

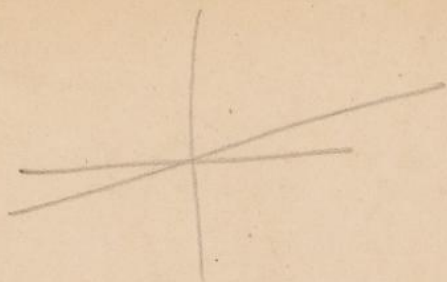
KG  
11366  
v.533

*Zone  
Chronograph  
Record.*

*A<sub>5</sub>.*

*Circle Readings  
From May 25 1871 to July 3.*

1971phae, pr01, 1537R



$$\text{Red} = (T_m - T_r) 15 \cos \delta \tan \delta$$

$$= .11804 \cos \delta \log(T_m - T_r)$$

$$\text{Red to Merid} = 6.73672 \sin \delta \cos \delta \log(T_m - T_r)^2$$

Reduction is (applied to circle reading)

Between Pole and Eq. +

Between Eq and South Hor. —

Between zenith and Pole +

Between pole and North Hor. —

The stone is for  $\delta = 50^\circ$

For  $4^\circ 37'$

$$\text{Red. to Hor. line} = .08324 \cos \delta \log(T_m - T_r)$$

$$\text{Red. to meridian} = 6.73672 \sin \delta \cos \delta \log(T_m - T_r)$$

Refraction

$$R_p = \log a' + \delta' \log B + \delta' \log \gamma + \log \tan z$$









Date. *May 25 1871*  
First minute-break. *May 29*  
c, set at. *35.052*

| N. Coll.    | S. Coll. |
|-------------|----------|
| 35076       | 35021    |
| 78          | 026      |
| 90          | 014      |
| 88          | 028      |
| 80          | 630      |
| Sum 432     | 11940    |
| Mean. 35086 | 350240   |

*New Wins*  
*35086*  
*35024*  
*110*  
*35052*

| a.     | s. | Mag.          | REMARKS. |
|--------|----|---------------|----------|
| 125002 | 75 | 53.263        | 8.0      |
|        |    |               | 9.0      |
| 5203   | 88 | " 49          | 8.7      |
| 5327   | 90 | " 41.6        | 8.8      |
|        |    |               | 8.8      |
| 5526   | 70 | " 13.8        | 7.0      |
|        |    |               | 7.0      |
| 5657   | 86 | " 54          | 9.0      |
|        |    |               | 8.7      |
| 5846   | 88 | " 8.5         | 8.7      |
|        |    |               | 8.2      |
| 13015  | 85 | " 9.8         | 8.5      |
|        |    |               | 8.5      |
| 123    | 88 | " 37.2        | 8.3      |
|        |    |               | 8.8      |
| 235    | 90 | <u>51.354</u> | 9.3      |
|        |    |               | 9.1      |
| 457    | 86 | <u>52.76</u>  | 8.7      |
|        |    | (52.347)      | 7.5      |

*✓ full*  
*WMO*  
*USAR Rec*

Runs.

Sum

Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

5-5 0 53.3 55.0

~~50~~ 2

15 1 53.3 55.0

(157-3)

W+R 04  
Am Rev

40 0 29.5 31.2

40 0 31.1 30.3

5 2 50.2 52.7

5 2 40.0 39.8

15 0 58.0 61.1

15 0 59.3 58.7

10 2 51.3 64.0

10 2 44.8 45.1

10 1 31.0 33.8

10 1 28.9 28.8

40 4 15.6 18.4

40 4 17.5 17.2

45 0 50.0 50.2

45 0 45.1 42.9

10 4 18.9 20.4

10 4 9.8 10.3

Date.

First minute-break.

Set at.

May 25 1871  
May 29

Sum  
Mean.

| N. Coll. | S. Coll. |
|----------|----------|
| 35.017   | 35.065   |
| 624      | 080      |
| 028      | 070      |
| 070      | 070      |
| 022      | 060      |
| 108      | 318      |
| 35.022   | 35.096   |
|          | 35.022   |

May 25  
2nd reading  
076  
048

a.

δ.

Mag.

REMARKS.

13 07 23 71.52 34.8 7.0  
6.8

9 07 82.53 39.7 8.7  
8.7

11 48 9.35 6.8 8.8  
9.0

14 45 9.0 .. 39.0 9.0  
8.8

15 39 8.0 .. 22.7 7.2  
8.5

17 42 8.45 22.9 8.0  
8.7

19 50 8.55 0.4 8.0  
8.7

22 53 6.3 53 24.4 6.0  
6.8

24 13 7.8 .. 51.6 7.0  
7.7

26 13 8.7 .. 49.0 8.0  
9.0

(54, 35.7)

✓ fuel lost - a

✓ fuel

fuel #1

Runs.

Sum  
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

45 1 371 368

45 1 488 488

# 40 1 80 88

40 1 4.7 3.9

10 4 112 116

10 4 3.1 4.0

40 2 550 552

40 2 19.1 19.2

55 4 30 32

55 3 329 33.2 lost first W

55 2 300 331

55 2 249 262

20 3 168 197

20 3 13.5 14.0

55 1 480 506

55 1 39.0 39.4

30 1 20 101

30 0 3.2 2.9

30 1 431 450

30 1 288 283 fader str after 5

Date.

First minute-break.

C. set at.

May 25/47  
May 29

| N. Coll.     | S. Coll. |
|--------------|----------|
| 34.986       | 35.135   |
| 4.955        | 103      |
| 5.017        | 125      |
| 5.71         | 130      |
| 7.68         | 136      |
| Sum 45.81    | 177      |
| Mean. 34.986 | 35.136   |

May 29

104

| $\alpha$ .          | $\delta$ . | Mag.  | REMARKS.      |
|---------------------|------------|-------|---------------|
| 13 27 35 88 54 31.1 |            | 7.2   |               |
|                     |            | 6.8   |               |
| 29 09 12 52 35.5    |            | 8.7   |               |
|                     |            | 8.9   |               |
| 30 40 83 53 21.8    |            | 8.8   |               |
|                     |            | 8.9   |               |
| 81 32 7.2 " 20.6    |            | 7.0   | 22            |
|                     |            | 6.5   |               |
| 32 11 7.6 " 13.8    |            | 6.8   |               |
|                     |            | 7.0   |               |
| 84 34 - " 33.6      |            | 6.0   |               |
|                     |            | 6.3   |               |
| 35 34 9.3 " 24.0    |            | 7.5   | fol # (93 m)  |
|                     |            | 7.7   |               |
| 36 58 8.9 " 4.4     |            | 9.0   |               |
|                     |            | 9.0   |               |
| 39 23 8.5 54 17.7   |            | 8.5   | changed sheet |
|                     |            |       | seen          |
| 41 20 9.4 55 01.7   |            | 9.3   |               |
|                     |            | 9.6   |               |
|                     |            | 53-14 |               |

Runs.

Sum  
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

40 3 57.9 60.4

40 3 57.9 57.4

40 4 15.0 16.9

40 4 5.1 4.8

55 3 8.6 10.2

53- 3 6.1 6.8

6 0 55.4 58.0

0 0 57.3 58.1

5 1 48.0 50.2

5- 1 57.8 56.8

45- 2 14.9 17.2

45- 2 5.8 5.1

55 1 13.0 15.0

55- 1 10.8 10.7

15 2 7.2 8.9

15- 2 1.3 59.4

~~20 0 4.6 3.8~~

0 4 11.4 11.8

20 0 1.6 3.8

15- 3 56.8 58.2

5 fold lost for 2 w

Date.

First minute-break.

Set at.

May 25 1871  
May 29

Sum  
Mean.

| N. Coll. | S. Coll. |
|----------|----------|
|          |          |
|          |          |
|          |          |

| a.               | d.                     | Mag.           | REMARKS.                |
|------------------|------------------------|----------------|-------------------------|
| 13 43 16         | 88 53 -13              | 9.0            |                         |
|                  |                        | 9.0            |                         |
| 44 56            | 8.0 " 14.5             | 9.2            | 5 fac                   |
|                  |                        | 9.2            |                         |
| 46 10            | 7.5 " 54.8             | 7.0            |                         |
|                  |                        | 6.8            |                         |
| 47 02            | 7.2 " 28.3             | 7.8            |                         |
|                  |                        | 7.8            |                         |
| 48 32            | 6.3 " -2.8             | 7.5            |                         |
|                  |                        | 7.5            |                         |
| <del>51 08</del> | <del>9.3 " 12.1</del>  | <del>9.5</del> |                         |
| 49 47            | 9.3 51 56.0            | 9.4            |                         |
| 51 08            | 9.3 53 12.1            | 9.8            | Not seen                |
| <del>52 41</del> | <del>8.4 52 37.0</del> | <del>7.8</del> |                         |
| 54 94            | 7.3 53 43.7            | 7.8            | 10.3 double 4a 0.7 485" |
| 55 23            | 8.8 53 33.1            | 9.0            | Not seen                |
| 57 26            | 9.1 54 48              | 9.0            |                         |
|                  |                        | 9.0            |                         |
|                  | 54 57.0                |                |                         |

Runs.

Sum  
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

20 3 220 239

20 3 32.3 31.9

0 4 45.9 47.9

0 4 12.8 12.8

25 1 2.2 4.0

25 1 4.8 7.7

50 2 57.2 60.9

50 3 13.7 14.8

20 4 9.7 12.1

20 4 11.8 11.1

25 0 12.7 13.6

25 0 18.9 17.2

5 4 19.5 17.8

35 2 41.9 42.8

45 3 30.9 30.3

15 0 42.7 44.1

15 0 34.3 34.8

Date.

First minute-break.

c, set at.

May 25 1871  
1871 May 29

Sum  
Mean.

N. Coll.

S. Coll.

a.

δ.

Mag.

REMARKS.

1358 41 54 57 Nebula Not seen  
not seen

59 51 77 53 17 7.2  
7.8

142 09 70 53 55.0 7.5  
7.0

4 45 88 54 30.0 8.8  
9.0

6 10 80 54 10 8.7 M.H  
7.8

7 09 93 53 62 9.5  
9.8

8 24 88 " 106 8.8  
8.7

10 50 70 " 74 6.8  
6.5

11 45 87 " 317 8.7 220  
8.7

12 20 75 " 517 8.0 5 fol

Runs.

|       | A.    | C.    |
|-------|-------|-------|
| 168   | 174   | 238   |
| 158   | 167   | 237   |
| 167   | 192   | 230   |
| 162   | 198   | 231   |
| 161   | 173   | 230   |
| Sum   | 316   | 364   |
| Mean. | 163.2 | 172.6 |

0 16.82  
 5 17.28  
 800.96  
 10.19  
 -19

Pointer. Stroke. Rev. A. C. REMARKS.

