KG
11365
11

A.11

Transit Circle
From September 5, 1851
To January 15, 1852

KG-11365.11

KG 11365.11

HARVARD
UNIVERSITY
LIBRARY
APR 28 1956

$$\rho' - \rho = \frac{\tau''}{\tau'} \cdot (\rho'' - \rho)$$

$$\rho' = \rho + \frac{\tau''}{\tau'} \cdot M\rho - \frac{\tau''}{\tau'} \cdot \rho = \rho + \rho \frac{\tau''}{\tau'} \cdot \boxed{(M-1)}$$

$$\rho = a\rho' - bx + e - dy$$

$$\rho = a'\rho' + b'x + e' dy'$$

Instrumental errors of Transit Circle from Sept. 5, 1851 to Jan. 14. 1852

Continued from following page

1851	Collim	Azim	Level
Nov. 10	+0.039	–0.201	–0.047
11	+ .041	– .205	– .049
12	+ .043	– .209	– .051
13	+ .045	– .213	– .053
14	+ .047	– .217	– .055
15	+ .049	– .221	– .057
16	+ .051	– .225	– .059
17	+ .053	– .229	– .061
18	+ .055	– .233	– .063
19	+ .057	– .237	– .065
20	+ .058	– .241	– .067
21	+ .059	– .245	– .069
22	+ .060	– .249	– .071
23	+ .061	– .256	– .073
24	+0.063	–0.264	–0.076
25	+ .064	– .267	– .079
26	+ .065	– .270	– .082
27	+ .065	– .273	– .085
28	+ .066	– .276	– .089
29	+0.067	–0.279	– .092
30	+0.031	– .252	– .096
Dec. 1	– .005	– .225	– .099
2	– .041	– .198	– .103
3	– .077	– .171	– .106
4	– .113	.144	– .109
5	–0.149	–0.120	– .112
6	– .137	–0.129	–0.116
7	– .125	– .138	– .116
8	– .113	– .147	– .116
9	– .101	– .156	– .115
10	– .089	– .165	– .115
11	– .077	– .174	– .115
12	– .065	– .183	– .114
13	–0.053	–0.192	–0.114
Dec. 14	+0.041	–0.201	–0.114
15	– .029	– .210	– .113
16	– .017	– .220	– .113
17	– .005	– .230	– .113
18	+ .007	– .240	– .112
19	+ .019	– .250	– .112
20	+ .031	– .259	– .112
21	+ .043	– .268	– .111
22	+ .055	– .278	– .111
23	+ .067	– .288	– .110
24	+ .079	– .297	– .110
25	+ .091	– .305	– .109
26	+ .103	– .313	– .109
27	+ .115	– .322	– .108
28	+ .126	– .330	– .107
29	+0.133	–0.338	–0.106
30	+ .133	–0.339	– .108
31	+ .133	– .340	– .110
1852	+ .134	– .341	– .112
Jan. 1	+ .134	– .342	– .114
2	+ .134	– .344	– .116
3	+ .135	– .346	– .118
4	+ .135	– .347	– .120
5	+ .135	– .349	– .122
6	+ .136	– .352	– .124
7	+ .136	– .355	– .126
8	+ .136	– .358	– .128
9	+ .137	– .361	– .130
10	+ .137	– .364	– .132
11	+ .138	– .367	– .134
12	+ .138	– .370	– .136
13	+ .138	– .373	– .138
14	+0.138	–0.376	–0.140

Instrumental errors of Transit Circle from Sept. 5, 1851 to Jan. 14, 1852

Illumination West

	Coll.	Azim.	level
Sept. 5	$+\overset{s}{0}.058$	$+\overset{s}{0}.135$	$+\overset{s}{0}.101$
" 8	− .012	+ .173	
" 12	− .003	+ .196	+0.081
" 16			+0.136
	Illumination	East	
" 17	$-\overset{s}{0}.038$	$+\overset{s}{0}.002$	$+\overset{s}{0}.204$
	Illumination	West	
" 17	+0.014	+0.009	
" 24	−0.030	+0.027	
" 30	−0.013	+0.018	$+\overset{s}{0}.141$
Oct. 10	−0.067	+0.108	+0.130
14	−0.087	+0.116	+0.121
	Illumination	East	
16	−0.087	+0.015	[illegible]
17			+0.081
	Illumination	West	
17	+0.020	−0.055	+0.087
20	−0.012	+0.026	
Nov. 3	−0.018	−0.128	
4	+0.027	−0.177	−0.041
24	+0.063	−0.264	−0.076 .076
29	+0.067	−0.279	
Dec. 5	−0.149	−0.120	~~−0.116~~
6			−0.116
29	+0.133	−0.338	−0.106
Jan. 22	+0.140	−0.400	−0.156

		coll.	Azim.	level
Sept.	5	$+\overset{s}{0}.058$	$+\overset{s}{0}.135$	$+\overset{s}{0}.101$
	6	+ .035	+ .147	+ .098
	7	+ .012	+ .169	+ .095
	8	−0.012	+0.173	+ .092
	9	− .010	+ .178	+ .089
	10	− .008	+ .183	+ .086
	11	− .006	+ .188	+ .083
	12	−0.003	+0.196	+0.081
	13	+ .008	+ .157	+0.94
	14	+ .016	+ .118	+ .107
	15	+ .024	+ .079	+ .120
	16	+ .032	+ .060	+0.136
	17	−0.038	+0.002	+0.204
	17	+0.014	+0.009	+ 204
	18	+ .008	+ .012	+ .199
	19	+ .002	+ .014	+ .194
	20	+ .006	+ .017	+ .189
	21	− .012	+ .020	+ .184
	22	− .018	+ .022	+ .179
	23	− .024	+ .025	+ .174
	24	−0.030	+0.027	+ .169
	25	− .027	+ .026	+ .164
	26	− .024	+ .024	+ .159
	27	− .021	+ .023	+ .154
	28	− .018	+ .022	+ 149
	29	− .015	+ .020	+ 144
	30	−0.013	+0.018	+0.141
Oct.	1	− .018	+ .027	+0.140
	2	− .024	+ .037	+0.139
	3	− .029	+ .046	+0.138
	4	− .034	+ .056	+0.137
	5	− .040	+ .065	+ .136
	6	− .046	+ .074	+ .135
	7	− .051	+ .084	+ 134
	8	− .056	+ .094	+ 133

		coll.	az.	level
Oct	9	$-\overset{s}{0}.061$	$+\overset{s}{0}.102$	$+\overset{s}{0}.132$
	10	−0.067	+0.108	+0.130
	11	− .072	0.110	+ .128
	12	− .077	0.112	+ .126
	13	− .082	0.114	+ .124
	14	−0.087	+0.116	+0.121
	15	− .015	+0.066	+ .107
	W16	− .057	+0.015	+ .093
	E16	−0.087	+0.015	+0.093
	17	− .033	−0.020	+0.081
	W17	+0.020	−0.055	+0.087
	18	+ .010	−0.028	+0.079
	19	− .001	−0.001	+0.070
	20	−0.012	+0.026	+ .061
	21	− .012	+ .011	+ .052
	22	− .013	− .004	+ .043
	23	− .013	+ .007	+ .035
	24	− .013	− .016	+ .027
	25	− .014	+ .027	+ .019
	26	− .014	+ .038	+ .012
	27	− .014	+ .049	+ .005
	28	− .014	+ .060	− .002
	29	− .015	+ .072	− .009
	30	− .016	+ .083	− .016
	31	− .016	+ .094	− .024
Nov	1	− .017	+ .105	− .032
	2	− .017	− .118	− .036
	3	−0.018	−0.128	− .039
	4	+0.027	+0.177	−0.041
	5	+ .029	− .181	−0.042
	6	+ .031	− .185	−0.042
	7	+ .033	− .189	−0.043
	8	+ 035	− .193	−0.044
	9	+ .037	− .197	−0.045

Continued on prec. page

(194) 1851

September 5/6 Am. (Ile. West.)

2964

α Aurigæ	β Tauri	δ Orionis	ε Orionis
+45° 57.0	+28° 20.0	—	−1° 12.0
17.0	36.0	0° 3,, 10.5	25.9
4,, 36.3	51.5	3,, 24.2	39.5
04,, 56.0	6,, 07.1	3,, 38.0	7,, 53.5
05,, 15.9	6,, 22.6	3,, 51.7	8,, 07.2
05,, 35.5	6 38.2	4,, 05.3	8,, 21.2
5,, 05,, 55.0	5,, 16,, 53.8	5,, 24,, 19.0	5,, 28,, 34.6
272.7	229,2	129,7	193.9
120	180	060	180
7)492.7	7)49.2	5)189.7	7)373.9
56.10	7.03	37.94	53.41
−2	−2	−2	−2
5,, 04,, 54.10	5,, 16,, 05.03	5,, 23,, 35.94	5,, 27,, 51.41
5,, 05,, 42,80	col. +.07	col +.06	col +.06
48,70	az. +.03	az +.08	az +.08
col + .08	lev. +.12	lev +.07	lev +.07
az + .01	5,, 16,, 05.25	5,, 23,, 36.15	5,, 27,, 57.62
lev + .14	5,, 16,, 53,81	5,, 24,, 24.72	5,, 28,, 40.07
48.49	48.56	48.57	48.45

5/6 Am

N.T.C 20,, 24,, 25

2964 7,, 23,, 31.0

48.50

7,, 24,, 19.50

10,, 56,, 45.68

20,, 27 33.87

3,, 21,, 11

20,, 24,, 12.76

20,, 24 25

12.24

10,, 55,, 58.89

46.74

10 56 45.63

September 6th P.m.

● (See Note)

2964

	β Aquilae		α² Capricorni	β Capricorni		ν Capricorni		Moon's I limb
+6°	6,,32.0	−13°	8,,18.5	—	−19	04.0	−20	1,,18.0
	6,,46.0		8,,32.9	—		~~+9.0~~		1 33.0
	6,,59.6		8,,47.0	—		33.4		1 48.1
	7.13.5		9,,01.0	52.0		48.0		2,,03.0
	7,,27.4		9,,15.0	06.4		20,,31,,02.5		2,,18.0
	7,,41.0		9,,29.0	20.5		—		2,,33.0
	19,,47,,55.0		20 09,,43.2	20,,12,,35.0		—		20,,32,,48.0
	274.5		188.6	Σ = 113.9		83.9		201.1
	180		180	cor = −84.69		60		180
	7)94.5		7)06.6	4)29.31		9)143.9		7)21.1
	13.50		0.94	7.33		47.97		03.01
	−2		−2	45		−2		−2
	19,,47 11.50		20,,08,,58.94	20,,11,,52.33		20,,30 45.97		20,,32,,01.01
	col +.04		col +.04			col, +.04		col +.05
	az +.09		az +.13			az, +.14		az. +.14
	lev +.08		lev +.06			lev. +.05		lev. +.05
	19,,47,,11.71		20,,08,,59.17			20,,30,,46.20		20,,32,,01.25
	19,,48,,01.57		20,,09,,49.09					
	49.86		49.92					

lev +,0,101
coll −0,029
az +0,156

col. +.035
az. +.147
lev. +.098

Sept. 6th Pm., (All West)
2964

4 Capricorni	61' Cygni	ζ Cygni	β Aquarii	ε Pegasi
−26° 5 44.6	+38° 35.5	+30° 02.5	−6° 16.0	+9° 24.4
5 59.6	53.0	5 18.4	~~29.5~~	38.5
6 15.5	9 10.5	5 34.2	43.8	52.5
6 30.5	9 28.0 –	5 50.0	2 57.0 –	6 06.1
6 45.5	9 45.4	6 06.0	3 10.5	6 20.0
7 01.0	0 02.5	6 21.5	—	6 34.0
20 37 16.3	21 00 20.0	21 06 37.3	21 23 37.5	21 36 47.8
213.0	194.9	169.9	164.8	223.3
00	00	180	120	180
7)213.0	7)194.9	7)349.9	5)284.8	7)43.3
30.43	27.84	49.98	56.97	6.19
−2	−2	−2	−2	−2
20 36 28.43	20 59 25.84	21 05 47.98	21 23 54.97	21 36 04.19
col + .05	col + .06	col. + .06	col. + .05	col. + .05
az + .15	az. + .01	az. + .03	az. + 11	az. + .08
lev + .04	lev. + .13	lev. + .11	lev. + .07	lev. + .08
20 36 28.67	20 59 26.04	21 05 48.18	21 23 55.20	21 36 04.40
	21 00 15.78	21 06 38.10	21 23 45.00	21 36 54.40
	49.74	49.92	49.80	50.00

49.74
92
80
3)246
.82

(197)

[Ill west]

col +.012
az. +.169
lev. + .095

September 7/8 Am.

M.T.C. 18..26..50
2964 − 5..33..27

2964
+16 α Tauri
50.4
6..04.5
6..19.0
6 33.4
6 47.6
7 02.0
4..27..16.0
172.9
60
7)232.9
33.27
−2
4..26..31.27
col +.01
az. +.08
lev. +.09
4..26..31.45
4..27..23.98
52.53

+46° α Aurigæ
53.0
12.9
4..32.5
4..52.1
5 12.0
5.31.5
5..05..51.3
245.3
120
7)365.3
52.19
−2
5..04..50.19
col +.01
az. −.01
lev +14
5..04..50.33
5..05..42.98
52.65

β Tauri
+28° 16.1
32.0
47.5
6..03.4
6..19.0
6..34.5
5..16..50.0
202.5
180
7)22.5
3.21
−2
5..16..01.21
col +.01
az. +.05
lev +.12
5..16..01.49
5..16..53.87
52.38

δ Orionis
00 52.9
06.5
20.2
3 34.0
3 47.7
4 01.5
5..24..15.1
177.9
60
7)237.9
33.98
−2
5..23..31.98
col +.01
az +.11
lev +.07
5..23..32.07
5..24..24.80
52.73

2964
ε Orionis
−1° 08.4
22.0
35.7
7..49.5
8 03.0
8 16.8
5..28..30.5
165.9
180
7)345.9
49.41
2
5..27..47.41
5..28..40.20
52.79
col +.01
az +.11
lev. +.07
52.60

7/8 Am
M.T.C 18..29..50
2964 5..36..27.5
.52.79
5..37..20.29
11..04..38.79
18..32..41.56
3..02.28
18..29..39.28
18..29..50
10.72

11..03..51.99
46.74
11 04 38.73

(Ill west)

September 8th P.m.

2964
α ~~Herculis~~
+15°
6,,18.2 14.2
6,,32.4 14.1
6,,46.5 14.3
8,,00.8 14.2
7 15.0 14.2
7 29.2 14.2
17,,07,,43.3 14.1
185.4
180
7) 05.4
00.77
2
17,,06,,58.77
col +.01
az. +.08
lev. +.09
17,,06,,58.95
17,,07,,52.31
53.36

2964
α Ophiuchi
+13°
6,,28.5 14.3
6,,42.8 13.8
6,,56.6 14.2
7,,10.8 14.1
7 24.9 14.1
7 39.0 14.1
17,,27,,53.0 14.0
255.6
180
7) 75.6
10.80
−2
17,,27,,08.80
col +.01
az. +.09
lev. +.09
17,,27,,08.99
17,,27,,04.77
55.78

(1981)

Sept; 8/9 Am.

Capella 2964
+46°
3 51.4
4-10.3
4,,31.0
4,,50.7
5 10.4
5 30.1
5 5,,49.2
2331
120
353.1
5,,04,,50.44
−2
5,,04,,48.44
5,,05,,43.02
− 54.58
col − .01
az. − .01
lev. + .14
54.46

(Ill west)

2964
δ Orionis
−00°
—
—
18.9
3,,32.5
23,,46.2
4 ~~00.0~~
5,,24 ~~13.5~~
97.6
00
3) 97.6
32.53
−2
5,,23,,30.53
col. −.01
az. +.11
lev. +.07
5,,23,,30.70
5,,24,,24.82
54.12

ε Orionis
−1°
—
20.4
34.2
7,,48.0 −
8 01.8
8 15.5
5,,28,,29.0
119.9
120
5) 239.9
47.98
−2
5,,27 45.98
col − .01
az + .11
lev + .07
5,,27,,46.15
5,,28,,40.22
54.07

col −.012
az. +.173
lev. +.092

8/9 Am
α Orionis
+7°
5,,33.5
5,,47.5
6 .01.4
6 .15.0
6 ..29.0
6 ..42.7
5,,46,,56.5
2256
120
105.6
5,,46,,13.09
5,,47,,07.32
− 54.23
col. − .01
az + .10
lev. + .08
54.40

col −.010
az. +.178
lev +.089
(1991) Ills. West

September 9th P.m.
2964
α Ophiuchi
+13° 27.5
41.5
55.4
7 09.8
7 24.0
7 37.9
17,, 27,, 52.0
248.1
180
7)68.1
9.73
−2
17,, 27,, 07.73
col. −.01
az. +.09
lev. +.08
17,, 27,, 07.89
17,, 28,, 02.29
54.40

9/10 A.m.
2964
Sirius
−17° 58.9
7,, 13.6
7,, 27.9
7,, 42.0
7,, 56.4
8,, 10.8
6,, 38,, 25.2
234.8
60
7)294.8
42.11
−2
6,, 37,, 40.11
6,, 38,, 35,48
55.37
col. −.01
az. +.16
lev. +.05
55.17

10 P.m.
2964
α Ophiuchi
+13° 6,, 26.3
6,, 40.4
6,, 54.5
7,, 08.7
7,, 22.7
7,, 36.8
17,, 27,, 50.6
240.0
180
7)60.0
8.57
−2
17,, 27,, 06.57
col −,01
az +.09
lev +.08
17,, 27,, 06.73
17,, 28,, 02.27
55.54

10/11 A.m.
2964
Sirius
−17 6,, 58.0
7 12.4
7 26.9
7,, 41.3
7,, 55.5
8,, 9.8
6,, 38 24.0
227.9
60
7)287.9
41.13
−2
6,, 37,, 39.13
6,, 38,, 35.50
56.37
col. −.01
az. +.16
lev. +.05
56.17

col −.008
az +.183
lev +.086
2964
Procyon
+6° 54.8
08.5
22.4
0 36.3
0 50.0
1 03.8
7,, 31,, 17.6
193.4
66
7)253.4
36.2
−2
7,, 30,, 34.20
col − .01
az +.01
lev. +.08
7,, 30,, 34.38
7,, 31,, 30.33
55.95

(200)

