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025

Harvard College Observatory

Clock corrections.

1872 — 1875.

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1872phae.proj..358.

K61 / 1345.35 ?

Table for converting sidereal into mean solar time.

Hours.		Minutes.						Seconds.					
	m s		s		s		s		s		s		s
0	3 47.00	0	10.00	20	6.72	40	3.45	0	3.00	20	2.94	40	2.89
1	3 37.17	1	9.84	21	6.56	41	3.28	1	3.00	21	2.94	41	2.89
2	3 27.34	2	9.67	22	6.40	42	3.12	2	2.99	22	2.94	42	2.89
3	3 17.51	3	9.51	23	6.23	43	2.96	3	2.99	23	2.94	43	2.89
4	3 7.68	4	9.34	24	6.07	44	2.79	4	2.99	24	2.93	44	2.88
5	2 57.85	5	9.18	25	5.90	45	2.63	5	2.98	25	2.93	45	2.88
6	2 48.02	6	9.02	26	5.74	46	2.46	6	2.98	26	2.93	46	2.87
7	2 38.19	7	8.85	27	5.58	47	2.30	7	2.98	27	2.92	47	2.87
8	2 28.36	8	8.69	28	5.41	48	2.14	8	2.98	28	2.92	48	2.87
9	2 18.53	9	8.53	29	5.25	49	1.97	9	2.97	29	2.92	49	2.87
10	2 8.70	10	8.36	30	5.09	50	1.81	10	2.97	30	2.92	50	2.86
11	1 58.87	11	8.20	31	4.92	51	1.64	11	2.97	31	2.91	51	2.86
12	1 49.05	12	8.03	32	4.76	52	1.48	12	2.96	32	2.91	52	2.86
13	1 39.22	13	7.87	33	4.59	53	1.32	13	2.96	33	2.91	53	2.85
14	1 29.39	14	7.71	34	4.43	54	1.15	14	2.96	34	2.91	54	2.85
15	1 19.56	15	7.54	35	4.27	55	0.99	15	2.96	35	2.90	55	2.85
16	1 9.73	16	7.38	36	4.10	56	0.83	16	2.95	36	2.90	56	2.85
17	0 59.90	17	7.22	37	3.94	57	0.66	17	2.95	37	2.90	57	2.84
18	0 50.07	18	7.05	38	3.77	58	0.50	18	2.95	38	2.90	58	2.84
19	0 40.24	19	6.89	39	3.61	59	0.33	19	2.95	39	2.89	59	2.84
20	0 30.41												
21	0 20.58												
22	0 10.75												
23	0 0.92												

The above corrections are added, 4 minutes being always subtracted from the mean time of sidereal 0^h.

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1872place.proj : 358.

18[illegible] Cambridge mean time of sidereal 0h less 4 minutes.

October	21	9	52	38.28	November	13	8	22	12.35
	22	9	48	42.37		14	8	18	16.44
	23	9	44	46.46		15	8	14	20.54
	24	9	40	50.55		16	8	10	24.63
	25	9	36	54.64		17	8	6	28.72
	26	9	32	58.73		18	8	2	32.81
	27	9	29	2.82		19	7	58	36.89
	28	9	25	6.91		20	7	54	40.98
	29	9	21	11.00		21	7	50	45.07
	30	9	17	15.10		22	7	46	49.16
	31	9	13	19.19		23	7	42	53.25
November	1	9	9	23.28		24	7	38	57.34
	2	9	5	27.37		25	7	35	1.43
	3	9	1	31.46		26	7	31	5.52
	4	8	57	35.55		27	7	27	9.60
	5	8	53	39.64		28	7	23	13.69
	6	8	49	43.73		29	7	19	17.78
	7	8	45	47.82		30	7	15	21.87
	8	8	41	51.91	December	1	7	11	25.95
	9	8	37	56.00		2	7	7	30.04
	10	8	34	0.09		3	7	3	34.13
	11	8	30	4.17		4	6	59	38.22
	12	8	26	8.26		5	6	55	42.30

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1872phae.proj..358.

1872. Cambridge mean time of sidereal 0^h, less 4 minutes.

December 6	6	51	46.39
7	6	47	50.48
8	6	43	54.57
9	6	39	58.66
10	6	36	2.75
11	6	32	6.84
12	6	28	10.93
13	6	24	15.02
14	6	20	19.11
15	6	16	23.20
16	6	12	27.29
17	6	8	31.37
18	6	4	35.45
19	6	0	39.54
20	5	56	43.63
21	5	52	47.70
22	5	48	51.79
23	5	44	55.88
24	5	40	59.97
25	5	37	4.05
26	5	33	8.14
27	5	29	12.23
28	5	25	16.31
December 29	5	21	20.40
30	5	17	24.49
31	5	13	28.58

The abbreviations used in the following record are as follows. In the comparison of the South and North Clocks, which comes first,

d is the date in astronomical mean time
S " " face of the South Clock.
C " " Cambridge mean time of sid. 0^h less 4^m.
h, m, s — Corrections from table on inside of cover for hours minutes and seconds given by sidereal clock
T Mean time by sidereal clock
N Face of North Clock
R Reduction of mean time clock to sidereal clock
E Correction required by sidereal clock
e Reduction of (E) to mean time
x. Reduction of mean time clock to Cambridge mean time

The South Clock is the standard sidereal clock of the Observatory. The North Clock is kept running on Boston mean time, to regulate the Boston clocks. In the case of the South Clock there are maximum and minimum thermometers and a thermometric chronometer, Frodsham 3424. Below the clock comparisons come

T, astronomical mean time of (Mm) and (F. 3424)
Mm, readings of maximum and minimum (Fahrenheit) thermometer in case of South Clock.
F. 3424, reduction of that (thermometric chronometer to the mean time

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1872phae.proj.338.

d	October 20, 1872	October 21, 1872	October 22, 1872	October 23, 1872
S	10 24 44.00	12 49 30.00	11 15 0.00	11 48 30.00
C	9 56 34.19	9 52 38.28	9 48 42.37	9 44 46.46
h	2 8.70	1 49.05	1 58.87	1 58.87
m	6.07	1.97	7.54	2.14
s	2.88	2.92	3.00	2.92
T	20 23 35.84	22 44 2.22	21 5 51.78	21 35 20.39
M	20 24 0.00	22 44 27.00	21 6 17.00	21 35 46.00
R	−24.16	−24.78	−25.22	−25.61
E				
e				
x				
T			21h 10m	21h 40m
Mm			70 67	71 63
F.3424.			+50m 32.s1	+50m 51.s5

The errors of the South Clock are not definitely determined, as the observations are not yet worked up. The approximate corrections are for Oct. 21, +8.s56

The case has been removed from the South Clock, so that there is at present no object in reading the thermometers or comparing the thermometric chronometer F.3424.

The case was replaced October 21, at the time of the clock comparison. The maximum and minimum thermometers were set and then read 67½

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1872phae.proj..358.

XA 11365.357

	October 24, 1872	October 25, 1872	October 27, 1872	October 28, 1872
d	11 9 0.00	12 48 15.00	11 50 27.00	12 15 0.00
b	9 40 50.55	9 36 54.64	9 29 2.82	9 25 6.91
h	1 58.87	1 49.05	1 58.87	1 49.05
m	8.53	2.14	1.81	7.54
s	3.00	2.96	2.92	3.00
J	20 52 0.95	22 27 3.79	21 21 33.42	21 42 6.50
M	20 52 27.00	22 27 30.00	21 22 0.00	21 42 34.00
R	− 26.05	− 26.21	− 26.58	−27.50
E				
e				
x				

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T	$21^h\ 0^m$	$22^h\ 30^m$	$21^h\ 20^m$	$21^h\ 45^m$
Mm	68 62	63 60	71 60½	65 59
f. 34124	$+50^m\ 50^s.5$	$+50^m\ 26^s.3$	$+50^m\ 27^s.1$	$+50^m\ 17^s.8$

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1872phae.proj.358.

	October 29, 1872	October 30, 1872	October 31, 1872	Nov. 3, 1872
d				
ϕ	12 9 50.00	12 28 0.00	12 14 41.00	12 42 3.00
ζ	9 21 11.00	9 17 15.10	9 13 19.19	9 1 31.46
h	1 49.05	1 49.05	1 49.05	1 49.05
m	8.53	5.41	7.71	3.12
s	2.86	3.00	2.89	2.99
ψ	21 33 1.44	21 47 12.56	21 29 59.84	21 45 29.62
M	21 33 30.00	21 47 42.00	21 30 30.00	21 46 0.00
R	−28.56	−29.44	−30.16	−30.38
E				
e				
x				
T'	$21^h\ 35^m$	$21^h\ 50^m$	$21^h\ 30^m$	$21^h\ 50^m$
Km	64 60	65 60	63 58½	64½ 58
F. 3424	$+49^m\ 42^s.4$	$+49^m\ 19^s.4$	$+48^m\ 47^s.7$	$+47^m\ 31^s.1$

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1872phae.proj, 358.

	November 4, 1872	November 5, 1872	November 6, 1872	November 7, 1872
d				
$\odot$	12 9 0.00	12 32 0.00	12 54 21.00	12 45 0.00
$\odot$	8 57 35.55	8 53 39.64	8 49 43.73	8 45 47.82
h	1 49.05	1 49.05	1 49.05	1 49.05
m	8.53	4.76	1.15	2.63
s	3.00	3.00	2.94	3.00
T	21 8 36.13	21 27 36.45	21 45 57.87	21 32 42.50
M	21 9 7.00	21 28 8.00	21 46 30.00	21 33 15.00
R	− 30.87	− 31.55	− 32.13	− 32.50
E				
e				
x				
I	$21^h\ 10^m$	$21^h\ 30^m$	$21^h\ 50^m$	$21^h\ 35^m$
Mm	$63\frac{1}{2}$ 55	65 $55\frac{1}{2}$	$66\frac{1}{2}$ 61	$63\frac{1}{2}$ $59\frac{1}{2}$
J. 3424	$+47^m\ 1^s.3$	$+46^m\ 34^s.4$	$+46^m\ 19^s.8$	$+46^m\ 1^s.0$

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1872phae.proj - 338.

d	November 8, 1872	November 10, 1872	November 13, 1872	November 14, 1872
φ	14 32 20.00	12 53 32.00	18 9 0.00	15 58 28.00
b	8 41 51.91	8 34 0.09	8 26 8.26	8 22 12.35
h	1 29.39	1 49.05	0 50.07	1 19.56
m	4.76	1.32	8.53	0.50
s	2.94	2.91	3.00	2.92
T	23 15 49.00	21 29 25.37	2 36 9.86	0 22 3.33
K	23 16 22.00	21 30 0.00	2 36 46.00	0 22 40.00
R	− 33.00	− 34.63	− 36.14	− 36.67
E				
e				
γ				
I	$23^h\ 20^m$	$21^h\ 30^m$	$2^h\ 30^m$	$0^h\ 30^m$
Mm	63 59½	67 61	65½ 59	65½ 60½
F. 3424	$+45^m\ 31.^s7$	$+45^m\ 9.^s6$	$+44^m\ 25.^s6$	$+44^m\ 15.^s2$

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1872phae.proj..258.

	November 15, 1872	November 16, 1872	November 17, 1872	November 18, 1872
d				
φ	20 5 24.00	16 35 0.00	13 43 0.00	13 54 0.00
ℓ	8 18 16.44	8 14 20.54	8 6 28.72	8 2 32.81
h	0 30.41	1 9.73	1 39.22	1 39.22
m	9.18	4.27	2.96	1.15
s	2.93	3.00	3.00	3.00
T	4 24 22.96	0 50 37.54	21 51 13.90	21 58 16.18
M	4 25 0.00	0 51 15.00	21 51 53.00	21 58 56.00
R	− 37.04	− 37.46	−39.10	− 39.82
E		21.3	12.6	23.3
e				
x				
I	4h 30m	0h 50m	21h 50m	22h 0m
Mm	63 58½	62 56½	67½ 57½	61 53½
J. 3424	+43m 38.s8	+42m 0.s9	+42m 25.s9	+41m 38.s8

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1872phae.proj..338.

d	November 19, 1872	November 20, 1872	November 21, 1872	November 22, 1872
$\odot$	13 46 20.00	13 52 30.00	13 57 0.00	13 55 45.00
$\mathcal{C}$	7 58 36.89	7 54 40.98	7 50 45.07	7 46 49.16
h	1 39.22	1 39.22	1 39.22	1 39.22
m	2.46	1.48	0.66	0.99
s	2.94	2.92	3.00	2.88
T	21 46 41.51	21 48 54.60	21 49 27.95	21 44 17.25
M	21 47 22.00	21 49 36.00	21 50 10.00	21 45 0.00
R	−40.49	−41.40	−42.05	−42.75
C	24.1	24.9	25.8	24.9
e				
x				
T	$21^h\ 50^m$	$21^h\ 50^m$	$21^h\ 50^m$	$21^h\ 50^m$
Mm	60 55½	64 55½	60 56½	60½ 54
F. 3424	$+40^m\ 42^s.7$	$+40^m\ 3^s.3$	$+39^m\ 10^s.9$	$+38^m\ 21^s.7$

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1872phae.proj..258.

d	November 25, 1872	November 25, 1872	November 26, 1872	November 29, 1872
S	18 58 0.00	13 56 32.00	13 50 0.00	16 49 52.00
C	7 38 57.34	7 35 1.43	7 31 5.52	7 23 13.69
h	0 50.07	1 39.22	1 39.22	1 9.73
m	0.50	0.83	1.81	1.97
s	3.00	2.91	3.00	2.86
T	2 37 50.91	21 33 16.39	21 22 49.55	0 11 20.25
M	2 38 35.00	21 34 0.00	21 23 32.00	0 15 0.00
K	− 44.09	− 43.61	− 42.45	− 39.75
E	27.7			
c				
x				
T	2^h 40^m	21^h 30^m	21^h 30^m	0^h 20^m
Mm	63 53	64 58	62½ 59	64 50½
J. 3424	$+36^m$ $25.^s4$	$+36^m$ $7.^s7$	$+35^m$ $36.^s3$	$+35^m$ $7.^s9$

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1872phae.proj.358.

	November 29, 1872	December 2, 1872	December 3, 1872	December 4, 1872
d				
φ	15 51 20.00	14 41 0.00	14 13 11.00	15 5 0.00
b	7 19 17.78	7 7 30.04	7 3 34.13	6 59 38.22
h	1 19.56	1 29.39	1 29.39	1 19.56
m	1.64	3.28	7.87	9.18
s	2.94	3.00	2.97	3.00
T	23 12 1.92	21 50 5.71	21 18 25.36	22 6 9.96
M	23 12 40.00	21 50 40.00	21 19 0.00	22 6 45.00
k	− 38.08	− 34.29	− 34.64	− 35.04
E	21.7	17.9	18.2	18.9
e				
x				
T	$23^h\ 15^m$	$21^h\ 50^m$	$21^h\ 20^m$	$22^h\ 5^m$
Mm	65½ 44	64½ 41	65½ 57½	60 51
F. 3424	$+32^m\ 39.^s9$	$+28^m\ 26.^s7$	$+27^m\ 59.^s2$	$+27^m\ 1.^s2$

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1872phae.proj..358.

d	December 5, 1872	December 6, 1872	December 9, 1872	December 10, 1872
S	14 4 40.00	14 41 3.00	15 30 0.00	14 46 0.00
b	6 55 42.30	6 51 46.39	6 39 58.66	6 36 2.75
h	1 29.39	1 29.39	1 19.56	1 29.39
m	9.34	3.28	5.09	2.46
s	2.89	2.99	3.00	3.00
T	21 2 3.92	21 34 25.05	22 11 26.31	21 23 37.60
M	21 2 39.00	21 35 0.00	22 12 1.00	21 24 12.40
k	− 35.08	− 34.95	− 34.69	− 34.40
E	19.4	18.9		
e				
x				
I:	21h 0m	21h 30m	22h 15m	21h 30m
Mm	59 53½	57 53½	63½ 48	59 50
f. 3424	+25m 58.s6	+24m 49.s2	+21m 45.s1	+20m 32.s9

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1872phae.proj.358.

	December 14, 1872	December 16, 1872	December 17, 1872	December 20, 1872
d				
p	21 51 30.00	21 9 0.00	21 22 0.00	16 15 10.00
t	6 24 15.02	6 16 23.20	6 8 31.37	5 56 43.63
h	0 20.58	0 20.58	0 20.58	1 9.73
m	1.64	8.53	6.40	7.54
s	2.92	3.00	3.00	2.97
T	4 16 10.16	3 25 55.31	3 31 1.35	22 13 13.87
k	4 16 44.00	3 26 30.00	3 31 37.00	22 13 52.00
R	−33.84	−34.69	−35.65	−38.13
E			21.2	22.1
e				
x				
I	$4^h\ 20^m$	$3^h\ 25^m$	$3^h\ 35^m$	$22^h\ 15^m$
Mm	58 44½	66½ 52½	63 51½	65 53
J. 3424		$+14^m\ 6^s.7$	$+12^m\ 36^s.5$	$+10^m\ 34^s.7$

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d	December 22, 1872	December 24, 1872	December 26, 1872	December 27, 1872
S	15 44 30.00	17 56 30.00	20 56 0.00	21 41 0.00
C	5 48 51.19	5 40 59.97	5 37 4.05	5 33 8.14
h	1 19.56	0 59.90	0 30.41	0 20.58
m	2.79	0.83	0.83	3.28
s	2.92	2.92	3.00	3.00
T	21 34 47.06	23 38 33.62	2 33 38.29	3 14 35.00
M	21 35 26.00	23 39 13.00	2 34 18.00	3 15 15.00
R	− 38.94	− 39.38	− 39.71	− 40.00
E	23.9		23.3	23.6
e	16.0			
x				
I	21h 35m	23h 40m	2h 30m	3h 10m
Mm	67½ 45	56 41	51 40½	51 44
J. 3424	+ 9m 14s.0	+ 5m 23s.3	+ 2m 59s.8	+ 0m 54s.3

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1872phae.proj.358.

	December 29, 1872	December 30, 1872	December 31, 1872
d			
ϕ	17 27 0.00	16 6 0.00	17 7 0.00
l	5 21 20.40	5 17 24.49	5 13 28.58
h	0 59.90	1 9.73	0 59.90
m	5.58	9.02	8.85
s	3.00	3.00	3.00
J	22 49 28.88	21 24 46.24	22 21 40.33
M	22 50 10.00	21 25 28.00	22 22 22.00
R	− 41.12	− 41.76	− 41.67
ε	23.7	23.9	
ι			
χ			
T	$22^h\ 50^m$	$21^h\ 30^m$	$22^h\ 20^m$
M_m	58 $33\frac{1}{2}$	57 47	59 48
$\frac{U}{T}$ 3424	$-5^m\ 8.^s6$	$-6^m\ 27.^s9$	$-7^m\ 50.^s7$

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1872phae.proj...38.

1873. Cambridge mean time of sidereal 0^h, less 4 minutes.

January	1	5	9	32.66	January	24	3	39	6.69
	2	5	5	36.75		25	3	35	10.78
	3	5	1	40.84		26	3	31	14.87
	4	4	57	44.92		27	3	27	18.96
	5	4	53	49.01		28	3	23	23.04
	6	4	49	53.10		29	3	19	27.13
	7	4	45	57.19		30	3	15	31.22
	8	4	42	1.28		31	3	11	35.31
	9	4	38	5.37	February	1	3	7	39.41
	10	4	34	9.46		2	3	3	43.50
	11	4	30	13.55		3	2	59	47.59
	12	4	26	17.64		4	2	55	51.68
	13	4	22	21.73		5	2	51	55.76
	14	4	18	25.82		6	2	47	59.85
	15	4	14	29.90		7	2	44	3.94
	16	4	10	33.98		8	2	40	8.03
	17	4	6	38.07		9	2	36	12.12
	18	4	2	42.16		10	2	32	16.21
	19	3	58	46.25		11	2	28	20.30
	20	3	54	50.34		12	2	24	24.39
	21	3	50	54.43		13	2	20	28.49
	22	3	46	58.52		14	2	16	32.58
	23	3	43	2.60		15	2	12	36.67

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1872phae.proj..358.

1873: Cambridge mean time of sidereal 0h less 4 minutes

February	16	2	8	40.76	March	11	0	38	14.88
	17	2	4	44.84		12	0	34	18.97
	18	2	0	48.92		13	0	30	23.06
	19	1	56	53.01		14	0	26	27.15
	20	1	52	57.11		15	0	22	31.24
	21	1	49	1.21		16	0	18	35.34
	22	1	45	5.30		17	0	14	39.44
	23	1	41	9.39		18	0	10	43.53
	24	1	37	13.49		19	0	6	47.62
	25	1	33	17.59		20	0	2	51.71
							23	58	55.81
	26	1	29	21.68		21	23	54	59.90
	27	1	25	25.77		22	23	51	3.99
	28	1	21	29.86		23	23	47	8.08
March	1	1	17	33.95		24	23	43	12.17
	2	1	13	38.04		25	23	39	16.26
	3	1	9	42.13		26	23	35	20.35
	4	1	5	46.23		27	23	31	24.45
	5	1	1	50.33		28	23	27	28.55
	6	0	57	54.42		29	23	23	32.64
	7	0	53	58.51		30	23	19	36.73
	8	0	50	2.60		31	23	15	40.82
	9	0	46	6.69	April	1	23	11	44.92
	10	0	42	10.79		2	23	7	49.01

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1872phae.proj...358.

1873. Cambridge mean time of sidereal 0h, less 4 minutes.

April	3	23	3	53.10	April	26	21	33	27.20
	4	22	59	57.19		27	21	29	31.29
	5	22	56	1.29		28	21	25	35.38
	6	22	52	5.38		29	21	21	39.47
	7	22	48	9.47		30	21	17	43.56
	8	22	44	13.56	May	1	21	13	47.65
	9	22	40	17.66		2	21	9	51.74
	10	22	36	21.75		3	21	5	55.84
	11	22	32	25.84		4	21	1	59.94
	12	22	28	29.93		5	20	58	4.03
	13	22	24	34.02		6	20	54	8.12
	14	22	20	38.11		7	20	50	12.20
	15	22	16	42.20		8	20	46	16.29
	16	22	12	46.29		9	20	42	20.38
	17	22	8	50.38		10	20	38	24.47
	18	22	4	54.47		11	20	34	28.56
	19	22	0	58.56		12	20	30	32.65
	20	21	57	2.65		13	20	26	36.74
	21	21	53	6.75		14	20	22	40.83
	22	21	49	10.84		15	20	18	44.92
	23	21	45	14.93		16	20	14	49.01
	24	21	41	19.02		17	20	10	53.10
	25	21	37	23.11		18	20	6	57.19

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1872phae.proj - 338.

1873. Cambridge mean time of sidereal 0h less 4 minutes.

May	19	20	3	1.27	June	11	18	32	35.30
	20	19	59	5.36		12	18	28	39.39
	21	19	55	9.45		13	18	24	43.48
	22	19	51	13.54		14	18	20	47.57
	23	19	47	17.62		15	18	16	51.65
	24	19	43	21.71		16	18	12	55.73
	25	19	39	25.80		17	18	8	59.81
	26	19	35	29.89		18	18	5	3.90
	27	19	31	33.98		19	18	1	7.99
	28	19	27	38.07		20	17	57	12.08
	29	19	23	42.16		21	17	53	16.17
	30	19	19	46.25		22	17	49	20.26
	31	19	15	50.33		23	17	45	24.35
June	1	19	11	54.42		24	17	41	28.44
	2	19	7	58.51		25	17	37	32.53
	3	19	4	2.60		26	17	33	36.62
	4	19	0	6.68		27	17	29	40.71
	5	18	56	10.77		28	17	25	44.78
	6	18	52	14.86		29	17	21	48.87
	7	18	48	18.95		30	17	17	52.96
	8	18	44	23.03	July	1	17	13	57.05
	9	18	40	27.12		2	17	10	1.14
	10	18	36	31.21		3	17	6	5.23

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1872phae.proj...358.

1873. Cambridge mean time of sidereal 0h less 4 minutes.

July	4	17	2	9.32	July	27	15	31	43.33
	5	16	58	13.40		28	15	27	47.42
	6	16	54	17.48		29	15	23	51.51
	7	16	50	21.57		30	15	19	55.60
	8	16	46	25.66		31	15	15	59.69
	9	16	42	29.75	August	1	15	12	3.79
	10	16	38	33.83		2	15	8	7.88
	11	16	34	37.92		3	15	4	11.96
	12	16	30	42.01		4	15	0	16.05
	13	16	26	46.10		5	14	56	20.14
	14	16	22	50.18		6	14	52	24.23
	15	16	18	54.27		7	14	48	28.32
	16	16	14	58.36		8	14	44	32.41
	17	16	11	2.45		9	14	40	36.50
	18	16	7	6.54		10	14	36	40.59
	19	16	3	10.63		11	14	32	44.68
	20	15	59	14.72		12	14	28	48.77
	21	15	55	18.81		13	14	24	52.86
	22	15	51	22.89		14	14	20	56.95
	23	15	47	26.98		15	14	17	1.04
	24	15	43	31.07		16	14	13	5.13
	25	15	39	35.16		17	14	9	9.22
	26	15	35	39.24		18	14	5	13.31

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1872phae.proj.358.

1873. Cambridge mean time of sidereal 0h, less 4 minutes.

August	19	14	1	17.41	September	11	12	30	51.51
	20	13	57	21.50		12	12	26	55.61
	21	13	53	25.59		13	12	22	59.70
	22	13	49	29.68		14	12	19	3.79
	23	13	45	33.77		15	12	15	7.88
	24	13	41	37.86		16	12	11	11.97
	25	13	37	41.95		17	12	7	16.06
	26	13	33	46.02		18	12	3	20.15
	27	13	29	50.13		19	11	59	24.24
	28	13	25	54.22		20	11	55	28.34
	29	13	21	58.21		21	11	51	32.44
	30	13	18	2.41		22	11	47	36.53
	31	13	14	6.51		23	11	43	40.62
September	1	13	10	10.60		24	11	39	44.72
	2	13	6	14.69		25	11	35	48.81
	3	13	2	18.78		26	11	31	52.90
	4	12	58	22.87		27	11	27	56.99
	5	12	54	26.96		28	11	24	1.09
	6	12	50	31.05		29	11	20	5.18
	7	12	46	35.14		30	11	16	9.27
	8	12	42	39.24	October	1	11	12	13.37
	9	12	38	43.34		2	11	8	17.46
	10	12	34	47.42		3	11	4	21.53

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1872phae.proj...338.

1873 Cambridge mean time of sidereal 0h, less 4 minutes.

October	4	11	0	25.64	October	27	9	29	59.75
	5	10	56	29.73		28	9	26	3.84
	6	10	52	33.82		29	9	22	7.93
	7	10	48	37.91		30	9	18	12.03
	8	10	44	42.00		31	9	14	16.12
	9	10	40	46.10	November	1	9	10	20.21
	10	10	36	50.20		2	9	6	24.30
	11	10	32	54.29		3	9	2	28.39
	12	10	28	58.38		4	8	58	32.48
	13	10	25	2.47		5	8	54	36.57
	14	10	21	6.57		6	8	50	40.66
	15	10	17	10.66		7	8	46	44.75
	16	10	13	14.75		8	8	42	48.84
	17	10	9	18.84		9	8	38	52.93
	18	10	5	22.94		10	8	34	57.02
	19	10	1	27.03		11	8	31	1.10
	20	9	57	31.12		12	8	27	5.19
	21	9	53	35.21		13	8	23	9.28
	22	9	49	39.30		14	8	19	13.37
	23	9	45	43.39		15	8	15	17.46
	24	9	41	47.48		16	8	11	21.55
	25	9	37	51.57		17	8	7	25.64
	26	9	33	55.66		18	8	3	29.73

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1872phae.proj.368.

