

KG  
11366  
v.538

*Zone  
Chronograph Records.*

Charles W. Sever, University Bookstore, Cambridge.

*Circle Readings,  
A 4.*

*From April 5 1871 to May 29 1871.*

Charles W. Sever, University Bookstore, Cambridge.





1871phae.proj.1536R











Runs.

Sum  
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

Date.

Apr. 5-1871

First minute-break.

1871 Apr. 6

c, set at.

35.611

N. Coll.

S. Coll.

37.858

33.362

856

358

862

361

861

364

862

368

Sum

256

313

Mean.

37.859

33.363

a.

δ.

Mag.

REMARKS.

7<sup>h</sup> 52 45 90 15.0

Zone 52°-53°

55 48 91 53.5

A.M. Obs.  
W.A.R. Rec

57 28 88 21.1

W.A.R. Obs  
A.M. Rec

59 41 99 27.4

Jh

1 20 87 9.6

2 11 84 8.3

3 48 88 8.2

5 24 93 35.9

8 33 77 44.8 7.8

not seen

8 35 94 -1.1 9.5  
9.5



Runs.

Sum  
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

35 4 2.8 572

20 4 15.2 120

20 4 25.4 20.1

N. Coll.

S. Coll.

Date.

First minute-break.

Sum

Mean.

c, set at.

a.		s.		Mag.	REMARKS.
8 <sup>h</sup>	13 <sup>m</sup> 41 <sup>s</sup>	94	172	9.7	436 min M.C.Ch at 97
				9.5	
16	59	91	199	9.0	
				8.8	
19	29	88	29	9.0	
				9.1	
20	50	94	367	9.3	
				9.4	
24	25	93	185	8.8	
				9.6	
25	34	93	176	9.2	
				9.3	
26	45	91	36.8	8.8	
				8.7	
28	16	97	29.3	9.5	
				6.8	
30	50	92	146	9.0	p 2.
				9.5	
32	16	87	30.3	8.6	
				8.7	



Runs.

Sum  
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

h 2 7 17	5	0	38.2	33.2	
5	0		37.1	31.4	
0	3		25.4	21.4	
0	3		25.5	19.4	
15	4		5.0	0.5	
15	4		5.3	0.0	
45	1		6.4	0.5	
45	1		6.1	0.2	
0	4		33.6	29.4	
0	4		29.3	24.4	
0	4		48.3	45.0	
0	4		47.6	41.1	
45	0		24.4	18.4	
45	0		26.2	21.0	
50	4		14.5	10.0	
50	4		15.8	10.4	
5	3		22.3	19.1	
5	3		23.4	17.2	
50	2		10	4.7	
50	2		1.6	56.1	

Date.

First minute-break.

set at.

Am.  
Mars-1871  
April 6

35.615

Sum

Mean.

N. Coll.	S. Coll.
37.840	33.401
851	387
827	401
849	390
832	325
199	146
37.840	33.391

a.

s.

Mag.

REMARKS.

8<sup>h</sup> 43<sup>m</sup> 48<sup>s</sup> 50.1 9.0 22  
6.3

44 17.3 -33 9.0 lit for 10° 47' fal last 4  
9.5 5 for

47 28 85 26.4 9.0 Wauh#. 2?  
+10° 47'

49 28 88 28.7 8.5  
8.4

5 fall

53 38 85 41.8 9.0  
8.0

54 46 90 5.9 8.6 22  
8.9

55 23 94 18.8 9.0 5 fal  
9.2 5 fall last T m

58 09 73 6.9 7.0  
6.8

~~59 50 50 8.0 3.0~~

9 0 63 8.9 -10 8.0 upper  
9.1



Runs.

Sum  
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

30 0 44.0 39.0

30 0 48.3 42.1

35 1 40.2 35.0

Sum 25 1 50.2 44.2

30 4 63.5 67.8

false obs

50 8 50 1.3

50 2 41.1 37.0

35 4 28.5 24.9

35 4 30.3 25.0

15 0 37.8 33.0

15 0 37.8 32.1

0 3 37.4 33.2

0 3 38.5 32.7

10 4 20.9 16.8

10 4 21.6 17.3

15 0 42.2 42.2

15 0 33.2 27.8

15 0 33.8 32.3

20 3 22.7 18.8

20 3 17.2 12.2

Date.

First minute-break.

set at.

*Mr*  
*Mars 1871*

*1871 April 16*

Sum  
 Mean.

N. Coll.

S. Coll.

$\alpha$ .

$\delta$ .

Mag.

REMARKS.

*36 Lyncis*  
*9 5 25*

*43° 45'*

*35- 3 174 138*  
*35- 3 10.8 6.0*

*9 49 90 30.7* } *9.0*  
*9.2*

*12 23 94 30.1* } *9.2*  
*9.4*

*16 03 67 7.9* } *9.5*  
*6.2*

*20 41 89 6.5* } *8.6* *222*  
*8.7*

*21 19 90 45.0* } *8.0* *Set for 36° 58'*

*24 16 30 16.6* } *3.0*  
*2 mag 58*

*15-4 30.5 30.5*

*10 Leo Min*  
*26 23* } *36° 58'*

*15-4 30.8 30.5*

*29 48 95 3.8* } *9.5* *222*  
*9.8*

*30 32 80 54.3* } *8.3* *2 lat-4m 1 fol*  
*8.6* *6 fol last tm*

*7.0*



Runs.

Sum  
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

35 2 57.5 54.0 35 2 249 21.3

35 3 1.2 55.1 35 2 15.7 9.5

50 2 4.1 58.1

50 2 0.1 57.8

50 3 18.2 15.1

50 3 22.1 16.7

15 0 28.2 24.2

15 0 31.1 25.8

15 1 30.2 24.9

15 1 32.7 26.1

20 4 21.2 23.3

~~20 2 54.5 20.8 15 3 40.8 40.8~~~~15 4 19.8 1.8~~

15 4 19.3 20.8 15 3 40.8 41.4

Sum 20 4 45.2 43.8 20 3 53.5 51.2

15 4 59.5 55.1

15 3 55.9 50.4

25 2 58.9 50.3

25 3 8.5 2.2

Date.

First minute-break.

Set at.

Mr.  
Mar 5 1891  
1891 April 6

Sum  
Mean.

N. Coll.

S. Coll.

a.

s.

Mag.

REMARKS.

9 31 20 7.0

~~Last two false obs.~~

32 42 8.2 42.4 7.2  
8.1

35 50 9.0-3.0 8.8  
8.5

M. Comm  
In lower

37 2 9.0 28.6 9.0  
8.8

Penfained.

2 Mrs. May, 59° 38'  
9 41.52

M. + R. Obs.  
Get runs 40 4 48.1 40.0  
40 4 41.1 362

19 Leo Min. 41° 40'  
9 49.50

new sheet.

W. D. T. Obs.  
A. M. B.

The outside full. intersection  
45 and the full & full  
the intersection 25 = blue.



Runs.

Sum  
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

40 1 75 32

40 1 9.4 3.9

25 0 594 645

25 1 1.3 55.2

50 3 0.5 56.5 Seeing bad.

50 3 0.2 55.5

40 4 267 235 3 482 44.4

40 4 285 22.1 3 43.2 37.5

Fall  
40 2 27.5 22.6 40 2 5.9 2.3~~A.M. obs this~~ 40 1 550 52.4

4/16 obs

Date.

First minute-break.

set at.

Apr. 6 1871

1871 April 17

Sum

Mean.

N. Coll.

S. Coll.

a.

δ.

Mag.

REMARKS.

9<sup>h</sup> 57 15.7 52° 15'

86

Sum 52° - 53°

S. M. Obs.

58 40.92 4.5 92

88

24 R. v.

a Leonis  
10 1 33

+6° 12'

10 4 41 73 7.8 75

5 42 91 - 3.2 93

7 27 90 4.51 92

9 55 80 26.4 80

10 51 67 2.7 65

80

1.4 04 80 5.8 80

8.7

15 55 90 34.4 92

9.0



Runs.

Sum  
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

Pen failed

35 1 22-22

Pen failed

35 0 58.3 56.7

15 1 122.75

25 1 7.7 3.1

35 3 38.1 35.8

55 0 51.8 48.3

15 4 56.6 53.2

15 4 56.4 52.5

15 3 31.0 28.3

15 3 32.6 30.8

45 2 3 48.9 43.0

45 3 53.0 50.1

ate.

first minute-break.

set at.

Apr 6 1871  
1871 April 17

Sum  
Mean.

N. Coll.	S. Coll.
378.78	33.321
88	349
868	347
875	346
872	340
Sum 371	213
Mean. 07874	33.343

= Apr 17

a.	8.	Mag.	REMARKS.
10 17 14 90	490	93 95	52°-53
31 Leo. Min 10 20 29	37 22		0 1 15.2 13.0 0 0 50.9 54.0
36 Mus Maj 10 22 25	56 38		40 4 48.3 46.2
37 Mus Maj 10 26 54	57 44		35 3 55.2 51.5 35 3 24.2 22.2
10 30 35 93	60	9.5 9.8	
33 59 90	168	9.2 9.5	Black & full out side wires
34 29 94	208		
39 00 90	272	9.0 9.0	
40 11 93	287	9.0 9.3	
42 46 84	42 +4.52 4.52		30 0 14.2 23.1



Runs.