(Ill west)

col. −.006
az. +.188
lev. +.083

	11th Gem.				
2964	2964	2964	2964		
β Gem.	β Lyrae	ζ Aquilae	γ Aquilae	α Aquilae	β Aquilae
+28° —	+33° 51.4	+14 57.5	+10° 34.9	+8 1,, 55.4	−6° 24.4
46.5	07.8	11.8	48.9	2,, 09.4	38.1
5,, 02.0	24.4	7 25.3	02.8	2,, 23.3	52.3
5,, 17.5	3,, 40.7	7 40.0	8,, 16.7	2,, 37.0	7,, 06.0
5 33.3	3 57.5	7 54.0	8,, 30.8	2,, 51.0	7 19.8
5 48.6	4 13.8	8 08.2	8,, 44.8	3,, 04.9	7,, 33.6
7,, 36,, 04.5	18,, 44,, 30.1	18,, 56,, 22.4	19,, 38,, 58.6	19,, 43,, 18.9	19,, 47,, 47.5
147.9	225.7	219.2	237.5	200.4	221.9
060	60	180	120	60	180
5)87.4	7)285.7	7)279.2	7)117.5	7)260.4	7)41.9
17.58	40.81	39.88	16.78	37.20	5.98
−2	−2	−2	−2	−2	2
7,, 35,, 15.58	18,, 43,, 58.81	18,, 57,, 37.88	19,, 38,, 14.78	19,, 42,, 35.20	19,, 47,, 03.98
col −.01	col −.01	col −.01	col. −.01	19,, 43,, 32.65	col. −.01
az. +.06	az. +.03	az. +.09	az. +.10	57.45	az. +.14
lev +.11	lev +.12	lev. +.09	lev. +.09	col. −.01	lev +.06
7,, 35,, 15.74	18,, 43,, 58.95	18,, 57,, 38.05	19,, 38,, 14.96	az. +.10	19,, 47,, 04.32
7,, 36,, 11.98	18,, 44,, 35.46	18,, 58,, 35.29	19,, 39,, 12.37	lev. +.07	19,, 48,, 01.51
56.24	56.51	57.24	57.41	57.29	57.19

199
56.66

(1201) West

September 12th P.m. | 12/13 Am

2969	2964	2964		2964	2964
β Draconis	γ Draconis	ξ Aquilae		α Aquilae	α Orionis
+52° 02.0	+51° 07.0	+14° 6„ 56.4	14,3	+8° 54.5	+7°
24,5	29.0	7„ 10.7	14,1	08.6	5 43.0
46,0	51.2	7„ 24.8	14,2	2 22.5	5 57.0
6„ 08.5	2„ 13,4	7„ 39.0	14,1	2 36.3	6 10.9
6„ 31.0	2 35.5	7„ 53.1	14,2	2 50.1	6 24.7
6„ 53.5	2 57.5	8 07.3	14,2	3„ 04.0	6 38.5
17„ 27„ 16.0	17„ 53„ 19.5	18„ 58„ 21.5		19„ 43 17.9	5„ 46„ 52.3
181,5	213,1	272.8		193.9	174.1
120	120	60		60	120
7)61.5	7)93.1	7)272.8		7)253.9	5)54.1
08.78	13.30	38.97		36.27	10.82
2	−2	−2		−2	−2
17„ 26„ 06.88	17„ 52„ 11.30	18„ 57„ 36.97		19„ 42„ 34.27	5„ 46„ 08.82
col. −.00	col −.00	col −.00		col −.00	col −.00
az. −.05	az. −.05	az +.10		az. +.11	az. +.12
lev. +.15	lev +15	lev. +.08		lev. +.07	lev. +.07
17„ 26„ 06„ 88	17„ 52, 11.40	18„ 57. 37.15		19„ 42„ 34.45	5„ 46„ 09.01
17„ 27„ 04„ 63	17„ 53„ 09.69	18„ 58„ 35,27		19„ 43„ 32.63	5„ 47„ 07.44
57.75	58,29	58.12		58.18	58.43

12/13 Am.

2964
α² Gemini
+32°
20.3
36.5
52.9
4„09.0
4 25.3
4 41.4
7„24„57.6
243.0
180
7)63.0
7„24„09.0
2
7„24„07.00
cal −.00
az +.04
lev +.11
7„24.07+15
7„25.05.77
58.62

2964
Procyon
+6°
52.3
06.2
0 20.0
0 33.9
0 47.7
1 01.4
7„31„15.3
176.8
60
7)236.8
33.83
−2
7„30„31.83
7„31„30.40
58.57
cal −.00
az +.12
lev. +.07
58.38

cal −.003(802)
az +.196
lev +.081

β Gem.
+28°
4„28.4
4„44.0
4„59.7
5„15.3
5„30.9
5„46.5
7 36. 020
226.8
120
7)106.8
15.25
−2
7„35„13.25
7„36„12.06
58.81
cal −.00
az +.06
lev +.11
58.98

September 14/15 Am.

(all west)

cal +.016
az +.118
lev +.107

2964
Sirius
−16
unsteady
56.8
11.2
25.8
7„40.0
7„54.4
8 08.8
6„38„23.0
220.0
60
7)280.0
40.0
−2
6„37.38.00
cal +.02
az +.10
lev +.06
6„37„38.18
6„38„35.62
57.44

2964
Procyon
+6
33.4
0 07.4
0 21.3
0 35.1
0 49.0
1 02.9
7„31„16.6
185.7
60
7)245.7
35.1
−2
7„30„33.10
7„31„30.46
57.36
cal. +.02
az. +.07
lev. +.08
57.19

β Gem.
+28
29.4
45.5
01.0
5„16.9
5 32.0
5 47.7
7„36„03.4
175.2
60
7)115.2
16.46
2
7„35„14.46
7„36„12.08
57.62
cal +.02
az +.03
lev. +.13
57.48

Sept. 12/13 Am.

M.T.C. 20..34..30
2964 − 8„01„08
58.7
8„02„06.7
11„24„21.49
20„37„45.21
3„22.78
20 34„22.43
20 34„30
7.57

11„23„34.75
46.74
11„24„21.49

Sept. 14/15 Am.

M.T.C. 20„20„30
2964 7„55„00.5
57.4
7„55„57.9
11„32„14.60
20„23„43.30
3„20.48
20„20.22.82
20„20.30
7.18

11„31„27.86
46.74
11„32„14.60

(203)

(ill west)

14/15 Am, 2964 Regulus
+13° 9 02.4
9 16.4
9 30.3
9 44.4
9 58.3
10.00 12.2
1518
00
5)151.8
30.36
−2
9.59.28.36
10.00.25.94
57.58
col + .02
az + .06
lev ± .10
57.40

[illegible] mistake

15th Pm
2964

α Herculis	β Draconis	γ Draconis	β Lyrae
+15° 6.14.5	+52 01.5	+51° 08.0	+33° 2.57.5
6.28.7	5.24.4	30.3	3.07.9
6.42.9	5.46.6	52.0	3.24.4
6.57.2	6.09.4	2 14.1 —	3.41.0
7 11.4	6.31.9	2 36.4	3.57.3
7 25.5	6 54.4	2 58.5	4.13.8
17.07.39.6	17.27.16.9	17.53.20.4	18.44.29.9
219.8	185.1	219.7	225.8
180	120	120	60
7)399.8	7)65.1	7)99.7	7)285.8
57.11	9.30	14.24	40.83
−2	−2	−2	−2
17.06.55.11	17.26.07.30	17.52.12.24	18.43.38.83
col +.02	col +.03	col +.03	18.44.36.10
az +.03	az −.00	az − .00	57.27
lev ±.11	lev ±.19	lev + .19	col + .02
17.06.55.27	17.26.07.38	17.52.12.46	az + .00
17.07.52.18	17.27.04.54	17.53.09.62	lev + .14
56.91	57.16	57.16	57.[illegible]

(204)

September 15/16 Am   Illumination West

col. + .024
az. + .075
lev. + .0120

2964	2964	2964	2964	2964	
α Persei	o Tauri	ζ Tauri	η Tauri	Moon's II limb	ζ Tauri
+49° 47.0	+8° 5 13.5	+12° 04.1	+24° 7„00.4	+14° 27.5	+15° 43.3
08.4	6 27.4	18.2	7„15.4	42.1	57.7
29.2	5 41.1	1 32.3	7„30.3	2 56.8	11.8
2„50.4 –	5 54.9	1 46.2	7„45.0	3„11.0	0 26.0
3„11.5	6 04.0	2 00.2	8„00.0	3 25.3	0 40.3
3„32.4	6 23.0	2 14.3	8„15.2	3 40.4	0 54.5
3„13„53.7	3„16„36.8	3„22„28.5	3„38„30.1	3„43„54.7	4„11„08.8
232.6	205.7	143.8	136.4	257.8	242.4
120	180	180	180	180	60
7)352.6	7)385.7	7)323.8	7)316.4	7)077.8	7)182.4
50.37	55.10	46.26	45.20	11.11	26.05
–2	–2	–2	–2	–2	–2
3„12„48.37	3„15„53.10	3„21„44.26	3„37„43.20	3„43„09.11	4„10 24.05
col + .03	col + .02	col + .02	col. + .02	col + .02	col + .02
az – .00	az. + .04	az + .03	az + .02	az + .03	az. + .03
lev. + .18	lev. + .10	lev + .10	lev. + .13	lev. + .12	lev. + .12
3„12„48.58	3„15„53„26	3„21„44.41	3„37„43.37	3„43„09.28	4„10„24.22
3„13„46.33					
57.75					

lev + 0.136
col. – 0.003
az. + 0.196

September 15/16 Arm

(Ht. best)

2 δ² Tauri	α Tauri	ε Ursae Min.	α Aurigae	β Tauri	δ Orionis
+17° 54.4	+16° 46.5	4..55..20.0	+46 49.0	+28° 11.4	00° 48.9
09.0	60.8	57..01.5	09.0	27.5	3..02.8
4 23.2	6 15.2	R.F.B. 58..43.0	4..28.6	R.F.B. 43.0	3..16.6
4 37.5 –	6 29.5 –	60..25.5	4..48.4	5..58.8	3..30.0
4 52.0	6 43.8	5..02..08	5..08.0	6 14.4	3..43.8
5 06.3	6 58.2		5..27.5	6 30.0	3..57.6
4..15..20.7	4..27..12.3		5..05..47.4	5..16..45.4	5..24 11.2
203.1	206.3		217.9	230.5	210.9
60	00		120	180	00
7)263.1	7)206.3		7)337.9	7)410.5	2)210.9
37.58	29.47		48.27	58.64	30.13
–2	–2		–2	–2	–2
4..14..35.58	4..26..27.47		5..04..46.27	5..15..56.64	5..23..28.13
col + .02	col + .02		col + .03	col + .02	col + .02
az + .03	az + .03		az + .00	az + .02	az + .05
lev + .11	lev + .11		lev + .17	lev + .14	lev + .09
4..14..35.74	4..26..27.63		5..04..46.47	5..15..56.82	5..23..28.39
	4..27..24.22		5..05..43.16	5..16..54.07	5..24..25.02
	56.59		56.69	57.25	56.63
				R.F.B.	

(206)

col. +.024
az. +.075
lev. +.120

Sept. 15/16 Am

(Ill west)

2964
α Leporis
−17°
4 47
5 01.4
5 16.0 –
5 30.4
5 44.7
5,, 25,, 59.1
139.5
60
5) 79.5
15.90
−2
5,, 25,, 13.90
col + 02
az. + 106
lev. + 06
5,, 25,, 14.04
5,, 26,, 10.63
56.59

2964
ε Orionis
−1°
03.3
17.7
7,, 31.5
7 45.0
7 59.0
8 12.9
5,, 28,, 26.5
19 5.9
120
7) 315.9
45.13
−2
5,, 27,, 43.13
5,, 28,, 40.49
,, 57.36
col +.02
az +.05
lev +09
57.14

α Orionis
+7
58.8
6,, 12.6
6,, 26.5
6,, 40.4
5,, 46,, 54.2
97.8
60
3) 37.8
1260
−2
5,, 46,, 10.60
5,, 47,, 07.53
,, 56.93
col + .02
az. + .04
lev. + .09
56.78

Σ = 192.5
corr = −69.21
5) 123.29
24.66
12
5,, 46,, 12.66

16th Am. Ill. west
α Geminorum
+32°
22.2
38.5
54.7
β
4,, 11.0
4,, 27.3
4,, 43.5
7 ,, 24,, 5~~9~~.6
256.8
180
2) 76.8
10.97
−2
7,, 24,, 08.97
col +.02
az +.01
lev +.08?
7,, 24,, 09.08
7,, 25,, 0~~6~~5,, 86
5~~6~~.78

Ill. East
β Geminorum
+28 4,, 30.5
4,, 46.2
5,, 1.5
β
5,, 17.0 –
5,, 33.2
5,, 48.6
7,, 36,, 04.5
181.5
60
2) 121.5
17.36
−2
7,, 35,, 15.36
col −.04
az +.00
lev +.22?
7,, 35,, 15.54
12 17
7,, 36,, ~~13~~.08
5~~6~~.58

7,, 35,, 15.36

161
56.54

56.75

cal + .038
az + .002
lev + .204

Sept^r 16^th
B hrs. min
47 .. 36.0
48 .. 28.3
49 .. 20.5
B. 50 .. 12.8
51 .. 05.0
52 .. 57.2
14 .. 52 .. 49.7
89.5
12.80
−2
14 .. 50 .. 10.80

Illumination East.
α Cor. Bor
+27° 41.0
57.0
7 ,, 12.5
7 ,, 27.7 –
7 ,, 43.5
7 ,, 58.7
15 .. 28 .. 14.3
254.7
60
7)194.7
27.81
−2
15 ,, 27 ,, 25.81
cal + .03
az + .00
lev + .22
15 ,, 27 ,, 26.06
15 ,, 28 ,, 22.99
56.93

Sept 16/17 Am
2964
ε Leonis
+24 —
5 ,, 58.4
6 ,, 13.3
6 ,, 28.5 –
6 ,, 43.5
6 ,, 58.5
9 ,, 37 ,, 13.8
202.2
60
5)142.2
28.42
−2
9 ,, 36 ,, 26.42
cal + .03
az + .00
lev + .21
9 ,, 36 ,, 26.66
9 ,, 37 ,, 23.18
56.52

Illumination East
Cor
Spica
−10 —
—
6 12.2
6 26.0
16 40.2
6 54.0
13 .. 17 08.0
78.4
00
3)78.4
26.13
−2
13 ,, 16 ,, 24.13
13 ,, 17 ,, 21.03
56.90
cal + .03
az + .00
lev. + .12
56.75

comparison of Clock in Boston with Clock in Cambridge

Sept. 16^th P.M.

Boston

M.S.C. – 6 .. 22 .. 0   161 – 6 .. 23 .. 0   M.S.C. – 6 .. 25 .. 0
365 – 6 .. 22 .. 13   365 – 6 .. 23 .. 24.1   161 – 6 .. 24 .. 49

Cambridge

161 – 7 .. 08 .. 0   M.S.C. – 7 .. 9 .. 0   M.S.C. 7 .. 11 .. 0
365 – 7 .. 08 .. 24.1   161 – 7 .. 9 .. 2.6   365 – 7 .. 11 .. 26.6

Cb fast of Boston by – 161 – 4 .. 1
" – " – " – " – " 365 – 4 .. 1

East

Illumination East

(208) col −.038
az +.002
lev +.204

Illumination West

17 Pm

Polaris Ill East
2964
12,,38,,540 − 4 lt
47,,47.5
56,,84.4
05,,29.5
14,,17.0
23,,06.4
13,,31,,58.2

2964
Antares
−26° 37.3
52.4
9 07.5
9 23.0 —
9 38.3
9 53.5
16,,20,,08.9
220.9
60
2)160.9
22.98
−2
16,,19,,20.98
col +.03
az + 00
lev +.08
16,,19,,21.09
16,,20,,17.74
56.65

Ill East
2964
α Herculis
+14° 14.9
28.9
6,,43.0
6,,57.3
7 11.5
7 25.6
17,,07,,39.9
221.1
180
2)401.1
57.90
−2
17,,06,,55.90
col +.03
az +.00
lev +.18
17,,06,,55.45
17,,07,,52.14
56.70

Ill West
2964
α Ophiuchi
+13° 6,,25.0
6,,39.1
6,,53.3
7,,07.4
7,,21.5
7,,35.6
17,,27,,49.6
231.5
180
2)51.5
07.36
−2
17,,27,,05.36
col +.07
az +.00
lev +.18
17,,27,,05.55
17,,28,,02.14
56.59

17/18 Am.
2964
α² Gem.
3,,22.7
+32° 3,,38.9
3,,55.2
4,,11.5
4,,27.6
4,,43.9
7,,25,,00.1
299.9
120
2)179.9
11.41
−2
7,,24,,09.41
col +.01
az + .00
lev +.22
7,,24,,09.64
7,,25,,05.93
56.29

	col. +.014 az. +.009 lev. +.204	(2.04) (Illumint) 9.			col +.017 az +.013 lev +.199
September 17/18 Am. 2964 Procyon	2964 β Gem.	18 Pm. 2964 ζ Aquilæ	2964 α Cygni	18/19 Am α² Gem.	Procyon
+6 54.8	+28 4,,31.0	+14° 6,,58.5	+46° 4,,30.4	+32° 3,,22.9	+6 55.0
08.7	4,,46.4	7 12.8	4,,50.0	3,,39.3	0 09.0
0 22.5	5,,01.9	7 26.8	5,,09.4	3,,55.4	0 22.8
0,,36.1 —	5,,17.7	7 40.8 —	5,,28.9	4 11.8	0 36.5
0,,52.0	5,,33.4	7 54.9	5,,48.0	4,,28.0	0 50.3
1,,03.9	5,,49.0	8,,09.0	6,,07.4	4,,44.1	1 04.0
7,, 31,, 17.6	7,, 36,, 04.5	18,, 58,, 28.1	20,, 36,, 26.7	7,, 25,, 00.4	7,, 31,, 17.9
195.6	183.9	225.9	200.8	201.9	195.5
60	60	60	00	120	60
7)255.6	7)123.9	7)285.9	7)200.8	7)81.9	7)255.5
36.51	17.70	40.84	28.68	11.70	36.5
−2	−2	−2	−2	−2	−2
7,, 30,, 34.51	7,, 35,, 15.70	18,,57 38.84	20,,35,, 26.68	7,, 24,,09.70	7,, 30,, 34.50
col +.01	col +.01	col +.02	col +.03	col +.02	col +.02
az +.00	az +.00	az +.00	az −.00	az +.00	az +.00
lev +.16	lev +.22	lev +.18	lev +.29	lev +.22	lev +16
7,, 30,, 34.68	7,, 35,, 15.93	18,,57,, 39.04	20,, 35,, 27.00	7,, 24,, 09.94	7,, 30,, 34.68
7,, 31,, 30.50	7,, 36,, 12.18	18,, 58,, 35.17	20,, 36,, 23.28	7,, 25,, 05.96	7,, 31,, 30.53
0,, 55.82	56.25	56.13	56.28	56.02	55.85

Ill west (2/0)

col. + .021
az. + .017
lev. + .194.

Harv

18/19 Am.		19 Pm.		19/20 Am				20 Pm	
	2964		2964		2964		2964		2964
	β Gem		μ¹ Sagitt		Procyon		β Gem.		δ Aquile
+28°	31.2	−21°	14.0	+6°	54.5	+28°	30.6	+3°	24.3
	46.8		3„28.8		08.4		46.4		38.4
	02.4		3„43.5		22.3		02.0		52.1
	18.0		3„58.3		36.1		17.6		> 05.8
	33.5		4 13.0		50.0		33.3		> 19.5
	49.1		4 27.5		03.7		48.9		> 33.2
	7„36„04.7		18„04„42.1		7„31„17.5		7„36„04.6		19„17„47.0

227.2
180
7)407
58.14
−2
18„03„56.14
18„04„52.66
56.52

Sept. 19/29 Am

Sirius

6 .. 57.8
. 12.1
7 .. 26.5
7 .. 41.0
7 .. 55.4
8 .. 09.6
6 . 38 . . 23.7
226.1
60
7)288.1
41.16
−2
6 . 37 . 39.16

C H Hudson. Prest. Boston & Portland Telegraph. usually resides at Newburyport.