1873. Cambridge mean time of sidereal 0h, less 4 minutes.

November	19	7	59	33.81	December	12	6	29	7.84
	20	7	55	37.90		13	6	25	11.93
	21	7	51	41.99		14	6	21	16.02
	22	7	47	46.08		15	6	17	20.11
	23	7	43	50.17		16	6	13	24.19
	24	7	39	54.26		17	6	9	28.27
	25	7	35	58.35		18	6	5	32.36
	26	7	32	2.44		19	6	1	36.45
	27	7	28	6.52		20	5	57	40.54
	28	7	24	10.61		21	5	53	44.62
	29	7	20	14.70		22	5	49	48.71
	30	7	16	18.79		23	5	45	52.80
December	1	7	12	22.87		24	5	41	56.88
	2	7	8	26.96		25	5	38	0.96
	3	7	4	31.05		26	5	34	5.05
	4	7	0	35.14		27	5	30	9.14
	5	6	56	39.23		28	5	26	13.22
	6	6	52	43.31		29	5	22	17.31
	7	6	48	47.40		30	5	18	21.40
	8	6	44	51.49		31	5	14	25.49
	9	6	40	55.57					
	10	6	36	59.66					
	11	6	33	3.75					

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1872phae.proj...38.

	January 7, 1873	January 8, 1873	January 9, 1873	January 10, 1873
d				
φ	16 41 35.00	16 50 30.00	17 12 0.00	17 35 29.00
G	4 45 57.19	4 42 1.28	4 38 5.37	4 34 9.46
h	1 9.73	1 9.73	0 59.90	0 59.90
m	3.28	1.81	8.03	4.27
S	2.90	2.92	3.00	2.92
T	21 28 48.10	21 33 45.74	21 51 16.30	22 10 45.55
M	21 29 32.00	21 34 30.00	21 52 1.00	22 11 30.00
K	− 43.90	− 44.26	− 44.70	− 44.45
E				
e				
χ				
I.	21h 30m	21h 35m	21h 50m	22h 16m
Mm	65½ 46	59½ 47	62 54	58 45½
F.3424	adopted		− 37m 39.s9	− 38.m 55.s2

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1872phae.proj.338.

	January 12, 1873	January 13, 1873	January 15, 1873	January 16, 1873
d				
S	16 50 30.00	17 26 30.00	17 25 0.00	17 8 57.00
C	4 26 17.64	4 22 21.73	4 14 29.90	4 10 33.98
h	1 9.73	0 59.90	0 59.90	0 59.90
m	1.81	5.74	5.90	8.69
s	2.92	2.92	3.00	2.84
T	21 18 2.10	21 50 0.29	21 40 38.70	21 20 42.41
M	21 18 46.00	21 50 44.00	21 41 24.00	21 21 30.00
R	− 43.90	− 43.71	− 45.30	− 47.59
E				
z				
x				
I'	$21^h\ 20^m$	$21^h\ 50^m$	$21^h\ 40^m$	$21^h\ 20^m$
Mm	$56\frac{1}{2}$ 43	58 $53\frac{1}{2}$	$62\frac{1}{2}$ 48	65 52
F.3,424	$-42'''\ 25^s.7$	$-43^m\ 36^s.3$	$-45^m\ 47^s.5$	$-46^m\ 37^s.8$

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1872phae.proj...38.

d	January 17, 1873	January 19, 1873	January 20 1873	January 21, 1873
Φ	19 8 0.00	17 46 30.00	17 32 16.00	17 33 42.00
b	4 6 38.07	3 58 46.25	3 54 50.34	3 50 54.43
h	0 40.24	0 59.90	0 59.90	0 59.90
m	8.69	7.38	4.76	4.59
s	3.00	2.92	2.95	2.89
I	23 15 30.00	21 16 26.45	21 28 13.95	21 25 43.81
M	23 16 18.00	21 17 13.00	21 29 0.00	21 26 30.00
R	−48.00	−46.55	−46.05	−46.19
E				
e				
x				
T	$23^h\ 20^m$	$21^h\ 20^m$	$21^h\ 30^m$	$21^h\ 30^m$
M∞	66 59	63½ 51½	59½ 52	64 57½
f.3424	$-46^m\ 56.^s8$	$-48^m\ 17.^s8$	$-49^m\ 19.^s7$	$-49^m\ 47.^s6$

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1872phae.proj.358.

	January 22, 1873	January 23, 1873	January 24, 1873	January 26, 1873
d				
S	17 54 0.00	17 43 45.00	17 54 3.00	18 9 0.00
C	3 46 58.52	3 43 2.60	3 39 6.69	3 31 14.87
h	0 59.90	0 59.90	0 59.90	0 50.07
m	1.15	2.96	1.15	8.53
s	3.00	2.88	2.99	3.00
T	21 42 2.57	21 27 53.34	21 34 13.73	21 41 16.47
M	21 42 49.00	21 28 40.00	21 35 0.00	21 42 2.00
K	− 46.43	− 46.66	− 46.27	− 45.53
E	30.2	30.3	30.3	30.4
e				
x				
T	$21^h\ 40^m$	$21^h\ 30^m$	$21^h\ 30^m$	$21^h\ 40^m$
Mm	63 53	61½ 54	56 47½	54½ 42
I3424	$-50^m\ 28.^s2$	$-51^m\ 17.^s7$	$-52^m\ 43.^s9$	$-56^m\ 25.^s9$

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1872phae.proj...

	January 27, 1873	January 28, 1873	January 29, 1873	January 30, 1873
d				
Φ	19 26 7.00	18 13 11.00	18 15 30.00	18 14 0.00
b	3 27 18.96	3 23 23.04	3 19 27.13	3 15 31.22
h	0 40.24	0 50.07	0 50.07	0 50.07
m	5.74	7.87	7.54	7.71
s	2.98	2.97	2.92	3.00
J	22 54 14.92	21 37 34.95	21 35 57.66	21 30 32.00
M	22 55 0.00	21 38 20.00	21 36 43.00	21 31 18.00
R	−45.08	−45.05	−45.34	−46.00
E	30.4			
e				
γ				
I				
T	22h 55m	21h 40m	21h 40m	21h 30m
Mm	61 50	57 48	60 43	61 44
F.3424	−57m 35.s4	−58m 52.s2	−60m 16.s3	−61m 25.s2

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1872phae.proj.358.

d	January 31, 1873			February 3, 1873			February 3, 1873			February 4, 1873		
$\odot$	18	12	37.00	21	17	20.00	18	37	0.00	18	11	30.00
ϵ	3	11	35.31	3	3	43.50	2	59	47.59	2	55	51.68
h		0	50.07		0	20.58		0	50.07		0	50.07
m			8.03			7.22			3.94			8.20
s			2.90			2.94			3.00			2.92
T	21	25	13.31	0	21	34.24	21	37	44.60	21	8	22.87
M	21	26	0.00	0	22	22.00	21	38	33.00	21	9	12.00
R			− 46.69			−47.76			−48.40			− 49.13
E												
e												
x												
I	$21^h\ 30^m$			$0^h\ 20^m$			$21^h\ 40^m$			$21^h\ 10^m$		
Mm	$58\frac{1}{2}$	$44\frac{1}{2}$		56	44		67	51		$63\frac{1}{2}$	59	
F. 3424	$-62^m\ 39.^s5$			$-66^m\ 15.^s9$			$-67^m\ 19.^s7$			$-67^m\ 54.^s2$		

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1872phae.proj...

	February 5, 1873	February 6, 1873	February 7, 1873	February 9, 1873
d				
☉	18 28 16.00	18 49 15.00	19 23 0.00	18 38 30.00
☾	2 51 55.76	2 47 59.85	2 44 3.94	2 36 12.12
h	0 50.07	0 50.07	0 40.24	0 50.07
m	5.41	1.97	6.23	3.77
s	2.95	2.96	3.00	2.92
T	21 21 10.19	21 38 9.85	22 7 53.41	21 15 38.88
M	21 22 0.00	21 39 0.00	22 8 44.00	21 16 30.00
R	− 49.81	− 50.15	− 50.59	− 51.12
E				
e				
x				
T	$21^h\ 20^m$	$21^h\ 40^m$	$22^h\ 10^m$	$21^h\ 20^m$
Mm	68 58½	62 58½	63 60	65 46
F.3424	$-68^m\ 8^s.1$	$-68^m\ 44^s.3$	$-69^m\ 15^s.2$	$-70^m\ 38^s.9$

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1872phae.proj..358.

	February 10, 1873	February 11, 1873	February 12, 1873	February 13, 1873
d				
φ	18 45 0.00	18 40 20.00	19 1 25.00	18 46 0.00
Φ	2 32 16.21	2 28 20.30	2 24 24.39	2 20 28.49
h	0 50.07	0 50.07	0 40.24	0 50.07
m	2.63	3.45	9.84	2.46
s	3.00	2.94	2.93	3.00
T	21 18 11.91	21 9 36.76	21 26 42.40	21 7 24.02
M	21 19 3.00	21 10 28.00	21 27 34.00	21 8 16.00
R	− 51.09	− 51.24	− 51.60	− 51.98
E				
r				
x				
T	$21^h\ 20^m$	$21^h\ 10^m$	$21^h\ 30^m$	$21^h\ 10^m$
Mm	57 46	61 50½	62 53	61 54
F. 3424	$-72^m\ 10^s.3$	$-73^m\ 7^s.5$	$-73^m\ 53^s.9$	$-74^m\ 52^s.2$

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1872phae.proj..358.

	February 14, 1873	February 16, 1873	February 18, 1873	February 19, 1873.
d				
$\odot$	19 3 12.00	19 28 45.00	19 20 0.00	19 24 40.00
$\odot$	2 16 32.58	2 8 40.76	2 0 48.92	1 56 53.01
h	0 40.24	0 40.24	0 40.24	0 40.24
m	9.51	5.41	6.72	6.07
s	2.96	2.88	3.00	2.89
$\odot$	21 20 37.29	21 38 14.29	21 21 38.88	21 22 22.21
M	21 21 30.00	21 39 8.00	21 22 34.00	21 23 18.00
R	− 52.71	− 53.71	− 55.12	− 55.79
E		38.4		39.9
e				
x				
T	$21^h\ 20^m$	$21^h\ 40^m$	$21^h\ 25^m$	$21^h\ 25^m$
Mm	$60\frac{1}{2}$ 52	56 $48\frac{1}{2}$	63 52	64 $53\frac{1}{2}$
7.3424	$-75^m\ 46^s.7$	$-78^m\ 48^s.7$	$-80^m\ 28^s.5$	$-81^m\ 7^s.7$

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1872phae.proj..358

d	February 20, 1873	February 21, 1873	February 23, 1873	February 24, 1873
$\odot$	19 16 30.00	19 25 0.00	19 26 15.00	19 59 50.00
$\mathbb{C}$	1 52 57.11	1 49 1.21	1 41 9.39	1 37 13.49
h	0 40.24	0 40.24	0 40.24	0 40.24
m	7.38	5.90	5.74	0.33
s	2.92	3.00	2.96	2.86
T	21 10 17.65	21 14 50.35	21 8 13.33	21 37 46.92
M	21 11 14.00	21 15 47.00	21 9 10.00	21 38 44.00
R	− 56.35	− 56.65	− 56.67	− 57.08
E	10.4			
e				
x				
I	$21^h\ 10^m$	$21^h\ 20^m$	$21^h\ 10^m$	$21^h\ 40^m$
Mm	65 50	60 50	54½ 40	59½ 41½
F.3424	$-81^m\ 48.^s0$	$-82^m\ 49.^s8$	$-86^m\ 30.^s0$	$-88^m\ 1.^s3$

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abzziphae.proj . 358.

d	February 25, 1873	February 26, 1873	February 27, 1873	February 28, 1873
φ	19 43 15.00	19 53 30.00	20 11 10.00	19 57 0.00
φ	1 33 17.59	1 29 21.68	1 25 25.77	1 21 29.86
h	0 40.24	0 40.24	0 30.41	0 40.24
m	2.96	1.32	8.20	0.66
s	2.96	2.92	2.97	3.00
T	21 17 18.75	21 23 36.16	21 37 17.35	21 19 13.76
M	21 18 16.00	21 24 34.00	21 38 16.00	21 20 13.00
R	− 57.25	− 57.84	− 58.65	− 59.24
E	40.75	41.3		
ε				
x				
T	$21^h\ 15^m$	$21^h\ 30^m$	$21^h\ 40^m$	$21^h\ 20^m$
Mm	59 47½	62½ 50	63 55	62½ 53
F. 34214	$-89^m\ 14^s.2$	$-90^m\ 10^s.1$	$-90^m\ 52^s.3$	$-91^m\ 43^s.8$

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1872phae.proj. 358.

	March 2, 1873	March 3, 1873	March 4, 1873	March 5, 1873
d				
S	20 11 30.00	20 7 30.00	20 10 45.00	20 51 0.00
G	1 13 38.04	1 9 42.13	1 5 46.23	1 1 50.33
h	0 30.41	0 30.41	0 30.41	0 30.41
m	8.20	8.85	8.36	1.64
s	2.92	2.92	2.88	3.00
T	21 25 49.57	21 17 54.31	21 17 12.88	21 53 25.38
M	21 26 50.00	21 18 55.00	21 18 14.00	21 54 27.00
R	− 60.43	− 60.69	− 61.12	− 61.62
E				
e				
γ				
T	$21^h\ 30^m$	$21^h\ 20^m$	$21^h\ 20^m$	$21^h\ 55^m$
Mm	64 53	63 52	64½ 50	62½ 48
F.3424	$-93^m\ 12.^s8$	$-93^m\ 47.^s4$	$-94^m\ 33.^s7$	$-95^m\ 38.^s2$

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1872phae.proj...358.

	March 6, 1873	March 7, 1873	March 9, 1873	March 10, 1873
α				
φ	20 32 9.00	20 19 30.00		20 38 30.00
ζ	0 57 54.42	0 53 58.51		0 42 10.79
h	0 30.41	0 30.41		0 30.41
m	4.76	6.89		3.77
s	2.97	2.92		2.92
T	21 30 41.56	21 14 8.73		21 21 17.89
M	21 31 44.00	21 15 12.00		21 21 30.00
K	− 62.44	− 63.27		− 12.11
E				
ε				
x				
			North Clock not running. South Clock stopped and set going again	
I	$21^h\ 30^m$	$21^h\ 20^m$	$21^h\ 30^m$	$21^h\ 20^m$
Mm	66 54	65 56½	65 54½	70½ 52½
F. 3424	$-96^m\ 9^s.0$	$-96^m\ 36^s.8$	$-96^m\ 53^s.1$	$-97^m\ 22^s.7$

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1872phae.proj.358.

d	March 11, 1873	March 12, 1873	March 13, 1873	March 14, 1873
$\odot$	20 38 45.00	20 48 40.00	20 45 0.00	21 7 0.00
ζ	0 38 14.88	0 34 18.97	0 30 23.06	0 26 27.15
h	0 30.41	0 30.41	0 30.41	0 20.58
m	3.77	2.14	2.63	8.85
s	2.88	2.89	3.00	3.00
T	21 17 36.94	21 23 34.41	21 15 59.10	21 33 59.58
M	21 17 50.00	21 23 48.00	21 16 13.00	21 34 14.00
R	− 13.06	− 13.59	− 13.90	− 14.42
E				
e				
x				
T'	$21^h\ 20^m$	$21^h\ 20^m$	$21^h\ 20^m$	$21^h\ 30^m$
Mm	$69\frac{1}{2}\ 58\frac{1}{2}$	73 59	$73\frac{1}{2}\ 58$	$71\ 55\frac{1}{2}$
$F.3424$	$-97^m\ 46.^s3$	$-97^m\ 39.^s3$	$-97^m\ 43.^s8$	$-97^m\ 56.^s8$

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1872phae.proj...38.

d	March 16, 1873	March 17, 1873	March 18, 1873	March 19, 1873
☉	21 12 15.00	21 16 20.00	21 12 29.00	21 20 40.00
☾	0 18 35.34	0 14 39.44	0 10 43.53	0 6 47.62
h	0 20.58	0 20.58	0 20.58	0 20.58
m	8.03	7.38	8.03	6.72
s	2.96	2.94	2.92	2.89
T	21 31 21.91	21 31 30.34	21 23 44.06	21 27 57.81
M	21 31 37.00	21 31 46.00	21 24 0.00	21 28 14.00
R	− 15.09	− 15.66	− 15.94	− 16.19
E				
c				
x				
T	$21^h\ 30^m$	$21^h\ 30^m$	$21^h\ 20^m$	$21^h\ 30^m$
Mm	67 52	69 49	64½ 53	67½ 53
F. 34124	$-98^m\ 47^s.4$	$-99^m\ 28^s.9$	$-100^m\ 17^s.0$	$-100^m\ 36^s.0$

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1872phae.proj.358.

	March 20, 1873	March 21, 1873	March 23, 1873	March 24, 1873
d				
☉	21 16 30.00	21 29 0.00	21 19 10.00	21 27 30.00
☾	0 2 51.71	23 58 55.81	23 51 3.99	23 47 8.08
h	0 20.58	0 20.58	0 20.58	0 20.58
m	7.38	5.25	6.89	5.58
s	2.92	3.00	2.97	2.92
T	21 19 52.59	21 28 24.64	21 10 44.43	21 15 7.16
M	21 20 9.00	21 28 41.00	21 11 1.00	21 15 24.00
R	− 16.41	− 16.36	− 16.57	− 16.84
E				
e				
x				
I	$21^h\ 20^m$	$21^h\ 30^m$	$21^h\ 10^m$	$21^h\ 15^m$
Mm	64½ 57	65 50	63 51	63 51
F.34241	$-101^m\ 45.^s1$	$-102^m\ 5.^s8$	$-104^m\ 11.^s2$	$-105^m\ 3.^s9$

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1872phae.proj...358.

d	March 25, 1873	March 26, 1873	March 27, 1873	March 28, 1873
$\odot$	21 59 45.00	21 49 1.00	21 58 10.00	21 49 0.00
$\mathbb{C}$	23 43 12.17	23 39 16.26	23 35 20.35	23 31 24.45
h	0 20.58	0 20.58	0 20.58	0 20.58
m	0.33	1.97	0.50	1.97
s	2.88	3.00	2.97	3.00
T	21 43 20.96	21 28 42.81	21 33 54.40	21 20 50.00
M	21 43 38.00	21 29 0.00	21 34 12.00	21 21 8.00
R	−17.04	−17.19	−17.60	−18.00
E	− .6	− .8		
e				
x				
T	$21^h\ 40^m$	$21^h\ 30^m$	$21^h\ 30^m$	$21^h\ 20^m$
Mm	64 54	64 52½	67½ 54½	71 55½
F. 3424	$-105^m\ 55^s.6$	$-106^m\ 42^s.5$	$-107^m\ 24^s.6$	$-107^m\ 47^s.8$

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1872phae.proj.358.

	March 30, 1873	March 31, 1873	April 1, 1873	April 2, 1873
d				
☉	21 50 15.00	22 4 40.00	22 2 0.00	22 9 50.00
☾	23 23 32.64	23 19 36.73	23 15 40.82	23 11 44.92
h	0 20.58	0 10.75	0 10.75	0 10.75
m	1.81	9.34	9.67	8.53
s	2.96	2.89	3.00	2.86
T	21 14 12.99	21 24 39.71	21 18 4.24	21 21 57.06
M	21 14 31.00	21 24 58.00	21 18 23.00	21 22 16.00
R	−18.01	−18.29	−18.76	−18.94
E				
e				
x				
I'	$21^h\ 10^m$	$21^h\ 20^m$	$21^h\ 20^m$	$21^h\ 20^m$
Mm	70 54	69½ 58	71 57½	65 59½
F.3424	$-109^m\ 16.^s9$	$-109^m\ 39.^s3$	$-109^m\ 53.^s7$	$-110^m\ 19.^s0$

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1872phae.proj...38.

d	April 3, 1873	April 4, 1873	April 6, 1873	April 7, 1873
$\odot$	22 11 0.00	22 51 0.00	22 44 30.00	22 28 21.00
C	23 7 49.01	23 3 53.10	22 56 1.29	22 52 5.38
h	0 10.75	0 10.75	0 10.75	0 10.75
m	8.20	1.64	2.79	5.41
S	3.00	3.00	2.92	2.94
T	21 19 10.96	21 55 8.49	21 40 47.75	21 20 45.48
M	21 19 30.00	21 55 28.00	21 41 8.00	21 21 6.00
R	− 19.04	− 19.51	− 20.25	− 20.52
E				
e				
x				
I.	$21^h\ 20^m$	$21^h\ 55^m$	$21^h\ 40^m$	$21^h\ 20^m$
Mm	68 59½	69 58½	65 52	74 52
F. 3424	$-110^m\ 27.^s2$	$-110^m\ 37.^s7$	$-112^m\ 7.^s4$	$-112^m\ 25.^s6$

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1872phae.proj.358.

	April 8, 1873	April 9, 1873	April 10, 1873	April 11, 1873
d				
☉	22 18 30.00	22 20 55.00	23 0 0.00	22 56 2.00
☾	22 48 9.47	22 44 13.56	22 40 17.66	22 36 21.75
h	0 10.75	0 10.75	0 0.92	0 10.75
m	7.05	6.72	10.00	0.83
s	2.92	2.85	3.00	2.99
T	21 7 0.19	21 5 28.88	21 40 31.58	21 32 38.32
M	21 7 21.00	21 5 50.00	21 40 53.00	21 33 0.00
R	− 20.81	− 21.12	− 21.42	− 21.68
E				
e				
x				
I	$21^h\ 10^m$	$21^h\ 5^m$	$21^h\ 40^m$	$21^h\ 30^m$
Mm	74 61½	68½ 63	73 57½	72 58
F.3424	$-112^m\ 10.^s9$	$-112^m\ 12.^s8$	$-112^m\ 10.^s7$	$-112^m\ 13.^s8$

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1872phae.proj...38.

d	April 13, 1873	April 14, 1873	April 15, 1873	April 16, 1873
☉	23 5 21.00	22 52 30.00	22 48 20.00	22 48 0.00
☾	22 28 29.93	22 24 34.02	22 20 38.11	22 16 42.20
h	0 0.92	0 10.75	0 10.75	0 10.75
m	9.18	1.48	2.14	2.14
s	2.94	2.92	2.94	3.00
T	21 34 3.97	21 17 19.17	21 9 13.94	21 4 58.09
M	21 34 26.00	21 17 41.00	21 9 36.00	21 5 20.00
R	− 22.03	− 21.83	− 22.06	− 21.91
E				
e				
x				
I.	$21^h\ 35^m$	$21^h\ 15^m$	$21^h\ 10^m$	$21^h\ 5^m$
Mm	61½ 49	62½ 50½	63½ 59½	64 58
F.3424	$-114^m\ 33.^s1$	$-115^m\ 24.^s2$	$-115^m\ 49.^s8$	$-116^m\ 19.^s7$

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1872phae.proj.358.

d	April 17, 1873	April 18, 1873	April 20, 1873	April 21, 1873
$\odot$	22 59 40.00	0 31 0.00	23 44 25.00	23 16 0.00
$\mathbb{C}$	22 12 46.29	22 4 54.47	22 0 58.56	21 57 2.65
h	0 10.75	3 47.00	0 0.92	0 0.92
m	0.33	4.92	2.79	7.38
s	2.89	3.00	2.93	3.00
T	21 12 40.26	22 39 49.39	21 45 30.20	21 13 13.95
M	21 13 2.00	22 40 11.00	21 45 52.00	21 13 36.00
R	−21.74	−21.61	−21.80	−22.05
E				
e				
x				
I'	$21^h\ 15^m$	$22^h\ 40^m$	$21^h\ 45^m$	$21^h\ 15^m$
Mm	$60\frac{1}{2}$ 52	59 52	$66\frac{1}{2}$ 54	65 $57\frac{1}{2}$
F. 3424	$-117^m\ 12^s.0$	$-118^m\ 23^s.6$	$-119^m\ 14^s.1$	$-119^m\ 33^s.6$

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1872phae.proj...

	April 22, 1873	April 23, 1873	April 24, 1873	April 25, 1873
d				
φ	23 11 34.00	0 3 45.00	23 52 10.00	0 4 10.00
b	21 53 6.75	21 45 14.93	21 45 14.93	21 37 23.11
h	0 0.92	3 47.00	0 0.92	3 47.00
m	8.20	9.51	1.48	9.34
s	2.91	2.88	2.97	2.97
T	21 4 52.78	21 52 59.32	21 37 30.30	21 45 32.42
M	21 5 15.00	21 53 22.00	21 37 53.00	21 45 55.00
R	− 22.22	− 22.68	− 22.70	− 22.58
E				
e				
γ				
I.	$21^h\ 10^m$	$21^h\ 50^m$	$21^h\ 40^m$	$21^h\ 45^m$
Mm	63 58	$66\frac{1}{2}$ 57	65 57	$61\frac{1}{2}$ $55\frac{1}{2}$
F. 34124	$-120^m\ 6^s.8$	$-120^m\ 28^s.3$	$-119^m\ 58^s.8$	$-121^m\ 40^s.5$

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1872phae.proj.358.

	April 27, 1873	April 28, 1873	April 29, 1873	April 30, 1873
d				
☉	23 53 45.00	23 42 0.00	23 55 15.00	0 27 15.00
☾	21 33 27.20	21 29 31.29	21 25 35.38	21 17 43.56
h	0 0.92	0 0.92	0 0.92	3 47.00
m	1.32	3.12	0.99	5.58
s	2.88	3.00	2.96	2.96
T	21 27 17.32	21 11 38.33	21 20 55.25	21 48 54.10
M	21 27 40.00	21 12 1.00	21 21 18.00	24 49 17.00
R	−22.68	−22.67	−22.75	−22.90
E				
e				
χ				
I	$21^h\ 30^m$	$21^h\ 10^m$	$21^h\ 20^m$	$21^h\ 50^m$
Mm	64 55½	67 58	67 59	66 59
F.3424	$-123^m\ 6.^s6$	$-123^m\ 18.^s5$	$-123^m\ 26.^s5$	$-124^m\ 1.^s7$

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1872phae.proj...

	May 1, 1873	May 4, 1873	May 5, 1873	May 6, 1873
d				
φ	23 38 46.00	23 28 11.00	0 18 0.00	23 54 51.00
C	21 17 43.56	21 5 55.84	20 58 4.03	20 58 4.03
h	0 0.92	0 0.92	3 47.00	0 0.92
m	3.77	5.41	7.05	1.15
s	2.87	2.97	3.00	2.86
T	20 56 37.12	20 34 16.14	21 20 1.08	20 52 59.96
M	20 57 0.00	20 34 40.00	21 20 25.00	20 53 24.00
R	−22.88	−23.86	−23.92	−24.04
E				
e				
x				
T	$21^h\ 0^m$	$20^h\ 40^m$	$21^h\ 20^m$	$20^h\ 55^m$
Mm	68 61	68 56½	68 60½	68 60½
F. 3424	$-123^m\ 57.^s4$	$-124^m\ 45.^s9$	$-124^m\ 48.^s9$	$-124^m\ 53.^s6$

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1872phae.proj.:358.

