft for hight of top surface of lower square base of granite pelaster of front door of Observatory above Mean between high & low water at Dry Dock Charlestown Navy Yard

	75.04
Base to cistern	3.33
Cistern above Mean of high & low	71.71

Feb 19th 1850

1491 7.. 33.. 26.1
E.C. 9.. 33.. 00

312.. 22
22.. 15
δ Gem. 7..11 290.. 07
32.. 12
α² Gem 7.. 25 280.. 10

It is blowing great gusts from N.N.W. &
I cannot get my head into position for these high stars

δ Geminorum
04.5
19.0
33.8
48.8
03.5
18.0
7.. 13.. 33.1
1607
3407
48.67
7.. 12..46.67

α² Geminorum
5 52.5 about
6 08.0
6 24.0
6 40.5
6 56.7
7.. 13.0
7.. 27 29.0
2237
66
7)2837
40.53
- 2
7.. 26.. 38.53
25.. 02.16
+1.. 36.37

Feb 20th
Lent Prof. Peirce
Vol XVII Mem. Ast. Soc. Observatory Copy
Also
~~Also 11th about returned.~~
~~Plates to Pearson's Ast. & of Descrip. of the~~
~~Obs. at Poulkova.~~

Feby. 26 [illegible]

1491 - 17.. 37. 0 — 17.. 38.. 0
E.C - 17.. 30.. 58.1 — 7.. 31.. 58

By water
17.. 37.. 0
1.. 38.6
41.. 35 .21.4
22.. 01.. 01.9
19.. 34 .19.5
3.. 12.4
7.. 31.. 07.1
7.. 30.. 58.1
E.C. -09.0

22.. 0.. 15.14
46.75
22.01.. 01.89

(209)

Feb 21st Pole 1850

0.

1491

+16°
α Tauri
18.0
31.9
46.2
00.5
15.0
29.3
4h 29.. 43.7
184.6
4.6
00.66
4.. 28.. 58.66
cor. lev −.10
cor az −.06
cor coll −.23
Sum of Inst cor −.39 to 5h.20m
cor rate +.03
4.. 28.. 58.30

Bad vision

	70	25	
	70	25	
	70	25	
Zero	02	.02	
N mk	$0^{r}.32$	$0^{r}.77$	S mk
	23	23	
	96	231	
	64	154	
	0.736	1.771	

2.28 0.84
76 28
2.204 0.812

2.3 23
.06 8
.138 .184
032
0.216

312.. 22
16.. 12
4.. 27 = 296.. 10
22.. 35
6.. 13 289.. 47

need $0^{r}.28$ .. $0^{r}.76$
for 0.32 .. 0.77

~~$N - n = 0^{r}.30 - (0^{r}.28 - 0^{s}.032) = a - c = 0^{r}.02 + 0^{s}.032$~~

~~$S - s = 0^{r}.90 - (0^{r}.76 - 0^{s}.032) = -a + c = 0^{r}.14 + 0.032$~~

~~$a = -0^{r}.06$ $2a = -0^{r}.12$~~

~~$c = -0^{r}.08 - 0.032$ $2c = -0^{r}.16 + 0^{s}.064$~~

~~$a = -0^{s}.138$ az W of S~~

~~$c = -0.216$ col. W of S Tel. mean of wires.~~

~~$2c = n + s - N + S = 1^{r}.04 - 1.20 - 0^{s}.064 = -0^{r}.16 + 0.064$~~

~~$c = -0.08 - 0.032$~~

~~$c = -.216$~~

~~$2a = 0^{r}.48 - 0^{r}.60 = -0^{r}.12$~~

~~$a = -0.06$~~

Rate of 1491

	By α Tauri	By μ Gem.	*a	*L	*c	δ Geminor
Feb 21st = 22nd	$+1^{s}.25$	+1.34	1.17	1.29	1.36	
22 = 23	+1.15	1.2	1.23	1.14	1.09	
19.. 23						

19 = 23 +1.47
−.060 for 12m

hly rate $+0^{s}.050$

Correction of stars for Inst. errors & rate to 5h for Dec +26°

5h.. 00m	$-0^{s}.42$	6h.. 00	$-0^{s}.47$
5.. 12	.43	12	0.48
5.. 24	.44	24	0.49
5.. 36	.45		
5.. 48	.46		
6.. 00	.47		

(210)

Stars of Comp. with Mars Ke. E.

Febr 24th 1850

			R	Dec	312..22
az 0.14 W of S	10th	Jan-10th	5h..11m..03s	+26°..16'..24"	286..06
col. 0.22 " Ke E	7	4	5..17..47	+26..27.06	285..55
lev 0.11 E. too high	7.8	1	5..21..41	+26..28..00	285.54

az - 0.182
col - 0.160
lev - 0.11

	Star of Comp with ♂ Jan. 10th 1850	Star of Comp Jan 4th 1850	Star of Comp ♂ Jan 1st 1850	ω Orionis -1°	μ Geminor +23°
	59.5	43.8	34.3	37.0	50.8
	15.0	59.3	54.5	50.8	05.5
	29.5	14.5	09.7	04.5	20.5
	45.0	30.0	25.0	18.3	35.3
	01.0	45.3	40.5	32.0	50.2
	15.8	00.5	55.8	45.6	05.0
	5..13..31.2	5 20..16.0	5..24 11.0	5..30..59.5	6..16 20.0
	1970	2044	2358	2477	1873
	3770	29.91	1758	1277	2473
	45.29	27.91	25.11	18.24	35.33
	5..12..43.29	5..19..27.91	5..23..23.11	5..30..16.24	6..15..33.33
not accurate lev	-.13	S. cor. -.44	E cor -.44	-.07	-.12
az	-.05			-.09	-.05
col	-.24			-.22	-.24
Sum of Inst. cor.	-.42			-.38	-.41
rate	-.01			-.02	-.06
	5..12..42.86	5..19..27.47	5..23..22.67	5.30..15.84	6..15..32.86

Note:- In these obs. the primary object is the difference of the right Ascensions of the Comparison stars & not their absolute places

Feby 22^{d} - 21^{d} PM 1491- Fast .. $1^{m}..39^{s}.3$

19 -- " -- " -- " — 1..35.87

2/3.43/1.71

1.39.3
9
+ 1..40.2

22..08..08.24
46.75
22..08..54.99

EC - 0..24..0
222 - 5..09..7.7
4..45..7.7
4..44..59.0
8.7

22 Noon

1491 - 22..12..26
1..40.2
22 10..45.8
22 08..52.99
+ 1..50.81
- 3
0..1.50.51
222 - 4..46..49.5
222 fast of Camb 4..44..59.0
4..44..32
Gr 4..46.22.5
4..46 49.5
+ 27.0

No. 2241. Remains in England
to be delivered to Mr Dent

22..12..26.0
1..40.2
22 10..45.8
22 08..54.99
.01..50.81
3
0..1..50.5
4..46..49.5
222 + of Camb 4..44..59.0
4..44..32
222 of Gr + 27.0

Feby. 22 – noon

1491 — 22..12..26 — 22..15..26
222 – 4..46..49.5 — 4..49..49

222 – 4..52..0 — 4..53..0 — 4..54..0 — 4..55..0
2239 – 4..49..36.9 2227 – 4..42..46.3 2207 – 4..52..16.8 2167 – 4..59..9

222 – 4..56..0 — 4..57..0 — 4..58..0 — 4..59..0
2248 – 4..59..2.1 2186 – 4..47..42.5 2222 – 4..51..59 2224 – 4..57..48.4
— 5..0..0 — 5..1..0
2245 – 4..58..30.8 2246 – 4..59..29.8

2239	2227	2207	2167	2248
4..52..0	4..53..0	4..54..0	4..55..0	4..56..0
27	27	27	– 27	– 27
4..51..33	4..52.33	4..53..33	4..54..33	4..55.33
4..49..36.9	4..42.46.3	4..52..16.8	4..59..9	4..59..2.1
–1..56.1	– 9.46.7	–1.16.2	+ 4.36	+ 3.29.9

2186	2222	2224	2245	2246
4..57..0	4..58..0	4..59..0	5..0..0	5..1..0
– 27	27	27	27	27
4..56.33	4..57.33	4..58..33	4..59.33	5..0.33
4..47.42.5	4..51..59	4..57..48.4	4..58..30.8	4..59.29.8
– 8..50.5	– 5.34	– 44.6	– 1..02.2	– 1..03.2

Clc E (213) Feb 22nd 1850

N mark		Zero	S Mark	
74	.260	.02	320	.680
72	.280	02	30	.700
74	.260	02	29	.710
73	.270	,02	32	.680
73	.270	02	31	.690

0.732
020
$\overset{9}{0}$,288
23
864
576
0.6624

.310
020
$\overset{9}{0}$.710
23
213
142
1,633

Tel points S

Level

E	W	
×93	85	
×93	85.5	
×93	85.5	
89	89.7	×
89	90	×
88	89.5	×
90.8	452	
87.5	87.5	

2) 3.3
$1''.65$ E +

Lev East too high $0^{s}.11$ Cor. − 0.12

coin

Feb 22nd 1850 Mars Comp. Stars
In same order with the List on 1st page of this Book.

εC 6 .. 05 .. 21
1491 4 .. 17 .. 05

	19.0	01.2	45.3	40.5
	33.3	15.5	60.2	56.0
o Tauri	47.5	31.0	16.0	11.0
	62.0	46.5	31.2	26.5
	16.3	02.0	46.4	41.7
	30.4	17.0	02.0	57.0
	4 29 44.9	5.13.32.0	5.20.17.3	5 24.12.6
	1934	1452	1584	2453
	134	3252	2184	1853
	1.91	46.46	31.20	26.47
	4 .. 28 .. 59.91	5 .. 12 .. 44.46	5 .. 19 .. 29.20	5 .. 23 .. 24.47
Sum of all cor.	−.36	−.43	−.44	−.44
Lev. az. col. & rate				
	4 .. 28 .. 59.55	5 .. 12 .. 44.03	5 .. 19 .. 28.76	5 .. 23 .. 24.03

41.5	5.6 34.0	21.4	58.5
56.6	49.4	36.8	13.9
11.9	04.7	51.8	29.5
27.3	19.8	07.3	44.5
42.5	35.5	22.9	00.0
57.3	50.7	38.0	15.0
5.28.13.5	5.32.16.0	5 38.53.0 ?	5 .. 44 .. 30.5
2506	2001	2312	1919
1906	1401	512	3119
2723	20.01	5 .. 38 .. 07.31	44.56
5 .. 27 .. 25.23	5 .. 31 .. 18.01	5 .. 38 .. 05.31	5 .. 43 .. 42.56
−.44	−.45	−.45	−.46
5 .. 27 .. 24.79	5 .. 31 .. 17.56	5 .. 38 .. 04.86	5 .. 43 .. 42.10

Feb 22nd (Ill. East? probably) (215) some doubt. Mean Comp stars.

7th	----	18.0	4.09.0	very small 12th ?
	----	33.0	24.6	another follows same
	----	48.5	39.3	Dec & mag. 30s
	.47.3	04.5	55.0	
δ=26° 31′	02.8	19.2	10.0	
	18.0	34.3	25.0	
	5.45.33.2	5.53.49.5	6.05.41.0	
	101.3	2070	2038	
	25.32	270	3838	
	15.	03.86	5483	ΣL 8.22.20.0
5 46	10.32	5.53.01.86	6.04.52.83	1491 6.34.26.5
		−.46	−.47	
		5.53.01.40	6.04.52.36	

Mean of Eq. In. − 20.594
log 1.31374n
sec δ 0.04827
1.36201n
cor. − 23.01
obs. 5 44 47.31
−00.46
5 44 46.85 ± 2s

	52.1.		.46.0
μ Geminis	5.06.9	Nov 16th	08.8 ? This wire rejected – made up = 01.2
	21.8		16.3 ?
	36.5		31.5
	51.5		46.5
	06.5		01.7
	6.16.21.4		6.28.17.2
	1967		1604
	2567		2204
	3667		3149
	6.15.34.67		6.27.29.49
	−.47		−.49
	6.15.34.20		6.27.29.00

	N	S			
Marks	72	35	bad vision	4,, 27	296,, 10
				6,, 13	289,, 47

Sat Feb 23rd 1850

I cannot be sure of the faintest stars to 0.5 on each wire

Σ C 6,, 08,, 00.0
1491 4,, 23,, 41.5

1491				
	20.3	11^m 22.0	46.5	41.8
	34.5	17.7	01.4	56.9
	48.5	32.0	17.0	12.3
Garni	03.0	47.0	32.3	27.6
	17.3	02.8	47.7	42.9
θ	31.8	18.3	03.0	58.0
	4,, 29,, 46.0	5.13.34.0	5.20.18.5	5.24.13.4
	2014	1538	1664	2529
	214	3338	2264	1929
	3.06	47.69	32.34	2756
	4,, 29,, 01.06	5,, 12,,45.69	5,, 19,, 30.34	5,, 23,, 25.56
Σ of all cor.	–.36	–.43	–.44	–.44
az. lev. col & rate		5,,12,,45.26	5,,19,,29.90	5,,23,,25.12
	4,,29,,00.70			
	27 19 07			
	2 41.63			

8^m 42.5	5,6^m 35.0	8.9^m 22.5	10^m 00.3
57.3	50.4	38.0	15.2
13.0	05.8	53.0 ?	30.0
28.2	21.1	08.3	46.0
43.7	36.6	24.0	00.8
58.8	51.8	38.9	16.3
5.28.14.5	5.32.07.0	5.38.54.5	44.37.5
2580	2077	2392	1401
1980	1477	592	3201
28.29	2110	0846	4574
5,,27,,26.29	5,,31,,19.10	5,,38,,06.46	5,,43,,43.74
–.44	–.45	–.45	–.46
5,,27,,25.85	5,,31,,18.65	5,,38,,06.01	5,,43,,43.28

(217) Mars Comp. Stars.