M Alder - Prest. Portland and Calais. Tel Line Court square - Boston - over Morse's office.

James Springle. Architect & C. E
Montreal, Canada - will give information in regard to Telegraph offices and operators. in Canada

List of Asteroids. in the order of their distances from the Sun.

Flora; October 18th. 1847. Hind.
Victoria September 13th. 1850 - Hind.
Vesta - March 29th. - 1807 - Doctor Olbers.
Iris, August. 13. — 1847 — Hind.
Metis. April 26. — 1848 — Graham.
Hebe. July. 1, — 1847 — Hencke.
Parthenope; May-11. — 1850 — De Gasparis.
Egeria; November -2 - 1850 — De Gasparis.
Irene; May - 19. — 1851 — Hind - May 23d, De Gasparis.
Astrea; December 8, — 1845 — Hencke.
Juno; September 2, - 1804 — Harding.
Ceres. January -1, - 1801 —— Piazzi.
Pallas; March -28th - 1802 — Dr Olbers.
Hygea, April 12 — 1849 — De Gasparis.
— New and unnamed July 29th. 1851 - De Gasparis.

Edinburg Advertiser. Augt. 26th. 1851.

See an account of the Asteroids in the "Traveller" of June 14th. or thereabouts. 1851.

(213) (Ill. wat.)

col –.018
az +.022
lev +.179

September 22/23 Am.
2964
very bad seeing

β Orionis	δ Orionis	ε Orionis	Procyon	β Gem.
47.5	49.0	04.5	54.5	—
01.7	62.8	18.4	08.4	—
15.0	16.5	32.1	22.3	—
29.2	30.3	46.0	36.1	17.5
43.1	44.0	59.7	56.0	34.9
57.4	57.8	13.5	03.6	48.7
5„07„10.9	5„24„11.4	5„28„27.2	7„31„17.5	7„36„04.3

unsteady cirrus

col −.024
az +.025
lev +.174
(214) Ill West)

September 23/24 Am

24 Pm.

col −0.030
az + .027
lev. + 0.169

2964 α² Gem.	Procyon	β Gem.	2964 β Draconis	2964 ζ Cygni
23.7	56.0	4,,32.0	030	57.4
40.2	09.8	4,,47.5	26.0	5,,13.5
56.4	23.6	5,,03.2	48.5	5,,28.9
12.6	37.3	5,,19.0	10.9	5,,45.0
28.9	51.2	5,,34.0	33.5	6 00.5
45.0	05.0	5,,50.0	56.2	6 16.4
7,,25,,01.2	7,,31,,18.8	7,,36,,05.4	17,,27,,18.6	21,,06,,32.1
		191.1		193.8
		60		120
		7)131.1		7)313.8
		18.73		44.83
		−2		−2
		7,,35,,16.73		21,,05,,42.83
		7,,36,,12.36		21,,06,,37.88
		55.63		55.05

(Ille west)

col −0,027
az +0.026
lev +0.164

September 24/25 Am

2964
α Orionis

very bad seeing

5 " 33.1
5 " 47.3
6 " 01.1
6 " 14 9
6 " 28.8
6 " 42.5
5 " 4 6 " 56.4
244.1
140
7) 104.1
14.87
−2
5 " 46 " 12.87
5 " 47 " 07.78
− 54.91

25/26 Am
2964
α Ceti
2 , 58.3
3 . 12.2
3 . 26.0
3 . 49.8
3 .. 53.5
4 . 07.3
2 " 54 . 21.0
8.1

26 Pm
2964
α Herculis
18.1
32.4
46.4
00.5
14.8
39.0
17 . 07 " 43.2

29^{v} 2964 − 3 . 14 . ~
3337 2 , 48 . 04 . 6

(216) Illumination west

eal − 0.015
az + 0.020
leo + 0.144

29/
Septr 30t Am

2964 − Sirius

7 .. 6.2
7 .. 20.6
7 .. 35.0
B 7 .49.4
8 . 3.7
8 . 18.0
6 .. 38 .. 32.3
165.2
180
7)345.2
49.31
−2
6 .. 37 .. 47.31
6 .. 38 .. 36.06
2964 − 48.75

M.T.C. 18 .. 09 .. 5
2964 − 6 .. 42 .. 34

2964. ε Canis majoris

51 .13.6
1 .29.0
R.F.B. 1 .44.8
2 .. 0.4.
2 .16.3
2 .31.5
6 .. 52 .. 47.5
7)3.1
00.44
−2
6 .. 51 .. 58.44
6 .. 52 .. 47.11
− 48.67

δ Geminorum

9 .43.3
9 .58.0
0 .13.0
B 0 .28.0
0 .42.8
0 .. 57.4
7 .. 11 .. 12.8
7)194.0
7 .. 10 .. 27.46
7 .. 11 .. 14.50
−46.64
2
2964 −48.64

α² Geminorum

3 . 31 .0
3 .47.
4 . 3.2
B 4 .19.6
4 .35.8
4 .52.0
7 .. 25 .. 8.4
7)137.0
19.57
−2
7 .. 24 .. 17.57
7 .. 25 .. 06.31
−48.74

Procyon

16.9
30.8
B 44.5
58.3
7 .. 31 .. 12.2
1627
32.54
12
7 .. 30 .. 42.54
7 .. 31 .. 30.86
− 48.32

(217)

Sept. 30/31st Am
Octr. 1st Am
δ Geminorum

2964 - 9 . 44.8
9 . 59.5
10 . 13.4
R.F.B. 10 . 29.2
10 . 44.0
10 . 58.8
7 .. 11 .. 13.5
7)203.2
.. 29.03
− 2
7 . 10 .. 27.03
11 .. 14.53
2964 −47.50

M.T.C. . 19 . 00 .. 15
2964 − 7 .. 37 .. 50.5

Oct. 1 Pm. Ill. West.
2964

α Herculis	β Draconis	γ Draconis
+15° 6„24.4	+52° 11.5	+51° 1„18.0
6„39.0	34.4	1.40.3
6„53.4	5 56.7	2„02.7
7„07.3	6 19.5	2„24.3
7„21.5	6 41.8	2„46.4
7„35.6	7 04.2	3.08.5
17„07„49.8	17.27„26.5	17„53„30.4
231.0	194.6	170.0
180	60	60
7)51.0	7)134.6	7)170.
07.28	19.23	24.28
−2	−2	−2
17„07 05.28	17.26„17.23	17„52„22.28
col −.02	col −.04	col −.04
az + .01	az − .00	az −.00
lev +.13	lev +23	lev +.22
17„07„05.40	17.26.17.42	17.52.22.46
17„07„51.90	17„27.04.00	17„53„09.07
46.50	46 58	46.61

col. −0.018
az. + 0.027
lev. + 0.140

Oct. 1st Ill. West
2964

Moon's I limb	α Lyrae	β Lyrae	ο Sagitt	ζ Aquilae	π Sagitt
4„ 01.9	+39° 17.0	+33° 01.9	−22° —	+14° 07.9	−21° 27.0
−22° 4„ 17.1	34.4	3„ 18.5	32.5	7„ 22.0	42.0
4 32.4	51.8	3„ 34.8	47.0	7 36.0	56.4
4 47.8	1 09.4	3„ 51.0 —	5 02.0	7 50.3 —	0 11.0
5 03.0	1 27.5	4„ 07.3	5„ 16.9	8 04.5	0 25.5
5 18.2	1 44.9	4„ 23.7	5 31.5	8„ 18.5	0 40.5
18„ 25„ 33.2	18„ 32„ 02.4	18„ 44„ 40.0	18„ 55„ ~~46.5~~	18„ 58„ 32.5	19„ 00„ 55.0
153.6	187.4	177.2	129.9	171.7	257.4
180	120	180	120	180	180
7)333.6	7)67.4	7)357.2	5)9.9	7)351.7	7)77.4
47.66	9.63	18„ 43„ 51.03	1.98	50.24	11.06
−2	−2	2	−2	−2	−2
18„ 24„ 45.66	18„ 31„ 07.63	18„ 43„ 49.03	18„ 54 59.98	18„ 57„ 48.24	19„ 00 09.06
col −.02	col −.03	col −.02	col −02	col −02	col −.02
az + .03	az + .00	az + .00	az + .03	az + 01	az + .03
lev + .06	lev + .14	lev + .16	lev + .06	lev + 13	lev + 06
18„ 24„ 45.73	18„ 31„ 07.63	18„ 43„ 49.17	18„ 55„ 00.05	18„ 57„ 48.36	19„ 00 09.13
46.60	18„ 31„ 54.43	18„ 44 35.72	46.57	18„ 58„ 34.97	46 56
18„ 25„ 32.33	46.80	46.55	18„ 55„ 46.62	46.61	19„ 00 55.69
			18„ 55„ 46.50		19 00 55.50
			.12		19

Σ = 176.4
cor = − 44.50
6)131.90
21.98
20
18„ 55„ 01.98
−2
18 55 59.98

lev + 0.141
col − 0.029
az + 0.027

Oct. 1/2 Am.

2964

a Leonis

9 00.0
9 14.0
9 28.0
9 42.3
59 56.3
0..10.5
10..00..24.6

1757
120
7)2957
42.24
− 2
9..59..40.24
10..00..26.24
−46.00

Ill = west

2nd Pm

2964

a Lyrae

17.6
35.5
52.8
1 10.4
1 28.3
1 45.8
18..32..03.4

2964

3 Aquilae

08.7
23.0
37.0
51.3
05.5
19.5
18..58..33.6

2/3 Am

cel. −.024
ar. +.037
lev. +.039

2964

Procyon

06.5
0 20.3
0 34.2
0 48.0
1 01.9
1 15.8
7..31..29.5

156.2
100
2)3362
48.03
− 2
7..30..46.03
7..31..30.98
4495

2964

β Gem.

42.8
58.5
14.0
29.5
45.2
00.8
7..36..16.5

col. −.046
az. +.074
lev. +.135

October 5/6 Am / Sm. Ill. West

2964 ℓ	2964 x	2964	2964		2964
Regulus	α Lyrae	+9° ε Pegasi	ι Aquarii	θ Aquarii	ζ Pegasi
9 06.4	+39° 24.4	5 35.4	−15° 06.2	−8° 42.0	+10 2 45.5
9 20.5	42.0	5 49.5	7 20.4	56.0	2 59.4
9 34.6	59.8	6 03.5	7 34.5	8 09.9	3 13.5
9 59 46.8	1 17.3	6 17.4	7 48.8	8 23.5	3 27.4
0 03.0	1 35.0	6 31.3	8 03.0	8 37.5	3 41.4
0 17.1	1 52.5	6 45.0	8 17.1	8 51.5	3 55.5
10 00 31.0	18 32 10.0	21 36 59.0	21 58 31.3	22 09 05.3	22 34 09.3
161.4	241.0	241.1	161.3	225.7	252.0
180	120	120	180	60	60
7)341.4	2)121.0	7)121.1	7)341.3	7)165.7	7)192.0
48.77	17.28	17.3	48.76	23.67	27.43
−2	−2	−2	−2	−2	−2
9 59 46.77	18 31 15.28	21 36 15.3	21 57 46.76	22 08 21.67	22 33 25.43
10 00 26.30	col −.05	col −.05	col −.05	col −.05	col −.05
39.53	az +.00	az +.04	az +.07	az +.06	az +.04
	lev +.17	lev +.12	lev +.07	lev +.08	lev +.11
	18 31 15.40	21 36 15.41	21 57 46.87	22 08 21.76	22 33 25.53
	18 31 54.29	21 36 54.18	38.70	38.69	22 34 04.27
	38.89	38.77	21 58 25.57	22 09 00.45	38.68
			21 58 25.28	22 09 00.27	
			.29	.18	

6th

Occultation of 74 Aquarii 6 mag.

Im. 2964 − 21 26 51.4 − 4 ℔ good Great Telescope ☽

2

21 26 49.4
38.78
21 27 28.18
12 58 58.75
8 28 29.43
1 23 30
Im. 8 27 06.13 M. S. Time

12 58 12.01
46.74
12 58 58.75

col ~~+~~0.050
az +0.067
lev +0.140

October 6th

Du.werth

2964
Moon I
−12° 14.5
4 28.3
4 42.5
4 57.0
5 11.3
5 25.2
22,,45,,39.9
218.7
180
2)398.7
56.96
−2
22,,44,,54.96
el −.05
az +.04
lev +.07
22,,44,,55.02
38.67
22,,45,,33.69

α Pegasi
03.5
+14 6,,17.9
6 32.0
6 46.2
7 00.4
7 14.5
22,,57,,28.6
143.1
180
2)323.1
46.16
−2
22,,56,,44.16
col −05
az +.09
lev +.12
22,,56,,44.26
22,,57,,22.91
38.65

2964
−10° ψ³ Aquarii
56.1
10.4
14.3
2.40
0 24.4
0 38.4
0 52.5
1 06.3
23,,11,,20.0
268.1
160
2)268.1
38.30
−2
23,,10,,36.30
col −.05
az +.05
lev +.08
23,,10,,36.38
38.65
23,,11,,15.03
23,,11,,14.80
.23

6/7 Am.
2964
α Hydra
8 58.6
9,,12.5
9,,26.5
9,,40.4
9,,54.4
0,,08.3
9,,20,,22.1
222.8
62
2)282.8
40.40
−2
9,,19,,38.40
9,,20 16.40
38.00

7th Pm.
2964
Fomalhaut
−30° 03.5
8 19.5
8 35.4
8 51.4
9 07.5
9 23.5
22,,49,,39.3
180.1
180
2)360.1
51.44
−2
22,,48,,49.44
col −.05
az +.08
lev +.04
22,,48,,49.51
22,,49,,26.88
37.37

2964
α Pegasi
+14° 04.5
6 18.9
6 33.2
6 47.3
7,,01.3
7,,15.5
22,,57,,29.8
150.5
180
2)330.5
47.21
−2
22,,56,,45.21
col −.05
az +.02
lev +.12
22,,56,,45.30
22,,57,,22.90
37.60

October 7th

(22.2) Illumination West

col. −0.051
az. +0.084
lev. +0.134

2964 φ Aquarii	2964 ψ3 Aquarii	Moon I	27 Piscium	33 Piscium
−6° 21.9	−10° 57.3	−8 45.9	−4° 48.0	−7° 6.27.9
5 35.4	11.4	00.0	02.0	6.41.8
5 49.4	0 25.3	14.2	0 15.8	6.55.5
6 03.1	0 39.5	1 28.4	0 29.5	7.09.4
6 17.0	0 53.2	1 42.5	0 43.4	7.23.0
6 30.8	1 07.0	1 56.5	0 57.0	7 36.9
23.06.44.5	23.11.21.0	23.32.10.8	23.51.10.9	23.57.50.6
202.1	214.7	198.5	206.6	245.1
180	60	00	00	180
7)22.1	7)274.7	2)198.5	7)206.6	7)65.1
3.16	39.24	28.38	29.51	9.30
−2	−2	−2	−2	−2
23.06.01.16	23.10.37.24	23.31.26.33	23.50.27.51	23.57.07.30
col −.05	col −.05	col −.05	col −.05	col −.05
az +.06	az +.07	az +07	az +05	az +.07
lev +.09	lev +.08	lev +.08	lev +09	lev +.09
23.06.01.26	23.10.37.34	23.31.26.37	23.50.27.60	23.57.07.41
37.60	37.60	37.58	37.56	37.56
23.06 38.86	23.11.14.94	23.32.03.95	23.51.05.16	23.57.44.97
23.06 38.69	23.11.14.80		23 51.05.10	23.57 44.93
.17	.14		.06	.04

col −0.050
az +0.067
lev +0.140

JH (223) [illegible]

col −0.061
az +0.102
lev +0.132

October 7		October 7/8 Am	8 Pm	9 Pm
2964		2964	2964	2964
α Andromeda	γ Pegasi	α Leonis	α Aquarii	β Lyrae
+28 22.0	+14 18.4	9,, 09.0	6,, 54.0	12.4
37.4	32.8	9,, 23.2	7,, 07.9	28.9
53.3	46.8	9,, 37.1	7,, 21.3	45.1
0 08.5	5,, 01.0 —	9 51.3	7,, 35.0	4,, 01.4
0 24.3	5,, 15.3	0 05.5	7 48.9	4,, 18.0
0 40.0	5,, 29.5	0 19.4	8,, 02.8	4,, 34.3
00,, 00,, 55.4	00,, 05,, 43.5	10,, 00,, 33.5	21,, 58,, 16.7	18,, 44,, 50.1
240.9	187.3	179.0	186.6	190.7
180	180	180	60	180
7)60.9	2)7.3	2)359.0	7)246.6	7)10.7
8.7	1.04	51.30	35.2	1.53
−2	−2	−2	−2	−2
00,, 00,, 06.70	00,, 04,, 59.04	9,, 59,, 49.30	21,, 57,, 33.2	18,, 43,, 59.53
col − .05	col −.05	10,, 00,, 26.37	21,, 58,, 05.87	18,, 44,, 35.55
az + .00	az +.03	37.07	36.67	36.02
lev + .16	lev +.12			
00,, 00,, 06.81	00,, 04,, 59.14			
00,, 00,, 44.43	00,, 05,, 36.67			
37.62	37.53			

(224) (183)

col. −.082
az. +.114
lev. +.124

9/10 III West — 10 Pm — October 13 8 pm

2964	2964	2964	2964	2964	
α Hydræ	α Leonis	α Lyræ	α² Capricorni	α Cygni	
9,,01.9	9 11.3	0,,28.8	38.4	56.5	9.8
9,,15.8	9 25.3	0,,46.4	52.8	16.3	9.1
9,,29.5	9 39.5	1,,04.2	9 07.0	35.4	9.6
9,,43.5	9 53.5	1,,21.5	9 21.0	55.0	
9,,57.4	0 07.4	1,,39.2	9 35.0	14.3	9.0
0,,11.3	0 21.4	1,,57.0	9 48.9	33.4	9.1
9,,20,,25.0	10,,00,,35.8	18,,32,,14.5	20,,10,,03.6	20 9 6 53.0	19.6
184.4	194.2	211.6	206.7		
120	180	60	60		
7)304.4	7)374.2	7)151.6	7)146.7		
43.49	53.46	21.66	20.96		
−2	−2	−2	−2		
9,,19,,41.49	9,,5951.46	18,,31,,19.66	20,,09,,18.96		
9,,20,,16.47	10,,00,,26.40	18,,31,,54.18	20,,09,,48.63		
34.98	34.94	34.52	29.67		

All West

col. −0.087
az. +0.116
lev. +0.121

October 13/14 Am.

2964
α Hydrae
9 07.9
9 22.0
9 35.8
9 49.5
0 03.5
0 17.3
9..20..31.2
167.2
180
7)347.2
49.60
−2
9..19..47.60
9..20..16.57
28.97

2964
α Leonis
17.3
31.5
45.5
59.4
13.5
27.7
10..00..41.8

14/15 Am

2964
α Leonis
+13° 19.8
34.0
48.0
0 01.9
0 15.7
0 30.0
10..00..44.9
193.7
180
7) 13.7 (
1.96
−2
9..59..59.96
10..00..26.52
26.56
col −.09
az +.06
lev +.11
26.48

Pm

2964
ε Pegasi
+9 49.0
6..02.9
6..16.6
6..30.5
6..44.7
6 58.9
21..37..12.5
215.1
00
7)215.1
30.73
−2
21..36..28.73
col −.08
az +.07
lev +.10
21..36..28.82
21..36..54.07
25.25

2964
α Aquarii
−1° 05.4
7 19.0
7 32.8
7 46.6
8 00.3
8 14.0
21..56..27.6
145.7
180
7)325.7
46.53
−2
21..57..44.67
col −.08
az +.08
lev +.09
21..57..44.76
21..58..09.81
25.05

13/14 Am.

