

KG
11366
v. 534

*Bone
Chronograph
Record
Circle Readings.*

From July 5, 1871 to Sept. 1, 1871

Runs.

Sum
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

Date.

First minute-break.

C, set at.

July 5-1871

July 12 1871

Sum

Mean.

N. Coll.

S. Coll.

a.

s.

Mag.

REMARKS.

15, 32, 54 90 54.18 9.3

Amos.
W.R. Ric.

34.57 9.3 53.0 9.5

Double pr. #

39.24 8.5 54.50 9.0
9.2

41 4 7.0 53.23 8.0
8.0

42 35 9.0 54.16 9.0
43 38 8.0 54.1 9.5

43 39 8.8 54.1 9.1

very close double
9.2
9.4 —

49. 52 8.3 54.15 8.5
8.0

seeing bad

52 26 9.0 54.27 8.5
8.5-

55.3 9.0 50.38 9.0
8.6

56 24 9.0 50.12 8.6
8.3

Runs.

	A.		C.	
	30.7	30.8	39.7	40.4
	31.2	30.7	39.0	40.7
	30.3	31.4	38.5	39.6
	30.1	31.5	38.7	40.8
	30.3	31.4	39.2	40.8
Sum				
Mean.				

Pointer.	Stroke.	Rev.	A.	C.	REMARKS.
5-	0		24.2	26.1	
20	3		43.0	44.4	4a=.2 4J=1"
30	3		28.1	30.9	
30	3		32.2	32.3	
0	0		7.7	10.4	
0	0		7.8	7.3	
5	2		35.7	38.0	
5-	2		36.4	38.2	Overlight
20	2		3.0	5.7	4a.1 4J 0
20	1		58.8	59.0	" .2 " 0
5-	2		42.9	45.1	
5-	2		54.8	57.2	
5-5-	3		55.3	57.9	Clouds
(55	1		19.1	19.2	8 fol on wire
45-	0		27.8	30.0	bad
10	1		11.3	12.6	
10	1		11.1	11.0	

Date.

First minute-break.

Set at. 44.162

July 5 1871
July 12

Sum
Mean.

N. Coll.	S. Coll.
44,239	44,052
240	082
237	075
245	089
252	075
213	413
44,243	44,083

= July 6

243
083
325
162

a.

δ.

Mag.

REMARKS.

15.57.21- 7.7 54.54 8.5
8.2

58.21 9.3 50.37 9.0
9.2 ✓ free m. #

16 0.16 8.9 52.38 8.8

1.32 8.7 54.44 } 8.7
2.5 9.3 54.46 } 8.5
2.5 9.3 54.46 } 9.02

2 48 9.4 52.26 9.2

5 16 9.2 54.52 8.9

7 54 9.2 50.15 9.2
9.0

11.15 9.5 50.53 9.4
9.5

12.45 9.5 50.17 9.5
9.5

Runs.

Sum
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

30

0

201 23.0

30

0

24.2 24.3

40

4

206 22.9

lost - 3 u.

(45

0

52.8 49.6

45

2

35.3 35.7

Clouds

35

2

27 5.1

35

2

27 5.1

Mag bad
up to this

55

1

48.0 49.5

30

1

12.9 16.1

5

4

17.3 19.3

5

4

11.3 11.8

25

4

57.3 53.9

25

4

49.3 49.0

5

2

26.3 27.7

(5

2

12.8 12.3

lost A R
Clouds

Date.

First minute-break.

C, set at.

July 5 1871

28 July 12

N. Coll.

S. Coll.

44.300

44.046

305

033

292

030

243

038

244

033

Sum

1474

200

Mean.

44.167

44.040

July 9th

a.

s.

Mag.

REMARKS.

16 13 47 9.1 50.20

8.9

8.5

15.17 9.0 57.38

9.0

9.2

W. M. #

16.41 9.0 54.6

9.0

8.6

m. #

17.50. 8.0 57.49

7.8

7.7

19 28 8.4 51.4

8.7

8.7

m. #

22 3 7.9 53.25

8.5

8.5

24 48 9.0 54.31

9.2

9.3

25.24. 9.3 50.57

9.0

9.2

27 59 8.0 51.24

8.0

8.5

28.46 9.5 50.5

f. R. #

Runs.

Sum
Mean.

A.

C.

15.7	16.1	24.0	24.8
15.4	16.8	23.0	24.2
16.1	16.6	22.7	24.3
15.7	16.4	23.0	24.0
15.0	16.8	23.2	24.0

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

0 3 44.7 47.3

0 3 57.2 58.3

40 4 40.1 41.8 $\Delta w = .5 \Delta U = 0$

40 4 44.3 43.5

15 3 26.2 29.9

15 3 21.9 21.8

35 0 42.8 44.8

35 0 42.8 46.8

15 4 45.7 46.3

15 4 38.1 38.2

55 3 11.5 13.9

55 3 15.8 16.7

50 1 28.1 30.8

50 1 19.9 21.1

25 1 54.9 52.3

25 1 58.3 59.2

55 3 25.3 26.1

55 3 13.6 14.1

Date.

First minute-break.

C, set at.

1871 July 12

Sum

Mean.

N. Coll.

S. Coll.

α .

δ .

Mag.

REMARKS.

16 29 37_{9.0} 54.36 8.5
8.8

30 49_{7.5} 57.14 8.0
7.8

31 25_{9.2} 50.42 9.2 ✓ free

32.9 9.1 54.45 9.0
8.3

33.14 5.0 53.11 6.0 6.8 Double both
7.0 8.0 " "

34 15 9.0 54.52 9.0
9.5

35.30 9.1 50.12 9.1

36 44_{9.4} 50.58 9.3

37 40_{9.3} 50.33 9.4

38 46_{8.3} 53.19 7.8

Runs.

Sum
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

45 1 588 604

45 1 49.8 489

5 4 38 58

5 3 584 589

40 2 85 63

33

35- 2 285 309

35- 2 348 363

10 2 141 159

10 2 213 210

30 1 289 318

30 1 538 540

10 0 493 515

25 0 192 203

50 0 180 201

0 4 189 213

2^d run 5lost 1st run
bad obs

Clouds

Date.

First minute-break.

set at.

July 51871

1871 July 12

Sum

Mean.

N. Coll.

S. Coll.

a.

s.

Mag.

REMARKS.

16 40 24 8.2 50.54 8.5

41.26 9.5 51.21

Not seen

42 50 9.0 50.34 9.0

Time wrong

44 57 8.4 50.32 8.8

46.27 7.0 53.9 6.8

47 17 9.2 52.22 9.0

48 35 9.3 54.11 9.3

49 29 8.8 50.5 8.8

50 24 9.4 54.18 8.9
8.351 52 8.0 52.10 7.5
8.0

Runs.

Sum
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

25 3 590 609

15 4 31.0 33.3

50 0 30.8 32.9

15 0 -0.7 +0.7

Clouds

0 0 44.3 45.8

10 1 56.4 57.8

10 2 50.3 51.0

15 4 35.1 38.0

5 1 26.7 28.6

5 1 39.9 41.1

10 3 10.5 12.0

10 3 0.3 0.6

Date.

first minute-break.

set at.

July 5 1871

July 12 1871

Sum

Mean.

N. Coll.

S. Coll.

α .

δ .

Mag.

REMARKS.

16 52 50 50.15 7.0

6.5

6.5

53 59 20 57.11 9.0

9.3

54 37 19.2 50.5 9.4

obs

55.19 9.4 50.23 9.3

58.19 6.8 52.46 7.8

7.5

59 2 7.1 50.30 8.0

7.8

last 4 hr. $\checkmark$ full

0 38 8.3 51.25 8.9

8.7

1 29 8.3 52.19 7.5

8.0

2 56 8.3 50.27 8.8

8.0

3 53 8.8 51.3 9.2

~~9.5~~

Runs.