8th	13th		
———		3.00	8.9th 6.5
———		17.00	21.8
———	δ=+26°21′	33.5 very uncertain	37.0
4.8.5		47.5	52.2
03.8	54	3.5	7.5
19.0		−104.5	23.0
5. 45.34.5		−20.90	5. 56. 38.2
105.8		32.90	1862
26.45	cor.	15.35	3662
15.	53	48.25	5231
11.45	5 53	46.25	5 .. 55 .. 50.31
cor. −23.01		−.46	−.47
5 44 48.44	5 53	45.79	5 .. 55 .. 49.84
−.46			
5 44 47.98			
5 44 45.98			

The minutes for these two stars were taken from the chronometer before observing.

10th . 45.7	10th 16.3	34.5	11th dec right 56.3
00.7	31.5	49.8	11.4
δ=26°10′ 16.1	46.8	5.1	27.0
31.3	01.5	20.3	42.3
46.7	17.3	35.5	57.5
01.5	.32.0	57.0	12.5
6 .. 03? —	6 .. 04? .. 47.7	6.14. 5.8	6.18. 27.5
142.0	1931	2020	2345
23.67	131	1420	2945
cor + 7.66	07.87	2029	42.07
6 03? 31.33	6 .. 04 .. 59.87	6 .. 13 .. 18.29	6 .. 17 .. 40.07
6 03? 29.33 −.47	−.47	−.48	−.48
6 03? 28.86	6 .. 04 .. 59.40	6 .. 13 .. 17.81	6 .. 17 .. 39.59

(218)

Feb 23rd 1850 : Merz Comp. Stars.

7.8th .05.8
20.7
35.9
57.1
06.5
21.5
6.23.36.6
178.1
3581
5116
6..22..49.16
-.49
6..22..48.67

7th .47.4
02.3
17.5
32.6
47.8
02.9
6.28.18.2
1687
2287
3267
6..27..30.67
-.49
6..27..30.18

EC 8..14..38
1491 6..30..40.5

δ Gem 7..11 290..08
a Gem 7..25 280..10

Perhaps the estimates of the magnitudes are too bright.

The stars are designated on the first leaf of this Book
Sum of corrections same as on Feb 21st

δ Geminor
10.3
24.8
39.7
54.5
09.5
24.0
7..13..39.0
2018
3818
54.54
7..12..52.54

7..12..52.0
7..11..10.5
1..41.5

Feby. 23d. (219) 6th mag.

WCB Imm of 25 Cancri GPB Clear. dis. quickly

1491 7 . 52 " 17.5 − 6
30
7 " 52 " 14.5

239 = 9 " 36 " 50 − 92 beats
36.8
9 " 36 " 13.2 obs.
1 " 43 " 58.5
7 " 52 " 14.7

1491 7 " 55 " 00.0
239 9 " 38 " 58.3
1 " 43 " 58.3

1491 7 " 57 " 00.0
239 9 " 40 " 58.0

(220)

S marks N   Feb 25th P.M. 1850   Cl. East.

lev $-0^{s}.08$ E +

32	.680	72	.280
31	.690	71	.290
28	.720	72	.280
32	.680	70	.300
31		71	
		29	

$2u = 0^{r}.40 - 0^{r}.60 = -0^{r}.20$ $u = -0^{r}.10$ $u = -0^{s}.23$ W of S

$2c = 1^{r}.02 - 1^{r}.20 - 0^{s}.064 = -0^{s}.414 - 0.064$ $c = -0.24$ "

$$\begin{array}{r} 23 \\ \underline{.70} \\ 1.610 \end{array} \qquad \begin{array}{r} 23 \\ \underline{30} \\ .690 \end{array}$$

$$\begin{array}{r} 18 \\ \underline{23} \\ 54 \\ \underline{36} \\ 414 \end{array}$$

Level

E	W
81	82 x
81	81.8 x
80	82 x
x 84	78
x 84	78
x 84	77.5
82.3	80.0
80.0	
24	
1".2	

East End too high $1''.2 = 0^{s}.08$ lev. -0.10

Ill. East (221) a = -.24 b = -.08 c = -26

Feb 25th 1850 P.M. Mars comp. Stars EC=6..00..10

1491=4..23..44

+16°

Gauss

22.0	12* 03.2	48.3	43.3
36.3	18.5	03.4	58.5
56.5	34.1	18.6	13.9
04.8	49.4	33.8	29.3
19.0	04.5	49.3	44.5
33.3	19.8	04.6	59.6
4..29 47.8	5.13.35.3	5.20.20.0	5.24.15.3
2,37	164.8	178.0	264.4
337	180	~~10~~ 60	~~10~~ 60.0
64.81	344.8	238.0	204.4
4.. 29..02.81	5 12 49.26	34.00	29.20
a -.11	5 12 47.26	5 19 32.00	5 23 29.20
b -.07	a -.08	-.47	-.47
c -.27	b -.10		
Sum -.45	c -.29		
	Sum -.47		
4 29 02.36			
4 27 19.07	5 12 46.79	5 19 31.53	5 23 26.73
1 43.29			

4.. 29.. 02.81
4.. 27.. 19.03
1. 43.78

*7 6 44.2	*6 5 .36.8	*10 9 24.5		* 11 .01.2
59.5	52.0 + Δt	39.5		16.5
14.8	07.5	55.0	+26° 30′	31.9
30.0	23.0	10.1		44.. 46.9
45.5	38.0	25.5		96.5
00.5	53.5	40.6		24.12
5.28.16.0	5.32.09.0	5.38.56.3	cor. +	23.02
210.5	219.8	251.5		47.14
	60	180		
	159.8	71.5		
5 27 30.07	5 31 22.83	5 38 10.21	5 44	47.14
5 27 28.07	5 31 20.83	5 38 8.21	5 44	45.14
-.47	-.47	-.47		-.47
5 27 27.60	5 31 20.36	5 38 7.74	5 44	44.67

(222)

Mars Comp. Stars.

8th 04.0	53.01.	08.0	10th 47.1
19.4	two small	8th 23.0	02.0
34.8		38.6	17.6
50.0		52.0	32.8
05.5		09.1	48.1
20.5		24.5	03.7
5.45.36.0		5.56.40.0	6..03.19.0
170.2		197.2	170.3
180.		180.0	60
350.2		377.2	230.3
50.03		53.89	32.90
5 44 48.03		5 55 51.89	6 02 30.90
-.47		-.47	-.47
5 44 47.56		5 55 51.42	6 02 30.43

			wrong star
11th	8th 9th. 36.6	10th 58.5	59.0
32.5	57.6	13.5	
26°16'.5 47.8	06.8 ±?	δ=26°9' 28.6	
03.5	22.0	44.0	
19.0	37.4	-144.6	
33.5	52.5	-60	
04.49.5	6.14.08.0	-84.6	
185.8	214.9	21.15	
120	60	cor. + 22.95	
65.8	154.9	44.10	
10.97	22.12		
cor. - 7.65			
6 03 03.32			
6 3 1.32	6 13 20.12	42.10	
-.47	-.47	-.47	
6 3 0.85	6 13 19.65	41.63	

February 25th 1850

8th 07.5	8th 49.0
22.5	04.0
37.7	19.0
52.8	34.5
08.2	49.5
23.0	04.8
6.28.38.3	6.28.20.0
190.0	180.8
180.	60
370.0	240.8
52.86	34.40
6 27 52.86	
6 27 50.86	6 27 32.40
-.47	-.47
6 27 50.39	6 27 31.93

E.C. 8..07..0.0
1491 6..30..55

Brought μ Geminor. came at 7h 15m & thus missed it.

Note — In the reduction of these stars & in their application to the object for which they are observed it must be noticed that all the stars of less than the ninth mag. are liable to errors from them being too faint for the Transit Circle Telescope

Feby. 25 Eve.
E.C. – 8..30..0
Dr. Wh – 8..30..0.5 mean

8..30..07
8..30..00.5
–6.5

26th AM
EC 18..01..00
227 = 22..41..12.2
7.0
18..01..07.0
4..40..05.2

1..44.1
1491 17..59..48.6
EC 7..34..00.0
17..58..04.5
22..20..44.65
19..37..19.85
3..12.88
19..34..06.97
7..34..00.00
EC –6.97 26th AM

EC gaining +0.^{s}47 daily

6..30..55
1..43.5
6..29..11.5
22..20..44.65
8..08..26.85
1..20.02
8..07..06.83
8..07..00.00
EC –6.8
at 8h PM 25th

22..19..57.90
46.75
22..20..44.65

227 + 4..40..05.2 of Camb
4..44..32
227 slow 4..26.8 of Gr.

Feb 26th 1850 Pro 53 Cl East

N		S		Zero
.705	.295	33	.670	0.010
.70	.300	29	.710	.020
.715	.285	29	.710	.015
.72	.280	30	.700	.005
.695	3.05	31	.690	.007
.707		304		.010
.010		010		
.303		.706		
23		23		
909		2118		
686		1412		
.6969		1.6238		

Reversed Cl West

	N		S
	.43		.86
	.45		.85
	.43		~~.90~~
	.42		~~.41~~
	.41		84
	.43		86
Zero	01		85
	0 .42	Zero	01
	23		0.84
	126		23
	84		252
	.966		168
	.697		1.932
	269		1.624
	.135		0.308
			0.154

Left with Cl West.

red to Mean of wires & cor for ab
Col E of S Cl West $+\overset{s}{0}.16$

$+\overset{s}{0}.145+\overset{s}{0}.032-\overset{s}{0}.015=+0.16$

Quite bad seeing

Feb 26th Pk 1850 Mars Comp. Stars Ill. West

1491. Dec. west

	10h 11	#, 9 8	#, 9 8
8h 23.4	04.5 doubtful	49.5	45.0
8 37.8	20.5	05.0	00.2
8 .52.0	35.6	20.2	15.5
9 .06.5	51.0	35.8	31.0
9 .20.9	06.3	50.9	46.5
9 ..35.0	21.5	06.3	01.5
4 29 49.5	5.13.36.5	5.20.21.5	5.24.16.5
225.1	175.9	189.2	156.2
180	180	60	60
7)45.1	355.9	249.2	216.2
6.44			
2.	50.84	35.60	30.89
4 29 4.44	5 12 48.84	5 19 33.60	5 23 28.89

#, 6 5	#, 6 5		
45.5	38.5	25.8	03.00
01.0	53.8	41.8	18.5
16.4	08.9	56.5	34.2
31.6	24.5	11.8	49.1
46.9	39.7	27.1	104.8
02.5	54.8	42.5	26.20
5.28. 17.7	5.32. 10.5	5.38. 57.7	cor. + 23.01
161.6	230.7	263.2	49.21
60	60	180	
221.6	170.7	83.2	
31.66	24.39	11.89	
5 27 29.66	5 31 22.39	5 37 11.89	47.21

(227) 1.

8th		~~09.5~~	10th .48.5	11th 19.3?
7. 03.5	—	09.8	04.1	—
21.0	—	25.1	19.4	—
36.3	—	40.5	35.0	—
51.9	—	55.8	50.0	—
07.1	—	11.0	05.5	—
22.5	—	26.4	6.. 05.. ~~..~~ ?? ×	
5.45.37.6	—	5.56.41.5	162.5	
181.9		220.1	27.08	
180		180	ar. + 7.67	
361.9		390.1	34.75	
51.70		55.74		
5 44 49.70		5 55 53.74	6 04 32.75	

Just before 6..05

10th	8th-9th	7th-8th	8th-9th
10. 44.7	38.0	53.2	09.0
00.5	53.4	08.5	24.4
15.3	08.4	23.5	39.5
30.5	24.0	28.8? 38.8	54.5
45.6	39.1	54.0	09.8
01.0	54.2	09.2	24.8
6.05.16.4	6.09.09.5	6.19.24.6? ~~34~~6	6.23.40.0
154.0	226.6	201.8	202.0
60	60	60	180
214.0	166.6	271.8	382.0
30.57	23.80	38.83	54.57
6 04 28.57	6 08 21.80	6 18 36.83	6 22 52.57

The intermediate star seen
it is 9th full.

February 26th 1859.

M West

possibly the seconds are interchanged

Ee 8.. 04..27
1491 6.. 32.. 20

7th .50.8
06.0
21.0
36.0
51.3
06.4
6.28.21.5
193.0
60
253.0
36.14
6 27 34.14

Feby 26t
Occultation of 77 Leonis 4 mag.
No 1491 Great Refractor

W.C.B. 6h .. 49 .. 57.5 – 3 beats Immersion B.L.

N Imm Jupiter and his Satellites
12 . 58 .. 39 . 4 3d Sat 3d Satellite
13 01 .. 08 . 3 2d Sat 2d — do —
03 10 . – 4 1st Limb
W.C.h 04 . 49 – 6 2d Limb
05 .. 15.5 – 5 Sat 1st Sat
17 . 14.6 – 8 top of mountain 4th Sat

1491 – 13 .. 9 .. 0
2440 – 12 .. 57 .. 2.5

1491 – 13 .. 10 .. 0
2440 – 12 .. 58 .. 2.5

1491 – 13 .. 12 .. 0
2419 13 .. 23 .. 57.7

1491 – 13 .. 14 .. 0
151 – 14 .. 45 .. 48.3

at Imm The limb of Jupiter seemed to recede from the moon. the contact then was sharp & quick, a dark line seemed to separate the moons limb from Jupiter during the transit, the Lunar mountains were seen beautifully projected on the disc of Jupiter, with perfect outlines,
3d Sat very bright – 2d quite dull & small

Jupiter R.F.B
No 2419
Im 13 .. 15 .. 03.0 1st Limb
13 .. 16 .. 42.0 2d Limb

1491 – 13 .. 39 .. 0
2557 – 13 .. 43 .. 43.9

Jupiter G.P.B 5 ft. Eq.
2557 beats
a 13 .. 03 .. 23.0 – 8 1st sat. on left (apparent) (3d Sat)
b 13 .. 05 .. 46.5 – 4 2 Sat " (2d Sat
d 13 .. 21 .. 58 – 11 fourth sat (that on extreme right up.) (4th Sat)
13 .. 07 .. 55 – 8 1st Contact
13 .. 09 .. 31 – 4 2nd "

(230)

Feby. 26th

Jupiter R.T.P. Immersion
No 151. mean Solar
14.. 30.. 18. 3 Sat
14.. 32.. 38 2 Sat
14.. 34.. 42 1 Limb
14.. 36.. 31 2 Limb

1491_ 14.. 16..0
151- 15 47.38.0

1491- 14..18..0
2440- 14..06..2.3
at 4h. 27m sid time
1491- by Aldebaran at Tr.

