

KG  
11366  
v. 553

Chronograph Record.  
June 1877.  
Circle Readings.  
From Dec 17 1877 to Sept 14 1878.  
A 25  
Charles W. Sever, University Bookstore, Cambridge.



ndd

LC















2 Dec 17, 1877 Obs. W.A.R.  
 Dec 18, 1877 Rec. J. F. M.  
 Obs. W.A.R.

h m s	ny.	o	i	E.	G.
3 25 46	87	53	29	28.9 4.7	33.1 76
26 49 22	52	24		41.5	46.4
28 41 89	51	18		22.0	25.6
29 32 88	53	32		23.8	26.5
31 27 89	54	14	2 2	8.6	18.9
32 2 9.1	54	22		15.7	17.5
42 3 8.6	52	34		11.4	14.5
42 8 8.9	52	38		38.1	31.1
43 39 8.5	50	6		43.9	46.8
44 27 9.0	52	23		58.6	0.1
46 37 9.0	53	34		45	8.8
52 46 8.5	53	10	2 2 2	3.5	6.0
53 38 9.0	54	54		43.4	44.6
56 54 8.5	54	20		17.9	21.2
0 22 8.0	51	17		37.9	41.1
				1.9	4.3
				52.8	55.3
				85.2	31.4
				2.6	5.4
				59.8	25
				13.9	16.1
				38.9	40.9
				55.2	56.1
				26.8	26.8
				32.8	34.1



2nd, 8 pr.

\* The last 2 wires Upper & pr of 4 \*

Last 1st wire

Not seen

Mid wire & foll. obs. 5

Not seen

Mid wire & foll

Last 1st wire of 2nd \*

Not seen

4 1877 Dec. 17.  
1877 Dec 18.

1877hae.proj.

1877hae.proj.

					9.1	5 <sup>-</sup>	3	5 <sup>11</sup> 7	5 <sup>11</sup> 2
<del>1 35 91 50 16</del>									
<del>1 35 91 50 16</del>									
3 11	85	51	19	22	8.0	5	1	27.4	30.7
					87	5	0	51.6	55.1
3 52	79	51	36		8.2	45	4	17.7	20.0
					8.0	45	4	48.9	50.7
5 27	83	54	23		8.3	0	1	55.2	58.1
					8.8	0	1	58.5	61.6
8 11	80	55	0		9.2	25	1	2.8	5.1
					9.2	25	1	6.6	7.9
16 3	80	54	21		9.3	5	0	21.6	26.2
					9.0	5	0	22.3	24.9
17 26	84	54	53		8.6	30	3	16.2	19.8
					8.7	30	3	15.6	17.0
21 51	88	54	46		9.1	40	0	4.2	7.2
					9.0	40	0	16.4	18.7
23 14	80	54	8	2	9.0	15	2	40.8	44.8
23 59	68	55	0		7.0	25	0	50.1	53.2
25 8	74	53	7		7.7	15	4	1.9	25
26 7	88	50	58	22	8.9	25	2	40.0	43.5
26 56	87	52	24		9.0	0	1	50.1	54.4
					8.7	0	1	7.0	10.9
28 57	90	54	9		7.7	15	3	70.8	14.1
					9.2	15	2	32.8	35.2
29 53	78	54	32	22	7.2	55	0	2.1	5.8





Reg order 1st of double strokes belong to 1st ~~X~~



Suspected close double Mean S & R, A.  
Mean S. & R. A.

2nd S pr. 1st of double strokes belong to 2nd ~~X~~

2nd S pr.

6 1877 Dec 17  
1877 Dec 18

			E	B
30 34 86 51 17	8.2 5	4	9.1	12.0
30 44 81 51 17	8.2 5	4	25.8	26.5
34 2 62 52 19 2	9.1 5	4	9.1	12.0
34 52 83 53 85	9.0 5	4	8.9	10.1
40 45 85 50 85	8.0 5	1	47.9	52.1
46 10 89 53 55	8.0 5	1	59.0	0.8
52 11 88 54 4	9.4 45	4	42.5	44.4
52 17 88 54 2 22	9.2 45	4	38.0	38.9
52 42 88 52 17	9.4 20	0	53.5	56.6
56 41 85 53 45 22	9.3 20	1	14.0	16.1
57 36 88 50 18	9.0 30	3	7.5	9.9
2 24 65 51 12	9.0 30	3	8.6	4.9
5 21 82 53 43	8.9 20	0	56.4	59.4
7 32 80 52 29	8.9 20	0	31.5	32.9
8 25 80 54 36	8.9 20	3	11.1	14.2
	8.9 20	3	10.7	10.7
	<del>8.5 35</del>	<del>4</del>	<del>20.2</del>	<del>23.8</del>
	8.8 5	3	42.5	43.9
	8.7 35	4	20.2	23.8
	9.0 35	4	14.3	14.9
	8.4 10	1	19.1	21.1
	9.0 10	1	21.1	22.1
	9.1 10	3	46.4	48.9
	8.2 10	3	34.9	34.9
	8.6 8.8 40	2	8.0	11.1
	8.0 40	2	27.8	28.3
	9.0 55	2	0.9	3.9
	8.2 45	4	36.8	37.9



First of double stroke belongs to 2nd #  
 First of double stroke belongs to 2nd #

0 37-12 40

Lower & pr #  
 Lower & pr "

0 42 17 60 3

2nd Spr  
 " " "

1 325 + 54 29 9/1 sure  
 9/1 sure  
 belmids

Polaris

8 Dec 17. 1877

				8	8
				"	"
13 16 95 52 2 22					
14 4 88 52 19	9.0	5	2	3.9	6.5
15 18 85 52 46	8.7	35	2	23.9	27.4
16 17 82 52 42					
17 11 87 52 32	8.5	50	3	44.4	48.9
18 40 74 52 28	8.2	55	2	39.9	44.3



Too faint to observe

Not seen

Seeing very good indeed  
Seeing very bad indeed

10 Dec 20/1877 Kls. W.A.R. <sup>for beginning of new sec. & pages ahead</sup>  
 Dec. 25 1877 Rec. J. H. M.  
 Dec. W.A.R. Rec. J. H. M.

Dec 20	1877	20	44	86	50	1	8.6	20	4	45.0	47.4
21	55	87	53	7	8.7	25	0	9.2	11.8		
22	30	80	53	34	9.0	50	3	4.2	6.6		
23	30	80	53	34	8.9	15	3	8.7	9.0		
24	23	89	53	49	9.2	50	0	43.0	47.4		
25	1	88	53	1	8.9	50	0	56.9	57.5		
32	6	80	53	13	9.0	35	1	21.1	24.0		
33	4	84	50	33	8.8	35	1	25.3	25.3		
34	0	82	53	28	8.9	25	0	31.0	35.4		
35	51	80	54	17	9.0	25	0	30.5	31.7		
36	43	80	54	11	6.4	10	2	31.6	35.2		
41	4	89	53	14	7.0	10	2	41.3	42.2		
42	32	91	53	34	9.2	55	2	48.0	51.6		
42	35	94	53	35	9.3	55	2	9.4	14.0		
43	34	57	54	31	9.1	55	3	1.1	6.9		
48	20	86	51	42	8.5	5	3	33.9	33.5		
					8.9	5	3	45.7	46.1		
					8.8	10	4	12.6	15.4		
					8.8	10	4	10.7	9.9		
					9.0	10	1	39.3	42.9		
					9.0	10	1	30.7	31.2		
					8.9	50	1	48.9	53.1		
					8.8	50	1	57.0	58.1		
					9.5	50	1	10.2	14.8		
					9.4	50	1	40.3	41.4		
					6.0	55	0	2.4	6.9		
					6.2	55	0	27.4	28.2		
					8.5	40	3	25.9	28.8		
					8.7	40	4	9.4	9.5		



1 28 34 72 24  
 1 30 20 ~~47~~ 59

Not seen

" " "  
 Reg order

Inspected close double

1 38 48 + 8 3 2

1 45 25 + 63 3

False stroke & rather after S

12 / 1877 Dec 20  
1877 Dec, 25-

				8	6
53 53 8 55 0	86	25-	0	32.9	35.6
	7.0	25-	0	39.3	40.3
55 46 89 52 17	88	5	3	35	5.4
	88	5	0	27.1	30.5
58 9 80 53 41	84	5	4	44.9	44.9
	8.3	5	3	52.1	52.9
	8.0	40	3	58.3	0.2
	83	40	4	1.9	0.9
2 0 18 90 52 1					
1 0 90 52 8	89	15	3	11.9	15.1
	9.0	15	3	12.1	13.5
2 8 85 52 36	8.2	40-	4	19.8	23.6
	8.2	45-	4	56.7	57.1
4 30 93 54 31 22	8.2	55-	0	29.1	32.3
	9.2	50	4	49.6	51.4
	8.7	55	0	20.9	21.4
	8.7	50	4	5.0	5.6
5 1 67 52 27	6.0	55-	4	3.2	6.1
6 25 84 52 22	9.5	0	3	22.9	26.8
	9.2	0	3	22.7	23.6
9 6 84 53 59	9.0	25-	2	12.0	15.1
	8.7	25	2	20.1	21.2
12 7 70 54 49	70	35	1	43.4	45.6
	60	35	1	40.9	40.9
12 10 80 54 50	9.1	35	1	12.5	13.7
	9.1	35	0	45.0	46.0
13 2 88 53 40	8.8	45	1	48.8	51.7
	8.8	45	1	23.8	23.9
15 20 80 53 38 22	8.8	45	4	17.1	19.0
	8.0	45	4	13.0	15.8
	9.0	45	4	29.2	20.3
15 53 83 57 45	9.5	40	1	26.9	30.0
	9.5	40	1	22.8	23.1



