

KG
11366
v.535

*Zone Piece Redman
Copied into
Zone Chronograph Book*

Charles W. Sever, University Bookstore, Cambridge.

12
30

11 11 26⁵ + 9 20

11 12 51 + 9 22

11 16 25 + 52⁰ 10'

11 20 40 + 8 55 ✓

11 23 35 + 43⁰ 52'

11 27 36 + 52 27

11 30 20 52 21

11 32 27 52 57

11 34 37 52 43

11 37 00 52 42

1st date

May 7 1871

0 1 38.2 42.7

5 foll

2nd date

May 15.

not seen

25- 2 45.0 49.9

Could not be seen

8.2

30 0 5.3 4.7

~~30.0 0.0 1.1~~
0.001

8.7

55- 1

11.9
9.70.57.2
0.58.6

5-

8.6

9.2

0 2 25.6 24.0

0 2.17.6
.17.1

9.0

8.5
ft comp

25- 3 53.9 52.8

~~35~~ 4 40.6
37.9
25

8.5

8.5

40 1 8.1 5.8

40 - 0.57.0
57.2

8.4

8.9

40 2 23.3 22.0

40, 2.14.9
1.3.0

8.5

11 39 36 + 52 38

11 45 12 51 02

11 47 05 54 24 3.74

11 50 05 51 20

11 53 13 51 46

11 56 15 - 0 42

11 59 00 - 0 32

12 2 41 50° 56'

5 16 51 33

The dots in hammetts handwrit-
ting are to be in red

1st date

2nd date

~~May 12~~
May 137.6 110 4 1.6
1.140 - 3 390 7.9
39030 4 420 5 follows
lost mt 423

Obs.

Obs.

28 0 3 12.5-9.6

0 2 318 9.0
317 8 follows9.3
35 1 3.2 0.435 0 584 9.0
578

9.5 5 0 7.1 2.8

0 4 445 03.404
520 481

not seen

8 follows - lost grh
50 3 439
523

be

not seen

Do double
45 4 35.9 33.845 4 32.8 32.0
May 12double-comp
Pucero^{sc} 9.6
10" below mag-45 4 446 false
440 break
after 5

July 15

12 12.48 - 1° 31'

12 15 18 + 50 57

9.7

12 18 19 - 1 45-

a obs.

12 21 50 - 2 03

82

12 24 37 51° 41.4 51° after this

27 06 " 48.2

31 39 " - 2.4

33 46 4.7

37 32 { ~~49.4~~
- 3° 02'

38 40 } - 3° 11'

12 44 56 57° 38'

9.1

1871 May 12

50 2 533 261.2

25 0 20.6 20.0

Circle not read

20 4 403 46.7

40 0 348 345

S. fol

40 1 19.3 17.1

40 0 31.9 30.4

8.5-30 3 31.1 30.1

9.0 S. fol

30

3 44.2 42.6

30 2 59.3 57.2

89

9.5-20 2 40.1 40.0

✓ fol

20 3 29.0 26.8

9.3 40 0 21.4 21.1

40 0 26.2 23.7

30 2 38.2 42.0

lower brightest

double lower + fall *

double
sure

30 1 59.3 5.3

30 2 53.0 59.8

45 1

153 384 398

May 15

12 47 01

53.9

90

50 48

46.4

57 16

42.7

59 10

52.6

86

13 1 27

35.4

3 57

49.4

7 52

48.4

Polair's mid. win

13 14 25 57° 70°

3 hrs May 13 18 46 + 55 35

69 hrs May 13 23 45 + 60 36

17 Canine 13 29 05 + 37 50

1871 May 7th

9.0 ~~15~~ ~~3~~ ~~28.1~~ ~~35.8~~
 25 3 56.5 48.9

8.5
 35 1 17.5 16.2

7.8
 35 H 4.2 3.1

8.0 8 fol ~~25~~
 25 3 36.8 35.1

9.0
 45 2 27.8 27.3

8.8
 7.9 30 2 25.2 22.2

8.6
 30 4 34.2 33.7

Obs mid wire

Obs 7mg * before circles

7.3 ~~Obs~~ 15 1 20.0 17.7
 not read

45 2 11.3 11.2

45 1 29.7 27.8

30 2 14.4 15.3

1871 May 12

~~25~~ ~~8.5~~ ~~0~~ ~~8.3~~

35 01.81 6.0

35 3 55.6 52.1

rept 3 w lg 8 fol
 25 3 30.0 28.8
~~25~~ ~~4~~ ~~5.2~~ ~~4.9~~

45 2 3.4 1.7
~~45~~ ~~2~~ ~~15.6~~ ~~15.1~~

30 2 17.0 17.8

30 4 22.7 21.6
 30 4 24.3 23.2

TM

Obs mid w

15 1 7.8 7.4

15 1 15.8 14.0

45 1 57.9 58.8

last four wires 5 fol
 45 0 34.4 34.4

5 fol
 30 1 26.2 26.8

1871 May 20

Mag. Mag.

~~12 41 36 53 33 60~~
 12 39 12 8.9 53 4.3

12 44 04 9.1 54 45.5

Too faint

47 45 8.4 54 18.3

9.0 8.6

50 43 6.2 54 47.7 20 6.5 6.0

52 57 9.0 54 8.6

Too faint 9.3

55 26 7.0 58 13.8

7.5

58 46 8.8 53 8.5

9.0 9.0

13 0 54 8.3 53 - 3.8

8.8 8.7

4 46 8.7 54 18.3

9.0 8.5

9 38 8.2 54 8.3

1871 May 20 AM
Observed

1871 May 21

0 1 42.8 43.2

0 1 53.2 52.9

30 2 36.8 37.4

30 2 29.1 29.3
Close double foll +10 3 06 02
8 fol

5 1 24.9 24.1

5- 1 30.0 30.0

10 1 41.0 41.2

10 1 39.3 38.6

25 0 59.8 60.1
8 fol25 0 53.1 52.2
8 fol

0 1 28.9 29.8

0 2 24.9 24.1
8 fol lost 1st fr

not seen since

						Mag	Mag
~~13~~ 13	13	9.0	54	26.7		9.5	9.0
16	05	9.1	54	2.3	22.0	9.5	9.2
17	42	8.4	54	22.9		9.0	8.8
19	50	8.5	54	-0.4		8.8	8.7
22	55	9.3	54	4.3		9.5	9.5
26	57	9.8	54	22.0	22.0	9.5	9.2
29	04	8.1	54	23.3		8.6	8.0
35	53	9.3	54	23.1		9.8	9.5
38	30	8.6	54	23.2		9.0	8.7
43	14	9.0	54	32.5			9.6