15- 4 39.1 42.0

15- 4 33.1 32.0

25- 1 13.6 15.6

25- 0 58.3 59.4

50 1 33.2 36.6

50 1 40.3 39.8

20 2 57.4 60.2

20 3 1.9 1.3

15 0 18.9 23.6

15- 0 23.6 21.2

0 2 7.9 10.2

0 2 4.8 5.1

10 3 80.3 35.0

10 3 33.6 32.2

45 4 34.0 37.0

45- 4 38.8 38.8

30 0 29.6 40.4

30 0 22.8 23.1

Rej. to. began

a. x 5 distance 1 mm

ate.

first minute-break.

set at.

May 25 1871

Sum  
Mean.

N. Coll.

S. Coll.

a.

δ.

Mag.

REMARKS.

14 14 17 8.5 43.20 7.5 222  
8.0

15 04 8.5 53-0.8 8.8  
8.9

16 30 8.5 52 11.0

9.3

fol # ✓ fol

18 04 9.3 51 53.0 9.5  
9.6

20 40 9.0 53 8.9 8.9  
8.7

22 14 8.4 " 11.6 8.0  
8.3

23 18 8.7 " 10.7 8.7 222  
8.6

24 03 9.1 " 2.1 7.0  
9.2

26 25 9.5 51 22.0 9.6

Seems faint to des.

29 23 7.3 53 26.5 7.5  
6.9

Runs.

Sum  
Mean.

A.

C.

|      |      |      |      |
|------|------|------|------|
| 42.6 | 45.2 | 53.1 | 53.9 |
| 42.6 | 43.8 | 53.1 | 54.1 |
| 42.4 | 45.1 | 52.3 | 53.8 |
| 42.7 | 44.4 | 52.7 | 53.3 |
| 42.4 | 43.8 | 53.1 | 53.7 |

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

|    |   |     |    |
|----|---|-----|----|
| 40 | 4 | 1,3 | 46 |
|----|---|-----|----|

|    |   |      |      |
|----|---|------|------|
| 45 | 0 | 32.3 | 34.9 |
|----|---|------|------|

|    |   |    |    |
|----|---|----|----|
| 15 | 2 | 57 | 71 |
|----|---|----|----|

|     |    |   |      |      |
|-----|----|---|------|------|
| Sum | 20 | 2 | 16.1 | 15.4 |
|-----|----|---|------|------|

|   |   |     |     |
|---|---|-----|-----|
| 5 | 1 | 274 | 302 |
|---|---|-----|-----|

|     |    |   |      |      |
|-----|----|---|------|------|
| Sum | 10 | 1 | 15.1 | 14.3 |
|-----|----|---|------|------|

|    |   |     |     |
|----|---|-----|-----|
| 25 | 3 | 287 | 316 |
|----|---|-----|-----|

|    |   |      |      |
|----|---|------|------|
| 25 | 3 | 38.0 | 36.7 |
|----|---|------|------|

|    |   |     |     |
|----|---|-----|-----|
| 40 | 2 | 222 | 238 |
|----|---|-----|-----|

|    |   |      |      |
|----|---|------|------|
| 40 | 2 | 10.0 | 10.8 |
|----|---|------|------|

|   |   |     |     |
|---|---|-----|-----|
| 5 | 4 | 248 | 279 |
|---|---|-----|-----|

|   |   |      |     |
|---|---|------|-----|
| 5 | 4 | 10.3 | 9.1 |
|---|---|------|-----|

|    |   |      |      |
|----|---|------|------|
| 10 | 0 | 37.6 | 40.9 |
|----|---|------|------|

|    |   |      |      |
|----|---|------|------|
| 10 | 0 | 28.3 | 27.7 |
|----|---|------|------|

|   |   |      |      |
|---|---|------|------|
| 8 | 0 | 55.1 | 58.8 |
|---|---|------|------|

|   |   |      |      |
|---|---|------|------|
| 0 | 0 | 58.9 | 58.0 |
|---|---|------|------|

|    |   |      |      |
|----|---|------|------|
| 55 | 4 | 34.4 | 34.3 |
|----|---|------|------|

|    |   |      |      |
|----|---|------|------|
| 50 | 3 | 46.6 | 50.7 |
|----|---|------|------|

|    |   |      |      |
|----|---|------|------|
| 50 | 3 | 39.2 | 39.5 |
|----|---|------|------|

ate.

first minute-break.

set at. 35.070

June 3/1871  
1871 June 5

Sum  
Mean.

| N. Coll.    | S. Coll.    |
|-------------|-------------|
| 35.070      | 35.070      |
| Sum 35.070  | Sum 35.070  |
| Mean 35.070 | Mean 35.070 |

May 30

| a.       | δ. | Mag.   | REMARKS. |
|----------|----|--------|----------|
| 13 15 00 | 87 | 67° 6' | not seen |
| 17 58    | 86 | 4      | 4m obs.  |
| 19 23    | 87 | 49     | MR see.  |
| 19 37    | 88 | 48     |          |
| 20 57    | 90 | 17     |          |
| 22 44    | 88 | 6      |          |
| 23 30    | 67 | 24     |          |
| 25 44    | 92 | 17     |          |
| 28 16    | 83 | 48     |          |
| 29 12    | 88 | 52 35  | up       |

51 56

Runs.

Sum  
Mean.

| A.   |      | C.  |     |
|------|------|-----|-----|
| 158  | 214  | 254 | 307 |
| 198  | 202  | 258 | 298 |
| 196  | 209  | 299 | 292 |
| 198  | 209  | 299 | 304 |
| 200  | 204  | 287 | 300 |
| 570  | 48   |     |     |
| 1980 | 2096 |     |     |

June 5

D 5-  
50.9

B

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

15 1 58.0 58.8

15 1 57.6 55.2

30 3 80 88

30 3 30.8 33.8

30 3 47.2 47.8

30 4 46.9 50.7

0 3 51.8 53.8

0 4 28.6 29.8 lost pointer

10 4 48.4 46.5

10 4 40.8 42.6

55 3 47.8 49.8

55 3 51.8 53.8 last 3 hr quick

0 4 24.9 24.4

0 4 16.8 19.0

30 4 42.9 44.9

40 4 50.1 51.4

date.

first minute-break.

set at.

June 3 1871

1871 June 5

43,550

Sum

Mean.

N. Coll.

S. Coll.

43636

43523

661

520

622

528

644

520

622

528

43628

43552

a.

δ.

Mag.

REMARKS.

13 31 30 13 51 56 7.9

32 36 6.5 " 21 6.5

double. fainter fol  
Δ a<sub>0</sub> 5' at 51"

33 36 9.4 62 14 9.5  
10.4

Cont arch

35 38 8.7 51 28 8.5  
8.5

36 53 9.0 " 34 8.7  
8.7

fol #

38 15 9.3 " 13 9.2  
9.3

39 03 9.0 " 51 9.0  
9.2

41 19 { 9.4 55 02 9.2  
9.4

41 52 { 6.8 55 04 6.5  
6.4

43 25 9.5 54 59 10.5 not seen

54 59

Runs.

Sum  
Mean.

| A.   |      | C.   |      |
|------|------|------|------|
| 27.9 | 28.1 | 35.0 | 36.2 |
| 27.4 | 28.5 | 35.6 | 36.8 |
| 27.2 | 28.3 | 35.6 | 32.5 |
| 27.5 | 28.1 | 35.0 | 36.9 |
| 27.0 | 28.7 | 34.9 | 37.9 |
|      |      |      | 37.9 |

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

200 4 57.9 58.6

55-4 58.1 59.7

5 2 7.8 6.8

5 1 56.8 57.9

52 4 33.9 37.1

50 4 52.2 54.8 5 two S two Loc

45 3 56.9 57.6

45 3 57.8 55.0

5 3 24.0 25.2

~~5 3 28.2 34.8~~

30 1 52.5 52.3

30 1 42.5 50.0 lost 1 wire

25 0 26.4 28.4 Ry' 1st bk for ✓

Sun 20 0 18.1 21.0

15 2 35.9 39.2

15 2 50.2 54.8

20 2 42.3 45.2

Date.

First minute-break.

c, set at.

Jan 3 1871  
1871 June 5  
43.594

Sum  
Mean.

| N. Coll. | S. Coll. |
|----------|----------|
| 43.508   | 47.615   |
| 530      | 621      |
| 531      | 641      |
| 533      | 660      |
| 537      | 671      |
| Sum      | 42504    |
| Mean.    | 42655    |

a.

s.

Mag.

REMARKS.

1344 53 86 54 59 8.7  
8.7

46 09 90 51 23 88  
9.2

47 25 85 51-24 8.7  
9.0

48 45 85 51 48 8.8  
8.8

50 41 80 " 50 8.4  
8.4

52 17 83 " 10 8.0  
8.6

54 30 86 " 22 8.7  
8.6

55 25 88 52 40 9.0  
9.0

57 17 95 52 32 9.5  
10.0

58 15 60 51 35 6.5  
6.0

" 7

cm 6 \* = 1349

new sheet

1 ml 135-4

Z = 13 5.5

Another of 13 59

5 ful

Runs.

Sum  
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

20 2 32.8 36.8

20 2 31.8 35.0

6-5 3 34.7 31.8

55 3 32.9 35.6

20 4 51.9 54.0

20 4 47.4 50.0

30 3 51.3 55.4

30 3 38.7 41.0

30 1 29 41

36 1 17.6 19.2

10 2 2.6 2.6

10 1 53.8 57.2

0 0 33.0 34.1

0 0 30.3 33.8

40 0 54.7 40.3

40 0 53.2 56.0

10 0 13.3 14.8

Sure 50 0 3.2 4.8

45 2 89 92

45 1 34.8 36.0

Date.

First minute-break.

c, set at.

Jan 3/87/

1871 June 5

Sum

Mean.

N. Coll.

S. Coll.

a.

s.

Mag.

REMARKS.

14 0130 85 67 7

Not seen  
~~Mag clouds~~2 25 80 52 49 80  
8.0

Full Moon

4 08 83 51 14  
8.8

Full

5 39 94 41 9.1

clouds passed

7 00 89 50 22 9.5  
9.4  
9.2 88

double, both.

8 18 95 57 19 70  
7.810 00 90 51 21 9.4  
9.211 07 82 51 35 7.2  
7.912 29 85 51 35 80  
8.214 20 94 51 53 9.3  
9.2

82 17

Runs.