Reg order

Lost 1st wire  
Reg order

Mid wire & foll

Reg order 1st of double stroke belongs to 1st ~~W~~  
 " " " " " " 2nd ~~W~~  
 The Last 2 wires  
 2nd & pr 1st of double stroke belongs to 1st ~~W~~  
 " " " " " " " 2nd ~~W~~

14 Dec 20 1877

Dec 25 1877

				8	9
17 56 80 51 29	8.9	55	2	4.6	7.2
	9.1	55	2	17.9	17.8
19 20 80 51 6	8.8	15	2	2.8	2.2
20 26 85 53 18	8.6	5	4	4.5	5.9
	8.9	5	4	9.2	8.5
21 41 84 53 27	9.5	55	3	52.5	54.9
	9.6	55	3	45.2	45.7
23 31 80 53 45 2 2	8.8	40	1	26.3	28.8
	8.9	40	1	21.1	21.8
28 57 75 54 0	7.4	25	2	54.8	57.1
	6.7	25	2	35.8	35.5
25 9 85 52 4 2 2	8.9	20	1	54.7	58.0
	8.8	20	1	37.1	37.4
25 41 83 51 24	8.7	0	2	0.9	3.7
	9.3	0	1	13.1	17.2
	8.8	0	1	43.8	45.1
33 39 80 51 20	9.0	0	4	48.1	51.0
	9.1	0	4	46.0	47.3
37 21 80 52 38	8.6	45	3	39.0	41.7
	8.3	45	3	35.8	36.4
38 89 84 52 25	9.5	0	1	12.1	16.3
	9.3	0	1	2.5	2.3
43 2 85 52 44	8.9	0	0	8.0	11.9
42 20 88 54 25	8.8	0	0	8.1	8.0
43 2 85 52 44	9.2	40	1	18.1	21.4
	9.5	40	2	26.7	26.9
45 33 87 54 1	9.0	25	0	18.2	21.1
	9.0	25	0	10.7	11.5
48 33 85 53 53	9.0	30	1	36.8	39.1
	8.5	35	0	43.8	44.6



Not seen

Suspected very close double. Companion foll. above S  
 measurable mean S & R. A

2 31 43 + 21 25 Reg order. Obs. S

Foll. #

16

Dec 20/1877

Dec 25/1877

49 31 86 53 46  
~~52 22 89 53 22~~  
~~50 91 85 52 85~~

~~52 22 89 53 22~~  
~~50 27 85 53 49~~

~~54 0 76 52 56~~  
~~55 52 89 52 8~~

~~55 48 81 52 43~~  
~~56 51 85 52 34~~

~~57 12 87 54 13~~ 22  
~~58 6 85 53 59~~

~~57 56 91 52 5~~ 2  
~~58 8 93 53 58~~

~~58 44 71 53~~ 1

3 0 31 84 53 41

2 22 83 53 12

3 27 90 54 16

6 58 95 52 59

10 20 87 52 12 2

11 6 89 52 48

12 23 75 52 10

13 14 83 54 3

8.8 35-

8.8 35-

8.6 35-

8.7 35-

7.0 15-

8.7 50

8.6 25-

8.8 25-

9.2 25-

~~25-~~

9.3 25-

8.4 40

8.7 40

9.3 10

9.5 10

8.6 5-

9.4 10

9.5 25-

9.6 25-

8.5 10

9.3 10

8.9 35-

9.3 35-

7.8 10

8.5 8.8 10

8.6 20

8.6 20

4

4

2

2

3

2

2

3

2

2

2

4

4

3

3

4

0

2

2

3

3

3

3

0

0

4

4

E

52.0

52.9

20.3

11.8

34.6

59.4

33.2

16.9

38.1

~~38.1~~

47.1

36.2

33.9

43.8

53.8

57.4

7.7

52.0

37.3

29.0

31.5

42.8

44.9

10.2

11.5

11.0

12.8

S

54.2

51.2

23.1

11.5

36.8

1.6

36.9

17.4

40.9

~~40.9~~

48.2

39.1

33.1

46.3

53.9

58.3

7.6

54.4

38.5

31.1

30.4

46.0

45.9

12.9

13.0

12.4

12.4



suspected double elongation in R.A

2nd pr  
2nd  $\delta$  pr  
~~2nd  $\delta$  pr~~

Rej 1st wire

Four strokes for  $\delta$

Seeing moderately good  
Seeing not very good

Dec 20 1877 C  
Dec 25 1877

E.



Not seen

The 2 foll of 4 bright #

0 25 54 + 62 14 1R.

0 30 1 + 53 12

2nd 8 pr

20 Dec. 20. 1877  
Dec 25. 1877

			$\bar{E}$	$\bar{S}$
4 59 90 5230	9.2 50	4	33.7	36.9
	9.0 50	4	38.5	39.2
7 8 74 5210	9.0 15	1	15.0	20.0
	8.7 15	1	20.5	22.9
8 49 89 544	9.0 20	1	18.9	23.0
	9.0 20	1	6.1	6.9
12 44 70 549	<del>5</del>	<del>3</del>	<del>20.8</del>	<del>23.9</del>
17 35 84 5417	9.0 5	3	20.8	23.9
	9.0 5	3	25.8	25.1
18 40 74 5228	8.3 55	2	39.4	44.2
	8.0 55	2	48.0	49.7
19 34 80 5430	9.5 55	2	25.8	29.4
	9.5 55	2	23.0	23.8



1 2 44 + 34 57  
 Upper & pr. of 3 #s  
 1 3 25 + 54 29

Polaris not seen sure  
 " "

Perhaps wrong #

22 Dec. 26, 1877 Obs. W. A. R.  
Dec 27, 1877 Rec. J. F. M.

Obs. W. A. R.  
Rec. J. F. M.

0 57 89 51 57

1 54 88 50 41

3 11 88 57 19

4 55 79 55 15

8 5 89 52 31

16 19 85 55 5

16 30 80 55 6

17 27 80 53 40

24 41 81 53 16 22  
23 14 80 54 8 22

25 8 74 53 17  
23 57 80 54 57

24 41 81 53 16 22

25 8 74 53 17

26 56 87 52 24

28 57 75 54 9

29 53 78 54 32  
38 56 79 55 2

8.7 20 0 292 32.0

8.8 45 1 9.9 13.1

9.0 15 3 13.9 15.5

9.2 15 2 32.4 34.5

9.2 25 4 29.9 31.2

9.0 25 4 0.0 0.8

9.3 25 4 0.0 0.8

7.8 10 0 50.8 52.7

7.5 10 0 24.8 28.5

7.2 15 4 37.1 37.5

9.0 0 1 44.6 46.5

9.0 0 1 32.0 43.4

7.8 15 2 9.6 10.0

8.0 15 1 54.9 58.1

9.4 20 4 19.3 21.9



ok<sub>6</sub>m

Reg order 1 stroke for each  $\delta$   
 " " " " " " "

The last-2 wires

2nd  $\delta$  for last mid. wire of 2nd  $\delta$   
 0 30 1 + 53 12

not seen

24 hlec 26, 1877  
hlec 27 1877

				E.	G
41 13 80 55 5	8.0	15	4	28.8	29.8
	7.8	15	4	23.1	24.7
44 53 92 50 45					
45 55 83 54 56 3	8.0	25	4	29.1	28.6
	8.4	25	4	22.1	24.2
46 41 85 55 4	8.0	20	2	36.1	35.9
	8.1	20	2	37.7	41.5
48 45 82 52 11	8.8	10	4	37.9	39.1
	9.2	10	4	30.5	31.9
	9.0	10	4	7.2	9.4
	9.3	10	4	25.9	19
50 12 80 54 45	8.8	40	1	37.1	37.4
	9.2	40	0	38.9	40.8
	8.8	40	1	32.9	35.7
	9.4	40	0	38.1	41.1
52 35 87 54 36	8.3	45	4	23.1	23.6
	8.3	45	4	29.8	32.4
56 45 80 53 30 22	6.9	50	4	18.9	19.5
	7.0	50	4	18.4	22.0
57 12 80 53 59					
57 16 89 53 54	9.1	25	0	48.9	52.2
58 56 88 53 55	8.8	25	4	28.2	28.8
	9.0	25	4	27.2	27.7
1 2 25 75 51 21	8.0	0	4	30.6	30.5
	8.3	0	4	18.0	21.4
5 10 81 52 53	8.0	30	2	28.7	32.0
	8.3	30	2	19.4	23.5
7 51 80 51 6	8.9	55	1	51.6	53.4
7 32 80 52 29	8.9	55	1	58.0	2.0
8 59 84 52 13	9.2	10	2	20.3	21.8
	9.5	10	2	19.9	23.1