M.T.C. 19..58..00 13..25..47.88
2964 9..27..19.5 46.74
28.97 13..26.34.62
9..27..48.47
13..26..34.62
20..01..13.85
3..16.75
19..58..57.10
19..58..00
2.90 fast of Camb
16
13.10 slow of Boston

14/15 Am.

M.T.C. 21..04.00
2964 10..37 29.7

(226) ([illegible])

October 15 Pm } 15/16 Am

five minutes before 4 or 5 o'clock to put on the Battery –

2964
I Pegasi

—

27.0
41.0
55.0
09.0
22,, 34,, 22.9

2964
α Hydra
– 8° 13.0
26.9
9 40.8
9 54.7
0 08.5
0 22.4
9,, 20,, 36.4
202.7
180
7)382.7
54.67
– 2
9,, 19 52.67
9,, 20,, 11.62
23.95
col – .02
az + .04
lev + .06
23.87

ε Leonis
+ 24° 6,, 16.6
6,, 31.5
6,, 46.5
7,, 01.9 –
7,, 17.0
7,, 32.0
9,, 37,, 47.0
192.5
180
7)12.5
1.78
– 2
9,, 36,, 59.78
col – .03
az + .02
lev. + .11
9,, 36.59.88
9,, 37.23.87
23.99

N. T. C. 20,, 04,, 00
2964 9,, 41,, 18.6
23.95
13.33,, 40.99 9,, 41,, 42.55
46.74 13,, 34,, 27.73
13,, 34 27.73 20,, 07,, 14.82
3,, 17.78
20,, 03,, 57.04
20,, 04,, 00
2.96 fast at Camb
16
13.04 slow of Boston

E. C. 00,, 49,, 00
2964 14,, 26,, 55.2
23.45
14,, 27,, 18.45
13,, 38,, 24.28
00,, 48,, 54.17
8.01
00,, 48,, 46.16
00,, 49
13.84
16
2.2

13,, 37 37.54
46.74
13 38 24.28

Exp Chron begin (227) ( )

col. –0.015
az. +0.066
lev. +0.107

October 15/16 Am Illumination West

2964	2964		
+13 α Leonis	+63° α Ursa Majoris	+21° δ Leonis	+35 ν Ursa Majoris
9 22.4	2..37.3	5..04.5	4..24.4
9 36.3	3..07.4	5..19.4	4..48.5
9 50.4	3..36.5	5..34.3	5..12.0
0 04.5	4..06.5 –	5..49.0 –	5..35.9 –
0 18.5	4..36.4	6..03.8	5..59.4
0 32.6	5..06.2	6..18.5	6..22.9
10..00..46.7	10..55..36.0	11..06..33.0	11..46..46.5
211.6	166.3	162.5	249.6
180	120	180	06
7)31.6	7)46.3	7)342.5	7)249.6
4.51	06.61	48.93	35.66
–2	–2	–2	–2
10..00..02.51	10..54..04.61	11..05..46.93	11..45..33.66
col. –.01	col – .02	col – .01	col –.02
az. +.03	az – .04	az +.02	az. –.00
lev. +.09	lev +.20	lev +.10	lev. +.17
10..00..02.62	10..54..04.75	11..05..47.04	11..45..33.81
10..00..26.55	10..54..28.72	11..06..10.93	11..45..57.46
23.93	23.97	23.89	23.65

(228) 16ʰ Prism

col − .087
az + .015
lev + .093

October 15/16 Am. Illumination East —

2964	2964	Pm		
Polaris S. P.	α Serpentis	Antares	γ Draconis	β Lyrae
Ill. West	+7° 53.5	−26° —	+51° 41.3	+38° 3,, 24.8
12,, 39,, 30 − 4bb	07 0	9,25.5	2 03.0	3,, 41.0
48,, 22	6 20.5	9,,40.5	2 25.0	3,, 57.5
57,, 15.5	6 34.5	9,, 55.9	2 47.0	4,, 14.0
Ill East —	6 48.5	0,, 11.0	3 09.1	4,, 30.3
13,, 14,, 58	7 02.5	0,, 26.9	3 30.9	4,, 46.5
23,, 51	15 37,, 16.3	16,, 20 ~~42.0~~	17,, 53,, 53.7	18,, 45,, 03.0
13,, 32,, 42.5	282.8	159.2	210.0	217.1
	60	120	120	120
	7)242.8	5)279.2	7)330.0	7)97.1
	34.69	55.84	47.14	13.87
	−2	−2	−2	−2
	15,,36,,32.69	16,,19,,53.84	17,,52,,45.14	18,,44,,11.87
	col. −.09	col. −.09	col −.13	col −.10
	az +.01	az. +.01	az −.00	az +.00
	lev +.08	lev. +.04	lev +.16	lev +.12
	15,,36,,32.69	16,,19,,53.80	17,,52,,45.17	18,,44,,11.89
	15,,36,,56.05	16,,20,,17.30	17,,53,,08.56	18,,44,,35.36
	23.36	23.50	23.39	23.47

Oct 15/16	9,,40ᵐ	+23.90
	21,,20	23.20
16/17	11,,40	22.00

1851.
October 16 Pom Ill. East (229)

col −0.087
az +0.015
lev + 0.093

	2964 α² Capricorni		α Cephei		β Aquarii		β Cephei		ε Pegasi
+13	8..45.0	+62	—	−6°	41.9	+69	—	+9°	5..57.2
	8..59.0		—		55.8		—		6..04.9
	9..13.3		4..12		3..09.7		5 44.0		6..18.9
	9..27.5		4..41.4 —		3, 23.5 —		6 24.0 —		6..32.8
	9..41.5		5..11.0		3..37.5		7 03.5		6..46.8
	9..55.5		5..40.3		3, 51.2		7 ~~44.0~~		7..00.6
	20..10..09.9		21..16..~~09.3~~		21..24..05.0		21..28..~~24.0~~		21..37..14.5
	251.7		64.4		224.6		71.5		169.7
	60		60		60		600		60
	7)191.7		3)124.4		7)164.6		3)71.5		7)229.7
	27.38		41.46		23.51		23.83		32.81
	2		−2		−2		−2		−2
	20..09..25.38		21..14..39.46		21..23..21.51		21..26..21.83		21..36..30.81
	col −.08		col − .16		col −.08		col −.17		col − .08
	az +.01		az +.01		az +.01		az −.01		az + .00
	lev +.06		lev +.20		lev +.07		lev +.22		lev + .08
	20..09..25.37		21..14..39.49		21..23..21.57		21..26..21.87		21..36..30.81
	20..09..48.58		21..15..03.17		21..23..44.63		21..26..45.56		21..36..54.05
	23.28		24.28		23.12		23.69		23.24

1851
October 16/17 Am. Gll. East
2964

(230)

cul − 0.033
az + 0.020
lev + 0.081
2964

β Leonis
+15 0 .25,0
0 .38,9
0 .53,3
1 .07,4
1 .21,5
1 35,7
11,,41,,50,4
52.2
07.44
2
11,,41,,05.44
41,,27,,53
− 22.09
cul − .03
az + .01
lev + .09
+22.02

γ Ursae Majoris
+54° 4,,26.4
4,,50,0
5,,13.9
5,,37.6 − D
6,,01.0
6,,24.7
11,,26,,48.5 A
202.0
60
7)262.1
37.44
− 2
11,,45,,35.44
cul − .05
az − .00
lev + .17
11,,45,,35.56
11,,45,,57.49
21.93

Polaris ~~P.M.~~ North
12,,39,,26.5 − 4 fts
12 48 24.0
12 57 15.0
13,,06,,05.0
13,,14,,56.0
13,,23,,47.5
13,,32,,41.5

3
/
5

Pm.
β Ursae Min
+75°
55.0
0 46.0
1 38.9
2 ~~30.5~~
14,,33,,23.4
139.9
60
3)139.9
46.63
− 2
14,,50,,44.63
cul −
az − 00
lev

α Herculis
6 49.4
+15° 7 03.5
7 17.5
7 31.8
7 46.0
8 00.0
17,,08 14.4
162.6
60
7)222.6
31.80
− 2
17,,07,,29.80
17,,07,,51,60
21,80
cul − .04
az + .01
lev + .09
21.74
21.89

13,,41,,34.10
46.74
13 42 20.84

16,,48 08.39
13,,42,,20.84
3,,05,,47.55
30.44
3,,05,,17.11
3,,05,,20
+2.89

h m s
M.T.C 3,,05,,20
2964 16,,47,,46.5
21.89
16,,48,,08,39
13,,42,,20.84
3,,05,,47.55
30,,44
3,,05,,17.14
3,,05,,20
2,89

13,,41,,34.10
46.74
13,,42,,20.84

(231)

October 17 Pm Ill West

col. +0.020
az. — 0.055
lev. + 0.081

α Ophiuchi
2964
+13°
6„ 59.5
7„ 13.8
7„ 27.9
7„ 42.0
7„ 56.0
8 10.1
17„ 28„ 24.0
233.3
60
7)293.3
41.9
−2
17„ 27„ 39.90
17„ 28„ 01 61
21.71
col +.02
az −.02
lev. +.08
21.63

2964
γ Draconis
+51° 1„ 42.3
2„ 04.5
2„ 26.5
2„ 48.5
3„ 10.4
3„ 32.6
17„ 53„ 54.8
219.6
120
7)339.6
48.51
−2
17„ 52„ 46.51
col +.03
az +.00
lev +.14
17.52.46.68
17„ 53.08.51
21.83

2964
α Lyrae
+39° 0 41.5
0 58.2
1 17.0
1 34.0 —
1 52.0
2 09.5
18„ 32„ 26.9
239.1
00
7)239.1
34.16
−2
18„ 31„ 32.16
col +.02
az +.00
lev +.11
18.31.32.29
18„ 31„ 54.01
21.72

2964
α Pegasi
+14° 6„ 20.5
6„ 35.0
6„ 49.0
7„ 03.3
7„ 17.5
7„ 31.5
22„ 57„ 45.8
202.6
180
7)22.6
3.23
−2
22„ 57„ 01.23
col +.02
az −.02
lev +.08
22„ 57„ 01.31
22„ 57„ 22.83
21.52

7/18 Am
2964
α Hydrae
−8° 9„ 16.0
9„ 30.3
9„ 44.0
9„ 58.0
9„ 11.7
9„ 25.5
9„ 20„ 39.5
225.0
180
7)405(57
57.86
2
9„ 19„ 55.86
9„ 20 16 70
20.84
col. +.02
az. —.04
lev. +.05
20.81

October 17/18 Am

2964
ε Leonis
+24° 6 19.5
6 34.9
6 50.0
7 05.0
7 20.1
7 35.4
9,, 37,, 50.2
215.1
180
7) 35.1
5.01
-2
9,, 37,, 03.01
col +.02
az —.01
lev +.09
9,, 37,, 03.11
9,, 37,, 23.93
20.82

2964
α Leonis
+13° 9,, 25.4
9,, 39.8
9 54.0
0 08.0
0 22.1
0 36.0
10,, 00,, 50.0
235.3
180
7) 55.3
7.9
-2
10,, 00,, 05.90
10,, 00,, 26.58
20.68
col +.02
az —.02
lev +.08
20.60

11,, 41 + 22.00
22 57 21.50

17,, 50 21.70
33,, 30 20.80
15.40 90

17/18 Am.

M.T. 6 20 37,, 35
2964 - 10,, 22,, 55
20.68
10,, 23,, 16.18
13,, 42,, 20.84
20,, 40,, 55.34
3,, 23.16
20,, 37,, 32.18
20,, 37,, 35
+2 82

1851 ~~17th~~ Ill west (233) (232)

There seems to be a want of accordance in the Micrometer observations perhaps in the last two but one explained

Oct. 18th Polaris S. P.

12.. 34.27.5 - Mic. 21^r.318
2964- 36 .27.0 — " 20.070
37 ..38.0 — " — 19.298 Mean 7 wires + 0.051
60.686 5 " + 0.058
7 g — 12..39..31.0 wire 20.229 0.007 δ

12 .40 ..20.8 Mic 17^r.49
Coincidence with 7th wire - 18^r.00

18.00
11.98
A to B = 6^r.02

12 ..45 ..56.5 - Mic - — 12.67
12 .47 .31.5 — " — 12.55
Coincidence on 6 again 11.98
6 f. 12 ..48 ..23.5 - 6 wire
12 .50 ..37.5 - Mic _ 10.54
12 .52 ..12.0 — " — 9.445
53 .06.0 — " — 8.795
5 E wire lost by clouds — 1' 1.780
coinc. of 5 wire — 9.593
13 .04 ..45.0 Mic — 0^r.950
Coincidence of 4th wire - 0^r.018
4 - D 13 .06 ..06.0 mid

32.5
12.. 36.. 10.8 20^r.229
5..555
12.. 51.. 58.5 9.593
in $15^m.47^s7$ = 10^r.636

13 ..10 ..55.0 Mic — 3.753 = 3.247 (4-753)
13 .12 ..27.3 " — 4.725 = 4.275 (5. - 725)

13 ..16 ..35.7 Mic — 7.902 - 6.098
coincidence 3 wire 0.010.
mid Coincidence with mid wire D . 0.000
0.008-
0.998 = -002

2 - C — 13 ..23 ..52

13 .. 32 .. 15.5 Mic — 17^r-310 - 17.690 =

1 - A 13 ..32 ..48.5 17.940 = ~~17~~ 18.060?

Polaris

A 7th 12..39..31.0
6 — 12..48..23.5
5 lost by clouds
4 — 13..06..06. lost by Clouds
2 — 13..23..52
1 — 13..32..48.5

28 ..161.0 30..41.00
13.. 6.. 08.20
-2 00
13.. 6 .. 06. 20
— 27 = -0.007 sec δ cor. mean of 7 wires
13.. 6 .. 05 .93

Mean 13.. 11.. 41.2 4.239 3.761
13.. 32.. 32.0 17.625 17.875
20 .50.8 13.386 14.114

by 5 wires Mean of fixed wires = 13.. 6.. 8.. 20
red to mid wire = 0^s.058 sec δ — 2.20
Mid wire 13.. 6 . 6 00
3 first obs 12.. 36.. 10.8
Int 29 ..55.2
sin 9.11454
cos δ 8.41259
7.52713
in 15'' 5 86167
1.66546
20^r.229 1.30598
1r = 2^s.2881 0.35948

(234)

(Ill west)

col. − 0.001
az. − 0.001
lev. + 0.070

October 19/20 Am.

2964

α Hydra

−8°
9„20.4
9„34.3
9„48.0
0„02.0
0„16.0
0„29.9
9„20„43.6
194.2
180
7)14.2
2.03
−2
9„20„00.03
col −.00
az −.00
lev +.03
9„20„00.06
9„20„16.72
16.66

ε Leonis

+24°
6„23.9
6„39.0
6„54.0
7„09.1
7 24.2
7 39.4
9„37„54.4
244.0
180
7)64.0
9.14
−2
9„37„07.14
col −.00
az −.00
lev +.07
9„37„07.21
9„37„23.99
16.78

α Leonis

+13°
B 9„29.5 4.0
9„43.5 3.8
9„57.3 4.6
0„11.9 4.1
0„26.0 3.5
0„39.5 4.5
10„0„54.0
261.7
180
7)81.7
11.67
−2
10„00„09.67
10„00„26.63
16.96
col −.00
az −.00
lev +.06
16.90

α Urs. Maj.

β
+63
44.4
14.5
44.0
4 14.0
4 43.7
5 13.6
10„55„43.3
217.5
180
2)97.5
13.93
−2
10„54„11.93
col −.00
az +.00
lev +.13
10„54„12.06
10„54„28.88
16.82

19/20 Am

δ Leonis

2964
+21°
5 12
5 27
5 41.5
5 56.3
6 11.2
6 25.9
11„06„40.6
394.5
56.36
−2
11„05„54.36
11„06„11.03
−16.67
col − .00
az − .00
lev + .07
16.60

β Leonis

β
+15
0„30
0„44.4
0„58.6
1 12.9
1 27.1
1 41.5
11„41„55.6
7)90.1
12.87
2
11„41„10.87
41„27.56
−16.69
col −.00
az −.00
lev +.07
16.62

2964

Polaris S.C. T.

12„39„36.0 −4 46
48„28.5
57„16.5
06„10.4
15„01.2
23„53.4
13„32„52.9

19/20 Am

MT6 19„59„30
2964 9„52„41.
16.32
9„52„57.32

13„49„27.20
46.74
13„50„13.94

13„50„13.94
20„02„43.38
3„17.04
19„59„26.34
19„59„30
3.66

col − 0.412 (235)
az + 0.026
lev + 0.061

October 20/21 Am. Ill West

2964
α¹ Gem.