Sum  
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

*not sum*

30 31 73 92

30 2 35.3 38.1

5 3 23.2 24.7

5 2 46.0 48.7

40 0 203 191

40 0 41.9 45.2

*5 full*

55- 4 50.0 53.0

55- 4 44.1 47.1

0 3 10.2 10.2

0 2 57.0 59.8

55- 4 53.0 55.4

55- 4 42.2 44.3

45 1 46.0 46.1

45- 1 37.0 38.9

45 1 40.4 44.4

45 1 37.0 38.9

25 4 7.0 8.2

25 4 1.1 2.6

Date.

First minute-break.

c, set at.

Jan 3 1871

1871 June 5

Sum

Mean.

N. Coll.

S. Coll.

$\alpha$ .

$\delta$ .

Mag.

REMARKS.

14 15 57 85 52 17 88 9.0 double both  
88 9.0

17 31 82 51 42 8.2 22  
8.3

18 02 93 51 53 9.0 5 fr.  
9.2

20 34 79 51 31 8.5  
8.0

22 18 90 51 19 9.0 9.4 brn 1st # fal  
9.0 7.2

23 14 95 52 38

25 01 90 50 47 9.0  
9.4

27 20 80 50 9 8.4  
8.3

29 17 90 51 30 8.9  
10.0

30 45 87 51 33 9.1 9.4 Brn 1st # fal  
8.8 8.6

51 50

Runs.

Sum  
Mean.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

5-1 17 19

5 1 14.8 16.8

110 1189 203

14 13.8 14.3

40 0 100 14.2  
0.17 1 100 0.17

25 4 249 268

25-4 2.2-5.1

50 0 434 424

30 0 31 = 36.9

1790 38

|   |   |   |   |   |
|---|---|---|---|---|
| 0 | 2 | 5 | 7 | 9 |
| 0 | 2 | 5 | 0 | 4 |

0 L 11.8 13.8

~~0 3 42 2 4 4 8~~

21-1-17-02

|    |   |      |      |
|----|---|------|------|
| 33 | 0 | -0.1 | -0.1 |
| 34 | 0 | -0.1 | -0.1 |

30 4 363-610

|    |   |      |     |
|----|---|------|-----|
| 10 | 2 | 46,3 | 482 |
|----|---|------|-----|

10 2 39.842.1

|     |   |     |     |
|-----|---|-----|-----|
| 150 | 9 | 163 | 178 |
|-----|---|-----|-----|

50 2 10 11 12

50 1. 500 393

41- 8 378 613  
3 484 499

y, Harvard-Smithsonian Center for Astrophysic

5/10 cont - <sup>pre</sup> ~~pal~~

~~Cost of first~~  
first price

not old

date.

June 8 1871

first minute-break.

7841 June 5

c, set at.

Sum

Mean.

N. Coll.

S. Coll.

α.

δ.

Mag.

REMARKS.

14 32 08 72 57 50 7.3  
8.0

34 11 88 51 39 8.9  
8.9

35 16 81 51 34 8.3  
8.5

36 12 89 51 31 9.0  
9.5

37 51 70 52 33 7.8  
7.8

39 36 86 51 9 8.5  
8.9

42 13 70 51-4 7.0  
7.5

43 26 85 51-2 9.3

45 24 63 51 55 6.8  
6.4  
10.5

46 28 88 51 50 8.8  
9.0

Sig = 16 revs

Red, lost flying clouds.

not sun clouds.

comp. for 3<sup>rd</sup> R.A. after  
corr

Runs.

Sum  
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

30 3 6.1 6.4

30 3 3.1 5.1

40 3 16.2 17.0

40 3 2.7 6.4

45 3 34.3 35.6

45 3 28.1 27.0

50 0 27.2 27.8

50 0 28.0 29.6

45 3 50.4 52.3

45 3 51.3 54.0

10 2 30.5 31.6

10 2 21.2 23.1

25 0 55.0 54.8

25 1 44.3 47.3

9

20 1 31.3 35.2

25 2 35.6 37.6

25 2 24.1 28.0

30 1 45.0 46.3

30 1 54.3 ~~55.6~~double comp 9.2  
long str for 5 f \*

Date.

June 3 1871

First minute-break.

7871 June 5

c, set at.

Sum

Mean.

N. Coll.

S. Coll.

a.

δ.

Mag.

REMARKS.

14 48 54 88 51 10 8.7  
8.4

50 33 88 51 09 9.0 9.2 double 5 fm cont # 102  
9.2 9.5

51 37 87 50 37 8.3  
8.4

53 22 81 51 22 8.8 cont a de  
8.4

54 59 90 51 27 8.7 prot-sun clouds  
8.4

56 27 73 51 5 7.8  
6.8

57 54 89 51 10 8.9 fine #  
8.5

59 15 88 52 40 8.6  
8.5

15 1 14 88 52 31 9.0  
8.6

2 44 83 52 47 8.4  
8.5

W = 2

Runs.

Sum  
Mean.

A.

C.

Seeing bad

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

10 2 55.6 55.1

10 1 49.3 52.1

10 2 30.6 31.8

10 2 19.0 22.2

40 3 39.7 41.1

40 3 37.0 40.1 1 win bad

55 4 56.0 57.2

55 4 47.4 50.7

~~15 1 47.9 58.1~~

15 1 47.9 58.1

15 1 32.3 41.1

10 2 36.8 37.8

10 2 22.6 25.0

40 3 33.5 31.7

40 3 28.3 31.8

50 1 4.0 4.8

50 0 57.7 60.3

35 0 13.0 14.0

35 0 12.8 16.0

LA Mides  
YKKR Rec  
WA Obs  
4th Rec

Date.

June 6 1871

First minute-break.

1871 June 12

Set at.

435-96

Sum

Mean.

N. Coll.

S. Coll.

a.

δ.

Mag.

REMARKS.

13 59 14 85 52 04 8.5

sm dus  
471 Ruc

~~14 0 52 89 51 57 8.5~~

14 0 52 89 51 57  
Re mlu

22 Not seen  
st pr.

2 25 80 52 49 8.7  
8.2

8 48 83 52 12 8.3  
8.4

5 26 77 " 50 7.5  
7.8

7 00 89 50 22 8.9  
8.55 4 9.5

8 55 45 52 22 9.0 double pr. = 8.0 both.  
6.5 7.0 5.8

11 24 90 52 40 9.1  
9.2

13 16 70 52 27 7.5 22  
6.8

14 03 73 52 38 7.6  
7.0

52 47

Runs.

| A.    |      | C.   |      |
|-------|------|------|------|
| 46.2  | 45.4 | 57.0 | 58.6 |
| 45.1  | 45.6 | 57.1 | 58.7 |
| 46.0  | 46.7 | 57.2 | 58.1 |
| 45.4  | 46.4 | 56.8 | 58.9 |
| 45.2  | 46.7 | 57.5 | 59.2 |
| Sum   |      |      |      |
| Mean. |      |      |      |

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

20 2 28.8 32.3

15 1 12.1 12.8

30 2 27.2 31.5

30 1 2.9 4.7

5 4 44.9 48.0

5 3 24.8 26.1

30 0 36.6 38.0

30 0 0.2 3.9 5 fol

55 4 39.0 45.0

55 3 16.8 19.8

55 3 21.4 24.3 F 62. leaf a

55 2 4.2 5.1

40 1 49.0 52.8

40 0 14.9 17.2

50 4 57.0 61.3

50 5 38.2 41.7

40 4 29.3 34.1

40 3 56.2 59.0 5 fol

1871phae.pro.1537R

Date.

June 6 1871

Fast minute-break.

7871 June 12

c, set at.

42.351

Sum

Mean.

N. Coll.

S. Coll.

42.351

42.326

.386

.322

.386

.320

.383

.321

.370

.321

.10

42.380

42.322

a.

δ.

Mag.

REMARKS.

14 15 59 80 52 47

7.5

7.7

19 50 92 52 1

9.0

8.9

20 52 40 52 27

2 # 8 Bores

23 09 93 52 44

9.2

9.5

26 26 89 54 01

9.0

9.4

14 28 14 7 60 47

30 28 85 52 37

8.5

8.7

33 33 75 52 35

8.5

8.0

34 08 85 52 21

7.0

8.7

not seen

36 53 68 52 48

6.7

22

not seen

37 22 72 52 56

8.0

9.0

dunk

52 28

9.0

4a 12

Runs.

Sum  
Mean.

| A.  |     | C.  |     |
|-----|-----|-----|-----|
| 266 | 278 | 378 | 380 |
| 260 | 270 | 373 | 380 |
| 258 | 272 | 370 | 378 |
| 258 | 268 | 372 | 378 |
| 263 | 270 | 372 | 383 |

| B   |     | D   |     |
|-----|-----|-----|-----|
| 253 | 261 | 503 | 493 |
| 256 | 263 | 502 | 494 |
| 252 | 271 | 510 | 494 |
| 261 | 272 | 493 | 482 |
| 264 | 272 | 503 | 486 |

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

35 1 87 121

30 4 51.2 53.3

20 0 70 89

15 3 38.1 39.2

~~35 2 40.6 44.1~~ Seen bulh, B12

35 2 40.6 44.1

35 2 7.1 10.1 5 fol

20 1 14.2 18.0

15 4 53.2 56.9

45 0 37.6 39.9

~~30 4 13.3 15.7~~

45 1 48.4 43.5

45 0 10.3 12.3

0 0 5.2 8.2 8 fol

30 3 11.2 12.8

15 3 57.2 60.9

20 4 57.3 40.0 8 fol

1871pbae.pro.1537R

Date.

First minute-break.

Set at.

June 6 1871

1871 June 12

N. Coll.

S. Coll.

Sum

Mean.

a.

δ.

Mag.

REMARKS.

14 39 13 80 52 28 8.2 Not seen

41 48 84 52 10 8.2

44 19 89 51 59 8.0  
8.7

46 39 81 52 03 7.0  
7.5

47 35 91 52 54 8.8  
9.1

50 06 86 52 49 9.3 double aa 1.5 Δ 5 10 mag  
9.3 Δa 0.4 Δ 5 2"

52 07 60 50 08 6.0  
5.5

53 40 90 59 06 9.0  
9.3

54 25 86 52 42 8.8

55 28 99 52 23.0

02 54

Runs.

Sum  
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

50 3 3.3 2.9

10 0 30.8 33.7

20 3 5.7 8.9

20 1 45.2 45.9

15 3 16.3 20.0

15 1 55.2 59.3

25 2 56.1 58.8

25 2 25.2 28.1

30 2 45.9 48.8

30 1 28.2 31.6

10 2 8.7 4.2

10 1 11.2 13.3

15 0 12.0 15.1

10 3 49.8 52.3

40 0 8.6 11.6

35 4 37.2 40.3

Date.

First minute-break.

set at.

June 6 1871

1871 June 12

Sum  
Mean.