1871 May 20th
A-M-

50 3 47.1 48.2

♂ foll

15 3 21.7 23.1

55 2 6.3 7.0

last first gr ♂ foll

20 2 46.4 48.2

last f. gr ♂ foll

15 0 57.8 58.2

foll*

55 2 58.2 59.9

55 1 59.2 61.0

55 2 56.0 56.3

♂ foll

155 1 49.2 49.9

♂ foll lost 1st gr

Seems too faint to obs

1871 May 21

50 2 55.3 55.2

15 3 27.5 29.3

55 2 11.0 11.2

last gr ♂ foll

~~Wrong * foll~~
last gr ♂ foll

15 1 50.4 50.0

♂ foll

55 2 58.8 59.8

55 2 43.9 45.1

♂ foll

55 1 55.3 55.3

55 1 3.2 3.3

45 3 40.9 41.3

13 46 06	~~8.5~~ 54 11.6	9.0	8.7
49 10	8.0 54 21.2	6.0	6.0
53 05	6.8 54 32.5	7.0	6.8
13 56 00	8.7 54 22.4	8.8	8.3
14 02 18	8.7 54 27.6	9.0	8.8
5-05	8.8 54 31.0	9.0	8.8
17 46	8.5 54 51.5	8.9	9.6
11 34	8.8 54 4.0	8.8	9.0
14 18	8.0 54 33.0	8.4	8.0

Set zero #5 after this

1871 May 20th

1871 May 21

5 3 30.8 32.0

5 3 28.5 30.0

55 3 35.4 36.2

55 3 36.1 37.4

reject two first for 5

45 2 57.1 58.6

45 2 58.8 59.0

short signal after 5

2 mag * price

55 1 51.7 51.8

55 1 39.7 39.4

5 close two first were

50 2 11.1 12.7

50 3 14.1 14.6
sure

50 0 23.2 23.0

50 0 23.2 23.0

30 0 45.6 45.1

wrong *

5 fall lost first gr

15 2 36.6 37.2

15 2 33.4 33.3

45 3 30.4 32.1

45 3 26.7 28.3

13-17, 32

49-56

22.57

~~50~~. 2

25, 42

50-3-4

29.1

~~50~~. 51.2

9.5

32, 55

5040.9

9.2

37, 8

50, 13.4

9.0

~~9.8~~

41, 0

49.59

9.5

9.8

44.11

50-3

8.9

8.8

47 31

50.38

9.2

1871 May 26

1871 May 27

not seen

not seen

seeing bad

30	0	15.4
		16.9

too faint to obs

5	3	7.0
		6.2

5	2	51.2
		53.0

20	2	4.0.2
		4.0.2

20	2	29.5
		31.0

15	3	54.9
		54.7

15	3	51.0
		52.8

Ink failed

~~Ink failed~~

40	2	21.2
		22.1

13.50.26	50.41	8.8	9.0
52.44	50.194 Q	8.5	8.7
56 2	50.6	8.0	8.5
59.36	49.58	9.0	
14-3.29	50.4		6.0
6 22	50.57	9.2 9.0 double	9.2 9.0
11.31	50.46	7.8	
13.48	50.25 Q	8.8	9.0
16 2	50.26	8.9	8.8
18 59	49.58 (50.47)	7.0	7.0

1871 May 26

40	1	12.3
		12.9

0	2	12.2
		12.6

15	0	55.8
		55.8

20	1	55.7
		55.5

15	2	33.8
		34.0

30	0	27.2
		28.1

8 reg order

35	1	1.2
		0.4

55	1	16.1
		16.2

55	0	55.4
		55.3

20	2	8.9
		8.1

1871 May 27

40	1	14.1
		15.0

0	2	11.1
		13.1

15	0	55.0
		55.8

20	1	55.4
		57.2

15	2	31.9
		35.2

30	0	18.6 for 5
		reg and br 19.7

New sheet

55	1	21.3
		22.8

55	0	55.8
		60.3

20	2	7.7
		8.9

14-21.43	50.47	9.0	9.0
24.14	50.25	~~9.0~~	6.0
27.20	50.9	9.0	8.9
29.51	50.35	8.7	8.8
32.1	50.5	7.6	8.0
38.7	50.39	9.2	9.5
41.27	50.46	9.0	9.2
44-18	50-18	9.1	9.5
47-18	50.40	9.0	9.1
57-37	50-37	8.8	

1871 May 26

30 4 39.7
40.655 1 21.8
21.910 2 15.9
16.245 1 22.2
22.315 1 24.3
24.040 1 53.8
54.535 1 7.7
6.10 4 53.2
53.340 1 21.8
21.840 3 1.7
2.3

1871 May 27

30 4 32.2
35.355 1 20.3
22.110 2 13.0
14.945 1 18.3
19.215 1 33.0
34.240 1 55.8
56.335 1 3.7
4.70 4 52.1
54.340 1 31.0
33.0

14-54-9

50-36

7.8

8.0

57-53

50-40

8.4

8.7

7871 May 26

40 4 32.3

32.1

40 0 2.3

2.8

40 4 25.0

27.8

35 4 59.4

61.2

Rms

A

b

8.1 8.8 18.2 18.7

8.3 8.8 18.1 19.0

8.4 9.0 17.7 18.4

8.7 9.3 17.3 18.0

9.1 9.1 17.0 18.1

13 9 07 53⁰ 40⁰

11 48 53 07

14 45 53 39

17 42 54 23

19 50 54 00

21 53 58 24

24 13 53 52

8.2

26 13 53 49 220

8.8

27 35-53 35-

9.0

74

1871 June 2

Jan 4 1871
 1871
 1871
 1871

30 7 29.8 320
 30 7 29.8 320

30 2 22.3
 21.7

115 2 12.4 5 fall 45 2 30 64
 11.9

43 30 40	53 22	9.0	9.2
34 34	53 34	6.5	6.9
36 08	54 42	8.7	9.3
38 30	54 23	8.9	9.0
41 19	55-02	8.5	6.8
		Close off?	
43 16	53-10	Ex	
		* below	
46 12	53 55	8.2	8.0
48 32	53-30	7.0	~~7.8~~
51 08	53 12	Too faint	~~7.5~~