Feby 23 - fast -	1..41.63		
25 - " —	1..43.78	+1.07	
26 — " —	1..45.43	+1.65	
27 — " —	1..47.48	+2.05	

mean daily rate +1.46
hourly — " — 0.06

Immersion of Jupit.
T.H. Safford Finder G.R.
2440
Imm 12.. 51.. 09 1st Limb
Em 13.. 58.. 25. 2d Limb

Emersion beats G Refr.
239-15 36 20 -3 Met
1491 14.06.34.8-4 Met
14.08.47.5-5 1st Limb
14..10..26.0-4 2d Limb
14..11..29 -11 1st Sat
14..22..21 -4 Met 4 Sat

1491-14..24.0
239 15..55.41.8

1491- 14. 25.0
239-15..56..41.7

10.26
12.25
22.51

1491-14..41..0
2419-15..02..57.7

1491- 14.. 44.0
151 -16.. 15.. 33.2

Emersion R.T.P. No. 151. m solar
15.. 40.. 26.8 1st Limb State Eq.
15.. 42.. 00.4 - 2d Limb

1491- 14..50..0
2557- 14..54..44.0

Emersion R.F. 13 No 2419
Tr & Simms 14.. 18.. 42 2d Sat,
14.. 20.. 45 1 Limb
14.. 22.. 17 2d Limb

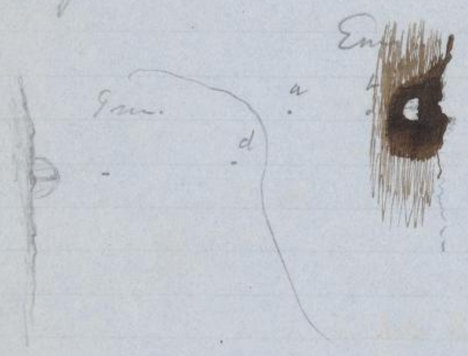
G.P.B. - 2557. 5ft. Eq.
14.. 11.. 17.2 2 Em b good
13.. 35.5 -10 3rd contact fine
15.. 13.0 - 8 last "

Feby. 26th

At the Im. of Jupiter it was quite clear mild & the vision slightly tremulous but better than usual
The Lunar mountains finely projected on ♃'s disc particularly a large one near the centre of Jupiter which was only the second in size compared with any other along the whole illuminated edge.

The Im. was on the bright limb but the Em was on the dark strip just appearing on the following limb of the ☾ (it was full Moon on the $26^{d}.00^{h}\,4^{m}$.) So that when Jupiter emerged it was separated from the bright part of the ☾ by a narrow intensely black space of somewhat less breadth than Jupiter. The effect was very fine & superior to that of the Im. though the definition was not quite so good. I found however that I had not used so good a focus as I might have done.
Em of the Satellite gradual but decided in less than 1s.

Jupiter too small in this copper-plate



h m s
W.C.B. 1st Contact — 14..34..15.2
3d. do — 15..39..43.3 in Solar time
Duration — 1..05..28.1
2d Contact — 14..35..55.0
4 — do — 15..41..22.1
1..05..27.1

G.P.B.
1st contact — 14..34..16.3
3d — do — 15..39..44.8
1..05..28.5
2d. contact — 14..35..54.0
4th — do — 15..41..23.1
1..05..29.1

Feby. 27th - P.M.
E.C., 1 2..3
Dr. Whittemore -

1491 - 1..58..0
——— 3..27..4.5
1..58..0
-1..46.5
25..56..13.5
-22..28..37.76
3..27..35.74
-34
3..27..01.7
Dr W - 3..27..04.5
+2.8
25th P.M. Slow -6.5
2)9.3 (4.65 s

22..27..51.01
46.75
22..28..37.76

Reduction of the observed occultations of 77 Leonis and of Jupiter and all his Satellites on the night of February 26th

Rates of Chronometers
by α Tauri #1491 Sidereal Chro. - 23d. fast - 1m..41.63s
23 feet Equatorial Refractor, 25 — " — 1..43.78
No 1491 - Fast of Sid time 26 — " — 1..45.43 mean daily rate +1.46s
27 — " — 1..47.48 — " hourly — " 0.06

Feby 26th at 4h..27m Sid - 1m..45s.43
12
at occultation of 77 - 1..45.55
51
at Imm of Jupiter — 1..45.94

Sid. time at mean noon Cambridge - 22hr..24m..41s.20

Obsd. by M.C.B.

	hr m s		Hr m s
Imm 77 Leonis. Sid, time Camb Obsy -	6..48..10.55		
—"—"—" — Mean Solar time Do —	8..22..06.75		
Imm 3d Satellite of Jupiter - Sid time	12..56..51.06 -	M. Solar t.	14..29..46.96
" 2° - Do ——— Do ——— Do —	12..59..20.50	- Do —	14..32..16.00
First contact - " 3 Contact ———	13..01..20.00	— " —	14..34..15.26
Second contact — " ——— " ———	13..03..00.06	— " —	14..35..55.00
Imm First Satellite ——— " ——— " ———	13..03..27.00	— " —	14..36..21.80
— " Fourth Satellite ——— " ——— " ———	13..15..24.8	— " —	14..48..17.7
Em. 3d Satellite		— " —	15..35..32.0
" - 2d Satellite ——— " ——— " ———	14..04..46.8	— " —	15..37..31.6
Third Contact ——— " ——— " ———	14..06..58.9	— " —	15..39..43.3
Last Contact ——— " ——— " ———	14..08..37.9	— " —	15..41..22.1
Em. First Satellite ——— " ——— " ———	14..09..37.4	— " —	15..42..21.4
" Fourth Satellite — " ——— " ———	14..20..32.9	— " —	15..53..15.1

Feb 27th 1850 Ill West.

1491

Dec +16°

Gamma & (?)

25.5
40.0
54.3
08.5
22.8
37.0
4.. 24.. 51.2
23.93
5.93
08.47

col | az | lev | Sum of Cor
4.. 29.. 06.47 +0.17 −0.06 −0.08 $+0^{s}.03$

4.. 27.. 19.00
1491 +1 ..47.48
Col+lev+az +03
+1.. 47.. 51

22.27.. 51.01
46 75
22.. 28.. 37.76

$c = +0^{s}.17$
az = −0.13
lev = −0.08

1) 8.17 / $1^{s}.36$

28th Adi

1491 fast. $1^{m}.. 48^{s}.5$
1491 17.. 49.. 00
Bow 19.. 16.. 29.9
17.. 47.. 11.5
22.. 28.. 27.76
19.. 18.. 43.74
3.. 09.83
19.. 15.. 33.91
19.. 16.. 29.90
Bow + 56.0
16
Bow $+ 40^{s}.0$ of Bort

28th Adi
1491. 18.. 16.. 00
333 18.. 14.. 44.6

Pch ~~1.. 18.. 00.~~
1491 1.. 18.. 00
333 1.. 16.. 40.0

1491
26 Am fast 1.. 44.1
28 .. .. .. 1.. 48.5
7) 4.4 ($0^{s}.2$ (?)
22 .. .. .. 1.. 40.2

Bow 7..43..0 0
1

Feby 28th at Rate of 1491 + 2^s

1491 – 2..41..0
E.C – 4..06..41.5
2..41..0.0
–1..49.38
26..39..10.62 – 22..31..47.56
22..32..34.31
4..06..36.31
40.40
4..05..55.91
E.C. 4..06..41.5
+45.6

Put back 45^s –

22..31..47.56
46.75
22..32..34.31

Prof. Guyot states that the comparison of the T & S. Standard Thermometer with his own gives T & S marking higher 0°.5 the difference being constant between 0° & 200° about.*

E C – 4..21..0
1491 – 2..56..6
2..56..06
1..49.38
26..54..16.62
22..32..34.31
~~3~~ 4..21..42.31
42.9
4..20..59.4
4..21..00.0
E.C fast 0.6

Feb 28th 4h PM E.C. fast 0^s.6

The pendulum of E C was dismounted & the Clock taken down & the crotch fitted with a new insulation. It having been broken by Mr Stevens when at work on the Case

This was before the above comparisons

* Afterwards I tried the T & S Ther at a time when the snow was melting & pretty compact being saturated with water – On covering the whole instrument in 'slosh' it descended to 32°.5 as nearly as I could read Nothing could induce it to go lower.

Mr west(235)

~~Feb~~ March 1st 1850

S mark	Zero	N mark
0.93	1.02	0.45
91	1.01	.45
93	.00	.44
92	02	.46
93	02	47
.924	1.014	.454
,014		.014
.910		.440
23		23
273		132
182		88
2.093		1.012

$2.093 + 0.032 = S' = S + a - c = 2.067 + a - c$

$1.012 - 0.032 = N' = N - a - c = 0.667 - a - c$

$a - c = 2.125 - 2.067 = +0.058$

$a + c = 0.980 + 0.667 = +0.313$

$2c = -.371 \quad c = -0\overset{s}{.}186$

$2a = -.255 \quad a = -0.127$

c = col mean of wires for E.

Div. ab.

$c'_W = +0.186 - 0.015 = +0\overset{s}{.}17$

Coll. $+0\overset{s}{.}17$ E of S. Mr West

az -0.13 W of S

March $\frac{1}{2}$

1.. 52.3   22.. 35.. 44.11

1491 = 18.. 17.. 36.3   46.75

EC. = 19.. 36.. 00.0   22.. 36.. 30.86

18.. 15.. 44.0

22.. 36.. 30.86

19.. 39.. 13.14

3.. 13.20

19.. 35.. 59.94

EC 19.. 36.. 00.00

EC [illegible] $+0.96 + 0^{s}.14$

$= +0^{s}.20$

March $\frac{1^{st}}{2^{nd}}$

2^{nd} at 8 AM E.C. fast $+\underline{0^{s}.2}$

α Lyræ

52.1

09.8

27.4

45.0

02.5

21.1

18.. 34.. 37.5

1954

3154

45.06

18 33.. 43.06

18.. 31.. 50.75

1.. 52.31

+14 cor coll & lev.

1.. 52.45

Feb ~~39~~ 29 18   1.. 52.45

Feb 22 5^h 1.. 40.5

7.13   7.5) 12 (1.6

75

450

312.23

38.38

273.45

Coincidences

EC 19.. 58.. 40

1491 18.. 40.. 20

1.. 52.45

18.. 38.. 27.55

22 36.. 30.86

20.. 01.. 56.69

3.. 16.91

19.. 58.. 39.78

19.. 58.. 40.00

+0.22

Rate of 1491 = $+1^{s}.6$

Instrumental Errors of the Transit-Circle depending on the assumed azimuths of the North & South marks (the latter is the vane-staff on Mr Dixwell's barn in Brookline)

$N = 0^s.667$ $S = 2^s.067$ West of Meridian of Inst.

The errors are marked + or − according as the correction is to be added to or subtracted from the observed times. The instrument was not altered after the middle of September. Jr The collimation errors include the reduction to the mean of the wires & also diurnal aberration

1849

Aug	7	l = —	u = +0^s.44	coll. = +0^s.05	Ill. E.
	16	+0.12	—	—	
	18	—	+0.41	—	
	20	+0.09	+0.39	+0.15	
	22	—	+0.35	−0.02	coll. reduced.
	30	+0.12	+0.34	−0.03	
					Inst changed in az.
Sept	6	—	−0.24	−0.05	
	7		−0.16	~~−0.09~~	
	10	+0.16	−0.16	−0.07	Ill. E.
	17	+0.19	−0.14	+0.06	Ill. W.
	19	+0.17	−0.02	−0.04	Ill. E.
	20	—	−0.02	—	"
	26	+0.17	—	—	"
	28	—	+0.03	−0.09	"
Oct	9	+0.07	—	—	"
	11	+0.16	0.00	−0.14	"
	17	+0.17	−0.05	−0.11	"
	25	+0.06	−0.06	−0.10	"

Instrumental error (continued)

1849

Oct 26	b = +0.13	a = ---	coll = ---	
" 29	+0.09	−0.01	−0.11	Cl. E.
Nov 2	+0.03	—	—	
10	+0.07	+0.01	−0.14	
11	+0.09	−0.01	−0.10	
21	+0.02	—	—	
25	+0.07	−0.07	−0.11	
29	+0.04	—	—	
Dec 5	+0.06	−0.11	−0.15	
10	+0.02	−0.16	−0.22	
12	—	−0.27	−0.32	
17	+0.04	−0.23	−0.25	
18	+0.04	—	—	
20	—	−0.16	−0.20	
27	−0.01	−0.21	−0.24	
Jan 15	−0.02	—	—	
" 23	−0.03	−0.18	−0.21	
" 29	+0.06	−0.07	−0.19	
" 30	−0.07	−0.13	−0.20	
Feb 10	−0.10	−0.20	−0.23	
12	−0.15	−0.25	−0.28	
13	−0.09	−0.27	−0.22	
21	—	−0.18	−0.16	
22	−0.11	−0.21	−0.27	
25	−0.08	−0.24	−0.26	Cl. E.
26	—	−0.23	+0.15	Cl. W.