Sum  
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

30 5 234 198

30 3 22.4 205

0 0 410 400

0 0 39.4 403 55 4 55.1 56.2

40 4 827 806 40 3 5-75 555

35 3 167 135 35 2 456 414

35 3 170 157 35 2 375 363

15 1 457 411

15 1 433 414

0 4 64 30

0 4 483 449

~~4~~

55 0 212 172

55 0 23.1 200

4 3 597 572

Sum 50 4 00 58.0

30 0 52 115

25 4 52.1

Date.

first minute-break.

set at.

Apr 6  
1871 April 17

Sum  
Mean.

N. Coll.	S. Coll.

α. δ. Mag. REMARKS.

~~10 43 47 82 39.9~~

44 58 0 44.4

6.8

Not seen

46 35 20 0.0

9.0

9.3

47 21 28 48.2

7.8

deeper, m.

8.4

5 full

49 8 20 52.6

8.0

8.2

5 full

50 23 28 9.4

7.0

7.5

51 42 60 34.5

6.0

5.5

52 53 63 10.3

6.5

6.0

53 56 90 52.8

9.2

9.0

1st full

58 22 90 32.8

8.1



Runs.

Sum  
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

35 2 36.3 34.7

20 2 4.7 0.3

20 2 3.9 1.3

30 4 26.3 23.6

30 4 7.1 6.2

30 0 43.7 39.8

~~30 4 7.1 6.2~~~~30 0 21.8 18.5~~

10 4 5.4 6.0

10 4 4.0 2.7

45 8 39.1 35.1

45 3 42.8 39.9

10 1 18.4 14.1

10 1 18.9 16.4

30 0 26.8 22.3

30 0 23.0 22.2

50 0 17 0.1

ate.

first minute-break.

set at.

Mr 6  
1841 April 17

Sum  
Mean.

N. Coll.

S. Coll.

a.

δ.

Mag.

REMARKS.

10 59 36 83 -22 78 Tail ✓ full

8.1

11 1 53 72 4.4 75 8.5

4 28 85 480 83 8.4

redev.  
11 7 18 21° 14'

Gr. 1757  
9 29 50 10

{ 10 2 288 250 }

11 11 26 9 20

12 01 19 27

11 12 50 9 22

not seen  
4-8 ~~10-12~~ 10 5

17 03 9 04

15 4 78 110

15-3 540 8.0

19 44 8 49

30 4 284 425

30 4 303 360

21 08 8 36

Seeing good,

25 1 8 35

45 3 162 120

		A.		C.	
	1.7	21.4	23.7	26.6	28.0
	1.5	21.3	23.1	25.8	27.5
Runs.	1.6	21.4	23.2	25.8	27.8
		21.5	23.3	26.1	28.5
		21.5	22.0	26.3	27.4
	Sum	21		16	42
	Mean.	21.4	23.1	26.3	27.8

M. 6

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

20      4      45.2      45.7

25      0      17.4      14.1

15      3      25.4      21.8

15      3      24.2      22.2

35      0      0.7      -2.9

35      0      2.0      59.1

~~5      3      58.3~~

5      3      38.3      43.0

4      2      15.0      11.4      1      34.0      30.3

1      2

15      3      36.4      35.0

15      3      35.3      40.2

30      4      9.0      13.7

30      4      8.2      12.3

45      2      1.5      5.0      0      55.1      58.2

45      1      51.5      56.8      45      0      51.3      56.8

2      59.1      63.3      2      7.0      9.4

45      2      58.2      52.1      45      2      6.1      10.6



Date.  
First minute-break.  
c, set at.

N. Coll.	S. Coll.
29	
Sum	
Mean.	

171871  
181871

241471

35.607

a.	s.	Mag.	REMARKS.
28 30 77	81		Zone 52°-53°
9 1 10 10	54.8		For beginning of zone see
29 59 55.7			3 pages beyond
4 23 9	4.5		A.M. obs
32 28 80	36.6		W.R.R.
10 14 82	10.3	8.0	
		8.0	
34 49 93	54.7	9.4	
12 23 94	30.1	9.9	
39 07 80	49.2	9.0	
16 25 80	18.9	8.7	
39 50 83	56.9	8.8	
21 19 90	45.0	9.0	
0 hrs. mag			
24 16 30	16.6		
10 hrs. min			
26 02 50	38.1		5 2 23.2 22.0
			45 0 43.7 42.6
			45 0 41.2 40.0
29 48 90	3.8	10.0	5.00
			clouds.
31 20 91	7.0	9.0	2
		9.3	
		-40	

		A.		C.	
Runs.	13	283	303	358	358
	18	288	304	357	361
	1.1	292	308	358	363
		298	300	357	369
		290	300	360	365
	Sum	2	15	35	16
	Mean.	29.0	30.3	35.6	36.3

24.17

Pointer.	Stroke.	Rev.	A.	C.	REMARKS.
	10	2	39.8	336	
	10	2	35.7	342	
	50	3	13.7	12.7	
	60	8	8.7	5.0	
	5	0	46.3	454	
	5	0	55.2	58.7	
	35	4	30.1	303	
	35	4	32.2	316	
←	5	2	21.3	21.1	52 57 57 - 24.7 25.1
	5	2	4.8	3.8	1 28.0 28.0
45	0	29.8	28.9	44-41	50.8 49.7
45	0	28.2	24.8	4	47.3 46.3
15	3	6.5	5.7		
1					
15	1	33.7	32.9		
15	1	35.8	37.0		



Date.

First minute-break.

c. set at.

Apr 17 1871  
Apr 18

85.608

Sum  
Mean.

N. Coll.	S. Coll.
37541	33271
940	279
151	240
239	267
950	270
241	369
940	277

Apr 24

a.

s.

Mag.

REMARKS.

9 32 06 93 -4.0

92

✓ free

90

✓ free

36 00 88 -1.6

88

1st ✓ free both 2<sup>nd</sup> lost from Δa 8<sup>s</sup>

37 12 20 28.6

90

✓ free

41 31 80 0.4

Not-Seen

88

Seen cloudy

42 35 85 373

Not-Seen

85

Seen not-Seen. 5 fol cloudy.

43 25 85 113

Not-Seen

8.6

5 fol

45 07 88 35.9

Not-Seen

8.8

47 03 85 42.5

95

Ry h  
Seen not-Seen. Clouds.

49 43 90 44.2

88

50 38 88 35.0

Not-Seen

Not Seen

omit Above



Runs.

Sum  
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

25 1 248 246

25 1 241 218

25 0 52 41

25 0 116 94

20 4 58.7 49.7

50 2 180 180

lost-Tan for lost #  
all of 15 #  
for extra

20 2 216 2198

45 0 4.0 1.3

10 1 4.7 3.1

45 2 21.3 19.1

15 3 29.3 29.0

40 0 9.1 9.2

W. R. Day  
A M. R.  
Both zones

Quoted  
Q. V. /

Date.

Apr 18 1871

First minute-break.

1871 April 24

Set at.

Sum

Mean.

N. Coll.

S. Coll.

a.

s.

Mag.

REMARKS.

9 5234 82 319 84

8.5

5331 84 274 8.4

8.4

8.5

54 14 92 40.2 8.8

9.0

Change and  
5 fol

56 32 90 9.5 8.5

58 43 94 51 9.5

4 41 93 7.8 8.0

7.5

5 42 95 -3.2 9.5

9.5

7 27 90 45.1 9.3

9.3

9 55 80 26.4 8.8

7.5

plus mag 42 8  
10 14 41

10 4 8.9 9.0

New Sheet 10 15

Runs.

Sum  
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

50 0 233 226

50 0 21.8 20.7

55 1 8.2 8.9

55 1 6.4 4.9

~~55 1 8.2 8.9~~

40 1 8.7 8.1

40 1 45.2 43.7

10 4 22.1 21.7 break after 5?

15 3 4.5 2.7

15 1 11.0 9.5

15 1 14.8 12.7

25 1 8.2 6.5

25 1 5.5 4.5

35 3 38.2 37.3

35 3 37.8 37.5

55 0 52.7 51.4

55 0 54.9 53.4

8 57.7 58.2

3 20.2 19.8



Date.

April 18 1871

First minute-break.

1871 April 24

C. set at.

Sum

Mean.

N. Coll.

S. Coll.

$\alpha$ .

$\delta$ .

Mag.

REMARKS.

