

KG
11366
v.777

ERROR ^{OF} SIDEREAL CLOCK.

26

Thursday, January 16, 1913

Meridian Circle

Thompson's Reedy Obs.

Altitude 1° 35'

α Arietis

33° 2'

β Ursae Majoris

30° 34'

2^h 2^m 24.4^s 15.3 9.7
 27.2 12.9 0.1
 29.9 10.0 9.9
 32.4 7.2 9.6
 35.1 4.6 9.7
 42.9 57.9 9.8
 45.8 53.8 9.6

50.0
 15 $\overline{) 134}$
 49.89

2^h 4^m 27.1^s 24.1 1.2
 21.1
 30.1 24.1 1.2
 18.0
 33.0 24.1 1.0
 35.9 15.0 0.9
 39.2 11.9 1.1
 46.7 4.5 1.2
 51.0 0.1 1.1

55.5
 15 $\overline{) 82}$
 55.54

49 24
 12 12
 9 8 48
 49 24
 55 5

2^h 2^m 49.89
 2^h 2^m 13.94
 0 33.95
 + .06
 + .73
 + 0 34.74

74
 67
 141
 70

2^h 4^m 55.54
 2^h 4^m 21.62
 + 33.91
 + .03
 + .73
 34.67

True 13 27 is fast
 0 34.70

Tuesday, January 21, 1913

Mer. Circle

Thrup L. Pelly Obs. Path 4" 25"

← Jami

22° 47'

← Auriga

33° 11'

4" 37" 13.5 4.4 7.9
 16.4 0.5 7.6
 18.9 59.0 7.9
 21.4 56.2 7.6
 24.0 53.6 7.6
 30.9 47.1 8.0
 34.8 43.0 7.8

38.0
 15 | 134
 38.89

4" 51" 29.2 25.6 7.8
 32.2 22.6 7.8
 35.1 19.6 7.7
 37.9 16.8 7.4
 40.9 13.2 7.1
 48.8 6.2 5.0
 52.8 1.9 4.7

57.2
 15 | 47
 57.31

4" 37 38.29
 4" 37 2.28
 0.36.61
 + 00
 + 73

037.34

4" 51 57.31
 4" 51 20.70
 0.37.11
 03
 73

037.87

87
 34
 121

Prod 1327 is Fast
 0 37.60 a
 4" 45"

Sunday, January 26, 1913

Max. Cuse

Thos. & Kelly Clee

Lat 2° 28' 29"

r Arctis

21° 34'

from center to some
line 13
15.12

41 Arctis

26° 53'

2 34 8.6 59.0 5.6

11.1 56.3 7.4

13.8 — —

16.4 51.0 7.4

19.1 48.1 7.2

25.9 41.6 7.5

29.7 37.7 7.4

33.6

13 9.1

33.7

2 45 6.6 59.0 5.5

9.3 56.3 5.6

12.0 53.4 5.4

14.8 50.6 5.4

17.5 48.0 5.5

24.4 41.0 5.4

28.5 37.0 5.5

32.9

15 11.2

32.74

2 34 33.7

2 33 52.49

+ 0 41.21

106

73

0 42.00

2 45 32.74

2 44 51.70

0 41.04

105

73

0 41.82

41.82

42.00

41.91

41.91

From 1327 to 1328
0 41.91 at
2 39

Thursday January 30, 1913

Men, Cows They & Kelly Olev. Rault 239

p. 25
38° 30'

13 Pm
460° 47'

2^L 59 48.2 48.2 6.4
51.445.1 6.5
54.742.0 6.7
57.938.9 6.8
0.935.8 6.7
8.927.8 6.7
13.522.8 6.3

$\bar{z} \quad \bar{z}$ 41.643.1 4.7
 45.240.2 5.4
 48.436.9 5.3
 51.623.6 5.2
 54.830.7 5.5
 3.022.3 5.3
 7.917.4 5.3

$$\begin{array}{r} 11.5 \\ 12 \overline{) 0.1370} \end{array}$$
$$\begin{array}{r} 18.4 \\ 15 \overline{) 245} \\ \underline{180} \\ 650 \end{array}$$
$$\begin{array}{r} 12.5 \\ 15 \overline{) 92} \\ \underline{126} \\ 1261 \end{array}$$
$$\begin{array}{r} 2 \quad 60 \quad 18.30 \\ 2 \quad 59 \quad 35.90 \\ \hline 42.40 \\ + 1.02 \\ + 1.73 \\ \hline 0 \quad 43.15 \end{array}$$
$$\begin{array}{r} 33 \quad 12161 \\ 32 \quad 3030 \\ \hline \quad \cup 42,31 \\ \quad \quad 1,01 \\ \hline \quad \cup 42,82 \\ \quad \quad 73 \\ \hline \quad 43,05 \end{array}$$

Free/327 is for 0 43.00
at 3rd

Monday February 10, 1913

~~Mars~~ ~~Tues~~ ~~9. Rally~~

~~Trans 8^h 13~~

2
Cancer
180 24

mine a first ~~trans~~

Cancer
290 4'

8^h 40^m 7.3 56.7 40
10.1 54.3 44
12.9 51.9 48
15.3 49.1 44
18.1 46.4 45
24.7 40.3 50
28.6 36.4 50

32.25
15 | 46
32.80

8^h 40 32.30
8 39 46.43
45.87
1.07
1.73
0 46.67

8^h 41 53.2 35.3 8.5
55.6 32.4 8.0
58.1 29.6 7.7
5.4 22.2 7.6
10.1 18.3 8.4

14.1
11 | 11 3
13
1.02
14.02

8^h 42 14.02
8 41 28.22
0 45.80
1.04
7.3
0 46.57

Prod. 1327 as fast 046.62
at 8^h 40^m

Tuesday February 18, 1913

Mendocino Creek Path 4 & 5 July 29 P. 1913

missed some last
set of wires

1 Augias
33° 1'

2 Augias
43° 41'

4 Augias
41° 7'

4^h 51^m 40.6 36.2 6.8

43.4 33.5 6.9

46.2 30.5 6.7

49.1 27.6 6.7

52.0 24.5 6.5

59.4 17.1 6.5

4.11 12.8 6.9

4^h 55 59.9 4.6 4.5 5^h 1

3.4 1.3 4.7

6.6 57.8 4.4

16.0 54.8 4.4

13.2 51.0 4.2

22.0 42.4 4.4

27.0 37.4 4.4

3.6 23.5 7.1

8.7 18.4 7.1

$$\begin{array}{r} 2.4 \\ 15 \overline{) 54} \\ \underline{30} \\ 24 \\ \underline{15} \\ 9.36 \end{array}$$

$$\begin{array}{r} 32.1 \\ 15 \overline{) 3.1} \\ \underline{30} \\ 10 \\ \underline{10} \\ 32.20 \end{array}$$

$$\begin{array}{r} 13.8 \\ 5 \overline{) 40} \\ \underline{25} \\ 15 \\ \underline{15} \\ 13.80 \end{array}$$

4^h 52^m 2.36

4 51 20.34

0 48.02

03

73

0 48.78

4^h 56 32.20

4 55 44.27

0 47.93

73

0 48.66

5^h 1 13.80

5 0 25.59

0 48.21

73

48.94

$$\begin{array}{r} 94 \\ 78 \\ 66 \\ 3 \overline{) 2328} \\ \underline{21} \\ 22 \\ \underline{21} \\ 1 \\ 79 \end{array}$$

Food (32) is slow
0 48.80

Monday, February 24, 1913

Meridian Circ. Patts 4^h 12^m 19^s Partly B. Pally Obs.
adjuster escapement chronograph.

8 Jani
18° 59'

7 Jani
22° 47'

| | | | | | | | |
|--------------------------------|------|------|-----|--------------------------------|------|------|------|
| 4 ^h 23 ^m | 58.5 | 47.8 | 6.2 | 4 ^h 37 ^m | 27.0 | 17.8 | 4.8 |
| | 0.9 | 45.7 | 6.6 | | 29.4 | 15.1 | 4.5 |
| | 3.4 | 42.7 | 6.1 | | 32.3 | 12.4 | 4.7 |
| | 6.0 | 40.1 | 6.1 | | 35.0 | 9.9 | 4.9 |
| | 8.7 | 37.6 | 6.3 | | 37.5 | 7.2 | 4.7 |
| | 15.3 | 31.0 | 6.3 | | 44.3 | 0.4 | 4.7 |
| | 19.5 | 27.0 | 6.5 | | 48.3 | 56.3 | 4.16 |

23.14
15 | 22
23.14

52.9
75 | 58
52.38

4^h 23^m 23.14
4^h 23^m 32.70
50.44
07
73
1

0 51 24

4^h 37^m 52.38
4^h 37^m 1.85
0 50.53
73

0 51 32

32
22
2 | 58
28

Fixed 1.3215 post
0^m 51.28/5
at 4^h 28^m 51.1

8

6^h 008^h 00

~~Sun~~
Sunday, March 2, 1913

Mundian Circle Trip & Rally Obs. Reath 6^h 35

8 Geminorum

25° 13'

| | | |
|-------------------|----------|------|
| 6 ^h 39 | 3.154.9 | 8.0 |
| | 6.052.2 | 8.12 |
| | 8.649.8 | 8.4 |
| | 11.446.9 | 8.3 |
| | 14.044.0 | 8.0 |
| | 20.937.1 | 8.0 |
| | 24.933.2 | 8.1 |

$$\begin{array}{r} 29.8 \\ 15 \overline{) 11} \\ 29.07 \end{array}$$

9 Geminorum

34° 4'

| | | |
|-------------------|----------|-----|
| 6 ^h 47 | 29.56.0 | 5.5 |
| | 32.43.2 | 5.6 |
| | 35.420.0 | 5.4 |
| | 38.67.0 | 5.6 |
| | 41.44.3 | 5.7 |
| | 48.96.8 | 5.7 |
| | 53.12.1 | 5.2 |

$$\begin{array}{r} 57.9 \\ 15 \overline{) 11.6} \\ 57.77 \end{array}$$

$$\begin{array}{r} 15 \\ 12 \\ \hline 90 \\ 45 \\ \hline 05.20 \end{array}$$

| | | |
|-------|---------------|-------|
| 6 | 39 | 36.15 |
| 6 | 39 | 29.07 |
| 6 | 38 | 36.15 |
| <hr/> | | |
| | 0 | 52.92 |
| | | .05 |
| | | .73 |
| <hr/> | | |
| | 0 | 53.70 |

$$\begin{array}{r} 70 \\ 51 \\ \hline 2 \overline{) 121} \\ 60 \end{array}$$

| | | |
|-------|---------------|-------|
| 6 | 7 | |
| 6 | 47 | 57.77 |
| 6 | 47 | 5.02 |
| <hr/> | | |
| | 0 | 52.75 |
| | | .03 |
| | | .73 |
| <hr/> | | |
| | | 53.51 |

Foot west of east
 5^h 5^m 33.60
 at 6^h 30^m

Sunday

10 NB Time for star at 3 different times during night but
failed because of clouds

Friday, March 28, 1913

Waco

Temp Fully Clear.

Bar 15.24

V Bootis

41° 7'

a Cor Bore

26° 59'

15 28^m 19.9 21.9 1.8
23.0 18.6 1.6
26.1 15.4 1.5
29.8 11.9 1.7
32.9 8.8 1.7
41.2 0.9 2.1
46.0 55.9 1.9

56.2
15 13.5
50.90

15 31^m 36.3 29.0 5.3
38.9 26.2 5.1
41.9 23.4 5.3
44.8 20.5 5.3
47.2 17.5 4.7
54.5 10.5 5.0
58.7 6.9 5.6

2.4
15 8.7
62.58

04
12
5480

110
12
5480

15 28^m 50.90
15 27 49.88
+ 1 1.02
01
73

1 1.76 + 74
76
1.74
73

15 32 02.58

15 30 61.65

1 00.93

05

73

1 1.71

Prod 13.2 is from 1.1.74
at 15^m 30^m

Tuesday, April 1, 1913

Mer. Circle

Philip E. Kelly Obs.

Bath 7 53

x Linn.
28° 2'

31 Lyncis
43° 27'

8^h 17^m 23.9 28.3 2.2
27.2 25.9 3.1
30.4 21.5 1.9
33.8 21.5 2.3
~~37.5 18.1~~ ~~1.6~~
46.0 6.1 2.1
51.0 2.2 3.2

56.3
15 16.1
36.07

8 17 56.07
43
73
8 17 56.89
8

83
99
2 182
91

8 27 48.9 48.9 7.8
52.5 43.9 8.4
55.4 42.8 8.2
58.2 39.5 7.7
1.7 36.2 7.9
9.4 28.1 7.5
14.5 23.9 8.4

19.2
15 151
191.00

8 28 19.00
8 27 17.74
1 01.26
73
1 01.99

Frost 1322 is fast
1^m 01.91
at 8^h 25^m

Wednesday, April 2, 1913

Mer. Circle ~~Temp~~ Fully Obs. ~~Partial~~ 52

10 hrs. May
42° 7'

10 hrs. May
47° 29'

8^h 55^m
 31.9 35.1 7.0
 35.3 31.8 7.1
 38.6 28.5 7.1
 41.9 25.4 7.3
 45.2 21.8 7.0
 53.6 13.4 7.0
 58.5 8.9 7.4

8^h 58^m
 10.9 19.9 0.8
 14.1 16.3 0.4
 18.1 13.0 1.1
 21.7 9.1 0.8
 25.3 5.4 0.7
 34.3 56.5 0.8
 40.0 51.0 1.0

37.
 15) 81.6
 3.57

45.5
 15) 61
 4.40

16
 12
 32
 16
 0192

8 56 3.57
 8 54 62.01
 + 1 01.56
 + 73
 1 02.29

8^h 58 45.40
 8 57 42.92
 + 1 01.58
 + 73
 1 02.29

Prod 1327 is fast
 1 02.29
 at 8^h 57^m

Thursday, April 18, 1913

Mex. Circle

Philip S. Pelly obs.