	May 7, 1873	May 8, 1873	May 9, 1873	May 11, 1873
d				
φ	0 27 40.00	0 36 1.00	0 55 30.00	0 56 10.00
λ	20 50 12.20	20 46 16.29	20 42 20.38	20 34 28.56
h	3 47.00	3 47.00	3 47.00	3 47.00
m	5.58	4.10	0.99	0.83
s	2.89	3.00	2.92	2.97
T	21 21 47.67	21 26 11.39	21 41 41.29	21 34 29.36
M	21 22 12.00	21 26 36.00	21 42 6.00	21 34 54.00
R	−24.33	−24.61	−24.71	−24.64
E				
e				
x				
I	$21^h\ 20^m$	$21^h\ 25^m$	$21^h\ 40^m$	$21^h\ 35^m$
Mm	68 60	65½ 59	62½ 58½	64½ 60
F.3424	$-124^m\ 56.^s2$	$-125^m\ 14.^s1$	$-125^m\ 45.^s7$	$-126^m\ 32.^s3$

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1872phae.proj...38.

	May 12, 1873	May 13, 1873	May 14, 1873	May 15, 1873
d				
φ	1° 13 0.00	1° 49 17.00	1° 24 15.00	1° 35 31.00
l	20 30 32.65	20 26 36.74	20 22 40.83	20 18 44.92
h	3 37.17	3 37.17	3 37.17	3 37.17
m	7.87	1.97	6.07	4.27
s	3.00	2.95	2.96	2.91
T.	21 47 20.69	22 19 35.83	21 50 42.03	21 58 0.27
M	21 47 45.00	22 20 0.00	21 51 10.00	21 58 30.00
K	− 24.31	− 24.17	− 27.97	− 29.73
E				
e				
ϵ				
I	21h 45m	22h 20m	21h 50m	21h 55m
Mm	67½ 61	66 58	61½ 56	60 55
F.31424	−126m 42s.0	−126m 58s.9	−127m 42s.1	−128m 35s.1

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1872phae.proj.358.

	May 18, 1873	May 19, 1873	May 20, 1873	May 21, 1873
d				
$\odot$	1 42 0.00	1 37 46.00	1 46 0.00	1 53 20.00
α	20 6 57.19	20 3 1.27	19 59 5.36	19 55 9.45
h	3 37.17	3 37.17	3 37.17	3 37.17
m	3.12	3.94	2.46	1.32
s	3.00	2.87	3.00	2.94
T	21 52 40.48	21 44 31.25	21 48 47.99	21 52 10.88
M	21 53 9.00	21 45 0.00	21 49 17.00	21 52 50.00
R	−28.52	−28.75	−29.01	−39.12
E				
e				
x				
I	$21^h\ 50^m$	$21^h\ 45^m$	$21^h\ 50^m$	$21^h\ 50^m$
Mm	64 55½	63 58½	64 59½	64 59½
F.3424	$-130^m\ 32^s.4$	$-131^m\ 1^s.4$	$-131^m\ 23^s.8$	$-131^m\ 58^s.9$

May 21.9
Put on about 1 lb. weight to South Clock which seems to have stopped 10^s for want of driving power.

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1872phae.proj...

	May 22, 1873	May 23, 1873	May 25, 1873	May 26, 1873
d				
S	1 53 40.00	2 0 15.00	4 6 55.00	2 10 0.00
C	19 51 13.54	19 47 17.62	19 39 25.80	19 35 29.89
h	3 37.17	3 27.34	3 7.68	3 27.34
m	1.32	10.00	9.02	8.36
s	2.89	2.96	2.85	3.00
T	21 48 34.92	21 51 12.92	23 49 40.35	21 49 8.59
M	21 49 14.00	21 51 52.00	23 50 20.00	21 49 48.00
R	− 39.08	− 39.08	− 39.65	− 39.41
E				
c				
y				
I	$21^h\ 50^m$	$21^h\ 50^m$	$23^h\ 50^m$	$21^h\ 50^m$
Mm	* 67 60½	70 66½	73 65½	71 63½
F.3424	* $-131^m\ 55.^s9$	$-132^m\ 39.^s3$	$-130^m\ 51.^s1$	$-130^m\ 36.^s2$

* Out of clock case for past day.

Chron. F. 3451 slow of South Clock

May 22.4	14.s3
23.0	14.6
23.8	15.0
26.0	16.2

May 26.9
Chron. F. 3451 compared with N. Clock.
− 56.12
Hence Chron. F. 3451 slow of S. Clock
16.s71

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1872phae.proj.358.

	May 27, 1873	May 28, 1873	May 29, 1873	May 30, 1873
d				
S	2 16 9.00	2 12 45.00	2 15 30.00	2 2 56.00
C	19 31 33.98	19 27 38.07	19 23 42.16	19 19 46.25
h	3 27.34	3 27.34	3 27.34	3 27.34
m	7.38	8.03	7.54	9.67
s	2.97	2.88	2.92	2.85
T	21 51 20.67	21 44 1.32	21 42 49.96	21 26 22.11
M.	21 52 0.00	21 44 40.00	21 43 28.00	21 27 0.00
R	− 39.33	− 38.68	− 38.04	− 37.89
E				
e				
x				
I	$21^h\ 50^m$	$21^h\ 45^m$	$21^h\ 45^m$	$21^h\ 30^m$
Mm	71½ 65½	77½ 68	76 67½	68 61
F. 3424	$-130^m\ 18^s.3$	$-129^m\ 24^s.0$	$-128^m\ 50^s.3$	$-128^m\ 28^s.1$

May 27.9
Chron. F. 3451 compared with N. Clock
− 56.55
Hence Chron. F. 3451 slow of S. Clock
17.22

May 28.9
Chron. F. 3451 compared with N. Clock
− 56.81
Hence Chron. F. 3451 slow of S. Clock
18.13

May 29.9
Chron. F. 3451 compared with N. Clock
− 57.16
Hence Chron. F. 3451 slow of S. Clock
19.12

May 30.9
Chron. F. 3451 compared with N. Clock
− 57.79
Hence Chron. F. 3451 slow of S. Clock
19.90

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1872phae.proj...38.

	June 1, 1873	June 2, 1873	June 3, 1873	June 4, 1873
d				
☉	3 5 30.00	2 46 31.00	2 31 15.00	2 21 0.00
☾	19 11 54.42	19 7 58.51	19 4 2.60	19 0 6.68
h	3 17.51	3 27.34	3 27.34	3 27.34
m	9.18	2.46	4.92	6.56
s	2.92	2.91	2.96	3.00
T	22 20 54.03	21 58 2.22	21 38 52.82	21 24 43.58
M	22 21 32.00	21 58 40.00	21 39 30.00	21 25 20.00
R	− 37.97	− 37.78	− 37.18	− 36.42
E				
e				
x				
I	$22^h\ 20^m$	$21^h\ 55^m$	$21^h\ 40^m$	$21^h\ 25^m$
Mm	70 59	68 62	63½ 59	66 59
F. 3424	$-128^m\ 50.^s8$	$-128^m\ 49.^s2$	$-129^m\ 11.^s1$	$-129^m\ 25.^s1$

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1872phae.proj.358.

d	June 5, 1873	June 6, 1873	June 8, 1873	June 10, 1873
α	2 29 38.00	2 46 25.00	3 21 0.00	3 2 30.00
φ	18 56 10.77	18 52 14.86	18 44 23.03	18 36 31.21
h	3 27.34	3 27.34	3 17.51	3 17.51
m	5.25	2.46	6.56	9.67
s	2.90	2.93	3.00	2.92
T	21 29 24.26	21 42 12.59	22 8 50.10	21 42 31.31
M	21 30 0.00	21 42 48.00	22 9 25.00	21 43 6.00
R	− 35.74	− 35.41	− 34.90	− 34.69
E				
e				
x				
T	$21^h\ 30^m$	$21^h\ 40^m$	$22^h\ 10^m$	$21^h\ 45^m$
Mm	69½ 63½	69 63	67 59	69 59½
F. 3424	$-129''' 17^s.5$	$-129''' 12^s.8$	$-130''' 10^s.6$	$-129''' 44^s.3$

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1872phae.proj...

	June 11, 1873	June 12, 1873	June 13, 1873	June 15, 1873
d				
φ	3 13 0.00	3 21 20.00	3 7 30.00	3 12 49.00
ψ	18 32 35.30	18 28 39.39	18 24 43.48	18 16 51.65
h	3 17.51	3 17.51	3 17.51	3 17.51
m	7.87	6.56	8.85	8.03
s	3.00	2.94	2.92	2.87
T	21 49 3.68	21 53 26.40	21 35 42.76	21 33 9.06
M	21 49 38.00	21 54 0.00	21 36 15.00	21 33 40.00
R	−34.32	−33.60	−32.24	−30.94
E				
e				
x				
T	$21^h\ 50^m$	$21^h\ 55^m$	$21^h\ 35^m$	$21^h\ 35^m$
Mm	72 66½	71 63½	68½ 62	70½ 62
f. 3424	$-129^m\ 16.^s3$	$-129^m\ 57.^s1$	$-128^m\ 53.^s6$	$-128^m\ 43.^s6$

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1872phae.proj.358.

d	June 16, 1873	June 17, 1873	June 18, 1873	June 19, 1873
φ	3 25 8.00	3 4 1.00	4 6 19.00	3 31 38.00
λ	18 12 55.73	18 8 59.81	18 5 3.90	18 1 7.99
h	3 17.51	3 17.51	3 7.68	3 17.51
m	5.90	9.34	9.02	4.92
s	2.98	3.00	2.95	2.90
T	21 41 30.12	21 16 30.66	22 14 42.55	21 36 11.32
M	21 42 0.00	21 17 0.00	22 15 12.00	21 36 40.00
R	−29.88	−29.34	−29.45	−28.68
E				
e				
x				
I	$21^h\ 40^m$	$21^h\ 20^m$	$22^h\ 15^m$	$21^h\ 35^m$
Mm	$72\ 68$	$76\ 67$	$72\ 66\frac{1}{2}$	$77\frac{1}{2}\ 68$
F.3424	$-127^m\ 53^s.8$	$-127^m\ 10^s.9$	$-126^m\ 43^s.3$	$-126^m\ 27^s.3$

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1872phae.proj...

d	June 20, 1873			June 23, 1873			June 24, 1873			June 25, 1873		
φ	4	5	20.00	4	19	15.00	4	24	18.00	4	11	10.00
ϕ	17	57	12.08	17	45	24.35	17	41	28.44	17	37	32.53
h		3	7.68		3	7.68		3	7.68		3	7.68
m			9.18			6.89			6.07			8.20
s			2.94			2.96			2.95			2.97
T	22	5	51.88	22	7	56.88	22	9	3.14	21	52	1.38
M	22	6	20.00	22	8	24.00	22	9	30.00	21	52	28.00
R			− 28.12			− 27.12			− 26.86			− 26.62
E												
e												
x												
T	$22^h\ 5^m$			$22^h\ 10^m$			$22^h\ 10^m$			$21^h\ 50^m$		
Mm	80	$72\frac{1}{2}$		$74\frac{1}{2}$	$64\frac{1}{2}$		$70\frac{1}{2}$	$64\frac{1}{2}$		$71\frac{1}{2}$	65	
F. 3424	$-124^m\ 24^s.0$			$-122^m\ 56^s.2$			$-122^m\ 38^s.5$			$-122^m\ 14^s.8$		

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1872phae.proj.358.

	June 26, 1873	June 27, 1873	June 29, 1873	June 30, 1873
d				
φ	4 3 1.00	3 46 51.00	3 46 24.00	4 49 11.00
l	17 33 36.62	17 29 40.71	17 21 48.87	17 17 52.96
h	3 7.68	3 17.51	3 17.51	3 7.68
m	9.51	2.46	2.46	1.97
s	3.00	2.86	2.93	2.97
T	21 39 57.81	21 19 54.54	21 11 35.77	22 10 16.58
M	21 40 24.00	21 20 20.00	21 12 0.00	22 10 40.04
R	− 26.19	− 25.46	− 24.23	− 23.42
E				
e				
x				
I	$21^h\ 40^m$	$21^h\ 20^m$	$21^h\ 10^m$	$22^h\ 10^m$
Mm	74½ 67	77½ 69½	79 72	79 75½
F. 3424	$-121^m\ 33.^s7$	$-120^m\ 36.^s7$	$-118^m\ 5.^s1$	$-116^m\ 38.^s4$

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1872phae.proj...08.

d	July 1, 1873	July 2, 1873	July 4, 1873	July 6, 1873
ϕ	4 37 0.00	3 48 45.00	3 44 20.00	5 32 20.00
Θ	17 13 57.05	17 10 1.14	17 2 9.32	16 54 17.48
h	3 7.68	3 17.51	3 17.51	2 57.85
m	3.94	2.14	2.79	4.76
s	3.00	2.88	2.94	2.94
T	21 54 11.67	21 2 8.67	20 49 52.56	22 29 43.03
M	21 54 34.00	21 2 30.00	20 50 12.00	22 30 0,00
R	− 22.33	− 21.33	− 19.44	− 16.97
E				
e				
x				
T	$21^h\ 55^m$	$21^h\ 5^m$	$20^h\ 50^m$	$22^h\ 30^m$
Mm	77½ 74½	81 74½	82½ 75½	80½ 70
J. 3424	$-115^m\ 24^s.7$	$-114^m\ 0^s.6$	$-111^m\ 1^s.2$	$-108^m\ 17^s.1$

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1872phae.proj..338.

	July 7, 1873	July 8, 1873	July 9, 1873	July 10, 1873
d				
$\odot$	4 56 55.00	5 18 15.00	5 20 8.00	5 21 1.00
$\mathbb{C}$	16 50 21.57	16 46 25.66	16 42 29.75	16 38 33.83
h	3 7.68	2 57.85	2 57.85	2 57.85
m	0.83	7.05	6.72	6.56
s	2.85	2.96	2.98	3.00
T	21 50 27.93	22 7 48.52	22 5 45.30	22 2 42.24
M	21 50 44.00	22 8 4.00	22 6 0.00	22 2 56.00
R	− 16.07	− 15.48	− 14.70	− 13.76
E				
e				
x				
T'	$21^h\ 50^m$	$22^h\ 5^m$	$22^h\ 5^m$	$22^h\ 5^m$
Mm	$73\frac{1}{2}$ 66	$71\frac{1}{2}$ $66\frac{1}{2}$	$73\frac{1}{2}$ 69	73 $68\frac{1}{2}$
F. 3424	$-107^m\ 43^s.8$	$-107^m\ 13^s.7$	$-106^m\ 33^s.6$	$-105^m\ 53^s.4$

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1872phae.proj...

	July 11, 1873	July 13, 1873	July 14, 1873	July 15, 1873
d				
$\odot$	6 12 0.00	5 50 5.00	5 4 50.00	5 39 40.00
$\mathbb{C}$	16 34 37.92	16 26 46.10	16 22 50.18	16 18 54.27
h	2 48.02	2 57.85	2 57.85	2 57.85
m	8.03	1.81	9.34	3.61
s	3.00	2.98	2.86	2.89
T	22 49 36.97	22 19 53.74	21 30 50.23	22 1 38.62
M	22 49 50.00	22 20 6.00	21 31 2.00	22 1 50.00
R	−13.03	−12.26	−11.77	−11.38
E				
e				
x				
T	$22^h\ 50^m$	$22^h\ 20^m$	$21^h\ 30^m$	$22^h\ 5^m$
Mm	71½ 67	72½ 67	78½ 70	82½ 75
f. 34424	$-10\ 5^m\ 21.1^s$	$-10\ 5^m\ 20.5^s$	$-10\ 3^m\ 11.9^s$	$-10\ 1^m\ 34.6^s$

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1872phae.proj..338.

d	July 16, 1873	July 17, 1873	July 18, 1873	July 20, 1873
Φ		4 51 36.00	5 17 30.00	5 16 21.00
Θ		16 11 2.45	16 7 6.54	15 59 14.72
h		3 7.68	2 57.85	2 57.85
m		1.64	7.22	7.38
s		2.90	2.92	2.94
T		21 5 50.67	21 27 44.53	21 18 43.89
M		21 6 0.00	21 27 54.00	21 18 52.00
R		— 9.33	— 9.47	— 8.11
E				
e				
x	N. Clock stopped by breaking of cord.			
T	$21^h\ 25^m$	$21^h\ 40^m$	$21^h\ 25^m$	$21^h\ 20^m$
Mm	$77\frac{1}{2}$ $72\frac{1}{2}$	$72\frac{1}{2}$ 67	$67\frac{1}{2}$ 64	$71\frac{1}{2}$ $63\frac{1}{2}$
F. 3424	$-101^m\ 28.^s2$	$-99^m\ 51.^s4$	$-99^m\ 44.^s8$	$-99^m\ 29.^s9$

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1872phae.proj...158.

	July 21, 1873			July 22, 1873			July 23, 1873			July 24, 1873		
d												
φ	5	24	1.00	5	1	30.00	5	9	8.00	5	7	44.00
l	15	55	18.81	15	51	22.89	15	47	26.98	15	43	31.07
h		2	57.85		2	57.85		2	57.85		2	57.85
m			6.07			9.84			8.53			8.55
s			3.00			2.92			2.98			2.88
T	21	22	26.73	20	56	3.50	20	59	44.34	20	54	24.65
M	21	22	34.00	20	56	10.00	20	59	50.00	20	54	30.00
R			− 7.27			− 6.50			− 5.66			− 5.35
E												
e												
x												
T	21^h	25^m		21^h	0^m		21^h	0^m		20^h	55^m	
Mm	72½	67		76	68		78	70½		79	74	
F.3424	-98^m	$57.^s3$		-98^m	$14.^s5$		-97^m	$11.^s5$		-95^m	$54.^s9$	

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1872phae.proj..338.

	July 25, 1873	July 27, 1873	July 28, 1873	July 29, 1873
d				
φ	5 52 30.00	5 32 0.00	6 14 150.00	5 42 44.00
ℓ	15 39 35.16	15 31 43.33	15 27 47.42	15 23 51.51
h	2 57.85	2 57.85	2 48.02	2 57.85
m	1.48	4.76	7.71	3.12
s	2.92	3.00	2.86	2.88
T	21 35 7.41	21 6 48.91	21 45 36.01	21 9 39.36
M	21 35 12.00	21 6 52.00	21 45 38.00	21 9 40.00
R	— 4.59	— 3.06	— 1.99	— 0.64
E				
e				
x				
I	$21^h\ 35^m$	$21^h\ 10^m$	$21^h\ 45^m$	$21^h\ 10^m$
Mm	78½ 74	81 75	78 75	79½ 75
F.3424	$-94^m\ 37^s.1$	$-91^m\ 46^s.6$	$-90^m\ 30^s.9$	$-89^m\ 6^s.6$

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1872phae.proj...58.

d	July 30, 1873	July 31, 1873	August 1, 1873	August 3, 1873
φ	6 44 1.00	6 49 20.00	7 5 11.00	6 42. 56.00
C	15 19 55.60	15 15 59.69	15 12 3.79	15 4 11.96
h	2 48.02	2 48.02	2 38.19	2 48.02
m	2.79	1.97	9.18	3.12
s	3.00	2.94	2.97	2.85
T	22 6 50.41	22 8 12.62	22 20 5.13	21 50 1.95
M	22 6 50.00	22 8 12.00	22 20 4.00	21 50 0.00
R	+ 0.41	+ 0.62	+ 1.13	+ 1.95
E				
e				
x				
T	$22^h\ 10^m$	$22^h\ 10^m$	$22^h\ 20^m$	$21^h\ 50^m$
Mm	$82\frac{1}{2}$ 77	81 7^3	80 74	82 $75\frac{1}{2}$
J. 3424	$-87^m\ 21.^s6$	$-86^m\ 1.^s2$	$-84^m\ 39.^s8$	$-81^m\ 33.^s9$

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1872phae.proj.358.

d	August 4, 1873	August 5, 1873	August 6, 1873	August 7, 1873
L.	5 58 51.00	7 14 0.00	6 33 44.00	6 30 20.00
C	15 0 16.05	14 56 20.14	14 52 24.23	14 48 28.32
h	2 57.85	2 38.19	2 48.02	2 48.02
m	0.50	7.71	4.59	5.09
s	2.86	3.00	2.96	2.94
T	21 2 8.26	22 13 9.04	21 28 33.80	21 21 44.37
M	21 2 6.00	22 13 6.00	21 28 30.00	21 21 40.00
K	+2.26	+3.04	+3.80	+4.37
E				
e				
x				
T	$21^h\ 0^m$	$22^h\ 15^m$	$21^h\ 30^m$	$21^h\ 20^m$
Mm	$78\frac{1}{2}$ 71	74 69	75 69	$76\frac{1}{2}$ 72
J. 3424	$-80^m\ 25.^s6$	$-79^m\ 38.^s1$	$-78^m\ 51.^s3$	$-77^m\ 49.^s5$

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1872phae.proj...358.

	August 11, 1873	August 12, 1873	August 13, 1873	August 14, 1873
d				
☉	8 56 49.00	6 52 45.00	8 39 49.00	7 5 34.00
☾	14 32 44.68	14 28 48.77	14 24 52.86	14 20 56.95
h	2 28.36	2 48.02	2 28.36	2 38.19
m	0.83	1.48	3.61	9.18
s	2.87	2.88	2.87	2.91
T	23 32 5.74	21 24 26.15	23 7 16.70	21 29 21.23
M	23 32 0.00	21 24 20.00	23 7 10.00	21 29 16.00
R	+ 5.74	+ 6.15	+ 6.70	+ 5.23
E				
e				
x				
T		$21^h\ 20^m$	$22^h\ 35^m$	$21^h\ 30^m$
Mm		79 66	69 66	68 66
F. 3424		$-74^m\ 6^s.4$	$-73^m\ 47^s.2$	$-73^m\ 36^s.0$

Aug. 11, 1873. Batteries not working: tick of N. Clock compared with movement of second hand of S. Clock. F. 3424 not compared.

Aug. 12, 1873. Batteries not working: comparisons made as yesterday.

Aug. 13, 1873 Break. of N. Clock out of order.

Aug. 14, 1873 N. Clock or S. Clock wrong 2^s.

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1872phae.proj..358.

	August 15, 1873	August 17, 1873	August 18, 1873	August 19, 1873
d				
φ	6 43 11.00	8 6 1.00	7 22 0.00	7 43 44.00
C	14 17 1.04	14 9 9.22	14 5 13.31	14 1 17.41
h	2 48.02	2 28.36	2 38.19	2 38.19
m	2.96	9.02	6.40	2.96
s	2.97	3.00	3.00	2.88
T	21 3 5.99	22 17 51.60	21 30 0.90	21 47 45.44
M	21 3 0.00	22 17 44.00	21 29 54.00	21 47 38.00
R	+5.99	+6.40	+6.90	+7.44
E				
e				
x				
T	$21^h\ 5^m$	$22^h\ 20^m$	$21^h\ 30^m$	$21^h\ 45^m$
Mm	68 66	74 67	70 68	72 62
F.3424	$-73^m\ 22^s.1$	$-71^m\ 54^s.1$	$-71^m\ 27^s.0$	$-70^m\ 54^s.0$

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1872phae.proj..358.

d	August 20, 1873			August 21, 1873			August 23, 1873			August 24, 1873		
$\odot$	7	4	56.00	7	38	0.00	10	13	20.00	8	7	10.00
$\mathbb{C}$	13	57	21.50	13	53	25.59	13	49	29.68	13	41	37.86
h		2	38.19		2	38.19		2	8.70		2	28.36
m			9.34			3.77			7.87			8.85
s			2.85			3.00			2.94			2.97
T	21	5	7.88	21	34	10.55	0	5	9.19	21	51	28.04
M	21	5	0.00	21	34	2.00	0	5	0.00	21	51	18.00
R		+	7.88		+	8.55		+	9.19		+	10.04
E												
e												
x												
I	21^h	10^m		21^h	30^m		0^h	5^m		21^h	50^m	
Mm	71	$67\frac{1}{2}$		70	67		71	68		$74\frac{1}{2}$	63	
F. 3424	-70^m	$23^s.4$		-70^m	$1^s.9$		-69^m	$34^s.3$		-68^m	$54^s.0$	

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1872pfae.proj:...18.

	August 25, 1873	August 26, 1873	August 27, 1873	August 28, 1873
d				
☽	8 12 19.00	8 4 30.00	7 19 19.00	8 18 29.00
☾	13 37 41.95	13 33 46.02	13 29 50.13	13 25 54.22
h	2 28.36	2 28.36	2 38.19	2 28.36
m	8.03	9.34	6.89	7.05
s	2.95	2.92	2.95	2.92
T	21 52 40.29	21 40 56.64	20 51 57.16	21 47 1.55
M	21 52 30.00	21 40 46.00	20 51 46.00	21 46 50.00
R	+ 10.29	+ 10.64	+ 11.16	+ 11.55
E				
e				
x				
T	$21^h\ 50^m$	$21^h\ 40^m$	$20^h\ 50^m$	$21^h\ 50^m$
Mm	70 62½	68½ 63½	68 63½	71 63
f. 3424	$-68^m\ 44^s.3$	$-68^m\ 37^s.0$	$-68^m\ 30^s.1$	$-68^m\ 17^s.1$

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1872phae.proj..:38.

	August 29, 1873	August 31, 1873	September 1, 1873	* September 3, 1873
d				
S	8 10 4.00	8 17 28.00	7 55 35.00	8 33 15.00
C	13 21 58.21	13 14 6.51	13 10 10.60	13 2 18.78
h	2 28.36	2 28.36	2 38.19	2 28.36
m	8.36	7.22	0.99	4.59
s	2.99	2.92	2.90	2.96
T	21 34 41.92	21 34 13.01	21 8 27.68	21 38 9.69
M	21 34 30.00	21 34 0.00	21 8 14.00	21 37 54.00
R	+ 11.92	+ 13.01	+ 13.68	+ 15.69
E				
e				
x				Case removed from S. Clock.
I	21h 35m	21h 35m	21h 5m	
Mm	71½ 63½	75 66	74 67	
F. 3424	− 68m 2.s3	− 66m 42.s7	− 66m 2.s5	

* 1873, Sept. 2, 22h. N. Clock fast of F. 3451 1m 37.s62 ; F. 3451 put forward 2m ; S. Clock at rest.
Sept. 3, 22h. — " — slow " — " — 0m 22.s02
Sept. 4, 21h. — " — " — " — " — 0m 21.s98
Sept. 5, 21½. — " — " — " — " — 0m 21.s36

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1872phae.proj.358.

d	September 4, 1873			September 5, 1873			September 7, 1873			September 8, 1873		
φ	8	2	0.00	10	25	20.00	9	1	30.00	8	38	20.00
G	12	58	22.87	12	54	26.96	12	46	35.14	12	42	39.24
h		2	28.36		2	8.70		2	18.53		2	28.36
m			9.67			5.90			9.84			3.77
s			3.00			2.94			2.92			2.94
T	21	3	3.90	23	22	4.50	21	50	36.43	21	23	34.31
M	21	2	48.00	23	22	20.00	21	50	52.00	21	23	50.00
K			+15.90			−15.50			−15.57			−15.69
E												
e												
x												
T												
Mm												
F. 34249												

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1872phae.proj...358.