N. Coll.

S. Coll.

a.

δ.

Mag.

REMARKS.

145657 88 52 54 83

8.8

58 34 7.3 52 08

9.5

220 9.5 faint. broken

59 15 88 52 40

7.0

5 fac

lost

150114 88 52 31 88

8.6

2 44 83 52 47 86

8.4

3 48 9.0 52 41 89

9.0

4 43 9.3 52 52 92

—

5 47 8.3 52 10 83

8.7

7 49 9.0 52 05 90

8.9

11 22 8.7 51 56 8.7 22

8.12

52 51

Runs.

Sum  
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

25 2 318 353

25 1 33.8 58.8

15 0 301 332 no 5 for 6.8

10 3 5.8 8.0

90 4 0.7 3.0

50 1 1.6 5.7

45 4 40.9 42.9

35 0 120 169

30 3 44.2 47.6

40 1 384 421

40 0 14.4 15.2

25 4 438 488

25 4 12.8 15.3 8 for

10 1 572 539

10 1 13.0 17.0 5 for last two

15 0 480 507

10 4 20.2 24.0

25 0 120 143

20 3 50.7 53.2

Date.

First minute-break.

set at.

June 6 1871

1871 June 12

Sum  
Mean.

N. Coll.

S. Coll.

a.

δ.

Mag.

REMARKS.

15 11 13 9.4 52 51 8.1 22  
9.4

12 02 87 52 44 9.0

14 20 82 52 05 8.5 Double 4a full 3'  
4.5 = 3.4 below, May 8.5  
7.8 May 10.5 10"

16 04 85 52 45 8.7 both very or der  
8.7 8.5-  
8.5-

17 45 70 52 49 8.5  
7.8

19 08 80 52 37 8.0  
8.4

21 03 82 52 08 8.5

not seen

22 47 70 52 30 6.8  
6.6

24 12 88 52 01 8.5  
8.3

26 17 82 53 32 8.9  
9.1

Amby  
"R" 20

Runs.

Sum  
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

30 1 322 361

5 fol

30 1 2.3 42

35 3 178 218

5 fol

15 1 499 532

15 0 248 260

35 2 61 53

35 2 47 89

?

35 3 36.4 38.4

35 3 47.5 51.8

30 3 14.5 16.1

5 fol

45 0 292 322

40 4 55.1 57.3

5 fol

10 4 45.2 50.1

50 2 56.2 60.0

W A R 61

50 0 32.1 36.0

A. M. Rec

20 0 291 322

15 4 8.2 11.1

50 0 45.8 50.0

1.2 3.1 5.8 1.5

45 4 16.1 19.2

date.  
first minute-break.  
set at.

June 14 1871

June 17 1871

42,340

| N. Coll.     | S. Coll. |
|--------------|----------|
| 42,343       | 42,336   |
| 332          | 341      |
| 332          | 341      |
| 328          | 342      |
| 331          | 361      |
| 166          | 231      |
| Mean. 42,333 | 346      |

42 333  
42 346  
79  
840

a. s. Mag. REMARKS.

14 22 26 84 50 59 84

8.5

Am. J. S.  
W. R. Rec.

24 14 58 50 25 65

6.0

W. R. Ols  
A. M. Rec

27 25 89 57 29 89

8.5

29 19 88 57 18 95

10.0

31 30 90 51 05 88

9.2

32 55 92 50 33 88

8.9

m.

34 25 89 51 53 86

9.0

36 53 68 52 48 70

7.0

2

37 51 70 52 33 72

8.0

40 13 93 50 59 93

7.4

1

51 20

Runs.

Sum  
Mean.

A.

C.

|      |      |      |      |
|------|------|------|------|
| 30.8 | 33.0 | 41.8 | 44.0 |
| 31.7 | 31.3 | 41.9 | 43.4 |
| 30.8 | 32.0 | 41.9 | 43.5 |
| 30.0 | 32.0 | 42.8 | 43.9 |
| 31.0 | 31.5 | 42.6 | 43.1 |

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

20 01 156 134

20 1 128 150

55 0 104 148

55 0 148 120

20 1 324 390

Sun 50 0 43.2 44.0

0 1 262 298

0 2 292 330

15 0 31.5 34.8

15 0 31.8 33.3

45 2 263 299

45 2 273 300

25 3 57.0 60.4

Sun 25 2 58.0 58.8

30 3 11.7 15.2

30 3 16.7 18.9

45 2 232 262

45 2 238 261

20 1 52.2 55.0

20 1 55.2 57.8

5fe

Date.

June 14 1891

First minute-break.

782 June 17

c, set at.

Sum  
Mean.

N. Coll.

S. Coll.

a.

δ.

Mag.

REMARKS.

144251 90 51 20 8.9

m.

8.5

4407 89 51 48 9.0

~~for change sheet~~

8.4

4628 88 51 50 8.9

4719 90 53 46 9.0

9.0

5008 89 53 54 8.6

8.6

5133 92 52 58 9.0

9.0

5349 85 52 27 8.6

8.2

5459 90 51 27

# ~~opposite~~ comes before  
not seen

5631 79 51 19 8.7

8.7

5807 89 51 10 8.9

5754

9.5

15212 92 51 55 9.0

89 25 9.4

Runs.

Sum  
Mean.

| A.  |     | C.  |     |
|-----|-----|-----|-----|
| 150 | 207 | 302 | 310 |
| 153 | 216 | 297 | 308 |
| 190 | 208 | 298 | 300 |
| 192 | 209 | 301 | 306 |
| 198 | 209 | 300 | 307 |

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

55 4 53.4 560

55 4 52.8 603

30 2 49.4 518

30 2 52.0 53.3

30 4 18.4 230

30 4 24.3 282

25 1 45.7 503

25 2 40.3 43.9

20 2 24.9 278

20 2 28.3 300

50 3 33.0 36.9

50 3 33.3 37.0

~~0 1 34.9 37.8~~

0 1 34.9 37.8

0 1 32.3 37.8

0 0 52.1 54.8

10 0 56.6 59.3

25 0 27.3 30.3

25 0 32.2 33.8

5 fol

Date.

June 14 1871

First minute-break.

7841 June 17

Sum

Mean.

N. Coll.

S. Coll.

$\alpha$ .

$\delta$ .

Mag.

REMARKS.

15 3 31 50 51 25 9.1

9.2

Suspected double  
" "

5 07 7.9 31 31 7.5

8.3

2e

6 01 9.5 51 36 9.3

9.5

5 fol

7 16 9.0 51 12 8.8

8.3

5 fol

8 57 7.2 50 16 7.0

7.0

5 fol

10 53 9.4 51 16 9.5

9.5

Two streaks for 5

11 56 6.3 51 20 7.0

8.0  
7.0

Both faint pr.  
pr 5 fol

14 20 8.2 52 05 8.6

8.8

17 06 9.4 51 14 9.3

9.5

pr.

18 14 9.0 51 38 8.9

8.4

50 43

Runs.

Sum  
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

55 0 1.5 40

55 0 6.9 8.0

45 4 14.6 17.0

45 4 19.8 21.3

45 0 2.2 4.5

45 0 8.8 10.0

5 4 2.4 5.9

5 4 9.3 12.8

5 0 13.0 15.6

5 0 12.3 14.2

0 4 20.3 23.5

55 0 45.1 47.8

55 1 38.5 40.0

15 0 14.0 18.0

15 0 22.8 29.3

5 1 27.4 31.9

5 1 30.7 33.0

40 2 14.7 17.0

40 2 13.0 14.5

15' 5" when the strokes come  
together is the last - H

187101ae.pr.1537R

De. e.

First minute-break.

c, set at.

June 14 1871

1871 June 17

Sum

Mean.

N. Coll.

S. Coll.

a.

δ.

Mag.

REMARKS.

15 19 46 81 50 43 9.2

9.4

21 03 82 51 40 8.3

8.4

22 16 88 51 49 8.8

8.5

23 11 95 51 26

in 5

24 18 93 51 11 9.0

9.5

25 52 82 51-2 8.5

8.4

27 42 87 50 34 8.7

8.9

29 10 89 50 22 9.0

9.1

30 49 91 50 24 8.6

8.8

31 53 85 50 48 8.5

8.6

51 40

Runs.

Sum  
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

35 1 554 592

35 1 53.2 55.8

40 1 44.8 469

40 0 48.3 502

30 2 380 41.6

30 1 43.2 452

15 4 1.5 4.0

15 4 2.0 4.3

20 3 24.9 29.0

20 4 34.2 28.9

45 0 30 50

45 0 4.2 7.2

55 3 81 125

55 3 11.9 14.7

55 2 257 303

55 2 22.8 26.0

30 1 393 418

30 0 35.1 47.2

Date.

First minute-break.

c, set at.

June 14 1871

1871 June 17<sup>th</sup>

Sum

Mean.

N. Coll.

S. Coll.

a.

δ.

Mag.

REMARKS.

15 33 49

90

51

40

9.2

9.0

fol #

34 50

60

50

50

5.5

2 5 not fol

35 49

92

50

11

2 not seen  
seen below

86 39

85

50

15

8.7

8.7

37 30

85

50

37

8.6

8.4

✓ fol  
δ fol

39 12

94

50

59

9.1

9.6

δ fol

40 31

84

51

19

8.4

8.3

suspected double

42 50

83

51

11

8.2

8.1

44 37

78

51

21

8.3

8.2

20

46 38

80

51

16

8.2

8.4

51 13

Runs.

Sum  
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

40 0 480 57.7

40 0 44.0 45.5

R.A. got

30 0 3.6 5.3

5 0 300 33.1

5 0 36.8 49.9

40 4 357 39.1

40 4 30.2 33.9

20 1 195 23.3

20 3 320 40.0

0 1 529 53.9

0 1 53.8 56.8

5 3 388 42.3

5 3 48.2 57.1

55 4 370 41.4

55 4 35.8 38.2

0 4 120 15.0

0 4 15.3 17.2

187101ae.proj.1537R

Date.

First minute-break.

c, set at.

June 14 1971  
June 17

Sum  
Mean.

N. Coll.

S. Coll.

a.

δ.

Mag.

REMARKS.

15 47 40 8.2 51 13

8.5

8.4

upper #  
δ fol

48 55 90 50 08

8.7

9.2

δ fol

50 00 8.5 57 50

8.9

8.3

δ fol

51 04 90 50 23

9.2

✓ fol upper #

54 41 9.5 58 49

9.4

9.4

55 33 78 51 01

no. 1 #5 in the field

6.0

56 28 90 51 32

8.2

9.0

δ fol

58 23 83 51 42

8.5

8.2

59 47 94 51 02

9.3

9.2

01 09 9.2 51 49

9.0

8.9

fol #

Runs.