Patth 12 57

43 Comae

2^h 18'

| | | | | |
|-----------------|----------------|------|------|-----|
| 13 ^h | 8 ^m | 30.4 | 23.1 | 3.5 |
| | | 33.0 | 20.6 | 3.6 |
| | | 36.0 | 17.8 | 3.8 |
| | | 38.2 | 15.0 | 3.2 |
| | | 41.1 | 12.0 | 3.1 |
| | | 48.4 | 5.3 | 3.7 |
| | | 52.6 | 1.1 | 3.7 |

$$\begin{array}{r} 38 \\ 12 \\ \hline 76 \\ 38 \\ \hline 045.6 \end{array}$$

$$\begin{array}{r} 56.16 \\ 15 \overline{) 112} \\ \underline{56.74} \end{array}$$

| | | |
|-----------------|----------------|--------|
| 13 ^h | 8 ^m | 56.74 |
| 13 | 7 | 51.36 |
| | 1 | 5.38 |
| | | + 1.04 |
| | | + 7.3 |
| | | <hr/> |
| | | 106.15 |

7^h rod 132713 fast 1^h 46.15
at 13^h 8^m

6:00

140

4200

signals to be
speed to be
refined. failed
to get star

Sunday April 20, 1913

Murchison Circle

Thurs. Paddy, Ratt 10^h 20^m

42 h₀ Min

31° 7'

ψ h₀ May
44° 58'

| | | | |
|----|-----------------|----------|-----|
| 10 | 41 ^m | 43.837.3 | 2.1 |
| | | 46.435.7 | 2.1 |
| | | 49.432.5 | 2.2 |
| | | 52.129.5 | 1.6 |
| | | 55.227.0 | 2.2 |
| | | 2.419.5 | 1.9 |
| | | 6.515.4 | 1.9 |

normal star
as the seq. unit
failed.

| | |
|------|------|
| | 4.0 |
| 15.) | 15.0 |
| | 11.0 |

31
12
22
31
10332

| | | |
|----|----|-------|
| 10 | 42 | 11.0 |
| 10 | 41 | 4.05 |
| | 1 | 06.95 |
| | | 03 |
| | | 7.3 |
| | | 07.71 |

Track 13 2718 feet

1 07.71 at

10^h 42^m S.T.

P. G. Paddy, Ratt.

Wednesday, May 1, 1913

Mundana Cove. July 8th 1913. Alt 12^h 20^m

12^h 52^m 57.5 57.5 5.0
380 47'

43^h 18^m
280 18'

| | | | |
|---------------------------------|------|------|-----|
| 12 ^h 52 ^m | 57.5 | 57.5 | 5.0 |
| | 9.6 | 54.2 | 4.8 |
| | 3.9 | 51.2 | 5.1 |
| | 6.9 | 47.9 | 4.8 |
| | 10.0 | 44.8 | 4.8 |
| | 17.9 | 37.0 | 4.9 |
| | 22.8 | 32.1 | 4.9 |

| | | | |
|--------------------------------|------|------|-----|
| 12 ^h 8 ^m | 52.0 | 45.1 | 7.1 |
| | 54.5 | 42.3 | 6.8 |
| | 57.5 | 39.4 | 6.9 |
| | 0.3 | 36.5 | 6.9 |
| | 3.0 | 33.9 | 6.9 |
| | 10.1 | 26.9 | 7.0 |
| | 14.1 | 22.8 | 6.9 |

11
12
22
22
10242
37
12
74
37
444

27.8
15) 71
27.47

18.3
15) 68
18.45

| | | |
|--------------------|----|-------|
| 12 ^h 53 | 27 | 47 |
| 12 | 51 | 60.35 |
| + | 1 | 27.12 |
| + | | 02 |
| + | | 73 |
| + | 1 | 27.87 |

87
67
2) 154
77

| | |
|-------------------|-------|
| 13 ^h 9 | 18.45 |
| 12 | 51.35 |
| 13 | 27.10 |
| 2 | 64 |
| | 73 |
| 2 | 27.67 |

Fuel, 1327 is fast
1 27.77 at
13^h 20^m

Wednesday May 14, 1913

Mer Circle ~~Thurs~~ Pelly. Path 135°

1. Bortles
25° 29'

male wire 7

2. Bortles
46° 28'

2. Bortles
19° 37'

14^h 7^m 40.0 31.6 1.6
42.3 29.1 1.4
45.3 26.2 1.5
48.0 23.5 1.5
50.9 20.8 1.7
57.6 14.0 4.6
1.9 10.1 2.0

5.8
13 | 12 3
5.8 2

14^h 12^m 56.0 45.3 1.3
58.9 43.6 2.5
1.5 40.8 2.3
4.2 38.2 2.4
7.0 35.5 2.5
13.3 29.0 2.3
16.2 25.3 1.3

5.8
12
11 2
5.8
1.06 7 2

44
12
8.8
4.8
0.28

14^h 8^m 35.82
16.37
14^h 6^m 28.18
1 37.64
0.5
7.3
1 38.14 2
14^h 8^m 35.82
14^h 6^m 28.42
1 37.40
0.5
7.3
1 38.18

38.18
37.90
2 | 76.08
38.04

21.2
15 | 16.0
20
10.6
14^h 13^m 21.06
14^h 11^m 43.96
1 37.18
0.07
0.73
1 37.90

Good 1327 in fact
1 38.04 at
14^h 10^m

Sunday May 18, 1913

Mendocino Tule River Valley, Cal. Rattletail 1315

a Boats
19° 37'

~~13 Boats~~
~~38° 44'~~

y Boats
38° 40'

$$\begin{array}{r} 56 \\ 121 \\ \hline 112 \\ 56 \\ \hline 672 \\ 12 \\ 12 \\ \hline 0744 \end{array}$$

14^h 13 3.0 5.4
5.5 52.4 5.6
8.1 50.1 5.5
10.8 47.4 5.7
13.3 42.1 5.4
20.0 35.5 5.5
24.0 31.7 5.7

$$\begin{array}{r} 27.9 \\ 13 \overline{) 117} \\ \underline{27.78} \end{array}$$

14^h 29^m 5.1
4.1 47.8 1.9
7.2 46.6 44.9 2.1
0.6 21.2 41.7 2.3
3.9 26.2 38.4 2.3
11.6 30.9 2.5
16.6 26.2 2.8

$$\begin{array}{r} 21.2 \\ 13 \overline{) 157} \\ \underline{20} \\ 1.08 \\ \underline{21.08} \\ 16 \end{array}$$

14^h 13 27.78
14 11 43.88
1 43.90
27
3
44.70

$$\begin{array}{r} 20 \\ 57 \\ 2 \overline{) 127} \\ \underline{64} \end{array}$$

14^h 30 21.16
14 28 37.33
1 43.83
01
73
44.57

Frod 1317 is fast
1 44.64

Sunday, May 25, 1913.

T. Maculatus
86° 53'

30 53

| | | | | |
|----|----|-----------------|------|-----|
| 17 | 13 | 27.9 | 26.0 | 3.9 |
| | | 30.9 | 28.2 | 4.1 |
| | | 33.9 | 20.0 | 3.9 |
| | | 37.2 | 17.0 | 4.2 |
| | | 39.9 | 14.0 | 3.9 |
| | | 47.6 | 6.1 | 3.7 |
| | | 52.1 | 1.5 | 3.1 |

57.0

$$15 \overline{) 143} = 9 \text{ R } 8$$
$$\begin{array}{r} 17 \quad 13 \quad 56.95 \\ 17 \quad 11 \quad 63.51 \\ \hline \quad \quad 1 \quad 53.44 \\ \quad \quad \quad 1.02 \\ \quad \quad \quad .78 \\ \hline \quad \quad 1 \quad 54.19 \end{array}$$
$$\begin{array}{r} 16 \\ 12 \\ \hline 32 \\ 16 \\ \hline 48 \end{array}$$

Frodoham 1327 is fast
15419 at
17^m 15^m 85

Monday, June 2, 1913.

Meridian Circle July & Early Oct. - Right 18 23

a hysaw
384 41

13 hysaw
330 15

| | | | | |
|-----------------|-----------------|------|------|-----|
| 18 ^h | 38 ^m | 37.3 | 37.2 | 4.5 |
| | | 40.5 | 34.3 | 4.8 |
| | | 48.8 | 31.0 | 4.8 |
| | | 46.9 | 27.8 | 4.7 |
| | | 50.0 | 24.8 | 4.8 |
| | | 51.9 | 16.9 | 4.8 |
| | | 2.6 | 12.2 | 4.8 |

7.4
15 | 56
7.37

| | | |
|-----------------|-----------------|-----------|
| 18 ^h | 36 ^m | 7.37 |
| 18 | 33 | 61.88 |
| | | + 2 05.49 |
| | | + .01 |
| | | + 1.73 |
| | | + 2 6.23 |

10
12
120
26
12
52
26
031 2

| | | | | |
|-----------------|-----------------|------|------|-----|
| 18 ^h | 48 ^m | 31.9 | 27.9 | 9.8 |
| | | 34.9 | 24.9 | 9.8 |
| | | 37.6 | 21.7 | 9.3 |
| | | 40.7 | 18.8 | 9.5 |
| | | 48.3 | 15.8 | 9.1 |
| | | 50.9 | 12.8 | 9.6 |
| | | 55.2 | 4.2 | 9.4 |

59.8
13 | 11 3
59.75

| | | |
|-----------------|----|-----------|
| 18 ^h | 48 | 59.75 |
| 18 | 46 | 54.30 |
| | | + 2 05.45 |
| | | + 03 |
| | | + 73 |
| | | 2 06.219 |

13 50
9 20
4 30

7 mod 1321 is fast
2 06.22 at
18^h 40^m ST.

Tuesday June 3, 1913.

Removed 3 grams from ± 1.327 at $0^{\circ} 15'' \pm$
Load on pendulum after change, zero.

Tuesday June 3, 1913

Mer Circle Philip G. Offaly Obs. Rattle 13° 19'

7 H. Cowden.

37° 37'

11 Hs May.

49° 44'

13^h 32^m 33.422.6 6.0
 36.929.7 6.6
 39.926.4 6.8
 42.923.2 6.1
 45.820.3 6.1
 53.812.5 6.3
 58.67.8 6.4

3.1
 13 | 19
 3.12

13^h 45^m 39.051.7 0.7
 43.048.0 1.0
 46.943.9 0.8
 50.440.1 0.5
 54.236.1 0.3
 4.027.0 1.0
 9.821.3 1.1

15.5
 15 | 59
 15.39

12^h 33 3.12
 13 30 57.89
 12 05.73
 + .02
 73

2 6.48

13 46 15.39
 13 44 9.85
 2 05.54
 + .03
 + .73
 2 6.30

Find 1327 is fast
 2. 6.39 at
 13^h 40^m 51.

22

Wednesday, June 4, 1913

Mustang Creek

Philip S. Bailey

Plate 1220

Traced for several stars but it was
too cloudy p.m.

Thursday, June 5, 1913

Mus. Circle

Thurs. 5th July 1913

Lat 60° 16' 20"

13 Hercules
21° 41'

5 Hercules
42° 36'

16" 28" 10.7 ?

18.3 58.0 1.3

15.9 55.4 1.3

18.6 52.8 1.4

21.0 50.3 1.3

27.7 43.5 1.2

31.9 39.8 1.7

$$\begin{array}{r} 35.9 \\ 15 \overline{) 9.1} \\ 35.60 \end{array}$$

16" 32" 53.4 57.2 0.6

56.8 53.8 0.6

0.1 50.4 0.5

8.3 46.6 9.9

6.8 43.2 0.0

15.0 35.0 0.0

20.0 30.1 0.1

$$\begin{array}{r} 25.2 \\ 15 \overline{) 16.9} \\ 24. \\ 1.12 \\ 25.12 \end{array}$$

$$\begin{array}{r} 52 \\ 12 \\ \hline 104 \\ 52 \\ \hline 0624 \end{array}$$

16" 28" 35.60

16" 26" 31.36

2 4.24

0.6

.73

2 5.03

16" 33" 25.12

16" 31" 20.70

1.2 4.42

4.73

2 5.15

$$\begin{array}{r} 15 \\ 03 \\ \hline 8 \end{array}$$

Frod 1322 is fact
2" 5.09 at
16" 30"

Friday, June 6, 1913

Maidan Circle Thutgeat Valley also, Rattle 7520

11 Boates

37° 40'

13 Crown low,

29° 23'

Chronograph ~~on the~~ out of order,

15 22 49.1 48.4 7.5

52.2 45.5 7.7

55.6 42.4 8.0

58.4 39.1 7.5

1.8 36.0 7.8

9.3 28.4 7.7

14.0 23.6 7.6

13 $\overline{18.8}$
12.6
18.84

56.0 44.9 0.9

59.7 42.1 1.8

2.5 39.2 1.7

5.2 36.0 1.2

75 24 14.99

16 21 18.84
56.15

75 28 18.84

15 24 14.99

2 03.85

.02

.73

2 08.68

Food 13.27 is fast

2 04.60

15 20

Sunday, June 15, 1913

8

Meridian Circle

Philip S. Offaly Obs.

Palt 16ⁿ 24^m

13 Hercules

21° 40'

5 Hercules

42° 36'

| | | | |
|--------------------|---|-----------|-----|
| 16 ⁿ 28 | 4 | 59.5517 | 0.0 |
| | | 7.5 52.8 | 0.3 |
| | | 10.2 50.2 | 0.4 |
| | | 13.0 47.4 | 0.4 |
| | | 15.4 44.7 | 0.1 |
| | | 22.0 38.2 | 0.2 |
| | | 26.1 34.1 | 0.5 |

30.0

| | |
|-------|------|
| 15 | 1.6 |
| <hr/> | |
| 20.6 | 20.6 |

| | |
|-------|------|
| 21 | 1.6 |
| <hr/> | |
| 12.6 | 12.6 |
| 31.3 | 13 |
| <hr/> | |
| 31.43 | |

| | | |
|---------------------------------|-----------|-----|
| 16 ⁿ 32 ^m | 47.5 51.2 | 8.7 |
| | 51.0 49.0 | 9.0 |
| | 54.1 44.7 | 8.8 |
| | 57.8 41.0 | 8.8 |
| | 1.0 38.0 | 9.0 |
| | 9.3 29.5 | 8.8 |
| | 14.7 24.5 | 9.2 |

| | |
|-------|------|
| 15 | 19.6 |
| <hr/> | |
| 1.9 | 1.9 |
| <hr/> | |
| 19.46 | |

| | |
|--------------------|-------|
| 16 ⁿ 28 | 40.10 |
| | 30.10 |
| | 32.60 |
| 16 | 26 |
| <hr/> | |
| 31.43 | |

| | | |
|-------|---|----------|
| + | 1 | 58.55 |
| <hr/> | | |
| + | | .06 = π |
| <hr/> | | |
| + | | 73 = 60° |
| <hr/> | | |
| | | 59.34 |

16 28 30.16

16 26 32.60

| | | |
|-------|---|---------|
| + | 1 | 57.56 |
| <hr/> | | |
| | | .06 = π |
| <hr/> | | |
| | | .73 |
| <hr/> | | |
| | | 1 58.29 |

| | |
|-------|------|
| 31.3 | 32.6 |
| <hr/> | |
| 32.6 | |

| | |
|---------------------------------|-------|
| 16 ⁿ 32 ^m | 19.46 |
| 16 | 31 |
| <hr/> | |
| 1 | 58.74 |
| <hr/> | |
| | .73 |
| <hr/> | |
| 1 | 59.47 |

Ind 1327 is fast
1 58 38 is
fast

Tuesday June 17, 1913.