1871 June 2

June 6th

55- 3 40.1
40.6

55- 3 37.0
39.5

45- 2 49.1
49.0

45- 2 53.4
58.3

35- 4 8.1
9.7

35- 3 45.7
48.5

55- 2 50.3
51.1

55- 2 47.0
48.8

15- 2 34.2
46.2

15- 2 34.5 36.4
not double 37.4

25- 1 29.4
30.8

~~20 4 42.3~~

25 1 29.7
31.4

20 4 42.3
44.2

20 4 35.6
38.4

~~4 42.3 50.1~~

54 14	53 43	8.0	80
57 26	54 05	9.3	92
59 57	58 02	7.8	79
24 02 09	53 55	8.0	76
6 54	53 21	9.1	91
8 55	53 05	9.5	94
10 50	53 07	7.8	77
14 18	54 32	8.5	82
17 12	54 30	8.95 9.0	89 90

done with both

1891 June 2

June 4

35 3 9.4
11.335 3 2.2
11.115 1 12.1
12.015 1 21.1
24.620 0 3.2
3.5-20 0 4.3
5.225 1 45.2
46.225 1 37.6
40.40 1 20.8
23.80 1 19.2
22.215 0 36.3
37.015 0 36.0
38.710 4 6.1
6.310 3 56.1
57.550 0 8.8
10.745 4 63.0
65.750 3 3.1
5.050 2 54.3
57.3 60th

14 20 40	5-3 39	22 9.0	92
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22 39	5-3 03	9.3	92
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24 50	5-4 16	9.0	87
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27 58	5-3 56	8.9	90
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31 ~~34~~	5-3 00	9.2	94
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33 51	5-3 36	8.5	88
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37 13	5-3 12	8.7	90
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40 22	5-4 52	8.4	90
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1871 June 2

June 4-1871

40 2 45.1
116.440 2 41.9
45.415- 3 18.9
19.715 3 14.8
15.85 2 53.2
54.05- 50.0
5-1.825 1 14.3
14.825- 1 10.2
13.720 2 48.2
49.2Lomb X 14 31
20 2 44.8
48.2

fol star

45- 1 8.0
9.045- 1 1.4
4.6
new star10 0 18.2
18.010 0 19.6
21.930 0 6.1
7.230 0 2.4
8.5

144328	53	21	8.7	8.5
4613	52	56	8.5	7.8
4807	53	08	8.2	8.1
5008	53	54	9.0	8.9
5304	53	54	8.8	8.5
5507	53	17	9.2	9.0

A		B	
9.8	10.0	17.8	20.2
9.4	10.6	18.2	19.4
9.5	9.9	18.0	19.0
9.7	10.0	18.0	19.0
9.8	10.0	17.9	19.6

1871 June 2

June 4-1+7/

0 0 19.6

20.0

25-0 35.6

35.3

15-0 14.8

15.2

25-3 25.4

28.0

25-2 41.1

41.2

0 0 20.4

22.1

25-0 31.0

33.5

15-0 8.6

10.2

25-3 16.0

17.5

25-2 39.4

40.4

5-0 10.0

11.2

23

^h — 13 30 26	50° 19'	
— 32 55	50 41	
— 35 14	53 46	7.5
— 37 52	50 41	7.8 & 9.0
— 42 10	51 26	9.3
— 45 14	51 59	20 9.0
— 46 59	51 47	8.7
— 51 26	51 05	9.0
— 54 36	51 08	8.8

1871 June 9th

30 4 47.3

49.0

bath*
35-4 58.8
59.9s fall
55-1 1.3
1.9

20 0 58.6

59.9

30 3 26.3

28.0

s fall
15-1 17.3
17.0

10 2 1.1

2.2

— 13 56 28 50 45 8.3

— 59 36 49 58 9.2

— 14 01 23 50 16 7.0

— 4 07 49 58 ~~8~~ 8.5

— 5 51 50 03 8.7

— 8 14 50 59 8.8 folv

— 10 40 51 40 8.3

— 12 48 51 54 6.0

— 14 56 51 53 9.2 folv

1871 June 9

5 fol
35 0 49.0

50.2

20 0 57.1

57.4

0 4 42.3

43.3

20 1 27.4

28.9

15 1 45.8

47.0

20 2 20.3

21.9

40 0 59.2

59.2

25 1 26.2

27.0

25 2 0.1

1.2

—	14	17	31	~~57~~ ⁵¹	42	8.6
—	20	43		51	41	9.4
—	~~22~~	~~26~~		~~56~~	~~59~~	
	23	10		49	58	7.8
—	27	24		50	52	9.0
—	29	45		50	46	9.8
—	31	52		53	46	9.2
—	34	50		53	49	9.0
—	39	03		49	59	9.0
—	41	55		50	50	9.0 folr

x

y

x

1871 June 9

35	3	46.8
		48.2

35	4	18.8
		20.0

20	2	13.2
		14.9

25	2	7.2
		8.9

30	4	29.2
		31.9

8 fol 30	4	59.8
		61.9

30	0	4.7
----	---	-----

14	36	0	7.1
----	----	---	-----

14	36	0	7.1
----	----	---	-----

8 fol

15	4	58.1
		61.0

8 fol

30	1	48.0
		48.9

1871 June 29

20	4	51.9
		53.3

1871 June 29

-144500	50	23	7.5 7.5
-4746	54	17	8.8 9.0
-49.55	54	10	8.7 8.9
-53.04	53	54	8.5 8.7
-55.07	53	17	8.9 8.8
-58.07	54	06	9.3 9.5
-152.12	51	55	9.2 9.5
-4.12	51	10	9.3 9.4

1871 June 9

5 fol 55-4 13.3 0 0 50.6
15.2 52.8

0 3 59.6 5 1 32.0
61.2 33.0

10 1 37.3 10 4 8.9
41.1 $T_U = + \frac{1}{3}$ 12.1

5 fol
25-1 57.0 25 3 36.1
0.0 39.3

5 fol
0 4 41.1 ~~25~~ 1. 17.3
43.2 17.0

reject 146 for 5 put on illu-
10 4 15.8 15 1 47.0
18.1 46.7

25- 0 31.5- 25- 3.4.7
31.3 7.2

5- 4 58.6 10 2 29.0
60.2 29.7

- 15 6 03	5-2 ⁰ 5 ¹ 4	8.0 7.8
- 8 34	5-3 28 2	8.1 8.0
- 10 23	5-3 04	9.3 9.0
- 12 03	5-7 24	7.3
- 15 10	5-4 02	9.5 9.0
- 17 33	5-4 23	7.5 7.3
- 20 18	5-4 09	8.9 8.9
- 23 05	5-4 27	6.5 7.0
- 25 23	5-1 23	
- 27 06	5-1 24	9.2 8.9