(240)

312 23
22.15
290.08

March 4th

α^2 Gem 7.. 24 280.. 08

3213

EC 8.. 39.. 00
1491 7.. 30.. 57.3

α^2 Geminorum
09.3
25.5
41.8
58.0
14.5
30.8
7.. 27 .. 46.7
2266
4066
58.09
7.. 26.. 56.09
7.. 25 02.00
1.. 54.09

EC This afternoon was thought to have been deranged by the outer case in sliding off the top. Defect was immediately remedied as was supposed

22.. 47.. 33.77
46.75
22 48 20.52

RA 7.. 30.. 57.3
~~7~~ 1 54.09
7.. 29.. 03.21
22.. 48.. 20.52
8.. 40.. 42.69
1 25.30
8.. 39 .17.4

1850 5th March

MC = 18.24. 00
230 11.20.11.9

1850 March 4th/5th

22.. 47.. 33.77
46.75
22 48 20.52

EC 19.. 26.. 00
1491 18.. 19.. 44.2
1.. 54.9
18 17.. 49.3
22.. 48.. 20.52
19.. 29.. 28.78
3.. 11.. 59
19 26.. 17.19
EC 19.. 26.. 00.00
EC ~~Slow~~ +17.2
16.0
EC ~~Slow~~ of Bort. -33.2

EC 19.. 31.. 00
3710 19.. 31.. 18.7
18.7
33.2
~~Slow~~
3710 ~~fast of Bort. 57.9~~
3710 Slow -14.5 of Bort

(241)

Mean Comp Stars

marks

N	S	Zen
~~49~~ 51	87	102
~~50~~ 50	90	101
51	86	102
50.7	87.7	
101.7	101.7	
49.0	86.0	

s = 1.965 1.997 − 2.067 = a − e

n = 1.121 −1.089 + 0.667 = a + e

a − e = − 0.070

a + e = − 0.422

2e = − 0.352 e = +0.176 − 0.015

2a = − 0.492 a = − 0.246

7th

59.5
14.5
30.0
45.5
00.7
16.0
5..20..01.2 ? 31.2
197.4
120.
317.4
45.34
5 19 43.34

6th

47.0
02.5
17.8
33.4
48.5
03.6
5.25..19.3
172.1
60
232.1
33.16
5 24 31.16

8th

55.5
10.7
26.0
41.5
56.8
12.0
5.28..27.1
229.6
60
289.6
41.36
5 27 39.36

5th, 6th

47.8
03.5
19.0
34.0
49.5
04.8
5.32..20.0
178.6
60
238.6
34.09
5 31 32.09

36.0 ?
51.0 ?
06.0 I understand now –
22.0
36.6
51.7
5.39.07.5
210.8
60
150.8
21.54
5 38 21.54

(242)

March 5th * * * * Ile Trest

10th	9th	8 9th	11th —
12.5	—	19.0	13.5
28.0	—	34.6	28.5
43.5	—	50.1	44.3
58.5	01.5	05.3	59.5
14.5	16.6	20.5	14.7
29.4	32.0	35.9	~~29~~
44.3	5.45..47.2	5.56..57.0	2
230.7	97.3	216.4	160.5
180.	24.32	180	220.5
410.7	cor. − 23.02	36.4	44.10
58.67	1.30	5.20	cor. + 15.34
56.67	5 44 59.30	5 56 3.20	59.44
			57.44

[illegible] 13th —	10th 11th 09.5	8th —	9th 18.7
44.5	24.5	—	33.5
59.0	40.0	—	48.7
14.5	55.2	03.5	04.5
30.0	10.5	19.0	19.3
45.3	25.7	6..19..34.2	34.5
6..4.59.7	6.18..41.0	56.7	6.23..49.5
253.0	206.4	18.7	208.7
120	180.0	cor. − 30.60	180.0
133.0	386.4	48.10	28.7
22.17	55.20		4.10
cor. − 7.65			
14.52			
6 4 14.52			
6 4 12.52	6 17 55.20	6 18 46.10	6 23 2.10

(243) [illegible]

	8^{h}		Mm 5^{h}
	00.0		10.4
	15.4		26.8
	30.5		42.9
	45.8	2 ym	59.4
	00.9		15.6
	16.0	θ	
6.28..	31.0		31.7
	139.4	7 27	48.0
	180.0		2348
	319.4		4148
	45.63.		59.26
6 27	43.63.	7 26.	57.26

March 9th Ash . cor Ph
Ash 1491 + 1..57.5 + 1.6

1491 19.. 24. 00 23..03..19.58
3710 8.. 14.. 47.8 46.75
19.. 22..025 23.. 04 06.73
23 04..06.7
20..17..55.8
3..19.5
20 14..36.3 + 1.6
20 14 47.8
+11 5 + 1.6
16
of Boston − 4.5 + 1.6
should have been − 2.9

EC 20..17..00
3710 20.. 17..32.6

13.4
32.6
+ 19.5
Slow

Good vision
Ill West

9th Ph

S	N	Zero	
0.85	0.50	1.020	312..23
.90	51	015	49 15
.92	49	017	263.04
.85	50	1.017	
.87	.50		
0.88	0.50		
017	017		
0.863	0.483		

0.863
23
2589
1726
$s_0' = 1.9849$

0.483
23
1449
966
$1.1106 = n_0'$

9th Ph

9th P.M.
35.8
57.2
18.0
39.1
00.0
21.3
θ Persei
3..16..42.3
2137
2737
39.10
3..15.. 37.10
cor wz lev dev + 05
3..15.. 37.15
3..13.. 37.61
+1..59.54

E	W
× 85	78
× 84.6	77.5
× 84.7	77.0
82.0	79.0 ×
81.3	79.3 ×
81.0	79.5 ×
186	503
83.10	78.38

78.38
2)4.72
2.36 = $0\overset{s}{.}16$ level error E end too high. lev − 0.18

EC 4..07..00
1491 3..18..02.7

$az = \frac{s_0' - n_0'}{2} - 0.700 = \frac{0.874}{2} - 0.700 = -.263$

$col = \frac{s_0' + n_0'}{2} - 1.384 = \frac{3.095}{2} - 1.384 = +.163$

col + $0\overset{s}{.}16$ Ill. West.
lev − $0\overset{s}{.}16$
az − 0.26

1850 March 11th AM

312.23
13 38
298.45

20.9 20.9

M C 18.07.00 18.26.00

714 9.12.06.2 1118 11.10.06.4 2..01.2

8 55.14.7 7..16..14.5

16 16

8..55..30.7 7..16 30.5

EC 19..32..00 23..11..13.08

1491 18..49..34.5 46.75

2..01.2 23 11..59.83

18..47..33.3

23..11..59.8

19..35..33.5

3 12.6

19..32..20.9

19..32..00.0

Slow EC +20.9

1850 March 11th Pole good vision

	S	N
40.8		
55.4	91	51
09.5	90	52
23.8	90	51
38.1	0.903	0.513
52.3	Zero 0.014	0.014
4.. 30.. 06.5	0.89	0.50

α Gemini

226.4
$\overset{b}{16}\overset{\circ}{6}.4$
23.77
4 29 21.77

5.6h 55.8
11.0
26.4
41.8
57.2
12.5
5 .. 32 .. 27.9
232.6
$\overset{b}{29}\overset{\circ}{2}.6$
5 31 41.80
5 31 39.80

Σ C 5.. 16.. 00.0
1491 4.. 35.. 14.7

Ill West

0.89	0.50
23	23
267	
178	1.150
S 2.047	N. 1.150

23.0
38.4
53.8
09.0
24.7
39.5
5.. 45.. 53.5
223.9
180
63.9
9.13
5 45 7.13

S 2.047
n+s 3.197
s−n 0.897
$\frac{n+s}{2}$ 1.599
$\frac{s-n}{2}$ 0.449

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

$a = \frac{s-n}{2} - 0.700$

$a = +\overset{s}{0}.449 - \overset{s}{0}.700$

$c = +1.599 - 1.384$

Ill West

$a = -\overset{s}{0}.25$

$c = +0.21$

(247)

The West March 11th

		11th another follows to the North —	8th-9th.
..55,,27.0	36.5 .	36.7	55.3
	02.15	57.7	10.5
		07.5	26.1
		22.5	40.6
		38.0	14,, 55.5
		52.5	11. 5
		6,, 05,, 08.0	14,,27. 0
		216.9	227.5
		60.	60
		156.9	287.5
		22.41	41.07
		6 04 20.41	6 13 39.07

μ Geminor.	10th	8th-9th	7th 8th
14.0	17.2	26.5	,08.5 ?
29.0	32. 5	41.4	23.3
43.5	47.5	56.7	38.2
58.5	03.0	12.0	53.5
13.4	18.5	27.0	08.7
28.0	33.3	41.7	23.8
6,,16,,43.5	6,,18,,48.5	6,,23,,57.3	6,,28,,38.7
229.9	200.5	262.6	194.7
180	180.	180.	180.
409.9	20.5	82.6	374.7
58.56	02.93	11.80	53.53
6 15 56.56	6 17 0.93	6 23 11.80	6 27 51.53

March 11th 1850

EC 7. 12. 00 EC 8.. 10.. 00 δ Gemin 7.. 11 22.. 15

1491 6.. 31.. 30.7 1491 7.. 39.. 40.4 290.. 08

23.. 15.. 09.63
46.75
23.. 15 56.38

~~6~~. 31.. 30.7
2.. 03.1
6.. 29.. 27.6
23.. 15.. 56.38
7.. 13.. 31.22
1.. 11.. 02
7.. 12.. 20.2
7.. 12.. 00.0

EC. 11th P.M. EC - 20.2
- 1
12th A.M. 20.3
13th A.M. 20.5

δ Geminor

30.8
45.5 + ?
00.3
15.2
30.3
44.7
7.. 13.. 59.5
226.3
120.
106.3
7 12 13.19

θ² Gemin

18.2
34.5
50.9
06.9
23.4
39.4
7.. 27 55.9
2242
4920
07.03
7.. 27.. 05.03
7.. 25.. 01.88
2.. 03.15

1850 · Ill work (249)

(1) 19 15 40 (13 24

March 14th

Tauri 6 .37.4
6 . 57.5
7 . 6.
7 . 20.4
7 . 34.5
7 .. 49.
4 .. 28 .. 03.2
2020
60
7)1420
20.3
−2
4 . 27 .. 18.30
27 .. 18 .. 73

h m s
E C − 5 .. 09 .. 20
2557 − 4 . 38 .. 18
28 .. 38 .. 18.40
23 .. 27 .. 46.04
5 .. 10 .. 32.36
50.8
5 . 9 .. 41 .56
E.C − 5 .. 9. 20.0
−21.5

23 .. 26 .. 59.29
46.75
23 . 27 . 46 .04

14/15 Am
α Aquilae
3.0
16.5
30.3
δ = 8° 28′.5
44.5
58.8
19 .. 44 .. 12.2
1531
30.62
19 .. 43 .. 28.62
19 .. 43 . 27.13
2557. +1.49

3.7 165.3
60.
225.3
37.55
cor. − 6.93
19 43 30.62
19 43 28.62

E.C. − 8 .21 .. 0
2557 − 19 .. 52 .. 19.5

5.44.00
E C
1035 10,22,24.7

E C 7.48.00
1035 12,26 23.2

19 .. 52 .. 19.5
1.5
19 .. 52 .. 18 0
23 .. 27 .. 46.04
20 .. 24 .. 31,96
3 .. 20 61
20 .. 21 11 .. 35
20 .. 21 .. 00 .. 00

26.59.29
46.75
27.46.04

E.C − 20 .. 26. 0
1035 − 13 .. 04 .. 32.3

E C − 9 .. 55 . 0
1035 − 14 .. 33 .. 30.7

E C − 11 .. 10 . 0
1035 − 15 .. 48 .. 29.4

E.C − 12 .. 40 0
1035 − 17 .. 18 .. 28.5

E.C − 1 .. 32 .. 0
1035 . 6 .. 10 .. 27.65

E.C − 3 .. 21 . 0
1035 − 7 .. 59 .. 26.2

9 Am Thr 82°
10 89
11 88.5
12.40 90
1.30 98
3.20 88

14th P.M. -21.5
15 do -21.7
16 do -22.1

α Lyræ 18.31 - 273.41

			Rate	
Mar	4	-17.2	-0.5	not carefully reduced
	9	-19.5	-0.4	
	11	-20.2	-0.4	
	14	-21.5		

E C +22.1
E C 19..35..00
3710 19..35..55.2
19..35 22.1
3710 +33.1
16
371 +17.1

16th P.M
E C 0..47..00
2557 0..22..47.8
4.2
0..22..43.6
23..35..39.14
0..47.04.46
0..00..07.71
0..46 56.75
0..47.00.00
+3.25 E C

2557 + 4.2
23..34..52.39
46.75
23..35..39.14

March 16th P.M
Ascertained that the cover of the E C still interferes with the pendulum. So that the clock is gaining 10 or 15^{s} per day. When the top is fully on the arc of vibration is less by ¼ or ½ of a division on each side than when the cover is partly off owing to interference

2557 +9^s Mar 14th app

28.. 23
7.. 36 = 284.. 00

2557 18.. 53.. 00
3710 19.. 11 18.7
18.. 53.. 51

9
18.. 55.. 60
19.. 13.. 18.2
18.. 54.. 51
23.. 39.. 35.7
19.. 15.. 15.3
3.. 09.3
19.. 12.. 06.0
19.. 13.. 18.2
+1.. 12.2
16.0
3710 + 0.. 56.2 of Boston