Level of Meridian Circle P. & R. obs. & Records

| | Zero E | Zero W |
|--------------|--------|--------|
| Telescope S. | 80.8 | |
| | 48.0 | |

Sumner level.

| | Zero E | Zero W. |
|-------------|-------------|---------|
| Telescope S | 79.2 | 35.5 |
| | <u>48.9</u> | 66.1 |

122
100
22

122
100
22

Tuesday June 17, 1913

Level of Mendean Circle

PGR obs. + recorder

| | Zero EAST | Zero WEST |
|-----------------|-------------|-------------|
| Telescope South | 58.9 | 29.0 |
| | <u>86.5</u> | <u>57.2</u> |
| | 64.3 | 34.9 |
| | <u>93.0</u> | 63.3 |
| North | | |

Tuesday, June 17, 1913

Level of Meridian Circle

P. G. Milly Allen & readers

Zero East

Sel. North 46.9

78.2

33.0

64.9

" South 52.0

88.8

6.2

93.1

+ 513.1

- 415.1

16 | 498.0 (6.12 = Z)

96

2.0

16

40

32

8

Zero West

40.3

72.0

32.3

64.0

34.8

66.7

36.9

68.1

- 415.1

6.12

.06

.3672 - 16

1.35 = Sec 4

18 360

110 16

3672

.495720

Tuesday, June 17, 1913

Level of Mindian Circle

P. 901 Gilly, Allen & Reardon

Zero East

Feb. 8. 56.4
 $\frac{87.0}{1.5}$
~~62.3~~
 92.8

Feb. 11. 47.9
 $\frac{78.1}{39.4}$
 $\frac{69.9}{+ 533.0}$
 $- 401.5$
 $16 + \frac{131.5}{128} \left(\frac{8.218}{35} \right)$
 $\frac{32}{30}$
 $\frac{16}{120}$

665820
 495720
 $2 \overline{) 11'61.540}$
 58

Zero W.

29.8
 $\frac{65.0}{34.9}$
 $\frac{65.1}{35.9}$
 $\frac{66.1}{37.5}$
 $\frac{67.2}{- 401.5}$

8.22
 $\frac{66}{49.32 = 2}$
 $\frac{135 = \text{sum } 4}{24.660}$
 $\frac{14.796}{4.932}$
 $\frac{.665'820}{}$

Use $\frac{1}{2}$ sec $\phi = .58$ from this date on, June 17, 1913
 West end, high

30

Tuesday July 1. 1913

8 Bootis.
 33° 37'

| | | |
|----------------|----------------|----------------|
| 7.7 | 3.9 | 1.6 |
| 0.4 | 1.0 | 1.4 |
| 4.0 | 8.0 | 1.0 |
| 6.5 | 5.0 | 1.5 |
| 9.6 | 2.1 | 1.7 |
| 7.0 | 4.5 | 1.5 |
| 1.4 | 0.3 | 1.7 |
| 5.8 | 4.5 | 5.8 |
| | | 0.3 |

15 11.8

15 13 55.875

15 11 62.26

+ 1 53.49

+ .03

+ .58

+ 1 54.18

~~.25~~
~~.2~~
~~.0300~~

.25
 .21
25
 50
10525

Tuesday July 8, 1913

δ Draconis

$+67^{\circ} 30'$

δ Aquilae

$+2^{\circ} 56'$

δ Cygni

$+44^{\circ} 54'$

| | | | | | | | | |
|-----|-----|-----|-----------------------|-----|-----|-----|-----|-----|
| 6.3 | 8.0 | 4.3 | 7.6 | 4.3 | 1.9 | 6.4 | 2.6 | 9.0 |
| 2.6 | 2.1 | 4.7 | 9.9 2.3 | 2.1 | 2.0 | 0.0 | 8.7 | 8.7 |
| 8.9 | 5.5 | 4.4 | 2.3 | 9.3 | 1.6 | 3.3 | 5.6 | 8.9 |
| 5.1 | 9.3 | 4.4 | 5.0 | 6.6 | 1.6 | 6.9 | 2.1 | 9.0 |
| 1.6 | 2.6 | 4.2 | 7.3 | 4.6 | 1.9 | 0.3 | 8.8 | 9.1 |
| 7.7 | 6.1 | 3.8 | 3.6 | 8.4 | 2.0 | 9.1 | 0.0 | 9.1 |
| 5.5 | 6.3 | 3.8 | 7.3 | 4.4 | 1.7 | 4.0 | 4.8 | 8.8 |

$\frac{7.1}{16.7}$

$\frac{0.9}{13.6}$

$\frac{9.5}{7.1}$

19 14 27.11

19 23 00.91

19 44 09.41

19 12 35.41

19 21 9.70

19 42 18.01

+ 1 51.70

+ 1 51.21

+ 1 51.40

$\tan 67^{\circ} 30' = 2.414 + .18$

$\tan 2^{\circ} 56' = 0.052 + .58$

$\frac{2.362}{1} 51.97$

$- .02$

$+ .58$

$+ 1 51.96$

1 51.70

1 51.21

$2.36 \overline{) .490} \left(.21 = n \right.$
 $\frac{472}{180}$

Use $n = .21$

Quantity $n(\tan \delta - \tan \varphi)$ to be applied positively (+) for stars south of the zenith.

Sunday July 13. 1913.

η Herculis

+ 39° 4'

ϵ Herculis

+ 31 2

Rattle.

16 39

| | | |
|-----|-----|-----|
| 7.9 | 8.3 | 6.2 |
| 1.5 | 5.2 | 6.7 |
| 4.4 | 1.9 | 6.3 |
| 7.7 | 8.9 | 6.6 |
| 0.8 | 5.7 | 6.5 |
| 8.7 | 7.8 | 6.5 |
| 3.4 | 3.0 | 6.4 |

8.1

15 | 3.3

16 41 8.22

16 39 57.44

+ 1 50.78

+ 02

+ .58

+ 1 51.38

| | | |
|-----|-----|-----|
| 3.8 | 8.2 | 4.0 |
| 6.6 | 5.7 | 2.2 |
| 9.5 | 2.6 | 2.1 |
| 2.2 | 9.8 | 2.0 |
| 4.9 | 6.9 | 7.8 |
| 2.3 | 7.6 | 1.9 |
| 6.8 | 5.4 | 2.2 |

5.0

16.3

16.3

16.3

16.3

16.3

16.3

16.3

16.3

16.3

16.3

16.3

16.3

16.3

16.3

16.3

16.3

16.3

16.3

16.3

16.3

16.3

16.3

16.3

16.3

16.3

16.3

16.3

16.3

16 58

16 56

+ 1

+ 06

+ .58

+ 1 51.38

+ 1 51.38

+ 1 51.38

+ 1 51.38

+ 1 51.38

+ 1 51.38

+ 1 51.38

+ 1 51.38

+ 1 51.38

+ 1 51.38

+ 1 51.38

+ 1 51.38

+ 1 51.38

+ 1 51.38

+ 1 51.38

+ 1 51.38

+ 1 51.38

+ 1 51.38

+ 1 51.38

.10
 .21
 10
 20
 .0210

- .31
 .21
 31
 62
 + 10651

Monday July 21, 1913.

σ Hercules
+ 42° 36'

| | | |
|-----|-----|-----|
| 8.8 | 2.7 | 1.5 |
| 2.1 | 9.3 | 1.4 |
| 5.6 | 5.5 | 1.1 |
| 9.0 | 2.4 | 1.4 |
| 2.3 | 9.0 | 1.3 |
| 0.4 | 0.8 | 1.2 |
| 5.8 | 5.6 | 1.4 |

0.8

15 | 10.1

16 33 00.67

16 31 20.41

+ 1 40.26

.02

+ .58

+ 1 40.84

μ Hercules
+ 27° 45'

| | | |
|-----|-----|-----|
| 0.0 | 2.8 | 2.8 |
| 2.8 | 9.8 | 2.6 |
| 5.4 | 7.0 | 2.4 |
| 8.0 | 4.1 | 2.1 |
| 0.9 | 1.4 | 2.3 |
| 7.8 | 4.3 | 2.1 |
| 1.8 | 0.2 | 2.0 |

6.3

15 | 2.6

17 44 ~~46~~ 1.17

17 43 05.86

+ 1 40.31

+ .08

+ .58

+ 1 40.97

.01
.21

.0021

.40
.21

40
80

.0840

21
21

Sunday July 27. 1913

B. Hercules

+ 21° 40'

7.3 7.9 5.2

0.1 5.2 5.3

2.8 2.4 5.2

5.3 7.8 5.1

8.1 7.0 5.1

4.6 0.4 5.0

8.8 6.7 5.5

2.5

15 8.9

16 2.8 12.59

16 26 31.28

+ 1 41.35

+ 11

+ 58

+ 1 42.04

o. Hercules

+ 42° 36'

9.9 3.7 3.6

3.3 0.2 3.5

6.6 6.8 3.4

0.1 3.2 3.3

3.2 0.3 3.5

1.8 1.9 3.7

6.8 6.8 3.6

1.9

15 11.5

16 33 01.77

16 31 20.32

+ 1 41.45

0

+ 58

+ 1 42.03

53
21
53
106
1113

Tuesday August 12, 1913

Mrs Cull

Thayer & Bailey Obs.

Realt 21 57

π Pegasi
320 44'

recorded 15 min of a faint
star shining ^{to} west the
one in question.

227 58.4 16.0 4.4

2.9 11.6 4.5

7.2
5 | 11
7.22

28
21
29
28
308

22 8 7.22

22 6 10.14

1 57.08

21

7 33

1. 57 69

Thursday, August 14 1913

Mundian Caves

July 28th, 1913

Temp 19° 13'

B Agni
270 46'

S Agni
140 54'

19^h 28^m 42.0 41.0 9.0
50.7 39.2 8.9
53.5 35.6 9.1
56.4 32.7 9.1
59.4 30.0 9.1
6.1 22.8 8.9
10.6 18.7 9.3

14.5
15 | 82
14.54

19^h 43^m 44.1 50.2 4.3
47.1 47.0 4.4
51.0 43.6 4.6
54.9 39.8 4.7
58.1 36.4 4.5
6.9 27.5 4.4
12.3 22.0 4.3

17.2
15 | 34
17.22

39
21
39
7.5
08 19

69
21
189
01 89

19^h 29 14.54
19^h 27 15.53
+ 1 59.01
+ 08
+ 38
+ 1 59.67

19^h 44 17.22
19 42 18.02
+ 1 59.20
- 02
+ 38
+ 1 59.76

1 59.67
1 59.76
1 59.72

Frod 13.27 is fast
1^h 59.72
at 19^h 30^m

Tuesday, August 19, 1913

Mundian Circle

Butler & Rully

Path 20" 30"

& Cygni

33° 38'

misses all except middle wire
clouds.

20"

44

48.79

25
21
—
25
50
—
05.25

20 44.48.79

20 42 44.32

2 04.47

58

05

2 05.10

38 hours

Wednesday, August 20, 1913

Mundian Circle Purple Lake, Nev. Ralt 17 20

| 1 | 4 | 2 | 3 | 5 | 6 |
|------------------------|-----------------|--------------------|--------------------|-------------------|--------------------|
| 10 Draconis | 72 Alphuch | 8 Draconis | 67 Alphuch | 2 Lyrae | 8 Lyrae |
| 68° 47' | 9° 32' | 56° 52' | 20 55' | 38° 41' | 33° 15' |
| 17 08 341.40.9 2.0 | 17 46 346.8 6.1 | 17 55 278.53.2 1.0 | 17 53 312.54.0 3.2 | 18 35 39.9 38.675 | 18 38 22.629.6 3.2 |
| 27.9 84.5 2.4 | 18 44.6 6.4 | 32.0 49.7 0.7 | 5.7 47.9 3.6 | 42.1 85.9 8.0 | 26.1 26.8 3.4 |
| 45.1 27.4 2.5 | 41.2 41.8 6.0 | 36.4 44.0 0.5 | 8.2 45.2 3.5 | 45.2 32.5 7.7 | 39.4 23.8 3.2 |
| 52.2 20.3 2.5 | 6.9 39.5 6.4 | 41.6 29.8 0.8 | 108 42.9 3.7 | 49.4 27.5 7.9 | 42.4 20.8 3.2 |
| 58.4 10.0 2.4 | 9.1 26.1 5.7 | 45.4 25.1 0.5 | 131 40.4 3.5 | 51.2 1.3 7.7 | 45.2 17.9 3.1 |
| 16.1 5.7 2.8 | 15.3 20.5 5.8 | 57.0 23.8 0.8 | 19.2 34.2 2.4 | 59.6 18.7 8.3 | 52.8 10.4 3.2 |
| 26.9 4.2 2.1 | 14.4 26.8 6.2 | 3.7 17.3 1.0 | 23.4 30.4 3.8 | 44.1 3.7 7.8 | 57.2 6.0 3.2 |
| 15 157 23.1 1.04 | | | | | |
| 21 39 29.18 | | | | | |
| 17 89 36.20 | 18 5 23.09 | 17 34 10.40 | 17 53 26.77 | 18 36 8.92 | 18 49 3.62 |
| 17 37 29.18 | 18 3 16.19 | 17 51 63.48 | 17 56 20.02 | 18 38 62.43 | 18 46 54.61 |
| 2 07.02 | 2 06.86 | 2 06.92 | 2 06.75 | 2 06.92 | 2 07.01 |

$$\begin{aligned} \tan 68^\circ 47' &= 2.576 = 2 \quad 07.02 \\ 9^\circ 32' &= 0.168 = 2 \quad 06.86 \\ 2.408 &| 16000.0066 \\ &\quad 14448 \\ &\quad \hline &\quad 15520 \\ &\quad 14448 \\ &\quad \hline &\quad 20701 \\ &\quad + 01 \\ &\quad \hline &\quad 20702 \end{aligned}$$

$$\begin{aligned} \tan 56^\circ 52' &= 1.532 = 2 \quad 06.92 \\ 2^\circ 55' &= 0.051 = 2 \quad 06.75 \\ 1.481 &| 17000.0011 \\ &\quad 1481 \\ &\quad \hline &\quad 2190 \\ &\quad 1481 \\ &\quad \hline &\quad 2190 \end{aligned}$$

Quantity $n(\tan \delta - \tan \varphi)$ to be applied positively for stars
South of Zenith

$$\text{Uses } n = .09$$

Find 1320 is just
2 06.56 at
R^h 30

Wednesday Sep 18, 1913

Mundrai Air ~~Philadelph.~~

Root 18" 8+15"

109 Hercules

21° 43'

at Lyran

38° 41'

18" 21 57.9 48.1 6.0
 00.7 45.6 6.3
 3.1 43.0 6.1
 5.9 40.3 6.2
 8.3 37.7 6.0
 15.1 31.0 6.1
 19.1 27.0 6.1

18" 35" 53.1 53.1 6.2
 56.3 — —
 59.4 46.8 6.2
 2.6 43.8 6.4
 5.7 40.4 6.1
 13.6 32.6 6.2
 18.7 27.9 6.6

52
 09.
 046 8

23.1
 13 | 09
 23.06

23.0
 13 | 17
 23.13

12
 0
 108

18" 22 23.06
 18" 19 61.82
 2 21.24
 + 0.5
 + 58
 2 21.87

18" 36 23.13
 18" 33 41.73
 2 21.48
 01
 58
 2 21.99

99
 87
 2 | 186
 93

Find 1321 is fast
 2 21.93 at
 18" 30" 81.

Friday September 5, 1913

Union Circle

Project Gilly Obs.