Sum  
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

5 2 22.3 25.1

5 3 16.8 19.5

15 1 46.3 49.6

15 2 42.3 45.2

30 1 1.0 4.4

30 2 0.4 2.8

55 3 41.9 46.2

30 1 50.5 53.2

30 1 48.9 50.9

20 0 30.8 34.3

45 3 41.4 44.0

45 4 35.3 37.7

35 3 23.2 27.9

35 3 23.8 26.4

15 2 58.3 62.8

15 2 55.8 58.3

30 1 46.1 49.6

30 1 44.8 46.8

W A R obs  
A. M. R.Not very good  
seeing.

Date.

1871 June 19<sup>th</sup>  
21

First minute-break.

Set at.

39,966  
4

Sum

Mean.

| N. Coll. | S. Coll. |
|----------|----------|
| 39,884   | 40,045   |
| 896      | 037      |
| 882      | 042      |
| 896      | 030      |
| 16       | 042      |
| 39,893   | 40,039   |

a.

δ.

Mag.

REMARKS.

14 53 59 57 26 7 9.0  
9.2

WAR Obs  
A.M. Rec

55 19 45 50 14 9.5

A.M. Obs.  
WAR Rec.

56 31 79 57 19 8.2  
8.7

57 53 83 50 40 8.2  
8.6

15 00 04 88 50 26 8.5  
8.0

fol. lower

1 16 90 50 48 9.0  
8.5

3 17 85 53 48 7.7  
8.3

5 17 89 51 37 9.0  
9.0

6 38 90 50 34 9.2  
9.2

7 31 74 50 23 7.0  
8.0

53 25

Runs.

|       | A. | C.  |
|-------|----|-----|
| 39    | 41 | 160 |
| 40    | 41 | 161 |
| 42    | 38 | 161 |
| 40    | 44 | 150 |
| 40    | 43 | 149 |
|       |    | 150 |
| Sum   |    |     |
| Mean. |    |     |

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

55 2 18.4 21.1 8 fol

55 1 330 36.2

5 4 36.9 40.2 8 fol

0 4 29.8 33.1

0 4 10.4 12.7

40 0 40.8 43.2

40 0 31.8 35.6

55 2 13.0 15.5

55 2 8.4 12.8

30 4 42.9 46.0

30 4 35.0 38.8

30 4 43.8 45.8

30 4 37.2 43.3

45 1 10.2 12.0

45 1 0.8 3.5

45 3 0.9 3.2

45 2 52.0 55.6

0 0 68 7.8

55 4 56.9 62.2

Date.

7871 June 19

First minute-break.

21

c, set at.

44.096

N. Coll.

S. Coll.

44.041  
33  
45  
37  
42

44.150  
112  
135  
152  
154

Sum

Mean.

a.

δ.

Mag.

REMARKS.

150843 45 53 25 7.7  
7.8

lower fol

10 01 45 50 44 7.8 20  
8.5

11 16 85 50 12 8.5 20 2  
8.9

12 03 87 51 25 8.7  
9.0

2d star 5 fol

15 27 70 50 40 7.5  
~~8.1~~

5 fol  
slight noise

17 03 87 50 54 8.4 20  
8.7

17 58 88 50 33 8.5 not seen  
9.1

19 06 85 50 05 9.0 20  
8.6

19 55 82 49 59 8.2  
8.2

21 53 89 50 15 9.0  
9.1

50 12

Runs.

|       | A.   | C.   |
|-------|------|------|
| 26.7  | 27.8 | 40.2 |
| 27.8  | 26.7 | 39.8 |
| 27.2  | 26.9 | 40.2 |
| 27.3  | 26.2 | 40.8 |
| 27.1  | 26.2 | 39.5 |
| Sum   |      |      |
| Mean. |      |      |

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

55- 3 46.1 49.7

55- 3 33.3 37.9

35- 4 9.3 13.2

35- 3 50.3 54.6

5 4 44.4 46.2

5 4 32.2 36.0

55- 4 17.3 19.2

55- 4 11.2 14.9

40 2 36.0 38.9

40 2 20.2 25.0

25- 4 24.1 27.0

25- 4 8.0 11.8

45- 4 11.2 14.8 J. Feb

45- 3 35.1 39.0

15- 1 42.0 45.3

15- 1 30.6 34.2

20 4 48.1 50.9

20 4 26.3 31.8

5 2 57.2 60.2

5 2 52.0 55.6

Date.

7871 June 19<sup>th</sup>  
21

First minute-break.

c, set at.

Sum  
Mean.

N. Coll.

S. Coll.

a.

s.

Mag.

REMARKS.

15 23 74 85 12 8.7

9.0

24 27 86 50 06 8.8

8.5

25 34 92 50 54 9.0

9.1

~~27 42 87 50 34~~ 9.0

~~27 06 90 51 27~~

8.8

29 37 81 50 35 7.8

8.7

31 24 67 50 26 6.4

6.8

32 26 82 50 30 { 8.5

8.7

34 10 73 50 31 7.2

7.8

35 49 92 50 11 9.3

9.1

~~39 52 90 50 34~~

~~39 24 85 51 50~~

57 05 8.7

fol x  
fals des

Runs.

Sum  
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

10 0 49.1 49.6

10 0 44.6 48.0

15 2 12.9 15.7

15 1 59.2 63.5

25 4 57.7 60.8

25 4 45.2 48.5

55 1 44.2 56.9

55 1 31.0 33.8

45 2 58.7 59.2

45 2 46.3 50.3

50 3 48.1 50.8

55 2 42.2 46.5 SUM.

50 2 28.0 31.5

50 2 12.6 16.5

50 2 33.7 37.8

50 2 23.1 27.8

10 2 58.3 59.8

10 2 45.7 48.0

30 3 48.9 52.8

Date.

First minute-break.

c, set at.

7841 June 19<sup>74</sup>  
21

Sum  
Mean.

N. Coll.

S. Coll.

a.

s.

Mag.

REMARKS.

51 42 04 80 57 05 9.0

9.0

43 40 88 50 42 9.0

8.8

44 54 83 50 13 8.8

8.6

46 16 9.2 50 45 9.2

8.8

Neb ? \*

neb - neb.

47 48 8.8 50 11 8.9

9.0

Wspn \*

Sitting wrong by 5'

49 15 8.6 50 49 8.4

8.6

50 48 9.0 50 19 9.0 22

9.0

51 20 8.3 50 14 8.8

8.0

5 fol

54 24 9.4 50 56 9.2

9.1

55 27 6.0 50 16 5.5

6.5

50 16

Runs.

Sum  
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

15 4 2.2 4.2

15 4 56.0 60.3

40 1 11.0 13.2

40 1 5.7 5.8

10 0 11.3 13.2

10 0 9.8 12.4

35 3 6.7 10.6

35 2 5.7 6.28

10 3 0.9 3.7

10 2 58.0 63.5

35 0 1.4 3.8

30 4 55.3 60.3

0 4 8.3 12.0

0 4 8.0 13.0

10 0 4.3 6.1

5 4 15.0 24.6

25 2 43.2 45.7

25 2 40.8 43.6

5 3 34.0 37.0

5 3 17.9 22.6

Date.

First minute-break.

c, set at.

7871 June 19  
21

Sum

Mean.

N. Coll.

S. Coll.

$\alpha$ .

$\delta$ .

Mag.

REMARKS.

15 56 26 83 50 16 8.0

7.0

Upper

57 52 92 50 20 8.8

8.7

59 29 92 50 17 8.8

8.8

Renfaiend

16 0 38 87 50 51 8.4

8.6

Upper \*

1 40 91 52 24 8.0

8.0

Lower \*

lost 2 m

2 50 94 52 25 9.0

8.8

2d \*

~~factbook~~ low factbook factbook

4 47 92 52 40 8.4

9.0

5 39 72 50 30 6.7

6.5

7 54 92 50 15 9.0

8.7

low

9 17 50 45 8.6

8.8

Runs.

Sum  
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

5 2 42.9 45.2

5 2 40.5 43.9

0 3 10.8 14.2

0 3 34.2 35.5

5 1 43.8 47.2

5 1 36.0 38.3

30 2 32.2 35.8

30 1 21.9 26.5

5-5 3 17.8 21.0

~~5-5 3 31.5 35.7~~

53- 2 57.1 66.4

55-0 31.5 35.7

40 3 18.6 20.1

40 3 1.5 5.4

50 2 28.2 33.0

50 2 10.9 14.8

5 4 23.9 26.1

5 4 27.8 33.0

35 4 51.2 57.4

35 4 41.3 48.9

fue

fue faredsp

reg. wire

Date.

1871 June 19

First minute-break.

Sum

Mean.

N. Coll.

S. Coll.

c, set at.

$\alpha$ .

$\delta$ .

Mag.

REMARKS.

10 37 88 50 01 8.82

8.9

11 15 95 50 52

not seen

9.3

12 45 95 50 17 9.5

9.2

13 47 91 50 20 9.2

9.0

14 36 95 50 49 9.5

Pen faint

16 30 90 50 33 9.4

Pen O.K.

8.8

18 10 90 50 42 9.3

9.0

19 40 75 50 38 7.5

7.2

20 31 80 50 30 8.0

7.6

22 16 70 51 26 7.3

7.5

Runs.

Sum  
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

20 4 34.3 37.9

20 2 27.2 32.7 *same*~~5 2 29.8 32.5~~

30 0 8.0 11.4

5 2 29.8 32.5

5 2 28.1 32.3

0 3 58.8 61.0

0 3 47.6 51.5

30 4 5.8 9.1

~~40~~

50 0 33.2 36.1

50 0 26.9 30.5

40 1 51.8 54.4

40 1 38.7 42.1

40 4 53.0 56.3

40 4 37.7 43.7

50 3 47.0 49.3

50 3 22.3 27.4

55 2 40.4 42.9

55 2 30.9 35.0

Date.

First minute-break.

C, set at.

7871 June 25

June 26

Sum

Mean.

N. Coll.

S. Coll.

44,057

061

051

058

060

281

44,0562

44,57

140

137

146

146

266

153

a.

s.

Mag.

REMARKS.

15 29 03.90

52.45

9.5

9.0

29 21 92.52 47

9.2

81 07 87.51 57

8.5

9.0

82 29 60.52 29

6.2

6.5

33 09 85.50 56

9.0

9.0

84 57 83.51 58

9.1

35 18 81.51 58

8.6

87 24 90.52 19

8.9

89 22 60.52 47

5.5

5.4

41 16 92.52 42

9.5

9.3

52 33

all 5th hour beyond for beginning

not seen

Runs.

Sum  
Mean.

A.

C.