Ref. the 1st stroke of 1st wire  
 Not seen  
 Not seen

2nd  $\delta$  pr 1st stroke belongs to 1st #  
 " " "  
 2nd  $\delta$  pr  
 " " " lost mid. wire of 2nd, #

26 Dec 26 1877  
Dec. 27 1877

[illegible]



Polaris

Polaris

Pr #

Prob. wrong #

13456 + 457 reading

28 Dec 26 1877

Dec 27, 1877

$\alpha$	$\delta$	$\alpha$	$\delta$	$\alpha$	$\delta$	$\alpha$	$\delta$
41 21	88 53 16	8.7	10	1	30.0	31.0	
		8.9	10	1	49.6	52.8	
<del>43 40</del>	<del>82 52 52</del>	6.8	5	2	29.2	30.5	
<del>42 46</del>	<del>63 51 18</del>	5.0	5	2	24.1	25.1	
43 40	82 52 53	9.0	30	4	38.6	39.5	
		9.0	30	4	30.9	32.2	
49 2	9.5 53 5	9.2	20	1	29.0	29.5	
		9.4	20	0	50.9	54.0	
53 48	50 53 52	5.7	30	3	48.5	49.0	
		5.5	30	3	47.3	50.4	
59 43	82 54 38	3.1					
2							
1 14	80 54 53 88	9.4	30	3	4.2	4.5	
		8.9	30	3	2.3	3.9	
6 38	86 52 57	8.4	25	2	5.3	6.2	
		8.5	25	2	6.1	8.0	
9 12	84 53 53	8.7	30	3	34.1	33.9	
		8.5	30	3	38.9	33.5	
<del>16 18</del>	<del>80 52 18</del>	8.9	20	3	30.9	31.1	
<del>18 49</del>	<del>80 53 2</del>	9.2	20	3	37.0	40.4	
<del>14 25</del>	<del>88 52 53</del>	8.5	40	2	56.0	56.1	
<del>22 32</del>	<del>84 54 43</del>	8.0	40	2	55.3	57.6	
23 53	80 54 46 85	8.7	40	0	15.1	15.3	
		8.3	40	0	19.2	21.5	
32 10	80 53 21	9.1	0	4	47.1	47.8	
		8.9	0	4	50.0	52.5	
<del>38 37</del>	<del>84 53 39</del>	9.5	35	1	49.2	51.1	
<del>37 14</del>	<del>85 52 49</del>	9.5	35	1	47.1	51.2	
38 07	9.4 53 39	9.6	45	1	52.1	52.9	
		9.5	45	1	51.0	53.1	



1 4744 + 20 12 2<sup>nd</sup>  $\delta$  pr

The last - 2 wires

2 <sup>h</sup> 0 <sup>m</sup> 5 <sup>s</sup>

2 5-15 + 50 2<sup>nd</sup> 1 reading

2 13 2 - 3 33

2 2131 + 1 54 1R

2 33 5 - 0 13

Roll #  $\delta$  for full #  
Roll II

30 Dec 26 1877

Dec 27 1877

1 48 54 54 54

2 39 55 54 2

~~4 55 88 52 2~~  
8 28 85 53 24

10 7 85 53 39

11 55 88 52 2

12 31 85 52 11

15 14 87 53 38

16 18 80 52 18

18 25 88 52 53

20 14 48 55 1

~~22 57 87 54 41~~

21 5 88 53 13

22 53 87 54 45

28 52 83 53 27

31 19 90 53 35

33 35 80 53 41

9.4

30

2

15.1

18.1

8.7

0

0

45.9

47.9

8.9

0

0

53.0

56.2

8.2

45

0

23.2

24.3

8.0

45

0

26.5

29.0

8.7

20

3

43.6

45.8

8.8

20

3

31.1

33.5

7.0

15

1

58.0

58.6

7.0

15

2

6.7

9.4

8.8

45

3

57.0

55.1

8.7

45

4

2.9

4.2

7.6

5

3

20.2

20.9

7.7

5

3

23.5

25.5

8.7

30

2

57.8

58.0

9.0

30

2

56.9

57.2

5.6

25

0

49.1

49.1

6.0

25

0

48.8

51.3

9.0

10

2

59.2

59.0

9.0

10

2

54.8

56.6

8.7

40

1

20.1

20.6

8.9

40

1

28.7

30.1

8.5

55

4

28.0

27.4

8.6

55

4

21.9

24.3

8.9

50

1

20.5

21.5

9.0

50

1

19.0

20.1

9.0

40

4

42.8

42.9

9.0

40

4

43.4

44.2



Too faint to observe

Seeing pretty fair  
Seeing terribly good during 1st part of zone quite bad  
towards the end. Prediction of snow within 24 hours by N.A.A.

32

Dec. 31 1877

Jan 1. 1878

Obs W.A. R. Rome  
Rec Jan 11  
Obs W.A. R.  
Rec Jan 21

0 57 85 51 57

3 11 88 51 19

4 55 78 55 15

8 5 89 52 31

16 19 85 55 57

16 30 80 55 6

17 27 90 53 40

~~24 43 52 53 49 22~~  
22 86 90 54 40~~25 8 74 53 7~~  
23 48 88 54 42

24 43 52 53 49 22

25 8 74 53 7

26 7 88 50 57

28 8 92 57 4 22

29 55 83 54 43

38 36 94 55 2

9.2 20 0 44.7 42.1

9.0 20 0 48.8 46.5

8.6 20 0 38.4 36.2

9.2 20 0 39.3 36.9

8.6 45 1 18.9 15.1

9.0 50 0 45.6 44.6

8.4 45 1 54.9 53.1

8.0 45 0 31.2 31.4

9.1 45 0 0.8 58.9

8.8 50 0 15.4 14.9

8.2 50 1 50.1 48.8

5.7 35 2 0.3 58.0

5.8 35 2 16.1 5.7 ?

8.0 15 4 37.2 34.4

8.0 15 4 39.5 36.1

9.0 25 3 22.6 22.0

9.1 25 3 24.6 21.4

9.1 20 1 17.1 16.2

9.1 20 1 18.8 18.3

8.5 40 3 8.2 5.1

8.5 40 3 8.1 5.1

9.6 20 4 22.8 19.1

9.6 20 4 17.9 14.5



0 6

Ref

Reg order

Ref 4th wire of 1st #

Ref 1st wire of 2nd #

The foll of several #s

to reading

The last two wires

Mid wire &amp; foll.

34 Dec 31 1877

Jan 1 1878

				E		S	
46 27 82 54 22				8.4	0	4	21.9
				8.0	0	4	20.5
1 0 44 68 53 32 7.4				<del>7.7</del> 50		2	44.9
				6.7	51	2	32.8
2 56 70 51 27 7.5				<del>7.7</del> 55		3	39.1
							38.2
3 56 87 52 2				9.0	20	3	49.1
				8.3	20	3	52.1
8 25 80 54 36				7.8	45	4	30.0
				9.0	20	1	13.4
9 57 85 51 40				8.7	45	0	38.4
				8.9	40	3	5.4
12 44 70 54 18				6.8	5	3	17.1
				7.0	5	3	13.9
14 4 88 52 19				9.0	5	2	9.1
				9.0	5	1	55.9
15 16 89 54 56				8.8	25	4	49.9
				8.7	25	4	49.0
16 39 88 54 26 2				9.0	55	4	46.3
				8.8	55	4	46.5
17 14 87 53 16				9.0	5	4	36.3
				8.8	5	4	53.8
21 19 81 53 42				8.0	40	3	58.1
				8.5	40	4	10.7
22 10 86 53 36				9.0	45	4	29.5
				9.0	45	4	38.9
<del>26 40 80 51 56</del>				8.9	20	0	50.9
24 34 86 54 4				8.6	20	0	50.9
				8.9	20	0	51.9
<del>26 40 80 51 56</del>				8.7	25	0	38.1
25 30 90 55 0				8.7	25	0	42.0
				8.7	25	0	39.7