Sum
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

5 3 489 504

5 3 501 503

10 1 51.3 53.7

10 1 46.6 45.8

15 2 48.6 51.3

0 0 48.6 51.5

35 0 58.8 59.8

35 0 49.4 49.8

50 4 21.3 21.1

50 3 50.7 51.6

55 2 48.5 49.9

55 2 40.8 40.1

0 8 14.6 16.8

0 3 7.9 7.3

55 0 7.9 9.5

55 0 3.8 4.3

15 4 43.7 45.6

~~15 4 41.3~~

rather after 5
lost-a
repeat
lost b

lost folg 2 series

Chords

Date.

July 5 1871

First minute-break.

July 12 1871

c, set at.

Sum
Mean.

N. Coll.

S. Coll.

α .

δ .

Mag.

REMARKS.

17. 5. 34. 50.51 8.7
9.0

8.5

7. 5. 50.4 9.8
9.4

7 49 57.28 9.0
8.4

8 27 57.31 9.0
8.8

9 8 52.11 9.0
9.0

10 40 52.3 9.0
8.9

11 27 50.11 8.9
8.6

12 42 53.47 9.2
9.0

false obs. Lomax

13 29 50.45 8.6
7.8

14.8 53.31 8.7
8.6

fol

Runs.

Sum

Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

80 2 46 5-3

30 2 102 10.4

15 4 46! 48.0

12 4 57.4 60.1

12 1 380 39.0
1

10 2 7! 122

15 4 83! 85.1

10 2 21.6 24.8

35 1 4.9 8.0

Rij

65 3 5-2x 84.4

50 2 145 17.8

Date.

First minute-break.

c, set at.

July 5-1871
July 12

Sum
Mean.

N. Coll.

S. Coll.

α .

δ .

Mag.

REMARKS.

17 14 59_{8.8} 50.2

not seen

15 52_{8.6} 53.37 8.8

16 56_{9.0} 50.45 9.4

18 6_{8.3} 50.58 8.7

19 28_{8.8} 50.31 9.1
9.5

20 12_{8.3} 51.39 8.6
8.8

21 30_{7.0} 50.49 6.8
7.5

22 28_{8.1} 57.35 8.7
9.0

24 41_{8.6} 50.40 8.5 for H

25 35_{7.5} 51.26 7.0
7.8

Suspected dark

Runs.

Sum
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

45-0 18.5 20.2

35-3 46.3 48.8

Clouds

20 4 52.9 55.1

50 2 85.2 40.7

50 2 40.2 41.2

40 3 23 28

40 3 14.3 14.1

WATROB
A M Re

35-0 59.7 60.0

30 4 58.2 58.8

45 1 54.2 56.1

45 1 58.5 58.9

40 2 22.8 24.6

55-0 25.4 28.0

55-0 28.1 28.0

Date.

First minute-break.

c, set at.

N. Coll.	S. Coll.
44.332	44 048
325	40
329	49
335	43
336	40
157	25
Sum	
Mean. 44.332	44 046

332
045
397
189

a.

δ.

Mag.

REMARKS.

~~17 26 27 50.40~~
16 21 384 50 45

~~27 44 50.10~~
22 28 9.3 49 59

~~28 27 50.47~~
23 45 8.5 50 17

25-30 7.2 52 03

2

28 46 9.5 50 05

29 34 6.8 50 24

31 25 9.2 50 42 24

32 07 9.2 50 15

35 30 9.1 50 12

36 44 9.4 50 58

Runs.

Sum
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

Date.

First minute-break.

c, set at.

Sum
Mean.

N. Coll.

S. Coll.

α .

δ .

Mag.

REMARKS.

16 37 40 93 50 33

39 05 62 50 12

40 29 82 50 54 D

41 18 73 50 08

42 50 80 50 34

44 51 84 50 32

46 34 89 52 52

47 34 88 52 23

49 29 -19 20 North

50 57 91 50 42

A.		C.	

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

Date.

First minute-break.

c₁ set at.

Fr Aug 2 -
Aug 3 1897

Sum
Mean.

N. Coll.

S. Coll.

a.

δ.

Mag.

REMARKS.

165 312 88 50 11

54 37 92 50 05

55 19 94 50 23

59 54 93 50 12

170 38 83 51 27

2 41 99 51 32

3 53 88 51 13

5 08 65 51 00 68

7 05 90 50 57

not seen -

11 27 86 50 11 86

90

Runs.

	A.		C.
28.3	29.9	28.0	39.1
27.5	29.9	37.0	38.6
28.7	29.8	37.0	38.8
28.7	30.4	36.7	39.0
28.5	29.5	37.4	39.4
Sum			
Mean.			

May 3

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

NG obs
with re

20 2 38.8 40.1

10 2 11.4 13.3

10 2 5.0 7.1

1871phae.pro.1538R

Date.

First minute-break.

c, set at.

Aug 2
Aug 3

Sum
Mean.

N. Coll.

S. Coll.

a.

δ.

Mag.

REMARKS.

17 13 04 9.3 50 57 9.3

9.5

14 57 8.9 50 43 9.2

9.0

16 56 9.0 50 44 8.8

8.8

17 47 8.8 50 12 8.6

8.2

19 00 9.0 51 31 9.2

9.2

21 15 6.8 50 34 7.0

7.5

22 36 6.5 52 53 6.8

6.2

24 08 8.7 52 05 9.2 (Sun)

9.0

25 45 9.2 50 23 9.0 2

9.0

26 27 8.4 50 40 8.0

8.0

Runs.

Sum
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

30 0 13.0 12.8

30 0 4.5 7.4

Faint

40 0 5.6 6.6

40 0 5.7 7.2

35 3 26.5 29.5

35 3 30.5 33.7

10 0 57.1 57.9

10 1 2.8 5.6

50 0 45.8 45.8

50 0 49.1 49.8

50 0 27.2 29.2

50 0 34.0 36.9

25 3 52.8 54.9

25 4 3.3 5.0

15 2 32.9 35.1

15 2 39.1 41.0

~~0 0 20.6 23.6~~

0 0 28.3 30.7

~~40 2 52.9 56.1~~

Faint

40 2 57.3 58.7

1871phae.proj.1538R

Date.

Aug 2

First minute-break.

c, set at.

Sum
Mean.

N. Coll.

S. Coll.

a.

δ.

Mag.

REMARKS.

172744 8.4 50 10 8.5
8.3

2902 8.9 50 30 9.0
8.8

3031 9.4 50 54 —
9.2

3344 8.6 50 12 8.4
8.3

3423 8.5 50 32 8.3
8.2

3749 9.4 50 03 8.7
9.0

3838 6.8 50 33 7.0
7.7

3946 8.0 50 18 8.7
9.0

4032 9.2 50 07 9.1
8.9

4145 7.5 50 05 6.5
7.2

Runs.

Sum
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

~~10 3 10.6 12.1~~

Pen failed

10 3 18.1 21.2

~~50 4 6.5 9.1~~

Pen failed

50 4 17.8 21.0

35 3 42.2 43.8

1st stop after break

25 3 29.0 31.8

10 1 14.0 16.4

~~1st stop after break~~

10 1 23.1 25.7

50 0 1.9 4.1

50 0 13.9 15.2

15 4 22.0 25.9

15 4 21.8 24.9

50 0 16.9 18.2

50 0 25.3 27.9

5 0 14.9 15.5

5 0 16.2 18.2

15 1 40.8 43.0

15 2 16.8 20.1

15 2 17.2 18.0

15 2 20.3 23.7

✓ full.

Date.

First minute-break.

c, set at.

Aug 2

Aug 3

Sum
Mean.

N. Coll.	S. Coll.

a. s. Mag. REMARKS.

43 20 9.0 50 42 9.1

9.1

45 32 9.2 50 13 9.3

9.1

47 15 9.2 51 23 9.1 %

9.4

48 08 9.0 51 14 9.3 lost to a.