1871 June 9

Sol * 5 fol

25-	2	29.7	25 4	14.5
		31.2		15.4

June *

50	3	55.1	55	1 23.6
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5 fol breaker before 5

15-	2	34.2	15 4	10.3
		34.8		12.9

June *

55	3	21.5
		23.6

5 fol

20	0	0.9	20	1	33.3
		3.0			36.7

5 fol

55-	3	18.3	55 4	52.1
		20.9		51.8

upper *

10	2	18.3	10 4	49.0
		19.4		45.9

50

2

33.8	55 0	4.4
36.7		6.9

rej. ht wings
obsd last 2.5 4.1

too ft. to obs.

a very faint x in field 10 m

5 fol best first m

50	4	55.2	55	1	27.0
		54.1			28.3

1871 June 9

45	4	58.0	58.2		23.0
		59.1			25.5

55	4	48.8	0.2		23.0
		57.1			25.5

20	4	52.8	25		2.247
		52.9			29.7

not seen

152

8.9
11.3

30	4	37.1
		38.9

5 Jul

40	1	1.0
		2.0

Set: The following work #

16 15-12-34 24

16 49 29-19 20

35.2
10.6
13.9

40	2	28.1
		31.8



C

42.353

359

357

350

352

21

42.352

42.333

C Set at = 42.343

42,336

326

332

346

335-

163

42,333

15-4329	50	17	
15-4727	52	38	8.4
15-5104	50	23	9.5
15-5452	51	04	pre* 9.0
15-5705	51	11	8.8
15-5929	50	17	9.3
16-136	52	24	20 9.0
16-312	52	26	fol* 9.2
16-538	51	04	8.9
16-746	51	09	lower pre britest 9.3

June 29

40 4.53.6 0
59.0

0 0 4.1

51.2

15 4 20.8
22.5

10 2 27.9
32.0

5 1 28.2

31.7

55 4 18.1
20.9

55 1 43.2
44.6

15 4 4.8
9.0

10 43.47.8
48.7

June 29 —

18.0	19.4	28.4	31.0
18.9	19.8	28.6	30.6
18.5	19.0	29.0	31.2
18.5	19.0	28.5	30.7
18.5	18.9	28.3	31.2
<u>24</u>	<u>461</u>	<u>431</u>	<u>47</u>

W.P. 71.3

A.C. 65.0

1946

1824

1.22

24

46

40

-35

3094

2862

232

15

Following list
transferred to double
list —

~~15-28-31-~~~~54.56~~~~8.6~~

32 54

54.18

9.0

34 57

53.0

9.3

41 4

53.23

7.0

43 39

54.1

8.8

52 36

54.27

9.0

57 21

54.54

7.7

16 1 32

54.44

8.7

5 16

54.52

9.2

7 54

50.15

9.2

16	11	15.	50.53	9.5
12	45	50.17	9.5	
15	17	57.38	9.0	
17	50	57.49	8.0	
19	28	57.4	8.4	
22	.3	53.25	7.9	
25	.24	50.57	9.3	
28	.46	50.5	9.5	
31	.25	50.42	9.2	

16	33.14.	53.11	5.0
	35.30	50.12	9.1
	37.40	50.33	9.3
	40.24	50.54	8.2
	42.50	50.34	9.0
	44.57	50.32	8.4
	46 27	53.9	7.0
	49 29	50.5	8.8
	52 50	50.15	6.5

16 54 37 50.5 9.2

59.2 50.30 7.1

17 2.56 50.27 8.3

5.34 50.51 9.0

7.5 50.4 9.4

11.27 50.11 8.6

13 29 50.45 7.8

14 59 50.2 8.8
9.0

16 56 50.45 9.0

17	19	28	50.31	8.8
21	30		50.49	7.0
24	41		50.40	8.8
26	27		50.40	8.4
28	27		50.47	7.5

16 05 42 50 07

9.0

7 46 51 09

9.4

9.5

10 42 50 08

9.1

15 12 - 34⁰ 24¹It is the preceding #

17 10 50 06

9.0

19 28 51 04

9.2

9.3

21 46 52 01?

~~9.8~~

8.0

25 30 52 03

9.8

29 23 52 19

9.0

31 38 54 13

8.2

8.8

35 15 54 05 - 87

9.2

1871 July 7th

Aug 17

15- 1 18.5 18.4

10 3 49.0 48.3

not seen

15- 2 14.9 15.7

15- 1 4.2 3.8

~~20- 1 15.3~~

20 1 15.3 15.8

5- 1 31.0 31.8

15- 1 19.3 19.1

Jul 10 4 19.7 20.8

10 4 52.9 52.3

40 2 40.0 16.2
cont- 3' 10.0 2(20 0 47.4 44.7)
Jul. 17

20 2 39.9 41.8

20 1 6.2 6.9

(0 3 31.7 33.5)
wing 77

10 1 17.6 19.8

15- 2 40.5 42.5

16 38 45 - 54 30	8.8	8.0
------------------	-----	-----

42 10 54 26?	8.6	8.8
--------------	-----	-----

44 54 50 15	8.5	8.8
-------------	-----	-----

48 41 54 13 - ~~2nd star~~ ~~5.0 2.0~~ sit wrong		
--	--	--

50 12 54 57	9.5	9.5
-------------	-----	-----

53 04 54 43	8.3	8.6
-------------	-----	-----

55 19 50 23	9.4	9.6
-------------	-----	-----

59 08 54 47	7.5	7.8
-------------	-----	-----

17 02 45 54 38	both doubt 7.0 7.1	7.5 7.5
----------------	--------------------------	------------