+32 4,,06.0
4,,21.5
4,,37.6
4,,54.0
5,,10.3
5,,26.5
7,,25,,43.0
~~199.1~~
180
2)~~399~~.1
54.16
−2
7,,24,,52.16
col −.01
az +.00
lev +.06
7,,24,,52.21
7,,25,,07.04
14.83

Procyon

+6 9 37.3
9 51.2
1 05.0
1 19.0
1 32.7
1 46.5
7,,32,,00.0
191.7
60
7)131.7
18.81
−2
7,,31,,16.81
7,,31,,31.47
0 −14.66
col −.01
az +.01
lev +.04
14.62

β Gem

+28 ——
——
5 45.5
6 00.5
6 16.0
6 ~~31.3~~
7,,36,,~~47.0~~
162.0
60
3) 2.0
00.66
−2
7,,35,,58.66
col −.01
az +.00
lev +.06
7,,35,,58.71
7,,36,,13.29
14.58

21 Am

2964
α Ophiuchi

+13 7,,07.4
7,,21.5
7,,35.5
7,,49.8
8,,03.8
8,,18.0
17,,28,,32.0
168.0
180
2)348.0
49.71
−2
17,,27,,47.71
col −.01
az +.00
lev +.04
17,,27,,47.74
17,,28,,01.54
13.80

col − 0.012
az + 0.021
lev + 0.052

Oct: 22/23 Am

Ill West

2964

α Leonis

+13° 36.4
50.7
0 04.8
0 18.7
0 32.9
0 46.8
10,,01,,01.0
191.3
60
7)131.3
18.76
−2
10,,00,,16.76
col +.01
az −.00
lev +.04
10,,00,,16.79
10,,00,,26.72
9.93

2964
α Ursæ Majoris

+62° 51.4
21.0
3 51.0
4 20.8
4 50.5
5 20.4
10,,55,,50.4
265.5
120
7)145.5
20.78
−2
10,,54,,18.78
col −.02
az −.00
lev +.08
10,,54,,18.84
10,,54,,29.01
10.17

β Leonis

+15° 0 37.0
0 51.0
1 05.4
1,,19.9
1,,34.0
1 48.4
11,,42,,02.5
198.2
60
7)138.2
19.74
−2
11,,41,,17.74
col −.01
az −.00
lev +.04
11,,41,,17.77
11,,41,,27.61
9.84

Polaris

12,,39,,44.5 − 4 hb
48,,37.7
57,,27.5
06,,18.4
15,,10.0
13,,24,,01.5

col − 0.013
az − 0.004
lev + 0.043

(236)

Geo. W. Dean's determination of irregularity of pivots of C.S. Transit No. 4 – Ill. end of axis is one division of the level scale larger than the opposite end
one division of the scale (Boutelle) = 0".83

Oct. 20/21 Am
M.T.C. 20,,34,,50
2964 – 10,,32,,05.5
14.30
10,,32,,19.80
13,,54,,10.50
20,,38,,09.30
3,,22.84
20,,34,,46.46
20,,34,,50
3.54

13,,53,,23.76
46.74
13,,54,,10.50

col. – 0.013
az. – 0.007
lev. + 0.035

October 23 Pm. Ill west

2964
ζ Cygni
+30° 5,,43.5
5,,59.0
6,,14.9
6,,30.5
6,,46.4
7 02.3
21,,07,,17.6
219.2
00
7)214.2
30.60
– 2
21,,06,,28.60
col – .01
az. – .00
lev. + .05
21,,06,,28.64
21,,06,,37.38
8.74

β Aquarii
–6° 2 56.4
3,,10.0
3,,24.0
3,,38.0
3,,51.5
4,,05.5
21,,24,,19.3
204.7
60
7)264.7
37.82
– 2
21,,23,,35.82
21,,23,,44.53
8.71
col – .01
az – .00
lev + .03
8.69

ε Pegasi
2964
6,,05.4
+9 6,,19.3
6,,33.0
6,,47.3
7,,01.3
7,,15.0
21,,37,,29.0
150.3
180
7)330.3
47.19
– 2
21,,36,,45.19
21,,36,,53.95
8.76
col – .01
az – .00
lev + .03
8.74

22/23 Am
εC
~~M.T.~~C. 20,,58,,20
2964 – 11,,03,,25.0
9.87
11,,03,,34.87
14,,02,,03.60
21,,01,,31.27
3,,26.67
20,,58,,04.60
20,,58,,20.00
15.40

14,,01,,16.86
46.74
14,,02,,03.60

+2.3 daily

(237)

October 24 Pm

Ill west.

col. − 0.013
az. − 0.016
lev. + 0.029

2964	2964			
α Herculis	α Lyrae	β Lyrae	β Aquarii	ε Pegasi
+15 05.0	+39 0,,56.8	+33 3,,41.5	−6 59.0	−9 6,,08.0
7,,19.0	1,,14.5	3 58.0	13.0	6,,22.0
7,,33.0	1,,32.0	4 14.5	27.0	6,,35.9
7,,47.4 –	1,,49.9 –	4 31.0 –	3 40.7	6,,50.0
8 01.5	2,,07.4	4 47.5	3 54.5	7,,03.8
8 16.0	2,,24.9	5,,04.0	4 08.0	7,,17.7
17,,08,,30.0	18,,32,,42.4	18,,45,,20.3	21,,24,,22.0	21,,37,,31.5
151.9	227.9	216.8	224.2	168.9
180	120	00	060	180
7)331.9	7)347.9	7)216.8	7)284	7)348.9
47.41	49.7	30.97	40.6	49.84
−2	−2	−2	2	−2
17,,07,,45.41	18,,31,,47.70	18,,44,,28.97	21,,23,,38.6	21,,36,,47.84
col − 01	col −.01	col −.01	21,,23,,44.53	col −.01
az. − .01	az −.00	az −.00	5.93	az −.01
lev. + .02	lev + .03	lev +.03	col −.01	lev +.02
17,,07,,45.41	18,,31,,47.72	18,,44,,28.99	az −.01	21,,36,,47.84
17,,07,,51.54	18,,31,,53.84	18,,44,,35.16	lev + .02	21,,36,,53.94
6.13	6.12	6.17	5.93	−6.10

Oct. 24/25 Am.

E.C. 20,,23,,35

2964 10,,36,,30.5

4.33

10,,36,,34.83	14,,09,,09.97
14,,09,,56.71	46.74
20,,26,,38.12	14,,09,,56.71

3,,20.96

20,,23,,17.16

20,,23,,35

17.84

October 27 Pm.

Ill west

col. −0.014
az. −0.049
lev. +0.005

δ Aquilae 2964	2964 γ Aquilae	β Aquarii	ε Pegasi
+3	+10°	−6°	−9°
~~23.5~~	8.,34.5	3.,08.0	6.,17.0
37.4	8.,48.5	3.,22.0	6 30.9
51.2	9.,02.4	3.,35.5	6 45.0
8 05.0	9.,16.4	3.,49.4	6 58.8
8 18.7	9.,30.5	4.,03.0	7. 12.5
19.,18 32.5	9 44.4	4.,16.9	7.,26.4
clouds	19.,39.,58.5	21.,24.,31.0	21.,37.,40.5
144.8	235.2	165.8	231.1
120	120	180	180
5)24.8	7)115.2	7)345.8	7)411.1
4.96	16.45	49.40	58.73
−2	−2	−2	−2
19.,18.,02.96	19.,39 14.43	21.,23.,47.40	21.,36.,56.73
col −.01	col −.01	col −.01	21.,36.,53.90
az −.03	az −.02	az −.03	+ 2.83
lev +.00	lev +.00	lev +.00	col −.01
19.18.02.92	19.39.14.42	21.23.,47.36	az. −.04
19.,18.,00.09	19.39.11.60	21.23.44.47	lev. +.00
+2.83	2.82	2.89	2.78

26/27 Am

ε C.. 20.,38.,05.0
2964 10.,58.,59.0
1.43
10.,58.,57.57
14.,17.,49.82
20.,41.,07.75
3.,23.33
20.,37.,44.42
20 38.,05
20.58

14.,17.,03.08
46.74
14 17 49.82

(Ill west) col. −0.014 (23gi)
az. − 0.060
lev − 0.002

October 28 Pm

2964

α Aquila

+8 57.6
11.5
25.5
3 39.6
3 53.4
19.. 44..07.2
19.44.21.1
215.8
60
2)275.8
39.40
−2
19.43..37.40
19..43..31.88
5.52
col −.01
az. −.03
lev. −.00
5.48

β Aquila

+6 7.. 26.9
7.. 40.5
7.. 54.4
8.. 08.3
8 22.1
8 36.0
19 48.48.6
237.8
180
7)57.8
08.26
−2
19..48..06.26
19..48..00.75
5.51
col −.01
az − .03
lev −.00
5.47

October 30/31 Ill west

col −0.016
az − 0.083
lev − 0.016

2964

β Leonis

+15° 0.. 59.3
1 13.9
1 28.0
1 42.0
1 56.3
2.. 10.5
11..42..24.8
294.8
60
7)294.8
42.11
−2
11..41..40.11
11..41..27.77
12.34
col −.01
az −.03
lev −.01
12.29

EC − 21..31..0
CP − 21..30..53.7

EC −21..31..20
2964 12..8..15.5

EC 20..34..05
296 11..10..51.0
12.34
11..10..38.66
14..33..06.03
20..37..02.63
~~20~~.. 3..22.66
20..33..39.97
20..34..05.
25.03

Oct. 27/28 Am.
E.C. 20..38..30
2964 − 11..03..22.5
4.57
11..03..17.93
14..21..46.37
26..41..31.56
3..23.4
20 38..08.16
20..38..30
21.84

14..20..59.63
46.74
14 21..46.37

(240)

October 30-31 Am Illumination West

Polaris S.P.

2964 - 12 .. 40 .. 03

12 .. 48 .. 53

12 .. 57 .. 45 uncer. - the upper clouds N. moving North. the lower N mov.d E by South

middle wire lost by clouds - 2 $\frac{1}{2}$

13 .. 15 .. 31.0 faint

lost clouds

13 .. 33 .. 22.0

October 31 8 pm

T R Simms 4 ft transit Striding Level - West Wing

ed. — 0.016
az. — 0.094
lev. — 0.024
Transit Circle

Ill West

West	East
+ 100.	98.
+ 100	98
+ 100	99
103	+ 95
103	+ 95
103	+ 95
9	40
101.5	96.7
96.7	
4.8	
2.4	

West too high

West	East
100	+ 98

Level adjusted

Ill West

West	East
+ 99..	100
100..	+ 99
+ 99	101
100	+ 99
+ 98	101
100	+ 99
596	599
99.3	99.8
	99.3
	.5

October 31 P.m
continued from prec page
Ill East

West	East
97	+102
+ 94	104
97	+102
+ 95	104
97	+102
+ 95	104
35	18
95.8	103
	95.8
	7.2
	− 5
	6.7
	3.35 Ill pivot too low

Nov. 1st Am.
E.C. 23. 42,, 00
2964 11,, 42,, 03.3

(242) cal + 0.096
az − 0.094
lev − 0.024

October 31 Pom

2964
3 Pegasi
+10 37.7
51.5
4 .. 05.5
4 .. 19.4 −
4 .. 33.5
4 . 47.5 −
22 .. 35 .. 01.3
196.4
60
7) 136.4
19.48
−2
22 .. 34 .. 17.48
col −.02
az −.05
lev −.02
22 .. 34 .. 17.39
22 .. 34 .. 03.96
13.43

2964
Fomalhaut
54.4
+30 9 .. 10.5
9 26.5
9 42.4 −
9 58.3
0 14.0
22 .. 50 .. 30.4
236.5
60
7) 296.5
42.36
−2
22 .. 49 .. 40.36
col −.02
az −.03
lev −.02
22 .. 49 .. 40.29
22 .. 49 .. 26.61
13.68

2964
a Pegasi
55.4
+14 10.0
24.0
7 .. 38.3
7 .. 52.3
8 06.5
22 .. 58 .. 20.8
207.3
60
7) 267.3
38.18
−2
22 .. 57 .. 36.18
col −.02
az −.05
lev −.02
22 .. 57 .. 36.09
22 .. 57 .. 22.68
13.41

Nov. 1

2964
a Hydræ
−8 52.0
0 06.2
0 20.1
0 33.8
0 47.5
1 01.5
9 .. 21 .. 15.4
176.5
60
7) 236.5
33.78
−2
9 .. 20 .. 31.78
9 .. 20 .. 17.07
2964 +14.71
col −.02
az −.08
lev −.02
14.60

2964
a Leonis
+13 01.4
0 .. 15.5
0 .. 29.5
0 .. 43.8
0 .. 57.7
1 .. 12.0
10 .. 01 .. 25.8
185.7
120
7) 305.7
43.67
−2
10 .. 00 .. 41.67
col −.02
az −.05
Camb lev −.02
10 .. 00 .. 41.58
10 .. 00 .. 27.00
14.58

14 .. 36 .. 45.85
46.75
14 .. 37 .. 32.60

)152
.51

2964 9 .. 42 .. 00
365 19 .. 00 36.5

9 .. 42 .. 00
14.71
9 .. 41 .. 45.29
14 .. 37 .. 32.59
19 .. 04 .. 12.70
~~19~~ .. 3 .. 07.45
19 .. 01 .. 05.25
19 .. 00 .. 00
1 .. 05.25 slow of Camb

14 .. 36 .. 45.85
46.74
14 37 32.59

N.J.C. 20 .. 18 .. 05
2964 10 .. 59 .. 07.5
14.71
10 .. 58 .. 52.79
14 .. 37 .. 32.60
20 .. 21 .. 20.19
3 .. 19.95
20 .. 18 .. 00.24
20 .. 18 .. 05.00
4.76

(243) (Tri. West)

Nov. 1st Pm

2964.		2964		2964.
α Cygni	ν Aquarii	29 Capricorni	β Aquarii	ε Pegasi
+45° 41.5	−12° 1 05.5	−16°	−6° 20.9	+10° 30.0
6 01.0	1 19.6	20.5	34.5	44.0
6 20.0	1 33.5	7 34.9	48.5	—
6 39.4	1 47.8	7 49.4	4 02.5	7 —
6 59.0	2 01.9	8 03.5	4 16.4	7 23.4
7 18.5	2 16.0	8 17.9	4 30.0	7 39.5
20..37..38.0	21..02..30.0	21..08..~~32.0~~	21..24..44.0	21..37..53.5
217.4	154.3	126.2	196.8	167.0
60	180	120	180	120
7)277.4	7)334.3	5)246.2	7)16.8	4)47.0
39.63	47.76	49.24	02.4	11.75
−2	−2	−2	−2	−2
20..36..37.63	21..01..45.76	21..07..47.24	21..24..00.40	21..37..09.75
col −.02	col −.02	col −.02	col −.02	col −.02
az − .00	az −.08	az −.09	az −.07	az −.05
lev −.00	lev −.02	lev −.02	lev −.02	lev −.03
20..36..37.61	21..01..45.64	21..07..47.11	21..24..00.39	21..37..09.65
20..36..22.16	21..01..15.74	15.75	21..23..44.40	21..36..53.81
15.45	21..01..29.90	21..07..31.36	15.99	15.84
	21..01..29.94	21..07..31.34		
	.04	.02		

Σ = 192.4
cor = −13.98
5)178.42
35.68
24
21..37 . 11.68
2
9.68

(244)

November 1 Pm Ill. West

col − 0,017
az − 0,105
lev − 0,032

2964 δ Capricornii	Moon I	ι Aquarii	† α Andromedae	2964 ζ Pegasi
−17 —	−17 48.4	−15° 00.5	+28° 0 15.5	+14 5,,12.3
8 40.0	03.0	8 14.5	0 31.2	5,,26.5
8 54.0	0 17.8	8 28.6	0 47.0	5,,40.9
9 08.4 —	40 32.4 —	8 43.0 —	1 02.8	5,,55.0 —
9 23.0	0 47.0	8 57.0	1 18.3	6,,09.0
21,,39,,37.5	1 01.8	9 11.3	1 34.0	6 23.4
—	21,,41,,16.5	21,,59,,25.5	00,,01,,49.5	00 06,,37.4
162.9	166.9	180.4	198.3	204.5
120	60	120	180	180
5)42.9	7)226.9	7)300.4	7)18.3	7)384.5
8.58	32.41	42.91	2.61	54.93
−2	−2	−2	−2	−2
21.39.06.58	40,,30.41	21,,58,,40.91	00,,01,,00.61	00,,05 52.93
col −.02	col −.02	col −.02	col −.02	al −.02
az −.09	az −.09	az −.09	az −.03	az −.05
lev −.01	lev −.01	lev −.01	lev −.04	lev −.03
21,,39,,06.46	21,,40,,30.29	21,,58,,40.79	00,,01,,00.52	00,,05,,52.83
16.11	16.12	16.15	00,,00,,44.32	00,,05,,36.59
21,,38,,50.35	21,,40,,14.17	21,,58,,24.64	16.20	16.24
21,,38,,50.44		21,,58 24.95		
.09		.31		

Σ = 162.9
cor = −.13
5)162.77
32.55
24
21 .. 39 8.55
2
21 .. 39.6.55

Mean rate of 2964 Nov: 1st $+\overset{s}{3}.44$

col −0.018
az − 0.128
lev − 0.039

(245)

November 3 Pm | 4/5 Am. Ill West

2964	2964		2964
α Andromeda	+13 α Leonis	α Ursæ Majoris	δ Leonis
+28 0,,22.2	0,,15.8	+62° 30.8	+21° 58.0
0,,38.5	0,,30.0	00.9	12.8
0,,54.0	0,,43.9	30.9	6 27.5
1,,09.5	0,,58.0	5,,00.4	6 42.8
1,,25.3	1,,12.0	5 30.0	6 57.0
1,,40.5	1,,26.3	5 59.9	7 12.9
00,,01,,56.4	10,,01,,40.3	10,,56,,29.8	11,,07,,26.5
246.4	226.3	182.7	237.5
180	180	180	60
7)66.4	7)406.3	7)62.7	7)297.5
9.49	58.04	00.39	42.50
−2	−2	−2	−2
00,,01,,07.49	10,,00,,56.04	10,,54,,58.39	11,,06,,40.50
00,,00,,44.32	10,,00 27.09	al +.02	al. +.03
23.17	28.95	az +.12	az. −.07
al −.01	al +.02	lev −08	lev −.04
az −.03	az −.09	10,,54,58.45	11,,06,,40.42
lev −.06	lev −.04	10,,54,,29.59	11,,06,,11.40
23.07	28.85	28.86	29.02

Nov. 4/5 Am.

N.Y.C. 19,,15.00
2964−10,,11,,50.7
28.95
10,,11,,21.75
14,,53,,18.80
19,,18,,02.95
3,,09.72
19,,14,,53.23
19,,15,,00.00
+06.77 lamb.
16
9.23 slow of Boston

14,,52,,32.06
46.74
14,,53,,18.80

Nov 2/3 Am.

N.Y.C. 19,,46,,05
2964 − 10,,35,,01
19.59
10,,34,,41.49
14,,45,,25.70
19,,49,,15.79
3,,14,,84
19,,46,,00.95
19,,46,,05
4.05

14,,44,,38.96
46.74
14,,45,,25.70

(246) (24.

col + 0.027 to Here
ar − 0.177
lev − 0.041

Illumination West

November 4/5 Am.

2964
β Leonis
+15 16.4
30.5
44.5
1 58.8
2 13.3
2 27.5
11,, 42,, 41.8
2328
180
7) 412.8
58.97
2
11.. 41,, 56.97
col + .02
ar − .09
lev − .02
11,, 41,, 56.88
11.. 41.. 27.91
28.97

2964
Polaris
12,, 40,, 22.1 − 4bb −1°
12,, 49,, 15.0
12 58,, 08.5
13,, 06,, 58.0
13,, 15,, 52.0
13,, 24,, 42.8
13,, 33,, 45.0
243.4
180
7) 423.4
60.49
−2
13,, 06,, 58.49
col.
ar.
lev.

2964
α Virginis +74°
7 11.0
7 25.0
7 39.1
7 52.9
8 07.0
8 21.0
13,, 18,, 34.6
190.6
180
7) 370.6
52.94
−2
13,, 17,, 50.94
col. + .02
ar. − .15
lev − .02
13,, 17,, 50.79
13.. 17,, 21.29
29.50

2964
β Ursae Min.
49,, 53.4
0 ,, 44.8
1 ,, 37.0
2,, 29.0
3 20.9
14,, 54 13.4
185.5
06
5) 255.1
37.02
−2
14,, 51,, 35.02
col
ar
lev

10h.. 30 + 28.9
19.. 40 30.2
9.2) 1.3

(247)

(Spring Governor Record
[Ill West])

Ill West —

November 5 Pm | | | 5 Pm |

2964	2964	2964	E.C.	E.C.
δ Aquilæ	α Aquilæ	β Aquilæ	α² Capricorni	α Cygni
9,,02.0	3,,22.5	7,,51.5	16.2	~~24.0~~ 34.0?
9,,16.0	3 36.4	8 05.4	30.4	53.5
9,,30.0	3 50.3	8,,19.4	44.4	12.9
9,,43.9	4,,04.3	8,,33.2	9 58.6	7 32.2
9,,58.0	4,,18.1	8,,47.0	0 12.6	7 51.4
0,,11.9	4,,31.9	9 00.5	0 26.5	8 10.8
19,,40,,26.0	19,,44,,45.8	19,,49,,14.2	20,,10,,40.7	20,,38,,30.2
7.8				

Nov. 5 Pm
E C 20,,11,,00
2964 - 20,,11 20.2

(248)

col. +0.031
az. −0.185
lev. −0.042

Illumination West

November 6 P.m.