10 17 14 80 490 8.9

19 31 94 369 9.5

9.6

22 14 80 54.8 8.5

7.8

23 05 83 284 8.3

8.3

24 38 83 299 8.8

8.46

26 45 85 484 8.9

9.0

28 03 90 -10 9.2

9.5

30 35 93 60 9.3

9.3

34 29 94 20.8 9.0

9.2

42 Leo Min 31° 22'

10 38 45

just faded

0 1 183 20.3

1 15.8 18.8

Marked 10h 32

Chromo 0 1 15.8

Runs.

Sum  
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

30 3 270 272

55 0 52.7 48.0

Sun 45 0 48.2 45.3

Reformed tree 10<sup>h</sup> 30<sup>m</sup> 35<sup>s</sup>

25 2 57.4 56.5

25 2 59.0 57.8

50 4 50.7 51.0

50 4 45.3 45.0

50 2 30.0 28.9

50 2 25.7 23.8

30 3 38.2 37.9

30 3 9.9 9.8

20 4 19.0 17.1

20 4 13.6 11.2

Reformed

15 1 43.0 41.0

15 1 40.0 37.9

Reformed.

0 4 37.1 36.0

0 1 21.2 22.3

0 1 31 5.0

0 2 38 25.6

0 0 54.9 57.2

0 0 15.0 16.7

mid ltr last 5

1871 Dec. pr. 5. 1536R

Date.

1871 Apr 24

First minute-break.

c, set at.

Sum

Mean.

N. Coll.

S. Coll.

a.

s.

Mag.

REMARKS.

10 42 30 8.4 -4.2

86

8.4

43 47 92 399

95

9.3

44 58 65 444

78

6.3

46 35 90 00

88

let for 62° 26'

9.0

49 08 75 526

70

8.0

50 23 78 94

70

7.5

51 42 60 345

65

6.0

52 56 42 73

88

9.0

53 56 90 528

90

9.0

ful

at mid May 62° 26'  
16 5549



Runs.

Sum  
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

25 1 394 38.2

25 1 33.2 31.8

40 2 142 13.3

40 2 12.8 15.1

35 2 36.7 32.2

35 2 38.1 35.7

20 1 56.5 54.0

20 1 57.9 56.2

30 0 43.1 41.1

30 0 46.3 43.5

10 4 7.5 6.5

10 4 5.2 4.1

15 3 35.7 34.8

Sum 45 5 36.3 35.5

15 0 52.4 50.2

15 0 50.8 48.1

30 0 20.5 18.7

30 0 21.2 19.8

55 1 24.3 24.0 0 46.7 45.0

55 1 24.2 22.8 0 44.2 42.9

Date.

First minute-break.

set at.

1871 April 18<sup>th</sup>

1871 April 24

N. Coll.

S. Coll.

Sum

Mean.

a.

δ.

Mag.

REMARKS.

10 5-547.5 27 9.0 52°-53° Jol  
8.6

59 36 83 -22 8.0 5 fol 5 fol  
int Tm

W. M. May  
11 2 28 45 12

10 1 21.0 216  
Change sheet -  
10 1 9.3 9.6  
W. M. Guds. obs.  
W. M. Regis obs.  
5.2 5.20 52.8

11 11 26 8° 20'

11 12 57 9° 22'

W. M. 1871  
11 15 14 65° 1'

20 1 20.0 143

11 19 47 8° 49'

30 4 23.7

11 21 08 8° 36'

5 fol not all of main

11 23 59 87 21 8.8

9.10

11 25 52 85 280 8.6

8.5

234

Runs.

Sum  
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

15 3 58.2 -57.0

15 3 54.7 52.9

20 4 51.5 51.0

20 4 52.0 50.7

10 1 3.4 5.5 0 20.7 20.7

10 0 51.2 50.8 0 17.8 16.1

0 2 22.4 30.0

20 1 0.0 54.3 20 0 25.2 19.3

20 1 9.3 5.8 20 0 21.9 17.2

30 4 5.9 12.3 Renfard

45 1 31.2 33.7

45 1 45.0 50.2 Ren OK

20 0 52.4 48.7

20 0 40.8 38.1

55 0 11.1 6.8

55 0 8.2 5.5



date.

first minute-break.

set at.

1871 April 18<sup>th</sup>

1871 April 24

Sum

Mean.

N. Coll.

S. Coll.

a.

s.

Mag.

REMARKS.

11 27 06 84 734 9.8  
9.3

11 27 36 85 26.6 8.3 5 fol 1m bad  
8.14

11 30 20 80 106 8.8  
9.0

11 32 27 78 839 8.0  
8.4

Comp 9.5 mag

34 37 83 426 8.3 false obs  
8.2

36 09 83 383 8.4 2p  
8.14

37 0 89 416 8.8  
8.5

39 36 75 384 7.5 double?  
7.2

44 16 73 83 7.3 2

45 00 83 438 8.8 1m  
8.14

378

		A.		C.	
Runs.	1.9	227	242	30.1	30.4
		223	23.7	30.2	30.8
	1.0	225	24.0	29.5	30.7
		232	23.7	29.8	30.9
		235	23.9	30.1	31.0
	Sum	45	47	39	
	Mean.	22.4	23.9	29.7	30.8

2424

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

55 4 21.7 20.8

55 3 53.3

5 free Tm lost

55 0 39.1 39.2

55 0 37.2 36.8

Pen

0 2 36.7 33.5

0 2 35.2 33.2

Pen failed

25 3 59.3 56.4

25 3 53.5 51.9

Pen failed

40 1 16.2 15.3

40 1 12.3 10.2

Pen failed

40 4 31.7 29.8

40 4 33.1 32.2

Pen failed

40 2 22.8 18.9

40 2 19.1 17.1

Pen failed

40 4 6.1 2.1

40 4 6.8 4.8

Rev O.K.

15 0 16.7 13.5

15 0 15.2 14.0

40 0 31.2 26.7

40 0 22.7 20.8

Date.

First minute-break.

Set at.

N. Coll.

S. Coll.

Sum

Mean.

Apr 18  
1871 April 24

$\alpha$ .

$\delta$ .

Mag.

REMARKS.

*Thurs May*  
~~11 48 10~~ 398  
11 48 05 540 241

53 16 89 187 8.6  
8.9

56 15 84 0 42 5 0 26.2 31.6

58 15 -0 36

59 15 -0 32

Not seen

Not seen.

59 40 -0 37

12 1 53 9.0 520  
-0.1 8.3

8.4

3 38 85 1.9 8.4

8.2

4 26 9.5 30.9 7.0

8.1

6 22 8.0 39.8 7.5

7.8



	A.		C.	
	14.1	15.1	18	20.7
1.3	13.8	15.4	18.0	20.2
1.0	14.3	15.3	19.2	20.0
1.2	13.4	15.8	18.8	19.7
	14.2	15.0	19.1	19.4
Sum	4.9	1.6	9	4.9
Mean.	14.0	15.3	19.0	20.00

Mr. 18

Pointer.	Stroke.	Rev.	A.	C.	REMARKS.
	55	3	22.5	20.4	55 2 42.9 40.0
	0	3	5.7	0.8	Refined
	0	3	5.8	3.9	
	0	5	0.8	4.8	0 4 0.3 4.2
	0	4	40.6	48.3	6 fall Rev OK
	55	2	20.0	31.8	
	20	3	47.2	42.1	
	20	3	41.0	37.5	
	20	1	19.8	15.9	
	20	1	19.2	16.0	
	50	2	5.8	3.2	
	50	1	59.3	57.0	
	40	3	38.2	34.3	
	40	3	33.3	32.2	

Date.

Apr 2 1871

First minute-break.

Set at.

Sum

Mean.

N. Coll.

S. Coll.

$\alpha$ .

$\delta$ .

Mag.

REMARKS.

8	10	22	84	51° 40'	80
14	0	87	51	38	88
18	12	83	51	31	89
22	31	75	51	03	76
25	39	85	50	54	82
29	25	87	51	7	88
33	50	84	50	28	85
37	7	87	51	47	88
39	44	92	51	36	92
47	18	90	40°	47	95
50	43	87	50	14	—
54	02	93	50	32	93
85-9	53	92	49	50	
9.9	48	80	52	30	93
15	58	89	50	43	—
22	28	44	50	28	
32	21	90	49	41	93
35	48	85	50	04	86
40	16	91	57	29	93
44	45	70	57	14	70
50	28	96	57	16	90

W.M. obs  
W.M. Rec

Runs.

Sum  
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

40 1 470 423

40 4 234 182

50 2 287 238

15 4 258 190

25 3 202 149

15 1 172 106

55 1 33 578

35 1 306 232

45 3 119 60

35 0 84 91

5 4 235 182

45 2 13 561

30 ~~40~~ 51 07

50 2 12 536

35 4 273 228

55 1 202 143

30 2 175 116

20 2 111 52

50 4 438 387

5 4 292 227

5 1 578 557



ate.

Apr 21/57

first minute-break.

set at.

Sum

Mean.

N. Coll.

S. Coll.

a.

δ.

Mag.

REMARKS.