9.5

49 20 8.0 50 24 8.0

8.2

50 23 9.0 50 22

9.2

pre. & on fol. 30 sec each.

fol #

52 46 9.2 50 58 9.5

9.5

53 38 2.2 51 30 2.0

all wins. 28's.

55 11 8.7 51 50

56 11 8.8 51 11 8.9

8.8

Runs.

Sum
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

40 0 53.5 57.4

40 1 3.1 5.2

5 3 52.2 56.1

5 3 50.5 53.0

55 4 6.4 8.6

55 4 8.1 10.3

5 3 57.7 53.1

5 3 45.1 47.4

55 2 58.1 61.5

55 2 58.1 62

Not seen -

0 0 16.8 18.2

25 0 0 9.1 11.4

25 0 15.3 18.1

50 2 57.0 53.0

3, 39.3 40.8

50 2 52.4 56.1

3 34.2 36.9

not seen -

Not seen

~~10 0 0.5 1.0~~

Pen failed

10 0 3.7 5.0

Date.

First minute-break.

c, set at.

N. Coll.

S. Coll.

Sum

Mean.

α .

δ .

Mag.

REMARKS.

17 57 11 9.2 50 34 9.2 2

50

58 01 8.0 51 12 9.1

9.1

59 57 8.0 50 04 8.1

8.4

18 1 18 8.5 50 47 -

8.1

2 42 8.3 50 21 8.0

8.4

3 42 8.8 50 27 9.0

8.8

4 42 8.2 50 52 8.2

8.0

6 32 7.0 50 22 7.2

7.9

7 50 8.8 50 35 9.0

8.8

8 56 8.6 56 08 9.5

9.2

9.0

50 58

8.8

Double, both -

for #

Runs.

Sum
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

~~45 4 38.2 42.1~~ Pen failed

45 4 50.0 52.7

~~5 2 27.0 29.2~~ Pen failed

5 2 40.0 43.2 ✓ good

~~15 4 18.1 22.2~~ 1st star after burst

15 4 28.7 31.8

~~35 0 11.3 12.0~~

35 0 53.2 54.9

0 34.2 45.6

55 1 4.6 6.5 1st star after short break

55 1 8.1 10.0

30 0 57.8 59.4

30 1 6.3 8.4

0 0 33.6 36.6

0 0 41.8 43.7

45 2 2.0 3.5

45 2 1.7 3.9

15 0 -0.6 + 2.0 2nd & 3rd -

15 0 4.5 6.0 ~~2nd & 3rd~~

date.

first minute-break.

set at.

N. Coll.

S. Coll.

Sum

Mean.

a.

s.

Mag.

REMARKS.

1810 21 8.7 50 58 9.0

8.9

12 16 7.5 50 56 6.6

7.8

13 20 7.6 50 34 8.3 2

8.0

14 08 8.8 51 00

double - both - lost a

8.3

15 32 8.5 51 30 8.6

8.2

16 56 6.2 51 17 6.0

6.5

18 01 8.5 50 31 9.0

8.5

19 03 8.5 50 57 8.8

8.8

20 29 8.5 50 44 8.4

8.5

21 42 8.7 50 24 8.4

8.3

50 15

Runs.

Sum
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

25-0 9.4 10.4 1st star -

25-0 14.2 15.1

25-2 24.1 26.6

25-2 33.3 34.5

45-4 6.4 8.9

45-4 9.1 12.2

20 3 57.7 60.4 2nd 2 pr-

~~50 3 4.4~~

50 3 34.4 37.7

50 3 45.9 42.1

5-0 38.8 38.9

5-0 46.0 46.5

50 2 34.8 38.3

50 2 43.0 45.0

25-0 22.0 23.4

25-0 23.1 25.6

35 4 42.7 48.6

35 4 45.7 49.9

55-4 9.6 12.4

55 4 17.6 21.0

Slight home

date.

first minute-break.

set at.

July 2

July 3

Sum
Mean.

N. Coll.

S. Coll.

a.

s.

Mag.

REMARKS.

18 24 27 - 37⁰ 42'
42 22
80 25

Work #

80 05

18 25 50 - 37 53
42 23
80 16

" 80 16

18 28 28 81 50 29 8.5
8.4

no star.

80 23 80 57 44 8.6 20
9.531 18 74 51 01 7.6
8.083 11 90 50 41 9.9 20
9.234 07 84 50 11 8.5
8.5

36 07 83 50 08 8.6

37 26 87 50 41 9.0
8.538 39 78 51 00 8.0
8.0
50 28

Runs.

Sum
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

Seen too late.

15 1 38,6 32,0 2 31,9 40,0

50 3 22,4 25,2

50 3 20,3 23,1

35 3 46,5 48,5

35 3 49,3 51,7

20 2 37,2 38,1

20 2 41,1 43,0

40 2 27,0 29,4

40 2 28,3 31,0

10 2 12,0 15,0

10 2 18,6 20,9

10 4 56,0 58,4

40 1 42,7 44,9

40 1 38,8 41,6

20 3 9,6 10,4

20 3 18,1 20,4

Date.

first minute-break.

set at.

N. Coll.

S. Coll.

Sum

Mean.

a.

s.

Mag.

REMARKS.

18 40 04 78 50 28 8.1

8.2

41 51 8.0 50 52 9.0

9.5

43 48 8.8 50 27 9.1

9.0

45 43 9.0 50 41 9.1

9.0

47 13 8.2 50 59 8.2

8.0

48 18 7.9 50 54 7.5

8.5

50 01 5.2 50 33 5.0

5.2

51 04 5.8 50 25 5.5

5.4
5.3

51 57 8.9 50 45 8.1

8.8

54 31 8.8 50 53 8.6

8.5

50.38

Runs.

Sum
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

50 4 49.3 53.0

50 4 55.3 58.4

30 0 46.0 46.9

(30 4 40.5 40.4)

55 0 45.0 46.6

55 1 00 22 58

40 2 51.6 53.8

40 2 49.5 51.5

20 3 34.0 35.6

20 3 38.7 40.9

25 3 41.5 44.0

25 4 15.7 18.5

50 0 -3.0 -1.1

0.46.4 47.8

50 0 23.8 25.1

55 3 00.0 2.4

55 2 48.0 51.1

35 3 56.0 58.7

Sum 35 4 25.0 30.0

30 0 4.6 8.4

30 0 4.1 6.2

Date.

first minute-break.

set at.

N. Coll.

S. Coll.

Sum

Mean.

a.

s.

Mag.

REMARKS.

18 55-47 62 50 38 6.0
7.5

56 57 48 50 21 5.0
6.0

57 51 48 51 08 9.0

59 33 89 50 28 8.9
8.3

18 0 31 89 50 04 8.9

2 45 90 51 52 8.5

3 54 75 51 29 8.0 2p
8.5

4 47 75 51 55 8.2
8.8

6 46 90 51 12 8.6
8.9

7 47 87 51 45 8.8
8.7

Runs.

Sum
Mean.

A.

C.

240	248	337	355
247	255	335	360
240	255	340	355
241	250	348	353
243		348	353

W A R sk
H. G. - rec.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

45 0 13,2 18,8

45 0 25,2 27,2

0 2 1,0 2,2 2,37,3 39.0

10 2 129 149

10 4 54,6 56,7

15 0 21,3 24,0

50 4 36,7 39,0

55 0 20,7 22,7

15 4 21, 23,89

30 1 50,1 50,9

55 1 5,4 6,0

55 0 5,52 60,3

25 4 52,6 53,6

25 4 31,2 33,3

10 1 37,5 38,3

10 1 52,1 59,0

35 3 20,5 21,6

35 3 26,5 28,9

seeing good

✓ feel

✓ feel

Cloudy thin

Date.

Aug 5-1871

First minute-break.

7841 Aug 13

c, set at.