5 54 54 25 2	9.3	9.2
--------------	-----	-----

7 46 54 13	8.8 9.1	8.0
------------	------------	-----

1871 July 7

50 4 16.7 17.7

lower fol*

35 2 12.0 13.0

5 3 22.9 23.2

lower found

25 3 32.4 33.7

40 0 24.5 24.2

0 0 37.2 38.0

35 1 37.9 38.8

3.15 for each 5

40 4 56.0 57.6

Price X

55 3 38.0 39.3

both

10 0 45.8 44.9

July 17

50 4 10.3 11.8

55 2 1.3 2.7
Sumo /

5 3 16.8 18.9

5 3 23.4 26.2

~~upper~~
25 3 35.4 36.9
lower

40 0 18.1 19.0

0 0 27.3 28.2

35 1 37.7 38.6

40 4 50.0 52.8

41 a = 0

55 3 50.7 55.2
55 2 12.4 13.7

17	10	26	54	18	8.7	86 6.5
13	53	54	41		9.0	89
17	44	50	42		8.9	90
27	20	~~54~~	~~27~~	54 29	8.6	88
25	15	54	27		8.0	86
28	53	54	27	dfol	8.5 8.0	85 80
30	08	54	19		8.6	85
33	37	51	10		8.6	84
36	09	54	10		9.2	85
38	27	51	51		6.3	
42	06	54	37		9.0	

1871 July 7

Price *

5-2 5.3 7.1

Middle Star

40 2 18.9 20.2

10 1 3.8 4.3

50 4 33.7 35.1

55 1 3.3 4.3

56-1 31.8 33.0

~~10 3 32.0~~

10 3 32.0 32.8

10 3 8.0 7.8

30 0 30.2 30.2

45 0 55.8 56.0

July 17

50 1 48.0 48.1

51 48.0 48.1

40 2 27.3 29.8

10 1 9.3 11.6

50 4 27.8 30.3

55 0 57.2 59.3

55 1 27.8 28.9

55 1 27.8 28.9

10 4 48.3 51.4
Good

10 2 20.4 22.1

10 2 60.0 68.5

30 0 19.7 21.0

1871 July 7

28.0	29.7	37.2	36.8
27.6	29.0	36.0	37.0
27.3	29.3	37.3	37.0
27.4	29.2	37.2	37.0
27.0	29.0	37.0	36.7

July 20 1871 MPR Ju

16	28	46	50	55	9.5	9.8
----	----	----	----	----	-----	-----

81	25	50	42	9.2	9.1	9.0
----	----	----	----	-----	-----	-----

35	30	50	12	9.1	9.1	8.9
----	----	----	----	-----	-----	-----

37	40	50	83	9.3	9.6	
----	----	----	----	-----	-----	--

40	24	50	54	8.2	8.6	8.5
----	----	----	----	-----	-----	-----

42	50	50	34	9.0	8.8	8.9
----	----	----	----	-----	-----	-----

44	51	50	32	8.4	8.3	8.6
----	----	----	----	-----	-----	-----

~~26.51~~ # (#?)
 20 1 34.7 37.7

40 1 37.6 40.5

40 1 25.7 28.2

10 0 45.7 48.3

10 0 42.0 45.1

50 0 12.2 15.1

25- 4 1.3 4.4

25- 3 47.4 50.9

45 4 26.8 30.2

45 4 23.7 28.1

50 0 26.2 30.3

50 0 21.9 28.3

16	47	17	5-2	22	9.2	9.2	8.6
49	29	5-0	05		88	88	8.5
58	07	57	32		83	88	8.5
53	08	51	53		89	89	8.5
~~54~~ 58		50	52		75	77	7.8
~~59~~ 74		50	12		93	95	9.0
59	54						
2	41	57	32		94		9.4
5	08	51	00		6.5	6.8	6.4
7	05	50	04		94	96	9.7

¹⁸¹
~~11~~
 00 39.2 41.6

(^{2nd}
~~55-450.532~~)

15-4 25.7 31.2

15-4 25.0 28.8

50 0 24.2 26.6

50 0 14.2 15.4

30 0 13.7 16.4

30 21.0 23.1

25-4 37.6 41.3

25-4 32.0 35.8

on wings & sitting

5 2 24.7 27.9

(5-2 25.3 28.4)

not seen

50 0 13.9 17.1

20 2 42.7 46.3

20 2 38.2 41.4

15-4 38.2 42.7

15-4 50.2 55.4

17 11 27 50 11 86 89 86

13 29 50 45 78 80 84

16 56 50 45 90 91 90

19 28 50 31 2 88 93 91

21 21 50 14 94 96 97

24 41 50 40 2 88 87 86

26 27 50 40 84 83 85

29 02 50 29 89 89 ~~88~~

31 53 52 47 90 90 88

10 2 119 166 10 2 120 150

35-3 45.7 48.3 35-3 35.7 38.8

35-3 34.3 37.8 35-3 26.3 30.1

50 2 38.4 37.5 50 2 27.7 31.1

5- 4 16.7 4.9 5-3 58.8 60.8

40 2 14.3 18.7 40 2 17.4 20.0

40 2 48.7 52.5 40 2 44.4 49.4

a?

50 4 25.2 28.2 50 4 14.4 18.1

35-0 58.0 61.8 35-0 50.6 54.1

17	33	44	50	12	86	87	88
36	01	51	45	83	85	84	
38	38	51	33	6,8	98	75	
40	32	50	07	92	91	90	
42	41	50	13	78	77	84	
45	32	50	13	52	84	82	
48	08	51	14	90	93	93	
50	23	50	22	90	88	96	
52	55	50	29		87	86	
55	11	51	50	84			