9 53 29 7,5 5707 70

9 56 53 70 51 10 ~~70~~

10 0 50 71 5128 70

10 5 40 +7 18

u. Jrs May +42 8  
10 14 41

31 Leo +87 22

10 20 29

37 Jrs May 57 44  
10 26 54

35 Jrs May 69 44

10 33 53 31 22

42 Leo

10 42 45 +4 52

Runs.

Sum  
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

15 2 9.3 2.2

10 2 31.3 25.0

55 1 18 63.7

0 4 15.0 18.7

10 4 10.0 5.3

0 0 55.4 54.2

35 3 26.3 21.3

35 2 48.7 39.3

0 1 11.5 10.4

30 0 12 5.3

ate.

Apr 8 1871

first minute-break.

set at.

85.607

Sum

Mean.

N. Coll.

S. Coll.

a.

δ.

Mag.

REMARKS.

9 29 44 80 50 28

AM Obs

35 48 85 50 00 90

AM Obs

44 45 70 51 42 75

50 28 90 51 16 95

53 29 75 51 07 78

56 53 51 10 70

10 0 50 71 51 28

11 hrs May 42 8

10 14 41

37 hrs May 57 44

10 26 54

42 hrs May 31 22

10 38 45

Apr 23 1871

AM Obs AM Obs

9 44 45 70 59 14 70

50 28 90 51 16 70

53 29 75 51 70 78

9 56 53 70 57 10 70

10 0 50 71 51 28



Runs.

Sum  
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

55- 1 8.2 6.1

20 1 55.3 58.7

5 4 16.8 16.2

5 1 50.8 49.7

15 1 55.9 55.0

10 2 16.8 16.8

55- 0 47.1 46.7

10 3 53.0 53.3

35- 3 14.1 16.4

0 0 59.9 4.7

45- 4 17.0 16.9

5- 1 49.1 46.7

15 1 58.9 57.1

10 2 19.9 18.8

65- 0 45.4 43.8

Date.

First minute-break.

c, set at.

Apr 26 1871

9 17 Apr 29

35.607 35.630

Sum

Mean.

N. Coll.

S. Coll.

37.961

.968

.961

.954

.959

303

37.961

33.301

.305-

.298

.294

.301

33.300

a.

δ.

Mag.

REMARKS.

10 22 10 6.6 39.9

73

From 61°-52°

A.M. obs

~~W.R. Rec.~~

A.M. obs

W.R. Rec.

25 37 9.0-1.4

26 39 9.3-1.1

28 58 8.8 19.3

F.

28 59 8.8 22.5

9.5

ful.

28 03 6.5 28.8

7.0

39 23 9.0 18.4

5.2

41 06 8.0 17.9

8.5

Spel.

42 31 9.4 11

10.0

9.5

Cont g. by

43 40 9.0 38.1

8.8

9.0

	A.		C.	
Runs.	33.6	36.8	43.0	44.1
	33.0	36.2	42.6	45.3
	33.9	36.9	42.8	44.1
	33.9	36.0	43.0	44.1
	33.8	36.5	42.4	44.9
Sum				
Mean.				

Pointer.	Stroke.	Rev.	A.	C.	REMARKS.
	40	3	36.7	36.3	
	0	2	4.3	3.0	
	50	4	31.3	33.1	
	4	59	61.0	59.1	
	5	0	32.4	31.1	
	5	0	2.8	1.8	
	20	1	53.3	53.6	
	20	1	52.2	52.8	
	40	4	20.3	20.7	
	40	4	22.9	22.0	



1871 Dec. 29

Date.

First minute-break.

c, set at.

N. Coll.

S. Coll.

Sum

Mean.

a.

δ.

Mag.

REMARKS.

10 44 30 6.2 -33

6.0

✓ ful

7.0

✓ ful

45 31 89 42.1

8.0

✓ ful

8.8

47 35 8.2 36.1

8.6

8.2

49 20 9.8 12.8

9.0

9.5

50 25 9.0 24.3

8.6

8.5

✓ ful

51 33 9.0 41.1

9.0

✓ ful # faint do. m.

52

52 19 9.4 -4.4

not seen too faint -  
not seen

55 24 9.3 -4.2

9.0

9.2

1059 47 9.8 49.8

9.3

9.4

11 2 50 9.5 38.5

✓ ful

9.5

9.5

47.3

Runs.

Sum  
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

25 0 204 20.3

25 0 25.5 25.6

40 0 17.0 17.0

40 0 44.4 44.1

45 1 45.4 44.8

45 1 41.3 41.2

10 0 6.7 5.0

10 0 9.4 8.1

55 3 46.3 44.8

55 3 17.3 16.8

40 2 19.1 17.9

~~25 2 4.9~~

25 2 4.9 4.8

25 2 5.9 7.0

30 4 29.8 28.9

30 4 23.8 23.6

40 2 50.0 52.5

40 3 37.4 34.9

Date.

Apr. 26 1871

First minute-break.

Apr 29

c, set at.

Sum

Mean.

N. Coll.

S. Coll.

a.

δ.

Mag.

REMARKS.

11 542 90 20.5 9.0 24

9.0

6 17 88 53.9

not seen

8.5

✓ full

8 39 90 20.5 8.8

8.8

9 55 87 51.8

8.0

Mo. 1 = 11 11

9.0

14 45 90 23.8

8.4

✓ full New that 11 14

9.0

18 06 78 12.0

8.0

4

8.0

19 02 93 3.5

9.5

Set for 43° 52'

9.0

✓ full

21 55 94 26.0

9.7

24

9.6

22 36 90 -5.4

8.8

Z. # ✓ full.

✓ full

T<sub>n</sub> c

30 10 73 67.8

7.5

✓ full

7.0

5.4



Runs.

Sum  
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

0 2 9.3 8.3

0 2 9.7 8.8

25- 4 32.5 32.9

0 2 26.7 26.3

0 2 20.8 21.2

30 0 55.8 56.5

30 0 55.7 55.9

55 3 35.9 37.0

55 4 16.0 16.9

10 0 34.5 34.1

10 0 35.4 35.0

15 3 5.0 4.0

15 2 24.1 24.0

55 1 38.1 38.3

55 1 41.0 40.1

25 2 35.4 36.0

25 2 17.6 17.8

30 2 27.0 20.0

30 0 52.5 52.1

Date.

Fast minute-break.

c, set at.

Apr 26 1871

Apr 29 1871

N. Coll.

S. Coll.

Sum

Mean.

a.

δ.

Mag.

REMARKS.

11 31 05 9.5 5.4

not seen

not seen & in upper part of field

36 25 9.0 18.8 9.0

8.8

37 28 9.1 49.0 9.2

9.0

38 55 9.1 81.7 9.3

9.2

39 41 8.9 19.2 9.0 2

9.0

40 26 9.3 29.7 8.8

8.8

5 fol

9.2

5 fol

45 12 9.0 -3.4 8.9

8.9

No 2 ends at 11<sup>h</sup> 49<sup>m</sup>

~~48 48 8.0 43.5~~

A.M. obs

W.H.R. Rec.

A.M. obs.

W.H.R. Rec.

Runs.

	A.	C.
19.8	20.2	27.8
19.2	20.0	27.9
19.6	20.1	27.7
19.0	20.6	27.3
18.1	20.0	27.0
Sum	84.9	211
Mean.	18.98	21.1

change C col

7871  
April 29

18.94  
20.18  
26.42  
27.54  
301.24  
301.72

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

0	3	28.3	29.3
0	3	24.1	24.1
30	4	20.0	20.6
30	4	13.0	13.1
50	0	54.3	52.5
50	0	53.1	52.6
0	4	17.0	18.2
0	3	52.3	53.0
50	2	11.6	10.6
50	2	3.3	4.9
25	0	28.0	28.1
25	0	30.1	30.8

last booklet



Date.

First minute-break.

c, set at.

Sum  
Mean.

N. Coll.

S. Coll.

$\alpha$ .

$\delta$ .

Mag.

REMARKS.

10<sup>h</sup> 32<sup>m</sup> 15<sup>s</sup> 62 51° 10'

25 17 90 50 59

28 59 88 51 22.

→ # 10 33 53 + 69° 44'

35 23 90 51 18

42 31 94 51 01

44 22 89 51 48

↙ → # 10 54 06 + 59° 04'

59 47 95<sup>57°</sup> 49.8

11 2 50 95<sup>57°</sup> 38.5

5 08 92 51 46

8 39 90 51 20

Runs.

Sum  
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

Date.

First minute-break.

C, set at.

N. Coll.

S. Coll.

The observations for May 7 12 (in comm.)  
and May 15 have been copied into the Home Book &  
My Garnet but I cannot find at present where  
he got them from. June 25-1874 W.B.R.

a.

s.

Mag.

REMARKS.