23.. 38.. 48.95
46.75
23 39.. 35.70

4.. L
1035 0.. 06.. 00
3710 19.. 29.. 14.0
4.. 36.. 46.0

2557 19.. 06.. 00
1035 ~~3710~~ 24.. 01.. 02.4
19.. 05.. 51
23.. 39.. 35.7
19.. 26.. 15.3
3 11 1
19.. 23.. 04 2
24.. 01.. 02.4
4.. 37.. 58.2
4 44 32
1035 Slow -6.. 34.0
of Gr.
~~16~~
~~-6.. 50.0 of Boston~~

+ 4.. 37.. 58.2
16.0
1035 + 4.. 37.. 42.2 fast of Boston
3710 + 56.2
4.. 36.. 46.0 dif. of 1035 & 3710

March 19th

α Tauri

19.7
34.4
49.0
3.2
4 .. 28 .. 17.0
123.3
24.66
48.66
cor. – 14.31
4 27 32.35

+28°

β Tauri
6 17.0
6 33.0
6 48.5
7 4.1
7 19.9
7 35.4
5 .. 17 .. 57
208.9
180
7/28.9
4.13
–2

col lev az
5 .. 17 .. 02.13 +0.23 –0.18 –0.08 = –0.03
16 .. 48.56
+13.57
Σ Inst cor –03
13.54

Ill west N° 2557 –

Capella Dec +46°
4 53.0
5 12.8
5 32.8
5 52.6
6 12.5
6 32.3
5 .. 6 .. 51.5
247.5
180
7/367.5
.. 52.50
col lev az
5.05 .. 50.50 +0.29 –0.23 +0.02 = +0.08 = Σ Inst corr.
+13.97
5 .. 36.63
+13.87 +0.08 = 13.95

δ Orionis
8.
21.3
34.0
49.5
3.3
5 .. 25 .. 17.2
133.8
6)253.3
42.22
cor – 6.88
5 24 35.34

2557 fast
5h 06m +0m 13s.95
5.17 0 .. 13.54
5.29 0 .. 13.60
+0 .. 13.70

α Tauri 4.27 – 296.11
Capella 5.05 – 266.33
β Orionis 5.07 – 320.45
β Tauri 5.16 – 283.55
δ Orionis – 5.24 – 312.48
ε Orionis – 5.28 – 313.41

14.30
28.60
50.60
36.63

az –0s.29
col +0.20
lev –0.16

5)14.0
2.8

ε Orionis Dec –1°
8 .10.3
8 .24.1
8 .38.0
8 51.7
9 5.5
9 .19.1
5 .. 24 .. 32.8
181.5
180
7/361.5
51.64
–2
col lev az
5 .. 28 .. 49.64 +0.20 –0.12 –0.19 = –0.11
8 .. 36.03
+13.61
Σ Inst cor –11
13.60

Œ – 5 .. 35 .. 0
2557 – 5 .. 31 .. 18.5

Œ – 5 .. 36 .. 0
2557 – 5 .. 32 .. 18.5

2557 gains +2s.8

24)2.8 ☾

N° 2257 –
Emersion
h m s
6 .. 14 .. 22.0 – 4
* 1526 B.A.C.
6th mag
9
6 .. 14 .. 20.0
13.73 2557 fast.
6 .. 14 .. 06.27
24
30 .. 14 .. 06.27
23 .. 47 .. 28.79
6 .. 26 .. 37.48
1 .. 09.3
6 .. 25 .. 34.18

23 .. 46 .. 42.05
46.74
23 .. 47 28.29

1526 B.A.C.
Em. 6 .. 25 .. 34.18 M.G.T. T.C.B. G.R.

March 20th P.M.
Polaris

2557 E 0 .. 55 .. 55.5
D 1 .. 04 40.5

26.6
16
1596
266
4.256

384
16
2304
384
6144

277
69

+13.04
− 426
8.78

312 23
88 .. 30
223 .. 53

Mar 9th
lev col az
1 .. 04 .. 38.5 − 4.26 + 6.14 + 6.9 = +8.8
1 .. 04 .. 31.5
+ 7.0
cor lev az, col of 9th + 8.8
2557 + 15.8
+ 15.9 By rate

It would seem that the adjustments of the Transit have not sensibly varied since 9th

Mr. Stevens to day cut away part of the clock case so as to free the Pendulum of E.C.

March 21st A.M.
EC — 19 .. 4 .. 0
2557 − 19 .. 4 .16.7

EC found stopped, as Index had worked loose. Started & set the Clock at Sid. time

Index had swung against the pendulum so as to stop it.

ε ε

2557 March 20t -

Capella
4 .. 54.9
5 .. 15.3
5 .. 35.3
5 .. 55.0
6 .. 14.5
6 .. 34.0
5 .. 06 .. 53.8
262.8
120
7/382.8
54.69
-2
5 05 .. 52.69
5 .36.61
+16.08
+09
16.17

Ill west. 2257
EC - 5 .. 18 .. 0
2257 - 5 .11 .12
5 .. 11 .. 12
16.1
29 .. 10 .. 55.9
23 .. 57 .. 25.3
5 .. 19 .. 30.6
52.3
5 .18 .. 38.3
E.C. 5 .18 .00
EC -38.3 20th Pole

23 .. 50 .. 38.60
46.75
23 .. 51 .. 25.35

38.4
16
54.4

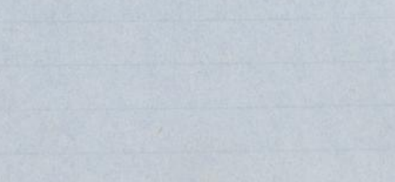
ε Orionis
12.9
26.9
40.8
54.2
8.0
21.7
5 .. 29 .. 35.3
1998
180
3798
54.26
5 .. 28 .. 52.26
5 .. 28 .. 36.02
+16.24

Mar 21 Adl
EC 7 .. 25 .. 00
176 9 .. 07 01.4

EC 19 .. 36 .. 00
2557 19 .. 31 .. 34.7
2557 +17.5
19 .. 31 .. 17.2

23 .. 54 .. 35.15
4675
23 .. 55 21 90
3 5655
23 51 25.35

23 .. 51 .. 25.35
19 .. 39 .. 51.85
3 .. 13.29
19 36 .. 38.56
19 .. 36 .. 00.00
EC - 38.56
21st Adl



By rate of 2557
E.C. then set to Boston M. S. T. nearly

3/2 23
44.45

March 20/21

20.36 267°.38'

α Cygni

40.3
59.4
18.6
38.0
57.4
16.5
20.. 37.. 36.0
2662
3803
20.. 36 .. 36.03
20.. 36 .. 18.26
2557 +17.77

cosin.
Ec 20.. 44.. 20
2557 20.. 39.. 11
2557 +10.. 17.77
20.. 38 .. 53.23
23.. 51.. 25.35
20.. 47 .. 27.88
3 24 36
20.. 44 .. 03.52
Ec 20.. 44.. 20.00
E.C. +16.48 Fast of Camb. M.S.T.

Ec 20.. 45.. 00.0
2557 20.39.. 51.1

23.. 50.. 38.60
46 75
23 51 25.35

March 22 Pole
Cl West.

	N mark	S mk	c Zero
	.52	88	1020
	.54	87	.020
	53	88	010
	55	87	012
	535	875	015
	015	015	
	0.52	86	
	23	28	
	152	258	
	104	172	
n'_0	1.192	1.978	
s'_0	1.978	1.192	
$n'_0+s'_0$	3.170	0.786	$s'_0-n'_0$
	1.585	0.393	

$c'_w = +1.585 - 1.384 = +0^s.20$
$az = +0.393 - 0.700 = -0.31$

Level 82.9 81.7

E	W		
84.8	81.2 x	cross W	
84.0	81.8 x	repeated	
84.0	820 x	E	W
x 86.8	79.7	82.8	81.7
x 86.0	785		
x 86.7	780		
85.4	80.2		
80.2			
52			

2,6 = 0.17 $-0^s.20$
lev [illegible] 0.17
az Cl West
lev $-0^s.16$
col $+0.20$
az -0.31

Capella

20.8
40.5
00.3 D
20.0
5 06 39.8
1214
2428
00.28
5 05 58.28
5 05 36.56
2557 +21.72
Inst cor +.09
2557 21.81

com
5 07 30 EC
5 07 45 2419
21.72
5 07 23.28
23 59 18.46
5 08 04.82
0 50.47
5 07 14.35
EC 5 07 30.00
EC +15.65
Inst cor +09
15.74 EC Fast of Camb m.s.t. Mar 22 5. P.M.

23 58 31.71
46.75
23.59 ~~18~~ 18.46

(257)

1850
March 24th PM

Hl west
No. 2557

Capella
5 . 7 . 1
5 . 26 . 9
5 . 46 . 6
6 . 6 . 2
6 . 26 . 0
6 . 45 . 6
5 . 07 . 05 . 2
7)43 6
6 . 23
-2
5 .. 06 .. 04 . 23
cor Ist +04
5 .. 06 .. 04 . 32
5 .. 36 . 51
27 . 81

E.C. - 5 . 3 . 41.5
2557 - 5 . 11 .. 29.5

β Tauri
6 .. 31.4
6 .. 47.0
7 , 2.4
7 . 18.3
7 . 34
7 . 49.5
5 .. 18 .. 05.3
1879
16.0
7)127.9
18.27
-2
5 .. 17 .. 16.27
cor inst -.05
5 .. 17 .. 16.22
16 .. 48 . 46
+27 . 76

27.8
E.C. - 5 .. 12 .. 15
2557 - 5 .. 20 .. 31
~~5 .. 13 .. 47.6~~
5 .. 20 .. 03 . 2
0 07 .. 11 . 26
5 .. 12 51 .. 94
1 .. 51 25
5 .. 11 00 , 65
Ec 5 .. 12 .. 15 . 00
Ec +14 . 4
2557 6 .. 47 .. 00.0
1141 6 .. 37 .. 35.6

Ec 6 .. 41 .. 00.0
1141 6 .. 40 .. 05.8

24th March
Immersion of 27 Leonis (5½ mag)

WCB 6 .. 35 .. 13.5 — 11
~~2557~~ 5.5
1141 6 .. 35 .. 08.0

GPB Imm 27 Leonis.
~~1141~~ 6 .. 44 .. 45 - 26 beats
2257 13
6 .. 44 .. 32
27 . 88
6 .. 44 .. 04 . 12
0 .. 07 .. 11 . 55
6 .. 36 .. 52 . 57
1 .. 05 . 00
6 .. 35 .. 47 . 57

6 .. 47 .. 00.0
27.88
6 .. 46 .. 32.12
6 .. 37 .. 35.6
.. 08 .. 56.52

6 .. 35 .. 08.0
+8 .. 56 . 52
6 .. 44 .. 04 . 52
0 .. 07 .. 11 . 55
6 .. 36 .. 52 . 97
1 .. 05 . 00
6 .. 35 .. 47 97

00 .. 06 .. 24.81
46.74
00 .. 07 . 11 . 55

Im. 27 Leonis
M.S.T. 6 .. 35 .. 47.97 WCB
6 .. 35 .. 47.57 G.P.B.

March 25th Am

E.C – 6..51..0 EC – 6..53..0 EC. 6..54..0

1678 – 6.50..52.2 3710 – 6..53..18.2 312 7.. 52..44.3

2557

March 28 . + 16.17

24 . – 27.81

2)11.67

2.92

γ aquilae ≡ ghost

52.2

6.. 1?

19..40..20.0

78.3

198.3

66.10

ar –27.92

38.18

19 39 36.18

α aquilae

3..16.5

3..30.5

3..44.6

3..58.8

4..13.0

4..26.3

19..44..40.1

2298

186

7)4098

58.54 lev col az

2

19..43..56.54 – .13 + 0.21 – .18 = –0.10

19.. – 10

19..43.56.44

19..43.27.38

+29.06

γ 302.08

α 303.55

29.06

0..06..24.81 EC 19..40..00

46.75 2557 19..50..39.6

0 07 11.56 19..50..10.54

0..07..11.56

19..42.59.00

3 13 8

19..39..45.2

EC 19..40..00.0

+14.8

16..0

Slow of Boston 1.2

EC [illegible]3..00.0

1.2

6 53 01.2

3710 6..53..18.6

3710 +17.4

of Boston.

PM

EC – 6..39..0

3710 6..39..23

(259) 10..)

March 25/26th Am

α Lyrae
1 33.0
1 50.3
2 8.0
2 25.5
2 43.0
3 0.5
18..33..18.0
7)178 3
25.47
−2
18..32..23.47
+ 0/9
18..32..23.56
37..51.53
+ 32.03

E.C. 19..14..0
2557 – 19..28..35.5
19..28..35.50
−32..03
19..28..03.47
0..11..08.10
19..16..55.37
3..09.5
19..13..45.87
EC 19..14..00
of Camb +14.13
16
B −1.9

h m
α Lyrae 18..31 – 273..45
β Lyrae 18..44 – 279.12

EC – 19..15..0 EC – 19..17..0
1141 – 19..14..0.5 3710 – 19..17..28.6

0..10..21.36
46.74
0..11..08.10

19.15.01.9
1141. 19.14..0.5
−1..1.4

E.C. – 19..28..0
312 – 8..26..57.3

13..39

March 28th/29th Ast

very uneasy
not well taken
β Lyrae

31.5
45.3
59.5
14.0
28.0
42.2
18..59..56.0
2765
965
13.79
18..59..11.79
18..58..30.81 not cor
2557 +40.98 − 0.10

wire
EC 18..34..40.0
2557 19..01..09.0
40.98 −0.10
19..00..28.02
0..22..57.76
18..37..30.26
3..03.08
18..34..27.18 +0.10
EC 18..34..40.00
EC +12.82 −0.10 − B²
+12.72
16.0
EC −3.3 Slow of Boston

0..22..11.02
46.74
0 22 57.76

18..44 279.12
298..41

EC 19..05..00
3710 19..06..07.1
1..07.1
3.3
+ 1.03.8

(260)

March 28/29 Ast 1850 E.C fast camb. +12.7 s

ε C 19..35..00	ε C 19..35..30	ε C 19..36..00
258 12..20..10.1	222 12..21..03.3	250 12..06..47.0
19..35..0.0	7..35..30	7..36..0
12.7	−12.7	12.7
7..34..47.3	7..35..17.3	7..35..47.3
12..20..10.1	12..21..03.3	12..06..47.0
fast of Cam 4..45..22.8	4..45..46.0	4..29..59.7
4..44..32	4..44..32	4..44..32
fast of Gw +50.8	+1..14	−13..32.3

March 29/30 A.m.