0 5627 13

Polaris

1 7 11 + 655

5<sup>th</sup> observed at 54 6  
Polaris

Polaris

Reg order 1 stroke for 2nd S

" " 2 " " " "

at 9.2 mag per

" " " "

36 Dec 31 1877

Jan 1 1878

d m s  
26 40 90 51 56 22

27 23 66 52 42

28 55 91 52 27

30 45 87 52 35 2

31 29 82 52 16 226

3 2 3 78 53 48

~~34 13 85 54 3~~  
~~38 9 94 54 7~~

42 8 84 54 34 2

42 54 89 51 34

44 6 85 52 22

53 48 80 53 52

56 34 90 50 42

~~59 43 92 54 38~~

1 32 90 54 41

5 1 67 52 27

9.3 25 4

8.9 25 4

5.5 40 4

5.8 40 4

9.0 55 3

8.8 55 3

9.0 50 0

8.3 50 0

7.8 5 4

7.5 10 0

6.6 35 3

7.0 35 3

8.7 15 3

9.0 15 3

8.0 50 0

7.9 50 0

8.8 50 1

9.0 50 1

9.0 0 4

8.6 0 3

8.9 0 4

4.5 38 3

6.0 38 3

9.0 40 2

8.9 40 3

9.0 40 4

8.8 40 4

7.0 55 3

6.8 55 3

8  
21.8 19.2

16.9 15.1

33.4 30.9

28.6 26.8

37.0 34.9

35.3 33.6

27.2 25.9

35.8 33.9

53.9 51.6

1.1 59.9

18.1 15.2

21.8 18.7

58.2 55.3

56.0 53.3

59.5 56.0

49.4 46.0

27.9 24.4

21.1 24.8

7.1 3.7

51.8 50.4

17.2 14.5

34.2 30.8 46.5

29.9 26.4

57.7 53.9

45 11

48.7 40.8

41.7 37.4

23.1 20.2

31.3 28.4



Lower & fall

1 3 4 5 6 + 4 5 1

Reg order 1 stroke for 2nd, & Last 9th wire of 1877  
 " " " " " " "

2nd & pri.  
 " " "

2 0

38 Dec 31 1877

Jan 1 1878

6 22 69 54 30

8 15 75 50 50

10 45 81 49 55

16 46 95 49 55

12 24 65 58 56

12 53 82 58 52

21 47 65 54 59 2

22 34 80 54 15 28

Dec. 31, 1878 = Obs. H. A. R.  
Jan. 29, 1878 = Reef. T. m.

23 52 80 53 24

~~38 45 80 53 20~~  
33 4 94 50 33

38 45 80 53 20

45 43 88 53 54

57 12 88 54 13

(58 36 94 53 54)

2 39 95 54 2

7.2 55 1

7.0 55 1

8.1 25 4

8.9 ~~8.2~~ 25 4

8.5 30 0

8.6 30 0

9.2 30 1

9.3 30 30 1

6.0 30 1

6.0 30 0

7.0 25 2

9.5 0 1

9.7 50 2

9.5 50 2

8.3 0 1

9.1 0 1

9.1 30 1

8.8 30 1

9.2 10 2

9.0 10 2

9.4 30 2

9.6 20 4

9.6 20 4

30 32.9

32.9 31.2

37.9 33.2

47.1 42.8

43.2 41.0

36.3 34.2

26.5 23.9

36.3 34.2 25.5

7.5 3.9

59.5 56.9

3.4 58.9

21.4 18.8

54.1 51.4

56.8 1.7

57.7 55.8

38.9 45.5

38.0 35.1

38.6 44.2

36.8 32.1

43.1 48.8

22.9 20.2

12.9 14.2

16.9 21.5

New none from here.



The 2nd setting belongs to 9.27<sup>89</sup> or 1st setting belongs to the <sup>89</sup> ~~832~~ The last 2 wires of 9.27

The 8.6 & 8.0 are same reading 2nd & 3rd 9.2

2 1 8 87766 50 Looking pretty fair

Not seen

Reg order

2 55

Reg 1001 - 4

4<sup>th</sup> wire ?

40 hlec 31/1877

11 58 83 51 6	85	<del>88</del>	15-	4	<sup>8</sup> 22.9	<sup>9</sup> 18.5
14 6 87 51 41	8.8	45	0		14.9	13.1
16 12 93 51 34	8.5	40	4		57.9	2.9
	9.4	50	2		11.2	7.3
	9.0	50	2		23.2	29.1
(17 58 88 51 43	8.8	40	2		54.9	50.9)
23 5 84 53 49 2	8.5	35-	2		31.1	27.6
( <del>27 33 90 54 7</del>	9.5	55-	3		26.5	22.2)
23 53 95 51 27						
27 33 90 54 7	8.6	15-	4		12.0	7.2
( <del>33 31 83 51 15</del>	9.3	15-	1		4.2	0.9)
32 17 93 54 11						
33 31 83 51 15 2 2	8.7	10	1		11.4	6.5
34 6 90 53 7	9.3	20	0		5.9	3.5
36 20 80 53 30	8.4	55-	1		23.2	20.1
37 41 94 53 33	9.2	50	3		14.6	10.2
39 0 90 53 26	8.6	0	1		7.4	4.0
41 32 87 53 9	8.5	15-	2		11.6	7.9
45- 29 90 51 6	8.9	20	0		6.5	2.8



File #

Seeing very bad indeed





mid & lower of 2 stars

Prob. wrong #

Upper + pr #

Int. sun

44 hlc 29 1877  
Jan 29 1878

				g	g.
12 20 80 53 25	90	0	2	47.8	50.3
	9.1	0	2	48.6	53.1
13 19 80 53 14	8.9	10	2	14.4	17.2
	8.8	10	2	30.7	36.9
17 12 87 53 40 2	8.7	45	4	7.7	6.9
	8.8	45	4	14.9	19.9
17 51 83 54 0	9.0	25	3	28.1	29.0
	9.1	25	3	35.0	40.1
18 59 85 54 3	7.0	20	4	44.2	46.7
	8.0	20	4	52.9	55.9
20 5 85 54 37	9.6	50	0	34.6	34.9
	9.5	50	0	50.1	54.4
<del>28 38 88 54 9</del>					
<del>31 23 83 54 16</del>					
<del>37 0 85 54 36</del>					
<del>40 53 85 58 24</del>					
<del>45-8 80 54 50 2</del>					
<del>45 52 80 54 24</del>					
<del>49 29 85 54 22</del>					



Being moderately good  
Being pretty good pr + upper star

46

Jan 5 1878

Obs. W.A.R.

Obs. W.A.R.

Jan 7 1878

Rec. J.H. Mc

Rec. J.H. Mc

0.57 89 51 57

1 54 88 50 41

3 11 88 51 19

84 5

1

48.4

46.2

4 55 89 55 15

83 10

0

38.7

35.1

6 7 80 50 46

8.5 35

4

7.8

2.9

4 35 89 52 9

7.8 15

1

49.9

47.9

7 59 90 52 4

16 23 85 53 37

7.7 45

3

14.7

11.2

22 21 80 55 2

8.3 20

3

33.0

28.1

50 159.2

23 59 68 55 0

7.0 25

0

37.8

33.4

15 52 89 53 34

7.3 25

1

31.2

27.3

16 41 85 52 31 2

8.9 50

4

42.3

37.4

17 25 88 52 45

8.8 40

0

50.9

48.2

43.4

24 57 88 52 50

9.0 35

0

28.8

25.8

24 58 92 54 46

8.9 35

4

20.0

14.4

9.1 35

4

20.9

11.0



not seen

not seen

not seen

Reg order Reg 2nd strove of last wire of 2nd #

0 26 5 + 6 2 15  
Supper.

not seen

2nd 8 pr

" " "

Polaris

the last wire

48 Jan 5 1878

Jan 7 1878

Jan 5  
27 19 80 52 23

29 21 84 52 24

30 46 88 52 42 22

31 15 82 52 18

32 5 64 54 11

34	13	85	54	3
34	13	85	54	3
33	4	84	50	33

34	13	85	54	3
43	48	89	50	33

54 14 84 52 28

59 43 82 54 38

2  
0 54 89 54 1 22

1 27 85 53 44

1 6 4 82 53 29

1 12 22 81 52 3

1 12 49 88 52 7

17 27 80 49 58

8.9	0	2	38.7	31.6
9.4	0	2	59.9	53.1
9.4	0	1	33.1	29.3

8.5	40	3	27.9	23.5
8.9	40	3	29.5	23.6
9.2	5	3	10.7	6.4
9.5	5	3	9.1	2.2
9.2	5	3		
7.0	10	4	7.5	1.1
7.2	10	4	12.6	3.1

9.6	20	2	57.0	52.1
9.5	20	2	58.0	50.2

8.7	50	1	47.4	43.4
8.6	50	1	54.1	46.5

8.5	55	3	15.9	10.9
8.5	55	3	21.3	14.3

9.2	45	3	12.0	6.8
9.0	45	4	49.0	42.8
8.9	45	3	41.9	33.0

9.0	25	0	8.2	2.9
8.9	25	0	15.1	7.9

8.1	40	3	0.1	58.0
8.3	40	3	0.3	52.1

9.5	55	1	42.1	36.1
9.4	55	1	46.9	41.1

9.6	20	0	13.9	9.9
-----	----	---	------	-----

8.3	15	4	32.9	28.0
8.7	15	4	2.9	35.8

9.1	25	2	9.1	1.4
9.2	25	1	59.0	50.6



For faint to observe

Reg order 1 stroke for each S  
" " "

1 3 + 57 + 8 33

1 47 55 + 20 12

Upper  
15-16

The last two wires

50 Jan 5-1878

Jan 7/1878

19 20 85 50 2 2

8.5	0'	3'	6.6"	59.9
8.5	1	3	6.5	56.7

19 54 90 52 4 2



Seeing moderately good Not seen  
Seeing very poor indeed

52

Jan 19 1878

Obs. W.A.R.