N. Coll.	S. Coll.
46,445	46,273
448	361
445	280
440	277
449	260
Sum	
Mean.	
445	278

445
278
723
362

a.

δ.

Mag.

REMARKS.

17 250 5 8.9 52 06

W.R. Jus
W.G. Rec.
W.A.R. obi
A.M. Rec

26 29 9.9 52 10 9.5

27 34 8.0 52 22 4.0

29 24 8.1 52 40 8.8

2p

30 18 9.3 52 29

32 07 9.1 52 03 8.6

33 18 8.0 52 32 8.0

8.4

35 21 8.8 52 40 9.1

fol x

8.9

37 43 8.8 51 39 9.0

8.7

39 20 7.9 52 05 8.2

7.8

8149

Runs.

	A.		C.
277	288	316	372
270	280	316	375
275	280	318	372
270	276	312	370
269	278	319	368
Sum			
Mean.			

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

~~10~~ ~~1~~ ~~49.7~~ ~~57.5~~ - Cost by clouds -

~~5~~ do do -

55 4 18.4 18.2 5.0, 5 5.5

~~40~~
30 2 2.7 3.3 Very Lazy -
rather

15 3 23.5 24.4 lost ~~Q~~

45 4 24.9 24.5

45 4 27.2 28.0

40 2 24.3 24.9

40 2 20.3 20.0

40 2 10.2 10.0

40 1 58.6 58.0

15 1 20.2 19.5

15 1 14.9 13.7

Date.

First minute-break.

Set at.

Aug 5 1871

1871 Aug. 13

Sum
Mean.

N. Coll.

S. Coll.

α .

δ .

Mag.

REMARKS.

17 47 56 78 51 49 8.2
41 19

8.2

42 15 83 57 58 8.8

8.5

43 18 75 52 30 8.4

7.8

45 13 91 51 36 9.4

9.2

47 37 75 51 15 7.4

7.0

48 33 80 57 02 9.6

9.2

50 37 80 52 23 8.7

8.0

52 07 80 51 27 9.5

8.9

53 52 87 52 24 9.2

8.5

54 49 91 52 20 9.5

9.2

Runs.

Sum
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

30 2 33.0 33.1

30 2 33.1 34.2

20 3 17.0 18.0

20 3 15.7 16.2

50 1 34.0 34.9

50 1 27.3 28.1

45 0 13.2 12.3

45 0 16.8 15.3

5 1 33.4 34.7

5 1 36.2 37.8

15 4 9.1 8.8

15 4 9.4 10.0

55 3 35.0 35.5

55 3 29.2 28.7

50 4 9.7 10.4

50 4 4.8 5.5

53 2 46.4 45.7

55 2 45.5 44.9

~~0 1 45.3 44.7 lost~~

0 1 43.1 42.6

Date.

First minute-break.

set at.

Aug 5

1871 Aug 13

Sum

Mean.

N. Coll.

S. Coll.

α .

δ .

Mag.

REMARKS.

1756 21 88 52 00 9.0

9.1

57 33 72 52 49 7.9

9.0

8.3

59 23 84 51 58 9.0

8.8

0 22 79 52 48 8.7

8.2

18 2 44 85 52 00

8.2

4 59 87 52 53 9.0

8.7

5 57 86 57 10 8.8

8.9

7 18 75 51 53 8.1

7.8

8 45 91 57 31 9.3

8.8

10 25 89 52 23 9.5

9.2

52 31

Runs.

Sum
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

20 1 22.7 21.8

20 1 20.8 18.2

30 1 48.3 49.5

30 1 48.8 49.0

20 3 3.7 1.8

20 2 57.9 57.8

30 1 58.0 57.3

30 2 6.8 6.1 wiped obj glass -

20 3 15.0 15.4

25 4 43.0 43.0

25 4 39.8 40.2

10 2 27.0 22.8

10 2 21.8 22.0

30 0 45.8 46.1

30 0 48.4 48.0

50 2 1.2 1.0

50 1 58.2 58.3

0 0 15.4 14.5

0 0 19.0 19.2

Date.

First minute-break.

set at.

Aug 5
1871 Aug. 13

Sum
Mean.

N. Coll.

S. Coll.

a.

δ.

Mag.

REMARKS.

18 11 50 78 52 31 7.8
7.5

12 45 80 52 49 9.3
9.1

14 03 83 52 01 8.5
8.8

15 23 88 52 11 8.9
8.6

16 29 75 52 36 6.8
6.8

17 27 89 52 37 9.4
8.9

18 28 72 52 08 9.3 2
8.9

19 15 86 52 09 8.7
8.8

21 19 86 52 59 8.6

23 15 87 52 11 8.8 2

53 00

Runs.

Sum
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

50 2 8.5 7.4

50 2 8.8 11.4

30 4 34.3 35.8

30 4 44.9 45.8

20 1 3.2 2.1

20 1 2.9 2.8

10 2 52.3 53.1

10 2 49.2 49.2

45 2 24.5 24.5

45 2 26.4 26.1

45 1 16.0 16.0

45 1 8.6 7.1

15 0 29.7 28.7 5 bad

15 0 32.1 32.2

10 3 48.0 48.2

10 3 44.2 43.8

20 4 28.3 30.0

20 4 32.3 34.3

1871phi.e.pro.1538R

Date.

First minute-break.

set at.

Aug 5
7871 Aug 15

Sum
Mean.

N. Coll.	S. Coll.

α .

δ .

Mag.

REMARKS.

18 24 00 84 53 00

~~25 34 84 52 21~~
25 50 - 37° 33'

27 02 94 52 32 9.4

28 28 ~~84~~ 52 21

29 55 78 52 18 7.0
8.2

31 00 86 52 15 8.8 9.2 double both.
5.5 5.0

32 19 89 52 49 9.2
9.1

33 54 88 52 50 8.7
8.9

35 51 90 52 36 8.8
9.0 double?

36 56 87 52 04 5.0
6.0

52 28

Runs.

Sum
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

15 3 348 472

Two *
three mid series
for front m 5

50 1 10,7 10,9

not seen -

5 0 25,6 25,4

5 0 23,2 22,5

5 2 58,1 57,8 let 8 per

5 3 1,5 1,7 1 str for each 5
reject 3 str

30 3 38,0 38,0

30 3 28,9 29,2

30 2 26,7 26,8

30 2 25,0 26,2

45 1 39,0 38,5

41 1 38,0 37,3

15 3 33,5 34,9 4,13,5 12,5

15 3 45,5 45,3

Date.

First minute-break.

Set at.

Aug 13.
1871 Aug. 13.

Sum
Mean.

N. Coll.	S. Coll.

α .	δ .	Mag.	REMARKS.
18 38 36	88	5228	
		9.0	
		9.1	
40 29 ~~40~~ 30	5130	9.3	
		9.4	
41 26 89	5125	8.8	
		8.9	
43 31 88	5133	8.6	
		9.0	
45 15 8.5	5132	8.8	
		8.3	
47 16 87	5111	9.0	
		8.2	
48 14 89	5209	9.1	
		9.0	
49 41 90	5206	9.0	
		9.0	
51 33 76	5231	7.3	
		7.8	
52 50 90	5229	9.5	
		9.5	

Runs.

A.		C.	
182	181	273	279
180	185	268	268
178	184	263	272
176	183	268	269
180	187	268	270
Sum			
Mean.			

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

55 0 -0.7 0.0

55 0 3.8 3.2

50 2 46.3 46.2

50 2 51.4 52.2

55 3 17.0 17.5

55 3 22.6 28.9

45 4 51.5 52.3

45 4 52.3 52.1

50 0 51.0 51.9

50 0 52.6 52.9

10 1 52.0 51.6

10 1 51.3 50.3

10 4 14.0 14.3

10 4 13.8 13.0

15 1 48.4 48.5

15 1 42.2 46.9

50 0 55.9 56.7

50 0 54.8 55.2

50 3 3.0 4.2

50 3 8.4 2.9

Thin clouds blowing

over all evening.

seeing pretty good

the first and last part

of the night: Middle

bad. Thin clouds

W A R obs

H. M. R.

seeing tolerable

Date.