	September 9, 1873	September 10, 1873	September 11, 1873	September 12, 1873
d				
☉	8 32 15.00	9 7 35.00	9 24 0.00	8 52 39.00
☾	12 38 43.34	12 34 47.42	12 30 51.57	12 26 55.61
h	2 28.36	2 18.53	2 18.53	2 28.36
m	4.76	8.85	6.07	1.48
s	2.96	2.90	3.00	2.89
T	21 13 34.42	21 44 52.70	21 57 19.11	21 22 7.34
M	21 13 50.00	21 45 8.00	21 57 34.00	21 22 22.00
R	− 15.58	− 15.30	− 14.89	− 14.66
E				
e				
x				
T				
Mm				
F. 3424				

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1872phae.proj:258.

	d	September 14, 1873			September 15, 1873			September 19, 1873			September 21, 1873		
73													
00	$\odot$	10	16	23.00	8	49	35.00	10	39	30.00	9	40	35.00
61	α	12	19	3.79	12	15	7.88	11	59	24.24	11	51	32.44
36	h		2	8.70		2	28.36		2	8.70		2	18.53
48	m			7.38			1.97			3.61			3.45
89	s			2.94			2.90			2.92			2.90
34	T	22	37	46.81	21	7	46.11	22	41	9.47	21	34	32.32
00	M	22	38	0.00	21	7	30.00	22	41	22.00	21	34	44.00
66	R			−14.19			−13.89			−12.53			−11.68
	E												
	e												
	x												
								Case replaced on South Clock			Chron. F. 3424, found out of case, which may have been moved since Sept. 19.		
	T							22^h	40^m		21^h	35^m	
	Mm							63	63		65	57	
	F. 3424							-65^m	$47^s.2$		-66^m	$41^s.9$	

Sept. 15.3 S. Clock fast by obs. of α Cygni by J. F. McC. $1^s.89$ } m assumed +.7
" 20.2 " " " " " " α Bootis " A. S. 3.37 } n − " − −.4
c " 0

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1872phae.proj...358.

	September 22, 1873	September 23, 1873	September 24, 1873	September 25, 1873
d				
ϕ	9 37 1.00	9 56 1.00	9 26 45.00	10 15 19.00
c	11 47 36.53	11 43 40.62	11 39 44.72	11 35 48.81
h	2 18.53	2 18.53	2 18.53	2 8,70
m	3.94	0.83	5.74	7.52
s	3.00	3.00	2.88	2.95
T	21 27 3.00	21 42 3.98	21 8 56.87	21 53 27.00
M	21 27 14.00	21 42 14.00	21 9 6.00	21 53 36.00
R	− 11.00	− 10.02	− 9.13	− 9.00
E				
e				
x				
I	$21^h\ 30^m$	$21^h\ 40^m$	$21^h\ 10^m$	$21^h\ 55^m$
Mm	62 56½	60½ 57	63½ 59	65 59½
F. 3424	$-67^m\ 23^s.8$	$-69^m\ 4^s.3$	$-68^m\ 26^s.7$	$-68^m\ 45^s.8$

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1872phae.proj.:258.

	September 27, 1873	September 29, 1873	September 29, 1873	September 30, 1873
d				
$\odot$	17 24 29.00	14 29 50.00	10 10 40.00	10 3 45.00
$\mathbb{C}$	11 31 52.90	11 24 1.09	11 20 5,18	11 16 9.27
h	0 59.90	1 29.39	2 8.70	2 8.70
m	6.07	5.25	8.36	9.51
s	2.92	2,86	2.89	2.88
T	4 57 30.79	1 55 28.59	21 33 5.13	21 22 15.36
M	4 57 40.00	1 55 36.00	21 33 12,00	21 22 22.00
R	— 9.21	— 7.41	— 6.87	— 6.64
E				
e				
x				
I	5^h 0^m	1^h 55^m	21^h 35^m	21^h 25^m
Mm	69½ 62	75½ 67½	73½ 69	69 58½
F. 3424	-68^m $48.^s9$	-67^m $36.^s8$	-66^m $57.^s8$	-66^m $53.^s5$

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1872phae.proj...358.

d	October 1, 1873	October 2, 1873	October 3, 1873	October 5, 1873
S	10 32 54.00	10 38 45.00	10 46 10.00	10 17 0.00
C	11 12 13.37	11 8 17.46	11 4 21.55	10 56 29.73
h	2 8.70	2 8.70	2 8.70	2 8.70
m	4.76	3.77	2.46	7.22
s	2.85	2.88	2.97	3.00
T	21 47 23.68	21 49 17.81	21 52 45.68	21 15 48.65
M	21 47 30.00	21 49 24.00	21 52 52.00	21 15 54.00
R	— 6.32	— 6.19	— 6.32	— 5.35
E				
e				
x				
I	$21^h\ 50^m$	$21^h\ 50^m$	$21^h\ 50^m$	$21^h\ 15^m$
Mm	64 58	63½ 57	63½ 57	67 58
F.3424	$-67^m\ 23^s.2$	$-67^m\ 51^s.5$	$-68^m\ 22^s.7$	$-69^m\ 0^s.3$

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1872phae.proj.:258.

	October 6, 1873	October 7, 1873	October 8, 1873	October 9, 1873
d				
S	11 20 43.00	10 47 20.00	10 43 0.00	10 32 15.00
C	10 52 33.82	10 48 37.91	10 44 42.00	10 40 46.10
h	1 58.87	2 8.70	2 8.70	2 8.70
m	6.72	2.30	2.96	4.76
s	2.88	2.94	3.00	2.96
T	22 15 25.29	21 38 11.85	21 29 56.66	21 15 17.52
M	22 15 30.00	21 38 16.00	21 30 0.00	21 15 20.00
R	− 4.71	− 4.15	− 3.34	− 2.48
E				
e				
x				
I	$22^h\ 20^m$	$21^h\ 40^m$	$21^h\ 30^m$	$21^h\ 15^m$
Mm	66½ 61½	62 55	57½ 55	58 52
F. 3424	$-69^m\ 6.^s1$	$-69^m\ 42.^s7$	$-70^m\ 43.^s5$	$-71^m\ 44.^s6$

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1872phae.proj...358.

	October 11, 1873	October 12, 1873	October 13, 1873	October 14, 1873
d				
$\odot$	17 14 30.00	10 36 0.00	12 2 35.00	10 50 34.00
$\mathbb{C}$	10 36 50.20	10 28 58.38	10 25 2.47	10 21 6.57
h	0 59.90	2 8.70	1 49.05	2 8.70
m	7.71	4.10	9.67	1.81
s	2.92	3.00	2.90	2.91
T	3 52 30.73	21 7 14.18	22 29 39.09	21 13 53.99
M	3 52 30.00	21 7 14.00	22 29 38.00	21 13 52.00
R	+ 0.73	+ 0.18	+ 1.09	+ 1.99
E				
e				
x				
I	$3^h\ 50^m$	$21^h\ 10^m$	$22^h\ 30^m$	$21^h\ 15^m$
Mm	$63\frac{1}{2}$ 51	$63\frac{1}{2}$ 57	60 52	59 53
$\mathbb{C}$ 3424	$-73^m\ 15^s.0$	$-74^m\ 13^s.7$	$-75^m\ 2^s.6$	$-75^m\ 58^s.4$

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1872phae.proj.:258.

	October 15, 1873	October 16, 1873	October 17, 1873	October 19, 1873
d				
S	10 56 1.00	11 7 37.00	11 15 0.00	11 48 31.00
C	10 17 10.66	10 13 14.75	10 9 18.84	10 1 27.03
h	2 8.70	1 58.87	1 58.87	1 58.87
m	0.83	8.85	7.54	2.14
S	3.00	2.90	3.00	2.91
T	21 15 24.19	21 23 2.37	21 26 28.25	21 52 1.95
M	21 15 22.00	21 23 0.00	21 26 26.00	21 52 0.00
R	+ 2.19	+2.37	+2.25	+ 1.95
E				
e				
x				
I	$21^h\ 15^m$	$21^h\ 20^m$	$21^h\ 30^m$	$21^h\ 50^m$
Mm	61 55	64½ 57	63 53½	66 53½
F.3424	$-76^m\ 48^s.5$	$-77^m\ 8^s.7$	$-77^m\ 41^s.4$	$-79^m\ 15^s.9$
	Chron. F. 3454 – N. Clock	F. 3451 – N. Clock	F. 3451 – N. Clock	F. 3451 – N. Clock
	$+\ 10^s.31$	$+9^s.93$	$+9^s.03$	$+7.63$

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1872phae.proj...158.

	October 20, 1873	October 21, 1873	October 22, 1873	October 23, 1873.
d				
Φ	12 10 15.00	11 50 24.00	11 42 29.00	12 29 23.00
l	9 57 31.12	9 53 35.21	9 49 39.30	9 45 43.39
h	1 49.05	1 58.87	1 58.87	1 49.05
m	8.36	1.81	3.12	5.25
s	2.96	2.93	2.92	2.94
T	22 9 46.49	21 46 2.82	21 34 13.21	22 17 3.63
M	22 9 44.00	21 46. 0.00	21 34 10.00	22 17 0.00
R	+ 2.49	+ 2.82	+ 3.21	+ 3.63
E				
e				
x				
I	$22^h\ 10^m$	$21^h\ 50^m$	$21^h\ 40^m$	$22^h\ 20^m$
Mom	64 63	66 59	62 56½	62½ 57
F.3424	$-78^m\ 26^s.2$	$-79^m\ 38^s.4$	$-80^m\ 11^s.5-$	$-79^m\ 49^s.4$
F.3451 — N.Clock	+ 7.47	+ 7.10	+ 6.58	+ 6.13

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1872phae.proj..258.

	October 24, 1873	October 26, 1873	October 27, 1873	October 28, 1873
d				
☉	12 26 29.00	11 49 40.00	13 0 0.00	12 51 39.00
☾	9 41 47.48	9 33 55.66	9 29 59.75	9 26 3.84
h	1 49.05	1 58.87	1 39.22	1 49.05
m	5.74	1.97	10.00	1.64
S	2.92	2.89	3.00	2.89
T	22 10 14.19	21 25 39.39	22 31 51.97	22 19 36.42
M	22 10 10.00	21 25 34.00	22 31 46.00	22 19 30.00
R	+ 4.19	+ 5.39	+ 5.97	+ 6.42
E				
e				
x				
I	$22^h\ 10^m$	$21^h\ 30^m$	$22^h\ 30^m$	$22^h\ 20^m$
Mm	62 57½	62½ 53'	64 55	59½ 52
F.3424	$-80^m\ 20^s.6$	$-82^m\ 10^s.8$	$-82^m\ 45^s.0$	$-83^m\ 38^s.8$
F.3451–N.Clock	+ 6.06	+ 5.16	+ 4.99	+ 4.39

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1872phae.proj...358.

	October 29, 1873	October 30, 1873	October 31, 1873	November 2, 1873
d				
S	13 11 30.00	12 7 35.00	12 40 30.00	12 37 31.00
C	9 22 7.93	9 18 12.03	9 14 16.12	9 6 24.30
h	1 39.22	1 49.05	1 49.05	1 49.05
m	8.20	8.85	3.45	3.94
s	2.92	2.90	2.92	2.91
T	22 35 28.27	21 27 47.83	21 56 41.54	21 45 51.20
M	22 35 22.00	21 27 42.00	21 56 36.00	21 45 46.00
R	+ 6.27	+ 5.83	+ 5.54	+ 5.20
E				
e				
x				
I	$22^h\ 35^m$	$21^h\ 30^m$	$21^h\ 55^m$	$21^h\ 45^m$
Mm	57 48½	65 56½	67½ 56	69 50
F.3424	$-85^m\ 3^s.1$	$-85^m\ 35^s.5$	$-86^m\ 0^s.2$	$-89^m\ 8^s.3$
F.3451-N.Clock	+ 3.11	+ 1.97	+ 0.82	− 1.06

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1872phae.proj.:58.

	November 3, 1873	November 4, 1873	November 5, 1873	November 6, 1873
d				
☉	12 4 26.00	14 4 52.00	13 10 11.00	13 11 35.00
☾	9 2 28.39	8 58 32.48	8 54 36.57	8 50 40.66
h	1 49.05	1 29.39	1 39.22	1 39.22
m	9.34	9.34	8.36	8.20
s	2.93	2.86	2.97	2.90
T	21 8 55.71	23 5 6.07	22 6 38.12	22 4 5.98
M	21 8 50.00	23 5 0.00	22 6 32.00	22 4 0.00
R	+ 5.71	+ 6.07	+ 6.12	+ 5.98
E				
e				
x				
F	$21^h\ 10^m$	$23^h\ 5^m$	$22^h\ 10^m$	$22^h\ 5^m$
Mm	69 55	67½ 55	66 56½	62½ 54
F.3424	$-87^m\ 13^s.2$	$-87^m\ 39^s.0$	$-87^m\ 57^s.8$	$-88^m\ 42^s.5$
F.3451 – N.Clock	— 0.98	— 1.45	— 2.32	— 4.02

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1872phae.proj..168.

	November 7, 1873	November 9, 1873	November 10, 1873	November 11, 1873
d				
☉	14 55 30.00	12 45 0.00	13 5 17.00	12 54 31.00
☾	8 46 44.75	8 38 52.93	8 34 57.02	8 31 1.10
h	1 29.39	1 49.05	1 39.22	1 49.05
m	0.99	2.63	9.18	1.15
s	2.92	3.00	2.95	2.91
T	23 43 48.05	21 25 47.61	21 42 5.37	21 27 25.31
M	23 43 42.00	21 25 42.00	21 42 0.00	21 27 20.00
R	+ 6.05	+ 5.61	+ 5.37	+ 5.31
E				
e				
x				
I	$23^h\ 45^m$	$21^h\ 30^m$	$21^h\ 40^m$	$21^h\ 30^m$
Mm	62 55	66 59	62½ 55½	65 55
F. 3424	$-89^m\ 18.^s6$	$-89^m\ 49.^s6$	$-90^m\ 24.^s6$	$-90^m\ 55.^s7$
F. 3451 – N. Clock	– 5.38	– 3.80 (Beat of N. Clock perhaps wrong.)	– 9.00	– 10.76

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1872phae.proj.1368.

	November 12, 1873	November 14, 1873	November 14, 1873	November 16, 1873
d				
S	13 15 14.00	19 32 25.00	13 35 0.00	13 37 30.00
C	8 27 5.19	8 23 9.28	8 19 13.37	8 11 21.55
h	1 39.22	0 40.24	1 39.22	1 39.22
m	7.54	4.76	4.27	3.94
s	2.96	2.93	3.00	2.92
T	21 44 8.91	3 56 22.21	21 55 59.86	21 50 37.63
M	21 44 4.00	3 56 18.00	21 55 56.00	21 50 34.00
R	+ 4.91	+ 4.21	+ 3.86	+ 3.63
E				
e				
x				
T	$21^h\ 40^m$	$3^h\ 55^m$	$21^h\ 55^m$	$21^h\ 50^m$
Mm	68½ 59	65½ 61	61½ 57	64½ 56½
F.3424	$-91^m\ 0^s.8$	$-91^m\ 17^s.0$	$-91^m\ 41^s.5$	$-92^m\ 49^s.6$
F.3451 – N.Clock	– 12.04	– 14.53	– 16.51	– 21.45

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1872phae.proj..358.

	November 17, 1873	November 18, 1873	November 19, 1873	November 20, 1873
d				
Φ	14 9 57.00	13 40 0.00	13 41 30.00	13 32 30.00
C	8 7 25.64	8 3 29.73	7 59 33.81	7 55 37.90
h	1 29.39	1 39.22	1 39.22	1 39.22
m	8.53	3.45	3.28	4.76
s	2.84	3.00	2.92	2.92
T	22 19 3.40	21 45 15.40	21 42 49.23	21 29 54.80
M	22 19 0.00	21 45 12.00	21 42 46.00	21 29 52.00
R	+ 3.40	+ 3.40	+ 3.23	+ 2.80
E				
e				
x				
I	$22^h\ 20^m$	$21^h\ 50^m$	$21^h\ 45^m$	$21^h\ 30^m$
Mm	64 57	62 53	63½ 56½	65½ 55
F. 3424	$-93^m\ 26^s.6$	$-94^m\ 12^s.0$	$-94^m\ 51^s.7$	$-95^m\ 22^s.5$
F. 3451 – N. Clock	−23.72	−25.97	−28.28	−30.79

The figures opposite F. 3451 in the preceding and following record denote the quantity obtained by subtracting the time given by the North Clock from the corresponding time (reduced to mean time) of the chronometer Frodsham 3451.

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1872phae.proj.358.

	November 21, 1873	November 23, 1873	November 24, 1873	November 25, 1873
d				
☉	13 53 19.00	14 42 20.00	15 45 20.00	13 57 0.00
☾	7 51 41.99	7 43 50.17	7 39 54.26	7 35 58.35
h	1 39.22	1 29.39	1 19.56	1 39.22
m	1.32	3.12	2.63	0.66
s	2.95	2.94	2.94	3.00
T	21 46 44.48	22 27 45.62	23 26 39.39	21 34 41.23
M	21 46 42.00	22 27 44.00	23 26 38.00	21 34 40.00
R	+2.48	+1.62	+1.39	+1.23
E				
e				
x				
F.3451	— 33.22	— 37.40	— 39.60	— 41.95
I	$21^h\ 50^m$	$22^h\ 25^m$	$23^h\ 25^m$	$21^h\ 35^m$
Mm	61 51½	65 52	60½ 58	60½ 51½
F.3424	$-96^m\ 20^s.8$	$-98^m\ 29^s.9$	$-98^m\ 35^s.7$	$-98^m\ 21^s.9$

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1872phae.proj..168.

d	November 26, 1873			November 27, 1873			November 28, 1873			November 29, 1873		
$\odot$	14	36	42.00	14	16	13.00	14	52	15.00	20	40	0.00
$\odot$	7	32	2.44	7	28	6.52	7	24	10.61	7	24	10.61
h		1	29.39		1	29.39		1	29.39			30.41
m			4.10			7.38			1.48			3.45
s			2.89			2.96			2.96			3.00
T	22	10	20.82	21	45	59.25	22	17	59.44	4	4	47.47
M	22	10	20.00	21	46	0.00	22	18	0.00	4	4	48.00
R			+0.82			−0.75			−0.56			−0.53
E												
e												
x												
F. 3451			−46.22			−50.06			−55.58			
T	22h 5m			21h 45m			22h 20m					
Mm	56½ 44			56 45½			59½ 48					
F. 3424	−100m 51.s7			−102m 20.s3			−103m 42.s8					

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1872phae.proj.1358.

d	November 30, 1873	December 1, 1873	December 2, 1873	December 3, 1873
φ	14 16 20.00	14 44 50.00	15 4 15.00	15 21 5.00
l.	7 16 18.79	7 12 22.87	7 8 26.96	7 4 31.05
l	1 29,39	1 29.39	1 19.56	1 19.56
m	7.38	2.79	9.34	6.56
s	2.94	2.86	2.96	2.98
T	21 34 18.50	21 58 47.91	22 14 13.82	22 27 5.15
M	21 34 20.00	21 58 51.00	22 14 18.00	22 27 10.00
K	— 1.50	— 3.09	— 4.18	— 4.85
E				
e				
x				
F. 3451	— 64.04	— 72.97	— 76.53	— 79.20
I	$21^h\ 35^m$	$21^h\ 53^m$	$22^h\ 15^m$	$22^h\ 30^m$
Mm	62 44	58½ 44	56 50	67½ 53
F. 3424	$-106^m\ 24^s.3$	$-108^m\ 2^s.0$	$-109^m\ 34^s.5$	$-110^m\ 19^s.6$

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1872phae.proj..168.

d	December 4, 1873	December 5, 1873	December 7, 1873	December 8, 1873
S	15 45 0.00	15 18 15.00	15 16 0.00	14 54 40.00
G	7 0 35.14	6 56 39.23	6 48 47.40	6 44 51.49
h	1 19.56	1 19.56	1 19.56	1 29.39
m	2.63	7.05	7.38	1.15
s	3.00	2.96	3.00	2.89
T	22 47 0.33	22 16 23.80	22 6 17.34	21 41 4.92
M	22 47 6.00	22 16 30.00	22 6 24.00	21 41 12.00
R	− 5.67	− 6.20	− 6.66	− 7.08
E				
l				
x				
F. 3451	− 80.00	− 81.81	− 87.21	− 90.09
I	22h 50m	22h 15m	22h 10m	21h 40m
Mm	68½ 64	66 55	64 52½	62 56½
F. 3424	−110m 15.s3	−110m 32.s2	−112m 14.s6	−112m 55.s3

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1872phae.proj.1358.

	December 9, 1873	December 10, 1873	December 11, 1873	December 12, 1873
d				
S	15 27 15.00	16 52 38.00	14 36 15.00	16 24 8.00
C	6 40 55.57	6 36 59.66	6 33 3.75	6 29 7.84
h	1 19.56	1 9.73	1 29.39	1 9.73
m	5.58	1.48	4.10	6.07
s	2.96	2.90	2.96	2.98
T	22 9 38.67	23 30 51.77	21 10 55.20	22 54 34.62
M	22 9 46.00	23 31 0.00	21 11 4.00	22 54 44.00
R	− 7.33	− 8.23	− 8.80	− 9.38
E				
e				
x				
F. 3451	− 91.89	− 94.70	− 97.10	− 99.35
T	$22^h\ 10^m$	$23^h\ 30^m$	$21^h\ 15^m$	$22^h\ 55^m$
Mm	62 56	64½ 53½	59½ 56½	60 64
F. 3424	$-113^m\ 41.^s8$	$-114^m\ 24.^s2$	$-115^m\ 15.^s1$	$-116^m\ 8.^s8$

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1872phae.proj.358.

d	December 14, 1873	December 15, 1873	December 16, 1873	December 17, 1873
$\odot$	15 13 17.00	16 0 10.00	15 14 39.00	15 24 41.00
$\odot$	6 21 16.02	6 17 20.11	6 13 24.19	6 9 28.27
h	1 19.56	1 9.73	1 19.56	1 19.56
m	7.87	10.00	7.71	6.07
S	2.95	2.97	2.89	2.89
T	21 36 3.40	22 18 52.81	21 29 33.35	21 35 37.79
M	21 36 11.00	22 19 4.00	21 29 45.00	21 35 50.00
R	− 10.60	− 11.19	− 11.65	− 12.21
E				
e				
x				
F. 34511	− 107.97	− 106.42	− 108.04	− 109.93
T	$21^h\ 40^m$	$22^h\ 20^m$	$21^h\ 30^m$	$21^h\ 35^m$
Mm	61 53	61 55	63 56½	66 59
F. 34214	$-117^m\ 48^s.3$	$-118^m\ 45^s.0$	$-119^m\ 28^s.1$	$-119^m\ 52^s.8$

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1872phae.proj..258.

	December 18, 1873	December 19, 1873	December 21, 1873	December 22, 1873
α	15 46 0.00	15 29 43.00	15 34 5.00	16 20 30.00
φ	6 5 32.36	6 1 36.45	5 53 44.62	5 49 48.71
h	1 19.56	1 19.56	1 19.56	1 9.73
m	2.46	5.25	4.43	6.72
s	3.00	2.88	2.98	2.92
T	21 52 57.38	21 32 47.14	21 29 16.59	22 11 38.08
M	21 53 10.00	21 33 0.00	21 29 30.00	22 11 52.00
R	− 12.62	− 12.86	− 13.41	− 13.92
E				
e				
x				
$F.3451$	− 112.80	− 113.76	− 119.99	− 123.75
T_M	$21^h\ 55^m$	$21^h\ 30^m$	$21^h\ 30^m$	$22^h\ 15^m$
M_m	65 58	63 52	58 48	59 50½
$F.3424$	$-120^m\ 19.^s7$	$-121^m\ 14.^s3$	$-123^m\ 57.^s8$	$-125^m\ 17.^s2$

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1872phae.proj..368.

	December 23, 1873	December 24, 1873	December 25, 1873	December 26, 1873
d				
☉	16 0 0.00	15 32 31.00	15 47 1.00	17 38 22.00
☾	5 45 52.80	5 41 56.88	5 38 0.96	5 34 5.05
h	1 9.73	1 19.56	1 19.56	0 59.90
m	10.00	4.76	2.30	3.71
s	3.00	2.91	3.00	2.94
T	21 47 15.53	21 15 55.11	21 26 26.82	23 13 33.66
M	21 47 30.00	21 16 10.00	21 26 42.00	23 13 49.00
R	− 14.47	− 14.89	− 15.18	− 15.34
E				
l				
x				
F. 3451	− 127.31	− 129.87	− 132.41	− 135.72
T	21h 50m	21h 20m	21h 30m	23h 15m
Mm	60 52½	62 54	59½ 52	57½ 52
F. 3424	− 126m 17.s9	− 127m 14.s0	− 128m 15.s1	− 129m 36.s8

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1872phae.proj.368.

	December 28, 1873	January 5, 1874	January 6, 1874	January 7, 1874
d				
S	17 13 10.00	16 40 20.00	16 15 57.00	16 26 40.00
C	5 26 13.22	4 54 45.92	4 50 50.01	4 46 54.10
l	0 59.90	1 9.73	1 9.73	1 9.73
m	7.87	3.45	7.54	5.74
s	2.97	2.94	2.84	2.89
T	22 40 33.96	21 36 22,04	21 8 7.12	21 14 52.46
M	22 40 50.00	21 36 44.00	21 8 30.00	21 15 16.00
K	— 16.04	—21.96	—22.88	— 23.54
E				
e				
x				
y				
F. 3451	— 142.45	— 163.23	— 166.16	— 168.83
T	$22^h\ 40^m$	$21^h\ 35^m$	$21^h\ 10^m$	$21^h\ 20^m$
Mm	61½ 53	69 43½	63 57	62½ 56
F. 3424	$-131^m\ 38^s.2$	$-137^m\ 22^s.6$	$-138^m\ 1^s.2$	$-138^m\ 45^s.2$

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1872phae.proj..358.

	January 8, 1874	January 9, 1874	January 11, 1874	January 12, 1874
d				
Ø	16 45 1.00	16 55 21.00	17 5 15.00	17 25 38.00
C	4 42 58.19	4 39 2.28	4 31 10.46	4 27 14.54
h	1 9.73	1 9.73	0 59.90	0 59.90
m	2.63	0.99	9.18	5.90
s	3.00	2.94	2.96	2.90
T	21 29 14.55	21 35 36.94	21 37 37.50	21 54 1.24
M	21 29 38.00	21 36 0.00	21 38 0.00	21 54 24.00
R	−23.45	−23.06	−22.50	−22.76
E				
e				
x				
F. 3451	−170.10	−170.99	−173.39	−176.05
I	$21^h\ 30^m$	$21^h\ 40^m$	$21^h\ 40^m$	$22^h\ 5^m$
Mm	61 51	66½ 54½	64 58	60 49½
F. 3424	$-139^m\ 42^s.9$	$-140^m\ 15^s.7$	$-142^m\ 17^s.7$	$-142^m\ 18^s.0$

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1872phae.proj.338.