Ratio 21^L 5^m

5 Agni
29° 51'

1 Regair
19° 25'

21^L 11^m 13.8 6.9 10.0
9.7
15.9 4.2 0.1
19.8 11.7 0.5
21.9 58.5 0.4
24.5 55.8 0.3
31.4 48.6 0.0
35.9 44.4 0.3

21^L 20^m 5.0 35.1 0.1
7.8 52.6 0.4
16.4 — —
120 47.0 0.0
15.9 44.5 0.4
22.1 37.9 0.0
26.3 33.8 0.1

40.3
28
15 | 19
40.12

30.3
13 | 13
30.10

21^L 11 40.12
21 9 16.87
2 23.25
+ .03
+ .58
2 23.86

21^L 20 30.10
21 18 6.76
2 23.34
+ .65
+ .58
2 23.97

Frod 13 27 is for 223.92
at 20^L 20^m

Monday, September 8, 1913

Marsden Circle

Philip P. Fols

Rath 22^h 45^m

α Andromed

41° 51'

β Pegasi

27° 36'

22^h 51^m 52.555.4 7.9
 55.9 52.1 8.0
 59.2 48.7 7.9
 2.6 45.6 8.2
 5.9 42.2 8.1
 14.2 34.0 8.2
 19.2 29.1 8.3

23^h 1 28.9
 26.1
 23.1
 44.9 20.5 5.4 out
 47.4 17.7 5.1 out
 53.9 10.6 4.5
 58.6 6.4 4.4

38
 097
 2

24.1
 15 | 157
 23
 104
 2 4.04

214
 5 | 133
 2.26

3^h 00
 22^h 59 24.04
 22^h 57 58.06
 2 25.98
 5.8
 2 26.56

23^h 2 2.26
 2.2 59 30.48
 2 25.78
 43
 4.58
 26.39

39
 56
 2 | 95
 48

Fool 1322 is fast
 2^m 26.48 at
 23^h 00

Wednesday, September 10, 1913

Mauchain Circle

Philips & Kelly Obs.

Butte 21 41

16 Pegasi
25° 30'

π Pegasi
32° 44'

See note at bottom

21^h 51^m 10.6 2.9 3.5
13.4 00.2 3.6
16.1 57.3 3.4
19.0 54.8 3.8
21.5 51.9 3.4
28.9 45.1 4.0
32.6 40.5 3.1

31.6
15) 1348
36.76

22^h 8^m _____

29.0 46.8 5.8
33.5 42.5 6.0

38.0
37.96

21^h 51 36.76
21^h 49 9.22
2 27.54
+ .04
+ 54⁸
2 28.12
6

22^h 8 37.96
22^h 6 10.35
2 27.61
+ .02
+ 54⁸
2 28.17
21

Fred. 1327 is foot 228.14⁸
at 22^h 00^m

Sunday, September 14, 1913

Meridian Circle

Philip S. Pally Obs.

Lathe 22° 29'

o Andromed

41° 51'

| | | | | |
|----|----|------|------|-----|
| 22 | 59 | 58.4 | 1.6 | 0.0 |
| | | 2.1 | 58.3 | 0.3 |
| | | 5.3 | 55.0 | 0.3 |
| | | 8.4 | 51.9 | 0.3 |
| | | 11.9 | 48.0 | 9.9 |
| | | 20.0 | 40.2 | 0.2 |
| | | 25.1 | 35.1 | 0.2 |

| | |
|-----|-------|
| | 30.0 |
| 15) | 16'2 |
| | 29. |
| | 1.08 |
| | 30.08 |

| | | | |
|----|----|---|-------|
| 22 | 23 | 0 | 30.08 |
|----|----|---|-------|

| | | |
|----|-------|-------|
| 22 | 57 | 58.07 |
| 2 | 32.01 | |

+ 54

| | |
|---|-------|
| 2 | 32.55 |
|---|-------|

| | |
|---|-------|
| 2 | 32.59 |
|---|-------|

Prod. 2 32.55 fast
at 23° 00'

P. S. Pally Obs.

Monday, September 15, 1913

level of Meridian Circle

Philp. & Gillies obs. and records

Zero East

Zero West

Telescope South $\begin{array}{r} 72.0 \\ 107.1 \\ 39.9 \\ 29.6 \\ 33.1 \end{array}$

$\begin{array}{r} 15.1 \\ 44.9 \\ 16.6 \\ 46.2 \\ 33.9 \\ 63.8 \\ 36.1 \\ 67.0 \\ 323.1 \end{array}$

" North $\begin{array}{r} 63.3 \\ 41.8 \\ 73.1 \end{array}$

$\begin{array}{r} 533.9 \\ - 323.1 \\ \hline 210.8 \end{array}$
 $16 \overline{) 210.8} \quad 7.55 = Z$

$\begin{array}{r} 533.9 \\ 323.1 \\ \hline 210.8 \end{array}$

$\begin{array}{r} 88 \\ 80 \\ 80 \\ 0 \end{array}$

$\begin{array}{r} 7.55 = Z \\ .06 \\ \hline .4530 = h \\ 1.35 \\ \hline 22650 \\ 13500 \\ \hline 4.5130 \\ 611550 = h \text{ sec } \phi \end{array}$

Use $h \text{ sec } \phi = .61$ from this date on September 15, 1913
 West End high.

$\begin{array}{r} + 533.9 \\ - 323.1 \\ \hline + 210.8 \end{array}$
 $16 \overline{) 210.8} \quad 13.18$

$h \text{ sec } \phi = 1.01$

Wednesday, September, 24, 1913

Mundian Circle

Philip S. Bailey Obs.

Transit at 1^h 11^m

ν Piscium

26° 48'

η Piscium

14° 53'

1^h 17^m 21.54.8 6.9
 4.9 52.4 7.3
 7.4 49.7 7.1
 10.8 — —
 13.4 43.9 7.3
 19.8 37.2 7.0
 24.1 32.6 6.7

1^h 29^m — —

21.0 54.0 5.0
 23.4 51.3 4.7
 29.8 45.7 5.0
 33.2 40.9 4.1

27.3
 13 $\overline{) 18^{\circ} 6' 10''}$
 27
 1.27

37.11
 19 $\overline{) 2.9}$
 37.32

1^h 17^m 28.27
 1 14 44.38
 2 43.89
 + 58
 + 08
 2 44.51

1^h 29^m 37.32
 1 26 52.84
 2 43.48
 + 58
 + 66
 2 44.72

51
 72
 2 $\overline{) 123}$
 61

Transit 13.27.15 for
 2 44.12
 at 1^h 11^m

Monday, September 29, 1913

Mendham Falls Phila. & Pa. R.R. 15

B. Anthonel
3509' *min. 13 min.*

1^h 7^m

70.13.9

1

10.9

22.8 7.9 0.7

25.5 4.8 0.3

28.4 1.9 0.3

35.9 54.4 0.3

40.8 49.7 0.5

45.1

11 $\overline{) 22}$
45.20

1^h 7^m 45.20

1 4 55.03

2 50.17

+ 02

+ 1.58

2 50.87

Food is fast
at 1^h 7^m

Tuesday September 20 1913

Meridian Alt. *Thermostat* 25.3

0 And

71 51"

T. Pegasi
23° 15'

23^h 0 17.8 20.8 8.6
21.1 17.9 9.0
24.4 14.1 8.5
28.1 11.1 9.2
31.2 7.4 8.6
39.4 59.3 8.7
44.1 54.6 8.7

49.2
15 | 55¹⁰
49.36

23^h 18^m 49.0 40.0 9.0
51.8 51.5 9.3
54.4 34.8 9.2
57.3 32.1 9.4
59.8 29.6 9.4
6.4 22.7 9.5
10.3 18.6 8.9

15.1
15 | 97
14.64

23^h 0 49.36
23 57 58.04
2 51.32
58
2 51.90

23^h 19 14.64
23 16 23.02
2 51.58
4.04
7.58
2 52.20

20

Trod 1327 as fast
2 52 05 at
28^m 00 fast

Sunday, October 5, 1913

Mendocino Circle Trip to Fairy Lake. West 28+29^m

π Andromed
33° 14'

measured by Skiff
2 Aug
30° 23'

| | | | |
|-----|------|------|-----|
| 034 | 45.9 | 41.8 | 7.7 |
| | 49.1 | 39.2 | 8.3 |
| | 51.7 | 34.1 | 7.8 |
| | 54.7 | 33.3 | 8.0 |
| | 57.8 | 30.2 | 8.0 |
| | 4.9 | 22.4 | 7.3 |
| | 9.6 | 17.4 | 7.0 |

26.1
209.5
0234

14.0
15) 131"
13.87

035 13.87

032 1741

2 56.46

0.2
2 56.48

+ 3.5
2 57.06

2. 57.06 at
10 35^m

Friday, October 17, 1913

Mundston Circle Phelps P. O. Kelly Obs. ²⁰ ~~19~~

minor for the whole
time for the whole
of the day
38.038

~~2~~ Cygni S Cygni
44 54

19
44

45.7 52.9 8.6
49.2 48.5 7.7
52.8 44.9 7.7
56.1 41.7 7.8
59.7 38.0 7.7
8.4 29.5 7.9
13.1 22.9 6.0

19.1
15 | 12.5
18.83

19 45 18.83

19 38 29.64

19 42 16.62

3 02.21

.58

3 02.79

05
9
0045

19

44

45.7 52.9 8.6

49.2 48.5 7.7

52.8 44.9 7.7

56.1 41.7 7.8

59.7 38.0 7.7

8.4 29.5 7.9

13.1 22.9 6.0

19.1
15 | 12.5
18.83

19 45 18.83

19 42 16.62

3 02.21

.58

3 02.79

Found 1327 is at 3 02.79
at 19 45
Phelps P. O. Kelly Obs.

Monday, October 20, 1913.

Mission Circle

Thely G. O'Leary Obs.

Rattle 8^h 15^m

π Andromed

33° 14'

8 Andromed

30° 23'

0^h 34^m 58.5 49.8 3.3

56.8 46.8 3.1

59.5 44.0 3.5

2.5 40.9 3.4

5.3 37.9 3.2

13.0 30.4 3.4

17.4 26.4 3.8

0^h 37^m 21.1 14.7 6.0

23.7 12.4 6.1

26.6 9.7 6.3

29.4 6.7 6.1

32.3 3.7 6.0

39.5 0.6 6.1

43.8 52.4 6.2

34
07
32

21.6
15) 10 3
21.69

48.1
15) 0.9
48.06

0^h 35^m 21.69

0^h 32^m 17.46
+ 3 04.23
+ 02
+ 58
3 04.83

0^h 37^m 48.06

0^h 34^m 43.96
+ 3 04.10
+ 1.03
+ 58
04.71

From 13.27 in fact 0^h 3^m 4.83
at 0^h 36^m 0.1.

444

Tuesday, October 21, 1913

Mundian Circle

July 8 Fully Obs.

Vall at 2^h 28^m

v Arctis

210.35' *missa fufpauis*

8 Persei

48° 51'

$$\begin{array}{r} 2^h \quad 36^m \quad 44.3 \quad 15.6 \quad 9.9 \\ \quad \quad 53.2 \quad 9.3 \quad 2.6 \\ \quad \quad 57.2 \quad 5.6 \quad 2.8 \end{array}$$

$$\begin{array}{r} 1.3 \\ 5 \overline{) 17^2} \\ \underline{13} \quad 4 \end{array}$$

$$\begin{array}{r} 2^h \quad 40^m \quad 40.9 \quad 60.1 \quad 1.0 \\ \quad \quad 53.0 \quad 56.9 \quad 9.9 \\ \quad \quad 56.8 \quad 52.9 \quad 9.7 \\ \quad \quad 0.3 \quad 49.6 \quad 0.0 \\ \quad \quad 4.3 \quad 45.3 \quad 9.6 \\ \quad \quad 13.3 \quad 36.0 \quad 9.3 \\ \quad \quad 19.2 \quad 30.5 \quad 9.7 \end{array}$$

$$\begin{array}{r} 14 \\ 056 \end{array}$$

$$\begin{array}{r} 19 \\ 076 \end{array}$$

$$\begin{array}{r} 2^h \quad 37 \quad 1.34 \\ 2 \quad 33 \quad 58.33 \\ + 3 \quad 4.01 \\ \quad \quad 05 \\ \quad \quad + 04 \\ \quad \quad 58 \\ \hline 3 \quad 05.63 \end{array}$$

$$\begin{array}{r} 2^h \quad 41 \quad 24.93 \\ 2 \quad 38 \quad 19.71 \\ + 3 \quad 05.22 \\ \quad \quad - 02 \\ \quad \quad + 58 \\ \hline 3 \quad 05.88 \end{array}$$

$$\begin{array}{r} 24.8 \\ 15 \overline{) 14^0} \\ \underline{24.93} \end{array}$$

$$\begin{array}{r} 53 \quad 9.2 \quad 24^m \\ 047 \quad 7 \quad 216 \end{array}$$

$$\begin{array}{r} 88 \\ 63 \\ 2 \overline{) 151} \\ \underline{75} \end{array}$$

Find 1327 is at S
2 3^m 05.76 at
2^h 40^m

Wednesday, October 22, 1913

Meridian Circle

Thompson's Bell

Realt 19^m 41

8 Cygni
44 54'

middle sent out

7 Sagittae
19^m 14'

19^m 44^m 48.6 53.0 3.6

52.4 52.0 4.4

55.9 49.0 3.9

59.0 45.1 4.1

2.9 40.7 3.6

11.4 32.8 4.2

16.3 27.4 3.7

$$\begin{array}{r} 22.0 \\ 15 \overline{) 140} \\ 21.93 \end{array}$$

19^m 45^m 21.93

19 42 16.48
50

+ 3 05.43

- .01

+ 58

3 06.00

19^m 57^m 36.0 25.2 1.2

38.4 23.0 1.4

41.3 20.4 1.7

44.0 17.9 1.9

47.2 15.1 2.3

53.1 9.3 2.4

56.2 5.0 1.2

$$\begin{array}{r} 1.8 \\ 15 \overline{) 139} \\ 00.92 \end{array}$$

19^m 58 00.92

19 54 55.33

+ 3 05.59

+ .05

+ .58

+ 3 06.22

Frod 1327 is fast
3 06.11 at
19^m 50^m

Thursday October 23, 1913

Mr. Ash Philip G. fully obs.
 missed in star
 on account of cloud, 23^h 3^m
 before sunset

Monday, October 27, 1913

Meridian Circle

Thompson's Field Glass

Rate 20.5

5' Reg. Cygni
46° 28'

cloud passing
white oblique star
24 Vul.
24° 23'

| | | | |
|--|------|------|------|
| 20 ^h 12 ^m 3 ^s | 9.1 | 17.9 | 6.0 |
| | 13.0 | 13.9 | 6.9 |
| | 16.3 | 10.5 | 6.8 |
| | 20.1 | 1.9 | 7.0 |
| | 23.7 | 3.3 | 7.0 |
| | 32.5 | 54.1 | 6.6 |
| | 38.3 | 49.0 | |
| | | 43.5 | 57.3 |