1871 Aug 18th

first minute-break.

1871 Aug 19

set at.

46.371

Sum

Mean.

N. Coll.

S. Coll.

46.318

46.423

317

1422

314

433

320

424

315

421

84

123

46.317

46.425

a.

s.

Mag.

REMARKS.

18 3 10 90 53 55

9.0 up - pre. it.

~~4 21 90 53 41~~

9.0

4 21 90 53 41

9.1

8.8

6 20 90 53 12

9.0

8.8

8 01 88 53 15

8.8

8.5

8 52 90 53 27

8.8

9.0

10 04 83 53 32

8.5

8.0

11 05 90 53 29

9.1

9.2

12 04 88 53 37

8.8

8.5

13 19 73 53 14

7.5

7.8

14 59 80 53 42

8.7

8.2

54 82

Runs.

Sum
Mean.

A.		C.	
23.1	24.2	33.2	34.4
23.7	24.3	32.6	35.0
24.0	24.3	32.8	34.7
24.0	24.2	32.8	34.0
23.2	23.7	32.5	34.0
Sum			
Mean.			

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

25- 1 49.8 52.4

25- 1 45.3 52.2

40 2 13.3 17.1

40 2 14.2 16.9

Clouds

10 1 36.6 36.9

10 1 45.6 46.7

5 2 31.5 32.5

5- 2 29.2 31.0

55 1 6.3 7.8

55 1 11.8 13.3

50 1 51.1 53.0

50 1 54.2 55.5

50 3 20.9 22.9

50 3 21.3 23.8

45 1 23.4 25.3

45 1 20.1 21.2

5 3 11.2 12.2

5- 3 17.2 18.2

40 1 33.8 35.1

40 1 39.8 41.7

ate.

first minute-break.

set at.

N. Coll.

S. Coll.

Sum

Mean.

7871 Aug 19

α .	δ .	Mag.	REMARKS.
18 16 09	54 32	8.0 20	
		8.0	
16 58	59 30	8.4	fol H
		8.5-	
18 07	89 53 26	9.0 22	fol H
18 43	82 53 57	8.0	off -
		8.2	off
20 40	92 53 43	8.9	
		8.9	
22 24	92 54 47	9.5	
		9.1	
23 25	89 53 24	8.5	Pre H
		8.8	both off last
25 01	70 53 57	7.2	
		7.5	
26 21	91 53 56	~~9.1~~	wrong setting -
	53	9.1	
28 12	91 53 06		

Runs.

	A.	C.
16.2	17.4	26.1
15.8	17.7	26.2
15.9	17.8	26.1
15.7	17.5	26.0
Sum	16.0	17.0
Mean.	25.4	26.2

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

50 0 27.2 29.1

50 0 32.0 36.2

50 2 41.7 43.7

Sum 45 4 6.8 9.9

55 2 9.8 11.5

25 1 12.7 14.0

25 1 13.4 14.0

40 0 45.4 47.7

40 0 49.5 52.7

35 0 37.2 39.0

35 0 32.8 37.8

0 0 21.3 22.9

0 0 20.0 22.1

30 1 5.3 7.2

30 0 1 2.8 10.3

25 3 42.3 45.0

not seen -

ant seen

Date.

First minute-break.

Set at.

78 July 19

Sum

Mean.

N. Coll.

S. Coll.

a.

s.

Mag.

REMARKS.

18 29 05 9.0 54 42

8.7

8.3

30 32 8.3 54 53

8.8

8.3

32 22 7.8 54 6

8.0

8.5

33 21 8.7 54 44

8.8

8.8

34 40 8.2 53 04

8.6

8.5

35 38 8.5 53 46

8.0

8.0

37 08 8.3 53 11

8.2

8.0

38 09 8.1 53.53

8.4

8.8

39 12 9.2 53 17

8.8

8.8

40 32 8.3 53 18

8.0

8.3

53 32

Pre-X 34s in field

Runs.

Sum
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

40 1 23.6 27.4

40 1 20.1 24.9

30 0 37.7 39.9

30 0 41.9 46.1

15 2 6.5 8.5

15 2 11.0 13.2

35 4 19.1 22.5

35 4 22.9 37.1

15 3 46.0 48.8

15 3 48.2 51.9

35 2 9.3 11.0

35 2 9.6 11.2

10 0 52.9 54.0

10 0 54.2 56.0

25 3 17.7 20.1

25 2 27.8 32.5 5 fol

5 2 3.3 5.0

5 2 1.9 3.8

0 4 31.5 33.5

0 4 36.3 39.2

Date.

first minute-break.

set at.

7871 Aug 19

Sum
Mean.

N. Coll.

S. Coll.

a.

δ.

Mag.

REMARKS.

18 44.02 90 53.32 9.0

9.0

45-02 93 53 52 9.0

9.1

46 56 91 53 18 9.2

9.0

48 56 93 53 55 8.9

9.0

50 42 89 53 25 9.0

9.2

51 56 88 54 50 8.7

8.7

52 48 92 54 30 8.8

9.0

53 47 95 54 52 9.0

9.2

55 30 93 53 20 9.2

10.0

56 42 82 54 39 8.0

8.0

false obs pre -

18 50

Runs.

Sum
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

58 1 35.5 37.7

50 1 33.0 37.4

30 1 32.2 35.7

30 1 29.3 32.8

0 4 57.0 18

Sum 10 4 51.0 54.0

25 2 25.9 28.0

25 2 22.2 3.2 d fol

55 1 28.9 29.1

55 1 18.4 20.9

25 2 28.3 30.0

25 2 27.2 31.3

50 3 38.2 41.2

50 3 38.1 40.1

25 4 39.0 40.7

25 4 36.4 39.2

0 2 34.1 36.2

40 4 1.6 4.2

40 4 52.2 58.1

Date.

First minute-break.

c, set at.

7871 Aug 19

Sum

Mean.

N. Coll.

S. Coll.

	a.	δ.	Mag.	REMARKS.
1	18 57 58	85 53 33	8.6 8.8	
	19 0 16	86 53 35	8.7 8.4	
	2 02	81 53 08	8.9 8.9	345 same J - obad middle - " "
4	8 05	88 53 06	9.0 8.8	
5	4 21	90 53 39	8.6 8.2	
5	5 27	85 53 58	8.8 8.5	
5	6 33	92 53 37	8.9 8.2	
5	7 53	94 53 33	9.2 9.0	
5	9 33	90 53 44	9.0 8.9	
5	10 32	94 53 45	9.5 9.0	226 lost of group -
		53 54		

Runs.

Sum
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

45-4 11.0 13.2

45-4 11.9 14.9

45-2 25.8 28.9

45-2 26.0 29.2

10-3 47.3 49.2

10-3 45.8 48.2

15-0 32.0 34.3

15-0 32.0 33.0

40-4 30.7 34.5

40-4 39.1 39.8

25-4 56.1 58.4

30-0 2.2 4.9

45-1 52.7 55.5

45-1 58.2 61.5

45-4 48.5 50.6

45-4 45.1 47.0

35-4 26.0 29.0

35-4 26.4 29.9

35-2 14.5 16.4

35-3 58.9 61.2

Date.

First minute-break.

Set at.

1871 Aug 19

Sum
Mean.

N. Coll.	S. Coll.

$\alpha.$		$\delta.$	Mag.	REMARKS.
19 11 19	87	53 54		faint over
13 28	90	53 20	9.0 9.1	
14 47	86	53 54	8.0 8.5	
15 44	78	53 44	8.0 7.8	
16 58	81	53 07	8.2 8.0	
19 01	88	53 38	8.9 8.7	
19 57	92	53 31	9.1 9.2	
21 06	90	53 31	9.0 8.9	
22 17	85	53 31	8.5 8.3	
23 17	73	54 37	7.9 8.0	
		55.01		

Runs.