~~11 11 43 84 52° 0'~~  
~~11 16 25 80 52° 10'~~

~~11 11 26 + 9 20~~  
~~11 12 51 + 9 22~~

~~11 13 46 72 52 27~~  
~~11 27 36 52 27~~

~~11 20 40 + 8 55~~

~~11 23 35 + 48 52~~

11 30 20 80 52 21

11 32 27 52 54

11 34 37 83 52 43

11 37 0 89 52 42

11 39 36 75 52 38

~~11 47 5 54 24~~

11 53 15 93 52 36

~~11 56 10 - 0 42~~  
~~11 59 10 - 0 32~~

12 2 41 95 50 56

5 16 79 51 33



Runs.

Sum  
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

Date.

1871 May 1

May 2

First minute-break.

set at. 35.615

N. Coll.	S. Coll.
37.970	33.268
.964	.269
.955	.269
.964	.264
.955	.271
Sum 308	41
Mean. 37.962	33.268

a.

s.

Mag.

REMARKS.

~~12 8 10 83 42.3~~  
10 5 30 65 80

~~12 12 48 181~~  
~~12 21 50 203~~  
~~2# 12 27 29 241 03~~

51°

7 41 86 25.2

2# 10 94 27 43 83

12 08 92 46.5

13 12 90 0.9

14 23 80 8.8

16 40 94 49.8

18 25 89 43.4

22 15 62 9.9

25 57 90 -14

fulen

Runs.

Sum  
Mean.

A.		C.	
148	148	212	287
149	134	214	200
152	148	212	238
137	152	222	283
142	148	222	237
1		1	

*Wey*

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

25 1 469 467



Date.

First minute-break.

C, set at.

1871 May 2  
35.618  
35.618

Sum

Mean.

N. Coll.	S. Coll.

a.	δ.	Mag.	REMARKS.
10 29 22 84	14.6	8.5	2x 10 33 53 69 44 " 10 38 45 31 22
41 06 80	17.9	8.5	Zone 51°-52°
42 31 94	11	9.5	
43 40 88	<del>24</del> 3.4	8.5	202
44 22 89	48.5		2x 10 46 9+34 54
47 37	8.2 36.1		
49 20 95	12.8	9.5	
50 25 90	24.3	8.7	
52 12 9.6	30.9	8.0	False obs <del>2x 10 54 06+54 04</del>
58 20 8.5	31.3	8.6	
	13.7		

Runs.

Sum  
Mean.

A.		C.	
21.2	22.6	29.5	31.5
<del>20.8</del>	23.3	29.8	31.4
21.2	22.8	29.5	31.0
21.8	23.1	30.0	30.7
21.7	23.0		30.9

R

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

5 4 48.7 46.3

T.A.R Obs  
Am Re

5 0 38.9 37.8

20 1 52.3 50.8

25 1 45.0 43.2

10 0 8.0 5.3

35 3 53.8 51.2

45 1 57.0 54.8

50 1 3.6 1.3

ate.

first minute-break.

set at.

May 1 1871

May 2 1871

Sum

Mean.

N. Coll.

S. Coll.

a.

s.

Mag.

REMARKS.

11 0 15 94 137

9.5

W. M. obs

W. H. R. W. C.

2 50 95 38.5

9.5

4 46 90 47.3

8.4

June

~~5 47 90 40.5~~

~~9.0~~

6 17 88 45.8

9.0

8 39 90 20.5

9.0

5 fol f bad

~~9 55 87 51.8~~

~~8.9~~

2 11 11 34 33 48

10 16 90 -2.2

K

14 45 80 23.8

9.0

fleecy clouds.

18 06 75 12.0

8.7

one May

8.8

19 02 93 3.5

8.6

" "

~~21 55 94 26.0~~

~~8.6~~

22 03 87 -2.0

Clean

-5.4



Runs.

Sum  
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

5 4 11.8 10.1

W.A.R. Obs  
A.M. Rec

40 3 36.3 34.8

30 4 48.0 46.9

30 0 14.9 12.7

9<sup>2</sup> 1 44.1 41.8

25 0 14.7 12.4

35 4 13.4 11.7 sub failed.

10 0 35.0 34.1 " O.K.

10 0 28.2 27.1

15 3 0.2 -0.3

10 4 35.6 35.1

Date.

First minute-break.

c, set at.

N. Coll.

S. Coll.

Sum

Mean.

May 1 1871  
May 2 1871

a.

s.

Mag.

REMARKS.

~~11 22 36~~ 90 -54 ~~2 3 11 23 35~~ + 43 52

30 10 73 51.8 7.0  
8.0

31 05 95 54 too faint

36 25 90 118 8.0  
8.8

37 28 91 49.0 9.0 2 11 39 17 + 48 29 2  
8.8

~~40 40 26 93 29.7~~ 90 5 fol.

45 12 90 -3.4 8.7  
9.0

48 48 80 43.5 8.5  
8.8

50 05 90 19.8 8.7  
9.0

53 13 90 46.0 9.2  
9.2

l.m. b = 11 54

Runs.

Sum  
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

3

30 0 59.3 57.4

30 0 52.0 50.1

0 3 25.3 25.2

0 2 58.2 55.7

30 4 16.4 16.4

30 3 53.0 50.4

~~50 3 19.3 19.5~~~~50 2 16.8 15.4~~~~50 2 16.8 15.4~~

25 0 29.0 27.9

25 0 33.0 31.9

35 4 30.3 31.8

35 4 37.2 36.3

0 3 8.8 8.8

0 3 15.8 13.7

35 0 59.1 57.7

35 1 3.9 3.2

5 fol

5 fol



Date.

1891 May 10<sup>th</sup>

First minute-break.

c, set at.

35.626

Sum

Mean.

N. Coll.

S. Coll.

37.987

33.257

995

267

982

270

986

269

994

264

444

312

37.987

33.264

a.

s.

Mag.

REMARKS.

10 36 50 75 50° 41

37 55 85 50 9.6

40 15 95 50 8.7

43 34 91 50 6.1

45 55 85 50-49

48 28 84 50 19.4

51 27 92 50 4.0

53 27 93 50 15.9

54 10 91 50 18.3

58 21 68 50 51.7

20

Wash obs  
W M rec.

70

Runs.

A.		C.			
17.2	17.4	23.1	24.6	1722	23.16
16.7	17.6	23.1	24.0	1678	24.40
16.5	17.6	23.0	25.2	300.44	300.76
17.1	16.7	23.3	24.2	.09	16-
16.4	16.8	23.3	24.0	15-	
Sum	339	361	8	220	24
Mean.	1678	1722	23.16	24.40	.12

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

30 0 48.3 465

30 0 25.7 358 blue

ate.

first minute-break.

set at.

1871 May 10<sup>th</sup>

May 11 1871

Sum

Mean.

N. Coll.

S. Coll.

a.

δ.

Mag.

REMARKS.

11 0 12 8.4 <sup>0</sup>50-74 8.2

SM Jbz  
24R Rec

11 1 53 7.2 <sup>0</sup>51 29

not seen

3 15 8.7 <sup>0</sup>50 57 8.6

5 14 9.3 50 42.6 9.0

6 29 7.2 50 34.5 7.5

8 36 6.5 <sup>0</sup>53 28 9.0  
7.5

both \*<sup>s</sup>

9 40 8.7 <sup>0</sup>50 39.6 9.3

2<sup>th</sup> for d

10 28 8.0 50 16.2

11 50 8.1 50 40.2 8.6  
7.6

12 20 8.9 50 39.7

50 22.1



Runs.

Sum  
Mean.

A.		C.	
22.3			
21.3			
21.0			

May 11

Pointer.	Stroke.	Rev.	A.	C.	REMARKS.
	30	0	29.0	27.2	
	15	3	18.7	17.1	
	40	0	15.0	12.9	
	45	4	19.6	17.8	
	50	4	16.3	15.8	
	40	3	5.3	4.3	
	40	1	59.9	58.2	
	40	2	6.7	4.1	

ate.

1871 May 10

first minute-break.

Sum

Mean.

N. Coll.

S. Coll.

a.

δ.

Mag.

REMARKS.

11 14 40 9.2 50 221 9.3

9.2

5 fol

15 44 9.3 50 327 9.4

9.0

✓ fol

16 57 8.5 50 5.6 8.7

8.6

✓ fol

18 19 7.8 50 4.6 8.1

8.0

22 08 9.5 50 0.5 9.7

25 33 9.4 50 7.1 9.5

26 45 8.5 50 30.9 8.8

9.2

27 45 9.3 50 12.0 9.5

9.3

28 40 9.0 50 24.3 8.7

9.0

29 57 9.5 50 35.2 10.0

10.0

Cont-obs.

31.0

Runs.

Sum  
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

0 0 16.5 13.3

5-5 4 25.0 25.4

45 4 10.4 9.9

45 3 25.5 24.0

15 2 57.0 51.3

15 2 7.0 5.8

15 2 42.9 40.1

15 2 32.7 32.6

20 2 7.4 4.9

15 0 9.5 6.8

50 0 13.0 10.2

50 0 16.1 15.1

5 3 19.3 16.7

5 3 17.6 17.1

55 2 44.8 43.1

55 2 42.3 41.6

45 2 13.0 10.1

faint cloudy  
~ twilight  
freefull \*  
for  
fall



date.