June 25

| Pointer. | Stroke. | Rev. | A.   | C.   | REMARKS. |
|----------|---------|------|------|------|----------|
|          | 35      | 3    | 188  | 222  |          |
|          | 35      | 3    | 6.0  | 5.3  |          |
|          | 35      | 1    | 28.0 | 43.5 |          |
|          | 25      | 1    | 143  | 17.8 |          |
|          | 25      | 1    | 140  | 15.8 |          |
|          | 40      | 3    | 40.2 | 42.3 |          |
| June     | 50      | 3    | 46.0 | 48.1 |          |
|          | 25      | 2    | 31.8 | 34.3 |          |
|          | 25      | 2    | 20.2 | 26.3 |          |
|          | 20      | 3    | 53.1 | 55.0 |          |
|          | 20      | 3    | 53.1 | 55.0 |          |
|          | 0       | 3    | 40.2 | 41.8 |          |
|          | 0       | 3    | 45.8 | 47.8 |          |
|          | 35      | 2    | 11.8 | 13.5 |          |
|          | 35      | 2    | 9.3  | 11.7 |          |
|          | 40      | 2    | 29.0 | 31.0 |          |
|          | 40      | 2    | 29.3 | 32.1 |          |

Date.

First minute-break.

c, set at.

N. Coll.

S. Coll.

Sum

Mean.

a.

s.

Mag.

REMARKS.

15 42 57 7.5 52 33 7.6

7.8

43 49 8.3 52 28 8.0 2p

8.8

44 24 7.6 50 24 7.8

7.5

last 2 wires

46 58 8.0 52 09 8.0

8.6

48 17 8.6 51 59 8.2

8.7

difficult

50 20 8.7 53 60 8.5

8.3

51 37 9.0 52 47 9.0

8.9

54 52 8.8 51 04 8.2

8.7

1st slit ✓

55 53 8.8 52 05 9.2

8.7

57 15 9.0 52 18 9.0

52 29 8.8 2p

Runs.

|     | A.  | C.  |
|-----|-----|-----|
| 260 | 278 | 371 |
| 258 |     | 378 |
| 257 | 273 | 370 |
|     | 277 | 379 |
| 460 | 345 | 373 |
| 254 | 270 | 365 |
|     | 271 | 362 |
|     |     | 372 |

Sum  
Mean.

June 25

|       |       |
|-------|-------|
| 27.40 | 37.68 |
| 25.78 | 36.72 |
| 1.62  | .96   |
| 30    | .19   |
| 1.81  |       |
| -2.5  |       |

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

|    |   |  |      |      |
|----|---|--|------|------|
| 50 | 0 |  | 35.3 | 370  |
| 52 | 0 |  | 28.4 | 308  |
| 52 | 4 |  | 47.9 | 488  |
| 50 | 4 |  | 40.4 | 423  |
| 55 | 4 |  | 46.8 | 492  |
| 55 | 4 |  | 25.7 | 286  |
| 10 | 3 |  | 44.1 | 457  |
| 10 | 3 |  | 37.9 | 41.0 |
| 25 | 0 |  | 2.4  | 3.4  |
| 20 | 4 |  | 55.7 | 540  |
| 15 | 3 |  | 41.8 | 43.0 |
| 15 | 3 |  | 35.0 | 40.9 |
| 35 | 1 |  | 47.7 | 49.0 |
| 35 | 1 |  | 37.1 | 38.9 |
| 15 | 4 |  | 21.7 | 233  |
| 15 | 4 |  | 18.0 | 283  |
| 15 | 3 |  | 8.5  | 9.1  |

break after ✓

|   |   |  |      |      |
|---|---|--|------|------|
| 0 | 4 |  | 53.5 | 57.9 |
| 0 | 4 |  | 40.6 | 43.9 |

File.

First minute-break.

Set at.

June 25 1871  
June 26

44.145

Sum

Mean.

N. Coll.

S. Coll.

44.179

44.114

181

115

160

118

164

124

168

131

352

102

44.170

44.120

$\alpha$ .

$\delta$ .

Mag.

REMARKS.

155801 83 52 24 8.2

8.0

5935 83 52 35 9.4

9.3

1 01 88 52 29 8.5

8.7

2 04 83 52 27 9.5

9.2

3 02 90 52 40 8.3

8.5

5 11 85 52 00 8.4

8.9

7 28 85 52 28 8.3

8.7

9 17 89 52 05 8.8

8.6

10 56 90 52 17 8.8

8.9

11 59 52 21 8.9

8.8

52 25

Runs.

|       | A.    | C.    |
|-------|-------|-------|
| 17.5  | 18.3  | 25.6  |
| 17.9  | 18.5  | 26.4  |
| 17.9  | 18.3  | 26.6  |
| 17.4  | 18.3  | 26.9  |
| 17.7  | 18.5  | 26.3  |
| Sum   | 34    | 19    |
| Mean. | 17.68 | 18.38 |

|       |      |
|-------|------|
| 1838  | 2802 |
| 17.68 | 2658 |
| .70   | 1.48 |
| .14   |      |
| .29   |      |
| .43   |      |
| -.21  |      |

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

|      |   |      |      |
|------|---|------|------|
| 50   | 4 | 37.0 | 39.0 |
| 50   | 4 | 24.7 | 27.2 |
| 45   | 3 | 10.6 | 11.1 |
| 45   | 3 | 0.7  | 3.1  |
| 50   | 3 | 42.1 | 44.0 |
| 50   | 3 | 36.5 | 38.1 |
| 50   | 0 | 49.3 | 50.3 |
| 55   | 0 | 41.5 | 43.8 |
| 40   | 3 | 38.8 | 37.3 |
| 40   | 3 | 23.1 | 26.3 |
| 20   | 4 | 43.2 | 44.8 |
| 20   | 4 | 42.3 | 45.4 |
| 55   | 0 | 4.9  | 7.1  |
| 50   | 4 | 57.7 | 61.3 |
| 15   | 2 | 46.0 | 47.2 |
| 15   | 2 | 39.2 | 40.9 |
| 5    | 0 | 57.1 | 53.0 |
| 5    | 0 | 45.7 | 46.3 |
| 5    | 2 | 28.2 | 29.3 |
| Same | 0 | 17.0 | 19.3 |

Date.

First minute-break.

set at.

7871 June 25  
June 26

Sum  
Mean.

N. Coll.

S. Coll.

$\alpha$ .

$\delta$ .

Mag.

REMARKS.

16 15 12 (s) 34 20  
42 23  
76 44

North. #  
Paint-

17 16 80 52 09 8.2  
8.5

18 25 80 52 24

lost

8.7

19 28 84 57 04

9.5 20 Lure

9.0

20 19 90 51 42

9.2

first in track  
5 fol

8.8

21 16 69 52 01

6.5

22 56 94 52 35

9.4

9.0

24 27 90 51 30

9.2

25 27 60 51 43  
23

first 2 & 3rd

27 27 95 51 41

not seen

9.5

Runs.

Sum  
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

40 4 57.7 09.3

15 0 6.1 2.2

10 4 55.2 57.7

55 4 31.2 34.6

15 1 14.3 15.2

20 0 45.1 51.3

40 2 7.1 9.0

40 2 20.0 22.2

20 2 42.9 48.2

45 3 8.1 10.2

45 2 45.2 47.2

50 4 42.0 47.2

2<sup>d</sup> 40 2 7.3 8.3

35 3 42.0 52.1

Jal H

Lost 3 m

Date.

First minute-break.

C, set at.

1871 June 25  
June 26

Sum

Mean.

N. Coll.

S. Coll.

a.

s.

Mag.

REMARKS.

15-10 29 8.4 50 22 8.5  
8.4

11 54 8.5 54 14 8.7  
9.0

13 32 8.4 55 04 9.3  
9.3

15 33 8.8 49 50 9.3  
9.1

16 19 8.5 52 27 6.0

19 10 8.3 50 39 8.7  
8.9

21 42 7.0 51 02 7.0  
7.0

22 56 9.1 51 06 9.4  
9.5

23 49 7.3 50 46 8.0  
7.8

25 11 8.5 50 53 7.0  
8.8

W. H. R. Rec.

Runs.

Sum  
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

0 0 52.6 55.0

0 0 55.0 58.5

5 4 33.4 36.7

5 4 43.0 47.9

15 4 15.4 19.9

15 4 18.1 22.6

30 1 34.0 36.8

30 1 42.7 45.9

55 2 62.8 56.7

~~15 3 7.4 9.8~~

40 2 25.6 28.1

40 2 30.3 32.6

20 0 10.1 12.0

20 0 26.3 27.6

15 3 13.3 14.1

15 3 7.4 5.8

40 2 40.8 43.3

40 2 31.1 32.2

25 4 36.1 39.2

25 4 47.1 49.8

funt \*

Date.

First minute-break.

C, set at.

7871 June 27

7871 June 30<sup>th</sup>

44.132

Sum

Mean.

| N. Coll. | S. Coll. |
|----------|----------|
| 44.171   | 44.104   |
| 160      | 088      |
| 167      | 080      |
| 182      | 101      |
| 169      | 088      |
|          |          |
|          |          |

| a.       | S.       | Mag. | REMARKS. |
|----------|----------|------|----------|
| 15 10 53 | 99 57 16 | 9.8  |          |
|          |          | 10.0 |          |
| 12 00 47 | 52 44    | 9.3  |          |
|          |          | 8.8  |          |
| 15 35 59 | 51 54    | 9.2  |          |
|          |          | 8.8  |          |
| 16 10 88 | 53 13    | 9.2  |          |
|          |          | 9.0  |          |
| 17 53    | 82 53 31 | —    |          |
|          |          | 8.5  |          |
| 19 08    | 80 52 37 | 9.0  |          |
|          |          | 8.6  |          |
| 21 13    | 82 52 07 | 8.2  |          |
|          |          | 8.0  |          |
| 22 48    | 70 52 30 | 8.0  |          |
|          |          | 7.5  |          |
| 24 13    | 85 50 12 | base |          |
|          |          | 9.0  |          |
| 25 44    | 91 50 42 | 9.4  |          |
|          |          | 8.8  |          |

Runs.

|       | A. |     | C.  |
|-------|----|-----|-----|
| 48    | 62 | 148 | 162 |
| 42    | 49 | 138 | 159 |
| 45    | 54 | 145 | 150 |
| 41    | 61 | 142 | 153 |
| 47    | 52 | 146 | 158 |
| Sum   |    |     | 1   |
| Mean. |    |     |     |

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

5 1 57.9 61.3

5 1 57.8 60.6

35 4 34.5 36.9

35 4 44.0 45.8

25 3 40.4 40.7 lost wire

25 3 52.8 54.9

10 1 6.7 7.3 haze 5 fol

50 2 18.0 19.2 5 fol

50 1 45.1 51.0

45 1 50.3 50.7

45 1 30.9 32.1

clouds

15 1 1.8 1.7

15 0 57.3 58.2

50 3 10.8 11.9

50 3 11.6 13.2

10 1 1.7 3.3

10 1 28.7 — moved tel

40 0 33.0 35.7

40 0 32.4 33.9

Date.