	January 13, 1874	January 14, 1874	January 15, 1874	January 16, 1874
d				
S	17 5 20.00	17 1 15.00	17 52 35.00	17 38 16,00
C	4 23 18.63	4 19 22,72	4 15 26.80	4 11 30.89
h	0 59.90	0 59.90	0 59.90	0 59.90
m	9.18	9.84	1.48	3.77
s	2.94	2.96	2.90	2.95
T	21 29 50.65	21 21 50.42	22 9 6.08	21 50 53.51
M	21 30 14.00	21 22 14.00	22 9 30.00	21 51 18.00
R	−23.35	−23.58	−23.92	−24.49
E				
l				
x				
F. 3451	−179.48	−183.42	−188.88	−195.17
T	21h 30m	21h 25m	22h 10m	21h 50m
Mm	58 50½	55½ 45½	52 36½	48 35
F. 3424	−143m 33.9	−145m 2.5	−147m 14.7	−149m 53.2

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1872phae.proj..368.

d	January 18, 1874	January 19, 1874	January 20, 1874	January 21, 1874
S	16 59 12.00	17 16 30.00	17 36 10.00	18 56 0.00
Cl	4 3 39.07	3 59 43.16	3 55 47.25	3 51 51.34
h	1 9.73	0 59.90	0 59.90	0 50.07
m	0.33	7.38	4.10	0.83
S	2.96	2.92	2.97	3.00
T	21 4 4.09	21 16 23.36	21 33 4.22	22 48 45.24
M	21 4 30.00	21 17 50.00	21 33 32.00	22 49 14.00
R	−25.91	−26.64	−27.78	−28.76
E				
e				
x				
F.3451	−205.23	−207.99	−211.47	−215.60
T	21h 5m	21h 20m	21h 35m	22h 50m
Mm	60 37	60½ 54½	65 52	62 55
F.3424	−153m 1.s4	−153m 59.s5	−154m 37.s6	−155m 34.s3

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1872phae.proj.368.

	January 22, 1874	January 23, 1874	January 25, 1874	January 26, 1874
d				
S	17 35 0.00	17 59 27.00	17 42 30.00	19 57 11.00
C	3 47 53.43	3 43 59.51	3 36 7.69	3 32 11.78
h	0 59.90	0 59.90	0 59.90	0 40.24
m	4.27	0.33	3.12	0.66
s	3.00	2.92	2.92	2.97
T	21 24 2.60	21 44 29.66	21 19 43.63	23 30 6.65
M	21 24 32.00	21 45 0.00	21 20 16.00	23 30 40.00
K	−29.40	−30.34	−32.37	−33.35
E				
e				
x				
F.34511	−217.57	−218.86	−226.06	−233.31
I	$21^h\ 25^m$	$21^h\ 45^m$	$21^h\ 20^m$	$23^h\ 30^m$
Mm	$65\frac{1}{2}$ $60\frac{1}{2}$	66 $58\frac{1}{2}$	62 53	$59\frac{1}{2}$ $52\frac{1}{2}$
F.3424	$-156^m\ 2^s.6$	$-156^m\ 18^s.5$	$-158^m\ 1^s.5$	$-159^m\ 12^s.5$

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1872phae.proj...168.

	January 27, 1874	January 28, 1874	January 29, 1874	January 30, 1874
d				
S	18 10 1.00	18 37 1.00	18 9 0.00	19 40 0.00
l	3 28 15.87	3 24 19.95	3 20 24.04	3 16 28.13
h	0 50.07	0 50.07	0 50.07	0 40.24
m	8.36	3.94	8.53	3.45
s	3.00	3.00	3.00	3.00
T	21 39 18.30	22 2 17.96	21 30 25.64	22 57 14.82
M	21 39 52.00	22 2 52.00	21 31 0.00	22 57 50.00
R	−33.70	−34.04	−34.36	−35.18
E				
e				
y				
J. 3451	−237.42	−240.80	−243.20	−249.50
T	$21^h\ 45^m$	$22^h\ 5^m$	$21^h\ 30^m$	$23^h\ 0^m$
Mm	59 51½	61 53½	61½ 53½	58½ 47
J. 3424	$-160^m\ 11.^s4$	$-161^m\ 18.^s2$	$-162^m\ 12.^s4$	$-163^m\ 33.^s2$

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1872phae.proj.:368.

	February 1, 1874	February 2, 1874	February 3, 1874	February 4, 1874
d				
☉	19 35 15.00	18 8 40.00	19 47 20.00	18 26 0.00
☾	3 8 36.31	3 4 40.40	3 0 44.49	2 56 48.58
h	0 40.24	0 50.07	0 40.24	0 50.07
m	4.27	8.69	2.30	5.74
s	2.96	2.89	2.94	3.00
T	22 44 38.78	21 14 22.05	22 48 49.97	21 23 47.39
M	22 45 16.00	21 15 0.00	22 49 28.00	21 24 26.00
R	−37.22	−37.95	−38.03	−38.61
E				
e				
x				
F.3451	−264.34	−272.11	−277.96	−281.61
T	22h 50m	21h 15m	22h 50m	21h 25m
Mm	54½ 44	48½ 42	51½ 43½	61 47
F.3424	−167m 13s.5	−169m 21s.7	−171m 53s.5	−173m 2s.6

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1872phae.proj...358.

d	February 5, 1874	February 6, 1874	February 8, 1874	February 9, 1874
S	19 16 1.00	18 53 20.00	19 24 49.00	19 13 0.00
G	2 52 52.67	2 48 56.76	2 41 4.94	2 37 9.03
h	0 40.24	0 50.07	0 40.24	0 40.24
m	7.38	1.32	6.07	7.87
s	3.00	2.94	2.87	3.00
T	22 9 44.29	21 43 11.09	22 6 43.12	21 51 0.14
M	22 10 24.00	21 43 52.00	22 7 26.00	21 51 44.00
R	−39.71	−40.91	−42.88	−43.86
E				
e				
x				
F.3451	−287.38	−293.73	−304,34	−308.76
I	$22^h\ 10^m$	$21^h\ 50^m$	$22^h\ 10^m$	$21^h\ 50^m$
Mm	59½ 46½	57½ 46	56½ 47	61 50½
F.3424	$-174^m\ 23^s.3$	$-176^m\ 2^s.1$	$-179^m\ 12^s.2$	$-180^m\ 19^s.5$

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1872phae.proj.:358.

	February 10, 1874	February 11, 1874	February 12, 1874	February 13, 1874
d				
$\odot$	18 52 38.00	20 9 52.00	18 49 50.00	19 48 23.00
$\odot$	2 33 13.12	2 29 17.21	2 25 21.30	2 21 25.39
h	0 50.07	0 30.41	0 50.07	0 40.24
m	1.48	8.53	1.97	2.14
s	2.90	2.86	2.86	2.94
T	21 26 45.57	22 39 51.01	21 16 6.20	22 10 33.71
M	21 27 30.00	22 40 36.00	21 16 52.00	22 11 20.00
R	−44.43	−44.99	−45.80	−46.29
E				
e				
x				
F. 3451	−312.32	−316.47	−319.83	−322.07
T	$21^h\ 30^m$	$22^h\ 40^m$	$21^h\ 15^m$	$22^h\ 15^m$
Mm	60 49½	60 50	62½ 56	65 57½
F. 3424	$-181^m\ 21.^s8$	$-182^m\ 38.^s0$	$-183^m\ 16.^s7$	$-183^m\ 57.^s1$

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1872phae.proj...58.

1874. Cambridge mean time of sidereal 0^h, less 4 minutes.

January	1	5	10	29.57
	2	5	6	33.67
	3	5	2	37.75
	4	4	58	41.83
	5	4	54	45.92
	6	4	50	50.01
	7	4	46	54.10
	8	4	42	58.19
	9	4	39	2.28
	10	4	35	6.37
	11	4	31	10.46
	12	4	27	14.54
	13	4	23	18.63
	14	4	19	22.72
	15	4	15	26.80
	16	4	11	30.89
	17	4	7	34.98
	18	4	3	39.07
	19	3	59	43.16
	20	3	55	47.25
	21	3	51	51.34
	22	3	47	55.43
	23	3	43	59.51
January	24	3	40	3.60
	25	3	36	7.69
	26	3	32	11.78
	27	3	28	15.87
	28	3	24	19.95
	29	3	20	24.04
	30	3	16	28.13
	31	3	12	32.22
Febuary	1	3	8	36.31
	2	3	4	40.40
	3	3	0	44.49
	4	2	56	48.58
	5	2	52	52.67
	6	2	48	56.76
	7	2	45	0.85
	8	2	41	4.94
	9	2	37	9.03
	10	2	33	13.12
	11	2	29	17.21
	12	2	25	21.30
	13	2	21	25.39
	14	2	17	29.48
	15	2	13	33.57

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1872phae.proj.358.

1874. Cambridge mean time of sidereal 0^h, less 4 minutes.

February	16	2	9	37.66
	17	2	5	41.74
	18	2	1	45.83
	19	1	57	49.93
	20	1	53	54.02
	21	1	49	58.11
	22	1	46	2.20
	23	1	42	6.29
	24	1	38	10.39
	25	1	34	14.48
	26	1	30	18.57
	27	1	26	22.65
	28	1	22	26.75
March	1	1	18	30.85
	2	1	14	34.94
	3	1	10	39.03
	4	1	6	43.13
	5	1	2	47.22
	6	0	58	51.31
	7	0	54	55.40
	8	0	50	59.49
	9	0	47	3.59
	10	0	43	7.69
March	11	0	39	11.78
	12	0	35	15.87
	13	0	31	19.96
	14	0	27	24.05
	15	0	23	28.14
	16	0	19	32.24
	17	0	15	36.33
	18	0	11	40.42
	19	0	7	44.51
	20	0	3	48.59
	20	23	59	52.70
	21	23	55	56.79
	22	23	52	0.88
	23	23	48	4.97
	24	23	44	9.07
	25	23	40	13.16
	26	23	36	17.25
	27	23	32	21.35
	28	23	28	25.44
	29	23	24	29.53
	30	23	20	33.62
	31	23	16	37.71
April	1	23	12	41.81

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1872phae.proj...58.

1874. Cambridge mean time of sidereal 0^h, less 4 minutes.

April	2	23	8	45.90	April	25	21	38	20.01
	3	23	4	49.98		26	21	34	24.10
	4	23	0	54.08		27	21	30	28.19
	5	22	56	58.19		28	21	26	32.28
	6	22	53	2.28		29	21	22	36.37
	7	22	49	6.37		30	21	18	40.46
	8	22	45	10.46	May	1	21	14	44.55
	9	22	41	14.55		2	21	10	48.64
	10	22	37	18.64		3	21	6	52.73
	11	22	33	22.73		4	21	2	56.83
	12	22	29	26.82		5	20	59	0.92
	13	22	25	30.92		6	20	55	5.01
	14	22	21	35.01		7	20	51	9.09
	15	22	17	39.10		8	20	47	13.18
	16	22	13	43.19		9	20	43	17.27
	17	22	9	47.28		10	20	39	21.36
	18	22	5	51.37		11	20	35	25.45
	19	22	1	55.46		12	20	31	29.54
	20	21	57	59.55		13	20	27	33.63
	21	21	54	3.65		14	20	23	37.72
	22	21	50	7.74		15	20	19	41.80
	23	21	46	11.83		16	20	15	45.89
	24	21	42	15.92		17	20	11	49.98

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1872phae.proj.:38.

1874. Cambridge mean time of sidereal 0^h, less 4 minutes.

May	18	20	7	54.07
	19	20	3	58.15
	20	20	0	2.24
	21	19	56	6.33
	22	19	52	10.42
	23	19	48	14.50
	24	19	44	18.59
	25	19	40	22.68
	26	19	36	26.77
	27	19	32	30.86
	28	19	28	34.95
	29	19	24	39.04
	30	19	20	43.13
	31	19	16	47.21
June	1	19	12	51.30
	2	19	8	55.39
	3	19	4	59.48
	4	19	1	3.57
	5	18	57	7.66
	6	18	53	11.75
	7	18	49	15.84
	8	18	45	19.92
	9	18	41	24.01
June	10	18	37	28.10
	11	18	33	32.19
	12	18	29	36.27
	13	18	25	40.36
	14	18	21	44.45
	15	18	17	48.53
	16	18	13	52.62
	17	18	9	56.70
	18	18	6	0.79
	19	18	2	4.88
	20	17	58	8.96
	21	17	54	13.05
	22	17	50	17.14
	23	17	46	21.23
	24	17	42	25.32
	25	17	38	29.41
	26	17	34	33.50
	27	17	30	37.59
	28	17	26	41.67
	29	17	22	45.76
	30	17	18	49.85
July	1	17	14	53.94
	2	17	10	58.02

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1872phae.proj...358.

1874. Cambridge mean time of sidereal 0h less 4 minutes.

July	3	17	7	2.11
	4	17	3	6.20
	5	16	59	10.28
	6	16	55	14.36
	7	16	51	18.44
	8	16	47	22.54
	9	16	43	26.63
	10	16	39	30.71
	11	16	35	34.80
	12	16	31	38.89
	13	16	27	42.98
	14	16	23	47.06
	15	16	19	51.15
	16	16	15	55.24
	17	16	11	59.33
	18	16	8	3.41
	19	16	4	7.50
	20	16	0	11.59
	21	15	56	15.68
	22	15	52	19.76
	23	15	48	23.85
	24	15	44	27.94
	25	15	40	32.04
July	26	15	36	36.11
	27	15	32	40.20
	28	15	28	44.29
	29	15	24	48.38
	30	15	20	52.48
	31	15	16	56.57
August	1	15	13	0.66
	2	15	9	4.75
	3	15	5	8.83
	4	15	1	12.92
	5	14	57	17.01
	6	14	53	21.10
	7	14	49	25.19
	8	14	45	29.28
	9	14	41	33.37
	10	14	37	37.46
	11	14	33	41.55
	12	14	29	45.64
	13	14	25	49.73
	14	14	21	53.82
	15	14	17	57.91
	16	14	14	2.00
	17	14	10	6.09

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1872phae.proj.358.

tes.

1874. Cambridge mean time of sidereal 0^h, less 4 minutes.

August	18	14	6	10.18	September 10	12	35	44.29
	19	14	2	14.28	11	12	31	48.38
	20	13	58	18.37	12	12	27	52.47
	21	13	54	22.46	13	12	23	56.57
	22	13	50	26.55	14	12	20	0.66
	23	13	46	30.64	15	12	16	4.75
	24	13	42	34.73	16	12	12	8.84
	25	13	38	38.82	17	12	8	12.93
	26	13	34	42.91	18	12	4	17.02
	27	13	30	47.00	19	12	0	21.12
	28	13	26	51.09	20	11	56	25.22
	29	13	22	55.18	21	11	52	29.31
	30	13	18	59.28	22	11	48	33.40
	31	13	15	3.37	23	11	44	37.49
September	1	13	11	7.46	24	11	40	41.58
	2	13	7	11.55	25	11	36	45.67
	3	13	3	15.64	26	11	32	49.76
	4	12	59	19.74	27	11	28	53.85
	5	12	55	23.83	28	11	24	57.95
	6	12	51	27.92	29	11	21	2.04
	7	12	47	32.01	30	11	17	6.13
	8	12	43	36.10	October 1	11	13	10.23
	9	12	39	40.20	2	11	9	14.32

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1872phae.proj..358.

1874. Cambridge mean time of sidereal 0h less 4 minutes.

October	3	11	5	18.41	October	26	9	34	52.52
	4	11	1	22.50		27	9	30	56.61
	5	10	57	26.59		28	9	27	0.70
	6	10	53	30.69		29	9	23	4.79
	7	10	49	34.78		30	9	19	8.89
	8	10	45	38.87		31	9	15	12.98
	9	10	41	42.97	November	1	9	11	17.07
	10	10	37	47.06		2	9	7	21.16
	11	10	33	51.15		3	9	3	25.24
	12	10	29	55.24		4	8	59	29.33
	13	10	25	59.33		5	8	55	33.42
	14	10	22	3.42		6	8	51	37.51
	15	10	18	7.51		7	8	47	41.60
	16	10	14	11.61		8	8	43	45.69
	17	10	10	15.69		9	8	39	49.78
	18	10	6	19.80		10	8	35	53.87
	19	10	2	23.89		11	8	31	57.95
	20	9	58	27.98		12	8	28	2.04
	21	9	54	32.07		13	8	24	6.13
	22	9	50	36.16		14	8	20	10.22
	23	9	46	40.25		15	8	16	14.32
	24	9	42	44.34		16	8	12	18.41
	25	9	38	48.43		17	8	8	22.50

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1872phae.proj.358.

1874. Cambridge mean time of sidereal 0h, less 4 minutes.

November 18	8	4	26.59	December 11	6	34	0.60
19	8	0	30.67	12	6	30	4.69
20	7	56	34.76	13	6	26	8.77
21	7	52	38.85	14	6	22	12.86
22	7	48	42.94	15	6	18	16.95
23	7	44	47.03	16	6	14	21.03
24	7	40	51.12	17	6	10	25.12
25	7	36	55.21	18	6	6	29.21
26	7	32	59.30	19	6	2	33.30
27	7	29	3.37	20	5	58	37.39
28	7	25	7.46	21	5	54	41.47
29	7	21	11.55	22	5	50	45.56
30	7	17	15.64	23	5	46	49.65
December 1	7	13	19.72	24	5	42	53.73
2	7	9	23.81	25	5	38	57.81
3	7	5	27.90	26	5	35	1.90
4	7	1	31.99	27	5	31	5.99
5	6	57	36.07	28	5	27	10.07
6	6	53	40.16	29	5	23	14.15
7	6	49	44.25	30	5	19	18.24
8	6	45	48.34	31	5	15	22.33
9	6	41	52.42				
10	6	37	56.51				

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1872phae.proj...358.

	February 15, 1874	February 16, 1874	February 17, 1874	February 18, 1874
d				
S	19 14 40.00	19 4 30.00	19 27 1.00	19 22 25.00
C	2 13 33.57	2 9 37.66	2 5 41.74	2 1 45.83
h	0 40.24	0 40.24	0 40.24	0 40.24
m	7.71	9.34	5.58	6.40
s	2.89	2.92	3.00	2.93
T	21 29 4.41	21 15 0.16	21 33 31.56	21 25 0.40
M	21 29 52.00	21 15 48.00	21 34 20.00	21 24 50.00
R	−47.59	−47.84	−48,44	+10.40
E				
e				
x				
F. 3451	− 325,08	− 326.92	− 329.60	−333.31
T	$21^h\ 30^m$	$21^h\ 15^m$	$21^h\ 35^m$	$21^h\ 30^m$
Mm	64 53	63 52½	62 50	63½ 52½
F. 3424	$-185^m\ 24^s.6$	$-186^m\ 6^s.3$	$-187^m\ 12^s.8$	$-187^m\ 4^s.2$

South Clock put forward
1^m between comparisons of
Feb. 17 and Feb. 18

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1872phae.proj.358.

d	February 19, 1874	February 20, 1874	February 22, 1874	February 23, 1874
☉	19 40 19.00	19 44 15.00	20 0 30.00	19 51 0.00
☾	1 57 49.93	1 53 54.02	1 46 2.20	1 42 6.29
h	0 40.24	0 40.24	0 30.41	0 40.24
m	3.45	2.79	10.00	1.64
s	2.95	2.96	2.92	3.00
T	21 38 55.57	21 38 55.01	21 47 15.53	21 33 57.17
M	21 38 46.00	21 38 46.00	21 47 8.00	21 33 44.00
K	+ 9.57	+ 9.01	+ 7.53	+ 7.17
E				
e				
x				
F. 3451	— 336.11	— 336.84	— 339.73	— 340.88
T'	$21^h\ 40^m$	$21^h\ 40^m$	$21^h\ 50^m$	$21^h\ 35^m$
Mm	63 57½	67½ 60	67½ 58	66 59
F. 3424	$-187^m\ 46.^s6$	$-188^m\ 5.^s1$	$-189^m\ 2.^s1$	$-189^m\ 26.^s8$

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1872phae.proj...358.

	February 24, 1874	February 25, 1874	February 26, 1874	February 27, 1874
d				
☉	20 13 25.00	20 43 0.00	20 18 0.00	20 30 0.00
☾	1 38 10.39	1 34 14.48	1 30 18.57	1 26 22.65
h	0 30.41	0 30.41	0 30.41	0 30.41
m	7.87	2.96	7.05	5.09
s	2.93	3.00	3.00	3.00
T	21 52 16.60	22 17 50.85	21 48 59.03	21 57 1.15
M	21 52 10.00	22 17 45.00	21 48 54.00	21 56 57.00
R	+ 6.60	+ 5.85	+ 5.03	+ 4.15
E				
e				
x				
F. 3457	— 343.04	— 346.82	— 350.98	— 353.19
T	$21^h\ 55^m$	$22^h\ 20^m$	$21^h\ 50^m$	$22^h\ 10^m$
Mm	65 57		61½ 51	63 53
F. 3424	$-189^m\ 56.^s4$	$-191^m\ 2.^s5$	$-191^m\ 58.^s8$	$-192^m\ 47.^s9$

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1872phae.proj.358.

	March 1, 1874	March 2, 1874	March 3, 1874	March 4, 1874
d				
$\odot$	21 26 0.00	20 55 52.00	20 12 50.00	20 32 30.00
ζ	1 18 30.85	1 14 34.94	1 10 39.03	1 6 43.13
h	0 20.58	0 30.41	0 30.41	0 30.41
m	5.74	0.99	8.03	4.76
s	3.00	2.86	2.86	2.92
T	22 45 0.17	22 11 1.20	21 24 10.33	21 39 51.22
M	22 44 58.00	22 11 0.00	21 24 10.00	21 39 52.00
R	+2.17	+1.20	+0.33	−0.78
E				
e				
x				
F. 3451	−358.86	−360.41	−361.58	−362.97
I	$22^h\ 50^m$	$22^h\ 10^m$	$21^h\ 25^m$	$21^h\ 40^m$
Mm	63 55½	68½ 59½	66½ 60½	65 58½
F. 3424	$-194^m\ 20.^s6$	$-194^m\ 34.^s3$	$-194^m\ 47.^s2$	$-195^m\ 6.^s7$

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1872phae.proj...358.

d	March 5, 1874	March 6, 1874	March 8, 1874	March 9, 1874.
Θ	20 39 0.00	20 26 53.00	21 14 0.00	20 59 0.00
φ	1 2 47.22	0 58 51.31	0 50 59.49	0 47 3.59
h	0 30.41	0 30.41	0 20.58	0 30.41
m	3.61	5.74	7.71	0.33
s	3.00	2.85	3.00	3.00
T	21 42 24.24	21 26 23.31	22 5 30.78	21 46 37.33
M	21 42 26.00	21 26 26.00	22 5 35.00	21 46 42.00
R	— 1.76	— 2.69	— 4.22	— 4.67
E				
e				
x				
F. 3451	— 365,18	— 367.60	— 372.11	— 374.59
T	$21^h\ 45^m$	$21^h\ 30^m$	$22^h\ 5^m$	$21^h\ 50^m$
Mm	62½ 52	61 52½	65 53½	59 48
F. 3424	$-195^m\ 55^s.4$	$-196^m\ 44^s.7$	$-198^m\ 28^s.0$	$-199^m\ 37^s.0$

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1872phae.proj.358.

	March 10, 1874	March 11, 1874	March 12, 1874	March 13, 1874
d				
$\odot$	20 57 0.00	21 1 25.00	21 1 0.00	20 53 40.00
$\odot$	0 43 7.69	0 39 11.78	0 35 15.87	0 31 19.96
h	0 30.41	0 20.58	0 20.58	0 30.41
m	0.66	9.84	9.84	1.32
s	3.00	2.93	3.00	2.89
T	21 40 41.76	21 41 10.13	21 36 49.29	21 25 34.58
M	21 40 47.00	21 41 16.00	21 36 56.00	21 25 42.00
R	— 5.24	— 5.87	— 6.71	— 7.42
E				
e				
x				
F. 3451	— 377.91	— 382.19	— 387.22	— 391.74
T	$21^h\ 40^m$	$21^h\ 50^m$	$21^h\ 40^m$	$21^h\ 30^m$
Mm	59 48½	59½ 41	50 44	55½ 48½
F. 3424	$-200^m\ 50.^s6$	$-202^m\ 28.^s3$	$-204^m\ 33.^s7$	$-206^m\ 3.^s8$

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1872phae.proj...58.

d	March 15, 1874	March 16, 1874	March 17, 1874	March 18, 1874
φ	21 7 1.00	21 10 51.00	22 4 0.00	21 41 11.00
C	0 23 28.14	0 19 32.24	0 15 36.33	0 11 40.42
h	0 20.58	0 20.58	0 10.75	0 20.58
m	8.85	8.36	9.34	3.28
s	3.00	2.86	3.00	2.97
T	21 31 1.57	21 30 55.04	22 19 59.42	21 53 18.25
M	21 31 10.00	21 31 4.00	22 20 9.00	21 53 28.00
R	−8,43	−8.96	−9.58	−9.75
E				
e				
x				
F. 3451	−397.59	−400,70	−402,83	−403,47
I	$21^h\ 30^m$	$21^h\ 30^m$	$22^h\ 20^m$	$21^h\ 55^m$
Mm	62 52½	66 57	66 60½	65 62
F. 3424	$-208^m\ 16.^s1$	$-208^m\ 40.^s1$	$-208^m\ 50.^s0$	$-209^m\ 19.^s6$

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1872phae.proj.338.

d	March 19, 1874	March 20, 1874	March 22, 1874	March 23, 1874
$\odot$	21 26 46.00	21 39 53.00	21 52 1.00	21 41 0.00
φ	0 7 44.51	0 3 48.59	23 55 56.79	23 52 0.88
h	0 20.58	0 20.58	0 20.58	0 20.58
m	5.74	3.61	1.48	3.28
s	2.87	2.85	3.00	3.00
T	21 34 59.70	21 44 8.63	21 48 22.85	21 33 27.74
M	21 35 10.00	21 44 20.00	21 48 36.00	21 33 42.00
R	−10.30	−11.37	−13.15	−14.26
E				
e				
x				
F. 32451	−404.05	−405.54	−408.99	−411.91
I	$21^h\ 40^m$	$21^h\ 45^m$	$21^h\ 50^m$	$21^h\ 35^m$
Mm	68½ 62	63 49½	53½ 44½	57 47
F. 3424	$-209^m\ 21^s.3$	$-210^m\ 9^s.7$	$-213^m\ 46^s.6$	$-215^m\ 17^s.8$

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1872phae.proj...358.

	March 24, 1874	March 25, 1874	March 26, 1874	March 27, 1874
d				
S	22 18 19.00	21 52 10.00	21 25 31.00	23 57 41.00
G	23 48 4.97	23 44 9.07	23 40 13.16	23 36 17.25
h	0 10.75	0 20.58	0 20.58	0 0.92
m	7.05	1.48	5.90	0.66
s	2.95	2.97	2.91	2.89
T	22 6 44.72	21 36 44.10	21 6 13.55	23 34 2.72
M	22 7 0.00	21 37 0.00	21 6 30.00	23 34 20.00
K	−15.28	−15.90	−16.45	−17.28
E				
e				
x				
F.3451	−415.95	−418.21	−419.25	−420.68
I	22h 10m	21h 40m	21h 5m	23h 35m
Mm	55 46	60½ 52½	65 57	63 57
F.3424	−217m 4s.6	−218m 7s.8	−218m 36s.5	−219m 23s.9

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1872phae.proj.338.