α Lyrae

44.7
3.1
20.0
38.0
55.5
13.0
18..33..30.3
2046
2646
3780
18..32..35.80
18..31..51.66
+44.14

ε C 18..09..05
2557 18..39..30.5
44.14
18..38..46.36
0..26..54.31
18..11..52.05
2 58.88
18..08.53.17
ε C 18..09..05.00
+11.83
16.0
+4.2 of Boston

18..12..20
18..42..46

0..26..07.57
46.74
0..26..54.31

ε C 18..29..00
2557 18..59..28.9

(261)

April −1
1st Sett.

α Lyrae

49.0
06.8
24.3
42.0
59.4
17.0
18 .. 33 .. 34.5
2330
2930
41.86
18 .. 32 .. 39.86
18 .. 31 .. 51.76
+ 48.10

EC
2557

17 .. 58 .. 00
18 .. 36 .. 22.0
48.1
18 .. 35 .. 33.9
0 .. 34 .. 47.41
18 . 00 . 46.49
2 57.06
17 .. 57 .. 49.43
58 . 00 . 00
+10.57
16
EC −5.4 Slow of Norton

0 .. 34 .. 00.67
− 46.74
0 .. 34 . 47.41

312 23
44.45
267 .. 38

April 2 Am

α Lyra

≡ } lost

3.. 1

20.3

18 .. 33 .. 38.0

β Lyra

≡ } lost clouds

42.8

58.

18 .. 46 .. 15.3

probably one beat too small

coincidences

13.6
33.4 19.8 18.9
52.3
12.0 19.7
31.4 19.4
50.6 19.2 19.4
20.. 38.. 10.0

α Cygni

203 3
83 3
11 90
20.. 37 .. 09.90
lev − 22
col 37 + 28
az + 01
20.. 37.. 09.95
− 20.. 36.. 18.62
+ 51 .33

EC 20.. 02.. 22 late
2557 20.. 45.. 05
51.27
20.. 44 .. 13.73
0.. 38.. 43.97
20 .. 05 .. 29.76
3.. 17.49
20.. 02 .. 12.27
20.. 02.. 22.00
EC fast + 9.73 of Camb
16.00
EC slow +6.27

EC 20.. 14.. 26 early
2557 20.. 57.. 11
51.27
20.. 56.. 19.73
0.. 38.. 43.97
20.. 17.. 35.76
3.19.47
20.. 14 .. 16.29
20.. 14.. 26.00
+ 9.71
16.00
+6.29 of Boston

0.. 37.. 57.23
46.74
0.. 38.. 43.97

April 1st 2nd Adds

(263)

April $\frac{1^{st}}{2^{nd}}$ $8^h..25^m$ AM Previous to sailing of Steamer

Ɛe 20..25 00 20..25..30 20..26..00
258 1..10..14.2 222 1..11..11.2 250.. 0..56 40.8

Ɛe 20..27..00 20..27..30 20..28..00
258 1 12..14.2 222 1..13..11.2 250 0..58..40.8

0.045
965
0,005
0.008
Zero = 0.006

April 2nd PM
Marks Too faint - Easterly smoke
N S = 0.93?
45
45
44
45
0, 448
0. 006

n = 1.010
g = 2.111 104

April 2^d

Ill met

α Tauri 4..27 – – 296..11 8

α Tauri
7 . 29.5
7 . 43.7
7 . 58
8 . 12.5
8 . 27.0
8 . 41.0
4 .. 28 .. 55.1
2668
180
7) 868
..12.40
– 2
4 .. 28 .. 10 .40
az – 14
lev ∓ 15
col + 21
4.. 28 .. 10 .32
4.. 27.. 18 .42
+51 .90

E.C. 3 .46 .. 37
2557 – 4 .30 .. 37.5

EC 3.. 52.25
4 .. 36 .. 26.5

Departure of Steamer

Capt. Ryrie

E.C. 3 .. 55 .. 0
250 – 8 .. 25 .. 40.7

—— 3 .. 56 .. 0
222 – 8 .. 41 .. 41.8

—— 3 .. 57 .. 0
258 – 8 .. 42 .. 14.6

2557 – 4 .. 30 .. 37.5
57.9
4 .. 29 .. 45.6
0 .. 42 .. 40.52
3 .. 47 .. 05.08
37.2
Camb. m. s. t 3 .. 46 .. 27.88
E.C – 3 .. 46 .. 37
E.C. fast of Camb. 9 .12
16
Slow of Boston –6 .88
4 .. 44 .32
4 .. 44 .. 38.88

0 .. 41 .. 53.78
46.74
0 .. 42 .. 40.52

3 .. 55 .. 00
250 – 8 .. 25 .. 40.7
3 .. 55 .. 00
– 9.1
3 .. 54 .. 50.9
250 – 8 .. 25 .. 40.7
4 .. 30 .. 49.8
4 .. 44 . 32
Slow of Geor – 13 .. 42.2

3 .. 56 .. 0.0
222. 8 .. 41 .. 41.8
3 .. 56 .. 0.0
9.1
3 .. 55 .. 50.9
222. 8 .. 41 .. 41.8
4 .. 45 .. 50.9
4 .. 44 . 32
+1 .. 18.9
Feby. 18^th – 19.7
59.2

EC. 3 .. 57 .. 0.0
258 – 8 .. 42 .. 14.6
3 .. 57 .. 0.0
9.1
3 .. 56 .. 50.9
8 .. 42 .. 14.6
4 .. 45 .. 23.7
4 .. 44 . 32
258 +51.7
Feby. 18 + 34.7

250 – 9 . 14 .. 0
222. 9 .. 29 .. 1.2

250 9 .. 15 .. 0
258 – 9 .. 29 .. 34

Daily rate of EC losing 0.^s6

Apr. 6th App EC + $7^{s}.0$ by rate

Observations for trial of Compensation of E.C.

April 6th PM 1850 EC = 7..44.00 = 7..45..00.0 (coin)

2557 = 8..44..40.7 = 8..45..41.0

8h..48m = 263..46 48..37

8..0

320 23

At 9h opened windows & reduced the temperature of the Study to about 37° during the night & from 36° to 46° next day (7th)

very much hurried but not to be relied on

θ Hydrae -8°
40
54
07.5
21.3
35.0
49.0
9.. 22.. 02.8
2096
1496
21.37
9..21..19.37
9..20..13.68
1..05.69

ω Leonis +24°
42.5
57.8
13.0
28.0
43.0
58.1
9..39..13.0
2554
1954
2791
9..38..25.91
9..37..20.42
1..05.49

θ Leonis
48.8
03.0
17.0
30.9
45.2
59.5
10..02..13.5
2179
31.13
10..01..29.13
10..00..23.56
1..05.56

9..37 287..55
10..00 299..42

EC 8..31..00
2557 9..31..48.7

coin
EC 8..32..50
2557 9..33..39.0

EC 8 44..48 coin
2557 9..45..39

EB 8..51..00 coin
2557 9..51..52.0

EC 9..06..00 coin
2557 10..06..54.5
1..00..54.5

0..57..39.99
46.74
0..58..26.73

9..45..39.00
1..05.4
9..44..33.6
0..58..26.7
8..46..06.9
1..26.2
8..44..40.7
8..44..48.0
+7.3

81 13
27
27) 81 (3m..00.5
81

April 6/7th Am

α aquilae	β aquilae
52.7	24
8.6	37.7
22.5	51.4
36.5	5.3
50.4	19.2
4.3	33.1
19..45..18.2	19..49..46.6
1952	2173
2552	373
36.46	5.33
19..44..34.46	19..49..03.33
19..43..27.75	19..47..56.54
+1..06.71	1..06.79

γ aquilae 19..39 – 302..05
α aquilae 19..43 – 303.55
β aquilae – 19..47 – 306..18

Coincidences

E.C. – 18..48..15 — 18..51..20
2557 – 19..50..46 — 19..53..57.5
1..02..31 — 1..02..31.5
Cl – 19..55..0 — 19..56..0
2557 – 19..55..37.4 — 19..56..37.35

Therm in Library
at 6..30 Am – 35 Ext 25°

19..50..

1850 April 7th P.M.

Ill. two fains

ε Leonis	α Leonis
46.3	52.0
01.0	06.3
16.3	20.3
31.0	34.5
46.5	48.5
01.3	02.7
9 .. 39 .. 16.5	10 02 16.7
1589	1810
2189	2410
3127	3443
9 .. 38 .. 29.27	10 .. 01 .. 32.43
9 .. 37 .. 20.41	10 .. 00 .. 23.55
+1 .. 08.86	+1 .. 08.88

Rate of 2557 By ε Leonis + 3.47 from 10h .. 6th to 10h .. 7th
" α Leonis .32

" By α Aquilæ + 3.23
β " 3.53
γ " 3.45

Apr 6th/7th 2557 − εC = 1 .. 02 .. 31.00 at 18h .. 48m .. 15s of εC
7/8th " = 1 .. 06 .. 30.50 at 18 .. 48 .. 50 of εC
3 .. 59.50
Rate of 2557 3.40
3 .. 56.10
cor to M S Z 3 .. 56.65
εC has gained + 0.55 daily in a mean temperature of 38°
was losing − 0.45 daily " of 58

6th P.M. 2557 − εC = 1 .. 00 .. 54.50 at 9 .. 06 .. 00
7th P.M. " = 1 .. 04 .. 54.00 at 9 .. 07 .. 50
3 .. 59 .. 50
3 .. 40
3 .. 56 .. 10
3 .. 56 .. 85
εC gained 0s.75 in 38°
lost −.45 in 58

coin
εC 8 .. 37 .. 57
2557 9 .. 42 .. 46
4 .. 49

coin
εC 8 .. 41 .. 00.0
2557 9 .. 45 .. 49.5
4 49.5

εC 8 .. 52 .. 50 ?
2557 9 .. 57 .. 41.5
4 .. 51.5

εC 8 .. 58 .. 56.
2557 10 .. 03 .. 48.5
4 52.5

common
εC 9 .. 03 .. 00.0
2557 10 .. 07 .. 53.2

coin
εC 9 .. 04 .. 52.
2557 10 .. 09 .. 45.5
4 .. 53.5
9 .. 07 .. 50
10 .. 12 .. 44.0
4 .. 54.0

April 7/8th Am.

Thr 38

γ Aquilae	α Aquilae	β Aquilae
38.0	58.0	27.1
57.9	12.0	41.2
5.7	26.0	55.7
20.0	34.9	9.0
33.9	53.3	22.7
48.0	7.4	36.7
19..41..01.8	19..45..21.4	19..49..50.4
1493	2180	2432
1393	2780	622
19.90	39.71	8.89
19..40..17.90	19..44..37.71	19..49..06.89
19..39..07.70	19..43..27.77	19..47..56.57
+1..10.20	1..09.94	1..10.32

EC. _ 18..45..30
2557 – 19..52..0
EC. – 18..48..50
2557 – 19..55..20.5
1..06..30.5
EC – 19..59..0
2557 – 19..59..39.2
EC – 20..0..0
2557 – 20..0..39.2

19..52..00.0
1..09.9
19..50..50.1
1..02..23.28
18..48..26.82
3..04.87
18..45..21.95
18..45..30.00
EC +8.05

1..01..36.54
46.74
1 02 23.28

According to Berthoud (Essai sur l'Horologerie T. II. p120) ~~to~~ ~~steel~~ ~~seconds~~ an iron pendulum rod beating seconds at Reau. 27° = 93° Fahr. gains $20^s.1$ daily at R 0° or Fahr 32°

Hardy gives $6^{in}\frac{8}{10}$ for the depth of Mercury (Pearson's Astr.)

An alteration of 1^s of daily rate corresponds to a change of length $= 0^{in}.000905$

April 7, 1850

Comparison of Aneroid Barometer No. 6713 with standard at Cambridge

Standard – $30^{in}.089$
6713 – 30.110

8th 2 PM
Found Sun had been shining on Tr. piers.

April 9th

(1269)

Ill. West, I suppose. A.H.