Sum
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

25 3 8.3 14.8

0 1 41.2 43.4

0 1 38.4 40.9

25 3 17.5 21.1

25 3 22.9 25.8

35 4 22.0 26.5

35 4 32.8 36.0 1st wire bad

15 0 56.5 57.5

15 0 55.2 57.7

40 4 50.0 52.6

40 4 49.7 53.2

50 2 21.1 22.5

50 2 27.8 30.1 lost 2nd

50 1 21.9 24.0

50 1 32.3 35.0

50 2 29.0 32.9

50 2 29.3 33.0

45 0 37.5 39.0

45 0 41.8 45.7

date.

first minute-break.

set at.

1871 Aug 19

Sum

Mean.

N. Coll.

S. Coll.

a.

δ.

Mag.

REMARKS.

19 240 3 89 55 01

8.8

lost ht wire - off -

9.0

25 21 7.3 54 30

8.6

8.0

Runs.

Sum
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

20 2 22.4 25.7

A - Yr - Obs
H - Y - Rec

20 1 52.1 54.8

H. Y. Obs

50 2 22.4 25.5

A. M. Rec

50 2 27.2 31.1

ate.

first minute-break.

set at.

Aug 22 -
1871 Aug 28

Sum

Mean.

N. Coll.	S. Coll.
46.306	46.405
322	.410
322	.406
319	.402
318	.408
86	31
41.317	46.406

Aug 24

a.

s.

Mag.

REMARKS.

18 1.28 54.42 9.0

~~2 21 86 .5 9.0~~

2 27 86.54 5 8.8

8.7

4 35 54.28 9.2

9.0

5.22 54.19 8.7

8.7

7.56 54.14 6.5

7.2

9 17 53.29 9.0

9.3

10 12 54.44 8.8

8.7

fol X

11 7 53.38 8.7

8.5

fol X

12 42 54.6 7.0

8.0

14 31 54.42 8.9

8.7

54.14

Runs.

	A.	C.
2.0	2.0	7.1
0.8	2.5	7.2
1.3	2.3	7.1
2.0	2.0	6.6
1.0	2.4	7.0
Sum		
Mean.		

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

40 1 12.0 9.8

40 1 11.0 8.1

15 3 24.5 23.0

15 3 19.9 16.1

50 4 28.3 27.5

50 4 23.8 20.2

10 4 30.3 28.6

10 4 38.1 31.0

5 3 18.4 17.6

5 3 25.2 23.3

50 3 35.5 34.2

50 3 43.3 38.2

35 4 27.0 26.3

35 4 30.0 28.4

40 4 33.0 30.6

40 4 27.7 23.9

15 2 10.7 8.2

15 2 16.8 12.1

40 0 41.5 40.0

40 0 42.2 39.2

Date.

First minute-break.

Set at.

7871 Aug 28

Sum

Mean.

N. Coll.

S. Coll.

α .

δ .

Mag.

REMARKS.

18 15 23 54.14 8.8
9.0

9.0

17.28 54.30 8.8
8.0

19.12 54.57 8.7
8.8

20 30 54.1 8.3
8.1

21. 23 54.39 9.2 pre -
9.3 9.1

22 54 54.37 9.5
9.2 8.2

23-42 54.3 9.5 lost 1st wire -
9.5

24. 29 54.48 7.3
7.2 7.5

25 32 54.57 8.8
9.2 9.1

27.40 54.37 9.2
9.4 9.3

51.6

Runs.

Sum
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

5 ~~23~~ 600 57.8

5 4 2.0 1.4

50 2 43.0 42.2

50 2 47.0 42.7

25 1 4.6 1.7

25 1 14.0 9.2

20 1 13.1 11.9

20 1 23.8 20.0

40 3 32.0 30.6

40 3 39.3 35.7

35 0 49.3 48.3

sure 45 1 19.8 15.7

20 0 40.2 39.7

35 0 -30-3.9

35 0 18.2 14.6

25 0 44.0 43.4

25 0 33.5 31.8

45 0 33.9 31.0

45 0 43.9 40.0

Date.

First minute-break.

Set at.

1871 Aug 28

Sum
Mean.

N. Coll.

S. Coll.

α .

δ .

Mag.

REMARKS.

18. 32.25 51.6 8.9

8.5 8.2

33. 47 54.50 8.0

8.5 8.1

35. 56 52.13 8.080 close double
obsd pre-

8.080

36 40.78 52.49 7.8 Pre *

8.0

38. 0 54.12 8.5

9.2 8.7

40 6 54.3 9.5

9.2

Too faint

41 17 53.9 8.7

8.8

8.5-

42. 22 54.45 6.0

6.0

7.5-

43. 48 54.9 9.3 Pre *

9.3

9.2

44 48 53.16 8.7

8.3

52.31 9.4

Runs.

Sum
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

15 1 320288

15 1 32.9 34.0

30 3 21719.4

30 3 25.8 22.0

5 4 287250

5 4 32.2 34.0

30 3 57.6 54.0

30 4 6.3 1.2

10 2 38536.7

10 2 45.8 41.2

20 0 384364

10 4 46.3 44.0

10 4 46.6 43.8

35 2 353369

35 2 46.8 43.8

15 0 4.7 1.3

15 0 4.4 2.2

5 2 540510

Wray

Date.

First minute-break.

set at.

7871 Aug 28

Sum
Mean.

N. Coll.	S. Coll.

$\alpha.$ $\delta.$ Mag. REMARKS.

18. 46.17 52.31 9.0
9.2 ~~8.5~~

46. 56. 54.19 8.5
8.7 ~~8.4~~

47 41 54.9 7.0
7.5

48. 57 54.57 8.8
8.6 9.0

50 17 54.43 8.8 8.4 2 stars --
8.5 ~~8.5~~

51. 57 52.00 8.9
8.7 ~~8.9~~

53. 18 54. ~~7~~³ 8.8
9.0 ~~8.6~~

54. 17 54.19 8.7
9.0 9.2

54. 52 54.42 8.9
8.0 ~~8.3~~

56. 4 54.42 8.3
8.0 ~~8.2~~

Runs.

Sum
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

50 2 97 7.3

~~50 2 157 11.4~~

4 11.7 10.3

~~0 4 29.0 26.3~~

10 4 30.3 28.7

25 1 190 174

~~25 1 299 22.3~~

35 4 88.3 37.3

~~35 4 111.0 38.8~~

20 3 110 8.0

~~20 3 33 0.3~~

15 5 1.0 0.0

~~20 4 8.5 4.3~~

0 3 42.7 42.0

~~0 1 51.8 48.9~~

40 2 310 29.5

~~40 2 49.1 46.8~~

40 1 490 47.1

~~40 2 102 8.8~~

5 fol

last 3

fol x last 3 copies only -

circularizing out.

5 fol

ate.

first minute-break.

set at.

N. Coll.

S. Coll.

Sum

Mean.

1821 Aug 28

a.

s.

Mag.

REMARKS.

18 57 24 54.27 8.5
8.0 8.0

48
59. ~~33~~ 54.28 9.3
~~40~~

19 1.12 54.11 8.0
7.5

2 17 52.43 8.9
8.9

4.22 54.11 8.3
8.5

5.41 54.38 8.9
8.9

7.32 54.38 8.8
8.7

pu *

8.25 54.53 9.3
9.4

pu *

10.14 54.57 8.8
8.6 8.5

11 4 54.49 9.2
9.2 9.0

Runs.

Sum
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

50 4 526 520

~~50 4 58.7 55.1~~

50 4 41.7 420

10 1 25.3 220

35 4 54.2 53.2

10 2 4.9 3.7

40 5 1.5 0.7

40 4 332 319

30 1 57.5 50.8

25 0 50.3 48.2

25 1 2.6 0.2

30 4 98 7.9

30 4 6.2 4.1

Circuit Broken

date.

first minute-break.

set at.