	March 29, 1874	March 30, 1874	March 31, 1874	April 1, 1874
α				
Φ	21 34 20.00	22 22 19.00	22 52 11.00	22 16 8.00
φ	23 28 25.44	23 24 29.53	23 20 33.62	23 16 37.71
h	0 20.58	0 10.75	0 10.75	0 10.75
m	4.43	6.40	1.48	7.38
s	2.94	2.95	2.97	2.98
T	21 3 13.39	21 47 8.63	22 13 59.82	21 33 6.82
M	21 3 32.00	21 47 28.00	22 13 20.00	21 33 28.00
R	− 18.61	− 19.37	− 20.18	− 21.18
E				
e				
x				
$F.3451$	− 424.50	− 426.34	− 428.99	− 431.92
I	$21^h\ 0^m$	$21^h\ 50^m$	$22^h\ 15^m$	$21^h\ 35^m$
Mm	62½ 54	62½ 54	65 55	62½ 55½
$F.3424$	$-220^m\ 57.^s9$	$-221^m\ 46.^s7$	$-222^m\ 30.^s6$	$-223^m\ 15.^s5$

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1872phae.proj...358.

d	April 2, 1874	April 3, 1874	April 5, 1874	April 6, 1874
S	22 34 18,00	22 34 19.00	22 42 10.00	22 17 27.00
C	23 12 41.81	23 8 45.90	23 0 54.08	22 56 58.19
h	0 10.75	0 10.75	0 10.75	0 10.75
m	4.43	4.43	3.12	7.22
s	2.95	2.95	2.97	2.92
T	21 47 17.94	21 43 23.03	21 43 20.92	21 14 46.08
M	21 47 40.00	21 43 46.00	21 43 46.00	21 15 12.00
K	−22.06	−22.97	−25.08	−25.92
E				
e				
x				
F.3451	−434.23	−436.14	−441.64	−443.02
T	$21^h\ 50^m$	$21^h\ 45^m$	$21^h\ 45^m$	$21^h\ 15^m$
Mm	$61\frac{1}{2}$ 54	$64\frac{1}{2}$ $54\frac{1}{2}$	63 50	64 59
F.3424	$-224^m\ 8^s.8$	$-224^m\ 56^s.1$	$-227^m\ 4^s.9$	$-227^m\ 44^s.7$

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1872phae.proj.:38.

d	April 7, 1874	April 8, 1874	April 9, 1874	April 10, 1874
$\odot$	22 43 0.00	22 59 42.00	22 34 11.00	22 32 0.00
$\odot$	22 53 2.28	22 49 6.37	22 45 10.46	22 41 14.55
h	0 10.75	0 10.75	0 10.75	0 10.75
m	2.96	0.33	4.43	4.76
s	3.00	2.89	2.97	3.00
T	21 36 18.99	21 49 2.34	21 19 39.61	21 13 33.06
M	21 36 46.00	21 49 30.00	21 20 8.00	21 14 2.00
R	−27.01	−27.66	−28.39	−28.94
E				
e				
x				
F.3451	−444.85	−445.64	−446.70	−448.03
T	$21^h\ 35^m$	$21^h\ 50^m$	$21^h\ 20^m$	$21^h\ 15^m$
Mm	64½ 60	69½ 60	64 58½	59 51
F.3424	$-228^m\ 16^s.2$	$-228^m\ 23^s.1$	$-228^m\ 55^s.8$	$-229^m\ 58^s.0$

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1872phae.proj...038.

d	April 12, 1874	April 13, 1874	April 14, 1874	April 15, 1874
S	23 21 0.00	23 27 30.00	23 33 0.00	23 32 23.00
C	22 33 22.73	22 29 26.82	22 25 30.92	22 21 35.01
h	0 0.92	0 0.92	0 0.92	0 0.92
m	6.56	5.58	4.59	4.76
s	3.00	2.92	3.00	2.94
T	21 54 33.21	21 57 6.24	21 58 39.43	21 54 6.63
M	21 55 4.00	21 57 38.00	21 59 12.00	21 54 40.00
R	− 30.79	− 31.76	− 32.57	− 33.37
E				
e				
x				
F. 3451	− 452.09	− 453.81	chronometer not in place	chronometer not in place
T	$21^h\ 55^m$	$22^h\ 5^m$	$22^h\ 0^m$	$21^h\ 55^m$
Mm	58 46	61½ 46	68 59	69½ 62
F. 3424	$-233^m\ 2.^s5$	$-234^m\ 12.^s5$	$-234^m\ 33.^s5$	$-234^m\ 31.^s3$

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1872phae.proj.:358.

	April 16, 1874	April 17, 1874	April 19, 1874	April 20, 1874
d				
S	0 13 14.00	23 17 35.00	0 18 1.00	23 16 0.00
G	22 13 43.19	22 13 43.19	22 1 55.46	22 1 55.46
h	3 47.00	0 0.92	3 47.00	0 0.92
m	7.87	7.22	7.05	7.38
s	2.96	2.90	3.00	3.00
T	22 30 55.02	21 31 29.23	22 23 53.51	21 18 6.76
M	22 31 30.00	21 32 6.00	22 24 34.00	21 18 48.00
R	— 34.98	— 36.77	— 40.49	— 41.24
E				
e				
x				
F. 3451	— 453.38	— 456.08	— 462.77	— 461.85
T	$22^h\ 30^m$	$21^h\ 30^m$	$22^h\ 25^m$	$21^h\ 20^m$
Mm	65 55½	56 45	65 44	61 53
F. 3424	$-234^m\ 59.^s4$	$-236^m\ 33.^s7$	$-239^m\ 32.^s8$	$-240^m\ 20.^s6$

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1872phae.proj..358.

d	April 21, 1874	April 22, 1874	April 23, 1874	April 24, 1874
S	23 44 30.00	23 44 30.00	0 2 31.00	23 17 30.00
C	21 57 59.55	21 54 3.65	21 46 11.83	21 46 11.83
h	0 0.92	0 0.92	3 47.00	0 0.92
m	2.79	2.79	9.67	7.22
s	2.92	2.92	2.91	2.92
T	21 42 36.18	21 38 40.28	21 52 42.41	21 3 52.89
M	21 43 18.00	21 39 23.00	21 53 26.00	21 4 37.00
R	− 41.82	− 42.72	− 43.59	− 44.11
E				
e				
x				
F.3451	− 462.95	− 463.86	− 465.07	− 465.63
I	$21^h\ 45^m$	$21^h\ 40^m$	$21^h\ 50^m$	$21^h\ 5^m$
Mm	56 48	65 50½	64 58	67 59
F.3424	$-241^m\ 44^s.2$	$-242^m\ 29^s.2$	$-243^m\ 1^s.0$	$-243^m\ 15^s.1$

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1872phae.proj.:368.

	April 26, 1874	April 27, 1874	April 28, 1874	April 29, 1874
d				
S	0 1 51.00	0 13 0.00	23 53 40.00	0 53 45.00
G	21 34 24.10	21 30 28.19	21 30 28.19	21 22 36.37
h	3 47.00	3 47.00	0 0.92	3 47.00
m	9.84	7.87	1.32	1.32
s	2.86	3.00	2.89	2.88
T	21 40 14.80	21 47 26.06	21 24 13.32	22 20 12.57
M	21 41 0.00	21 48 12.00	21 25 0.00	22 21 0.00
R	− 45.20	− 45.94	− 46.68	− 47.43
E				
e				
x				
F. 345	−469.14	−469.40	−470.47	−472.32
I	$21^h\ 40^m$	$21^h\ 50^m$	$21^h\ 25^m$	$22^h\ 20^m$
Mm	60 54	62½ 52½	60 50	50 43
F. 3422	$-245^m\ 15.^s0$	$-246^m\ 13.^s3$	$-247^m\ 21.^s0$	$-249^m\ 28.^s6$

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1872phae.proj...358.

d	April 30, 1874			May 1, 1874			May 3, 1874			May 4, 1874		
S	0	11	33.00	23	58	30.00	0	22	30.00	1	33	30.00
G	21	18	40.46	21	18	40.46	21	6	52.73	21	2	56.83
h		3	47.00		0	0.92		3	47.00		3	37.17
m			8.20			0.50			6.40			4.59
s			2.91			2.92			2.92			2.92
T	21	34	11.57	21	17	14.80	21	33	19.05	22	40	11.51
M	21	35	0.00	21	18	4.00	21	34	11.00	22	41	4.00
R			−48.43			−49.20			−51.95			−52.49
E												
e												
y												
F.3451			−474.25			−475.54			−478.33			−478.46
T	21h 35m			21h 20m			21h 35m			22h 40m		
Mm	45	43		49	43		66	46		69	61½	
F.3424	−257m 49.s3			−253m 56.s6			−256m 12.s9			−255m 50.s4		

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1872phae.proj..338.

	May 5, 1874	May 6, 1874	May 7, 1874	May 8, 1874
d				
S	0 12 16.00	0 19 0.00	0 33 41.00	1 1 10.00
C	20 59 0.92	20 55 5.01	20 51 9.09	20 47 13.18
h	3 47.00	3 47.00	3 47.00	3 37.17
m	8.03	6.89	4.59	9.84
s	2.95	3.00	2.89	2.97
T	21 15 14.90	21 18 1.90	21 28 44.57	21 52 13.16
M	21 16 8.00	21 18 56.00	21 29 40.00	21 53 10.00
R	−53.10	−54.10	−55.43	−56.84
E				
e				
x				
F. 3451	−478.98	−480.02	−481.57	−482.90
I	$21^h\ 15^m$	$21^h\ 20^m$	$21^h\ 30^m$	$21^h\ 55^m$
Mm	64½ 55	63 55½	62 51	63 52
F. 3424	$-256^m\ 15^s.4$	$-256^m\ 59^s.7$	$-257^m\ 52^s.6$	$-258^m\ 42^s.5$

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1872phae.proj...58.

	May 10, 1874	May 11, 1874	May 12, 1874	May 13, 1874
d				
S	0 55 49.00	1 16 13.00	1 5 40.00	1 3 49.00
G	20 39 21.36	20 35 25.45	20 31 29.54	20 27 33.63
h	3 47.00	3 37.17	3 37.17	3 37.17
m	0.99	7.38	9.18	9.51
s	2.87	2.96	2.89	2.87
T	21 39 1.22	21 55 25.96	21 40 58.78	21 35 12.18
M	21 40 0.00	21 56 26.00	21 42 0.00	21 36 14.00
R	−58.78	−60.04	−61.22	−61.82
E				
e				
x				
F. 3451	− 483.73	− 484.41	−484.95	−484.83
I	$21^h\ 40^m$	$21^h\ 53^m$	$21^h\ 40^m$	$21^h\ 35^m$
Mm	68 57½	63 57½	61 58	70 60
F. 3424	$-259^m\ 56.^s6$	$-260^m\ 4.^s0$	$-260^m\ 46.^s0$	$-260^m\ 49.^s1$

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1872phae.proj.:338.

	May 14, 1874	May 15, 1874	May 17, 1874	May 18, 1874
d				
h	0 56 39.00	1 2 25.00	1 21 29.00	1 10 23.00
m	20 23 37.72	20 19 41.80	20 11 49.98	20 7 54.07
s	3 47.00	3 37.17	3 37.17	3 37.17
T	0.83	9.67	6.56	8.36
M	2.89	2.93	2.92	2.94
R	21 24 7.44	21 25 56.57	21 37 5.63	21 22 5.54
E	21 25 10.00	21 27 0.00	21 38 10.00	21 23 10.00
c	— 62.56	— 63.43	— 64.37	— 64.46
x				
F. 3451	— 484.70	— 485.00	— 485.23	— 485.05
T	$21^h\ 25^m$	$21^h\ 30^m$	$21^h\ 35^m$	$21^h\ 20^m$
Mm	72½ 63½	66 59	65 55½	63½ 59
F. 3424	$-260^m\ 29^s.1$	$-260^m\ 43^s.5$	$-262^m\ 9^s.5$	$-262^m\ 35^s.8$

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1872phae.proj...358.

	May 19, 1874	May 20, 1874	May 21, 1874	May 22, 1874
d				
S	1 36 43.00	1 36 9.00	1 26 5.00	1 41 1.00
G	20 3 58.15	20 0 2.24	19 56 6.33	19 52 10.42
h	3 37.17	3 37.17	3 37.17	3 37.17
m	4.10	4.10	5.74	3.28
s	2.88	2.97	2.98	3.00
T	21 44 25.30	21 39 55.48	21 25 57.22	21 36 54.87
M	21 45 30.00	21 41 0.00	21 27 2.00	21 38 0.00
R	− 64.70	− 64.52	− 64.78	− 65.13
E				
e				
x				
F.3451	− 485.09	− 484.75	− 484.86	− 484.86
T	$21^h\ 45^m$	$21^h\ 40^m$	$22^h\ 5^m$	$21^h\ 40^m$
Mm	64½ 57½	64 58	59 54	60 54½
F.3424	$-263^m\ 6^s.1$	$-263^m\ 38^s.1$	$-265^m\ 28^s.1$	$-265^m\ 45^s.4$

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1872phae.proj.:358.

	May 24, 1874	May 25, 1874	May 26, 1874	May 27, 1874
d				
S	1 23 41.00	1 50 31.00	1 10 0.00	1 37 0.00
G	19 44 18.59	19 40 22.68	19 36 26.77	19 32 30.86
h	3 37.17	3 37.17	3 37.17	3 37.17
m	6.23	1.81	8.36	3.94
s	2.89	2.91	3.00	3.00
T	21 11 45.88	21 34 35.57	20 50 15.30	21 13 14.97
M	21 12 52.00	21 35 42.00	20 51 22.00	21 14 22.00
R	— 66.12	— 66.43	— 66.70	— 67.03
E				
e				
x				
F. 3457	— 484.84	— 484.91	— 484.74	— 484.79
T	$21^h\ 15^m$	$21^h\ 35^m$	$20^h\ 50^m$	$21^h\ 15^m$
Mm	65 54½	63 61½	68½ 61½	67½ 61½
F. 3424	$-266^m\ 42^s.4$	$-267^m\ 6^s.2$	$-267^m\ 10^s.3$	$-267^m\ 19^s.7$

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1872phae.proj...358.

d	May 28, 1874	May 29, 1874	May 31, 1874	June 1, 1874
☉	2 3 0.00	2 6 0.00	2 5 25.00	2 22 1.00
☾	19 28 34.95	19 24 39.04	19 16 47.21	19 12 51.30
h	3 27.34	3 27.34	3 27.34	3 27.34
m	9.51	9.02	9.18	6.40
s	3.00	3.00	2.93	3.00
T	21 35 14.80	21 34 18.40	21 25 51.66	21 38 29.04
M	21 36 22.00	21 35 26.00	21 27 0.00	21 39 38.00
R	−67.20	−67.60	−68.34	−68.96
E				
e				
x				
F.3451	−484.66	−484.61	−484.25	−484.46
T	$21^h\ 35^m$	$21^h\ 35^m$	$21^h\ 30^m$	$21^h\ 40^m$
Mm	71 62	70½ 62½	74½ 63	69 61
F.3424	$-268^m\ 14.^s6$	$-267^m\ 8.^s3$	$-266^m\ 31.^s5$	$-265^m\ 25.^s8$

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1872phae.proj.338.

	June 2, 1874	June 3, 1874	June 4, 1874	June 5, 1874
d				
S	2 20 44.00	2 37 16.00	2 42 50.00	2 53 9.00
C	19 8 55.39	19 24 59.48	19 1 3.57	18 57 7.66
i	3 27.34	3 27.34	3 27.34	3 27.34
m	6.72	3.94	3.12	1.32
s	2.88	2.95	2.86	2.97
T	21 33 16.33	21 45 49.71	21 47 26.89	21 53 48.29
M	21 34 26.00	21 47 0.00	21 48 38.00	21 55 0.00
R	− 69.67	− 71.29	− 71.11	− 71.71
e				
c				
x				
F.3451	− 484.78	− 484.92	− 485.36	− 485.37
I	$21^h\ 35^m$	$21^h\ 50^m$	$21^h\ 50^m$	$21^h\ 55^m$
Mm	64½ 58½	64 58½	63 59½	74 61
F.3424	$-266^m\ 53^s.1$	$-267^m\ 26^s.1$	$-267^m\ 58^s.5$	$-267^m\ 47^s.2$

June 5, 22^h. F. 3424 and thermometers out of case. Case removed from S. Clock.

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1872phae.proj...158.

	June 7, 1874	June 8, 1874	June 9, 1874	June 10, 1874
d				
S	4 47 30.00	2 15 20.00	2 30 1.00	2 49 0.00
C	18 49 15.84	18 45 19.92	18 41 24.01	18 37 28.10
h	3 7.68	3 27.34	3 27.34	3 27.34
m	2.30	7.54	5.09	1.97
s	2.92	2.94	3.00	3.00
T	23 39 58.74	21 4 17.74	21 15 0.44	21 30 0.41
M	23 41 10.00	21 5 29.00	21 15 12.00	21 30 12.00
R	— 71.26	— 71.26	— 11.56	— 11.59
E				
e				
x				
F. 3451	— 484.97	— 485.03	— 485.32	— 485.42
I	$23^h\ 40^m$	$21^h\ 5^m$	$21^h\ 15^m$	$21^h\ 30^m$
Mm	78 66	75 68	74½ 68½	72½ 65
F. 3424	$-267^m\ 23^s.4$	$-266^m\ 40^s.3$	$-264^m\ 59^s.4$	$-264^m\ 31^s.7$

June 7, 1874.
Case of S. Clock replaced since last comparisons. Chronometer F. 3424 and thermometers now in place.

June 8, 1874
S. Clock put forward 1 minute, after comparisons.

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1872phae.proj.338.

	June 11, 1874	June 12, 1874	June 14, 1874	June 15, 1874
d				
S	3 15 0.00	4 25 10.00	2 58 0.00	3 10 30.00
G	18 33 32.19	18 29 36.27	18 21 44.45	18 17 48.53
h	3 17.51	3 7.68	3 27.34	3 17.51
m	7.54	5.90	0.50	8.36
s	3.00	2.97	3.00	2.92
T	21 52 0.24	22 58 2.82	21 23 15.29	21 31 47.32
M	21 52 12.00	22 58 15.00	21 23 28.00	21 32 0.00
R	−11.76	−12.18	−12.71	−12.68
E				
e				
x				
F.3451	−485.77	−486.19	−486.38	−486.55
T	$21^h\ 55^m$	$23^h\ 0^m$	$21^h\ 25^m$	$21^h\ 35^m$
Mm	66 61	63½ 61	67½ 59½	73 64
F.3424	$-26^m\ 42^s.8$	$-26^m\ 4^s.1$	$-26^m\ 31^s.0$	$-26^m\ 5^s.7$

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1872phae.proj...358.

	June 17, 1874	June 18, 1874	June 19, 1874	June 21, 1874
d	4 35 45.00	3 33 33.00	3 23 50.00	3 49 15.00
S	18 9 56.70	18 6 0.79	18 2 4.88	17 54 13.05
Ch	3 7.68	3 17.51	3 17.51	3 17.51
m	4.27	4.59	6.23	1.97
S	2.88	2.91	2.86	2.96
T	22 48 56.53	21 42 58.80	21 29 21.48	21 46 50.49
M	22 49 8.00	21 43 10.00	21 29 32.00	21 47 0.00
R	— 11.47	— 11.20	— 10.52	— 9.51
E				
e				
ϕ				
F.3451	— 486.56	— 487.15	— 487.42	— 487.45
I	$22^h\ 50^m$	$21^h\ 45^m$	$21^h\ 30^m$	$21^h\ 50^m$
Mm	72 66	69 65	65½ 59	62½ 59
F.3424	$-263^m\ 19^s.3$	$-264^m\ 4^s.9$	$-264^m\ 23^s.4$	$-265^m\ 30^s.6$

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1872phae.proj.358.

	June 22, 1874	June 23, 1874	June 24, 1874	June 25, 1874
d				
S	4 2 10.00	4 41 29.00	4 4 51.00	3 50 51.00
G	17 50 17.14	17 46 21.23	17 42 25.32	17 38 29.41
h	3 7.68	3 7.68	3 7.68	3 17.51
m	9.67	3.28	9.34	1.81
s	2.97	2.92	2.86	2.86
T	21 55 47.46	22 31 4.11	21 50 36.20	21 32 42.59
M	21 55 56.00	22 31 12.00	21 50 44.00	21 32 50.00
R	− 8.54	− 7.89	− 7.80	− 7.41
E				
e				
x				
F.3451	−486.98	− 486.91	−487.15	− 487.23
I	$21^h\ 55^m$	$22^h\ 30^m$	$21^h\ 55^m$	$21^h\ 35^m$
Mm	74½ 62½	79 71	72 66	71 66
F.3424	$-264^m\ 58.^s1$	$-263^m\ 50.^s8$	$-263^m\ 21.^s7$	$-262^m\ 58.^s8$

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1872phae.proj...058.

	June 26, 1874	June 28, 1874	June 29, 1874	June 30, 1874
d	4 18 50.00	4 27 0.00	4 21 0.00	4 24 18.00
G	17 34 33.50	17 26 41.67	17 22 45.76	17 18 49.85
h	3 7.68	3 7.68	3 7.68	3 7.68
m	7.05	5.58	6.56	6.07
s	2.86	3.00	3.00	2.95
T	21 56 41.09	21 56 57.93	21 47 3.00	21 46 24.55
M	21 56 48.00	21 57 4.00	21 47 9.00	21 46 30.00
R	− 6.91	− 6.07	− 6.00	− 5.45
E				
e				
x				
F.3451	− 487.57	− 488.06	− 488.76	− 489.06
I	$21^h\ 55^m$	$22^h\ 5^m$	$21^h\ 50^m$	$21^h\ 50^m$
Mm	73 67	79 67	84 74	79 71
F.3424	$-262^m\ 29^s.0$	$-260^m\ 47^s.2$	$-259^m\ 14^s.8$	$-258^m\ 5^s.6$

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1872phae.proj.338.

	July 1, 1874	July 2, 1874	July 3, 1874	July 5, 1874
d				
D	4 9 30.00	5 57 0.00	4 33 25.00	4 16 19.00
C	17 14 53.94	17 10 58.02	17 7 2.11	16 59 10.28
h	3 7.68	2 57.85	3 7.68	3 7.68
m	8.53	0.66	4.59	7.38
s	2.92	3.00	2.93	2.95
T	21 27 43.07	23 10 59.53	21 43 42.31	21 18 47.29
M	21 27 48.00	23 11 4.00	21 43 46.00	21 18 50.00
R	−4.93	−4.47	−3.69	−2.71
E				
e				
x				
F. 3451	−489.29	−489.46	−489.22	−489.13
I.	$21^h\ 30^m$	$23^h\ 10^m$	$21^h\ 45^m$	$21^h\ 20^m$
Mm	77 70	74 69½	74½ 70	72½ 64
F. 34124	$-257^m\ 9^s.9$	$-256^m\ 25^s.5$	$-255^m\ 40^s.2$	$-254^m\ 56^s.5$

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1872phae.proj..168.

	July 6, 1874	July 7, 1874	July 8, 1874	July 9, 1874
d				
φ	5 27 41.00	4 42 10.00	4 53 24.00	4 33 17.00
b	16 55 14.36	16 51 18.44	16 47 22.54	16 43 26.63
h	2 57.85	3 7.68	3 7.68	3 7.68
m	5.58	3.12	1.32	4.59
s	2.89	2.97	2.93	2.95
T	22 26 1.68	21 36 42.21	21 43 58.47	21 19 58.85
M	22 26 4.00	21 36 44.00	21 44 0.00	21 20 0.00
R	— 2.32	— 1.79	— 1.53	— 1.15
E				
e				
x				
F. 3451	— 488.94	— 486.96	— 489.48	— 490.28
I	$22^h\ 45^m$	$21^h\ 45^m$	$21^h\ 45^m$	$21^h\ 20^m$
Mm	69 64	74 66	78½ 70½	79½ 74½
F. 3424	$-254^m\ 44.^s9$	$-254^m\ 10.^s8$	$-253^m\ 5.^s0$	$-251^m\ 46.^s9$

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1872phae.proj.368.

d	July 10, 1874	July 12, 1874	July 13, 1874	July 14, 1874
l	4 53 47.00	5 35 9.00	4 54 37.00	5 2 41.00
b	16 39 30.71	16 31 38.89	16 27 42.98	16 23 47.06
h	3 7.68	2 57.85	3 7.68	2 57.85
m	1.32	4.27	1.15	9.67
s	2.87	2.97	2.90	2.89
T	21 36 29.58	22 9 52.98	21 25 31.71	21 29 38.47
M	21 36 30.00	22 9 52.00	21 25 30.00	21 29 36.00
R	− 0.42	+ 0.98	+ 1.71	+ 2.47
E				
e				
x				
F.34451	− 490.67	− 491.43	− 491.62	− 492.02
T	$21^h\ 40^m$	$22^h\ 10^m$	$21^h\ 25^m$	$21^h\ 30^m$
Mm	78 74½	77 67	73½ 66½	76 69
F.34424	$-250^m\ 32^s.5$	$-248^m\ 46^s.9$	$-248^m\ 13^s.8$	$-247^m\ 20^s.6$

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1872phae.proj...

	July 15, 1874	July 16, 1874	July 19, 1874	July 20, 1874
d				
$\odot$	4 56 31.00	5 28 43.00	5 19 33.00	5 19 0.00
$\odot$	16 19 51.15	16 15 55.24	16 4 7.50	16 0 11.59
h	3 7.68	2 57.85	2 57.85	2 57.85
m	0.83	5.41	6.89	6.89
s	2.91	2.88	2.91	3.00
J	21 19 33.57	21 47 44.38	21 26 48.15	21 22 19.33
M	21 19 30.00	21 47 40.00	21 26 40.00	21 22 10.00
R	+ 3.57	+ 4.38	+ 8.15	+ 9.33
E				
e				
x				
F. 3451	− 492.46	− 492.83	− 492.41	− 492.70
T	$21^h\ 20^m$	$21^h\ 50^m$	$21^h\ 30^m$	$21^h\ 20^m$
Mm	80½ 73	80½ 73	79 70	77 = 71 =
F. 3424	$-245^m\ 59^s.7$	$-244^m\ 35^s.2$	$-241^m\ 41^s.5$	$-240^m\ 38^s.0$

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1872phae.proj : 358.

	July 21, 1874	July 22, 1874	July 23, 1874	July 24, 1874
d				
S	5 38 12.00	5 25 1.00	6 20 35.00	5 39 41.00
C	15 56 15.68	15 52 19.76	15 48 23.85	15 44 27.94
h	2 57.85	2 57.85	2 48.02	2 57.85
m	3.77	5.90	6.72	3.61
s	2.96	3.00	2.90	2.89
T	21 37 32.26	21 20 27.51	22 11 56.49	21 27 13.29
M	21 37 22.00	21 20 16.00	22 11 44.00	21 27 0.00
R	+10.26	+11.51	+12.49	+13.29
E				
e				
x				
F. 34151	−493.03	−492.95	−493.21	−493.75
T	$21^h\ 40^m$	$21^h\ 20^m$	$22^h\ 15^m$	$21^h\ 30^m$
Mm	75½ 69½	75 69½	75 69½	76 71
F. 34241	$-239^m\ 41^s.4$	$-238^m\ 54^s.8$	$-238^m\ 4^s.4$	$-237^m\ 9^s.9$

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1872phae.proj...38.