ν Aquilae

Ξ 3 last
23.0
37.0
50.8
19 .. 41 .. 04.9
115.7
175.7
~~47~~.92
or -20.93
22.99
19 40 22.99

α Aquilae
1.3
15.2
29.3
43.2
57.
10.6
19 .. 45 .. 24.8
181.3
301.3
43.04
19 .. 44 .. 41.04
19 .. 43 27.79
1 .. 13.25

E.C. 18 .. 38 .. 55
2557 - 19 .. 49 .. 24.5
1 13.25
19 .. 48 .. 11.25
1 .. 06 .. 19.83
18 .. 41 .. 51.42
3 .. 03 .. 79
18 .. 38 .. 47.63
EC 18 38 .. 55.00
EC +7.37
16.0
Slow + 8.6 of Boston

1 .. 05 .. 33.09
46.74
06 .. 19.83

5

5 .. 20
24
5 .. 44
3)344
115
57.5

1 .. 15 .. 17.5
57.5
1 .. 16 .. 15.0

0 .. 41 .. 49.0
5 .. 40 .. 20.0
4 .. 58 31.0
24
3)298 .. 31
99 .. 30

0 .. 50 .. 54.5
5 .. 25 .. 00.0
4 .. 34 .. 05.5
240
3)274.
91.3
45.6
1 .. 15 .. 17.5
1 16 .. 03.1
5 .. 25 .. 00.0
4 .. 08 .. 56.9

1850phat.proj....5

(270) April 10th Ath

at 11^h 333 fast of EC 0^m..00^s.4

coin

EC 23..11....26 23..14..36 23..17..40.. 23..26..33.0
2557 0..26..39.5 0..29..50 0..32..54.5 0..41..49.0
1..15..13.5 1 15..14 1..15..14.5 1.15..16.0

EC makes a coincidence at exactly every 3^m of 2557
(previous to altering the compensation)

23..35..37
0..50..54.5
1..15..17.5

1st trial

EC 23..38..00.00 23 42 13
2557 1..08..46.00 1..12..54.0
coin once in 4^m..13^s

let down < ½ turn
2nd trial

23..47..25 23..51..40
1..19..15 ..23..30.5

23 53..44
1..26...27.5

23 58..40..
1..33..43.5

62..54
1..37..59

4 03 ..45

1..43..18 2557 5..20..00 coin
EC 4..04 09

1..47..13
51..26.5

5..25..00
EC 4..09 08.2

58..45
02..55

EC + 11^s.3

2..33..20

Reduction of Compensation April 10th

A series of Comp to day
By Prof. Guyot make his
Barometer Ernst N 0.77 of a mil-
imeter above Newman No 57

3..30..20}
34..17}

3.. 38..25 $0.^{\text{in}}2$ of mercury added to Pendulum
41..35
44..28 & lengthened Pendulum rod
47..25
50..20 of course changing rate & Error
53..18 There was about $6^{\text{in}}\frac{55}{100}$ of Mercury in the
56..15 Pendulum before alteration and about
02..10 obt 7.. 20..55 $\overset{\text{in}}{0},25$ or less was added.
05 08 23..48

5..09..55

40..
5..28..33.5
4..12..00

EC 4..15..27
5..31 20

5..28..33.5
31..20.0
34..23.5
37..25
40..20

52..14
5.. 58..05
6.. 36..20
39..23
42..20
45..20

1850phat.proj....5

(272)

April 10th PM.

EC 8..48..00.0
2557 10..04..39.3
1..

8..49..41
10..06..20.5
1..15.9
10..05.04.6
1..14..12.94
8..50.51.66
1..26.97
8..49.24.7
8..49..41.0
+6.3

312 23
12..42
299..41
1..13..26.28
4674
1..14 12.94
1.5)2.7(1.8
15
120

1.5)7.3(5.0

0.2

α Leonis

59.5
13.5
27.2
41.2
55.5
09.5
10 02 ..235
2299
2899
41.41
10..01..39.41
10..00..23.51
1..15.90

Rate of 2557 = $+2^{s}.5$

Apl. 11 Am
α Aquilæ
4..5.0
4..19.1
4 .32.9
4 .47.0
5 . 1.0
5 .14.8
19..45 ..28.7
1485
3285
46.93
19..44..44.93
19..43..27.86
All 11^{h} 1..17.07
9^{h} 1..06.71
4)10.36
2.59

E.C. 18..31..45
2557 19..50..03
1..17.07
19..48..45.93
1..14..12.94
18..34.33.00
3..02.6
18..31.30.4
18..31..45.0
+14.6

April 12th Add. 2557 + $1^{m}\,19^{s}.7$

EC 19..54..00
2557 21..16..36.3
1..17..22.75 1..19.7
46.74 21..15..16.6
1 18.09.49 1..18..09.45
19..57..07.11
3..16.12
19 53..51.00
19..54..00.00
+ $9^{s}.0$
16.0
−7.0

EC found to have a losing rate of $5^{s}.0$

Pendulum Shortened.
Rate & Error altered

coincidences after shorting the Pendulum 12th Add

2557 21..31..52
34..53
37..55
55..47
58..50
22..01..50

25..00..52
03..54
1..43..00
46..03
2..07..05
16..09
3..31..07

5..25..02

April 12th

2557

δ Leonis by B'

47.5
2.0
16.8
31.4
46.3
1.0
11 8 ..16.7
161.2
221.2
31.60
11 .. 07 .. 29.60
11 .. 06 .. 08.45
+1 .. 21.15

EC 9 .. 45 .. 00.0
2557 11 .. 10 .. 19.5

9 .. 53 .. 45
11 .. 19 .. 06
1 .. 21.15
11 .. 17 .. 44.85
1 .. 22 .. 06.04
9 .. 55 .. 38.81
1 .. 37.58
9 .. 54 .. 01.23
9 .. 53 .. 45.00
EC Slow −16.23

1 .. 21 .. 19.30
46 74
22 06.04

13th PM
EC 19 .. 19 .. 00
2557 20 .. 45 .. 55.75
1 .. 22.25
20 .. 44 .. 33.5
1 .. 22 .. 06.04
19 .. 22 .. 27.46
3 .. 10.44
19 .. 19 .. 17.02
19 .. 19 .. 00.00
− 17.02
13th AM E.C. Slow

15 AM
α Aquilae 4 .. 16.4
4 .. 30.5
4 45.0
4 58.5
5 .. 12.5
5 26.4
19 .. 45 .. 40.4
2297
1867
7 | 4097
58.53
−2
19 .. 44 .. 56.53
19 .. 43 .. 27.80
+1 .. 28.73

E.C. 18 .. 14 .. 20
2557 19 .. 49 .. 08
19 .. 49 .. 08.0
1 .. 28.73
19 .. 47 .. 39.27
1 .. 29 .. 59.15
18 .. 17 .. 40.12
2.59.8
18 .. 14.40.3
E.C 18 14 .. 20
Camb − 20.3
Boston − 36.3

1 .. 29 .. 12.41
46.74
1 29 59.15

2) 3.28 (1.64
14s Slow

After this comparison The clock was stopped and the pendulum shortened by moving the screw head 3 divisions. ——

Rate & Error altered

Comparison after alteration with Cg makes E.C. Slow 14s

24.. 21.. 06
1.. 28.9
21.. 19.. 37.1
1.. 29.. 59.15
19.. 49.. 37.95
3.. 14.89
3 – 37 – 35
19.. 46.. 23.06
19.. 46.. 25.00

1.. 29.. 12.41
46.74
59.15

April 14th/15th Ast.

win
E.C. = 19.. 44.. 00 EC 19.. 46.. 25
2557 = 21.. 18.. 40.6 2557 21.. 21.. 06

239 GPB
2.. 02.. 24.0 – 13 beats

EC fast +1.94 14th/15th Ast.
after adjustment

April 15th –
Occultation of Aldebaran
Immersion

h
Sid. No 2419. W.C.B. 4ft. finder – 3.. 51.. 01 – 8 beats
Sid 2557 F.H.S. – 25ft. Equa – 3.. 37.. 35
Solar 239 – G.P.P. – 5ft Equa – 2.. 02.. 24 – 13 beats
5.2
2.. 02 18.8
239 fast 26.6
M.S.T. 2.. 01.. 52.2 GPB

2557 – 3.. 45.. 0
2419 – 3.. 58.. 19.2

2557 – 3.. 46.. 0
239 – 2.. 10.. 40.2

Emersion
2419. W.C.B. – 4ft. Finder 4.. 50.. 55.3 – 2
2419. H.S. – 23ft Equa 4.. 50.. 55.0
239. G.P.B. – 5ft Eq. – 3.. 2.. 08 – 12 beats obs. and
4.8
3.. 02 03.2
239 fast 26.8
3.. 01.. 36.4 = M.S.T.

239 = Compared with E.C.
made 239 fast of EC 24.5 before the
24.7 after the obs of im.
mean 24.6

3.. 51.. 01.0
40
2419 3.. 50.. 57.0
13.. 19.2
2557 3.. 37.. 37.8
2557 + 1.. 29.4
3.. 36.. 08.4
1.. 33.. 55.7
2.. 02.. 12.7
28.0
M.S.T. Im 2.. 01.. 52.7 – W.C.B.

4.. 50.. 55.30
1 0
4.. 50.. 54.3
13.. 19.0
4.. 37.. 35.3
1.. 29.5
4.. 36.. 05.8
1.. 33.. 55.7
3.. 02.. 10.1
29.8
Em 3.. 01.. 40.3

2557 – 4.. 46.. 0
2419 – 4.. 59.. 19

2557 – 4.. 47.. 0
239 – 3.. 11.. 29.8

EC + 2.3
E.C. – 3.. 5.. 12.. 0
239 – 3.. 12.. 24.3
3.. 11.. 57.7
239 fast 0.. 26.8

Im α Tauri April 15 2h.. 01m.. 52s.7 W.C.B.
52.2 W.C.B.
Em 3.. 01.. 40.3 W.C.B.
01.. 36.4

April 15/[illegible] [illegible] (276)

α Leo. 10.0 − 299.41
δ Leo. 11.6 − 291.03

2557 α Leonis last
1 . 27.6
1 . 41.4 E.C. −8..31..28
1 . 55.5 2557 −10..8..15.5
2 . 10.0
2 . 24.2 δ Leonis
10.02..38.0 56.3 E.C. 9.35..00 1..33..08.96
1587 11.1 2557 11.11.58 46.74
2787 26.7 1..30.45 1..33..55.70
55.74 41.0 11..10..27.55
10..01..53.74 56.2 1..33..55.70
10..00..23.45 10.5 9..36..31.85
1..30.29 11.08..25.3 1..34.45
2265 9..34..57.40
196.7 2865 9..35..00.00
376.7 40.93 EC +2.6
62.78 11..07..38.93
cor. −7.03 11..06..08.42
10 01 55.75 2557 +1..30.51

Rate of 2557
+3.1

24)3.1(.13
24
7

13
76
78
91
988

0.7/14 0.1/2

3..46..

t = 3..37..37.8
2..01..52.7
1..35..45.1 2557 + [illegible] at t
1.37 $8^m..22^s$
1..3546.47
3..46..00.00
2..10..13.57 MST at comp.
239 = 2..10..40.2
239 +26.63 fast

1..35..45.1
9.8
1..35 54.9
4..37..35.3
3..01 40 4

EC 17.. 26 ..50.0
2557 19.. 09..04.0

α Aquila	19..43	308°..55′
β Aquarii	21..23	318..36
ε Pegasi	21..36	303..12
α Aquarii	21..58	313..25

April 17th/18th Ast

EC 18..01..08 - 18..02..00
2557 19.. 47.. 25   19..48..17.2

25.2   1..41..02.07   1.. 36.67
39.0   4674   19.. 45..48.35
52.5   4881   1..41..48.81
06.8   18..03..59.52
20.8   2.. 57.59
34.5   18.. 01..01.93
19..45.. 48.3   18.. 01.. 08.00
2271   EC fast +6.07
471
06.73
19.. 45..04.73
19.. 43..28.06
2557 +1..36.67

α Aquila

19.. 45.. 04.77
9.. 38.. 58.70

1 .. 38.67
1.. 38.45
1 .78 in 13h.. 59.. 59

EC + 6.07 18th Ast
4.94 15
3)4.13
1.38

14)1.78s (.12 gain in [illegible]
14
38
28

24
19.. 45.. 04.77
4 .. 14.. 55.27
9.. 38.. 58.70
19.. 53.. 59.97

April 18th occultations

No 2557 — Immersion South of the Centre
W.C.B.
* 6 Mag

9 ..01 ..12.7 —5
2.5
9 ..01 ..10.2
1 ..38.48
8.. 59 ..91.77

Immersion 81 Geminorum 6 Mg
9 ..03 ..29.7 —7 W.C.B. double
gradual
3.5
9.. 03.. 26.2
1.. 38.48
9.. 01.. 47.97

az −0.15
lev −0.10
col +0.21

ε Leonis Dec +24°
8 ..14.7
8 ..30.3
8 ..45.4
9 .. 0.2
9 ..15.7 Lamp burns dim
9 ..31.0
9 ..39 ..46.2
1835
180
35
0.70
−2
9 ..38 ..58.70
9 .. 37 ..20 25
+ 1 ..38.45
.07 rate in 32m
1 ..38.98
az −.05
lev −.11
col +.23
1.. 38.. 45
1.. 38.. 55
1.. 38.. 50

Inst. cor +0.07

Σ +0.07

Helwest No. 2557

ε C — 7 ..56.. 55
2557 — 9 ..45 ..30.5

α Leonis Dec +12°
0 21.4
0 36.0
0 49.7
2 4.0
2 18.0
2 32.0
10 .02 ..46.0
2071
180
7|27.1
10.. 02.. 07.87
10.. 00.. 23.40
1 ..38.50
az −.08
lev −.09
col +.22
1.. 38.. 55

Inst cor. +0.06

Σ +0.05

ε Leo — 9 ..37.0 — 287.56
α Leo — 10 ..000 — 299..42
δ Leo — 11..39 — 291..03

2.156

ε C 8.. 35 ..00.
2557 10.. 23 ..41.8

1.. 44.. 58.62
46.04
1.. 45.. 45.96

9.. 01.. 47.82 −0.05
1.. 45.. 45.96
7 ..16 ..02.46
1.. 11. 5.9
7.. 14.. 50.99

Star 6 may double

at 9h 50m, 1m
at 9h 50m 2557 + 1m 38s.50
− 50m rate −0.07
2557 at 9h 0m 1m 38s.43

8.. 59.. 91.82 −0.05
1.. 45.. 45.96
8.. 13.. 46.46
1.. 11.. 1
7.. 12.. 35.36

Revised. M.S.T. Im 7h 14.. 50.99 W.C.B.