43.5
15 | 71
43.47

20^h 13^m 43.47
20^h 10^m 54.66
2 38.41
8

| | | | |
|---------------------------------|------|------|-----|
| 20 ^h 15 ^m | 48.2 | 39.9 | 8.1 |
| | 51.0 | 37.1 | 8.1 |
| | 53.9 | 34.2 | 8.1 |
| | 56.4 | 31.8 | 8.2 |
| | 59.9 | 28.5 | 8.4 |
| | 6.1 | 21.9 | 8.0 |
| | 10.6 | 18.0 | 8.8 |

14.7
15 | 16
14.10

20^h 16^m 14.10
20^h 13^m 5.65
3 08.45
+ 1.04
+ 5.8
3 09.07

Travel 1377.25 feet 339.07
at 20^h 14^m

Monday, Oct 27, 1913

Mr. Cade

Thompson's clock

Halt at 1' 14"

1 Piscium

26° 48'

| | | | | |
|----------------|-----------------|------|------|-----|
| 1 ^m | 17 ^m | 26.8 | 19.9 | 6.7 |
| | | 29.8 | 16.9 | 6.7 |
| | | 32.3 | 14.2 | 6.3 |
| | | 35.1 | 11.0 | 6.1 |
| | | 37.3 | 8.0 | 5.5 |
| | | 44.8 | 1.5 | 6.3 |
| | | 49.3 | 66.6 | 5.9 |

$$\begin{array}{r} 41 \\ 9 \\ \hline 369 \end{array}$$

$$\begin{array}{r} 53.0 \\ 15 \overline{) 167^2} \\ \underline{52} \\ 1.11 \end{array}$$

1' 17"

$$\begin{array}{r} 25.17 \\ 28.15 \end{array}$$

$$\begin{array}{r} 2 \overline{) 5102} \\ \underline{1020} \\ 231 \\ \underline{462} \\ 309 \end{array}$$
1^m 17^m 53.11
$$\begin{array}{r} 1 \quad 14 \quad 53.35 \\ \underline{44.69} \end{array}$$

$$\begin{array}{r} 3 \quad 08.42 \\ + 10.01 \\ + 5.8 \\ \hline 3 \quad 09.04 \end{array}$$

Find 1327 in fast
3^m 09.06 at
22 45^m.

Friday October 31, 1913

Mundian Circle

Philips & Offaly also Total 205

24 Kelpieul.

240 23'

mixed is 4 wires.

Y Cygni,
390 56'

20^L 16^m 8.6 35.2 3.8
13.0 31.8 4.8
17.0 25.7
~~21.4~~
~~25.7~~ 21.4
31.8
35.2

20^L 21 — 49.6
520 46.1 8.1
— 43.4
58.1 40.0 8.1
1.3 36.6 7.9
9.4 28.7 8.1
14.8 23.8 8.6

20^L 16 42.9
40.1
37.8

11 | 11 8
18
1.07
19.07

21.6 35.2
8.6 31.8 4.4
8.5 25.8 4.3
13.0 21.4 4.4

22 22 19.07
22 19 7.72
2 11.35
01
58
2 11 94

7 | 11 1
17.0 17.15 11 94
12 119
2 | 24 13
12.06

20 16 17.13
20 13 5.58
3 11.57
04
58
2 72 19

Frod 1321 is for
3^m 12.06
1913

Monday, November 3, 1913

Level of Meridian Circle

Philip S. Bailey, Obs. & Recorder.

Zero East

34.9
 Telescope S. 61.6
 34.9
61.7
 Telescope N 12.2
39.4
 21.8
48.8
 - 315.3

Zero West

60.5
87.3
59.4
86.3
 42.5
69.2
 44.6
71.8
 + 521.6

521.6
 315.3
 16) 206.3 | 12.89
 16
 46
 32
 1434
 128
 150
 .7734 = 6
 1.35
 38670
 22202
 7.734
 1034896

Monday, November 8, 1913

Rowel of Meridian Circle

Thrup & Gally Alt + Records

Zero East

Telescopes & N 23.3

51.9

21.0

49.1

Telescope S 35.0

63.8

23.1

52.0

319.2

16.17

.06

.9702

1.35

485 10

291 06

9.702

1309.770

Zero West

60.0

88.2

54.0

82.6

58.0

86.1

60.0

89.0

+ 57.7.9

319.2

16) 258.7 (16.17

16

98

96

27

16

110

Tuesday, November 4, 1913

Level of Meridian Circle

W.P.G. obs. P.G. sec.

Zero East

Zero West

Jel. S. 54.3
104.0
 850.0
98.0
 Jel. N 34.1 34.2
~~83.0~~ 83.8
 25.0
74.8

14.4
64.0
 8.2
57.0
 35.1
84.9
 35.1
85.0
 + 383.7

- * 523.1
 4
 + 383.7

16 | 140.4 (8) 8.77
128
 124 .06
112 .5-262
 120
112
 8

.5-26 = 6
1.35 = sec 4
 2630
 1578
 526
.71010 (6 sec 4)

Tuesday, November 4, 1963

Level of Meridian Circle

W. P. S. Allen RGR. records.

Zero East
Tel. N. 26.676.9

30.0

80.0

Tel. S.

54.6~~8.2~~105.4

57.8

108.7

- 540.0

3

4

+ 371.2

16) 168.8 (10.55

16

08.8

80

80

.06

.6330

1.35

.63

4.05

810

.8505

.71

.71

from previous page

2) 1.56

Use + .78 (sec. 4) west end high

Zero West

34.4

85.0

36.5

86.7

8.3

59.0

5.2

56.1

+ 371.2

Wednesday, November 5, 1913

Mendham Circle Philip St. Gales, Conn. Battle 20" 48

✓ Aquila 40" 49

61 Aquila pri
30" 18

20^h 56 40.9 42.1 3.0
 39.2
 43.9 34.2 3.1
 47.2 35.9 3.1
 50.4 32.9 3.3
 53.4 29.3 2.7
 0.7 26.2 1.9
 6.6 16.3 2.9

11.5
 15 $\overline{) 24.5}$
 10.1
 14.3
 11.43

20^h 2 27.9 28.2 6.1
 31.8 25.1 6.9
 34.8 22.1 6.9
 39.2 19.2 4
 41.2 15.3 6.5
 48.9 7.9 6.8
 53.7 3.3 7.0

58.9
 13 $\overline{) 5.1}$
 58.39

07
 9
 .063

20^h 57 11.43
 20 53 37.27
 + 314.16
 + .06
 + 78
 3 15 .00

20^h 2 58.39
 20 E

Final 1327 is fast
 3 15.00 fast
 20^h 59

Thursday, November 6, 1913

Murchison Creek

Thompson's Fly Creek,

Tall 5 32

S. Louis
24° 5'O. Ainslie
49° 47'5 35^m

19.9 14.9 0.8

23.5 8.4 1.9

26.0 5.9 1.9

28.7 3.0 1.7

31.2 0.5 1.7

38.0 53.9 1.9

42.0 49.9 1.9

$$\begin{array}{r} 45.9 \\ 15 \overline{) 127} \\ \underline{45.85} \end{array}$$

5 41 53.9 7.4 1.3

58.4 3.0 1.4

1.3 59.0 0.3

5.5 55.1 0.6

9.3 51.5 0.8

18.2 11.8 0.0

24.2 35.8 0.0

$$\begin{array}{r} 30.2 \\ 15 \overline{) 46} \\ \underline{30.30} \end{array}$$

$$\begin{array}{r} 53 \ 53 \ 2 \\ \underline{477} \end{array}$$

$$\begin{array}{r} 28.7 \\ \underline{0252} \end{array}$$

5 35^m

45.85

5 32

30.89

3

14.96

+ 1.03

+ 7.8

3 15.79

$$\begin{array}{r} 91 \\ 19 \\ \underline{2170} \\ 85 \end{array}$$

5 42 30.30

5 39 15.14

+ 3 15.46

- 0.3

+ 7.8

3 15.91

Final 1322 is fact
3 15.85 at
5^m 38^m

Friday, November 7, 1913

Mendocino *Philip St. Paul, Nev*

Rail 2° 7' 32"

r. Arctus
21° 35'

3 Perseus
48° 51'

2° 36" 46.9 37.1 4.0
49.4 34.7 4.1
52.3 32.0 4.3
54.9 29.4 4.3
57.5 26.5 4.0
44 20.8 5.2
8.3 16.2 4.5

2° 40 59.9 11.0 0.9
3.4 7.8 0.7
7.5 3.4 0.9
10.9 59.6 0.8
14.6 56.0 0.6
23.9 46.7 0.6
29.4 41.0 0.4

52
09.1
0468

12.3
15) 2.7
12.18

35.8
15) 51
35.34

24
9.3
0216

2 37 12.18
2 33 56.53
+ 3 15.65
3 + 0.5
+ 7.8
+ 3 16 48

2 41 35.34
2 38 19.99
+ 3 15.35
- 0.2
+ 7.8
16.11
3

11
48
259
29

Frod (32) is faint
3 16.38 at
2° 38'

Monday, November 10, 1913

Mendocino *Thyridella* 3^h 28

1 Per.

42° 18'

11 Janis

23° 50'

| | | | | |
|----------------|-----------------|------|-----------------|-----|
| 3 ^h | 42 ^m | 7.8 | 11.0 | 1.8 |
| | | 11.4 | 11.5 | 9.2 |
| | | 14.8 | 1.9 | 9.7 |
| | | 18.2 | 1.3 | 9.5 |
| | | 21.5 | 58.0 | 9.5 |
| | | 29.9 | 49.4 | 9.3 |
| | | 34.9 | 44.9 | 9.8 |

| | | | | |
|----------------|----|------|------|-----|
| 3 ^h | 45 | 15.8 | 6.6 | 2.4 |
| | | 18.3 | 41.0 | 2.3 |
| | | 20.9 | 1.8 | 2.2 |
| | | 23.5 | 58.9 | 2.4 |
| | | 26.2 | 56.0 | 2.2 |
| | | 33.1 | 49.2 | 2.3 |
| | | 36.9 | 45.1 | 2.0 |

$$\begin{array}{r} 39.0 \\ 15 \overline{) 98} \\ \underline{39.65} \end{array}$$

$$\begin{array}{r} 41.0 \\ 15 \overline{) 18} \\ \underline{41.12} \end{array}$$

| | | |
|----------------|-----------------|------------------|
| 3 ^h | 42 ^m | 39.65 |
| 3 | 39 | 21.59 |
| | | 18.06 |
| 3 | | 18.92 |
| | | 78 |
| 3 | | 18.78 |

| | | |
|----------------|----|-------|
| 3 ^h | 45 | 41.12 |
| 3 | 42 | 23.02 |
| | 3 | 18.10 |
| | | + 04 |
| | | 7.2 |
| 3 | | 18.92 |

$$\begin{array}{r} 70 \\ 92 \\ 2 \overline{) 162} \\ \underline{81} \end{array}$$

Food 13.27 is fast

| | |
|----------------|-------|
| 3 | 18.81 |
| 3 ^h | 48 |

Wednesday, November 12, 1913.

Clock #1327 stopped for readjustment and cleaning of contacts. Contacts were cleaned and polished, and the spring of the break stiffened slightly to insure its seating, with certainty, it having given trouble in this particular. The bob was lowered from 44.2 to 46.00 on scale. Oiled teeth of signal wheel. Started clock at 18^h 21^m with an error of approximately +30 seconds.

Out on 66
 inside in 11
 because no price
 handle 19.6/2.

Wednesday, November 12, 1913

1-22

Mundana Circle Thap & Kelly etc

Kath 0'47"

Band,
 35°9'

6 Pisces
 26°48'

1^h 4^m 58.3 54.6 9.9
 59.7 50.9 0.6
 2.4 47.9 0.3
 5.5 44.9 0.4
 8.5 41.8 0.3
 16.2 34.1 0.3
 21.0 29.8 0.8

25.1
 15 | 1727
 24
 1.18
 25.18

1^h 14^m 48.4 40.9 9.3
 51.2 38.7 9.9
 53.8 35.9 9.7
 56.7 32.9 9.6
 58.8 30.2 9.0
 6.4 22.9 9.3
 10.6 19.0 9.6

14.4
 15 | 108
 14.72

1^h 5^m 25.18
 1^h 4^m 55.26
 + 0 29.92
 + .02
 + .78
 29.72
 0 30

72
 84
 15.6
 78

1^h 15^m 14.72
 1^h 14^m 44.70
 + 0 30.02
 + .04
 + .78
 + 0 30.84

Frod. 13.27 is fact
 00 30.72 at
 1^h 09^m

Thursday, November 13, 1913

Muskrat Circle

Philip S. Gally Obs.

Battle 1^h 55^m

δ Andromed

41° 54'

α Cricti

23° 8'

β Trianguli

34° 34'

| | | | | | | | | | | | | | |
|--------------------------------|------|------|-----|-------------------------------|------|------|-----|-------------------------------|------|-------------------------------|------|------|-----|
| 1 ^h 58 ^m | 35.5 | 38.7 | 4.2 | 2 ^h 2 ^m | 24.0 | 15.0 | 9.0 | 2 ^h 4 ^m | 27.1 | 2 ^h 4 ^m | 27.1 | 24.0 | 1.1 |
| | 39.2 | 35.3 | 4.5 | | 27.0 | 12.6 | 9.6 | | 30.2 | | 30.2 | 21.1 | 1.3 |
| | 42.3 | 32.2 | 4.5 | | 29.8 | 9.8 | 9.6 | | 32.0 | | 33.0 | 18.2 | 1.2 |
| | 45.9 | 28.9 | 4.8 | | 32.1 | 7.2 | 9.3 | | 34.0 | | 36.0 | 15.1 | 1.1 |
| | 48.9 | 25.5 | 4.4 | | 35.0 | 4.5 | 9.5 | | 43.9 | | 39.0 | 12.1 | 1.1 |
| | 57.3 | 17.0 | 4.3 | | 41.5 | 57.9 | 9.4 | | 51. | | 46.5 | 4.5 | 1.0 |
| | 2.3 | 12.2 | 4.5 | | 45.9 | 53.9 | 9.8 | | 55.9 | 4.5 | 51.1 | 0.1 | 1.2 |

$$\begin{array}{r} 49 \\ 441 \\ \hline 9 \end{array}$$

$$\begin{array}{r} 22 \\ 0188 \end{array}$$

$$\begin{array}{r} 7.6 \\ 15 \overline{) 40} \\ 38 \\ \hline 7.25 \end{array}$$

$$\begin{array}{r} 49.8 \\ 15 \overline{) 110} \\ 49.73 \end{array}$$

$$\begin{array}{r} 55.9 \\ 15 \overline{) 119} \\ 55.79 \end{array}$$

$$1^{\text{L}} 59 7.25$$

$$\begin{array}{r} 1^{\text{L}} 58 37.60 \\ 0 29.65 \\ + 78 \\ \hline 0 30.43 \end{array}$$

$$2^{\text{L}} 2 49.73$$

$$\begin{array}{r} 2^{\text{L}} 2 20.03 \\ 0 29.70 \\ + 64 \\ + 78 \\ \hline 0 30.52 \end{array}$$

$$2^{\text{L}} 4 55.79$$

$$\begin{array}{r} 2^{\text{L}} 4 25.94 \\ 0 29.85 \\ 02 \\ + 78 \\ \hline 0 30.45 \end{array}$$

$$\begin{array}{r} 65 \\ 52 \\ 143 \\ 3 \overline{) 16.0} \\ 53 \frac{1}{5} \end{array}$$

From 1327 in fact 0 30.54
at 2^h 00

13
Tuesday, November, 19, 1913

Mer. Circle

Philip S. Kelly

Battle 20° 55'

61 Cygni
 380° 18'

5 Cygni
 829° 51'

21^h 3^m
 0.1 59.8 9.9
 3.2 56.8 0.0
 6.6 54.1 0.7
 9.8 50.4 0.2
 12.4 47.6 0.0
 20.5 39.5 0.0
 25.4 34.5 9.9

29.9
 30.9
 15 | 15 6
 30.04

21^h 9^m
 17.1 11.2 8.3
 20.0 8.3 8.3
 22.9 5.8 8.7
 25.8 2.8 8.6
 28.5 0.0 8.5
 36.2 52.7 8.9
 39.9 48.7 8.6

44.4
 15 | 44 4
 3
 44.29

21^h 3 30.04

21^h 2 61.49
 + 28.55
 + .01
 + 78
 29.34

21^h 9^m 44.29

21^h 9 15.76
 28.53
 + .03
 + 78
 29.34

Find 13212 fast
 0 29.34 at
 21^h 6^m

Thursday, November 20, 1913

Mer. Circ.