10	1	21,2	242	10	1	22,8	26,8
----	---	------	-----	----	---	------	------

35	1	10,7	12,8	35	1	11,8	14,9
----	---	------	------	----	---	------	------

50	1	6,9	9,1	50	1	5,7	8,9
----	---	-----	-----	----	---	-----	-----

15	1	3,8	40,3	15	1	3,2	35,4
----	---	-----	------	----	---	-----	------

15	2	4,2	3	46,8	(15	4	6,2	10)
----	---	-----	---	------	-----	---	-----	-----

20, 1, 1

5	3	51,1	54,3	5	3	56,0	60,0
---	---	------	------	---	---	------	------

5	3	3	6,0	39,6	5	3	2,6	25,2
---	---	---	-----	------	---	---	-----	------

✓ setting wings

50	9	0,1	1,6	0	0	52,4	56,0
----	---	-----	-----	---	---	------	------

50	3	41,6	45,1	50	3	57,0	54,8
----	---	------	------	----	---	------	------

setting wings

25	7	39,2	42,3
----	---	------	------

not - Ben

17 57 27 50 59 2 93 98 92

59 20 51 36 70 73 75

18 1 50 51 50 82 86 80

4 52 51 58 77 82 79

7 18 51 53 75 79 80

9 36 50 26 90 88

11 33 50 12 20 75 84

13 20 50 49 90 83

16 45 50 57 94 94

19 03 50 56 84

40 2 588 620 20 2 53.3 573
~~Sum~~

40-0 3,3 6.1 40.4.64.4 67.7
~~Sum~~

30 0 48.5 5-11 30 0 45.8 48.3

20 2 50.4 5-20 20 2 48.8 51.1

30 1 10.4 12.2 30 0 45.2 57.2

55 248.1 466 55 2 38.8 43.2

10 1 17 4.6 10 1 2.3 5.7

30 3 55.9 59.9 30 3 58.0 62.5

25-0 21.6 23.3 25-0 19.4 23.1

25-0 25.7 28.3

Aug 23

16 40 36	51 47 ~~28~~	73	78
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16 43 02	50 58	93	97
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45 22	50 55	90	90
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47 45	51 21	79	77
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50 46	51 13	80	82
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52 48	51 19	84	85
-------	-------	----	----

54 37	50 05	92	96	95
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59 30	51 05	93	95	75
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2 41	51 32	94	98	101
------	-------	----	----	-----

5 02	52 28	88	87	85
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7 08	51 23	89	91	85
------	-------	----	----	----

NRK ds,
July 20

July 27 - H.G.O.

30 1 25.9 28.3 35.1 39.3 39.6

25 0 5.1 8.7 not seen

25 3 16.7 20.1 25 3 28.2 31.2

0 2 18.3 21.1 5 3 52.0

5 3 45.7 48.5 5 3 52.0 55.0

0 4 28.2 32.3

15 2 35.0 39.5 very ft - obs on d.

15 0 50.6 53.7 15.0 50.6 50.9

50 0 12.8 15.9 too ft to obs -

50 4 18.9 9.7 50 4 13.0 15.9

0 0 3.2 5.5 50 4 39.1 39.2

11	29	20	50	30	93	93	95
13	04	50	45	78	75		
14	59	50	01	88	88	9.0	
17	10	51	47	80	80		
19	17	51	0	87	92	9.0	
21	10	57	09	88		8.8	
23	07	57	58	81	80		
26	0	51	34	73	85	7.2	
28	27	50	47	75	78	7.8	
30	31	50	52	94	100	9.8	
34	17	50	44	81	84	80	

Aug 20 July 27
 50 8 37.6 40.5 - too ft to obs -

35 8 42.8 44.3

20 3 29.6 33.1 (20 0 47.8 48.0)

35 0 - 1.8 40.8

20 3 57.0 58.5 20 3 46.5 49.0

Not Seen 10.2 29.2 30.3

20 3 48.7 52.4

45 2 19.0 20.1 45 2 04.6 6.9

35 1 42.7 46.8 35 1 40.5 43.7

25 3 35.7 39.2 too ft to obs -

25 3 40.7 41.9 35 3 31.0 31.9

17	37	49	50	03	94	93	95
39	46	50	18	90	9.5	9.5	
41	45	50	05	90.5	78	7.0	
43	20	50	42	90	9.6		
45	52	50	35	85		10.3	
49	20	50	24	80	75	80	
52	46	50	58	92	93	9.8	
55	11	50	58	87			
58	01	51	12	90	8.7	9.0	
1	21	51	35	88	88	8.9	

July 23
 15-4-263 207 15-4-21.0 22.8

July 27

50 20.8 25.2 5.0, 26.3 28.4

15 2 14.7 16.8 ^{dy} 15 2 59.7 61.8

40 1 5.7 8.7

Not Seen - too ft. to obs.

55 2 57.8 62.6 55 2 56.5 59.0

85 0 17.3 19.8 too ft. to obs. well -
 25 0 17.0 17.1

2nd d break coincides
 with B₁ -

Not Seen

Not Seen -

#T. Carlin

rej. 1st wire -

10 3 0.7 1.8

10. 2 54.2 55.7

95 3 303 33.7 45 3, 40H 43.1

173916 50 69 20 88

~~44 20 50 02 89 88~~
42 02 50 18

45 52 50 35 9598 10.0

49 57 50 08 88 9.0

52 55 50 29 89 85 8.5

54 53 50 20 83 8.3 8.0

57 11 50 34 92 9.0 9.2

18 01 28 50 52 86 9.0 9.2 9.0 9.0
double

18 3 49 50 49 6.5 7.0 6.8

Aug 9 7.45. am Aug 10 ^{obs} AM

6 4 19.4 21.9

45 2 30.9 31.6 45 3 5.8 5 fol

10 4 53.7 55.5 15 0 26.3 26.8 5 fol

50 3 49.0 50.5 50 3 41.8 43.

0 3, 4, 9 6.2 0 3 5.7 7.7

45 4, 32.2 33.0 45- 4 38.2 38.9

30 1.8.1 9.0 30 1 15.8 17.0
same 2- 5 fol

30 4, 56.5 58.1 35 0 25.6 26.9

18 8 00 50 45 8.5-8.2 8.3

10 23 50 30 8.7 8.3 8.5

13 12 50 10 8.3 8.3

15 50 5-1 28 8.8 8.8

18 25 50 19 8.6 8.8 8.8

21 53 50 28 9.0 8.8 9.0

24 23 50 21 10.5 9.0

27 20 80 05 8.5 8.5 9.2

30 50 50 52 8.8 9.0 double
after comp. 8.8

Aug 9

35-2 16.8 17.7

50 3 44.6 47.0

10 1,44.5 45.3

55 0, 7.7 7.4

0 4 41.2 42.5

55 0 -1.0 -0.1

Sum but too ft. to obs.