N. Coll.

S. Coll.

Sum

Mean.

1871 Aug 28

a.

δ.

Mag.

REMARKS.

19. 12. 23 54. ~~56~~ 9.0
~~77~~ .19
 6.8 8.8

13 12 54.57
 9.5

14. 30 54.3 8.5
 8.0

8.4
 16. 48 54.8 6.6
 6.4 7.5

18. 11 54.2 8.8
 8.5 8.7

20. 15 54.49 7.0
 7.5 7.5

22. 1 54.10 8.5 bol + up ✕
 8.5 8.5

23. 59 54.32 8.8
 8.3 8.5

24 47 52.33 —
 8.8 8.8

26. 6 54.12 9.5
 9.1 9.3

Runs.

Sum
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

0 3 56.5 54.5

0 3 59.0 57.5

not seen -

not seen

15-4 31.8 32.3

15-4 44.8 42.9

10 5 8.7 1.3

15-0 10.9 7.2

20 0 36.2 35.7

20 0 48.1 45.0

30 4 10.0 10.7

30 4 20.0 18.0

10 2 45.0 42.5

10 2 46.9 44.2

50 0 56.5 53.1

50 0 57.0 53.4

50 0 34.9 32.0

50 0 31.8 29.0

10 1 28.1 24.5

10 1 26.8 23.2

ate.

first minute-break.

set at.

1871 Aug 28

Sum

Mean.

N. Coll.

S. Coll.

α.

δ.

Mag.

REMARKS.

19.27.53 54.10
9.0

8.9

8.8

28 43 54.59
6.6

6.8

7.5

fol *

29.43 54.17
9.0

9.0

9.2

31.22 54.10
8.8

8.7

8.3

32.4 52.16
9.1

9.1

8.8

33.45 54.43
7.7

8.5

8.0

34.42 54.40
7.5

7.5

7.5

35.38 54.22
9.0

9.4

9.1

37.12 54.59
8.7

8.5

8.5

38.38 54.9
9.5

9.5

Runs.

A.		C.	
13.0	14.5	18.3	19.2
13.5	14.0	18.0	19.2
13.7	15.2	18.9	19.2
13.6	15.0	18.0	19.0
13.0	14.9	18.5	18.9
Sum			
Mean.			

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

10 2 400 37.2

10 2 40.3 38.3

20 4 199 19.9

20 4 20.2 18.7

5 2 5.4 3.8

5 2 6.0 4.2

10 3 396 37.4

10 3 48.9 43.0 H-g Obs

5 2 20.0 17.8 A.M. Rec

5 2 18.0 13.3

40 0 15.2 12.7

40 0 9.3 7.9

40 3 238 22.5

40 3 20.2 17.8

0 0 45.0 42.9

0 3 46.9 44.0 5 fol

20 4 49.0 49.0

20 4 44.8 42.0

not run — 5 fol

20 2 31.0 28.2

date.

first minute-break.

c, set at.

1871 Sept 1

Sum

Mean.

N. Coll.

S. Coll.

Aug 31

46.376

46.302

.373

.311

.364

.313

.380

.310

.323

.316

370

2

46.374

46.310

a.

s.

Mag.

REMARKS.

Po

~~18. 26.40 53.51~~
~~9.3~~

~~28.12 53.6~~
~~9.1~~

~~18. 21.19 52.59~~
~~8.6~~

~~23.15 51.05~~
~~57.52.11~~

24 0_{8.4} 53.0 8.5 mid *

25. 37.4 52.21 8.6
8.3

27 2_{9.4} 52.32 9.5 ~~50~~ 1.6.0 3.9
9.5
9.5

28 28_{8.4} 52.21 8.8 0.2.8.5 5.0
8.3
8.2

29. 15_{6.5} 52.1 7.0 20.2.7.0 2.3
7.8
7.5

30. 24_{8.3} 52.47 8.5 35 0.48.2 45.5-
8.4
8.4

54.43

Runs.

Sum
Mean.

A.

Aug 29 -

0.7	1.0	5.8	7.6
0.5	0.6	5.7	7.1
4.0	0.8	5.9	7.5
0.5	0.4	6.0	7.7
0.1	1.0	6.4	6.9

1871 Aug 29 only 57's
Aug 31 -

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

20 3 5.5 2.0

20 3 12.1 10.1

0 1 25.7 22.6

0 1 33.0 30.8

~~50 1 39.7 38.8~~

50 1 11.8 10.0

~~0 2 6.0 2.9~~

0 2 18.8 15.9

~~20 2 4.4 0.7~~

20 2 15.6 12.5

~~35 0 50.6 49.3~~

35 0 59.3 57.9

1 hr for 5

Date.

First minute-break.

set at.

1871 Sept 1

Sum
Mean.

N. Coll.

S. Coll.

α .

δ .

Mag.

REMARKS.

18. ~~31.2~~ ~~51.29~~

34.20 ~~7.8~~ 54.43

7.8

7.8

8.0

8.0

~~before~~

40-1.3.4

0.8

36 49.4 50.58

8.8

8.9

37. 49.1 53.05

8.8

8.8

pre *

38. 45.9 53.41

9.0

9.1

mid *

39. 55.8 53.36

8.7

8.8

40. 47.6 53.45

6.0

6.5

42 15.9 52.47

9.0

9.0

43 49.8 52.25

8.8

8.6

fol *

44 53.8 53.4

8.8

8.6

46. 17.2 52.31

9.0

9.0

52.41

Runs.

Sum

Mean.

A.		C.	
14.7	15.6	19.6	21.9
14.6	15.4	20.0	21.6
14.5	15.6	20.0	21.0
14.7	14.8	20.2	21.2
14.1	15.0	19.8	21.0

7871 Aug 31

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

Aug 29

Sum

~~40 0 45.2 7~~

40 1 4.1 3.3

70 4 34.7 32.2

20 4 41.5 41.1

25 3 9.7 7.2

25 3 18.9 18.1

40 0 34.1 31.6

40 0 36.3 36.0

45 1 47.3 45.5

45 1 56.8 56.1

35 3 47.0 43.1

35 3 51.6 51.0

35 0 13.0 9.8

35 0 18.5 26.3

55 2 3.3 0.5

55 2 12.7 9.8

30 1 30.0 26.8

Sum 20 0 3.8 2.3

50 2 7.5 4.5

50 2 12.9 11.8

Date.

First minute-break.

C. set at.

1871 Sept 1

Sum
Mean.

N. Coll.	S. Coll.

α .	δ .	Mag.	REMARKS.
18. 47	51 ^{sum next.} 52.41	8.7	
	9.0	8.6	
48. 8	52.42	8.9	
	9.1	9.0	
49. 2	52.54	8.0	
	7.7	7.0	
49. 41	52.6	8.7	
	9.0	9.0	
51. 57	53.0	8.8	
	8.7	8.9	
53. 0	54.14	9.3	
	9.3	9.5	
54. 17	54.19	9.0	
	9.0	9.0	
55. 8	52.31	8.8	
	8.8	8.8	
56. 9	52.53	8.8	fol *
	9.0	9.0	
57. 34	52.4	8.7	
	8.4	8.5	
	52.37		

Runs.

Sum
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

40 1 26.0 21.4

40 1 25.8 23.2

40 1 26.0 21.4

40 1 25.8 23.2

25 3 40.9 38.0

25 3 42.3 41.3

15 1 55.3 51.8

15 2 4.8 2.2

20 3 5.4 2.5

20 3 8.8 7.1

5 4 6.5 5.7

5 4 7.0 6.8

0 3 40.3 37.8

0 3 50.3 49.3

50 1 32.0 30.0

50 1 42.0 40.9

55 4 1.3 -1.8

Sum 25 4 1.1 0.0

15 2 57.5 52.4

15 2 58.6 54.3

Date.