E.C. α Andromeda	E.C. γ Pegasi	E.C. α Cassiopea	E.C. β Ceti	E.C. 33 Ceti
+28° 0 06.8	+14° ———	+56° 1,,1.34.3	−19° 5 35.0	+2° 2 25.0
0 22.3	5 17.6	1,,1 29.0 4.7	5 49.8	2 38.8
0 38.2	5 32.0	1,,59.4 4.4	6 04.2	2 52.4
0 54.0	5 46.3 –	2,,17.6 – 4.2	6 18.8 –	3,,06.2
1 09.7	6,,00.5	2,,42.3 4.7	6 33.7	3,,20.0
1 24.8	6,,14.4	33,,06.7 4.4 4.2	6 47.8	3,,33.7
00,,01,,40.5	00..06,,28.7	00,,33,,30.9	00,,37 02,0	1,,03,,47.1
196.3	110.8	184.2	191.3	223.2
180	120	60	40	180
7)376.3	5)230.8	7)124.2	7)131.3	7)43.2
53.76	46.16	17.74	18.76	6.17
−0	−0	−0	0	0
00,, 00 53.76	00,,05,, 46.16	00.32 17.74	00,,36,,18.76	1,, 03 06.17
col + .03	col +.03	col + .06	col + .03	col +.03
az − .06	az −.04	az +.07	az − .17	az −.17
lev − .06	lev −.04	lev −.08	lev −.02	lev −.04
00..00..53.67	00.05.46.06	00..32,,17.79	00..36.18.60	1..03..06.05
00..00..44.29	00..05,,36.57	32,,08.68	36,,08.90	9.51
9.38	9.49	9.11	9.70	1,,02,,56.54
				1,, 02,,56.42
				.12

Σ = 139.5
cor = − 42.53
6)96.97
16.16
30
0 .. 05 .. 46.16

9.38
49
11
70
)168
E.C. 9.42

.38
.49
80
13.5
14.. 9.. 52

1851 (249) ( )

Illumination West

November 6 Pm.

E.C. 40 Ceti	E.C. θ' Ceti	E.C. Moon's 1st limb	o Piscium	7 Pm 2964 2 Draconis
−3° 8,, 52.4	−9° 6,, 04.9	+4° 2,, 29.6	+8 7,, 02.2	—
9,, 06.2	6,, 19.0	2,, 43.2	7,, 16.4	—
9,, 20.1	6,, 33.2	2,, 56.9	7 30.3	3,, 24.7
9,, 33.8	6,, 47.0 —	3,, 11.4	7 44.4 —	3,, 47.0
9,, 47.4	7,, 00.8	3,, 25.6	7,, 58.2	4,, 09.0
10,, 01.3	7,, 14.9	3,, 39.9	8,, 12.0	4,, 31.0
1,, 10,, 15.0	1,, 17,, 28.6	1,, 33,, 53.7	1,, 38,, 26.0	17,, 54,, 53.0
176.2	148.4	260.1	189.5	.80.7
60	180	180	120	60
7)236.2	7)328.4	7)80.1	7)309.5	3)140.7
33.81	46.91	11.44	1,, 37,, 44.21	46.9
−0	−0	−0	−0	−2
1,, 09,, 33.81	1,, 16,, 46.91	1,, 33,, 11.44	1,, 37,, 44.21	17,, 53,, 44.9
col +.03	col +.03	col +.03	col +.03	17,, 53,, 07.93
az −.13	az −.14	az −.18	az −.10	36.97
lev −.03	lev −.03	lev −.04	lev −.04	
1,, 09,, 33.68	1,, 16,, 46.77	1,, 33,, 11.32	1,, 37,, 44.10	
9.52	9.50	9.50	9.49	
1,, 09,, 24.16	1,, 16,, 37.27	1,, 33,, 01.82	1,, 37,, 34.61	
1,, 09,, 24.05	1,, 16,, 37.19		1,, 37,, 34.65	
.19	.08		.04	

Nov. 7 Pm.

2964 − 17,, 59,, 00

H 365 − 2,, 52,, 17.5

17,, 59,, 00

36.97

15,, 04,, 21.73	17,, 58,, 23.03
46.74	15,, 05,, 08.47
15,, 05,, 08.47	2,, 53,, 14.56
	28.38
	2,, 52,, 46.18
	2,, 52,, 17.5

Slow of Comp. − 28.68

(250) 'Ill: West

Nov. 7 Pm.
2964
α Pegasi
7 19.5
7 34.0
7 48.4
8 02.4
8 16.3
8 31.0
22-58-45.1
1969
180
7)16.9
02.41
−2
22„58„00.41
22„57„22.61
37.80

Nov. 7/8 Am
2964
δ Leonis
6„08.5
6„23.0
6„37.9
6„52.5
7„07.0
7„22.0
11„07„36.5
367.4
180
7)367.4
52,48
−2
11„06„50.48
11„06„11.52
38.96

Nov. 10 Pm
2964
α Andromeda γ Pegasi

46,4	43.1
02.5	56.9
17.9	~~28.0~~
33.6	26.0
49.0	40.0
04.5	54.0
00„02„20,0	00„07„08.3

Nov. 7/8 Am.
2964-11„13„00
+1065-20„03„22.9

11„13„00
38.66
11„12„21.04
15„05„05.47
20„07„12.57
3„17.78
20„03„54.79
20„03„22.9
Slow of bands 2s.49
16
28

Ill West (237)

November 10/11 Am.

2964 α Ursa Maj.	δ Leonis	2964 β Leonis
	6,, 18.0	36.0
4,, 20.8	6,, 32.8	50,4
4 50.5	6,, 47.5	04,5
5 20.9	7,, 02.4	18.9
5,, 50.9	7,, 17.0	33.0
6,, 20.6	7,, 32.0	2 47.4
10,, 56,, 49.5 —	11,, 07,, 46.5	11,,43,,01.5
162.6	196.2	
60	180	
5) 102.6	7) 16.2	
20,52	2,31	
−2	−2	
10,, 55,, 18,52	11,, 07,, 00.31	
10,, 54,, 29.90	11,,06,, 11.61	
48.62	48.70	

Nov 10/11 Am

2964 11,,15,,00 — 11,,16,,00

A 065 19.53.21.4 19,, 54,, 21.2

15,,16.11.40 11.16..00

46.74 .49.0

15.16.58.14 . 11.15.11.0

15,,16,, 58.14

19,,58,,12.86

19,, 3,,16.3

19,,54.56.56

19,,54,,21.2

35.36

16

51.36

(252)

November 11/12 Am Ill West

Chron. 194 Polaris S.P.	194 Spica	2964 Arcturus	2964 ε Boötis	2964 β Ursæ Min
12,,43,,06.5	56.4	03.0	37.2	—
12,,51,,59.8	10.5	18.0	52.8	—
13,,00,,50.0	0 24.4	32.5	08.3	—
13,,09,,42.5	0 38.5	47.0	24.0	00.4
13,,17,,32.5	0 52.5	02.0	39.3	2,,52.5
13,,27,,28.4	1 06.2	16.4	54.5	3,,44.4
13,,36,,27.4	13,,21,,20.3	14,,10,,31.0	14,,40,,10.0	14,,54,,37.0

208.8
60
2)268.8
13 20.36.40
13,,17,,21.41
3,,14.99

11/12 Am
2964
α Coronæ
31.5
847.0
9,02.5
9,,18.0
9,,33.4
9 48.5
15,,30,,04.5
185.4
60
2)125.4
17.91
−2
15,,29,,15.91
15,,28,,25.07
,,50,84

2964
12 Pm
α Capri
0 02.0
0 16.0
0 30.4
0 44.5
0 58.5
1 12.8
20,,11,,27.0
191.2
120
2)311.2
44.46
−2
20,,10,,42.46
20,,09,,48,17
54.29

(253)

Ill West

Nov. 13 Pm

2964	2964	2964	2464
α Lyrae	α Aquilae	β Aquilae	α Pegasi
1,,58.9	48.9	18.0	7,,39.0
2,,17.0	03.0	32.0	7 53.4
2 34.5	16.5	45.6	8,,07.5
2 52.0	30.5	8 59.5	8,,21.9
3,,09.8	44.4	9,,13.4	8,,36.0
3,,27.4	4 58.3	9,,27.4	8,,50.4
18,,33,,45.0	19,,45,,12.0	19,,49,,41.3	22,,59,,04.2
		237.2	212.4
		180	60
		7)417.2	7)152.4
		59.60	21.77
		−2	−2
		19,,48,,57.60	22,,58,,19.77
		19,,48,,00.52	
		57.08	

Nov. 16/17 Am.

M,T,C, 19,,57,,00

2964 - 11,,41,,55.8

1,,09.00

15,,39,,50.73 11,,40,,46.80

46.74 15,,40,,37.47

15,40,,37.47 20,,00,,09.33

3,,16.61

19,,56 52,,72

19,,57

7.28

16

8.72

Ill West

(

Nov. 15 Pm
c 2964
α And
1„03.0
1„19.0
1„34.5
1„50.0
2„05.5
2„21.5
00„02„37.2
170.7
180
7)350.7
50.1
−2
00„01„48.1
00„00„44.20
1„03.90

2964
γ Pegasi
5„59.9
6 14.0
6„28.0
6„42.4
6„56.5
7„10.5
00„07„24.9
236.2
60
7)296.2
42.31
−2
00 06„40.31
00„05„36.9
1„03.41

~~Nov~~
Nov. 17 Pm
2964
α Pegasi
7 52.9
8„07.0
8„21.5
8„35.5
8„49.5
9„04.0
22„59„18.0

Nov. 17/18 Am
2964
β Leonis
00.0
14.4
28.5
2 43.0 −
57.1
11.5
11„43„25.7

1851phae.proj

Ill West (2550.

Nov. 17/18 Am

2964
Spica
7„ 54.8
8 08.9
8 22.5
8„ 36.5
8„ 50.5
9„ 04.4
13„ 19„ 18.5
196.1
60
7)256.1
36.58
−2
13„ 18„ 34.58
13„ 17„ 21.53
1„ 13.05

2964*
Polaris
12„ 41„ 03.0 −4bb
49„ 57.0
58„ 48.5
13„ 07„ 40.0
3„ 16„ 34.0
3„ 25„ 26.5
13„ 34„ 22.4

Nov. 17/18 Am

202
Arcturus
7„ 11.6
7 26.5
7 40.8
7 55.3
8 10.0
8 24.8
14„ 08„ 39.0
208.2
180
7)347.2
55.31
−2
14„ 07„ 53.31
14„ 08„ 52.01
−58.70

18 Pm

202
ζ Aquilae
7„ 55.4
8„ 09.4
8„ 23.8
8„ 37.7
8„ 51.9
9„ 06.0
18„ 59„ 20.0
204.2
60
7)264.2
18„ 58„ 37.7
−2
18„ 58„ 35.7
58 34.20
+1.5

Set pend. 202. 1^{m}

* After observing Polaris 2964 was set aside

(256) (255) Ill West

Nov. 18 P.m.

202 δ Aquilae	202 γ Aquilae	α Aquilae	202 β Aquilae
22.0		2,, 53.5	22.5
36.0	47.0	3,, 07.4	36.5
49.8	01.0	3 21.4	50.4
03.5	14.9	3,, 35.2	
17.0	29.0	3,, 49.0	18.0
30.9	42.8	4,, 03.0	32.0
19 18,, 44.5	19,, 40,, 57.1	19,, 44,, 16.8	19,, 48,, 45.8

186.3
60
7) 246.3
35.19
−2
19,, 43,, 33.19
19,, 43,, 31.58
+1.61
1.81

Nov. 19 P.m.

202 α² Capricorni	202 ζ Cygni
	5,, 51.0
9 21.8	6,, 07.0
9 36.0	6,, 22.5
9 50.0	6,, 38.4
10 04.0	6,, 54.5
10 18.1	7,, 10.0
20,, 10,, 31.9	21,, 07,, 25.4
129.9	208.8
120	60
5) 249.9	7) 268.8
49.98	38.40
−2	−2
20,, 09,, 47.98	21,, 06,, 36.40
20,, 09,, 48.008	21,, 06,, 36.87
	−.47

(257))(☆c.

Nov. 21/22 Am

All very bad

202	202	202
α Leonis	12 Can. Ven	Spica
9„ 46.0	8 10.8 7.7	—
0„ 00.0	6 28.5 8.3	6 54.5
0„ 14.0	6 46.8 7.2	7 08.5
0„ 28.1	9 04.0 7.9	7 22.4
0„ 42.0	9 21.3 8.1	7 36.5
0„ 56.0	9 39.4 7.6	7 50.3
10„ 01„ 09.3	12„ 49„ 57.0	13„ 18„ 04.5
195.4	207.8	172.2
000	180	60
7)195	7)27.8	5)11.2
27.91	3.97	22.44
−2	−2	−2
10„ 00„ 25.91	12„ 49„ 01.97	13„ 17„ 20.44
10„ 00„ 27.64	12„ 49„ 03.20	13„ 17„ 21.63
1.73	1.23	1.19

Nov. 21/22 Am

202 12„ 31„ 00
A 365 20„ 27 „14.0
12„ 31„ 00
1.73
12„ 31„ 01.73
16„ 00„ 20.25
20„ 30„ 41.48
3„ 21.62
20„ 27„ 19.86
20„ 27„ 14.00
5.86
16
21.86 slow of Boston

15„ 59„ 33.51
46.74
16„ 00 20.25

21/22 Am

M.J.6. – 20„ 35„ 00 — 20„ 35„ 53
202 – 12„ 38 33.4 — 12„ 39„ 28.5
1.73
12„ 38„ 35.13
16„ 00„ 20.25
20„ 38 14.88
3„ 22.85
20„ 34„ 52.03
20 35„ 00
7.97 fast of Camb
16
8.03 Slow of Boston

23
Nov. 24 Am Ill. west
Arcturus No. 202

EC — 14..1..0
202 — 14..1..49.7

8„ 9.3
8„ 24.3
8„ 39.1
8„ 53.7
9„ 8.2
9„ 22.6
14..09..37.3
194.5
180
7)374.5
53.50
−2
14„08„51.50
14„08„52.15
−6.5

Nov. 23/24 Am
M.T. 22„10„00
202 14„21„42.7
.65
14„21„43.35 16..07..26.62
16„08„13.36 46.74
22„13„29.99 16„08„13.36
3„38.46
22„09„51.53
22.10.00
8.47 fast of Camb.
15
7.53 slow of Boston

24/25 Am slow of Boston 7.30 by rate

(259)

Nov. 24 Pm		Nov. 25/26 Am
202	202	202
α Aquilae	β Aquilae	β Ursae Min
		— last
2,,51.4	7,,21.0	22.5
3,,05.5	7,,34.9	14.7
3,,19.4	7,,48.6	51,,07.3
3,,33.5	8,,02.4	1,,59.7
3,,47.8	8 16.3	2,,52.0
4,,01.2	8 30.1	14,,58,,44.2
19,,44,,15.1	19,,48,,44.0	
173.4	197.3	
60	180	
7)233.4	7)17.3	
33.34	02.47	
−2	−2	
19,,43,,31.34	19,,48,,00.47	
19,,43,,31.52	19,,48,,00.39	
−.18	+.08	

1851. Nov. $\frac{28}{29}$th Am.   Ill. West. (260)([illegible])

202

B Leonis.

B Corvi

50

4.5

12..27..20.0 last

M.T.C. 18..52..0
365-11..22..51

MTC. 18..54..0
365.18..53..11

1851 Dec. 1st Am. - Ill. mech. (2619):3

202 - Arcturus

/3

8 .6.9
8 .21.5
8 .36.2
8 ..57.0
9 .. 5.5
9 20.0
14 09 ..34.5
175.6
180
7)355.6
50.80
-2.25
14 ..08 ..48.55
..08 ..52.32
3.77

202 - 14..23..0
207 - 14..22.36.4

M.T.C. - 21..45 ..15
202 - 14..24..25.5

14.24.25.5
35
38.24.29.0
16..35.49.27
21.48.39.73
3.34.4
21 45.05.33
M.T.C. 21 45 15
9.67
16
M.T.C. -6 33 Barlow

16..35.02.52
46.75
16.35.49.27

-3.78
13.61
5)9.83 (1.97
20 -3.94
3.78
778

Dec. 4th P.m.
M.T.C - 6..56..00
202 - 23..48..18.7

(2621) (Ml west)

col. − 0.077
az. − 0.171
lev. − 0.106

Dec. 3d Pass.

+ 202	202	202	202	202
α Andromeda	γ Pegasi	B.A.C 205	20 Ceti	Moon's 1st limb
+28° 9,,46.0	+14° 4,,42.3	−5° 6,,58.9	−2° 4,,33.8	+1°
0,,01.4	4,,56.7	7 13.0	4,,47.5	4 08.0
0,,17.5	5,,10.6	7,,26.5	5,,01.0	4 21.7
0,,32.8	5,,24.9	7 40.3 −	5,,14.9	4 36.0
0,,48.0	5,,38.9	7,,54.5	5,,28.5	4 49.8
1,,03.9	5,,53.0	8 08.0	5,,42.3	5 03.9
00,,01,,19.8	00,,06,,07.3	00 38,,21.5	00,,45,,56.0	1,,15,,17.4
168.4	233.7	222.7	224.0	119.4
60	60	60	120	60
7)~~229.4~~	7)173.7	7)289.7	7)104.0	5)179.4
32.77	24.81	40.38	14.86	35.88
−2	−2	−2	−2	−2
00,,00,,30.77	00 05,,22.81	00,,37,,38.38	00,,45,,12.86	1,,14,,33.88
col −.08	col −.08	col −.08	col − .08	col −.08
az −.05	az −.08	az − .12	az − .11	az − .11
lev −.12	lev. −.09	lev −.07	lev −.07	lev. − .08
00,,00,,30.52	00,,05,,22.56	00,,37,,38.11	00,,45,,12.60	1,,14,,33.61
00,,00,,43.99	00,,05,,36.32	13.61	13.62	13.67
13.47	13.76	00,,37,,51.72	00,,45,,26.22	1,,14,,47.28
		00,,37,,51.53	00,,45,,26.02	
		.19	.20	

Dec 3/4 Am.

MJC 19,,38 40
202 12 29,,08
19.52
12,, 29,,21.3
16,,47,,38.93
19,,41,,42.37
3,,13.6
19,,38,,28.77
19,,38,,40
11.23 fast of C
16
4.77 slow of B

16,,46,,52.19
46.74
16,,47,,38.93

daily rate of 202 − 2.s00

December 3d P.m. 4th P.m.