Thelyp & Off. rily Obs

Ratth 230

v Ainet

21° 35

v Persi

48° 51

41 Ainet

26° 54

| | | | | | | | | | | | | |
|-------------------|------|------|-----|---|----|------|------|-----|-------------------|------|------|-----|
| 2 ^h 33 | 59.1 | 49.5 | 8.6 | 2 | 38 | 12.3 | 23.6 | 5.9 | 2 ^h 44 | 57.3 | 49.5 | 6.8 |
| | 1.9 | 46.9 | 8.8 | | | 16.3 | 19.9 | 6.2 | | 0.3 | 47.2 | 7.5 |
| | 4.6 | 44.4 | 9.0 | | | 19.8 | 15.9 | 5.7 | | 2.9 | 44.3 | 7.2 |
| | 7.4 | 41.5 | 8.9 | | | 23.6 | 12.3 | 5.9 | | 5.8 | 41.3 | 7.1 |
| | 9.6 | 39.0 | 8.6 | | | 27.4 | 8.3 | 5.7 | | 8.3 | 38.9 | 7.2 |
| | 16.5 | 32.6 | 9.1 | | | 36.9 | 59.0 | 5.9 | | 15.1 | 31.9 | 7.0 |
| | 20.9 | 28.6 | 9.5 | | | 42.3 | 53.4 | 5.7 | | 19.4 | 28.1 | 7.5 |

$$\begin{array}{r} 52 \\ 91 \\ \hline 0468 \end{array}$$

$$\begin{array}{r} 24 \\ 93 \\ \hline 0-16 \end{array}$$

$$\begin{array}{r} 40 \\ 9 \\ \hline 0360 \end{array}$$

$$\begin{array}{r} 24.4 \\ 15 \overline{) 69} \\ \hline 24.46 \end{array}$$

$$\begin{array}{r} 47.8 \\ 15 \overline{) 138} \\ \hline 47.92 \end{array}$$

$$\begin{array}{r} 23.5 \\ 15 \overline{) 86} \\ \hline 23.56 \end{array}$$

$$\begin{array}{r} 2^h \quad 37 \quad 24.46 \\ 2 \quad 33 \quad 56.62 \\ + 27.84 \\ + 05 \\ + 78 \\ \hline 28.67 \end{array}$$

$$\begin{array}{r} .17 \\ .58 \\ .44 \\ \hline 215.9 \\ 156 \end{array}$$

$$\begin{array}{r} 2 \quad 38 \quad 42.92 \\ 2 \quad 38 \quad 20.10 \\ + 27.82 \\ - 02 \\ + 78 \\ \hline 28.58 \end{array}$$

$$\begin{array}{r} 2 \quad 45 \quad 23.56 \\ 2 \quad 44 \quad 55.94 \\ + 0 \quad 27.62 \\ + 04 \\ + .78 \\ \hline 28.44 \end{array}$$

Froch. 1327 is fact.

$$\begin{array}{r} 0^h \quad 0^m \quad 28.56 \\ \hline \text{at } 2^h \quad 38^m \end{array}$$

Wednesday, December 3, 1913

Meridian Circle

Philip G. Offally Obs.

Rath 242+51

missed 13 min

41 Arietis

26° 54'

τ Persei

52° 24'

ρ Persei

38° 30'

2 44 48.2 40.3 8.5
50.9 38.0 8.9
53.4 35.1 8.5
56.2 32.2 8.4
58.9 29.5 8.4
59 22.6 8.5
10.1 18.3 8.4

14.2
15) 38
14.25

2 48 6.9
2.9
59.3
2.5 54.8 7.3
6.1 50.8 6.9
16.3 40.7 7.0
22.4 34.7 6.8

28.7
15) 47
28.31

2 59 29.0 28.9 7.9
32.4 25.9 8.3
35.4 22.6 8.0
38.5 19.5 8.0
41.7 16.4 8.1
44.5 8.6 8.1
54.2 3.9 8.1

58.9
15) 15.4
58
11.02
59.02

2 45 14.25

2 44 56.00

0 18.25

+ 0.4

+ 7.8

0 19.07

2 48 28.81

2 48 10.28

0 18.03

+ 1.03

78

0 18.78

2 59 59.02

2 59 40.60

0 18.42

.01

78

0 19.21

21
07
28

Inod 1327 in fast
0 19.14 at 252

Friday, December 5, 1913

Mindian Circle *Thylosaurus*. *Rattus* 3^h 15^m

5 Persia
42° 18'

11 Sami
23° 50'

| | | | | |
|----------------|-----------------|------|------|-----|
| 3 ^h | 89 ^m | 7.7 | 11.0 | 8.7 |
| | | 11.0 | 8.2 | 9.2 |
| | | 14.6 | 4.6 | 9.2 |
| | | 17.9 | 1.0 | 8.9 |
| | | 21.0 | 57.9 | 8.9 |
| | | 29.5 | 49.8 | 9.3 |
| | | 34.1 | 44.5 | 8.6 |

| | |
|----|-------|
| | 39.8 |
| 15 | 7.1 |
| | 39.47 |

| | | | | |
|----------------|-----------------|------|------|-----|
| 3 ^h | 42 ^m | 15.0 | 6.2 | 1.2 |
| | | 17.7 | 3.7 | 1.4 |
| | | 20.4 | 0.9 | 1.3 |
| | | 23.1 | 58.4 | 1.5 |
| | | 25.9 | 55.5 | 1.4 |
| | | 32.5 | 48.9 | 1.4 |
| | | 36.7 | 44.8 | 1.5 |

| | |
|----|-------|
| | 40.9 |
| 15 | 10 6 |
| | 40.70 |

| | | |
|----------------|----|-------|
| 3 ^h | 39 | 39.47 |
| 3 | 39 | 22.07 |
| | | 17.40 |
| | | + .78 |
| | 0 | 18.18 |

| | | |
|----------------|----|-------|
| 3 ^h | 42 | 40.10 |
| 8 | 42 | 23.32 |
| | | 17.38 |
| | | + .04 |
| | | + .78 |
| | | 18.20 |

47
42
91
8
1
42.3

Found 1327^h at 3^h 40^m
on 18th 18. S.T.

Monday, December 8, 1913.

Meridian Circle

Thompson & Kelly Obs.

Rails ^h ^m
3 31

✓ Pucis

42° 18'

✓ Jauri

23° 50'

3 39 6.4 9.8 1.2
9.8 6.7 6.5
12.9 2.9 5.8
16.4 59.8 6.2
19.9 56.4 6.3
28.1 48.1 6.2
32.9 42.1 6.0

37.9
15) 16.1
37
1.07
38.07

3 42 13.8 4.9 8.7
16.4 2.6 9.0
19.1 59.7 8.8
21.9 56.9 8.8
24.5 54.3 8.8
31.1 47.4 8.5
35.4 43.4 8.8

39.3
15) 57
39.38

3 39 38.07
3 39 22.09
0 15.98
78.
0 16.76

3 42 39.38
3 42 23.34
0 16.04
+ 04
+ 7.8
0 17 86

7 mod 1327 is fast
on 16.81 at
3^h 40^m

Tuesday, December 9, 1913

Mendocino Circle

Philp. P. O'Felly Elev.

Barth 3^h 30^m

r Pucci

42° 18'

11 Jani

23° 50'

3 89 5.8 9.2 5.0
 2.9 5.9 4.8
 11.9 2.4 4.3
 15.8 58.9 4.7
 18.7 55.7 4.4
 27.3 46.9 4.2
 32.1 42.2 4.3

37.1
 15) 3.8
 37.25

3 42^m 13.0 4.1 7.1
 15.7 11.6 7.3
 18.3 58.9 7.2
 26.9 56.1 7.0
 23.6 53.3 6.9
 31.2 46.7 7.9
 34.5 42.9 7.4

38.8
 15) 9 6
 38.64

3 39 37.25
 3 39 22.09
 0 15.16
 + 78
 15 94

15 94
 16 13
 2) 32.06
 16 03

3 42 38.64
 3 42 23.34
 0 15.30
 + 04
 + 78
 16 12

Food 13.27 is fast
 0 16.03 at
 3^h 40^m

Thursday, December 11, 1913.

Mundiam Circle

Philip G. Kelly Obs.

Rattle 337

✓ Persei

42° 18'

✓ Jauri

23° 50'

3 39 4.3 7.9 2.2
 7.9 4.8 2.7
 10.9 00.9 1.8
 14.4 57.9 2.3
 17.35 4.4 1.7
 26.3 45.9 2.2
 31.2 40.9 2.1

36.0
 15) 16.0
 35.
 106
 36.06

3 42 11.8 2.8 4.6
 14.6 00.3 4.9
 17.3 57.6 4.9
 20.0 54.9 4.9
 22.9 52.1 5.0
 29.3 45.2 4.5
 33.7 41.6 5.3

37.4
 15) 65
 37.43

3 39 36.06
 3 39 22.10
 0 13.96
 + 78
 14 74

78
 90
 2) 160
 82

3 42 37.43
 3 42 23.35
 0 14.08
 + 04
 + 78
 14 90

Food. 13.27 is fast
 0 14.82 at

Monday December 15, 1913.

Photograph gas counter
 transfer all wiring. I was
 forced to break it
 along with the paper
 mounted upon the
 P. 8. 11.

Mendham Teles

Philip B. Kelly Obs

Ratt 3' 25"

1 Parisi

420 18

signals faint to normal,

11 Jauri

23° 50'

| | | | | |
|---|----|------|------|-----|
| 3 | 42 | 7.9 | 59.0 | 6.9 |
| | | 10.9 | 56.3 | 7.2 |
| | | 13.0 | 53.4 | 6.4 |
| | | 15.9 | 50.9 | 6.8 |
| | | 18.4 | 48.3 | 6.7 |
| | | 25.2 | 41.3 | 6.5 |
| | | 29.8 | 37.3 | 6.6 |

33.9
 13 55
 33.36

| | | |
|---|----|-------|
| 8 | 42 | 33.36 |
|---|----|-------|

| | | |
|---|----|-------|
| 3 | 42 | 27.27 |
|---|----|-------|

+ 09.99

+ 04

+ 78

+ 10.81

Friday the December 19, 1913

Meridian Circle

Philip G. O'Reilly Obs. Rattl 4^h 9^m

8 Jani
17° 20'

8 Jani
18° 59'

4^h 17^m 41.9 30.9 2.8
44.3 28.4 2.7
46.9 25.9 2.8
49.8 23.1 2.9
52.2 20.3 2.5
58.7 14.1 2.8
2.4 10.1 2.5

6.3
15 | 5.3
6.35

4^h 23 15.8 2.2 7.0
21.1 5.9 7.0
24.1 3.0 7.1
26.5 0.6 7.1
29.1 57.9 7.0
35.8 51.3 7.1
39.7 47.5 7.2

43.7
15 | 8.2
43.54

57.6
513

4^h 18 6.35

4^h 17 59.71

+ 06.64

+ 05

+ 78

+ 07.47

4^h 23 43.54

4^h 23 36.92

+ 06.62

+ 05

+ 78

+ 07.45

6.0
9
340

Ind. 1327 is fact
07.46 at
4^h 20^m

1913phae.proj.17823

77

Friday December 26, 1913

Added 2g to pendulum of F1327 at
 $22^h 08^m$ (Sidercal). Load now is 2g.

Sunday December 28, 1913

Chronograph stopped

Mer. Circle

Thurs. S. O. Kelly, Illus.

Pat. 531

o Aurigae

49° 48'

II Gemini

22° 31'

o Aurigae

37° 12'

5^L 53 22.8 24.4 ? 4.2

26.6 19.0 ? 5.0

29.3 15.6 ? 4.9

32.1 15.5 ? 7.6

35.3 9.5 ? 4.2

43.6 11.7 4.7

47.7 56.9 4.6

5.23

15 36

52.72

5 53 52.72

5 53 53.34

- .62

+ 01

+ 78

+ 17

12
22

16
4
11

6:40
11:50

79

Monday January 5, 1913

Mundian Cuts

Temp & Sky Obs.