1871 May 10

first minute-break.

May 11 1171

c, set at.

35.626

Sum

Mean.

N. Coll.

S. Coll.

a.

s.

Mag.

REMARKS.

11 30 56 7.8 50 31.0 7.0

8.8

32 27 9.4 50 4.3

not seen since

not seen since

35 56 7.8 50 40.1 8.3

7.0

36 55 8.9 50 48.8 9.0

not seen

37 49 9.1 50 36.4 8.9

9.0

38 58 9.2 50 34.6 8.9

9.2

41 05 7.0 50 32.5 6.5

7.5

flying clouds

43 07 8.7 50 3.4 8.8

8.7

44 56 9.4 50 45.4

not seen

9.3

46 10 9.1 50 7.0 9.4

9.0

50 40

Runs.

	A.		C.	
	116	115	161	164
	117	116	162	170
	113	121	156	171
	114	119	156	169
	115	118	161	169
Sum	69	78	306	343
Mean	11.38	11.56	16.12	16.86

$$\begin{array}{r} 11.56 \\ 11.38 \\ \hline 18 \\ 045 \\ 15 \\ \hline -10 \end{array}$$

$$\begin{array}{r} 1686 \\ 1612 \\ \hline 76 \end{array}$$

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

40      1      17.3      14.0

Sum 50      1      17.9      18.1

40      2      24.3      22.9

40      2      24.3      24.0

35      1      19.8      18.1

45      0      38.2      36.5

45      0      43.7      42.7

45      3      2.7      0.9

45      2      46.5      52.8

50      0      29.6      27.8

50      0      29.4      28.0

25      0      58.9      56.1

25      0      55.5      53.3

35      2      17.2      14.4

15      1      4.7      1.7

15      1      0.0      1.4



Date.

First minute-break.

c, set at.

May 10 - 1871  
May 11 1871

Sum

Mean.

N. Coll.

S. Coll.

a.

b.

Mag.

REMARKS.

11 4726 80 50 40

not seen

not seen, # 3

50 13 90 50 115 9.0  
9.0

51 22 89 50 377 9.1  
8.7

52 31 95 50 258 9.2  
9.5 5 full

53 53 83 50 180 8.7 11 56 15 - 0 42  
8.5 58 58 - 0 35  
59 10 - 0 32

12 03 32 91 50 283 9.0  
9.0

4 25 80 50 527 8.5  
8.2 5 full

5 28 84 50 124 8.5  
8.0

8 84 91 50 536 9.5  
9.1

9 25 89 50 35

not seen  
12 12 48 - 10 31'  
not seen



Runs.

Sum  
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

10 0 22.4 19.7

10 0 23.0 21.6

45 0 8.4 6.8

40 4 61.4 61.2

55 1 15.3 12.7 5 fl

55 0 58.7 59.1

0 4 43.2 42.3

0 4 40.8 41.5

50 3 49.2 46.8

50 3 40.5 44.1

25 4 50.7 48.9

25 4 19.5 20.5

5 4 35.0 32.3

5 4 31.8 32.8

25 4 17.9 16.8

25 4 21.9 23.0 obs all we.  
obs.

Date.

May 13 1871

First minute-break.

May 14 1871

set at.

35.630

Sum

Mean.

N. Coll.

S. Coll.

Obs. 2d but - Cont - record

a.

s.

Mag.

REMARKS.

11 0 15<sup>h m s</sup> 94 51 13.8

1 06 89 53 19.3

3 57 85 53 44.4 8.6

5 08 92 57 40.8 8.4

5 fold

6 14 77 53 33.8 8.0

7 11 72 53 88.2 7.8

8 41 65 53 28.0 8.0  
6.5 Double both10 16 90 50 58.0 9.2  
9.2

12 11 95 52 59.0 (O.K.) Not seen

14 23 90 53 31.6 9.5  
9.2

see upper

52446

Runs.

Sum  
Mean.

A.		C.	
213	212	287	290
209	219	281	292
206	218	283	284
314	219	280	287
308	220	280	292

May 14

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

35 2 13 1.7

30 4 28 5.3

45 4 32.4 3.19

40 3 43.6 4.32

50 4 18.1 17.2

20 4 28.8 30.5

25 0 3.8 1.2

5

50 1 45 4.1

50 1 51.3 49.1



Date.

first minute-break.

set at.

7871 May 14

Sum  
Mean.

N. Coll.

S. Coll.

$\alpha$ .

$\delta$ .

Mag.

REMARKS.

11 16 38 73 52.446 8.7  
7.5

Twilight  
" "

17 20 82 52.425 9.2

not seen & full moon

18 46 72.52490 8.0  
7.8

21 42 95 52.125

Orayed. reflection  
seen but too faint to obs

23 23 88 53.196 9.2  
8.6

full

24 56 88 53.158 8.5

not seen

27 05 83 54.292 8.8  
8.4

full

28 26 75 54.173 8.5  
8.2

29 50 92 53.72 9.0  
9.5

32 22 94 53.277 7.5  
10.6

not seen  
I were doubt

52.574

Runs.

Sum

Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

35 2 56.4 56.4

35 3 1.3 59.2

35 4 57.8 58.2

30 2 24.6 25.7

30 2 19.2 18.1

0 2 9.0 9.4

0 3 2.7 2.0

5 3 46.9 48.0

50 3 57.2 60.5

50 3 37.5 35.6

5 0 48.8 49.4

5 0 49.5 48.1

15 1 6.8 7.5

15 1 12.1 9.0

50 4 11.3 11.2

Date.

May 13 1871

first minute-break.

7871 May 14

Sum

Mean.

N. Coll.

S. Coll.

a.

s.

Mag.

REMARKS.

11 33 24 8.0 52 57.4 8.0

8.2

34 33 93 53 335 9.5

9.5

36 54 70 53 7.2 7.0

7.0

focus hard to set in

39 21 93 51 163 7.4

7.0

40 46 94 53 455 7.5

8.0

sun one pr. higher

41 50 95 53 860

not seen sun

43 14 79 54 317 7.6

7.8

45 26 90 51 197 9.2

9.5

48 51 95 53 539

9.8

too faint

50 12 84 53 480 8.5

8.0

54 54



Runs.

Sum  
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

20 4 66.1 66.3

20 4 33.3 31.8

s full

45 3 0.8 1.4

45 2 52.8 51.4

15 1 13.2 12.9

seeing good

15 1 11.7 9.9

5 1 8.1 8.0

5 1 2.3 1.0

35 3 59.0 60.9

35 3 57.0 58.4

50

50 1 15.7 16.7

50 1 9.8 7.2

0 2 40.2 42.5

0 2 39.1 37.8

30 4 20.2

25 3 41.3 39.9

30 4 20.2 21.8

30 4 3.3 2.2

Date.

first minute-break.

c, set at.

N. Coll.

S. Coll.

Sum

Mean.

a.

s.

Mag.

REMARKS.

11 51 26 8.3 8.3 54 54.8  
 54 54.3 8.8  
 8.5

53 14 8.3 54 6.3 8.0  
 8.4

54 41 8.7 53 31.4 8.3  
 9.8

55 36 9.3 53 13.1 9.0 5.5 full

59 10 7.7 53 35.3 8.7 Bad seeing  
 7.5

12 3 15 9.0 53 17.3 9.0 2.2

3 57 9.4 53 41.5 9.0 wrong \*?  
 5.5 full Bad obs.

5 38 8.3 53 23.3 9.3  
 9.2

7 12 9.0 53 56.6 8.7  
 8.3 f.l.

9 07 8.3 53 25.4 7.8  
 6.8

54 7.8

Runs.

Sum  
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

25 3 36.0 37.4

25 3 39.8 40.1

15 0 52.8 53.5

15 0 54.1 50.1

50 1 23.7 24.1

50 1 24.4 21.0

10 0 33.1 33.1

45 2 24.5 25.6

45 2 17.3 16.1

5 0 17.7 18.5

5 0 16.3 15.5

30 3 10.5 11.1

55 4 28.8 30.8

55 4 30.0 30.7

25 0 58.2 58.8

25 0 53.1 50.6

55 0 50.4 50.0

55 1 49.1 46.9



Date.

First minute-break.

set at.

N. Coll.

S. Coll.

Sum

Mean.

 $\alpha$ . $\delta$ .

Mag.

REMARKS.

P

12 11 07 93 54 78 9.5  
9.5

m.

12 51 82 53 93 8.5  
7.9

2<sup>d</sup> obs

14 47 83 54 29 8.8  
8.0

16 30 92 54 45 9.2  
9.1

bol appen

18 44 95 53 39 10.0

not seen

19 56 82 53 23 8.0  
8.0

21 34 95 54 32 10.2  
5.1

too faint  
& fall

23 01 88 53 58 8.8  
8.5

24 45 65 53 46 6.8  
23  
57 6.3

27 13 77 49 59 7.8  
7.5

50 523

Runs.