First minute-break.

c, set at.

1871 Sept 1

Sum
Mean.

N. Coll.	S. Coll.

α.			δ.	Mag.	REMARKS.
18	58	50	52.37	9.1	
		9.2		9.4	
19	0	19	52.14	8.6	fol X of 3-
		8.8		8.7	
1	16	9.3	52.50	9.1	
				9.4	
2	17	8.9	52.43	8.6	
				8.3	
3	24	8.8	53.35	8.7	pu X
				8.5	
4	20	8.5	52.56	8.6	
				8.5	
5	12	9.4	52.37	9.5	up X 3 in foto.
				9.5	
6	15	8.3	52.23	8.3	
				8.7	
7	32	8.7	54.38	8.7	pu & lower X
				9.0	
8	46	8.2	52.25	8.5	
				8.2	
			50.55		

Runs.

Sum
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

45 0 58.1 54.0

45 0 59.1 56.2

5 3 11.4 9.8

5 3 15.1 13.7

30 2 39.0 37.4

30 2 50.8 50.1

35 4 49.6 47.7

35 4 53.8 52.4

15 2 24.0 21.4

Sum 45 2 31.2 29.9

25 2 21.4 18.5

25 2 21.8 20.9

30 1 9.3 5.4

Sum 45 1 16.8 14.1

0 0 6.7 3.5

0 0 53.0 49.8 2 fol

40 4 24.9 24.2

40 4 36.1 36.4

55 2 56.9 55.2

55 3 14.2 13.5

Date.

First minute-break.

set at.

N. Coll.

S. Coll.

Sum

Mean.

7871 Sept 1

α.

δ.

Mag.

REMARKS.

19. 10.2 50.55 8.7
8.8 8.810.44 52.59 8.0
8.0 8.011 34 52.38 8.3
8.3 8.712 40 54.21 8.1 fol X
8.2 8.513 30 50.44 8.6 up + pu X
8.7 9.014.36 53.1 8.8
8.5 8.815 35 52.50 8.6
8.5 8.517 53 52.42 8.9
9.0 9.318 46 52.26 8.7 pu up X
8.5 8.019 31 52.47 7.8 pu up X
7.5

Runs.

Sum
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

25 3 30.0 28.4

25 3 40.2 40.1

20 3 57.0 54.0

20 3 57.1 55.1

40 4 46.0 44.5

40 4 50.8 49.6

0 1 56.3 53.5

0 1 56.0 54.8

35 4 15.5 13.1

35 4 18.1 17.5

20 1 58.4 57.8

20 2 6.0 4.8

30 2 59.5 58.0

30 8 1.3 0.2

40 1 21.9 20.0

40 1 20.3 18.1

55 2 11.2 8.4

55 2 10.2 8.3

35 0 33.1 30.3

ate.

rst minute-break.

set at.

7871 Sept 1

Sum
Mean.

N. Coll.	S. Coll.

α. δ. Mag. REMARKS.

19 20 36 52.40 9.0
8.7
9.0

21 33 52.12 8.8 low + fol X
9.0
8.8

22 22 52.8 8.7
8.8
8.2

24.18 52.4 8.8 fol X
6.1
7.0

25.3 52.29 8.0 fol X
8.0
8.2

26 47 52.18 8.9
8.5
8.5

27 34 52.28 9.0 low X
9.1
9.0

28 36 52.44 8.2 * pre * double bol
8.1
8.3

29 28 52.38 9.0
9.1
8.9

31.0 52.24 8.8
8.1
8.5

52.13

Runs.

Sum
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

40 3 4.0 1.7

40 3 3.7 2.3

10 0 57.4 54.6

10 0 58.7 58.1

10 4 37.3 35.4

10 4 39.8 38.3

15 4 35.6 34.1

15 4 40.3 39.8

50 3 29.4 28.4

50 3 29.4 29.0

0 4 43.1 40.2

0 4 51.7 51.1

55 1 33.9 30.0

55 1 22.4 20.0

40 0 6.1 3.0

40 0 1.3 0.2

45 0 15.3 10.1

45 0 10.1 7.6

55 4 12.0 8.4 rej last by - after

55 4 12.5 16.2

Date.

first minute-break.

set at.

N. Coll.

S. Coll.

Sum

Mean.

1871 Sept 1

 α . δ .

Mag.

REMARKS.

19. 31. 51. 52.13 7.0
6.3

6.5

23 27 51.15 8.9

8.7

34 27 51.28 8.7

8.8

35 33 51.32 7.9

8.2

~~36 30 51.45 9.0~~

37 19 52.6 8.9

8.9

38 9 52.18 8.9

8.9

40 0 53.1 8.9

8.8

false obs com -

40 54 52.11 8.8

9.0

42 5 52.45 8.5

8.6

43 19 52.49 8.8

9.0

Runs.

Sum
Mean.

A.

C.

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

10 0 4.0 0.9

10 0 14.1 15.0

5 2 60.0 57.3

5 3 2.3 1.1

55 0 29.2 ~~28.8~~
25.8

55 0 48.1 47.0

50 0 49.0 44.4

50 0 48.2 45.7

15 2 61.6 60.0

15 2 48.3 47.8

0 4 50.8 47.1

0 4 47.6 47.3

20 2 57.0 2.1

20 1 58.0 57.8

10 1 40.5 38.0

10 1 43.0 41.8

35 2 59.4 57.5

35 3 0.1 0.0

30 4 26.0 22.9

30 4 28.7 28.3

ate.

first minute-break.

set at.

1871 Sept 1

Sum

Mean.

N. Coll.

S. Coll.

α .

δ .

Mag.

REMARKS.

19. 44.23 54.53 8.3

8.4

8.5

45 56 52.44 8.7

8.2

8.7

47.25 52.40

5.3

5.3

11 wires.

48 59 52.53 8.0

8.4

8.5

50.20 52.36 9.3

9.0

9.0

51.52 52.28 9.0

9.0

~~9.0~~

8.9

low + fol X

53 13 54.40 8.7

7.5

8.0

54.18 52.29 8.8

8.9

8.9

55 37 52.33 8.5

9.0

8.9

fol X

57 14 52.23 8.7

8.3

8.7

8.7

Runs.

	A.		C.	
	19.4	20.4	28.2	29.1
	20.3	20.6	27.7	28.5
	19.9	21.1	28.3	28.3
	20.0	20.8	28.2	29.2
Sum	20.1	20.7	28.5	28.8
Mean.				

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

30 0 40.8 38.1

30 0 42.4 46.1

35 4 37.4 35.1

35- 4 38.3 38.1

40 3 23.3 22.7 4.1 3.3 11.0

40 3 22.0 21.1 4 22.2 20.2

25- 4 40.0 38.4 Aug 29-

25 4 37.1 37.0 Am obs-

45 2 2.2-1.2 Hg ne

45- 2 8.0 6.2

50 4 58.8 56.9 Aug 31-

50 4 54.0 54.3 A M obs-

40 2 24.8 22.5 H. G. ne

40 2 31.2 33.0

50 4 10.6 8.0 H. G. obs

50 4 6.9 7.0 A. M. Rec

45- 4 52.7 50.5

45- 4 50.7 50.1

55- 4 24.8 23.4

55- 4 22.3 21.2

N. Coll.	S. Coll.

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

Sum
Mean.

A.		C.	

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

Date.

First minute-break.

c, set at.

Sum

Mean.

N. Coll.

S. Coll.

α .

δ .

Mag.

REMARKS.

Runs.

Sum
Mean.

A.		C.	

Pointer.

Stroke.

Rev.

A.

C.

REMARKS.

1871phae.proj.1538R

Date.

First minute-break.

c, set at.

Sum
Mean.

N. Coll.	S. Coll.

α .

δ .

Mag.

REMARKS.