Obs. W.A.R.

Rec. J. J. M.

Rec. J. J. M.

Jan 16 1878

Jan 19 1878

~~13 11 89 54 41~~  
~~10 18 89 51 43~~

13 11 89 54 41

15 52 89 53 34

16 48 80 54 18

16 56 80 54 14

19 20 85 50 22 2

19 53 90 50 42

20 58 85 51 35

21 48 84 54 11 22

22 21 81 53 29

25 0 84 52 22

~~29 21 84 52 24~~  
~~48 19 75 52 41~~

58 9 80 53 41

~~2 6 10 85 53 56 22~~  
~~2 0 18 90 53 1 22~~

0 54 79 52 38

9.0 45 0 22.1 35.2

8.9 40 4 40.0 36.9

8.9 50 1 8.4 20.9

9.0 50 1 10.6 8.0

9.1 5 3 19.5 31.9

9.0 5 3 24.9 20.6

~~8.4 10 1 35.7 47.9~~  
~~8.4 10 1 42.7 54.1~~

8.0 10 1 41.4 40.4

8.9 allright 50 " " 26 " 16.1 steel

8.7 50 " " 8.1 6.8

8.8 10 4 30.5 42.7

8.3 10 4 26.9 24.8

8.2 55 2 6.1 19.2

7.1 55 1 44.7 43.1

9.0 5 0 54.9 7.9

8.0 0 3 12.9 12.9

7.5 45 4 59.9 13.1

7.2 45 0 1.2 11

8.2 40 3 53.7 5.1

8.4 40 3 59.9 56.8

8.8 20 4 21.1 33.1

8.1 20 4 21.4 18.7

7.3 45 2 57.9 12.2

7.2 45 3 11 59.5



Lost 4th wire of 2nd #  
 Not seen  
 Not seen  
 Not seen  
 Not seen sure

1 28 37 + 20 22  
 1 30 05 + 20 38  
 1 31 12 + 20 38  
~~1 28 3~~

Comp #1 (123)

54 Jan 19/1878  
Jan 16/1878

							E	G
6	10	8.5	53	56			45.2	57.0
							59.1	53.8
12	22	9.1	53	8	22		46.4	59.1
							21.4	19.1
12	53	9.2	53	52			30.9	43.9
							54.3	52.3
19	20	8.5	50	22	22		57.9	9.8
							20	56.1
19	54	9.0	50	42				



False strokes & rattle follow S

P Ref 1st S

Pr H

Not seen sure

Not seen sure

Seeing tolerably good

Seeing Remarkably fine



517 2192 53 57

28 38 88 54 9

31 23 93 54 16

37 0 95 54 36

40 53 89 53 24

45 8 90 54 50 2

45 52 90 54 24





58 Jan 22 1878 Obs W.A.R. Rec J.H.M.  
 Jan. 28 W.A.R. J.H.M.

~~16 17 82 52 42~~ 2 2  
~~16 24 80 50 30~~

16 43 86 50 9

21 24 85 53 33 2 2

5.0 2 33.1 48.9

22 15 88 52 26

28 57 88 50 36

8.6 45 4 27.3 40.9

29 08 88 50 40

~~31 56 82 54 25~~  
~~30 57 88 52 20~~

8.3 5 0 39.1 54.6

31 56 82 54 25

8.2 0 0 18.9 33.9

~~3 1 48 84 54 54~~ 2  
~~3 1 48 84 54 54~~ 2

9.0 30 2 5.0 19.4

9.4 30 2 6.5 15.0

9.2 15 3 38.9 53.2

9.4 15 3 37.9 47.1

7.0 35 4 57.9 11.1

7. 40 0 4.0 12.0

14 15 83 54 7

9.0 15 3 33.9 48.8

8.5 15 3 35.4 43.9

15 38 84 54 13

8.7 10 2 4.9 14.2

39 0 90 53 26

9.0 0 0 53.9 7.9

9.0 0 0 53.9 1.9

40 54 80 54 57 2 2

8.2 25 3 48.5 11.2

8.3 25 3 57.3 4.0



The last 2 wires

A faint ~~11~~ fall below

Lost 1<sup>st</sup> wire

Lost 1<sup>st</sup> wire

False stroke +  $\delta$  scatter after  $\delta$

False stroke + scatter after  $\delta$

Jan 28

41 32 87 53 9

45 29 80 51 6

~~49 58 93 51 17~~  
~~48 42 88 58 3/2~~

48 58 9.3 51 17 2

52 41 85 52 35 2

52 22 89 53 22

4 7 11 20 53 2

11 11 78 50 4

23 5 84 53 49

33 17 88 53 26

3514 90 53 24

37 40 70 53 3

№ 13 85-52 30

4 3736 50 58 3

50305 84 53 29

8.7 15 2

8.9 15 2

9.0 15 4

9.0 15 4

9.2	50	2
-----	----	---

9.4 5 3

9.1 5 4

90	50	2
82		

0.2	50	1
7.8	50	2

87	0	3
----	---	---

0.1	0	0
93	0	0
0.1	0	0

8.0	0	5
8.5	2	1

0.0 20 11 17

~~7.7 + 20~~~~7.2 20 2~~

E	G
24.8	37.8

57.3 5.1

43,2      56,5

43.5 51.9

31.9 45.1

21.9 35.1

24.8 34.2

4/1/ 554

55.1 10.1  
27.1 36.5

2/11 34.8

13.9 26.9

6.7 15.1  
100 310

1/10/21 / 5h7

3712 546

399 48.1



Lower & pr. #

pr. #

Reg order

2nd pr

Hazy . . . . .

False stroke & rattle after S

~~False stroke & rattle after S~~

Jan 28 Seeing food.

62

Jan 30 1878 Olo W.A.R. Rec. J. 7.1m

Feb 2 1878

Olo. W.A.R. Rec. J. 7.1m

G

55 52 79 52 8	78	15	3	34.6	40.9
	77	15	3	37.1	45.6
56 51 85 52 34	9.1	50	3	4.2	10.1
3 11 58 83 51 6 8.7	<del>8.9</del>	<del>15</del>	<del>4</del>	<del>30.9</del>	<del>35.9</del>
	76	15	2	31.0	39.0
	88	15	2		46.9
<del>14 16 92 51 50</del>	<del>8.8</del>	<del>45</del>	<del>3</del>	<del>40.1</del>	<del>45.9</del>
<del>12 43 88 50 38</del>	<del>8.8</del>	<del>45</del>	<del>2</del>	<del>59.1</del>	<del>5.1</del>
14 19 86 50 12 2	9.0	10	3	56.2	0.9
	8.7	10	4	0.2	5.1
15 00 90 50 2	9.3	20	3	53.8	58.8
	9.1	20	3	47.0	53.2
16 41 86 50 57	6.7	25	3	25.8	31.8
	7.8	25	3	42.7	49.1
16 46 90 50 54	9.4	30	1	48.0	53.9
	9.3	30	1	19.6	26.6
17 42 89 50 3	8.7	20	2	49.7	54.9
	9.1	20	2	57.2	2.7
18 43 81 50 29	7.5	55	1	53.7	58.1
	7.5	55	2	0.3	6.7
20 36 88 52 58	8.5	25	2	2.3	7.1
	8.5	25	1	45.9	53.2
22 56 90 50 59	9.2	25	2	14.2	20.1
	8.8	25	2	27.6	34.4
	8.0	25	2	20.1	27.1
24 13 83 51 52	8.3	35	0	4.1	9.1
	8.2	30	4	59.8	5.3
27 33 90 54 7	8.6	15	4	15.7	20.2
	9.0	15	4	7.3	13.1
37 35 65 51 18	6.4	5	3	1.6	6.2
6.8	7.0	5	2	56.4	2.1