April 18th 1850

~~Oct~~ Occultation of 81 Geminorum
M.S.T. Im 7.. 12.. 35.36 W.C.B.

April 20th P.M. Int Therm° 70°

E.C. 6..38..0 — 6. 39..0 — 6..40..0
2915 – 11..14..17.8 2914 – 11..20..57.2 2918 – 11..23..44.7
— 6..41..0
2925 – 11..24..57

Steamer America.
Chronometers from Liverpool

E.C — 6..43..30 — 6..46..30
2557 – 8..39..49.5 8..42..50

EC +8.5s

E.C. 6..49..0 — 6..50..0 — 6..51..0 — 6.52..0
2925 – 11..32..51 2915 – 11..26..17.7 2914 – 11..32..57.2 2918 11..35..44
4..43..51.0 4..36..17.7 4..41..57.2 4..43..44.0
59.5 26.3 42..05.7 52.5

Key West

21st A.M. Int Therm° 55 Ext. 30 s.r.

2557. Key West

α aquilæ β aquilæ
33.0 2.3 E.C. – 17..54..20
47.3 16.4 2557 – 19..52..31
1.3 30.2
15.1 44.2
29.0 58.5
43.0 12.2
19..45..56.9 19..50..25.5
2256 1893
1056 3093
15.09 44.19
19..45..13.09 19..49..42.19
19..43..28.15 19..47..56.94
1..44.94 1..45.25

EC + 8.9
E.C. – 17..57..0 — 17..58..00 — 18..0..0
2918 – 22..40..43.8 2914 – 22..39..55.1 2915 – 22..36..16.3
4..43..43.8 4..41..55.1 4..36..16.3
18..01..0
2925 – 22..44..49.9
4..43 49.9

19..52..31.00
1..45.00
19..50..46.00
1..53..38.47
17..57..07.53
2..56.46
17..54..11.07
17..54..20.00
+8.93

1..52..51.73
46.74
1..53..38.47

assumed corr at &c – 0.15
2557 +1..45.00

15th A.M. +1m..28s.7
21 " 1..44.9
6)16.2
Rate of 2557 +2.70

April 20th 18h Chros fast of Camb

2918 +~~4h..43m..52s.7~~ 52.7
2914 ~~42.04.0~~ 04.0
2915 ~~36. 25.2~~ 252
2925

2918 – 4h..43..52.7
14 42..04.0
15 36. 25.2
25 43..58.8

April 20th Ill Wash
2557.

α Urs. maj: 10..54 — 249..50
δ Leonis — 11.06 — 291..03
δ Hydræ . 11..11 — 326.. 20
β Leonis _ 11..41 — 296.. 59
Jupiter — 11..02 — 304..38

α Urs maj
54 ..42.4
5 .12.5
5 41.7
6 .12.0
6 .41.9
7 .11.7
10 ..57 ..41.4
203.6
-120
7/83.6
11.94
-2
10..56 ..09.44

δ Leonis 7 .9.8
7 ..25.0
7 .39.8
7 ..53.8
faint 8 . 9.0
8 ..24.0
11 ..08 ..38.5
199.9
186
7/379.9
54.27
-2
11 ..07 ..52.2

Jupiter

1st Limb
3 .4.4
3 .32.3
3 59.2
11 .04 ..27.4
123 3
60
4)183.3
45.82
48.3
2.48

2d L
3.. 20.6
3 ..48.2
4 ..16.1
3)144.9
48.3

1.24
1.43
.19

Int Therm
63°

E.C. — 9..19..05 — 9 .22..05
*^{54}2557 — 11..15..50.5 — 11..18..51

wound up
E.C.

E.C. — 9 .55..05
2557 — 11 .51 .56.5
E.C. — 9.59 ..0
2557 — 11..55 ..52
1 .56 ..46
1 .56 .52
6..00
6.07
37

β Leonis
2 .. 27.2
2 ..42.5
2 .. 57.0
3 ..11.3
3 ..25.2
3 ..39.5
11 ..43 ..54.0
256.7
180
7/76.7
..10.96
-2
11 ..43 ..08.96

April 22^d A.M.   Int Therm. 63 ext 37

E.C. 17..52..35
2557 – 19..54..42.5

EC fast $9^{s}.7$

E.C. –	17..55..0	—	17..57..0	—	17..58..0	—	18..0..0
2918 –	22..38..44.2	2914 –	22..38..52	2915 –	22..34..13.2	2925 –	22..43..47.6
	4..43..44.2		4..41 52.0		4..36..13.2		4..43..47.6

April 21^{st}..18^{h} fast
2918 – 4..43..53.9
14 – 42..01.7
15 – 36..22.9
25 – 43..57.3

2557 $1^{m}..50^{s}.4$ Apr. 23rd Ach By rate of 2557

EC 19..06..00   2..00..44.83
2557 21 12..18.7   46.74
1..50.4   2 01 31 57
21..10..28.3
2..01..31.57
19..08..56.73
3..08.22
19..05..48.51
19..06 00.0
EC. +11.5

E.C. – 20.58.0
511 – 25..43..22.5

Ile West coll = $\frac{n'+s'}{2} - 1^{s}.384$ az = $\frac{s'-n'}{2} - 0^{s}.700$

s' = 2.167
n' = 1.019
n'+s' 3.185   s'−n' = $+1^{s}.148$
+1.593   +0.574
− 1.384   − 0.700
c = +0.21   az $-0^{s}.126$

Errors of Transit

c $+0^{s}.21$
az – 0.13
lev – 0.09

Ile West
Southern Mars
95.0
95.2 good
95.1 seeing
95.2
95.5
95.3
95.3
95.0
94.8
95.2

Zero

S New South mark	N	
940	.454	.005
950	450	005
945	440	005
952	445	005
948	450	
947	444	
005	Zero 005	
0.942	0.443	
23	23	
2826	1329	
1884	886	
2,1666	1,0186	

A new South mark has been put up by Mr Dixwell, An iron lozenge frame midway on the staff of the vane. He promised to have it placed in the exact place of the old mark.—
The new mark is a much better object to measure from.—

Mr. D... took pains to have the new mark exactly in the place of the old one

April 24th Am

Ill curt. (282)
2557

h m ° ′
α Cygni 20..36 – 267..38
61′ Cygni . 21..00 – 274..22

a² Capricorni
0 . 57
1 .. 17
1 .. 24.6
1 .. 38.5
1 .. 53.0
2 .. 7.0
20 . 12 .. 20.8
2119
60
7 | 271.9
38. 84
–2
20 .. 11 .. 36 .84
– .20
20 .. 11 .. 36 .64
20 .. 09 .. 43 . 83
+ 1 .. 52 .81

E.C – 18 . 04 .. 20
2557 – 20 . 14 .. 27.5
18 .. 04 . 20
1 .. 52 . 81
18 . 02 .. 27 . 19
2 .. 05 .. 28 . 14
15 . 56 . 59 . 05

2 .. 04 .. 41 . 39
46 . 75
2 . 05 .. 28 . 14

20 .. 14 .. 27 . 5
1 . 52 . 81
20 . 12 . 34 . 69
2 .. 05 . 28 . 14
18 . 07 . 06 . 55
2 . 58 . 1
18 . 04 . 08 . 45
E.C. 18 . 04 .. 20 . 0
+ 11 . 55

P.M.
E.C – 8 .. 59 .. 0 — 9 .. 01 .. 0
1651 – 13 .. 44 .. 24 511 – 13 .. 46 .. 26

(283) (. . .)

April 25th Am All west 2557

α Gemi 7 . 19.2
7 . 38.6
7 . 58.0
8 . 17.3
8 . 36.5
8 .. 56.0
20 . 39 .. 15.3
2409
-110
7) 120.9
17.27
-2
20 .. 38 .. 15.29
20 .. 36 .. 19.42
+ 1 .. 55.85
Inst cor + 0.15

E.C. 18 .. 26 .. 0 — 18 .. 27 .. 0
2557 - 20 . 40 . 09.7 — 20 . 41 . 9.6

20 .. 40 . 09.7
1 . 55.85
20 . 38 .. 13.85
2 .. 09 .. 24.68
18 .. 28 .. 49.17
3 . 01.6
18 .. 25 .. 47.57
E.C. 18 .. 26 .. 00.00
+ 12.43
16
E.C. Camb
Boston − 3.6

2.8. 37.94
46.24
2 . 9 . 24.68

2557 had a hand jar

Level All West

W	E	
		37 3 1.11
x 77	76	
x 77	76	
x 77	76	
73	79x	
73	79x	
72	79x	
748	77.5	
	74.8	
	27	
	14	= E * 0.09

lev − 0.10

E.C. 19 .. 23 .. 0
571 - 24 . 08 . 26
19 .. 23 .. 3.6
24 . 04 . 26.0
+ 4 .. 45 . 22.4

EC 19 .. 24 . 00
1657 - 24 .. 09 .. 23.5
19 . 24 . 3.6
24 . 09 . 23.5
4 . 45 . 19.9

24
25th 9 Am
EC fast + 12.5

2557 23 .. 03 .. 00
J.G 23 .. 01 .. 16.3

EC 20 .. 52 .. 00
2925 1 .. 35 .. 41.8
4 .. 43 .. 41.8

EC 20 .. 53 .. 00
2915 1 .. 38 . 03.7
4 .. 35 .. 03.7

EC 20 .. 54 .. 00
2914 1 .. 35 .. 43.8
4 .. 41 .. 43.8

EC 20 .. 55 .. 00.0
2918. 1 .. 38 .. 46.1
4 . 43 46 .. 1

April 24th 21h

2918 + 4 .. 43 .. 58.6
2914 41 .. 56.3
2915 35 .. 16.2
2925 43 .. 54.3

April 29th A.M.

(284) E.C. + 15.1

E.C. – 18..20..55 P.C. – 20..23..0
2557 – 20..50..57 2557 – 20..54..2.1

312.23
1.18
3 13.41

E.C. – 18..29.0 — – 18..30..0 — 18..32.0
2915 – 11..04..52.1 2914 – 11..11..35.8 2918 – 11..15..49.7
4 35..52.1 4..41..35.8 4..43..49.7

— – 18..34..0
2925 – 11..17..37.2
4..43..37.2

April 28th 18h

	fast m s
2918	4..44..04.8
14	41..50.9
15	36..07.2
25	43..52.3

ε Orionis

EC 7..16..00
2557 9..48..10.6

44.6
58.3
12.0
5..31..25.8

April 29th evg. Hi west
2557

Spica
8 . 47 . 0
9 1 . 2
9 . 15 . 0
9 . 29 . 5
9 . 43 . 1
19 . 57 . 3
13 .. 20 .. 11 . 2
7 / 204 . 3
29 . 19
- 1/2
13 .. 19 .. 27 . 19
13 .. 17 .. 19 . 27
+ 2 .. 07 . 92

E.C. 10 .. 51 .. 40 — 10 .. 54 .. 40
2557 — 13 . 24 . 26 . 5 — 13 .. 27 .. 27
13 .. 24 .. 26 . 5
2 . 07 . 9
13 .. 22 .. 18 . 6
2 .. 29 .. 07 . 4
10 .. 53 .. 11 . 2
1 .. 47 . 0
10 .. 51 .. 24 . 2
E.C. 10 .. 51 .. 40 . 0
+ 15 . 8

2 .. 28 . 20 . 71
46 . 74
2 . 29 .. 07 . 45

Rate of 2557
4) 12.1 (2.7
8
41

30th Am
α² Cap
1 .. 12 . 2
1 .. 26 . 7
1 .. 40 . 7
1 .. 54 . 5
2 .. 09 . 1
2 .. 22 . 8
20 .. 12 .. 37 . 0
203 . 0
180 . 0
7 / 383 . 0
54 . 71
. 2
20 .. 11 .. 52 . 71
20 .. 09 .. 44 .. 01
2557 + 2 .. 08 . 70

E.C. 17 .. 42 .. 35 — 17 .. 45 .. 30
2557 — 20 .. 16 . 29 . 5 — 20 .. 19 .. 25

40 . 7 α Cygni
32 . 0
57 . 4
10 . 8
30 . 0
49 . 5
9 . 0
20 .. 39 .. 28 . 2
210 . 9
30 . 13
20 38 28 . 13

30th P.M. 1h .. 40m EC + 16s.1

EC 1 .. 41 .. 00 1 .. 42 .. 00 = EC
P.F 2915 6 .. 16 .. 49 . 2 6 .. 23 .. 33 . 3 = 2914 P.F
4 .. 35 49 . 2 4 .. 41 33 . 3
36 .. 05 13 494

EC 1 .. 43 .. 00 . 0 1 .. 47 .. 00 = EC
P.F 2918 6 .. 26 .. 51 . 7 6 30 .. 36 . 3 = 2925 P.F
4 .. 43 .. 51 . 7 4 .. 43 36 . 3
44 07 8 43 . 524

Prof. Sent to Boston

Francis Bradley New Haven

312.23
39.08
273.15

α²C 312.23
13
325.23

312.23
46.15
267.38

312.23
10.22
322.45

	April 30th 1h 40m Chron. fast of Camb. m.s.t. h m s	April 20th 6h 40m		daily rate
2918	+4.44.07.8	+4.43.52.5	+15.3	+1.6
2914	41.49.4	42.05.7	−16.3	−1.7
2915	36.05.3	36.26.3	−21.0	−2.1
2925	43.52.4	43.59.5	−7.1	−0.7

1850	2925	2915	2914	2918
April 20th 7h PM	Slow of Gr 32.5s	Slow 8m 05.7s	Slow 2m 26.3s	Slow 0m 39.5
21 6 AM	33.2	06.8	28.0	39.3
22 6 AM	34.7	09.3	30.3	38.1
25 9 AM	37.7	15.8	35.7	33.4
29 6 AM	39.7	24.8	41.1	27.2
30 2 PM	39.6	26.7	42.6	24.2