	July 26, 1874	July 27, 1874	July 28, 1874	July 29, 1874
d				
$\odot$	6 1 8,00	5 57 34.00	6 28 40.00	6 54 1.00
$\odot$	15 36 36.11	15 32 40.20	15 28 44.29	15 24 48.38
h	2 48.02	2 57.85	2 48.02	2 48.02
m	9.84	0.66	5.41	1.15
s	2.98	2.91	2,89	3.00
T	21 40 44.95	21 33 15.62	22 0 20.61	22 21 41.55
M	21 40 30.00	21 33 0.00	22 0 4.00	22 21 24.00
R	+14.95	+15.62	+16.61	+17.55
E				
e				
x				
F. 3451	— 494.42	−494.96	−495.33	−495.64
T	$21^h\ 40^m$	$21^h\ 35^m$	$22^h\ 5^m$	$22^h\ 20^m$
Mm	76 70	77½ 70	78 72	74½ 71
F. 3424	$-235^m\ 27^s.2$	$-234^m\ 26^s.7$	$-233^m\ 18^s.8$	$-231^m\ 19^s.1$

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1872phae.proj.358.

d	July 30, 1874	July 31, 1874	August 2, 1874	August 3, 1874
s	6 0 31.00	6 3 39.00	6 15 30.00	6 17 17.00
b	15 20 52.48	15 16 56.57	15 9 4.75	15 5 8.83
h	2 48.02	2 48.02	2 48.02	2 48.02
m	10.00	9.51	7.54	7.22
s	2.91	2.89	2.92	2.95
T	21 24 24.41	21 23 35.99	21 27 33.23	21 25 24.02
M	21 24 6.00	21 23 16.00	21 27 10.00	21 25 0.00
R	+18.41	+19.99	+23.23	+24.02
E				
e				
x				
F. 3451	−495.87	−495.61	−495.07	−494.97
I	$21^h\ 30^m$	$21^h\ 25^m$	$21^h\ 30^m$	$21^h\ 25^m$
Mm	74½ 68½	75 68½	75 67½	70 64
F. 3424	$-231^m\ 37^s.7$	$-230^m\ 49^s.4$	$-229^m\ 9^s.0$	$-228^m\ 52^s.7$

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1872phae.proj...158.

	August 4, 1874	August 5, 1874	August 6, 1874	August 7, 1874
d				
S	5 43 48.00	7 4 48.00	6 24 30.00	6 45 12.00
C	15 1 12.92	14 57 17.01	14 53 21.10	14 49 25.19
h	2 57.85	2 38.19	2 48.02	2 48.02
m	2.96	9.34	6.07	2.63
s	2.87	2.87	2.92	2.96
Y	20 48 4.60	22 4 55.41	21 20 48.11	21 37 30.80
M	20 47 40.00	22 4 30.00	21 21 22.00	21 38 4.00
R	+24.60	+25.41	−33.89	−33.20
E				
e				
x				
F. 3451	−495.23	−495.47	−	
T	$20^h\ 50^m$	$22^h\ 5^m$	$21^h\ 20^m$	$21^h\ 40^m$
Mm	70 64	71 65½	71 66	73 66½
F. 3424	$-228^m\ 41.^s6$	$-228^m\ 21.^s2$	$-228^m\ 57.^s5$	$-228^m\ 22.^s6$

Aug. 6, 1874. S. Clock adjusted.
Chron. F. 3451 removed.

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1872phae.proj.338.

d	August 9, 1874	August 10, 1874	August 11, 1874	August 12, 1874
S.	7 3 40.00	7 35 30.00	6 47 30.00	6 49 10.00
☾	14 41 33.37	14 37 37.46	14 33 41.55	14 29 45.64
h	2 38.19	2 38.19	2 48.02	2 48.02
m	9.51	4.27	2.30	1.97
s	2.89	2.92	2.92	2.97
T	21 48 3.96	22 15 52.84	21 24 4.79	21 21 48.60
M	21 48 36.00	22 16 24.00	21 24 35.00	22 22 18.00
R	−32.04	−31.16	−30.21	−29.40
E				
e				
x				
F. 3451				
T	$21^h\ 50^m$	$22^h\ 15^m$	$21^h\ 25^m$	$21^h\ 20^m$
Mon	72 68½	77 69	78½ 73	78 73
F. 3424	$-227^m\ 14^s.9$	$-226^m\ 17^s.9$	$-225^m\ 10^s.5$	$-223^m\ 59^s.9$

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1872phae.proj...358.

	August 13, 1874	August 14, 1874	August 15, 1874	August 16, 1874
d				
φ	6 52 21.00	6 58 20.00	5 50 31.00	6 50 29,00
C	14 25 49.73	14 21 53.82	14 17 57.91	14 14 2.00
h	2 48,02	2 48.02	2 57.85	2 48.02
m	1.48	0.50	1.81	1.81
s	2.94	2.94	2.91	2.92
T	21 21 3.17	21 23 5.28	20 11 31.48	21 7 23.75
M	21 21 32.00	21 23 34.00	20 12 0.00	21 7 52.00
K	— 28.83	— 28.72	— 28.52	— 28.25
E				
e				
x				
F. 3451				
T	$21^h\ 20^m$	$21^h\ 20^m$	$20^h\ 10^m$	$21^h\ 10^m$
Mm	75 70½	70½ 66	68½ 65½	70 65½
F. 3424	$-223^m\ 2^s,0$	$-223^m\ 42^s.4$	$-222^m\ 31^s.4$	$-222^m\ 12^s.9$

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1872phae.proj..358.

	August 17, 1874	August 18, 1874	August 19, 1874	August 20, 1874
d				
S	5 21 19.00	7 42 1.00	7 48 1.00	8 10 0.00
C	14 10 6.09	14 6 10.18	14 2 14.28	13 58 18.37
h	2 57.85	2 38.19	2 38.19	2 28.36
m	6.56	3.12	2.14	8.36
s	2.95	3.00	3.00	3.00
T	19 34 32.45	21 50 55.49	21 52 58.61	22 10 58.09
M	19 35 0.00	21 51 22.00	21 53 24.00	22 11 22.00
R	−27.55	−26.51	−25.39	−23.91
E				
e				
x				
F. 34151				
T	$19^h\ 35^m$	$21^h\ 50^m$	$21^h\ 55^m$	$22^h\ 10^m$
Mm	71 65½	74 66	73½ 69	76½ 70
F. 34124	$-221^m\ 53^s.2$	$-221^m\ 14^s.6$	$-220^m\ 34^s.6$	$-219^m\ 37^s.6$

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1872phae.proj...38.

	August 21, 1874	August 23, 1874	August 24, 1874	August 25, 1874
d				
☉	8 6 35.00	8 13 44.00	8 15 27.00	8 6 30.00
☾	13 54 22.46	13 46 30.64	13 42 34.73	13 38 38,82
h	2 28.36	2 28.36	2 28.36	2 28.36
m	9.02	7.87	7.54	9.02
s	2.90	2.88	2.92	2.92
T	22 3 37.74	22 2 53.75	22 0 40.55	21 47 49.12
M	22 4 0.00	22 3 14.00	22 1 0.00	21 48 8.00
K	−22.26	−20.25	−19.45	−18.88
E				
e				
x				
F. 3451				
I	$22^h\ 5^m$	$22^h\ 5^m$	$22^h\ 5^m$	$21^h\ 50^m$
Mm	75½ 70	71½ 63	68 62	67½ 61½
F. 3424	$-218^m\ 38^s.9$	$-218^m\ 7^s.5$	$-218^m\ 8^s.6$	$-218^m\ 12^s.1$

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1872phae.proj..358.

30.?

	August 26, 1874	August 27, 1874	August 28, 1874	August 29, 1874
d				
☉	8 9 35.00	8 43 21.00	8 42 31.00	8 44 10.00
☾	13 34 42.91	13 30 47.00	13 26 51.09	13 18 59.28
h	2 28.36	2 28.36	2 28.36	2 28.36
m	8.53	2.96	3,12	2.79
s	2.90	2.94	2.91	2.97
T	21 46 57.70	22 16 42.26	22 11 56.48	22 5 43.40
M	21 47 16.00	22 17 0.00	22 12 14.00	22 6 0.00
R	−18.30	−17.74	−17.52	−16.60
E				
e				
x				
F. 3451	—			
T'	$21^h\,50^m$	$22^h\,15^m$	$22^h\,10^m$	$22^h\,5^m$
Mm	67 61	66½ 61	68 61	71½ 63
F. 3424	$-218^m\,18^s.9$	$-218^m\,29^s.8$	$-218^m\,32^s.4$	$-217^m\,56^s.2$

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1872phae.proj...358.

	August 31, 1874	September 1, 1874	September 2, 1874	September 3, 1874
d				
$\odot$	8 35 5.00	8 39 10.00	8 12 30.00	7 50 11.00
$\odot$	13 15 3.37	13 11 7.46	13 7 11.55	13 3 15.64
h	2 28.36	2 28.36	2 28.36	2 38.19
m	4.27	3.61	8.03	1.81
s	2.98	2.97	2.92	2.97
T	21 52 43.98	21 52 52.40	21 22 20.86	20 56 9.61
M	21 53 0.00	21 53 8.00	21 22 36.00	20 56 24.00
K	−16.02	−15.60	−15.14	−14.39
E				
e				
x				
F. 3451				
I	$21^h\ 55^m$	$21^h\ 55^m$	$21^h\ 20^m$	$20^h\ 55^m$
Mm	74½ 66	71½ 66	77½ 66	76 66
F. 3424	$-217^m\ 20^s.2$	$-216^m\ 54^s.9$	$-216^m\ 33^s.0$	$-215^m\ 53^s.7$

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1872phae.proj..358.

d	September	8,	1874	September	8,	1874	September	9,	1874	September	10,	1874
$\odot$	15	13	48.00	8	46	0.00	9	19	49.00	8	54	39.00
$\odot$	12	47	32.01	12	43	36.10	12	39	40.20	12	35	44.29
h		1	19.56		2	28.36		2	18.53		2	28.36
m			7.87			2.46			6.89			1.15
s			2.87			3.00			2.87			2.89
T	4	2	50.31	21	32	9.92	22	1	57.49	21	32	55.69
M	4	3	0.00	21	32	22.00	22	2	10.00	21	33	6.00
R			− 9.69			− 12.08			− 12.51			− 10.31
E												
e												
x												
F. 3451												
I	4^h	5^m		21^h	30^m		22^h	5^m		21^h	30^m	
Mm	71	62		71	66		71	66		76½	66½	
F. 3424	-215^m	$2^s.1$		-214^m	$43^s.2$		-214^m	$20^s.9$		-212^m	$36^s.0$	

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1872phae.proj...358.

	September 11, 1874	September 13, 1874	September 14, 1874	September 15, 1874
d				
α	9 18 5.00	9 51 51.00	9 24 15.00	9 51 26.00
φ	12 31 48.38	12 23 56.57	12 20 0.66	12 16 4.75
h	2 18.53	2 18.53	2 18.53	2 18.53
m	7.05	1.64	6.07	1.64
s	2.98	2.86	2.96	2.93
J	21 52 21.94	22 18 10.60	21 46 43.22	22 9 53.85
M	21 52 30.00	22 18 18.00	21 46 50.00	22 10 0.00
R	— 8.06	— 7.40	— 6.78	— 6.15
E				
e				
x				
F. 3451				
T	$21^h\ 50^m$	$22^h\ 20^m$	$21^h\ 45^m$	$22^h\ 10^m$
Mm	76½ 69½	71 62	70 64	71½ 66
F. 3424	$-212^m\ 38^s.4$	$-212^m\ 20^s.4$	$-212^m\ 6^s.8$	$-211^m\ 40^s.3$

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1872phae.proj..358.

	September 16, 1874	September 17, 1874	September 19, 1874	September 20, 1874
α	11 19 19.00	10 50 19.00	12 20 40.00	10 22 39.00
φ	12 12 8.84	12 8 12.93	12 4 17.02	11 56 25.22
h	1 58.87	2 8.70	1 49.05	2 8.70
m	6.89	1.81	6.72	6.40
s	2.95	2.95	2.89	2.89
T	23 33 36.55	23 0 45.39	0 26 55.68	22 21 22.21
M	23 33 42.00	23 0 50.00	0 27 0.00	22 21 26.00
R	− 5.45	− 4.61	− 4.32	− 3.79
E				
e				
x				
F. 3451				
T	$23^h\ 30^m$	$23^h\ 0^m$	$0^h\ 30^m$	$22^h\ 20^m$
M_m	72 68	68½ 65½	66 64	66 62½
F. 3424	$-211^m\ 6^s.2$	$-210^m\ 51^s.0$	$-210^m\ 52^s.6$	$-211^m\ 7^s.4$

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1872phae.proj...

d	September 21, 1874	September 23, 1874	September 24, 1874	September 25, 1874
☉	9 51 50.00	15 58 10.00	15 47 30.00	15 53 41.00
☾	11 52 29.31	11 48 33.40	11 44 37.49	11 40 41.58
h	2 18.53	1 19.56	1 19.56	1 19.56
m	1.64	0.50	2.30	1.32
s	2.86	2.97	2.92	2.89
T	21 46 42.34	3 48 6.43	3 33 32.27	3 35 46.35
M	21 46 46.00	3 48 10.00	3 33 36.00	3 35 50.00
R	— 3.66	— 3.57	— 3.73	— 3.65
E				
e				
x				
F. 3451				
T	$21^h\ 50^m$	$3^h\ 50^m$	$3^h\ 30^m$	$3^h\ 35^m$
Mm	67 60	66 59	69 62	70 63
F. 34124	$-211^m\ 11^s.0$	$-211^m\ 39^s.2$	$-211^m\ 16^s.7$	$-211^m\ 34^s.5$

S. Clock ~~fast~~ $12^s.79$ at $3\frac{3}{4}$ mean time Sept. 23 1874.

S. Clock ~~fast~~ $12^s.59$ at 5^h mean time Sept. 24, 1874

S. Clock fast $12^s.31$ at 4^h mean time Sept. 25, 1874

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1872phae.proj.358.

	September 25, 1874	September 29, 1874	September 30, 1874	October 3, 1874
d				
$\odot$	10 29 20.00	12 17 36.00	10 27 30.00	17 11 32.00
$\mathbb{C}$	11 36 45.67	11 21 2.04	11 17 6.13	11 9 14.32
h	2 8.70	1 49.05	2 8.70	0 59.90
m	5.25	7.22	5.58	8.20
s	2.94	2.90	2.92	2.91
T	22 8 22.56	23 40 37.21	21 46 53.33	4 21 57.33
M	22 8 26.00	23 40 40.00	21 46 56.00	4 22 0.00
R	− 3.44	− 2.79	− 2.67	− 2.67
E				
e				
x				

I	$22^h\ 10^m$	$23^h\ 40^m$	$21^h\ 45^m$	$4^h\ 20^m$
Nm	71 65	71½ 63½	69 60½	67 59
J. 3424	$-211^m\ 19^s.3$	$-210^m\ 26^s.6$	$-210^m\ 22^s.6$	$-211^m\ 11^s.4$

S. Clock fast
12s.45 at
22h mean time
Sept. 25, 1874

S. Clock fast
12s.98 at
23h mean time
Sept. 29, 1874

S. Clock fast
13s.52 at
5h mean time
Oct. 2, 1874

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1872phae.proj...58.

	October 4, 1874	October 5, 1874	October 6, 1874	October 7, 1874
d				
S	11 5 34.00	10 45 40.00	10 46 41.00	11 35 17.00
b	11 1 22.50	10 57 26.59	10 53 30.69	10 49 34.78
h	1 58.87	2 8.70	2 8.70	1 58.87
m	9.18	2.63	2.46	4.27
s	2.91	2.89	2.89	2.95
T	22 9 7.46	21 45 20.81	21 42 25.74	22 26 57.87
M	22 9 10.00	21 45 23.00	21 42 28.00	22 27 0.00
R	− 2.54	− 2.19	− 2.26	− 2.13
E				
e				
x				

I	$22^h\ 10^m$	$21^h\ 45^m$	$21^h\ 40^m$	$22^h\ 30^m$
Mon	65 56½	62 56	69½ 57	67½ 63
F. 3424	$-211^m\ 52^s.6$	$-212^m\ 31^s.1$	$-211^m\ 34^s.3$	$-212^m\ 33^s.0$

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1872phae.proj.338.

	October 8, 1874	October 9, 1874	October 11, 1874	October 12, 1874
d				
S	11 38 54.00	10 55 13.00	11 4 7.00	11 33 48.00
C	10 45 38.87	10 41 42.97	10 33 51.15	10 29 55.24
h	1 58.87	2 8.70	1 58.87	1 58.87
m	3.77	0.99	9.34	4.59
s	2.85	2.96	2.98	2.87
T	22 26 38.36	21 39 8.62	21 40 9.34	22 5 49.57
M	22 26 40.00	21 39 10.00	21 40 10.00	22 5 50.00
K	— 1.64	— 1.38	— 0.66	— 0.43
E				
e				
x				
I	$22^h\ 25^m$	$21^h\ 40^m$	$21^h\ 40^m$	$22^h\ 5^m$
Mm	66 61½	69 62	67½ 59	66 58
f. 3424	$-213^m\ 40^s.5$	$-212^m\ 37^s.6$	$-212^m\ 55^s.0$	$-213^m\ 10^s.5$

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1872phae.proj...68.

	October 13, 1874	October 14, 1874	October 15, 1874	October 16, 1874
d				
S	11 11 10.00	10 32 1.00	11 23 43.00	10 57 10.00
b	10 25 59.33	10 22 3.42	10 18 7.51	10 14 11.61
h	1 58.87	2 8.70	1 58.87	2 8.70
m	8.20	4.76	6.23	0.66
s	2.97	3.00	2.88	2.97
T	21 39 19.37	20 56 20.88	21 43 58.49	21 13 33.94
M	21 39 20.00	20 56 22.00	21 44 0.00	21 13 36.00
R	− 0.63	− 1.12	− 1.51	− 2.06
E				
e				
x				
T	$21^h\ 40^m$	$20^h\ 55^m$	$21^h\ 45^m$	$21^h\ 15^m$
Mm	69 56	61 55	68 56½	66½ 59
F. 3424	$-213^m\ 30^s.8$	$-214^m\ 13^s.2$	$-214^m\ 26^s.7$	$-214^m\ 39^s.3$

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1872phae.proj.368.

	October 18, 1874	October 19, 1874	October 20, 1874	October 21, 1874
d				
S	11 43 42.00	11 41 27.00	11 39 12.00	11 46 18.00
b	10 6 19.80	10 2 23.89	9 58 27.98	9 54 32.07
h	1 58.87	1 58.87	1 58.87	1 58.87
m	2.96	3.28	3.61	2.46
s	2.89	2.92	2.89	2.95
T	21 52 6.52	21 45 55.96	21 40 15.35	21 42 54.35
M	21 52 10.00	21 46 0.00	21 40 20.00	21 43 0.00
R	− 3.48	− 41.04	− 4.65	− 5.65
E				
e				
x				

I	$21^h\ 50^m$	$21^h\ 45^m$	$21^h\ 40^m$	$21^h\ 40^m$
Mm	66 58	65 58	65½ 59½	67 60
F. 34124	$-215^m\ 17^s.6$	$-215^m\ 45^s.2$	$-216^m\ 8^s.0$	$-216^m\ 18^s.9$

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1872phae.proj..358.

d	October 22, 1874	October 23, 1874	October 26, 1874	October 27, 1874
S	11 52 14.00	12 22 38.00	16 4 11.00	11 46 10.00
G	9 50 36.16	9 46 40.25	9 38 48.43	9 30 56.61
L	1 58.87	1 49.05	1 9.73	1 58.87
m	1.48	6.40	9.34	2.46
s	2.96	2.90	2.97	2.97
T	21 44 53.47	22 11 16.60	1 44 21.47	21 19 10.91
M	21 45 0.00	22 11 24.00	1 44 30.00	21 19 20.00
R	−6.53	−7.40	−8.53	−9.09
E				
c				
x				

I	$21^h\ 45^m$	$22^h\ 10^m$	$1^h\ 45^m$	$21^h\ 20^m$
Mm	68½ 60½	68 61½	73½ 63	71½ 63
F. 3424	$-216^m\ 29^s.2$	$-216^m\ 22^s.0$	$-216^m\ 2^s.4$	$-215^m\ 53^s.1$

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1872phae.proj.358.

	October 28, 1874	October 29, 1874	November 2, 1874	November 3, 1874
d				
δ	13 27 6.00	12 28 30.00	12 37 20.00	12 8 30.00
G	9 27 0.70	9 23 4.79	9 7 21.16	9 3 25.24
h	1 39.22	1 49.05	1 49.05	1 49.05
m	5.58	5.41	3.94	8.69
s	2.98	2.92	2.94	2.92
T	22 55 54.48	21 53 32.17	21 46 37.09	21 13 55.90
M	22 56 41.00	21 53 42.00	21 46 48.00	21 14 8.00
R	— 9.52	— 9.83	—10.91	— 12.10
E				
e				
x				

I	$22^h\ 55^m$	$21^h\ 50^m$	$21^h\ 45^m$	$21^h\ 15^m$
Mm	68 $61\frac{1}{2}$	67 $62\frac{1}{2}$	70 58	67 62
J. 32124	$-216^m\ 0^s.4$	$-216^m\ 4^s.3$	$-216^m\ 55^s.9$	$-217^m\ 10^s.7$

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1872phae.proj..358.

	November 4, 1874	November 5, 1874	November 6, 1874	November 8, 1874
d				
☉	13 1 30.00	12 31 31.00	11 48 14.00	12 52 20.00
☾	8 59 29.33	8 55 33.42	8 51 37.51	8 43 45.69
h	1 39.22	1 49.05	1 58.87	1 49.05
m	9.84	4.92	2.14	1.48
s	2.92	2.91	2.96	2.94
T	22 2 51.31	21 29 1.30	20 41 55.48	21 37 59.16
M	22 3 4.00	21 29 14.00	20 42 10.00	21 38 18.00
R	— 12.69	— 12.70	— 14.52	— 18.84
E				
e				
x				
T	$22^h\ 5^m$	$21^h\ 30^m$	$20^h\ 40^m$	$21^h\ 40^m$
Mm	69 62	70 64	68 57	67½ 57
F. 3424	$-217^m\ 9^s.7$	$-217^m\ 10^s.8$	$-217^m\ 17^s.6$	$-217^m\ 52^s.9$

At $22^h\ 40^m$
North Clock — E. Clock
16.26
H. 141 — N. Clock
0.10

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1872phac.proj.338.

	November 9, 1874	November 10, 1874	November 11, 1874	November 12, 1874
d				
δ	13 4 45.00	12 13 10.00	13 12 31.00	13 47 23.00
ℓ	8 39 49.78	8 35 53.87	8 31 57.95	8 28 2.04
h	1 39.22	1 49.05	1 39.22	1 39.22
m	9.34	7.87	8.03	2.30
s	2.88	2.97	2.91	2.94
T	21 46 26.22	20 51 3.76	21 46 19.11	22 17 9.50
M	21 46 46.00	20 51 24.00	21 46 40.00	22 17 30.00
R	−19.78	−20.24	−20.89	H.141−S.Clock 20.50
E				
e				
x				
I	$21^h\ 45^m$	$20^h\ 50^m$	$21^h\ 45^m$	$22^h\ 15^m$
Mm	69½ 61	69 61½	69½ 61	67 59½
F. 3424	$-217^m\ 53^s.0$	$-217^m\ 58^s.4$	$-217^m\ 56^s.7$	$-218^m\ 11^s.6$

About 22^h
N.Clock − E.Clock
16.29
H.141 − N.Clock
1.28

About 21^h
N.Clock − E.Clock
16.22
H.141 − N.Clock
0.06

About 22^h
H.141 − N.Clock
− 0.58

Stopped N. 2d Nov. 10

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1872phae.proj..368.

	November 15, 1874	November 16, 1874	November 17, 1874	November 18, 1874
d		13	12	13
h		46	28	37
c		33.00	10.00	10.00
h		8	8	8
m		12	8	4
s		18.41	22.50	26.59
T		1	1	1
M		39.22	49.05	39.22
R		2.46	5.41	3.94
E		2.91	2.97	2.97
x		22 0 36.00	20 38 29.93	21 43 22.72
		22 1 0.00	20 38 54.00	21 43 47.00
		−24.00	−24.07	−24.28

Electric connections out of order. Comparisons between clocks and chronometers as below.

T	$21^h\ 50$	$22^h\ 5^m$	$20^h\ 40^m$	$21^h\ 45^m$
Mm	73 51	65 59	66½ 61½	68 56
F.3424	$-220^m\ 8^s.66$	$-220^m\ 37^s.6$	$-220^m\ 55^s.9$	$-221^m\ 9^s.8$

F.3424 − E.Clock $220^m\ 14^s.14$
F.3424 − B.236 $219^m\ 12^s.06$
N.Clock − F.3451 $16^s.80$
B.236 − N.Clock $32^s.49$
B.236 − Howard Clock $34^s.88$
By observation of B Hrs. Mins.
F.3451 slow $1^s.61$
Hence N.Clock fast $15^s.19$
Howard Clock fast $12^s.80$
S. Clock slow $8^s.92$
E. Clock slow $14^s.40$

E. Clock stopped
H.141 − S.Clock
$25^s.08$
at $22^h\frac{1}{2}$

E. Clock not in order
H.141 − S.Clock
$24^s.73$
at $21^h\frac{1}{4}$

At $21^h\frac{3}{4}$
H.141 − E.Clock
$15^s.64$
H.141 − S.Clock
$24^s.14$

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1872phae.proj:368.

	November 19, 1874	November 20, 1874	November 22, 1874	November 24, 1874
d				
S	14 15 25.00	14 3 5.00	14 12 12.00	20 41 22.00
b	8 0 30.67	7 56 34.76	7 48 42.94	7 44 47.03
h	1 29.39	1 29.39	1 29.39	0 30.41
m	7.54	9.51	8.03	3.28
s	2.93	2.98	2.96	2.94
T	22 17 35.53	22 1 21.64	22 2 35.32	4 26 45.66
M	22 18 0.00	22 1 46.00	22 3 0.00	4 27 10.00
R	−24.47	−24.36	−24.68	−24.34
E				
e				
x				
I	$22^h\ 20^m$	$22^h\ 5^m$	$22^h\ 5^m$	$4^h\ 25^m$
Mm	63 51	60 54	60 47	62 50
F. 3424	$-221^m\ 57^s.2$	$-222^m\ 57^s.3$	$-225^m\ 31^s.8$	$-225^m\ 38^s.0$
	At $21^{h}\frac{1}{2}$	At $22^{h}\frac{1}{4}$	At $22^{h}\frac{1}{4}$	At $4^{h}\frac{1}{2}$
	H. 141 − E. Clock $17^s.00$	H. 141 − E. Clock $18^s.78$	H. 141 − E. Clock $20^s.44$	
	H. 141 − S. Clock $24^s.21$	H. 141 − S. Clock $24^s.49$	H. 141 − S. Clock $25^s.11$	H. 141 − S. Clock $24^s.68$

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1872phae.proj.368.

d	November 24, 1874	November 25, 1874	November 26, 1874	November 27, 1874
φ	13 15 15.00	14 7 30.00	13 41 30.00	13 40 38.00
ℓ	7 40 51.12	7 36 55.21	7 32 59.30	7 29 3.37
k	1 39.22	1 29.39	1 39.22	1 39.22
m	7.54	8.85	3.28	3.45
s	2.96	2.92	2.92	2.90
T	20 57 55.84	21 46 6.37	21 16 14.72	21 11 26.94
M	20 58 20.00	21 46 30.00	21 16 38.00	21 11 50.00
R	− 24.16	− 23.63	− 23.28	− 23.06
E				
e				
x				

T	$21^h\ 0^m$	$21^h\ 50^m$	$21^h\ 15^m$	$21^h\ 10^m$
Mm	65 52	62 55	62 49	63 49½
F. 3424	$-227^m\ 6.^s5$	$-227^m\ 56.^s6$	$-228^m\ 51.^s8$	$-229^m\ 39.^s3$
	At 21^h.	At $22^h\frac{1}{4}$	At $21^h\frac{1}{2}$	At $21^h\frac{3}{4}$
	H. 141 − E. Clock $25.^s98$	H. 141 − E. Clock $28.^s26$	H. 141 − E. Clock $29.^s53$	H. 141 − E. Clock $32.^s17$
	H. 141 − S. Clock $24.^s42$	H. 141 − S. Clock $23.^s46$	H. 141 − S. Clock $22.^s67$	H. 141 − S. Clock $21.^s75$
		∴ S. Clock − E. Clock $4.^s80$	∴ S. Clock − E. Clock $6.^s86$	∴ S. Clock − E. Clock $10.^s42$

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1872phae.proj.368.