2 54 54 + 73 56 Ry 1st L W

False stroke & rabbit after S

Lost 1st wire

First of double stroke belongs to 1st II

First stroke belongs to 1st II

2nd & pr False stroke before last wire of 1st II

Upper & full II  
Reg order

64 Jan 30 1878

Feb 2 1878

38 38 92 51 48 22

39 9 82 51 34

40 46 90 51 60 22

41 22 80 54 18

57 56 87 53 3

58 44 71 53 1

40 16 80 52 40 22

0 48 83 52 48

2 43 85 54 5

4 4 80 52 48

11 16 80 54 59

12 39 80 51 17

33 17 88 53 26

38 9 82 50 29

~~42 27 82 54 6~~  
 39 30 84 53 50

8.1	50	2	46.2	52.4
8.6	50	2	37.9	46.1
	25	0	54.2	59.1
9.5	25	0	0.7	6.8
7.7	5	3	27.7	32.5
7.5	5	3	5.2	11.8
	25	0	41.2	
6.8	25	0	39.2	47.1
8.7	45	1	37.0	43.6
8.8	45	1	27.9	34.9
8.6	35	3	9.1	15.9
8.3	35	3	29.9	36.3
7.7	20	1	54.7	58.9
8.2	20	2	5.2	16.1
9.2	35	3	15.5	22.2
9.0	35	2	57.8	4.1
8.8	5	3	47.8	53.8
8.3	5	3	38.9	45.4
9.1	55	2	38.0	44.0
8.8	55	2	21.4	27.1
8.5	55	2	57.7	1.9
8.4	55	3	0.1	5.2
9.5	35	2	21.2	26.8
9.5	35	2	11.9	17.6



Not seen  
Not 11

2nd & pr no & for 1st-#  
Lost the 4th wire mid wire &  
Warm Lost 1st wire

Not seen  
Not seen  
2nd & pr Ch failed CL f.  
~~2nd & pr~~  
New zero for sheet

Not seen

Ch failed

New zero for sheet

4 15

4 29

Fill #

66 Jan 30 1878  
Feb 2 1878

				6	5
42 27	93 51 6	9.3	15	3	418
		9.2	15	3	26.7
52 3	87 54 40				
56 12	86 52 50	8.9	35	2	8.0
57 27	75 50 7	8.0	15	4	17.9
		8.0	15	4	19.8
3	5 84 53 29				
6	25 83 53 20	8.1	5	3	17.1
		7.5	5	3	17.5
6	57 <del>80</del> 53 27 var.	8.3	0	1	22.9
		8.7	0	1	46.9
12 29	80 53 31	8.2	5	0	37.5
11 37	78 51 21	7.8	5	0	34.1
13 0	80 53 58	9.0	55	2	58.5
12 29	80 53 31	9.1	55	1	43.2
13 00	90 53 58				
18 20	93 50 29				
17 21	82 53 0	9.4	30	0	30.2
18 20	93 50 29	9.0	25	3	24.9
28 38	88 54 9	8.8	15	3	16.2
		8.6	15	3	11.3
31 23	83 54 16	9.0	10	1	24.9
40 53	89 53 24	8.4	0	1	24.9



Warm 4 49

Lower & foll. of 4 #5

Not seen

" "

~~4 5 9 12 + 1 1~~

4 5 9 12 + 1 1

Not seen

" "

~~5 8~~ 4 6 2 3/1 Gill ~~4~~ An 8.9 per below  
Reg order 1 stroke for 1st 8

False stroke & salt after S  
5 43 54 + 4 23 Seeing very bad indeed  
Seeing bad

68 Feb 3 1878 Obs. W.A.R. Rec J.F.M. Commence new book  
 Feb 4 1878 Obs W.A.R. Rec J.F.M. & S

<del>2 56 51</del> <del>85</del> <del>52</del> <del>34</del>	9.1	50	2	50.8	59.1
<del>2 50 55</del> <del>85</del> <del>52</del> <del>34</del>	9.3				
2 56 51 85 52 34					
3 <del>58 5</del> 85 54 2	9.4	20	4	<del>16.5</del> 24.9	
12 42 <del>88 50 88</del>	8.4	15	4	31.9	40.1
11 58 83 57 06	8.8	15	4	32.7	41.1
12 43 88 50 38	8.5	45	2	55.8	2.2
	8.8	45	2	54.7	2.3
14 16 9.2 51 50	8.3	35	1	37.0	46.8
	9.0 <del>88</del> 35	1		6.3	16.9
15 38 9.3 54 13 2 2	8.3	10	2	10.0	17.1
	8.5	10	2	2.9	11.9
16 21 9.0 51 53	8.6	30	2	50.4	58.1
	8.3	30	2	46.2	55.2
17 21 9.5 50 23	6.9	0	2	30.6	38.2
	7.0	0	2	30.0	38.7
18 17 8.6 54 44	8.8	40	2	57.8	3.9
	9.0 <del>88</del> 40	2		43.7	51.8
20 47 6.7 52 27	7.0	55	4	1.8	9.9
	6.9	55	4	2.9	12.9
23 5 8.4 53 49	8.0	35	2	22.3	29.2
	8.0	35	2	24.9	34.2
34 6 9.0 53 7	8.8	15	4	21.1	27.9
36 20 8.0 53 30	8.0	55	1	25.9	33.7
	8.0	55	1	22.1	32.2
37 14 9.2 50 40	9.0	40	2	11.9	16.8
	9.1	40	1	32.9	40.6
38 7 9.5 50 46	9.2 <del>88</del> 40	1		58.1	7.1
	9.7 40	0		48.8	38.6
	9.6 40	0		21.9	29.4
				22.5	32.4



here -

69

25804 Close double mean S & R.A.

A 9.7 foll. below

Very close double mean S & R.A.

" " " " "

324  $5+54^{\circ} 33'$

2nd S pr.

" " "

Lost 1st wire

70 Feb 3 1878

Feb 4 1878

39 23 7.1 50 27

40 36 8.0 50 22 20

41 22 8.0 54 18

57 56 87.53 3

58 44 81.53 1

~~40 46~~ 8.5 54 5  
4 2 43~~4 2 8.0 54 40~~  
4 2 8.0 52 48

5 3 8.0 54 40 20 20 20

7 11 8.0 53 2 22

7 48 8.2 52 49

11 12 8.5 50 58

11 17 8.8 50 56

~~18 20 9.3 50 29~~  
18 37 8.5 54 40

27 38 8.0 53 13

~~28 32 8.5 50 53~~  
29 49 8.4 53 12 22

8.2 55 4

2.0 55 4

8.3 55 4

9.0 55 4

8.8 0 4

8.0 5 2

7.2 5 2

7.4 25 0

7.1 25 0

8.0 20 1

7.8 20 1

9.2 35 2

9.2 35 2

8.3 45 3

8.5 45 3

8.7 20 4

8.8 20 4

8.6 35 2

8.6 35 2

7.0 40 4

8.1 40 4

8.6 10 4

9.0 10 4

6.0 10 3

5.5 10 3

50 50

43.8 50.6

43.8 50.6

42.6 51.1

32.8 40.0

33.3 42.2

52.8 59.1

51.7 59.9

37.4 45.9

32.3 44.1

52.1 59.0

51.1 0.3

58.7 5.4

58.5 7.9

54.9 1.2

22.3 39.9

11.1 18.7

18.9 27.9

52.3 59.9

47.6 57.7

8.9 15.2

15.2 22.5

53.9 0.8

58.8 7.5

42.0 49.8

37.6 47.2



False stroke after 2nd wire of 2nd #  
 Recorder

3<sup>h</sup> 3<sup>m</sup>  
 55-

Not seen sure

" " "  
 3 89 9 5436

4 6 6+39 39' 1 Revolving

Not seen

" " sure  
 4 11- Not seen

" " sure

False stroke & rattle after 5

" " " " " "

72 Feb 3 1878

Feb 4 1878

4 30 15 88 53 14

36 1 83 54 34

37 56 88 54 35

40 14 80 54 12

41 52 93 52 53

56 31 80 51 34 22

~~56 54 8 51 58~~  
~~57 1 85~~

56 32 90 53 11

12 24 89 52 53 22

13 0 90 53 58

18 20 93 50 29

90

28 32 80 50 53

37 0 95 54 36

45 8 90 54 50 22

40 52 90 54 24

8.7 10 4

8.8 10 4

8.7 50 2

8.7 50 2

8.8 50 2

8.6 50 2

8.7 15 1

8.8 15 1

9.1 30 4

9.3 30 4

9.3 50 4

8.9 50 4

8.5 25 4

8.6 30 0

9.0 15 2

9.0 15 2

9.0 30 3

8.2 30 3

9.0 30 3

8.7 30 1

8.7 30 1

8.8 55 3

8.8 55 3

9.0 30 3

9.2 30 3

9.6 50 4

9.6 50 4

9.1 35 3

9.3 35 4

8.8 0 3

8.9 0 3

56

8

28.1 34.7

35.0 42.9

47.9 53.9

45.5 53.9

15.0 21.4

12.1 20.1

1.5 8.1

4.8 13.8

6.9 13.8

12.5 21.6

0.1 7.0

4.9 8.8

33.2 40.7

34.9 44.9

3.1 9.1

5.2 14.4

14.9 22.2

5.9 2.9

24.1 34.4

0.5 6.7

11.7 19.8

17.5 23.8

12.9 20.1

19.0 25.6

11.1 18.9

59.4 4.1

21.4 28.5

49.4 55.1

2.4 9.2

21.4 28.2

49.4 56.9



5- 2 2  
 5- 3 6  
 5- 4 4

2nd & pr. Last wire of 2nd ~~##~~ stroke for S of ~~Ed~~ <sup>51-</sup> ~~##~~  
 Reg order

Mid wire + full

Prob. wrong #

Lower & pr #

Being very fine  
 " moderately good,

74 Feb-5-1878 Obs. W.A.R. Rec J. J. M.

Feb-6, 1878

W.A.R.