15-2 37.9 39.7

30 1, 7.6 6.5

Aug 10

35-2 16.1 17.9

lower *

50 3 44.8 46.2

0 4 40.0 42.3

55 0 2.3 3.9

0 2 22.2 25.6

mid of 3 * 5

20 0 40.0 41.1

30 1 15.1 15.8

1833 32 5146 80 7.8 7.9

3604 5008 83 8.5 8.8

3855 50 11 9.0 8.9 9.0

4151 50 52 9.0 9.3 9.0 ^{Upper}

4515 51 32 8.5 8.5 8.7

4730 50 27 8.9 9.0 9.0

5002 50 30 8.0 8.0 7.5

5235 50 23 8.6 9.0

5531 52 00 8.4 8.7

Aug 9

Aug 10

35 2, 11.1 12.0 35 2 12.5 12.7

10 4.52.0 54.0 15 0 0.3 1.2

10 1.24.0 25.0 10 1 23.4 24.6

20 0.42.9 44.3 30 0 53.2 54.5

50 0.57.2 57.9 50 0 54.8 55.1

fol + w/sun *

55 1.25.9 26.3 55 1 29.3 30.2

at bright * ^{5³⁰}
w/sun part of field50 3.17.4 19.4 50 3 22.7 24.8
obsd but. # ind. 4m
above & preceding

0.00.0 0.00.0.4 0 0 3.9 5.0

20 3 14.3 14.1

185804	51	02	88	9	9.0
190052	57	39			9.2
415	50	28	86		lower brightest of them 8.8
644	50	13	90		9.0
732	50	31	83		

Aug 9

Aug 10

20 1 16.0 17.8

40 4 52.3 53.3

55 0 28.2 29.3

5 fall night 5 pm

10 0 35.7 36.2

1746 0	50 50	5	7.0
50 02	50 17	9.4	—
53 14	50 47	9.1	—
56 44	50 39	8.9	—
59 03	51 09	9.0	—
102 36	51 54	8.7	9.0
5-57	51 8	—	8.8
8 05	57 42	2p	7.5 7.7

A.M. Obs

1871 Aug 11

S. Sol

5 0 16.3 16.7

Sol*

35 2 7.4 8.1

Sol*

40 3 52.2 53.0

10 3 2.9 2.9

30 0 47.4 47.2

Not Sun

40 0 34.4 34.3

A.M. Obs

1871 Aug 17

30 4 23.9 24.2

(Probably 3 first were also)

very faint clouds

0 4 59.7 60.2

Sun
25 2 19.0 18.0

10 2 20.2 19.0

40 0 32.7 32.6

18 10 15	51 46	9.3	9.2
----------	-------	-----	-----

12 55	50 29	8.0	8.0
-------	-------	-----	-----

16 03	51 41	8.6 [?]	9.2
-------	-------	------------------	-----

19 24	50 24	9.0	9.0
-------	-------	-----	-----

~~22 15~~	~~50 26~~		
24 27	— 3 [?] 42	9.10 mag	
~~24 57~~	~~50 38~~	Week #	9.5

27 27	50 01	9.1	
-------	-------	-----	--

30 54	51 38	8.9	8.8
-------	-------	-----	-----

34 42	51 50	Lp	8.0
-------	-------	----	-----

36 51	50 05	8.8	9.0
-------	-------	-----	-----

2nd 2nd dw
 35 2 12.2 12.2 35 2 13.3 12.7

50 3 50.7 51.1 50 3 54.3 54.8

40 2 57.3 53.8 40 2 53.8 53.0

55 2 56.2 58.2 55 2 59.0 59.4

into failed

80°

all of the way
 5 0 59.0 70.8

* Mid & faint *

* 20 0 42.2 46.3

last two bins

35 4 3.4 2.8

Lure

45 0 23.8 21.8

Not seen

30 3 10.8 10.4

burn *

10 4 61.3 62.2 15 2 36.8 37.0

18

39 24

57 17

9.5-

9.5-

42 33

57

15-

20

44 27

57

09

47 16

50

35-

9.5-

9.5-

51 09

50

25-

double
8.2
8.8

53 55

57

19

9.2

8.5-

57 01

57

24

~~9.0~~

59 50

57

24

9.0

192 46

57

52

9.3

9.2

5 29

57

552

8.8

8.5-

0 1 23.8 23.5 ^{sure} 6- 1 42.9 43.0

not seen

not seen

40 4 48.2 48.3 ^{sure} 45 3 26.2 25.8

fol*5 first

too bright* came
early lost 55-2 56.7 57.1

fol x

0 0 4.8 5.2 0 3 13.6 13.2

not seen

50 2 37.0 37.1

me x

25 4 31.3 31.9

fol* (5 fol)

25 3 16.3 17.4

sure

30 1 20.8 21.1

25 4 31.8 31.1

19 7 48	51 09		8.8
11 12	51 11		9.0
13 46	51 60		8.8
15 47	51 20	9.0	9.2
18 17	51 26	9.5	9.5
23 23	51 10	~~8.9~~	8.9
25 44	51 28	9.2	4.5
29 51	51 28 $\mathcal{Q}$	9.0	9.3
31 49	51 03	8.0	8.5
33 59	52 01		8.0

					Mid*		
					10	1	51.2 50.9
					10	3	2.3 2.4
not seen					20	2	56.5-56.8
5 fol							
55	1	21.8	21.0		0	3	29.9 28.3
1 fol					me*		
55	2	8.3	7.5		55	1	40.7 40.8
reject obs					fol*		
let wrong					10	3	44.4 45.0
					fol*		
45	4	25.3	25.6		55	0	44.1 44.5
50	2	20.3	21.2		55	0	29.8 31.0
factor seen before							
15	4	53.8	54.2		15	4	52.0 52.3
not seen					20	2	48.8 49.7

19 36 26	51 38	8.2	8.5-
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38 42	51 43		9.0
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42 33	51 15-	8.8	8.8
-------	--------	-----	-----

44 50	51 48	8.2	9.0
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47 53	51 38	8.8	9.0
		8.8	8.9

51 00	51 31	8.5-	8.8
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lower & max

35-3	20.8	19.4	40-4	55.7	56.6
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~~Hot Sun~~

40-1	25.3	26.4
------	------	------

5-2	38.3	38.0	5-2	36.7	37.0
-----	------	------	-----	------	------

35-0	27.1	27.4	35-0	33.0	33.9
------	------	------	------	------	------

two last 1.5 min
of first

45-0	36.8	36.4	45-0	30.3	30.2
------	------	------	------	------	------

50-2	52.3	52.0	50-2	50.3	49.8
------	------	------	------	------	------

18- 6-6 51.18 m

8 5 51.42 z

11, 12 51.27 f

13 11 51.16 m

15 50 51.28 m

18 29 51.13 z

20 46 51.34 m

22 49 51.3 f

25 45 51.51 z

28 0 51.7 z

31 33 51.41 z

34 42 51.50 z

24 15 1 3 21

24 15 1 3 21

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24 15 1 3 21

18	38 0	50 35 6	
	40 31	51 17 m	
	43 28	52 29 f	
	45 2	53 52 f	
	47 31	51.43 m	8.9
	49 34	51.25 m	lower* 9.2
	51 46	51.8 6	8.2
	54.00	51.33 6	8.8
	57 .1	57 24 f	9.3
	59 50	51.24 m	9.0
19	2 26	52 20 f	9.5
	4 12	51.51 m	9.0
	6 40	50.48 f	9.2