Rattho 4⁴⁶ 23i Anrigae
330 iε Anrigae
430 4111 Anrigae
410 7

4 50 56.3 32.3 8.6
59.3 49.4 8.7
2.4 46.5 8.9
5.4 43.6 9.0
8.4 40.9 9.3
15.8 33.3 9.1
20.1 29.0 9.1

24.6
15 | 73
24.49

4 55 16.4 21.1 7.5
19.9 17.9 7.8
23.3 14.4 7.7
26.9 11.1 8.0
30.1 7.5 7.6
38.5 58.8 7.3
44.0 54.1 8.1

48.9
15 | 129
48.86

4 59 58.9 1.0 9.9
2.6 58.0 0.6
5.8 54.2 0.0
9.6 51.1 0.1
12.4 48.1 0.2
20.0 39.7 9.7
25.0 34.9 9.9

80.1
15 | 155
129
1.03

4 54 24.49
4 51 25.10
- 0.61
+ 02
+ 78 80
+ 19

4 55 48.86
4 55 49.66
- 0.70
+ .78
+ .08

5 0 30.03 30.03
5 0 30.72
- .69
+ 78
+ .09

.19
.08
09
3 | 36
12

Fred 1327 is fast
0° 0' 0.12 at
4⁴⁶ 55

Saturday, January 10, 1914

Mendocino Creek

Philip G. Kelly Creek

Wattle 5^h

Bannigan

440 56'

5^h 52 43.0 49.1 2.1
 46.8 46.1 2.9
 50.1 42.4 2.5
 53.6 39.3 2.9
 57.4 35.3 2.7
 5.8 26.7 2.5
 11.1 21.5 2.6

16.3
 15 $\overline{) 4.5}$
 16.30

09
 581

50
 09
 .0450

5 5³ 16.30
 5 53 15.50
 + 1.80
 - 1.01
 + 78
 + 1.57

7.3
 5.7
 2 $\overline{) 13.0}$
 6.5

1^h Quinn
 22° 31'

6^h 5^h 9 18.5 9.2 7.7
 21.1 6.7 7.7
 23.9 4.0 7.9
 26.8 1.5 8.3
 29.2 58.4 7.6
 36.0 52.0 8.0
 40.0 48.0 8.0

44.0
 15 $\overline{) 142}$
 43.94

6 9 43.94
 6 9 43.03
 + 1.91
 + 1.04
 + 78
 + 1.73

Food 13 21 1/2
 1.65 at
 5^h 55^h

Monday, Higan 12.19.13

Midnight

Tully's H. R. Kelly's

Path 5' 10"

Jan

28° 32'

Jan

21° 5'

5^h 20^m 27.3 20.9 8.2
 30.3 18.2 8.5
 33.1 15.3 8.4
 35.9 12.5 8.4
 38.8 9.7 8.5
 45.8 2.5 8.3
 49.9 58.4 8.3

54.3
 15 | 2.9
 54.19

5^h 32^m 8.1 58.3 6.4
 10.6 55.8 6.4
 13.3 53.1 6.4
 15.9 50.8 6.7
 18.6 47.9 6.5
 25.3 40.9 6.2
 29.1 37.3 6.4

3
 28.2
 15 | 3.2
 33.21

5^h 20^m 54.19
 5 20 53.00
 + 1.19
 + .83
 + .78
 + 2.00

5 32 33.21
 5 32 31.94
 + 1.27
 + .05
 + .78
 2.10

Food, 1327 is fat
 2.05 fat
 5^h 16^m

Wednesday January 14 1914

Martian Cuck *Thryx* Kelly Obs. Rattos 5462

u Lem.

22° 31'

| | | |
|-------------------------------|-----------|-----|
| 6 ^h 9 ^m | 19.2 9.9 | 9.1 |
| | 21.8 7.2 | 9.0 |
| | 24.3 4.4 | 8.7 |
| | 27.3 1.8 | 9.1 |
| | 29.9 59.2 | 9.1 |
| | 36.3 52.4 | 8.7 |
| | 40.8 48.8 | 9.6 |

44.4
15 | 77
44.51

u Lem.

22° 33'

| | | |
|--------------------------------|-----------|-----|
| 6 ^h 17 ^m | 23.2 14.1 | 7.3 |
| | 26.1 11.5 | 7.6 |
| | 28.9 9.0 | 7.9 |
| | 31.4 6.2 | 7.6 |
| | 34.2 3.4 | 7.6 |
| | 40.9 56.8 | 7.7 |
| | 44.8 52.9 | 7.7 |

48.9
13 | 123
48.82

3
1012
44
16

| | | |
|---|---|--------|
| 6 | 9 | 44.51 |
| 6 | 9 | 43.04 |
| | | + 1.47 |
| | | + .04 |
| | | = 1.51 |
| | | 78 |
| | | 2.29 |

| | | |
|---|----|--------|
| 6 | 17 | 48.82 |
| 6 | 17 | 47.36 |
| | | + 1.46 |
| | | + .04 |
| | | + 1.50 |
| | | 78 |
| | | 2.28 |

Prod. 1327 is fact
2.28 at 6^h 12^m

Sunday, January 25, 1914

Wendell C. C.

Thos. W. Kelley, Esq.

720

ρ Gemin.
31° 57'

a Gun
320 4'

x Sun.
.24036

mina + Lm
33° 37'

| | | | |
|--|--------------------|-----------|-----|
| 7 ^h 23 ^h 12.2 7.9 0.1 7 28 | 44.4 39.9 4.5 7 38 | 55.0 46.8 | 1.8 |
| 15.8 5.0 0.8 | 47.1 37.0 4.1 | 57.8 43.9 | 1.7 |
| 18.5 2.3 0.8 | 50.3 34.2 4.5 | 0.5 40.9 | 1.4 |
| 21.5 59.4 0.9 | 53.4 31.0 4.4 | 3.2 38.4 | 1.6 |
| 24.3 56.5 0.8 | 55.9 28.1 4.0 | 6.0 35.6 | 1.6 |
| 32.0 48.7 0.7 | 3.4 20.8 4.2 | 13.0 25.0 | 2.1 |
| 31.0 44.4 ⁴ 0.4 | 7.6 16.8 4.4 | 17.2 22.7 | 2.2 |

$$\begin{array}{r} 39.9 \\ 15 \overline{) 194} \\ \underline{39} \\ 1129 \\ \underline{1050} \\ 79 \end{array}$$
$$\begin{array}{r} 12.1 \\ 15 \overline{) 20} \\ 12.13 \end{array}$$
$$\begin{array}{r} 20.7 \\ 15 \overline{) 131} \\ \underline{208} \end{array}$$
$$\begin{array}{r} 29 \\ \times 98 \\ \hline 232 \\ 2610 \\ \hline 2842 \end{array}$$
$$\begin{array}{r} 479 \\ \times 9 \\ \hline 4311 \end{array}$$
$$\begin{array}{r} 7^h \quad 23 \quad 40.29 \\ 7 \quad 23 \quad 37.22 \\ \hline 3107 \\ \quad .03 \\ \hline 3110 \\ \quad 78 \\ \hline 3188 \end{array}$$
$$\begin{array}{r} 729 \quad 12.13 \\ 729 \quad 9.09 \\ \hline 3.04 \\ 0.3 \\ \hline 3.07 \\ 78 \\ \hline 3.85 \end{array}$$
$$\begin{array}{r} 73920.87 \\ 73917.64 \\ \hline 3.23 \\ .04 \\ \hline 3.27 \\ .28 \\ \hline 4.05 \end{array}$$
$$\begin{array}{r} 85 \\ 88 \\ \hline 10,5 \\ 3 \overline{) 278} \\ \underline{9} \end{array}$$

Prod 13214 fast
3.93 s at
7^h 30^m

84
9:20
2:40Monday, February 2, 1914

Munster Circle

Philipsof's Circle

Rath 627

Σ Immersion
25° 13'Σ Immersion
34° 3'

6^L 38^m 17.7 9.8 7.5
 20.5 7.0 7.5
 23.4 4.2 7.6
 26.0 1.4 7.4
 28.8 58.9 7.7
 35.6 51.9 7.5
 39.8 47.9 7.7

6 47 44.3 41.0 5.3
 47.3 38.7 6.0
 50.1 35.1 5.2
 53.1 32.5 5.6
 56.1 29.7 5.8
 3.7 21.9 5.6
 8.8 17.2 6.0

$$\begin{array}{r} 43.7 \\ 15 \overline{) 116} \\ \underline{43.77} \end{array}$$

$$\begin{array}{r} 18.1 \\ 15 \overline{) 126} \\ \underline{12.84} \end{array}$$

6 38 43.77
 6 38 40.55
 + 3.22
 + 1.04
 7.8
 + 4.04

6 47 12.84
 6 47 9.57
 3.27
 .62
 .78
 4.07

$$\begin{array}{r} 4 \\ 7 \\ 11 \\ 5 \end{array}$$

Frod. 1327 is fast
 4.06 at 6^m 43

T^h 20
2:05

85

Tues. Wednesday, Feb. 4, 1914

Menthan Ciel Tulep & Kelly de Ratt 7 15

1 Gun
27.° 589 Gun
31.57.

| | | |
|--------------------------------|-----------|-----|
| 7 ^h 20 ^m | 2.0 55.0 | 7.0 |
| | 5.0 52.4 | 7.4 |
| | 7.9 49.8 | 7.7 |
| | 10.7 47.1 | 7.8 |
| | 13.5 44.2 | 7.7 |
| | 20.8 37.1 | 7.9 |
| | 24.6 32.8 | 7.4 |

$$\begin{array}{r} 28.7 \\ 75 \overline{) 116} \\ \underline{28.77} \end{array}$$

| | | |
|--------------------------------|-----------|-----|
| 7 ^h 23 ^m | 12.9 8.1 | 1.0 |
| | 15.8 5.2 | 1.0 |
| | 18.7 2.4 | 1.1 |
| | 21.7 59.7 | 1.4 |
| | 24.6 56.4 | 1.0 |
| | 31.8 49.3 | 1.1 |
| | 36.5 45.0 | 1.5 |

$$\begin{array}{r} 20.8 \\ 19 \\ \underline{2.37} \end{array}$$

$$\begin{array}{r} 40.8 \\ 15 \overline{) 89} \\ \underline{40.59} \end{array}$$

| | |
|-------------------|-------------|
| 7 ^h 20 | 28.77 |
| 7 ^h 20 | 25.46 |
| | 3.31 |
| | .03 |
| | 78 |
| | <u>4.12</u> |

| | |
|-------------------|-------------|
| 7 ^h 23 | 40.59 |
| 7 ^h 23 | 37.25 |
| | 3.34 |
| | .03 |
| | 3.37 |
| | 7.8 |
| | <u>4.15</u> |

had 1.321 is fast
4.43 at
7^h 22

Thursday Feb. 5, 1914

Murchison Circle

Thruph & Ossetly Obs.

Total 9.53

4 hours
12° 22'2 hrs May
42° 20'30 hrs May
65° 59'31 hrs May
37° 8'1 hour
10° 59'all May
62° 12'14
96.03
30
009019
114 5 35.3
2102992 31 61
21 18 18
30 13 18 60

.12

1.33
1.55
72
73 15
360
360
396099
55.449.5
49.5
544.5.03 16
15.5 30
15.0480
1.0165

| | | | | | |
|-----------------------|------------------|-------------------|------------------------|------------------------|------------------|
| 10 3 29.3 17.1 6.4 10 | 11 28.6 33.4 2.0 | 10 11 7.0 2.3 9.3 | 10 22 31.8 30.4 2.2 10 | 10 41 26.1 13.8 9.9 10 | 57 43.2 23.4 6.6 |
| 31.4 14.9 6.3 | 32.2 36.4 2.6 | 13.2 56.4 9.6 | 34.5 27.5 2.6 | 29.7 11.4 6.1 | 48.4 18.1 6.5 |
| 34.6 12.3 6.9 | 35.9 27.1 3.0 | 19.3 50.3 9.6 | 37.8 24.0 1.8 | 31.1 8.8 9.9 | 53.5 13.1 6.1 |
| 36.7 9.8 6.5 | 39.4 23.3 2.7 | 25.2 44.2 9.4 | 40.9 21.1 2.0 | 33.8 6.5 0.3 | 58.7 7.9 6.6 |
| 39.2 7.0 6.2 | 42.5 19.8 2.3 | 31.1 38.3 9.4 | 43.9 17.9 1.8 | 36.1 3.8 9.9 | 41.2 7 6.8 |
| 45.6 0.9 6.5 | 51.2 11.8 3.0 | 46.8 23.7 0.5 | 51.5 10.3 1.8 | 42.3 57.5 9.8 | 17.4 49.8 7.2 |
| 49.6 56.7 6.5 | 56.1 6.2 2.3 | 55.8 13.9 9.7 | 56.4 5.6 2.0 | 46.2 53.9 0.1 | 25.6 41.1 6.7 |

53.2
15 3.5
53.231.3
15 4.2
1.284.3
15 11.8
4.794.12
15 14.7
40.9849.8
15 14.8
49.9933.4
15 54
33.36

10 3 53.23

10 12 1.28

10 18 4.79

10 23 0.98

10 44 49.99

10 58 33.36

10 3 49.67

10 11 57.89

10 17 61.80

10 22 57.55

10 44 46.22

10 58 30.13

3.56

3.39

2.99

3.43

3.77

3.23

10.278

1.2

10.381

9.278

10.278

10.278

1.718

78

7.361

6.518

7.048

7.048

19.240

4.19

.73

4.17

4.17

3.77

6.780

78

78

4.17

4.17

78

7.361

4.19

4.19

4.17

4.17

4.55

.581

4.18

4.17

4.17

4.17

4.17

3.56

3.39

2.99

3.43

3.77

3.23

.37

4.18

4.17

4.17

4.17

4.17

7.8

4.18

4.17

4.17

4.17

4.17

4.71

4.18

4.17

4.17

4.17

4.17

3.56

4.18

4.17

4.17

4.17

4.17

-21

4.18

4.17

4.17

4.17

4.17

+78

4.18

4.17

4.17

4.17

4.17

+4.13

4.18

4.17

4.17

4.17

4.17

Use $n = .30$ n (tan δ - tan ϕ) positive for stars North of Zenith

From 13.27 is fact 04.18 at 10.30

1913phae.proj.17819

Monday, Feb. 9, 1914

53

Mr. Calk

Philip G. Kelly

Rail 734

γ Gem,
28° 2'

β Lyras,
43° 27'

88

6.50
-1.20Monday February 9, 1914.

Mendham Circle

Philip P. O'Gilly Obs.

Rattle 734^m

X Gun.

28° 2'

31 hynais.

43° 27'

| | | | | |
|---|----|------|------|-----|
| 7 | 57 | 55.4 | 48.7 | 4.1 |
| | | 58.4 | 46.4 | 4.8 |
| | | 1.4 | 48.5 | 4.9 |
| | | 3.7 | 40.1 | 3.8 |
| | | 6.5 | 37.5 | 4.0 |
| | | 13.4 | 30.4 | 3.8 |
| | | 17.6 | 25.9 | 3.5 |

| | | | | |
|---|----|------|------|-----|
| 8 | 16 | 32.9 | 37.3 | 0.2 |
| | | 36.3 | 34.2 | 0.5 |
| | | 39.7 | 31.0 | 0.7 |
| | | 43.4 | 27.3 | 0.7 |
| | | 46.9 | 23.8 | 0.7 |
| | | 54.9 | 15.5 | 0.4 |
| | | 000 | 10.6 | 0.6 |

$$\begin{array}{r} 38 \\ .32 \\ \hline 114 \end{array}$$

$$\begin{array}{r} 18 \\ 30 \\ \hline 0540 \end{array} 2$$

$$\begin{array}{r} 22.4 \\ 15 \overline{) 16.13} \\ \underline{28} \\ 1.09 \\ \hline 22.09 \end{array}$$

$$\begin{array}{r} 5.4 \\ 15 \overline{) 4.2} \\ \hline 5.28 \end{array}$$

| | | |
|---|----|-------------|
| 7 | 58 | 22.09 |
| 7 | 58 | 16.69 |
| | | + 5.40 |
| | | - .11 |
| | | + 78 |
| | | <u>6.07</u> |

| | | |
|---|----|-----------|
| 8 | 16 | 5.28 |
| 8 | 16 | 60.13 |
| | | + 05.15 |
| | | + 05 |
| | | <u>78</u> |
| | | 05.98 |

$$\begin{array}{r} 07 \\ 38 \\ \hline .5 \end{array}$$

Food, 1321 is (out)
06.02 at 8^h 5^m

Thursday, February 12, 1914

8.30
10.50

Mr. Arch

Thompson & Kelly etc.