J. J. M.

G.

56 51 85 52 34	9.0	50	3	15.9	27.9
8 14 20 78 51 17	7.8	5	2	33.6	45.1
	8.5	5	2	46.1	6.1
16 12 93 51 34	9.4	50	2	23.8	34.7
23 4 90 50 13	9.0	10	2	38.2	49.1
33 47 84 51 6	9.4	15	4	27.1	37.6
37 59 86 53 42 2	8.9	40	3	42.1	52.2
	8.7	40	3	38.9	52.9
<del>39 48 85 52 16</del>	8.8	20	1	26.9	38.9
38 38 82 51 5 2	9.5	20	1	22.8	37.0
39 48 85 52 16	7.2	10	1	5.9	18.1
	7.3	10	0	53.6	8.6
48 42 88 53 32					
54 0 86 52 56 2	7.4	30	1	9.0	20.9
	7.5	30	1	9.3	24.2
57 56 87 53 3	8.7	20	4	5.1	17.1
<del>59 7 80 53 1</del>					
400 22 89 52 50	8.7	35	1	50.2	2.1
	—	35	1	45.9	59.9
400 48 83 52 48	7.4	35	2	44.9	56.5
	—	35	3	0.7	15.9
4 4 20 85 51 30	8.3	55	1	40.5	52.1



2 58 9

Hazy

3 14 6

Not seen

3 29 30

3 32 0 S

Ref 1st S-  
 A 9.5 comp. folls. below.  
 Not seen

3 55 12

Perhaps wrong #

Not seen

Reg. order

4 6 1

76

Feb 5/1878

Feb 6, 1878

11 12 80 50 58 22	9.2	25	4	15.8	26.8
11 41 80 53 58	8.0	25	4	27.9	41.8
28 19 80 52 27	8.8	55	4	5.7	17.0
28 30 80 52 30	8.8	55	4	4.7	19.1
30 2 80 52 14	7.2	55	2	15.6	27.1
30 42 80 52 22	7.8	55	2	8.1	22.8
37 41 84 53 33	7.7	10	3	0.1	10.4
36 3 87 54 52	7.8	10	2	58.8	13.8
87 41 84 53 33	8.4	5	0	23.1	34.6
56 34 82 51 25	8.3	5	0	15.8	30.4
50 6 52 80 53 27	8.9	35	1	21.0	30.7
50 6 57 80 53 27	8.7	30	4	42.5	52.8
51 8 13 85 54 50	=	35	1	20.5	32.8
56 0 41 80 53 39	9.2	55	2	35.7	49.1
54 5 14 80 54 10	6.2	0	1	28.3	39.9
55 49 29 85 54 22	5.0	0	1	28.4	42.3
60 41 80 53 39	0	0	1	7.9	18.6
	8.7	0	0	55.9	8.2
	0	1	7.9	18.6	
	8.0	0	0	47.2	0.9
	8.0	35	3	21.0	29.5
	8.9	15	1	7.4	17.8
	8.6	15	0	55.9	9.9
	8.5	0	4	45.7	55.8
	7.8	0	4	52.7	5.6
	8.0	45	4	22.1	31.9
	7.2	45	4	17.1	28.6



Prob wrong #

Prob. wrong #

Reg order first of double strokes belong to 2nd #

2nd  $\delta$  pr.

4 41 30 Not seen

5 3 36 Fake stroke + rattle after  $\delta$

" " " " " "

Reg order

Reg. order

5 9 12 Lost 3rd stroke of 2nd  $\delta$ . Some confusion among the wires

5 11 48

Seems pretty good  
Feeling very good.

78

1878, Feb. 7  
1878, Feb. 11

3/4 6 87 51 41

1626 70 5251

17 58 88 57 43

23 7 9050 3

83 31 83 51 15

37 41 94 53 33

38 49 6.0 52 20

8944 8750 0

48 42 88 53 32

~~403 43 87 50 7 22~~  
~~59 07 90 53 1~~~~4 20 85 51 30~~  
~~40 16 85 52 40~~

3 43 87 50 7 22

4 20 8.5 51 30

11 17 78 50 56 222

11 45 90 53 58

U. S. M. A. R. M. A. R.  
Rec. J. F. M. J. F. M.

9.0 40 3' ~~58.8~~ 17.9

7.7 30 2 49.8 7.0

8.5 40 2 16.1 33.9

9.0 15 4 45.9 0.9

8.5	10	0	33.1	51.9
-----	----	---	------	------

9.0 10 0 29.0 38.8

9.2 50 2 45.7 2.1

9.5 50 2 1.4 12.5

6.2	5	0	35.3	52.1
-----	---	---	------	------

5.0 5 0 34.9 44.9

8.1 25 1 19.1 36.0

8.8 25 1 19.8 29.1

20	3	29.1	46.7
20	4	25.1	41.4

9.0 20 3 29.1 46.7

7.0	20	4	25.1	41.4
9.2	20	3	42.1	50.9

7.5	25	0	3.9	13.9
8.0	45	0	58.5	15.6

85	65	1	01	99
----	----	---	----	----

68	15	3	280	15
----	----	---	-----	----

0.0	15	3	28.9	45.
0.5	15	3	28.9	45.

8.7	15	3	42.4	51.9
-----	----	---	------	------

8.8	55	0	268	43
-----	----	---	-----	----

8.6 55 0 32.8 42

8.6 25 3 585 14.9

86	25	3	277	35.8
----	----	---	-----	------



Some confusion of wires

3 24 5

Prob. wrong #  
Not seen

3 22 0

Q

3 57 32

Not seen, sure

~~3 57 54~~

Not seen

Mean of double strokes. Ref. mid. wire of both #'s  
An 8.8 mag. falls about  $\frac{1}{2}$  minute.

4 6 6

Not seen

Not seen

4 15 54

Seeing pretty fair  
Seeing not very good.

80

T-96 13 1878  
 Feb. 14 1878  
 Feb. 16 1878  
 16 26 70 52 51  
 14 8 55 54 8

Obv. M.A.R. M.A.R.  
 Rec. f. 7. m. f. 7. m.

16 26 70 52 51

17 58 88 57 43

23 17 91 51 31 22  
 23 7 90 51 3

23 53 85 51 27

32 17 83 54 11

33 47 84 51 6

38 12 84 50 2 83 2 ~~10.2~~ 19.3 2 10.2 19.3 R Feb. 13  
 pass.

39 26 87 50 18

8.5 5 2 38.6 48.8

48 42 88 53 42

8.5 40 3 57.4 6.7

55 48 81 52 43 80

40 2 40.7 55.3

R Feb. 13  
 pass.

8.2 40 2 49.7 59.7

57 56 91 52 52 89

30 4 50.1 15.3

R Feb. 13  
 pass.

8.9 30 4 14.1 24.8

0 16 90 52 10 88

15 1 52.3 23

R Feb. 13  
 pass.

9.0 15 1 58.1 8.1

4 11 12 85 49 58

11 17 88 49 56



1878, Feb. 16

86

5 wires for  $\delta$ Ref. A<sub>+1</sub>

					Mags
40	3	57.0	7.9		8.6

40	2	52.6	4.4	8.3
5 wires for $\delta$				

30	4	12.4	24.8	9.0
----	---	------	------	-----

15	1	49.8	1.4	9.0
----	---	------	-----	-----

not seen	25	3	36.1	47.1	8.5
----------	----	---	------	------	-----

not seen	25	4	28.8	40.5	7.5
----------	----	---	------	------	-----

82 1878, Feb. 14  
1878, Feb. 16

28 2 9.0 54 41

36 10 8.5 54 50

37 40 7.0 53 3

56 11 8.0 54 10

407 13 8.8 53 33

56 55 8.8 53 2

12 33 9.4 53 42

28 39 8.5 50 17

45 28 8.8 54 29

6 11 47 8.5 54 43

12 56 9.0 53 53 22

13 33 8.2 53 18

18 9 9.2 54 39

20 1 9.3 50 59

39 9 9.0 52 7

41 2 8.5 54 21

9.3 45 2 29.2 38.6

8.7 35 1 12.9 23.1

8.5 35 3 50.3 59.5

8.8 35 1 2.0 16.6

8.7 35 3 22.1 25.9

7.5 20 2 10.5 21.3

6.6 20 2 13.9 24.6

9.5 15 3 9.1 20.1 Feb. 16

8.8 20 4 20.1 31.1 Feb. 16

8.1 5 4 46.5 53.3

8.5 5 4 41.3 51.9 Feb. 16?