1871 Sept 8th
 A M Obs & Rec

40 0 3.4 1.2

55-3 15.3 13.4

10 4 42.0 40.0

5-0 13.8 10.7

55-4 39.7 38.2

55-4 14.8 12.1

0 3- 18.9 16.0

30 2 49.4 46.2

30 4 44.8 42.5

19	8	47	52.25	m	8.6
11	12	51.11	~~m~~	m	8.9
13	46	52.0	m		9.0
15	34	52.1	m		8.2
17	53	52.42	f		9.1
20	10	52.19	f		8.0
23	23	51.10	f	fol*	9.0
26	16	51.53	f		8.9
28	13	52.22	f	Two x spru	9.2
30	14	51.45	m		8.9
32	47	51.48	m		8.2
35	10	51.53	f	4x0 9.2 down 9.2 4x3" Lower	
38	23	51.34	m		9.2 faint Camp

1871 Sept 8th1871 Sept 22^d

55-3 0.3 59.2

10 2 55.1 52.8

20 2 52.7 54.9

20 2 32.2 30.1

40 1 14.3 11.3

0 4 8.0 15.4

10 3 31.5 30.9

30 0 7.9 5.2

0 0 11.9 8.3

35-2 42.7 39.9

35-0 33.4 30.8

25-4 42.2 44.2

45-4 20.8 17.3

unfaded

19	40	16	51 41 f	Wp*	8.7	
	42	45	51.21 m	fol*	7.2	
	44	30	51.35 m		9.2 9.0	
	46	30	51 43 f	mic*	9.2	
	48	44	51.30 b	Ex		
	51	14	52.1 m		—	
	54	50	51.5 f		8.9	
	57	10	51.35 f		9.0	
	59	55	51 22 m		8.0	8.0
20	4	37	51 21 m		8.8	8.8
	6	59	51 25 f		9.3	9.5
	9	25	51 52 f		8.8	8.9 fol*
	12	40	51 23 f		9.1 9.1	
	15	16	51 49 f			9.3-9.3
	17	40	52.00 b		7.8	8.0
	20	11	52 06 m		8.0	8.0

1871 Sept 8

~~20 13~~

40 2 4.2 2.2

1871 Sept 22

0 1 52.0 49.8

5 pol x last 2 st 45

45-3 27.3 25.2

40 0 38.2 38.8

not seen

20 1 46.2 44.0

15 3 4.6 2.8

45 2 29.3 27.2

0 0 37.1 34.8

0 1 44.1 42.0

55-2 17.4 16.9

25 4 21.8 19.8

long str last x 5

35 0 3.2 1.2

20 3 10.0 8.1

15 1 15.9 14.1

per fault

The following observations are
an outcome, on account of
circumstances.

0 0 46.7 42.3

0 2 53.5 49.0

55-2 23.3 17.4

30 1 45.6 41.1

35 0 12.2 7.0

20 3 14.3 10.4

15 1 19.4 15.2

20	2439	51.15	m	8.8	9.0
	2719	51 32	m	8.7	8.9
	3004	51 08	f	9.2	9.3
	33 48	51 08	m	8.8	8.9
	38 51	50 34	b	8.6	8.0 ^{fol*}
	41 14	50 44	f	9.4	9.1
	43 39	50 17	b	8.5	8.7 ^{fol*}
	45-31	50 18	b	7.8	8.0 ^{5 fol}
	48 02	50 48	<u>f</u>	9.5	9.2
	50 30	51 01	f	9.3	9.3
	53 19	50 34	<u>f</u>	9.3	9.5
	56 54	50 51	m	8.5	8.5
	59 09	50 18	b	8.2	8.0
	2 32	50 54	b	8.5	8.6

1871 Sept 18

5 2 34.7 33.4

50 1 10.9 9.3

15 0 4.9 3.9

15 0 15.0 12.2

45 4 26.9 27.2

35 3 37.4 37.1

5 0 43.7 42.6

5 0 1.0 59.9

30 4 50.4 50.7

20 2 15.5 10.0

45 4 6.3 5.8

brown
30 1 37.3 37.0

5 0 49.2 49.2

25 3 45.0 44.7

1871 Sept 22

5 2 36.2 31.3

50 1 9.8 4.9

15 0 9.5 4.2

15 0 19.9 16.0

45 4 32.0 29.4

35 3 43.9 39.8

5 0 43.2 40.4

5 0 32.0 28.7

30 4 42.3 38.8

20 2 10.9 16.1

45 4 7.4 4.3

30 1 55.3 52.2

5 0 45.3 42.5

25 3 35.6 32.3

21 0 13 , 54.43 b

3 31 .29 b

5 44 .47 f

7 17 .48 b

8 25 .48 f

9 16 .52 m

11 21 .59 b

13 21 .31 b

15 42 .22 f-

18 16 .20 f

19 44 .44 b

23 9 .62 m

24 52 .51 b!

26 46 .50 b

28 33 .25 m

21. 30. 29. 54. 31. m

32 24 .15 b

34 38 .9 m

36 30 .17 b!

38 42 .56 b

41 42 .56 f!

46 6 .7 m

48 . 2 .4 b

54 21 .12 f

55 . 3. .12 f.

56 . 43 .45 f

58 . 46 .15 b

22 1. 44 .37 m

3 38 .54 f

6 56 .37 f

8 40 .50 m

22 10 28 54.47. f

12 15 .10 m

15 39 .62 m

17 22 .9 m

19 . 21 .8 f

24 1 .10 f

25 40 .14 m

28 3 .25 m

30 56 .22 f

33 5 .54 f

34 52 .53 f

22 40.14 54.16 m

43.7. .17 f

46.43, .49 m

48 55 44 m

51 25 32 f

54 37 .48 m

56 34 .13 m

58 33 35 f.

23, 1.49 .10 m

6 .6 .36 m

8 48 .45 m

10 45 .29 b

23 . 12.47 54.31 f-

14.41 .49 m

17 20 23 f

19 3 .23 b

21 11 .10 b

23 5 .62 f!

30
210

460
460
3960
3910
3960

160
79
96
125
460