Sum  
Mean.

32.4	34.0		
32.6	32.0		
33.1	33.2		
32.3	33.2		
33.3	33.5		

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

15 0 198 216

15 0 218 212

10 3 361 368

10 3 28.7 27.9

20 0 57.4 52.2

20 0 50.0 48.9

15 3 56.1 58.1

15 4 1.3 59.2

45 3 40.8 39.9

55 4 26.7 29.4

55 4 15.9 14.7

~~20 4 26.6~~

45 4 33.5 33.6

20 4 26.6 28.0

20 4 16.7 15.4

35 0 54.6 56.1

35 0 55.1 53.8

20 2 57.6 59.9

Sum 20 1 51.2 51.1

Date.

First minute-break.

c, set at.

May 13/14  
1871 May 14

Sum  
Mean.

N. Coll.	S. Coll.

a.

s.

Mag.

REMARKS.

~~12 29 12~~ ~~40 50 523~~  
12 30 19 51 53 490 9.4  
9.5

comb. 1227 h m  
finished 1230

31 37 50 54 277 9.0  
8.8

33 46 52 51 417 9.0  
4' 9.2

35 22 58 51 76 8.0  
8.5

37 54 52 52 47 9.0  
9.2

39 35 50 53 485 9.0  
35 9.0

pre. comen

41 34 73 53 336 8.0 2  
6.9

42 76 65 53 89 7.0  
6.8

45 49 51 53 134 8.8  
8.9

Am. Sur.

48 53 55 53 112 10.0  
9.8



Runs.

Sum

Mean.

A.

C.

30.7	30.7	38.7	40.3
30.9	32.1	39.4	39.8
30.5	32.3	39.0	39.3
30.6	30.5	38.7	40.6
29.4	31.6	39.0	39.0

My 13

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

30	3		474	48.1	
30	3		48.9	48.0	
55	0		18.1	19.4	
55	0		15.8	15.0	
40	0		25.9	25.0	
40	0		24.0	22.0	
15	0		22.0	24.2	
15	0		27.1	24.3	
15	2		2.9	3.2	
15	1		57.8	55.7	
30	4		43.7	45.3	
30	4		48.7	48.8	
45	3		58.5	60.2	
45	3		55.5	55.2	
10	8		15.2	16.5	
10	3		20.2	17.3	
10	0		24.4	27.1	
10	0		25.3	23.0	
10	1		19.8	20.3	
10	1		24.0	21.7	

Date. 5

First minute-break.

c, set at, 25.632

Sum

Mean.

N. Coll.

S. Coll.

37812

New Price  
= May 17

5871 May 16<sup>th</sup> -

a.

8

Mag.

REMARKS.

11 28 31 75 54 173

90 85 6.0 51 203 6.8

3237 9054 292 seen

34 40 95 54 519. 20 20

25 30 40 54 204

37 45 80 54 229

38 46 8.3 54 29%

40 10 8.3 54-0.2

4150 9.5<sup>54</sup> - 3.9

43 14 79 54 317

54 227

*Resonance*

Runs.

Sum

Mean.

A.

C.

*May 17*

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

0 2 58.8 56.4

*May 16 17?*

0 0 3.2 1.2

*May 16 (17?)*



Date.

1871 May 18

First minute-break.

May 23

c, set at.

30.992

Sum

Mean.

N. Coll.

S. Coll.

32970  
860  
565  
956  
85

29026  
40  
020  
012  
040

216

108

82.5630

9022

May 7  
New Wins

a.

s.

Mag.

REMARKS.

11 45 31 9.054 23.7

46 16 9.054 21.3

47 06 2.554 24.1 2#

48 08 9.4 54 96.4.2

50 24 9.2 54 1.9 9.2

51 26 8.3 54 54.3 8.8

53 14 8.3 54 6.3 8.5

54 47 9.0 54 44.9 9.0 2#

55 23 9.2 54 18.8 9.5

58 10 7.8 54 48.5 8.0

54 11.9

Runs.

Sum

Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

*SM Obs  
NR Rec.*

15 2 46.3 46.0

*May 18*

25 1 31.8 31.6

10 3 25.0 22.9

*Falsc Obs after 5*

20 0 44.0 44.3

30 3 21.2 22.3

30 1 25.1 23.9

30 1 47.1 50.5

Date.

First minute-break.

C, set at.

7841 May 18<sup>th</sup>  
May 23

33.615

Sum

Mean.

N. Coll.	S. Coll.
35.529	31.696
.578	.716
.526	.714
.578	.700
.519	.700
Sum 130	20
Mean 35.526	31.704

7841 May 18<sup>th</sup>

a.

b.

Mag.

31.704  
67.230

REMARKS.

11 59 15 80 84 11.9 7.7  
7.5

12 2 37 80 54 ~~8.2~~ 8.2  
24.2 8.0

3 45 9.1 54 99 9.5

5 07 7.5 54 8.5 double both  
8.5

6 14 7.7 58 337 9.0  
9.0

7 11 7.2 58 382

not seen

not seen

8 24 6.7 54 8.4 6.5  
6.4

9 29 9.0 54 ~~8.4~~ 8.4  
8.3

11 12 6.1 54-53 6.0

11 32 9.1 54-53 9.3

Spel 4<sup>th</sup> beat  
vis

54 16.2



Runs.

Sum  
Mean.

A.		C.	
58	82	15.02	167
56	86	14.8	153
81	80	15.0	158
83	80	14.8	154
84	83	14.8	15.0
Sum			
Mean.			

May 18

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

5 3 19.6 20.2

5 3 31.5 31.5

55 1 58.6 58.9

55 1 59.8 2.1

10 1 48.3 48.4

~~10 1 48.0 52.8~~

10 2 51.8 51.4

10 1 48.0 52.8

45 4 58.2 57.2

45 4 50.3 53.3

Same ordinates  
brk leg lost in

10 1 12.8 13.5

45 1 12.0 14.0

25 0 44.6 47.8

25 0 44.6 47.8

Date.

1871 May 18

First minute-break.

c, set at. 33.585

May 23  
May 24

Sum

Mean

N. Coll.

S. Coll.

35.450

.438

.454

.438

.444

31.712

.724

.729

.730

.730

224

125

35.445

31.725

31.723

67.178

REMARKS.

a.

s.

Mag.

12 13 40 92.54 16.2 9.1

8.7

~~14 47 83.54 29 2.2~~

15 21 91 54 336

9.5

9.2

~~15 21 91 54 336~~

17 40 95 54 52.1 8.12

8.0

9.2

19 25 90 53 315 9.2

9.1

9.0

21 06 91 54 47.5 9.2

9.4

9.2

22 17 90 54 48.9 8.5

9.0

9.0

24 37 79 51 41.4 6.8

7.8

7.7

27 06 86 51 48.2 8.0

8.0

8.2

28 54 77 52 45 7.3

7.5

7.5

29 50 80 51 57.0 8.3

8.3

8.7

52 204

Perfected hill

12 41 40



Runs.

Sum  
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

0 2 16.6 19.3

0 2 37.3 38.2

45 2 21.7 24.1

45 2 29.4 30.8

25 3 16.8 18.0

25 3 57.9 61.4

25 2 57.0 58.2

40 4 52.3 53.3

40 4 57.3 58.3

40 4 44.0 53.3

30 3 30.2 31.0

30 3 20.5 23.0

30 3 19.2 20.1

30 2 23.8 22.5

30 2 21.9 21.9

30 2 15.9 18.2

35 3 39.9 39.0

35 3 26.9 30.8

35 3 42.1 42.4

30 1 2.0 0.8

30 1 3.6 6.6

30 1 8.1 8.2

15 1 2.8 1.9

15 1 0.5 2.2

15 1 5.0 5.0

20 4 31.4 29.0

20 4 29.1 32.6

20 4 34.5 34.5



ate. 7871 May 18<sup>th</sup>

first minute-break. May 23

set at. 35749 May 24

N. Coll.	S. Coll.
35730	35760
720	763
734	761
734	790
732	165-
150	339
Sum 35730	35768

May 23  
35730  
763  
761  
790  
165-  
7496  
35749

Sum  
Mean.

a. s. Mag. REMARKS.

12 31 33 9.5 52 204 9.8 LL  
9.8

32 15 89 52 17 lost  
9.2  
8.7

33 53 7.8 52 262 7.8  
7.5  
7.0  
34 36 8.3 52 110.8 8.9  
8.7

36 58 9.3 54-40 9.3 LL  
9.5  
9.4

37 45 8.9 54 416 8.7  
8.8  
8.8  
39 42 9.0 54 55 9.0

Spel

40 41 8.0 54 297 8.3  
8.8  
8.6

Ink faded

43 49 9.0 54 40.9 8.7  
8.5  
9.3

Ink ok

44 54 9.0 52 140  
not seen  
gone

52 331

Runs.