202 μ Piscium	202 o Piscium	202 α Arietis	202 α Androm	202 γ Pegasi
+5	+8 6„ 41.5	+23 7„ 53.5	+28 very bad seeing hazy	+14°
1 46.5	6 55.4	8 09.0	00.0	55.1
2„ 00.4	7 09.4	8 23.8	15.4	5 09.5
2 14.5	7 23.4	8 39.0	0 30.5	5 23.4
2„ 28.4	7 37.2	8 53.6	0 46.4	5 38.0
2„ 42.0	7 51.0	9 08.5	1 02.4	5 52.0
1„ 22„ 55.5	1„ 38„ 05.0	1„ 59„ 23.4	00„ 01„ 17.2	00„ 06. 06.0
131.8	222.9	210.8	94.7	178.0
60	60	60	60	60
5) 71.8	7) 162.9	7) 270.8	5) 154.7	5) 118.0
14.36	23.27	38.68	30.94	23.60
−2	−2	−2	2	−2
1„ 22„ 72.36	1„ 37„ 21.27	1„ 58„ 36.68	00„ 00„ 28.94	00„ 05„ 21.60
col. −.08	col −.08	col −.09	col −.13	col −.12
az. −.10	az −.10	az −.07	az −.04	az −.07
lev −.08	lev −.08	lev −.10	lev −.13	lev −.10
1„ 22„ 12.10	1„ 37„ 21.01	1„ 58„ 36.42	00„ 00„ 28.64	00„ 05„ 21.31
13.68	13.70	1„ 58„ 50.04	00„ 00„ 43.97	00„ 05„ 36.32
1„ 22„ 25.78	1„ 37„ 34.71	13.62	15.33	15.01
1„ 22 25„ 53	1 37 34 59			
25	.12			

Σ = 187.4
cor = − 41.42
6) 145.98
24.33
12
12.33
− 2
1„ 22„ 14.33

Σ = 111.9
cor = − 46.73
6) 65.17
10.86
20
0„ 00„ 30.86
2
28.86

Dec. 4 8pm. Ill West (264 [illegible])

col. − 0.113
az. − 0.144
lev. − 0.109

202	202	202	♄ 202		
θ' Ceti	μ Piscium	o Piscium	Saturn's 1st limb	α Arietis	Moon I
−9° 42.9	+5 1,,31.3	+8° 6,, 40.3	+8 7,,05.0	+22° 7 52.5	+6° 0 13.0
56.8	1,,45.5	6 54.4	7,,19.0	8 07.4	0 27.0
6 10.5	1,,59.3	7,, 08.2	7,,32.8	8 22.4	0 41.0
6 24.5	2,,13.0	7 21.8	7,,46.5	8 37.3	0 54.9
6 38.4	2,,27.0	7 36.0	8,,00.4	8 52.1	1 09.2
6 52.5	2,,40.8	7 49.6	8,,14.5	9 07.0	1.23.2
1,,17,,06.3	1,,22,,54.5	1,,38,,03.5	1,,48,,28.4	1 59,,21.7	2,,01,,37.5
231.9	271.4	213.8	146.6	200.4	205.8
60	180	60	180	60	180
2)171.9	7)091.4	7)153.8	7)326.6	7)260.4	7)385.8
24.56	13.06	21.97	46.66	37.20	55.11
−2	−2	−2	2	−2	−2
1,,16,,22.56	1,,22,,11.06	1,,37,,19.97	1,,47,,44.66	1,,58,,35.20	2,,00,,53.11
col −.12	col −.12	col −.12	col −.12	col −.11	col −.11
az −.11	az −.09	az −.08	az −.08	az −.05	az −.09
lev −.07	lev −.08	lev −.09	lev −.09	lev −.11	lev −.08
1,,16,,22.27	1,,22,,10.78	1,,37,,19.69	1,,47,,44.38	1,,58,,34.93	2,,00,,52.93
1,,16,,37.06	15.14	15.16	15.18	1,,58,,50.04	15.22
14.79	1,,22,,25.92	1,,37,,34.85	1,,47,,59.56	15.11	2,,01,,08.15
	1,,22,,25.52	1,,37,,34.59			
	40	.26			

Dec. 4 Pm

202
ξ^2 Ceti
+8° 9,, 23.0
9,, 37.1
9,, 51.0
0,, 05.0
0,, 18.9
0,, 32.5
2,, 20,, 46.5
2~~0~~4.0
180
7) 34.0
4.86
-2
2,, 20,, 02.86
col -.11
az -.08
lev -.09
2,, 20,, 02,58
15,05
2,, 20,, 17.63
2,, 20,, 17 53
.10

202
ν Ceti
+5°
7,, 26.0
7,, 40.0
7,, 53.9
8 08.0
4 21.7
2,, 28,, 35,3
149.6
120
5) 269.6
53.92
-2
2,, 27,, 51.92
col -.11
az -.09
lev -.08
2,, 27,, 51.64
15.06
2,, 28,, 06.70
2,, 28,, 06,45
.25

202
α Ceti
+3 3,, 38.9
3 52.5
4 06.0
4 20.0
4 33.9
4 47.6
2,, 55,, 01.0
199.9
60
7) 139.9
19.98
-2
2,, 54,, 17.98
col -.11
az -.09
lev -.08
2,, 54,, 17.70
2,, 54,, 32.71
15.01

Σ - 184.9
cor = - 41.42
6) 143.48
23.91
30
53.91
2
2,, 27,, 57.91

Dec. 5 Pm Ill West

202
α Arietis
48.9
+23° 8 03.8
8 19.0
8 33.7
8 48.5
9 03.4
1,, 59,, 18.2
175.5
60
7) 235.5
33.64
-2
1,, 58,, 31.64
col -.15
az -.04
lev -.11
1,, 58,, 31.34
1,, 58,, 50.04
18.70

ξ^2 Ceti
+8° 19.3
33.4
9 47.4
0 01.3
0 15.0
0 28.7
2,, 20,, 42.5
187.6
180
7) 7.6
01.08
-2
2,, 19 59.08
col -.15
az -.07
lev -.09
2,, 19,, 58.77

(266) ([illegible])

col. − 0.149
az. − 0.120
lev. − 0.112

Dec. 5 8pm. Ill West

202	202 ×	202	202		
ν Ceti	γ Ceti	Moon 1st limb	α Ceti	o Tauri	f'' Tauri
+5° 7,, 08.5	+3 4,, 40.4	+10° 8 18.7	+3° 3,, 34.9	+8° 5,, 53.0	+12° 43.3
7,, 22.3	4,, 54.5	8 32.7	3,, 48.6	6,, 06.8	57.5
7,, 36.4	5,, 08.0	8 47.3	4,, 02.4	6,, 21.0	2 11.8
7,, 50.2	5,, 21.8	9,, 01.3	4,, 16.0	6, 34.6	2 26.0
8,, 04.0	5,, 35.5	9,, 15.4	4,, 30.0	6 48.5	2 39.8
8 17.5	5,, 49.5	9,, 29.7	4,, 43.6	7,, 02.3	2 54.0
					08.0
2,, 28,, 31.5	2,, 36,, 03.2	2,, 49,, 44.0	2 54,, 57.5	3,, 17,, 16.0	3,, 23,,
170.4	212.9	189.1	233.0	182.2	240.4
180	60	180	120	60	60
7)350.4	7)152.9	7)09.1	7)113	7)242.2	7)180.4
50.06	21.84	01.30	16.14	34.60	25.77
−2	−2	−2	−2	−2	−2
2,, 27,, 48.06	2,, 35,, 19.84	2,, 48 59.30	2,, 54 14.14	3,, 16,, 32.60	3,, 22,, 23.77
col −.15	col −.15	col −.15	col −.15	col −.15	col −.15
az −.07	az −.08	az −.07	az −.08	az −.07	az −.06
lev −.08	lev −.08	lev −.09	lev −.08	lev −.09	lev −.09
2,, 27,, 47.76	2,, 35,, 19.53	2,, 48,, 58.99	2,, 54,, 13.83	3,, 16,, 32.29	3,, 22,, 23.47
18.66	2,, 35,, 37.92	18.71	2,, 54,, 32.71	18.79	18.80
2,, 28,, 06.42	18.39	2,, 49,, 17.70	18.88	3,, 16,, 51.08	3,, 22,, 42.27
2,, 28,, 06.45				3,, 16,, 51.19	3,, 22 42.47
03				.11	.20

daily rate of 202 − $\overset{s}{3}$.86

(267)

col. − 0.137
az. − 0.129
lev. − 0.116

December 5/6 Am Ill West

202	202
Arcturus	ε Bootis
48.3	7„ 22.0
8„03.0	7„ 37.9
8„17.5	7„ 53.0
8„32.0	8„ 08.4
8„46.9	8 24.0
9„01.5	8„ 39.4
14„ 09„ 16.0	14„ 38„ 54.8
165.2	239.0
60	180
7)225.2	7)59.0
32.17	08.43
−2	−2
14„ 08„ 30.17	14„ 38„ 06.43
14„ 08„ 52.39	14„ 38„ 28.94
22.22	22.51

6 Pm

202	202	202
γ Ceti	α Ceti	ο Tauri
+3° 4„ 34.8	+3° 29.5	+8° 5„ 47.5
4„ 49.0	43.5	6„ 01.5
5„ 02.7	3„ 57.4	6„ 15.4
5„ 16.4 —	4„ 11.3	6„ 29.4
5„ 30.0	4„ 25.0	6 43.3
5„ 43.7	4„ 38.7	6 57.1
2„ 35„ 57.4	2„ 54„ 52.3	3„ 17„ 11.0
234.0	257.7	205.2
120	180	0
7)114.0	7)77.7	7)205.2
16.28	11.10	29.31
−2	−2	−2
2„ 35„ 14.28	2„ 54„ 09.10	3„ 16„ 27.31
col −.14	col −.14	col −.14
az −.08	az −.08	az −.07
lev −.09	lev −.09	lev −.10
2„ 35„ 13.97	2„ 54„ 08.39	3„ 16„ 27.00
2„ 35„ 37.92	2„ 54„ 32.71	24.37
23.95	24.32	3„ 16„ 51.37
		3„ 16„ 51.19
		.18

Dec 5/6 Am
M.T.C. 21„ 19„ 00
202 14„ 17„ 29.3
22.22
14„ 17„ 51.52
16„ 55„ 32.04
21„ 22„ 19.48
3„ 30.09
21 18„ 49.39
21„ 19„ 00
10.61 fast of Camb
16
5.39 slow of Boston

16„ 54„ 45.30
46.74
16 55 32.04

(268)

Dec. 6 Pm Ill West

202
f Tauri
+12° 38,4
52,4
06.5
2 20.2
2 34.5
2 48.5
3„ 23„ 03.0
203.5
60
7) 143.5
20.50
−2
3„ 22„ 18.50
col −.14
az −.07
lev −.10
3„ 22 18.19
24.40
3„ 22„ 42.59
3„ 22 42.47
.12

202
Moon's 1st limb
+15° 57.5
12.1
9„ 26.5
9„ 41.4
9 55.5
0„ 10.1
3„ 40„ 25.0
228.1
60
7) 288.1
41.16
2
3„ 39 39.16
col −.14
az −.06
lev. −.11
3„ 39„ 38.85
24.46
3„ 40.03.31

Dec 8 Pm.

α Andromeda
202
46.0
0„ 02.0
0„ 17.1
0„ 32.5
0„ 48.4
00„ 01„ 04.0
146.0
60
5) 86.0
17.2
−2
00„ 00„ 15.2
00„ 00„ 43.90
28.70

Dec 8 Pm
202
Spica
6„ 14.4
6„ 28.9
6„ 42.1
6„ 56.0
7„ 10.0
7„ 24.0
13„ 17„ 37.9
212.7
180
7) 392.7
56.1
−2
13„ 16„ 54.10
13„ 17„ 22.08
27.98

Dec. 8 Pm.
M.T.C. 7„ 01„ 40
202 60„ 09„ 31.5

Dec. 9 Pm
202
γ Pegasi
—
—
4 56.5
5 11.0 –
5 25.0
5 39.0
00,, 05,, 53.5
92.5
60
3)32.5
10.83
–2
00,, 05 ,, 08.83
06,, 05,, 36.25
27.42

10 Pm
202
α Andromedae
—
9,, 47.0
0,, 02.5
0,, 18.0 _
0,, 34.0
0,, 49.5
00,, 01,, 05.0
151.0
60
5)91.0
18.2
–2
00,, 00,, 16.2
00,, 00,, 43.89
27.69

202
γ Pegasi
4,, 27.9
4 42.0
4 56.3
5,, 10.5 –
5,, 24.5
5,, 38.4
00,, 05,, 52.8
252.4
180
7)72.4
10.34
–2
00,, 05,, 08.34
00,, 05,, 36.29
27.96

Dec. 11 Pm
202
ζ Pegasi
Stars mistaken
54.5
09.0
3,, 22.5 –
3 36.8
3 50.9
4 04.4
22,, 34,, 18.4
196.0
60
7)256.0
36.57
–2
22 33,, 36.57
22,, 34,, 03.44
26.87

4.5
9.5
4.0
9.6

Dec 9/10
M.T.C. 20,, 43,, 00
202 13,, 57,, 03.2
30.0
13,, 57,, 33.2
17,, 11,, 18.27
20,, 46,, 14.93
3,, 24.17
20,, 42,, 50.76
20,, 43,,
9.24 fast of C
16
6.76 slow of B

17,, 10,, 31.35
46.94
17 11 18.27

Dec. 10 Pm
M.T.C. 8,, 04,, 30
202 1,, 20,, 25.5
27.8
1,, 20,, 53.3
17,, 15,, 14.83
8,, 05,, 38.47
1,, 19.58
8,, 04,, 18.89
8,, 04,, 30
11.11
16
4.89 slow of B.

17,, 14,, 28.09
46.74
17 15 14.83

(270)

December 15/16 Am

202

η Ursæ Maj.	η Bootis
56.9	6,, 14.2
18.4	6 28.4
40.0	6" 43.4
1 01.3	6,, 57.5
1 22.5	7,, 12.3
1 44.0	7 27.0
13,,42,,05.4	13,,47,,41.4
188.5	224.2
180	180
7)8.5	7)404.2
01.21	57.74
-2	-2
13,,40 59.21	13,,46,,55.74
13,,41,,39.93	13,,47,,36.29
40.72	40.55

-40.63
39.50
EC 1..20.13

Dec 11/12 Am.
M.T.C. 21,,04,,00
202 14,,25,,56.0 17,,18,,24.65
27 46.74
14,,26,,23.0 17,,19,,11.39
17,,19,,11.39
21,,07,,11.61
3,,27.6
21 03,,44.01
21,,04,,00
15.99 fast of C.

Dec 15/16 Am
M.T.C 20,,29,,00
202 14,,06,,26.7
40.6
17,,34,,10.88 14,,07,,07.3
46.74 17,,34,,57.62
17,,34,,57.62 20,,32,,09.68
3,,21,,86
20,,28,,47,,82
20,,29,,00
12.18 fast of C
1.6
3.82 slow of B.

Dec. 16/17 Am
Chronometer 202 has been exposed all night in the west transit room to Temp of about zero and perhaps a little below!

Dec. 18 Pm

α Andromedæ	γ Pegasi
9,, 06.4	4,, 03.0
9,, 22.1	4 17.2
9,, 37.8	4 31.4
9,, 53.5	4 45.9
0,, 09.4	5,, 00.0
0,, 25.0	5,, 14.4
00 00,, 40.5	00,, 05,, 28.5
194.7	140.4
180	180
7)374.7	7)320.4
53.53	45.77
−2	−2
23,, 59,, 51.53	00,, 04,, 43.77
00,, 00,, 43.78	00,, 05,, 36.15
−52.25	−52.38

9.5.5
4.4

96
44.6
9.

Doc 17/18

M.T.C. 20,, 52,, 00
202 2,, 37,, 13.6

17,, 46,, 00.55
46.74
17,, 46,, 47.29

Dec 18 Pm

M.T.C. 5,, 49,, 00
202 23,, 35,, 40.0
52.3
23,, 36 ,, 32.3
17,, 46,, 47.29
5,, 49,, 45.01
57.3
5,, 48,, 47.71
5,, 49,,
12.29
16
3.71 Slow of B

(272)

December 18/19 Am Ell West

202
Spica
48.0
6 02.0
6 15.9
6 30.0 –
6 43.9
6 58.0
13„17„12.0
209.8
000
7) 209.8
29.97
–2
13„16„27.97
13„17„22.39
54.42

202
η Ursæ Majoris
0 09.5
0 25.6
0 47.0 –
1 08.4
1 29.8
13„41„51.0
115.0
120
5) 235.0
47.0
2
13„40„45.00
13„41„40.06
55.06

Dec. 19 Pm.

202
a ~~Ans~~Andromedæ
03.0
18.3
34.0
49.7
05.2
21.0
00„00„36.5
167.7
180
7) 347.7
49.67
–2
23„59„47.67
00„00„43.80
56.13
19.48
54.74

202
γ Pegasi
39.5
13.4
27.4
41.9
56.5
10.4
00„05„24.5

Dec. 18/19 Am
M T C 19„37„00
202 13„25 53.4
54.42
13„26 47,82
17„46„47.28
19„40„00.53
3„13„32
19„36„47.21
19„37„00
12.79 fast of C.
16
3.21 slow of B

M. T. C slow of B 19 Am $\overset{5}{3}$.50

December 19/20 Am

202
Spica
5,,45.4
5,,59.5
6,,13.5
6 27.4
6 41.5
6 55.5
13,,17,,09.4
252,2
60
7)192.2
27.46
-2
13,,16,,25.46
13,,17,,22,42
56,96

22 Pm
202
α Cassiopea
—
—
30 34.0
30 —
00,,31,,22.5
—
56,5
60
2)116,5
58,25
-2
00,,30,,56.25
00,,32,,07,70
1,,11.45

Dec. 23 Pm
202
β Ceti
11.0
25.3
40.6
54.5
09.0
00,,35,,23.5
35,,38.0
201,3
180
7)381,3
54.47
-2
00,,34,,52.47
36,,08.53
1,,16.06

202
α Ceti
37.0
50.5
04.3
18.0
31.8
45.5
2,,53,,59.3

Dec. 22 Pm.
M.T.C. 6,,35,,45
202 - 00,,37,,59.0
1,,11.45
00,,39,,10.45
18,,02,,33,,52
6,,36,,36.93
1,,05.97
6,,35,,30.96
6,,35,,45.00
13.04 fast of C.
16
2.96 slow of B

18,,01,,46,78
46.74
18,,02,,33.52

Dec. 23 Pm
M.T.C 8,,53,,00
202 2,,59,,27.5

December 23/24	24/25 Am.	26 Pm.	
202	202	202	202
η Bootis	ε Bootis	β Ceti	o Ceti
85.8		57.0	27.0
50.4	40.5	11.5	41.0
6 05.0	55.8	4 26.0	54.9
6 19.3	11.4	4 40.5	09.0
6 34.0	27.0	4 54.9	23.0
6 48.5	42.4	5 09.5	36.8
13,,47,, 03.0	14,,37,, 57.5	00,,35,,24.0	13,15,,50.5
147.0		283.4	
60		60	
7)137.0		7)283.4	
19.57		40.48	
-2		-2	
13,,46,,17.57		00,,34,,38.48	
13,,47,,36.59		or 36,08,41	
1,,18.46		1,29.93	

Dec 23/24 Am

M T C 19,,54,,00
202 14,,02,,13.6
1 18.42
14,,03,,32.72
18 06,,30.08
19,,58,,02.64
3,,16.90
19 59,,46.54
19,,54
13.46
16
2,54 slow of B