First minute-break.

C, set at.

1871 June 27

1871 June 30

Sum

Mean.

N. Coll.

S. Coll.

a.

s.

Mag.

REMARKS.

15 26 47 8.2 53 82 —

clouds

9.5

28 09 8.5 53 45

8.2

ful \*

30 07 8.3 53 30

7.8

31 42 8.8 53 51 8.5

8.3

34 57 9.3 54 58 9.0

9.0

35 18 8.1 54 18 8.2

8.0

37 01 9.3 52 06 8.0

not seen

9.5

5 full

37 59 8.9 52 32 8.5

40 19 9.3 53 25 9.2

9.4

41 53 9.7 53 05 7.6

7.0

52 20

|                        | A.  | C.  |
|------------------------|-----|-----|
| 159 <del>157</del> 172 | 263 | 263 |
| 160 <del>163</del> 168 | 254 | 260 |
| 163 <del>173</del> 173 | 249 | 260 |
| 160 <del>170</del> 170 | 251 | 259 |
| 151 <del>167</del> 167 | 251 | 255 |
| Sum                    |     |     |
| Mean.                  |     |     |

| Pointer. | Stroke. | Rev. | A.   | C. | REMARKS.       |
|----------|---------|------|------|----|----------------|
| 50       | 0       | 14.0 | 15.8 |    | lost last wire |
| 50       | 2       | 58.0 | 59.0 |    | 5 fol          |
| 35       | 3       | 33.0 | 36.1 |    | 5 fol          |
| 50       | 2       | 35.1 | 36.8 |    |                |
| 30       | 1       | 53.4 | 61.2 |    |                |
| 30       | 1       | 41.0 | 44.0 |    |                |
| 20       | 3       | 46.1 | 47.8 |    |                |
| 20       | 4       | 4.9  | 6.5  |    |                |
| 20       | 3       | 46.1 | 47.8 |    |                |
| 20       | 4       | 4.9  | 6.5  |    |                |
| 15       | 3       | 18.7 | 18.8 |    |                |
| 50       | 1       | 47.1 | 48.2 |    |                |
| 55       | 3       | 19.0 | 20.6 |    |                |
| 55       | 3       | 7.4  | 9.1  |    |                |
| 15       | 3       | 34.8 | 36.0 |    |                |
| 15       | 3       | 31.0 | 32.6 |    |                |

Date.

First minute-break.

set at.

1871 June 27

1871 June 30

Sum

Mean.

N. Coll.

S. Coll.

$\alpha$ .

$\delta$ .

Mag.

REMARKS.

15 43 26 94 52 20 8.3 sure  
8.0

44 24 88 53 22 9.0  
8.2

45 27 92 54 03 9.2  
8.8

47 51 65 53 18 9.5-9.2 both of the same  
7.8 8.2

49 35 95 53 42 10.0 not lazy  
10.0

57 04 90 50 23 9.5  
9.0

55 12 92 51 11 9.3  
9.0

56 24 81 51 09 8.4  
8.2 2  
7.8

57 05 80 51 11 8.0  
8.5

58 53 60 53 16 6.0  
6.0

58 34

Runs.

Sum  
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

0 0 46.8 48.7

0 0 42.9 44.5

0 2 12.6 13.7

0 2 12.7 13.9

15 4 10.6 13.7 first \*

15 3 57.5 62.7

5 0 45.8 46.9 double Δ 0.7 Δ 5.0

5 0 36.1 38.0

40 1 25.8 29.9

40 1 25.0 26.7

0 0 7.0 3.5

0 4 58.0 60.2 5 free

10 1 52.9 53.4

10 1 19.8 20.7

10 3 11.5 12.9

10 3 5.2 6.2

10 2 47.8 49.0

10 2 46.2 47.3

5 1 53.1 53.9

5 1 53.4 54.0

Date.

1871 June 27

First minute-break.

1871 June 30

set at.

Sum

Mean.

N. Coll.

S. Coll.

a.

δ.

Mag.

REMARKS.

16 00 06 82 53 34 8.5  
8.0

1 17 89 53 05 8.5  
7.8

3 09 82 53 38 8.6  
8.5

4 44 92 52 40 ~~10.5~~ Clouds  
9.1

6 11 80 53 14 8.2  
8.5

7 22 75 53 22 7.9  
8.6

8 11 86 50 18 8.5  
8.5

9 17 90 50 45 9.0  
8.8

10 37 88 50 07 9.2  
7.0

12 43 70 53 34 ~~6.5~~  
7.0

-34 21 Work #

lost

Runs.

Sum  
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

45- 4 8.7 11.2

45 4 11.1 11.8

45- 3 49.8 50.2

Sum 15 3 49.4 50.6

40 4 50.8 53.9

40 4 49.8 52.2

40 3 5.9 6.1

5 3 50.2 52.2

5 3 58.2 58.6

0 0 34.2 36.9

0 0 43.8 44.7

5 0 48.3 48.9

5 0 55.8 56.9

35- 4 41.8 43.2

35- 4 46.2 48.2

20 2 30.8 32.3

20 2 22.7 23.4

45 4 47.8

45- 4 50.2 52.0

| N. Coll. | S. Coll. |
|----------|----------|
|          |          |
|          |          |
| Sum      |          |
| Mean.    |          |

Date. 7871 June 27  
First minute-break. 7871 June 30  
c, set at.

| $\alpha$ . | $\delta$ . | Mag.   | REMARKS.  |
|------------|------------|--------|-----------|
| 16 15 12   | 34 21      |        | Work #    |
| 17 10 68   | 52 21      | 7.0    |           |
| 18 25 90   | 52 24      | 9.5    |           |
|            |            | 9.0    |           |
| 19 29 90   | 53 49      | 9.5    |           |
|            |            | 9.0    | Low upper |
| 21 16 65   | 52 35      | 7.0 22 |           |
|            |            | 6.5    |           |
| 22 03 79   | 53 25      |        | Cloudy    |
|            |            | 8.8    |           |
| 23 07 92   | 51 42      |        |           |
|            |            | 9.1    |           |
| 24 27 90   | 51 30      | 8.8    |           |
|            |            | 9.2    |           |
| 25 27 62   | 51 43      | 5.8    |           |
|            |            | 6.3    |           |
| 27 27 95   | 51 44      | 9.5    | Not seen  |
|            | 53 16      |        |           |

Runs.

Sum  
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

0 2 38.6 39.9

Repeat last 3 runs

0 2 28.8 30.5

last 1st run

55 4 42.8 42.9

Sum 10 0 59.1 59.9

35 3 2.8 5.9

35 1 12.1 15.8

last 1st run

45 3 19.2 20.9

45 3 13.8 14.7

55 3 25.1 29.3

40 1 38.2 40.9

50 4 35.2 37.2

50 4 34.9 36.0

40 2 1.0 2.8

40 1 56.9 59.0

35 4 33.8 44.7 5 fol

4

Junk failed

Date.

1871 June 27

First minute-break.

1871 June 30

c, set at.

N. Coll.

S. Coll.

Sum

Mean.

a.

s.

Mag.

REMARKS.

16 28 55 80 53 16 9.0

Double ~~light~~ \*30 57 80 53 14 9.0  
8.332 09 80 57 31 9.3  
9.3

33 12 83 53 09

8.0 85-double

39 45 89 53 50 9.0

3 <sup>near</sup> ~~16~~ 36 28 31 10  
h. Hercules 16 38 34 39 1042 53 85 53 50 9.5  
9.1

45 27 82 54 03

not seen

not seen

46 30 90 53 40 8.9  
8.5

16 49 24 - 19 20 2

50 38 84 53 19 9.0

9.5

51 37 80 53 11 9.0

2d \*

8.5-

2d \*

| Runs.    | Sum<br>Mean. | A.   |      | C.   |                     |
|----------|--------------|------|------|------|---------------------|
|          |              |      |      |      |                     |
| Pointer. | Stroke.      | Rev. | A.   | C.   | REMARKS.            |
|          | 5            | 2    | 52.2 | 54.7 |                     |
|          | 10           | 0    | 44.1 | 45.2 |                     |
|          | 10           | 0    | 37.3 | 39.3 |                     |
|          | 50           | 1    | 28.4 | 30.0 |                     |
|          | 50           | 1    | 25.9 | 27.0 |                     |
|          | 10           | 2    | 21.1 | 22.5 | 2 <sup>d</sup> free |
|          | 10           | 2    | 25.0 | 26.0 |                     |
|          | 30           | 3    | 57.8 | 62.6 | 2 <sup>d</sup> *    |
|          | 30           | 3    | 28.8 | 31.2 |                     |
|          | 30           | 3    | 18.6 | 20.8 |                     |
|          | 40           | 3    | 55.4 | 57.1 | WAR Obs             |
|          | 40           | 3    | 46.8 | 48.8 | A. M. Rec           |
|          | 0            | 4    | 20.2 | 22.1 | H. 4 - obs          |
|          | 0            | 4    | 22.9 | 24.5 | A. M. Rec           |
|          | 10           | 2    | 47.2 | 49.3 |                     |
|          | 10           | 2    | 55.0 | 55.8 |                     |
|          |              |      |      |      | 67.8<br>57.0        |

Date.

1871 July 1

First minute-break.

1871 July 3<sup>d</sup>

c, set at.

Sum

Mean.

N. Coll.

S. Coll.

$\alpha$ .

$\delta$ .

Mag.

REMARKS.

15 20 18 54.9

~~21 9 54.40~~

21 9 54.40 8.0

~~21~~

23 11 57.26

~~23 5 54.27~~

~~24~~ ~~11~~

24 58 54.44 9.2

~~25~~

9.3

26 5 54.35 9.1

9.2

27 6 54.25 9.0

8.7

28 31 54.56 9.0

~~29~~

8.6

29 21 52.47

not seen.