Sum  
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

0 0 20.9 19.8  
55- 4 58.2 51.1

S foll

15- 4 22.6 26.1  
20 0 14.3 15.2  
50 4 19.1 19.2

S fol

50 4 19.3 23.0  
50 4 27.0 28.3  
5 4 18.8 16.2

lost B

5 4 8.8 10.6  
5- 4 28.3 26.8  
20 4 3.0 3.7

A wrong S double

20 4 4.2 6.8  
20 3 58.4 0.1  
30 2 41.9 42.2

30 2 51.4 55.5  
30 2 37.4 39.0  
10 4 45.3 45.0

10 4 40.3 44.1  
10 4 45.1 46.2  
50 0 13.8 13.2

5 0 8.4 11.2  
50 0 12.3 12.1  
40 0 13.6 12.1

40x 0 -20 26  
40 0 29 10.2



Date.

1871 May 18<sup>th</sup>

first minute-break.

May 23

set at.

May 24

Sum  
Mean.

N. Coll.

S. Coll.

a.

δ.

Mag.

REMARKS.

12 46 0.3 88 52 33! 8.8

88

47 45 8.4 52 183

9.4

not seen

not seen

48 53 9.5 53 112 9.6

9.6

5 fol

50 43 6.2 54 47.7

9.8

double 2<sup>d</sup> /mc

6.8

8.9

6.8

52 57 9.0 54 8.6 9.2

5.0

9.0

not seen

55 00 9.6 52 167

not seen  
not seen

57 22 8.5 54 38.0 8.2

8.0

8.5

7.0

58 53 7.5 54 38.1

7.9

6.8

13 0 17 9.2 54 41.7

5 fol lost a

5.0

9.3

1 13 9.4 54 31.4

9.2

54 148



Runs.

Sum  
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

45 2 23.6 22.2

45 1 59.7 61.1

45 1 55.7 56.0

5 3 50.8 49.2

5 4 34.7 38.7

5 3 57.3 57.0

30 2 38.2 38.4

30 2 36.4 40.0

30 2 25.2 27.0

10 2 15.9 14.3

10 1 59.0 2.1

10 1 53.0 53.2

40 3 11.7 11.8

40 2 50.7 54.0

40 2 54.8 56.1

40 1 56.3 56.2

40 1 32.5 35.8

40 1 37.6 39.2

35 3 48.2 51.8

35 3 8.3 3.9

35 3 6.3 9.0

45 3 50.4 55.1

N. Coll.	S. Coll.
Sum	
Mean.	

Date. 1871 May 18<sup>th</sup>  
 First minute-break. May 23  
 c, set at. May 24

a.	8.	Mag.
13 2 41	82 54 14.6	8.5
		78
4 46	87 54 18.3	8.2
		8.9
		8.8
7 52	84 57 48.4	8.8
		90
		9.2
9 11	85 54 29.6	8.7
		8.6
		8.6
10 11	85 54 11.5	9.0
		8.5
		8.8
13 13	90 54 26.7	9.2
		8.9
		8.5
15 37	85 54 31.8	8.5
		8.7
		8.7
17 18	90 54 1.3	9.0
		90
		9.5
19 03	92 54 45.7	9.5
		93
		9.0
19 44	54 43.6	9.2
		9.0
		9.2
	57 22.8	

Em. h 1305  
 New sheet, m. h 1307

✓ fol

✓ fol.



Runs.

	A.	C.
299	314	402
304	313	396
310	317	408
304	311	398
312	320	404
Sum	1529	2003
Mean.	305.8	400.6

May 24

3150	4038
3058	4006
92	32
-18	-.06
	-.12

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

5 0 30.3 30.2

5 0 34.1 37.1

5 0 35.0 26.1

8 1 32.7 32.8

0 1 15.1 18.8

30 1 58.9 58.0

30 1 55.6 57.4

30 1 42.2 42.0

50 0 39.2 37.9

50 0 27.5 29.0

50 0 32.7 32.6

5 2 26.8 27.2

5 2 59.0 17.7

50 2 29.2 59.0

50 2 57.0 20

45 3 16.3 17.2

45 3 9.9 15.0

45 3 9.1 9.1

15 3 9.8 10.3

15 3 6.8 11.4

15 3 7.0 7.6

30 4 43.0 44.2

30 4 44.6 45.1

35 1 46.8 47.0

35 2 12.4 17.2

35 1 50.8 54.5

~~Just from memory~~



N. Coll.

S. Coll.

Date.

1871 May 18

First minute-break.

Aug 23

May 24

Sum

Mean.

a.	s.	Mag.	REMARKS.
13 21 31	93 51 22.8	9.4	
	=	9.2	
22 55	93 54 4.3	9.5	lost first wire
		9.5	
24 20	94 54 27.6	9.7	<del>m. #</del> full # 1/2
		9.5	
26 10	87 54 - 0%	8.5	
		8.7	
27 29	75 54 37.2	8.8	
		8.8	
28 34	85 54 14	8.8	
		7.6	
29 35	92 54 50%	9.2	
		8.9	
32 36	65 51 21.4	6.5	
	=	7.4	
35 09	70 51 10.5	6.5	double 2* full 1/2 app below
		10.0	
36 48	80 54 42.3	8.0	m.
	54 + 1.5	9.2	
36 43	80 54 - 1.5	8.0	lost a 1/2 full

Runs.

	A.		C.	
	20.7	21.2	39.8	34.9
	20.2	21.6	33.4	35.5
	20.9	22.0	33.2	34.8
	21.2	21.3	33.1	34.9
	21.0	20.6	32.7	34.6
Sum				
Mean.				

Pointer.	Stroke.	Rev.	A.	C.	REMARKS.
	55	2	26.7	27.0	
	55	2	19.3	23.0	
	55	2	27.3	28.3	
	15	0	56.2	56.1	
	15	1	49.4	52.6	false obs. p. of all
	15	0	37.3	37.8	
	50	2	41.9	42.6	bad illumination
	50	2	45.0	48.9	
	50	2	28.1	29.0	
	20	1	51.2	50.3	
	20	1	57.3	55.6	
	20	1	50.8	51.2	
	40	2	45.0	45.7	
	40	2	40.3	44.7	
	40	2	42.3	48.1	
	15	2	47.4	48.3	
	15	2	46.6	50.6	
	15	2	34.3	35.9	
	25	4	25.9	26.7	
	25	4	21.4	27.9	
	55	3	31.8	32.0	
	55	3	56.8	55.8	
	10	0	27.0	25.9	Penfauerd tile 13 45
	10	0	6.4	9.3	
	55	2	55.8	56.3	Close double 8.0-92 45 15 020 0.1 2mm
	15	4	3.9	4.0	
	15	4	7.9	10.8	15 3 27.2 30.2



N. Coll.

S. Coll.

Date.

1871 May 18<sup>th</sup>

First minute-break.

May 23

Sum

Mean.

c, set at.

May 24

a.

δ.

Mag.

REMARKS.

13 38 16 90 54 407 9.3

39 35 88 54 294 8.5

8.8

41 31 91 51 90 9.2

9.2  
90

Remained

43 14 90 54 325 9

9.5

45 14 83 51 -07 9.0

Rem. ok.

8.0  
8.9

46 33 90 54 59 9.5

9.3  
9.7

48 10 83 54 222 8.0

8.2  
8.5

49 10 60 54 212 6.3

5.6  
6.0

50 16 90 53 140 9.5

9.0  
9.5

52 15 73 54 315 8.2

8.0  
8.4



1671348e.proj.1036R

WTR Obs  
A M Rec  
AM Obs  
WTR Rec.

35 4 58.8 58.2

31 4 52.3 56.8

35 4 49.3 51.1  
50 1 1.8 1.2

50 1 1.8 4.9

10 0 36.2 35.1

10 0 33.8 37.0

10 0 29.8 30.2

45 3 36.2 40.0

20 1 44.9 44.0

20 0 38.9 43.5

20 0 42.1 42.9  
10 4 20.6 21.0

10 4 24.0 28.1

10 4 16.8 16.0  
55 2 14.4 14.2

55 2 15.9 17.2

55 2 17.0 21.9

55 3 50.1 49.2

55 3 45.4 48.7

55 3 46.8 49.1  
5 1 27.6 26.9

5 1 22.1 27.6

35 4 46.2 46.2  
35 4 3.3 4.0

Sum 45 4 55.3 40.0

45 3 55.9 52.8

WTR Obs  
A M Rec





16712ae.proj.1536R



<sup>a</sup>  
27.600  
612  
614  
615  
604  
605  
616  
550

3 1- 3 1.3, 3 14.4  
2 537 523  
2 12.8 15.4

27<sup>a</sup> 600  
612  
614  
615  
604  
605  
616  
590



3	5	3	12.3	14.4
2		537		523
2		128		15.8