18,,05,,43.34
46.74
18 06 30.08

M.T.C. 6,,30,,00
202 00,,47,,39.7

December. 26/27 Am. Ill. West Dec. 28/29 Am

202
η Bootis
very unsteady
5,, 22.0
5,, 36.4 4.4
5,, 50.8 4,4
6,, 05.5 4,7
6,, 19.8 4,9
6,, 34.5 4.7
13,, 46,, 48.5 4.0
217.5
180
7)37.5
5.36
-2
13,, 46,, 03.36
13,, 47,, 36.64
1,, 33.28

202
Arcturus
6,, 38.0
6 51.4
7 07.3
7 21.8
7,, 36.5
7,, 50.9
14,, 08,, 05.5

202
ε Bootis
6 01.4
6 16.9
6 32.3
6 48.8
7 03.4
7 19.0
14,, 37,, 34.4
156.2
180
7)336.2
48.03
-2
14,, 36,, 46.03
14,, 38,, 29.36
1,, 43 53

202
a^2 Libra
0,, 15.3
0,, 30.0
0,, 44.4
0,, 58.5
1,, 12.8
1,, 27.0
14,, 41,, 41.2
229.2
180
7)409.2
58.45
-2
14,, 40,, 56.45
14,, 42,, 40.09
1,, 43.58

Dec 26/27 Am
N.J.C. 19,, 12,, 00
202 13,, 31,, 42.1
1,, 33.28
13,, 33,, 15.38
18,, 18,, 19.76
19,, 14,, 55.62
3.09.21
19,, 11,, 46.41
19,, 12,,
13.59 feet of Camb
1.6
2.41 s/Lim of Boston

18,, 17,, 33.02
46.74
18 18 19 76

Dec. 28/29 Am
N.J.C. 21,, 25,, 00
202 15,, 52,, 45.65
1,, 43.54
15,, 54,, 29.19
~~18,, 27,, 53.97~~
21,, 26,, 35.22
3 30.8
21,, 23,, 04.42
21,, 25
55.62

18,, 27,, 07.23
46.74
~~18,, 27,, 53.97~~

18,, 25,, 26.13
46.74
18,, 26 12 87

(276) Jll. West

very faint

Dec. 28/29 am	29 Pm			
202				
α Herculis	E.C.	E.C.	E.C.	E.C.
	τ Pegasi	α Pegasi	27 Piscium	30 Piscium
41.5	+10 1..21.33=obs	2 39.35	−4° 8..23.00	−7° 39.10
55.5	1..35.60	+14° 53.70	8..37.00	53.15
09.4	1..49.60	5..07.50	8..50.65	2 06.90
23.8	2..03.45	5 22.00	9..04.40	2 20.73
38.0	2..17.15	5 36.15	9..18.20	2 34.60
17..06..52.4	2..31.15	5 50.50	9 32.00	2 48.20
	22..32..45.15	22..56..04.55	23..49..45.50	23..53..02.10
	203.40	214.05	210.55	204.78
	180	60	180	60
	7)23.45	7)154.05	7)30.55	7)144.78
	22..32..03.35	22..55..22.00	23..49..04.36	23..52..20.68
	col +0.13	col. +.13	col. +0.13	col. +0.13
	az +0.19	az. +.17	az −0.25	az +0.27
	lev −0.11	lev −.10	lev. −0.08	lev. −.07
	22..32..03.18	22..55..21.86	23..49..04.16	23..52 20.47
	22..34..03.24	22..57..21.96	2..00.28	2..00.29
	2..00.06	2..00.10	23 51..04.44	23..54..20.76
			23..51..04.41	23..54..20.89
			.03	.13

	28/29 am	28/29 am
M.T.C.	21..33..00	21..33..00
202	16..00..46.8	16 00 46.8
	1..43.58	1..43.58
	16 02..30.38	16..02..30.38
	~~18..27..5 3.97~~	18..26..12.83
	21..34..36.41	21..36..17.57
	3.32.09	3..32.57
	21..31..04.32	21 32..45.14
	21..33.00	21..33..00
	1..55.68	14.86 fast of
		16
		−1.14 Barton

1851 (277) (..)

col + 0.133
az − 0.338
lev. − 0.106

December 29 Pm. Ill. West

	E.C.		E.C.		E.C.		E.C.		E.C.
+28°	a Andromede		γ Pegasi		Moon I limb		12 Ceti		13 Ceti
	7,, 56.75	+14° 5.54	2,, 53.20	4.0 +5°	58.00	−5°	46.40	−4°	55.29
	8,, 12.20	5.65	3,, 07.20	4.14	12.10		00.45		09.00
	8,, 27.85		3,, 21.34	4.11	8 26.30		14.20		22.85
	8,, 43.40	5.55	3,, 35.45	4.32	8 40.50		0 27.90		5,, 36.45
	8,, 58.60	5.20	3,, 49.75	4.25	8 54.55		0 41.65		5,, 50.35
	9,, 14.45	5.85	4 04.00	4.20	9 08.50		0 55.50		6,, 04.00
	23,, 59,, 30.00		00,, 04,, 18.20		00,, 09,, 22.45		00,, 21,, 09.20		00,, 26,, 17.80
	243.25		189.14		222.40		195.30		195.65
	60		60		60		60		60
	7)303.25		7)249.14		7)282.40		7)195.30		7)255.65
	23 58,, 43.32		00,, 03,, 35.59		00,, 08,, 40.34		00,, 20,, 27.90		00,, 25,, 36.52
	col + 0.14		col + 0.13		col + 0.13		col + 0.13		col + 0.13
	az. − ,10		az − 0.17		az. − 0.21		az. − .25		az − 0.25
	lev − ,13		lev. − 0.10		lev. − 0.08		lev − 0.08		lev − 0.08
	23,, 58,, 43.23		00,, 03,, 35.45		00,, 08,, 40.18		00,, 20,, 27.70		00,, 25,, 36.32
	00,, 00,, 43.61		00,, 05,, 36.02		2,, 00.33		2 00 35		2,, 00.35
	2,, 00.38		2,, 00.57		00,, 10,, 40.51		00,, 22,, 28.05		00,, 27,, 36.67
					2 00.32		00,, 22,, 28.15		00 27 36 75
					00,, 12,, 40.83		.10		.08
							28 15		

Dec. 29/51. Am
[illegible] 20,, 26,, 00
202. 14,, 59,, 33.3
1,, 49.27
15,, 01,, 16.57 18,, 29,, 22.69
18,, 30,, 09.49 46.74
20,, 31,, 07.14 18,, 30,, 09.43
3,, 21.7
20 27 45.44
20,, 28
14.56
16
1.44

29 Pm. | Dec. 29/30 Am

E.C. α Cassiopeæ	ıx E.C. β Ceti	E.C. α Arietis	202 Spica	202 η Boötis
+56 54.0	−19° 24.80	+23° 04.80	—	—
18.45	39.25	19.80	—	5,,26.5
42.85	53.80	34.50	28.0	5,,41.0
0 07.20	4,,08.45	6 49.35	42.0	5,,55.5
0 31.60	4,,22.90	7 04.40	55.4	6,,10.0
0 56.00	4,,37.20	7 19.40	09.5	6,,24.0
00,,31,,20.30	00,,34,,51.70	1,,57,,34.10	13,,16,,23.5	13,,46,,39.0
230.40	238.10	166.35		157.4
180	180	180		180
7) 50.40	7) 58.10	7) 346.35		5) 277.4
00,,30,,07.20	00,,34,,08.30	1,,56,,49.48		55.46
col +.24	col +0.13	col +0.14		−2
az +.15	az −0.31	az −0.12		13,,45,,53.46
lev −.19	lev −0.06	lev −0.41		13,,47,,36.73
00,,30,,07.49	00,,34,,08.06	1,,56,,49.39		1,,43.27
00,,32,,07.50	00,,36,,08.38	1,,58,,49.84		
2,,00.01	2,,00.32	2,,00.45		

1851 Ill. West (279)

Dec. 30 Pm. stars faint — cirrus

E.C.	E.C.	E.C.	E.C.	E.C.	E.C.
α Andromede	2 Pegasi	12 Ceti	α Cassiopea	β Ceti	Moon 1st limb
+28° 53.25	+14° 50.00	−5° 43.20	+56° 56.40	−19° —	−00° 58.50
09.50*	04.40	57.10	9 15.00	36.00	12.60
24.45	18.50	0 11.00	9 39.30	3 50.35	3 26.20
8 40.30	3.. 32.55	0 24.45	0.. 03.60	4 04.75	3 40.20
8 55.80	3.. 46.95	0 38.45	0.. 28.10	4 19.40	3 54.00
9 11.50	4.. 01.00	0 52.10	0 32.50	4 33.80	4 08.15
23.. 59.. 26.75	00.. 04.. 15.20	00.. 21.. 06.00	00.. 31.. 17.00	00.. 34.. ~~48.50~~	00.. 54.. 21.55
221.55	168.60	232.30	205.90	1443.0	221.50
60	60	60	180	120	60
7)281.55	7)228.60	7)172.30	7)25.90	5)2430	7)281.50
23.. 58.. 40.22	00.. 03.. 32.66	00.. 20 24.61	00.. 30.. 03.70	00.. 34.. 04.86	00.. 53.. 40.21
col + .14	col + .13	col + .13	col + .24	col + .13	col + .13
az − .10	az − .17	az − .25	az + .15	az − .31	az − .29
lev − .13	lev − .10	lev − .08	lev − .15	lev − .10	lev − .08
23.. 58.. 40.13	00.. 03.. 32.62	00.. 20.. 24.41	00.. 30.. 03.44	00.. 34.. 04.58	00.. 53.. 40.03
00.. 00.. 46.53	00.. 05.. 38.98		00.. 32.. 10.45	00.. 36.. 11.40	
2.06.40	2.. 06.46		2.. 06.46	2.. 06.82	

×missed the [illegible]

very faint

Σ = 192.70
cor = − 43.64
6)149.06
24.84
20
0.. 34. 04.84

1852 (280)

January 1st Com. Ill. West—

col. + 0.134
az. − 0.838
lev. − 0.114

E.C. X	E.C.	E.C.	E.C.	E.C.
D: Polaris U.C.	θ' Ceti	α Piscium est	α Arietis	ξ' Ceti
18,,36,,34.25	−9° 44.00	+2° 1,,44.40	+23 54.00	+8° 16.25
45,,31.90	57.85	1,,58.00	6,,08.95	30.20
54,,27.45	4,,11.75	2,,11.80	6,,23.70	44.20
3,,20.65	4,,25.85	2 25.35	6,,38.50	2,,02 58.20
12,,16.65	4,,39.70	2,,39.20	6,,53.65	—
h 12 21 10.00	4,,53.40	1,,52 ~~52.95~~	7,,08.45	—
13,,30 03.70	1,,15,,07.30	178.75	1,,57,,23.20	—
	239.85	120	210.45	Σ = 148.85
	60	5)58.75	60	cor = + 83.18
	7)179.85	1,,52,,11.75	7)270.45	4)232.03
	1,,14,,25.69	col + .13	1,,56,,38.63	2,,02,58.01
	col + .13	az − .22	col + .13	
	az − .28	lev − .08	az. − .12	
	lev. − .07	1,,52,,11.58	lev. − .11	
	1,,14,,25.47	2 11 42	1,,56,,38.40	
	1,,16,,36.79	1,,54,,23.00	1,,58,,49.81	
	2,,11.32	1,,54 23.15	2,,11.31	
		.15		
		Σ = 231.70		
		cor = − 41.29		
		6)190.41		
		31.73		
		20		
		1,,52,,11.73		

1852

(281)

Jan. 1st Ill West

E.C.	E.C.	E.C.	E.C.	E.C.
Moon I limb	845 B.A.C.	π Arietis	α Ceti	α Persei
+9° 00.40	+9° 03.35	+17° 07.80	+3° 39.80	+49 32.00
5,, 14.70	17.40	22.00	– 53.75	53.00
5,, 28.95	31.25	36.40	7.50	14.30
5,, 43.20	4 45.15	8 50.75	2,, 21.20	1 35.20
5,, 57.25	4 59.00	9 05.20	2 34.90	1 56.25
6 11.70	5 13.00	9 19.40	2 48.60	2 17.30
2,, 26,, 25.70	2,, 35,, 26.90	2,, 39,, 33.60	2,, 53,, 02.45	3,, 12,, 38.20
181.90	196.05	175.15	208.20	246.25
120	120	180	60	60
7)301.90	7)316.05	7)355.15	2)148.20	2)246.25
2,, 25,, 43.13	2,, 34,, 45.15	2,, 38,, 50.73	2,, 52 21.17	3,, 11,, 35.18
cal + .13	cal. + .13	cal + .13	cal + .13	cal + .20
az – .20	az. – .20	az – .15	az. – .21	az + .06
lev. – .09	lev. – .09	lev. – .10	lev. – .08	lev – .17
2,, 25,, 42.97	2,, 34,, 44.99	2,, 38,, 50.61	2,, 52,, 21.01	3,, 11,, 35.27
2,, 11,, 49	2,, 11.51	2,, 11.51	2,, 54,, 32.60	3,, 13,, 46.87
2,, 27,, 54.46	2,, 36,, 56.50	2,, 41,, 02.12	2,, 11.59	2,, 11.60
	Tab. 2,, 36,, 56.47	2,, 41,, 02.07		
	.03	.05		

E C – $\overset{s}{3}$.60

Jan. 2nd Pm

Ill West (2872)

col. + 0.134
az. − 0.338
lev. − 0.116

E.C.	E.C.	E.C.	E.C.	E.C.
α Arietis	π Arietis	α Ceti	α Persei	Moon I limb
+23° 50.55	5.25 +17° 8,,04.25	+3° 36.50	+49° 28.60	+13° 57.75
05.80	4.70 8,,19.00	50.45	50.20	12.20
20.50	4.80 8,,33.20	04.25	11.20	26.30
6 35.40	5.10 8,,47.40	2 18.00	1 32.40	4,,41.10
6 50.50	4.70 9,,02.00	2 31,85	1 53.40	4,,55.75
7 05.20	9,,16.20	2 45.40	2 14.80	5,,10.00
1,,57,,19.96	2,,39,,30.30	2,,52,,59.35	3,,12,,35.40	3,,15,,24.20
187.91	152.35	245.80	226,00	227.30
60	180	120	60	60
7)247.91	7)332.35	7)125.80	7)226.00	7)287.30
1,,56,,35.41	2,,38,,47.48	2,,52,,17.97	3,,11,,32.29	3,,14,,41.04
col + .13	col + .13	col + .13	col + .20	col + .13
az − .12	az − .15	az − .22	az + .06	az − .17
lev. − .11	lev. − .10	lev. − .08	lev. − .17	lev − .10
1,,56,,35.29	2,,38,,47.36	2,,52,,17.80	3,,11,,32.38	3,,14,,40.96
1,,58,,49.79	2,,14.62	2,,54,,32.59	3,,13,,46.85	2,,14.69
2,,14.50	2,,41,,01.98	2,,14.79	2,,14.47	3,,16,,55.65
	2,,41,,02.06			
	.08			

E.C. −3.0

Ill West (283)

Jan. 2nd Pm

E.B.
η Tauri
41.85
+24 57.00
6 18.80
6 26.80
6 41.80
6 56.95
3„ 37„ 11.90
248.10
60
7) 188.10
3„ 36„ 26.87
3„ 38„ 41.61
2„ 14.74
cal + 0.13
az — .12
lev. — .12
2„ 14.85

E.B.
e Tauri
+11°
40.40
7 54.60
8 08.65
8 ~~22.70~~
3„ 38„ ~~36.50~~
103.65
60
3) 163.65
3„ 37„ 54.55
cal + .13
az — .19
lev. — .09
3„ 37 54.40
2„ 14.73
3„ 40„ 09.13
3„ 40„ 09.50
.37
Σ = 162.85
cor = − 69.98
5) 92.87
18.57
36
3„ 37„ 54.57

E.B.
a Tauri
+12° 32.05
46.25
00.30
0„ 14.40
0„ 28.25
0„ 42.40
3„ 50„ 56.35
220.00
120
7) 100.00
3„ 50„ 14.29
cal + .13
az — .19
lev — .09
3„ 50.14.14
2„ 14.76
3„ 52„ 28.90
3„ 52„ 29.11
.21

Jan 2° Pm
M.T.C. ~~44~~„ 32„ 00
202 - 5„ 17„ 44.45
1„ 40.34
5„ 19„ 24.79
18„ 45„ 55.66
10„ 33„ 29.13
1„ 43.8
10 31„ 45.33
10„ 32. 00
14.47
16
1 57

18„ 45. 08.92
46.74
1845 55.66

M.T.C slow of B 1.53

1852 (284)

Jan. 7/8

very unsteady and very bad seeing

202
α² Libræ
10.4
24.4
0 38.7
0 53.0
1 07.1
1 21.4
14 41 „ 35.5
190.5
180
7) 370.5
52.93
− 2
14 „ 40 50.93
14 „ 42 „ 40.34
1 „ 49.41

Ext Ther 10°

202
ε Boötis
55.4
6 11.3
6 27.0
6 42.0
6 57.4
7 13.4
14 „ 37 „ 28.9
235.4
60
7) 295.4
42.20
− 2
14 36 „ 40.20
14 „ 38 „ 29.87
1 „ 49.67

All West — 202 put forward 2^m

Jan 8 Am.

202
α Andromedæ
08.5
24.0
39.8
55.4
10.8
26.5
00 „ 01 „ 42.0

202
γ Pegasi
05.0
19.4
33.5
5 48.0
6 02.1
6 16.4
00 „ 06 „ 30.5
154.9
180
7) 334.9
47.84
− 2
00 „ 05 „ 45.84
00 . 05 „ 35.90
+ 9.94

Jan. 7/8 Am.

N.Y.C. 19 „ 15 „ 00
202 14 „ 21 „ 42.1
1 „ 49.5
14 „ 23 „ 31.6
19 „ 05 „ 38.45
19 „ 17 „ 53.15
3. 9.69
19 „ 14 „ 43 46
19 „ 15 „ 00
16.54 fast of C.
16
0.54 fast of Boston

19 „ 04 „ 51.71
46.74
19 „ 05 38.45

1851phae.proj...

Jan. 13 P.m.

202
γ Pegasi
4„ 59.0
5 13.4
5 27.5
5 41.8
5 56.0
6 10.0
00„06„24.4
292.1
60
7)292.1
41.73
−2
00„05„39.73
00„05„35.84
+3.89

202
α Persei
2„48.5
3„10.0
3„31.4
3„52.4
4„13.4
4„34.3
3„14„55.8
245.8
120
7)365.8
52.26
−2
3„13„50.26
3„13„46.67
3.59

13/14 A.m
202
β' Scorpii
6 07.0
6 21.0
6 36.0
6 51.0
7 05.5
7 19.8
15„57„34.5
174.8
180
7)354.8
50.68
−2
15„56„48.68
15„56„48.46
.22

13 P.m
M.T.C. 4„40„00
202 00„09„49.8
3.8
00„09„46.0
19„29„17.79
4„40„28.21
45.95
4„39„42.26
4„40„00
17.74
16
1.74

13/14 A.m
M.T.C. 20„31„00
202 16„03„22.1
.22
16„03„21.88
19„29„17.79
20„34„04.09
3„22.17
20„30„41.92
20„31„00
18.08
16
2.08 fast of B

19„28„31.05
46.74
19„29„17.79