9.5

31 24 50.6 8.1

8.10

32 ~~30~~ 50.14 9.5

39

9.5

not seen

a faint star seen

Runs.

| A.    |      | C.   |      |
|-------|------|------|------|
| 15.2  | 16.0 | 26.3 | 28.2 |
| 15.4  | 16.5 | 25.9 | 28.7 |
| 15.3  | 16.9 | 26.5 | 28.4 |
| 15.1  | 16.3 | 25.6 | 28.1 |
| 15.3  | 16.0 | 25.3 | 28.0 |
| Sum   |      |      |      |
| Mean. |      |      |      |

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

40 3 11.0 15.6

40 3 58 7.0

40 0 8.1 11.2

40 0 12.4 14.2

45 3 20.4 21.8

45 3 18.2 20.7

55 3 50.9 53.4

55 3 52.1 52.1

25 3 50.9 53.8

25 3 50.8 51.2

35 3 49.8 49.1

15 0 33.9 36.0

15 0 37.2 38.5

5 1 37.9 41.0

5 1 55.2 55.3

Date.

First minute-break.

c, set at.

July 1  
1871 July 3

Sum  
Mean.

N. Coll.

S. Coll.

$\alpha$ .

$\delta$ .

Mag.

REMARKS.

15 34 50 50.50 7.0  
6.5

37 58 49.57 9.0  
8.7

39 52 50.54 9.4  
9.2

40 44 53.19 8.8  
8.2

42 29 50.10 9.0  
9.0

43 29 50.17 9.1  
9.2

47 27 52.38 9.0

48 37 52.57 9.1 Double - both 9.1  
2 breaks for each D -

49 52 54.15 8.5

52 15 54.24 8.8  
8.5

Runs.

| A.    |     | C.  |     |
|-------|-----|-----|-----|
| 072   | 098 | 164 | 173 |
| 73    | 87  | 157 | 165 |
| 74    | 89  | 153 | 168 |
| 70    | 88  | 162 | 164 |
|       | 84  | 161 | 170 |
| Sum   |     |     |     |
| Mean. |     |     |     |

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

30 2 30.9 34.0

30 2 35.1 36.0

30 1 57.5 61.2

30 1 58.3 59.0

30 0 18.7 19.6

30 0 18.2 19.2

0 4 45.5 47.9

0 4 50.2 51.1

10 2 55.2 57.7

10 2 54.5 55.2

5 1 27.5 30.7

5 1 27.4 27.5

40 4 53.3 56.6

25 1 17.7 18.2 same setting -

25 2 0.3 0.9 5 fol

5 2 50.8 55.8

55 3 57.0 60.4

55 3 55.0 56.6

15.5

Date.

First minute-break.

c, set at.

Mag  
1871 July 3

Sum  
Mean.

N. Coll.

S. Coll.

a.

s.

Mag.

REMARKS.

~~15 52 36 54.27~~

52 52 54.32

9.5

55 11 54.57 8.6

~~56 6 54.57 9.0 not seen -~~

57 18 54.18 7.2

8.0

58 21 50.37 ~~9.1~~  
10.0

5f - pre \*

~~59 24 52.16~~

16 0 15 50.50 9.0

9.3

5f - 3 W.

0 38 50.51 9.1

5 fol

~~X 36 52.24~~

2 25 52.21 9.3

9.8

Runs.

Sum  
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

50 1 43.3 43.9

30 1 54.9 61.0

30 1 58.0 59.2

0 3 37.2 40.0

0 3 32.8 32.7

40 4 22.8 26.0

lost 5

|   |    |   |      |      |
|---|----|---|------|------|
| } | 30 | 1 | 17.1 | 17.9 |
|   | 30 | 2 | 6.7  | 9.0  |
|   | 30 | 2 | 49.2 | 49.8 |

0 1 14.3 16.4

Sum 10 4 2.9 4.3

Date.

First minute-break.

C, set at.

claf  
1871 July 3

Sum  
Mean.

N. Coll.

S. Coll.

a.

s.

Mag.

REMARKS.

16 3 12 52.26 9.5 fol \*

4 35 54.43 8.8  
8.7

5 38 ~~54.52~~ 51.4 9.0  
8.0

7 25 55.0 8.7  
8.9

8 12 54.39 8.8  
8.9

10.39 50.24  
~~9 17 52.5~~ 9.0  
8.7

11 33 51.47 9.6  
9.3

13 1 51.58 8.9  
9.2

14 36 50.49 9.6

15 12 -34.21 9.5 wash \*

15 47 51.10 9.3  
9.2

Runs.

Sum  
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

55 1 48.7 57.0

40 0 37.5 41.9

40 1 18.2 19.3

15 4 44.8 48.1

15 4 5.0 4.8

20 3 45.0 49.0

20 3 53.1 54.9

40 4 7.5 10.1

40 4 24.1 26.4

55 4 10.4 13.9

55 4 6.8 7.3

35 1 22.8 24.4

35 1 29.0 30.0

25 3 2.3 3.0

25 3 7.2 7.9

30 3 48.8 52.2

30 3 45.7 46.2

10 3 52.6 54.9

10 3 53.8 56.9

Date.

First minute-break.

C, set at.

July  
1871 July 3<sup>d</sup>

Sum  
Mean.

| N. Coll. | S. Coll. |
|----------|----------|
|          |          |
|          |          |
|          |          |

α. δ. Mag. REMARKS.

16 17 20 51.27 9.5 not seen

18 1 51.13 8.6  
8.0

18 59 51.17  
9.8

20 19 51.42 9.0  
9.3

21 9 51.6 9.0  
9.3

22 16 51.26 7.5  
8.5

23 1 51.0 9.2  
9.4

24 <sup>48</sup>~~27~~ 51. <sup>54</sup>~~30~~ 7.0  
7.5

25 <sup>46</sup>~~27~~ 51. 43 8.0  
7.8

27 27 51.44 9.5  
9.6

Runs.

Sum  
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

55 4 0.5 2 2

10 1 42.2 44.5

10 1 21.1 20.9

5 1 48.2 47.1

40 1 52.7 53.7

40 1 53.8 53.8

15 2 20 5.3

15 2 20.8 20.3 5 fol

55 2 25.3 26.7

53 2 36.3 36.0

20 4 15.2 16.2

20 4 24.9 26.0 5 among wires

30 0 44.0 44.0

30 0 43.9 44.0

20 0 23.9 24.7

20 0 28.0 28.2

35 ~~20~~ 3 51.5 54.9

Sure 35 3 58.1 58.2

Date.

First minute-break.

C, set at.

July 1

7871 July 3

Sum

Mean.

N. Coll.

S. Coll.

a.

s.

Mag.

REMARKS.

16 29.17 52.17 9.3 up \* &amp; pre -

8.5

30 32 51.47 9.0

9.0

31 45 51.9 8.8

9.1

34 5 51.36 8.4

8.2

35 44 51.4 7.0

6.5

36 55 54.39 8.5

8.0

38 29 54.40 8.5

8.8

39 41 54.42 9.0

8.8

42 8 54.27 9.0 lower &amp; fol \*

8.7

43 50 54.38 8.3

8.4

Runs.

Sum  
Mean.

A.

C.

| Pointer. | Stroke.          | Rev. | A.   | C.   | REMARKS. |
|----------|------------------|------|------|------|----------|
|          | <del>#5</del> 0  |      | 25.0 | 28.6 |          |
| sun      | 5                | 1    | 26.8 | 28.2 |          |
|          | <del>40</del> 35 | 1    | 33.8 | 34.5 |          |
| sun      | 35               | 1    | 35.4 | 35.9 |          |
|          | 10               | 4    | 16.6 | 19.2 |          |
|          | 10               | 4    | 16.8 | 18.0 |          |
|          | 45               | 2    | 30.9 | 34.1 |          |
|          | 45               | 2    | 41.0 | 41.8 |          |
|          | 15               | 3    | 24.2 | 27.5 |          |
|          | 15               | 3    | 24.2 | 25.0 |          |
|          | 45               | -0   | -1.0 | +1.8 |          |
|          | 45               | 0    | -0.3 | +1.2 |          |
|          | 40               | 2    | 43.8 | 47.9 |          |
|          | 40               | 2    | 44.8 | 45.3 |          |
|          | 40               | 0    | 51.0 | 53.3 |          |
|          | 40               | 0    | 50.4 | 51.9 |          |
|          | 55               | 2    | 2.6  | 5.7  |          |
|          | 55               | 2    | 6.2  | 6.8  |          |
|          | 45               | 0    | 57.1 | 59.8 |          |
|          | 45               | 0    | 59.2 | 60.3 |          |

ate.

first minute-break.

set at.

1871 July 3

Sum

Mean.

N. Coll.

S. Coll.

a.

δ.

Mag.

REMARKS.

16 45 11 54.25 8.9

9.0

46 15 54.15 8.0

8.0

48 28 54.0 8.9

9.3

49 10 54.33 7.5

7.2

up t. pre #

49 54 54.46 7.8

8.0

5.6

54

51 37 53.11 8.9

9.1

pre \*

52 32 54.38 8.8

8.9

54 40 53.12 9.0

9.0

fol. t up. #

56 17 54.56 8.8

8.5

57 10 53.14 7.8

7.0

Runs.

Sum  
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

55 3 50.9 55.6

55 3 47.8 49.0

5 3 23.9 27.1

5 3 21.8 23.1

20 3 25.0 28.9

20 3 16.2 18.0

50<sup>?</sup> 0 49.7 53.850<sup>?</sup> 0 53.2 54.8

35 1 25.8 28.3

35 1 23.8 26.8 Two last wires

10 1 25.9 28.1

10 1 37.8 38.1

45 0 24.5 28.2

45 0 26.3 27.2

10 1 50.9 52.5

10 1 49.8 49.3

25 3 9.7 12.3

turn 25 3 6.8 8.0

5 4 29.5 33.0

5 4 27.5 28.5

ate.

rst minute-break.

set at.

1871 July 3

Sum

Mean.

N. Coll.

S. Coll.

a.

b.

Mag.

REMARKS.

16 58 23 53.35 9.4 ? clouds -

9.2

59 12 53.21 9.5 ? Seeing very bad

9.0 all the evening -

17 1 7 53.23

2 10 53.19

3 10 53.55

5 54 54.55

6 35 53.15

7 37 54.12

10 17 54.18

11 50 53.58

Transfer  
these to next  
observing list.  
(checked in book.)

Runs.

Sum  
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

45 2 56.0 58.4

A.M. - obs

45 3 2.1 3.3

H.G. - uc

0 2 4.3 6.8

H.G. - obs

0 2 1.2 2.2

A.M. Rec

~~At A.M. - obs~~~~H.G. - uc~~

Date.

7871 July 2<sup>d</sup>

first minute-break.

c, set at.

44.147

Sum

Mean.

N. Coll.

S. Coll.

|        |        |
|--------|--------|
| 44.130 | 44.170 |
| .128   | 164    |
| 125    | 167    |
| 128    | 170    |
| 129    | 163    |
| 140    | 334    |
| 44.128 | 14167  |

a.

s.

Mag.

REMARKS.









1874phae.proj.1537R

18710246, p. 01, 1537R