Part 900

2. the array
43° 20'

in the array
41° 35'

10^m 11^m 30.9 35.7 6.6
34.5 31.8 6.3
37.7 28.5 6.2
41.1 25.0 6.1
44.8 21.8 6.6
52.9 13.5 6.4
57.9 8.4 6.3

10^m 16 49.2 52.3 1.5
52.8 49.3 2.1
56.0 45.8 1.8
59.5 42.4 1.9
2.8 39.2 2.0
11.1 30.9 2.0
16.0 25.9 1.9

14
42
42
84
84
168

8.3
15 | 28
3.19

21.0
15 | 142
20.94

04
80
0120

16^m 12 3.19
10 11 58.01
+ 05.18
+ 01
+ 78
65.97

16 12 20.94
10 17 15.65
+ 5.29
+ 2.8
6.07

6.97
5.97
2 | 12.04
6.02

Prod 13212 feet
6.02 at 10^m 13

Monday, March 9, 1914

Mindian Circle

Philip G. Kelly, Obs.

Feb 10.49

ψ Ursa maj
44° 57'

γ Urs Maj
33° 33'

10^L 4 31.0 37.2 8.2
34.5 33.9 8.4
38.1 30.3 8.4
41.6 26.9 8.5
45.1 23.4 8.5
53.6 14.6 8.2
58.9 9.8 8.7

$\frac{4.13}{15 \overline{) 32} 4.21$

10^L 5 4.21
10 4 53.38
+ 10.83
+ 02
+ 10.85
78

11.63

10^L 13 35.9 32.1 8.0
38.9 29.4 8.3
41.9 26.4 8.3
44.9 23.2 8.1
47.7 20.2 7.9
55.1 12.9 8.0
59.7 8.4 8.1

$\frac{4.12}{15 \overline{) 159} 3.06 4.06$

10 14 4.06
10 13 53.08
+ 10.98
- 08
+ 10.90
78

11.68

Frod 1327 is fast
11.65 at 11.8~

$\frac{8}{8} 0.64$

$\frac{69}{13} .027$

$\frac{25}{13} .075$

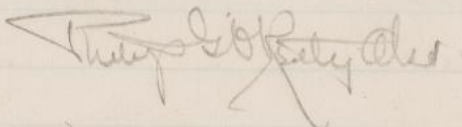
$\frac{63}{68} 21511 65$

Tuesday, March 10, 1914

Murder Circle. Ralph W. Gully Alas. Battle 1049

The carriage was accidentally tipped from track
and when replaced failed to get signals on
chronograph.

Wednesday, March 11, 1914

Mundana Circle  12 22
Total 11 57

20 Comae

21⁰ 21

P Comae

41° 48'

12^h 25^m 13.3 3.5 6.8

15.9 11 7.0

18.9 58.7 7.6

21.3 55.8 7.1

23.9 53.0 6.9

30.8 46.7 7.5

34.6 42.6 7.2

$$\begin{array}{r} 38.6 \\ 15 \overline{) 87} \\ \hline 38.58 \end{array}$$

$$\begin{array}{r} 55 \\ 9 \overline{) 4} \\ \hline .0495 \end{array}$$

$$\begin{array}{r} 55 \\ 3 \overline{) 16} \\ \hline .0165 \end{array}$$

12 25 38.58

$$\begin{array}{r} 12 25 \underline{26.58} \\ 12.06 \\ 5 \\ - .052 \\ + 78 \\ \hline 12.88 \\ 7 \\ \hline 12.05 \\ - .02 \\ + 78 \\ \hline 12.81 \end{array}$$

$$\begin{array}{r} 1334 \\ 1488 \\ \hline 26.26 \\ 13.13 \end{array}$$

$$\begin{array}{r} 1281 \\ 1339 \\ \hline 26.20 \end{array}$$

$$\begin{array}{r} 78 \\ 39 \\ \hline 2117 \\ 58 \end{array}$$

12^h 29^m 23.0 25.7 8.7

26.2 22.7 8.9

29.5 19.3 8.6

32.8 15.9 8.7

36.1 12.4 8.5

44.3 4.3 8.6

49.2 59.3 8.5

$$\begin{array}{r} 54.4 \\ 15 \overline{) 49} \\ \hline 54.32 \end{array}$$

12 29 54.32

$$\begin{array}{r} 12 29 \underline{42.71} \\ 12.61 \\ + 1.78 \\ \hline 13.39 \end{array}$$

Procl. 32 is at 13.13
at 12^h 26^m

Friday, March +20, 1914

Mundian Circle

Thrupp & Hellyer

Rattle $10^{\circ} 15'$
 $9^{\circ} 41'$

λ Ursae maj
 $43^{\circ} 20'$

μ Ursae maj
 $41^{\circ} 55'$

$10^{\circ} 11^{\circ} 44.3$ 48.9 3.2
 47.8 45.5 3.3
 51.2 42.2 3.4
 54.4 38.8 3.2
 57.9 35.2 3.1
 6.4 26.8 3.2
 11.4 21.6 3.0

16.9
 $15 \overline{) 9.3}$
 16.62

43.04
 $\underline{.09}$
 0.036

$10^{\circ} 12$ 16.62
 10 11 58.15
 $+ 18.47$
 $+ 7.8$
 $\hline 19.25$

$10^{\circ} 17$ $29.5.9$ 8.8
 6.1 2.5 8.6
 9.6 59.3 8.9
 12.9 56.0 8.9
 11.1 52.9 9.10
 24.1 44.1 8.2
 29.4 39.4 8.8

34.6
 $15 \overline{) 5.8}$
 34.38

10 17 34.38
 10 17 15.81
 $+ 18.57$
 $+ 17.8$
 $\hline 19.35$

19.25

19.35

$2 \overline{) 38.60}$
 19.30

Fred. 1322 is fast
 19.30 at $10^{\circ} 14'$

Wednesday, April 1, 1914.

Level of Meridian Circle.

Probably clear no obs.

Zero East

Jul S, 59.0
 92.0
 58.5
 92.5
 Jul. N. 39.2
 73.9
 32.8
 68.8
~~56.7~~
 - 383.0

16 | 233.7 | 14.60
 16
 73
 64
 97
 96
 15

Zero West

18.3
 50.9
 22.1
 53.9
 35.9
 70.2
 46.9
 82.8
 383.0

14.60 1.35
 .06
 1.8760 10.80
 10.80
 2 | 1.1880
 .3940

3864
 3794
 150
 516.7
 383.0
 16 | 133.7 | 8.35
 128
 5.7
 4.8
 90

8.35
 .063
 .5010
 1.35
 25.50
 15030
 5010
 1676350

Monday April 13, 1914.

Meridian Circle

Philippus Pulley

Rat 11⁵

8 hours
20° 59'

11 hours 14^m
33° 33'

| | | | |
|--------------------------------|------|------|-----|
| 11 ^h 9 ^m | 46.4 | 36.9 | 3.3 |
| | 49.4 | 34.4 | 3.8 |
| | 52.0 | 31.8 | 3.8 |
| | 54.5 | 29.1 | 3.6 |
| | 57.5 | 26.6 | 4.1 |
| | 4.1 | 19.9 | 4.0 |
| | 8.6 | 15.8 | 3.8 |

| | | | |
|---------------------------------|------|------|-----|
| 11 ^h 14 ^m | 2.1 | 57.9 | 0.0 |
| | 5.0 | 55.6 | 0.6 |
| | 7.9 | 52.8 | 0.7 |
| | 10.9 | 49.3 | 0.2 |
| | 13.9 | 46.4 | 0.3 |
| | 21.4 | 39.2 | 0.6 |
| | 25.9 | 34.8 | 0.7 |

11.9
15 | 133
11.89

30.6
15 | 3.7
30.24

| | |
|--------------------|-------|
| 11 ^h 10 | 11.89 |
| 11 ^h 9 | 34.68 |
| + 0 | 37.21 |
| | - .05 |
| + .78 | |
| <hr/> | |
| | 37.94 |

| | |
|--------------------|-------|
| 11 ^h 14 | 30.24 |
| 11 ^h 13 | 53.05 |
| + 0 | 37.19 |
| | + .02 |
| | .78 |
| <hr/> | |
| | 37.95 |

53
9
477

53
3
0159

7 rod 1322 is feet
37.94 at
11^h 11^m

Tuesday April 1st 1914

Murder Circle

Chief of Police

Settle K¹

Shonis

20° 59

Y Uae May

33° 33

11^h 9^m 47.4 37.5 4.9
 50.0 34.9 4.9
 52.9 32.3 5.2
 55.3 29.7 5.0
 58.0 27.6 5.0
 4.4 20.6 5.0
 8.7 16.4 5.1

12.5
 15 | 76
 12.50

11^h 14^m 2.9 58.9 1.8
 85.9 56.1 2.0
 81.5 53.4 1.9
 11.9 50.5 2.4
 14.4 47.3 1.7
 22.1 39.4 1.5
 26.7 35.4 2.1

30.9
 15 | 143
 30.95

11 10 12.50
 11 9 34.67
 + 37.83
 - 0.5
 + 7.8
 38.56

39.01
 38.61

141

67
 56
 2 | 123
 61

11 14 30.95
 11 13 53.04
 37.91
 - 0.2
 + 7.8
 38.67

Find 13.22 is fast
 0 38.62 at
 1^h 12^m

Friday, May 15, 1914

Travel of Meridian Circle

Phot. G. H. Kelly obs. + Recd.

Zero East

Zero West

Telescope North

32.8

37.0

63.5

68.4

42.5

32.8

72.0

64.2

9.0

Tel. South 52.0

41.0

84.0

22.5

64.8

54.3

96.4

337.6

499.6

337.6

16 $\overline{) 162.0}$ (10,125

020

16

40

32

80

80

0

10.125

06.2

60.750

1.35

303750

182250

69750

82.01250

Use + .82 (to sec of) west end high.

Friday May 15, 1914

Journal of Mount Wilson Photographic work + records

| | Zero East | Zero West |
|---------|-------------|-------------|
| Tel. S. | 67.6 | 19.9 |
| | <u>99.4</u> | <u>51.2</u> |
| | 64.8 | 22.5 |
| | <u>96.4</u> | <u>54.3</u> |
| Tel. N. | 34.8 | |
| | 66.2 | |

9/30

99

Monday June 1, 1914

Mendham Circle. Philip S. O'Gally Obs. Kettle 1559

~~5 Hercules~~~~42° 36'~~ μ Bootes

37° 40'

~~7 Hercules~~~~39° 4'~~ β Coron bor.

29° 23'

15 22 3.6 2.9 6.5

7.0 59.9 6.9

9.9 56.9 6.8

13.0 53.9 6.9

16.3 50.6 6.9

24.0 42.9 6.9

28.8 38.1 6.9

15 25 9.0 2.7 1.7

11.7 59.9 1.6

14.6 57.1 1.7

17.5 54.3 1.8

20.1 51.5 1.6

27.5 44.1 1.6

31.6 39.9 1.5

$$\begin{array}{r} 14 \\ 29.3 \\ \hline 012.6 \end{array}$$

$$\begin{array}{r} 14 \\ 09 \\ \hline 614.2 \end{array}$$

$$\begin{array}{r} 35 \\ 010.5 \end{array}$$

$$\begin{array}{r} 33.4 \\ 15 \overline{) 62} \quad 33.41 \\ \underline{60} \\ 2 \end{array}$$

$$\begin{array}{r} 357 \\ 15 \overline{) 122} \quad 35.81 \\ \underline{120} \\ 20 \end{array}$$

15 22 33.41

15 21 17.49

1 15.92

- 00

+ 78

16.70

15 25 35.81

15 24 19.90

1 15.91

- 01

+ 78

1 16.68

From 1327 is first

R 16.68 at

15 23 S.T.

Tuesday June 2, 194

Mundian Air Temp 50° F at 15^h 14

u Bootes
487° 40

Bowen.
29° 23'

15^h 22^m 5.3 4.2 9.5
8.3 1.4 9.7
11.5 58.1 9.6
14.3 55.0 9.3
17.6 51.8 9.4
25.3 44.2 9.5
30.2 39.8 9.5

34.8
15 | 11 3 | 34.75
10 5
80

15^h 25^m 10.3 3.9 4.2
13.1 1.3 4.4
15.8 58.4 4.2
18.8 55.5 4.3
21.6 52.6 4.2
28.6 45.4 4.0
32.9 41.3 4.12

37.3
15 | 18 | 37.12
15
30

15^h 22^m 34.75
15^h 21^m 17.49
+ 1 17.26
+ 78
1 17.94

94
99
2 | 19.3
96

15^h 25^m 37.12
15^h 24^m 19.90
+ 1 17.22
- 01
+ 78
+ 1 17.99

7 mod 1327 1/2 feet
17.96 S.T.

Wednesday, June 10, 1914

Mundana Circle Theophylus Allen Rattle 15¹⁶

u Bootis

37° 40

β Coronae

29° 23'

| | | | | |
|----|----|------|--------------------|-----|
| 15 | 22 | 12.9 | 11.8 | 4.7 |
| | | 16.0 | 8.9 | 4.9 |
| | | 19.3 | 5.9 | 5.2 |
| | | 22.1 | 5.8 2.7 | 4.8 |
| | | 25.4 | 0.5 | 5.5 |
| | | 33.0 | 51.9 | 4.9 |
| | | 37.9 | 47.0 | 4.9 |

42.2
 15 | 71 | 42.47
 60
 1.10

| | | |
|-----------------|-----------------|---------------|
| 15 ^L | 22 ^m | 42.47 (Clock) |
| 15 | 21 | 17.47 (Star) |
| | 1 | 25.00 |
| | | + 78 |
| | 1 | 25.78 |

78
 73
 15
 71

| | | | | |
|----|----|------|------|-----|
| 15 | 25 | 18.0 | 11.8 | 9.8 |
| | | 20.9 | 8.9 | 9.8 |
| | | 23.6 | 6.0 | 9.6 |
| | | 26.4 | 3.3 | 9.7 |
| | | 29.5 | 0.5 | 0.0 |
| | | 36.4 | 53.2 | 9.6 |
| | | 48.5 | 49.0 | 9.5 |

44.9
 15 | 12.9 | 44.86
 12.0
 90
 90

| | | |
|----|----|-------|
| 15 | 25 | 44.86 |
| 15 | 24 | 19.90 |
| | 1 | 24.96 |
| | | - 01 |
| | | + 7.8 |
| | 1 | 25.73 |

Find 1327 is just
 1^m 25.75²

Monday, June 22, 1914.

Level of Meridian Circle.

Philip S. Offidly also,

Zero East

Zero West

Telescope

Tuesday July 28, 1914

Removed $\frac{1}{2}$ ³ grams from #1327 $\text{Pod} = 28$.