	November 29, 1874	November 30, 1874	December 1, 1874	December 2, 1874
d				
S	14 18 30.00	15 17 1.00	14 40 11.00	14 21 0.00
b	7 21 11.55	7 17 15.64	7 13 19.72	7 9 23.81
h	1 29.39	1 19.56	1 29.39	1 29.39
m	7.05	7.22	3.45	6.56
s	2.92	3.00	2.97	3.00
T	21 41 20.91	22 35 46.42	21 55 6.53	21 32 2.76
M	21 41 44.00	22 36 10.00	21 55 30.00	21 32 26.00
R	−23.09	−23.58	−23.47	−23.24
E				
e				
x				

I	$21^h\ 40^m$	$22^h\ 35^m$	$21^h\ 55^m$	$21^h\ 35^m$
Mm	$68\frac{1}{2}$ 53	63 49	$59\frac{1}{2}$ $55\frac{1}{2}$	63 57
F. 3424	$-230^m\ 5^s.3$	$-231^m\ 1^s.5$	$-232^m\ 0^s.6$	$-232^m\ 40^s.5$
	At $21^h\frac{3}{4}$	At $22^h\frac{3}{4}$	At 22^h	At $21^h\frac{3}{4}$
	H.141 − E. Clock $17^s.80$	H.141 − E. Clock $21^s.43$	H.141 − E. Clock $20^s.75$	H.141 − E. Clock $20^s.05$
	H.141 − S. Clock $23^s.93$	H.141 − S. Clock $24^s.61$	H.141 − S. Clock $25^s.10$	H.141 − S. Clock $23^s.48$
	∴ E. Clock − S. Clock $6^s.13$	∴ E. Clock − S. Clock $3^s.18$	∴ E. Clock − S. Clock $4^s.45$	∴ E. Clock − S. Clock $3^s.43$

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1872phae.proj..368.

	December 3, 1874	December 4, 1874	December 6, 1874	December 7, 1874
d				
ϕ	14 39 1.00	16 6 43.00	15 43 21.00	15 1 10.00
G	7 5 27.90	7 1 31.99	6 53 40.16	6 49 44.25
h	1 29.39	1 9.73	1 19.56	1 19.56
m	3.61	9.02	2.96	9.84
s	3.00	2.88	2.94	2.97
T	21 46 4.90	23 9 36.62	22 38 26.62	21 52 26.62
M	21 46 28.00	23 10 0.00	22 38 50.00	21 52 50.00
R	− 23.10	− 23.38	− 23.38	− 23.38
E				
l				
x				
I	$21^h\ 45^m$	$23^h\ 15^m$	$22^h\ 40^m$	$21^h\ 50^m$
Mm	67 60	$64\frac{1}{2}$ $56\frac{1}{2}$	$65\frac{1}{2}$ 58	65 $59\frac{1}{2}$
J. 3424	$-232^m\ 55^s.1$	$-233^m\ 29^s.2$	$-234^m\ 44^s.6$	$-235^m\ 11^s.6$
	At $22^h\frac{1}{4}$	At $23^h\frac{1}{4}$	At $22^h\frac{3}{4}$	At 22^h
	H.141 − E.Clock	H.141 − E.Clock	H.141 − E.Clock	H.141 − E.Clock
	$22^s.00$	$22^s.35$	$22^s.22$	$22^s.99$
	H.141 − S.Clock	H.141 − S.Clock	H.141 − S.Clock	H.141 − S.Clock
	$23^s.10$	$23^s.04$	$23^s.41$	$24^s.09$
	∴ E.Clock − S.Clock	∴ E.Clock − S.Clock	∴ E.Clock − S.Clock	∴ E.Clock − S.Clock
	$1^s.10$	$0^s.69$	$1^s.19$	$1^s.10$

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1872phae.proj.368.

	December 8, 1874	December 9, 1874	December 10, 1874	December 11, 1874
d				
S	14 39 20.00	14 54 40.00	14 51 45.00	14 54 41.00
C	6 45 48.34	6 41 52.42	6 37 56.51	6 34 0.60
h	1 29.39	1 29.39	1 29.39	1 29.39
m	3.61	1.15	1.64	1.15
s	2.94	2.89	2.88	2.89
T	21 26 44.28	21 38 5.85	21 31 15.42	21 30 15.03
M	21 27 8.00	21 38 30,00	21 31 40,00	21 30 40.00
R	−23.72	−24.15	−24.58	−24.97
E				
e				
x				

I	$21^h\ 30^m$	$21^h\ 40^m$	$21^h\ 30^m$	$21^h\ 30^m$
Mm	$63\frac{1}{2}$ 56	$65\frac{1}{2}$ 57	63 $58\frac{1}{2}$	65 55
F. 3424	$-235^m\ 44^s.3$	$-236^m\ 17^s.2$	$-236^m\ 52^s.5$	$-237^m\ 28^s.3$
	At $21^h\frac{1}{2}$	At $21^h\frac{3}{4}$	At $21^h\frac{3}{4}$	At $21^h\frac{3}{4}$
	H.141 − E. Clock	H.141 − E. Clock	H.141 − E. Clock	H.141 − E. Clock
	$21^s.13$	$21^s.75$	$21^s.75$	$21^s.27$
	H.141 − S. Clock	H.141 − S. Clock	H.141 − S. Clock	H.141 − S. Clock
	$23^s.80$	$23^s.61$	$23^s.85$	$24^s.66$
	∴ E. Clock − S. Clock	∴ E. Clock − S. Clock	∴ E. Clock − S. Clock	∴ E. Clock − S. Clock
	$2^s.67$	$1^s.86$	$2^s.10$	$3^s.39$

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1872phae.proj.1368.

	December 13, 1874	December 14, 1874	December 17, 1874	December 18th, 1874
d				
φ	15 11 45.00	15 51 0.00	15 46 22.00	15 28 56.00
ℓ	6 26 8.77	6 22 12.86	6 10 25.12	6 6 29.21
h	1 19.56	1 19.56	1 19.56	1 19.86
m	8.20	1.64	3.28	5.41
s	2.88	3.00	2.94	2.85
T	21 39 24.41	22 14 37.06	21 53 12.90	21 36 53.03
M	21 39 50,00	22 15 3,00	21 53 40,00	21 37 20.00
R	−25.59	−25.94	−27.10	−26.97
E				
e				
x				

I	$21^h\ 40^m$	$22^h\ 15^m$		$22^h\ 30^m$
Mon	61 48	58½ 43		64.1 56.0
F. 3424	$-239^m\ 35^s.3$	$-241^m\ 0.0$	ran down	$-0^m\ 24^s.8$

At. 4h.0 (Dec. 18.)
H 141 − E. Clock
+ 6s.93
H 141 − S. Clock
+ 24s.85
∴ E. Clock − S. Clock
+ 17s.92

At. 21h¾
H 141 − E. Clock
+ 4s.24
H 141 − S. Clock
+ 23s.78
∴ E Clock − S Clock
+ 19s.54

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1872phae.proj..368.

	December 20, 1874			December 20, 1874			December 21, 1874			December 22, 1874		
d												
S	20	17	29.00	15	31	18.00	15	44	56.00	16	1	54.00
b	6	2	33.30	5	58	37.89	5	54	41.47	5	50	45.56
h		0	30.41		1	19.56		1	19.56		1	9.73
m			7.22			4.92			2.79			9.84
s			2.92			2.95			2.85			2.85
T	2	20	42.85	21	31	22.82	21	41	2.67	21	54	1.98
M	2	21	10.00	21	31	50.00	21	41	30.00	21	54	30.00
R			− 27.15			− 27.18			− 27.33			− 28.02
E												
e												
x												

T	$2^h\ 15^m$	$21^h\ 55^m$	$22^h\ 0^m$	$22^h\ 10^m$
Mm	67.0 57.8	65.3 61.3	68.0 55.4	69.4 59.3
Z 34424	$-1^m\ 2.8^s$	$-1^m\ 22.1^s$	$-1^m\ 41.8^s$	$-1^m\ 52.84^s$
	At $2^{h}\frac{1}{2}$ (Dec 20)	At $21^{h}\frac{3}{24}$	At 22^h	At $22^h.0$
	H141 − E.Clock = $+0.^s58$	H141 − E Clock = $-0.^s33$	H141 − E Clock = $+4.^s39$	H141 − E Clock = $+0.^s92$
	H141 − S Clock = $+21.^s80$	H141 − S Clock = $+20.13$	H141 − S Clock = $+27.21$	H 141 − S Clock = $+25.74$
	∴ E.Clock − S.Clock = $+21.^s22$	∴ E Clock − S Clock = $+20.46$	∴ E Clock − S Clock = $+22.82$	E Clock − S Clock = $+24.82$

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1872phae.proj..358.

	December 28, 1874			December 29, 1874			December 30, 1874.			December 31, 1874		
d												
ϕ	16	23	38.00	16	20	38.00	16	18	48.00	16	42	27.00
C	5	27	10.07	5	23	14.15	5	19	18.24	5	15	22.33
h		1	9.73		1	9.73		1	9.73		1	9.73
m			6.23			6.72			7.05			3.12
s			2.90			2.90			2.84			2.92
T	21	52	6.93	21	45	11.60	21	39	25.89	21	59	5.10
M	21	52	40.00	21	45	45.00	21	40	0.00	21	59	40.00
R			- 33.07			- 33.50			- 34.11			- 34.90
E												
e												
x												

T	$22^h\ 0^m$	$21^h\ 55^m$	$21^h\ 55^m$	$22^h\ 10^m$
Mer	70.0 52.6	67.3 61.7	65.0 49.7	58.0 44.6
F.3424	$-3^m\ 36.0^s$	$-3^m\ 40.8^s$	$-4^m\ 14.8^s$	$-5^m\ 34.8^s$
	At 22^h.	At $21^h\frac{3}{4}$	At $21^h\frac{3}{4}$	At 22^h
	H141 - E Clock = +13.70	H141 - E Clock = +42.34	H141 - E Clock = +43.70	H141 - E Clock = +30.86
	H141 - S Clock = + 6.42	H141 - S. Clock = +31.00	H141 - S Clock = +28.89	H141 - S. Clock = +27.56
	E Clock - S Clock = - 7.28	E Clock - S Clock = -11.34	E Clock - S Clock = -14.81	E Clock - S Clock = - 3.30

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1872phae.proj.338.

d	January 1 1875	January 3 1875	January 4 1875	January 5 1875
S	17 7 6.00	16 51 14.00	17 12 0.00	16 55 26.13
G	5 11 26.43	5 3 34.61	4 59 38.70	4 55 42.79
h	0 59.90	1 9.73	0 59.90	1 9.73
m	8.85	1.64	8.03	0.99
s	2.98	2.96	3.00	2.93
T	22 19 44.16	21 56 2.94	22 12 49.63	21 52 21.57
M	22 20 20.00	21 56 40.00	22 13 27.60	21 53 0.00
R	− 35.84	− 37.06	− 37.97	− 38.43
E				
e				
x				

I	$22^h\ 35^m$	$22^h\ 15^m$	$22^h\ 25^m$	$22^h\ 0^m$
Mm	64.8 49.2	65.0 49.4	68.6 57.6	65.8 57.5
7.34124	$-6^m\ 31.^s9$	$-7^m\ 46.^s9$	$-8^m\ 4.^s7$	$-8^m\ 29.^s6$
	At $22^h\ 3/4$	At 22^h	At $22\ 1/4$	At 22^h
	HE141 − E Clock = + 35.03	HE141 − E Clock = +27.74	HE141 − E Clock = +11.96	HE141 − E Clock = + 5.52
	HE141 − S Clock = + 25.42	HE141 − S Clock = + 18.68	HE141 − S Clock = + 14.89	HE141 − S Clock = + 11.36
	E Clock − S Clock = − 9.61	E Clock − S Clock = − 9.06	E Clock − S Clock = +2.93	E Clock − S Clock = + 5.84

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1872phae.proj..368.

	January 6, 1875			January 7, 1875			January 8, 1875			January 10, 1875		
d												
S	16	51	11.00	16	39	50.00	17	20	30.00	17	47	41.00
C	4	51	46.88	4	47	60.96	4	43	55.04	4	36	3.22
h		1	9.73		1	9.73		0	59.90		0	59.90
m			1.64			3.61			6.72			2.30
S			3.00			2.86			2.92			2.89
T	21	44	1.25	21	28	57.16	22	5	34.58	22	24	49.31
M	21	44	40.00	21	29	36.00	22	6	14.00	22	25	30.00
R			− 38.75			− 38.84			− 39.42			− 40.69
E												
e												
x												

F $22^h\ 0^m$ $21^h\ 45^m$ $22^h\ 10^m$ $22^h\ 30^m$

Mm 69.7 61.0 68.0 61.0 Run down 70 47

F. 3424 $-8^m\ 41.5$ $-9^m\ 1.0^s$ $-4^m\ 56.2^s$

At $21\frac{3}{4}$ At $21\frac{1}{2}$ At $22^h\frac{1}{4}$ At $22^h\frac{1}{2}$

H.141 − F. Clock = −8.17 H.141 − F. Clock = −5.44 H.141 − E. Clock = −13.38 H.141 − E. Clock = −11.24

H.141 − S. Clock = +8.13 H.141 − S. Clock = +4.29 H.141 − S. Clock = +0.20 H.141 − S. Clock = −7.43

F. Clock − S. Clock = +8.20 F. Clock − S. Clock = +9.73 E. Clock − S. Clock = +13.58 E. Clock − S. Clock = +3.81

Chronometer F. 3424 started at $4^h\frac{3}{4}$ mean time Jan. 9, 1875.

F. 3424 removed from case of S. Clock and placed on the case of H.141

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1872phae.proj.338.

	January 11, 1875			January 12, 1875			January 13, 1875			January 14, 1875		
d												
S	16	49	7.00	17	22	37.00	16	57	48.00	17	21	44.00
G	4	32	7.31	4	28	11.40	4	24	15.49	4	20	19.58
h		1	9.73		0	59.90		1	9.73		0	59.90
m			1.97			6.40			0.66			6.56
s			2.98			2.90			2.87			2.88
T	21	22	28.99	21	51	57.60	21	23	16.75	21	43	12.92
M	21	28	10.00	21	52	40.00	21	24	0.00	21	43	57.00
R			− 41.01			− 42.40			− 43.25			− 44.08
E												
e												
x												

T	$21^h\ 30^m$	$22^h\ 0^m$	At $21^h\ 45^m$	$22^h\ 0^m$
Mm	64.3 51.0	63.9 55.0	64.3 58.4	66.5 53.7
F. 34424	$-9^m\ 1^s.7$	$-13^m\ 13^s.2$	$-17^m\ 5^s.5$	$-20^m\ 50^s.3$
	At $21\frac{1}{2}^h$	At 22.0^h	At $21\frac{1}{2}$	At $21^h\ \frac{3}{4}$
	H141 − E Clock = $-8^s.24$	H141 − E Clock = $-12^s.64$	H141 − E Clock = −23.55	H141 − E Clock = $-35^s.35$
	H141 − S Clock = −10.48	H141 − S Clock = −13.90	H141 − S Clock = −17.80	H141 − S Clock = −22.18
	E Clock − S Clock = − 2.24	E Clock − S Clock = − 1.26	E Clock − S Clock = +5.75	E Clock − S Clock = +13.17

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1872phae.proj..368.

	January 15, 1875	January 17, 1875	January 18, 1875	January 19, 1875
d				
S	17 28 43.00	17 26 2.00	17 34 17.00	18 22 14.00
C	4 16 23.66	4 8 31.84	4 4 35.93	4 0 40.02
k	0 59.90	0 59.90	0 39.90	0 50.07
m	5.41	5.74	4.43	6.40
s	2.88	2.99	2.95	2.96
T	21 46 14.85	21 35 42.47	21 40 0.21	22 23 53.45
M	21 47 0.00	21 36 30.00	21 40 49.00	22 24 44.00
R	− 45.15	− 47.53	− 48.79	− 50.55
E				
e				
x				

I	$21^h\ 55^m$	$21^h\ 40^m$	$21^h\ 55^m$	$22^h\ 30^m$
Mm	64.1 53.4	63.6 54.6	61.4 48.4	7s 52
F. 3424	$-24^m\ 6.4^s$	$-33^m\ 57.2^s$	$-38^m\ 53.7$	$-43^m\ 31.5^s$
	At 22^h	At 21.30^h	At $21\frac{3}{4}$	At $22^h\frac{3}{4}$
	H.141 − E.Clock = −46.76	H.141 − E.Clock = −28.07	−26.38	H.141 − E.Clock = −24.57
	H.141 − S.Clock = −25.76	H.141 − S.Clock = −32.00	− 34.56	H.141 − S.Clock = −37.29
	E.Clock − S.Clock = +21.00	E.Clock − S.Clock = −3.98	− 8.18	∴ E.Clock − S.Clock = −12.72

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January 20, 1875			January 21, 1875			January 22. 1875			January 24. 1875		
17	45	49.00	17	40	48.00	18	11	48.00	18	20	50.00
3	56	44.10	3	52	48.19	3	48	52.28	3	41	0.46
	0	59.90		0	59.90		0	50.07		0	50.07
		2.63			3.45			8.20			6.72
		2.87			2.87			2.87			2.86
21	43	38.50	21	34	42.41	22	1	41.42	22	2	50.11
21	44	30.00	21	35	35.00	22	2	35.00	22	3	46.00
	—	51.50		—	52.59		—	53.58		—	55.89
$21^h\ 50^m$			$21^h\ 45^m$			$22^h\ 10^m$			$22^h\ 15^m$		
70.0	54.0		62.0	56.0		65.8	60.0		71.0	52.2	
$-47^m\ 54.8^s$			$-52^m\ 46.7^s$			$-57^m\ 13.2^s$			$-65^m\ 17.4^s$		
At $21^h\ \frac{3}{4}$			At $21\ \frac{3}{4}$			At 22^h			At 22^h		
H141 - Eblock = $-25.^s15$			H141 - Eblock = $-26.^s54$			H141 - Eblock = $-28.^s16$			H141 - Eblock = 39.43		
H141 - Sblock = - 39.86			H141 - Sblock = - 42.21			H141 - Sblock = - 45.49			H141 - Sblock = - 52.96		
Eblock - Sblock = - 14.71			Eblock - Sblock = 15.67			Eblock - Sblock = - 17.33			Eblock - Sblock = - 13.53		

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	January 25. 1875			January 26, 1875			January 27, 1875			January 28, 1875		
d												
S.	18	11	48.00	18	43	37.00	18	18	45.00	18	33	2.00
6.	3	37	4.55	3	33	8.64	3	29	12.73	3	25	16.81
h		0	50.07		0	50.07		0	50.07		0	50.07
m			8.20			2.96			7.115			4.59
s			2.87			2.90			2.88			2.99
S.	21	49	53.69	22	17	41.57	21	48	57.73	21	59	16.46
Th.	21	50	51.00	22	18	40.00	21	49	57.00	22	0	17.00
R.			− 57.31			− 58.43			− 59.27			− 60.54
E.												
e												
x												
S.	22h 0m			22h 15m			22h 0m			22h 0m		
Thm	66.0	52.1		66.0	54.2		68.5	54.2		64.7	56.7	
J. 3424	− 69m	2.5s		− 73m	5.2s		− 77m	54.2s		− 81m	5.1s	
	At 22h			At 22h			At 22h			At 22h		
	N Clock − E Clock = + 65.31			N Clock − E Clock = + 64.75			N. Clock − E Clock = + 62.93			N Clock − E Clock = + 62.40		
	N Clock − S Clock = + 57.31			N Clock − S Clock = + 58.43			N Clock − S Clock = + 59.27			N Clock − S Clock = + 60.54		
	E Clock − S Clock = − 8.00			E Clock − S Clock = − 6.32			E Clock − S Clock = − 3.66			E Clock − S Clock = − 1.86		

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d	January 29, 1875			February 2, 1875			February 2, 1875			February 2, 1875		
h	19	31	29.00	0	51	37.00	18	32	9.00	18	51	35.00
c	3	21	20.90	3	9	33.17	3	9	33.17	3	5	37.26
l		0	40.24		3	47.00		0	50.07			50.07
m			4.92			1.64			4.76			1.64
s			2.92			2.90			2.97			2.90
T	22	53	37.98	4	5	1.71	21	42	39.97	21	58	6.87
M	22	54	40.00	4	6	4.00	21	43	45.00	21	59	13.00
R			− 62.02			(− 62.29)			− 65.03			− 66.13
E												
e												
x												

S Clock Set forward 1m at 22h

T	22h 50m	4h 20m	22h 0m	22h 5m
Mm	71 59½	72° 60.3	73.4 59.2	70.3 62.0
F. 3,1,2,4		− 92m 49.8s	− 95m 26.5s	− 99m 0.7
		At 4h.0	At. 22h	At. 22h.
		N Clock − E Clock = +63.02	N Clock − E Clock = +63.87	N Clock − E Clock = +65.23
		N Clock − S Clock = +63.29	N Clock − S Clock = +65.03	N Clock − S Clock = +66.13
		E Clock − S Clock = +0.27	E Clock − S Clock = +1.16	E Clock − S Clock = +0.90

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1872phae.proj..368.

d	February 3, 1875			February 4, 1875			February 5, 1875			February 8, 1875		
S	18	41	12.00	18	31	55.00	19	3	57.00	22	2	21.00
6	3	1	41.35	2	57	45.44	2	53	49.53	2	45	57.71
h		11	50.07		0	50.07		0	40.24			10.75
m			3.28			4.92			9.57			9.67
d			2.96			2.85			2.84			2.94
J	21	43	49.66	21	30	38.28	21	58	39.12	0	48	42.07
M	21	43	57.00	21	30	47.00	21	58	49.00	0	48	54.00
R			- 7.34			- 8.72			- 9.88			- 11.93
E												
e												
x												

J	$21^h\ 40^m$		$21^h\ 40^m$		$21^h\ 55^m$		$0^h\ 50^m$	
Tr. m	69.1	61.1	69.8	51.4	68.8	56.7	66.0	51.8
T. 3h24	$-\ 100^m\ 55^s.3$		$-\ 104^m\ 27^s.9$		$-\ 108^m\ 26^s.1$		$-\ 118^m\ 13^s.6$	

S clock having been put back

At $21\frac{3}{4}$	At $21\frac{1}{2}$	At 22^h	At $0^h\frac{3}{4}$
N Clock - E Clock $+67^s.12$	H141 - E Clock $= +73^s.61$	N Clock - E Clock $= +71^s.03$	N Clock - E Clock $= +69^s.70$
N Clock - S Clock $= +7.34$	H141 - S Clock $= +10.98$	N Clock - S Clock $= +9.88$	N Clock - S Clock $= +11.93$
E Clock - S Clock $= -59.78$	E Clock - S Clock $= -62.63$	E Clock - S Clock $= -61.15$	E Clock - S Clock $= -57.77$

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1872phae.proj.368.

	February 8, 1875			February 10, 1875			February 11, 1875			February 12, 1875		
d												
S	18	46	58.00	19	26	56.00	19	15	42.00	19	24	41.00
6	2	42	1.80	2	34	9.98	2	30	14.07	2	26	18.16
h.			50.07			40.24			40.24			40.24
m.			2.46			5.74			7.84			6.07
s.			2.84			2.85			2.89			2.89
T.	21	29	55.17	22	1	54.81	21	46	46.74	21	51	48.36
M.	21	30	8.00	22	2	10.00	21	47	3.00	21	52	6.00
R			−12.83			−15.19			−16.26			−17.64
E												
e												
x												

	$21^h 40^m$	$22^h 5^m$	$22^h 0^m$	$22^h 0^m$
	65.8 55.1	66.8 48.2	65.0 56.0	64.0 55.5
	$-122^m 14^s.0$	$-132^m 20^s.6$	$-136^m 29^s.5$	$-141^m 0^s.0$
	At 22^h	At 22^h	At 22^h	At 22^h
	H 141 − E Clock = +69.64	H 141 − E Clock = +68.44	H 141 − E Clock = +68.25	H 141 − E Clock = +68.29
	H 141 − S Clock = +12.85	H 141 − S Clock = +15.86	H 141 − S Clock = +16.22	H 141 − S Clock = +16.77
	E Clock − S Clock = −56.79	E Clock − S Clock = −52.58	E Clock − S Clock = −52.03	E Clock − S Clock = −51.52

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1872phae.proj..168.

1875. Cambridge mean time of sidereal 0^h, less 4 minutes.

January	1	5	11	26.43	January 24	3	41	0.46
	2	5	7	30.52	25	3	37	4.55
	3	5	3	34.61	26	3	33	8.64
	4	4	59	38.70	27	3	29	12.73
	5	4	55	42.79	28	3	25	16.81
	6	4	51	46.88	29	3	21	20.90
	7	4	47	50.96	30	3	17	24.99
	8	4	43	55.04	31	3	13	29.08
	9	4	39	59.13	February 1	3	9	33.17
	10	4	36	3.22	2	3	5	37.26
	11	4	32	7.31	3	3	1	41.35
	12	4	28	11.40	4	2	57	45.44
	13	4	24	15.49	5	2	53	49.53
	14	4	20	19.58	6	2	49	53.62
	15	4	16	23.66	7	2	45	57.71
	16	4	12	27.75	8	2	42	1.80
	17	4	8	31.84	9	2	38	5.89
	18	4	4	35.93	10	2	34	9.98
	19	4	0	40.02	11	2	30	14.07
	20	3	56	44.10	12	2	26	18.16
	21	3	52	48.19	13	2	22	22.25
	22	3	48	52.28	14	2	18	26.34
	23	3	44	56.37	15	2	14	30.43

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1872phae.proj.388.

Reduction of sidereal to mean time

Minutes		Seconds					
Interval	Reduction	Interval	Reduction	Interval	Reduction	Interval	Reduction
1	0.s164	1	0.s003	21	0.s057	41	0.s112
2	0.328	2	0.005	22	0.060	42	0.115
3	0.491	3	0.008	23	0.063	43	0.117
4	0.655	4	0.011	24	0.066	44	0.120
5	0.819	5	0.014	25	0.068	45	0.123
6	0.983	6	0.016	26	0.071	46	0.126
7	1.147	7	0.019	27	0.074	47	0.128
8	1.311	8	0.022	28	0.076	48	0.131
9	1.474	9	0.025	29	0.079	49	0.134
10	1.638	10	0.027	30	0.082	50	0.137
11	1.802	11	0.030	31	0.085	51	0.139
12	1.966	12	0.033	32	0.087	52	0.142
13	2.130	13	0.035	33	0.090	53	0.145
14	2.294	14	0.038	34	0.093	54	0.147
15	2.457	15	0.041	35	0.096	55	0.150
16	2.621	16	0.044	36	0.098	56	0.153
17	2.785	17	0.046	37	0.101	57	0.156
18	2.949	18	0.049	38	0.104	58	0.158
19	3.113	19	0.052	39	0.106	59	0.161
20	3.277	20	0.055	40	0.109	60	0.164

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