9.0 55 3 5.6 15.9 " 16?

8.3 40 4 37.8 45.9

40

8.3 10 0 9.1 18.1

9.3 45 2 26.8 35.5

9.4 25 1 44.2 52.6

9.0 20 0 52.0 0.5

8.5 5 1 44.1 51.8

Feb 13

Feb 13



Ref A, ref. mid wire of A

(2<sup>nd</sup> 8 pr, Feb. 13)

2<sup>nd</sup> 8 pr (Lost last wire of 1<sup>st</sup> #4344 2<sup>nd</sup> #44)

1878, Feb. 16

not seen

Hazy

Feb. 16 30 3 20.9 33.4 9.2  
pr. #

Not seen

Feb. 16 20 1 40.1 52.0 7.7  
lost 1<sup>st</sup> 4 wires

Not seen hazy

Star late with wrong #

Seeing good except for haze Feb. 16

Not seen

Seeing moderately good

84 1878, Feb. 18,  
1878, Feb. 19,Obs. Dr. A. R. MAR  
Rec. 7.2m - 7.7m.

E

G.

3 8512 84 50 02

3 56 36 92 52 00

3 59 6 85 50 56

4 011 85 54 20

4 11 12 85 49 58

4 11 17 78 49 57

4 28 2 80 54 41

4 36 28 80 55 0

4 56 41 83 52 3

5 6 55 88 53 2

5 12 33 94 53 42

5 45 28 88 54 29

5 49 7 80 52 40

6 11 47 85 54 43

6 13 18 85 50 59

8.5	<del>25</del>	3	<del>24.6</del>	<del>33.2</del>	Stel
8.9	<del>25</del>	4	<del>13.4</del>	<del>22.9</del>	
	25	3	39.4	48.6	
7.6	25	4	13.4	22.9	
7.2	25	4	28.7	36.1	
9.5	45	2	16.9	24.2	
8.8	25	1	34.8	42.9	
9.2	25	1	30.1	37.8	
9.6	20	3	8.1	17.1	
9.1	20	3	28.1	36.5	
8.6	20	4	30.9	40.5	
8.5	20	4	27.7	35.9	
9.3	40	4	52.9	59.9	
9.2	45	0	1.6	9.2	
9.2	55	3	5.4	12.9	
8.7	55	3	17.8	25.1	
8.8	45	1	33.6	41.4	
9.1	45	0	31.4	40.8	
8.0	40	4	37.3	43.9	
8.2	40	4	47.5	53.9	
8.8	25	4	7.2	14.8	
8.7	24	4	5.6	12.5	



Not seen

Not seen

Not seen

Not seen

Ind. wire & foll

Ind. wire & foll, ~~2~~ strokes for  $\delta$

Not seen

False stroke after 1<sup>st</sup> wire. Prob. wrong #

Reg. 1<sup>st</sup> wire

~~Not seen~~

5 wires for  $\delta$ ?

Lost 4<sup>th</sup> wire

5 strokes for  $\delta$

86 1878, Feb. 18  
1878, Feb. 19

18 9 92 54 87

6 20 1 83 50 59

6 37 9 80 52 7

6 41 2 85 54 21

7 0 43 80 53 24

7 12 3 92 52 31

~~7 20 42 80 52 15 22~~  
~~7 19 49 80 50 57~~~~7 22 44 80 54 53~~  
~~7 20 42 80 52 15~~

7 22 44 80 54 53

7 29 30 87 52 58

7 31 24 83 51 46

7 36 44 92 51 15

7 48 27 95 51 32

7 49 14 80 57 22

7 50 11 80 49 51

			E	G
9.0	45	2	28.9	35.4
9.1	45	2	22.9	29.1
9.2	25	3	22.1	28.7
9.3	25	3	26.9	33.9
9.5	20	0	6.8	14.9
9.5	20	0	8.1	16.4
8.3	5	1	41.3	48.3
8.0	5	1	49.0	55.1
8.8	0	0	9.9	17.6
8.7	0	0	18.5	25.9
9.3	55	1	26.2	33.9
9.1	55	1	29.7	38.2
9.0	30	1	30.6	38.4
9.3	30	1	33.6	39.7
8.9	10	2	12.3	20.5
7.0	10	2	15.1	23.0
9.0	35	2	15.5	22.2
9.3	35	2	17.8	23.8
8.4	30	0	20.8	28.8
8.4	30	0	26.6	33.9
8.5	40	3	21.3	27.2
8.5	40	3	23.3	29.4
9.0	10	2	47.3	53.9
8.9	10	2	31.2	39.9
9.6	55	1	38.5	46.6
9.4	55	1	39.2	47.6
8.6	0	4	35.1	42.1
8.8	5	0	14.1	20.9



Lost 1<sup>st</sup> wire

Lost last wire of 2<sup>nd</sup> #. False stroke foll's  
Reg. order. 1 stroke for 1<sup>st</sup> 8

2 or 3 False strokes after the S.

Not seen  
Not seen

Seeing very bad indeed  
Seeing pretty good

88 1878 Feb. 24  
Feb. 26Obs. W. A. R. N. A. R.  
Ree J. J. M. J. J. M.

1116 80 54 59

4288 84 53 32

~~45630 90 53 32~~ 22  
~~45630 90 53 32~~

5647 84 54 51

51243 92 53 33

~~6117~~  
~~54528 84 52 35~~  
~~5497~~

61318 85 50 59

61829 80 54 50

71949 90 50 57

72244 90 54 53

7292 90 54 17

73124 83 57 46

73644 92 57 15

			E	G	
8.8	55	0	21.9	36.8	Feb. 24
8.7	55	0	45.3	56.9	" 26
9.1	35	1	43.0	56.1	" 24
9.0	35	1	48.3	59.0	" 26
8.9	55	1	06	14.9	" 24
9.1	55	1	19.7	30.8	" 26
8.5	50	2	53.6	7.3	" 24
8.2	50	3	4.8	11.2	" 26
9.0	25	3	57.9	11.1	" 24
8.8	25	3	58.8	9.8	" 26
8.4	35	1	57.2	8.8	" 24
7.7	35	2	35.5	15.8	" 26
9.2	30	1	31.7	42.1	" 26
9.2	35	2	1.7	13.6	" 24
9.0	35	2	8.5	19.1	" 26
7.0	15	1	57.6	10.4	" 24
6.8	15	2	2.3	13.0	" 26
8.3	40	3	9.9	22.4	" 24
8.6	40	3	18.9	29.2	" 26
9.0	10	2	47.6	0.5	" 24
8.8	10	2	46.4	57.0	" 26



Not seen

Upper 9 foll. #

Not seen sure

Rej A+, Rej A+,

Rej. A+,

Seeing very good Feb. 24

Seeing very fine indeed Feb. 26

90

1878 Feb. 27  
Feb. 28Obs. W. A. R.  
Rec. J. F. M.

1877phae. pro]

							E	G.
56 13 8.5	52	30	8.7	55	1	53.1	9.5	
5 7 11 9.0	53	42	9.0	40	4	34.1	45.9	
			9.4	45	0	13.7	27.9	
			8.9	40	4	36.7	51.9	
5 12 56 9.0	53	53	9.4	30	4	46.6	59.8	
			8.8	30	4	40.1	54.9	
			8.7	30	4	52.9	6.8	
6 13 18 8.5	50	39	9.0	25	4	3.5	17.9	
7 12 23 9.3	52	14	9.0	10	2	18.2	32.4	
			9.2	10	2	15.2	30.3	
7 19 47 9.0	50	57	9.3	30	1	29.1	43.5	
			9.2	30	1	29.1	44.8	
7 29 30 8.7	52	58	8.8	30	0	24.2	39.4	
			8.7	30	0	15.1	29.9	
7 30 11 8.0	49	57	8.3	35	2	20.0	33.5	
8 10 42 6.9	53	58	6.7	25	4	38.1	57.1	
			6.9	25	4	42.0	56.1	
8 13 4 8.5	53	29	9.1	55	4	32.8	46.1	
			9.1	55	4	32.8	47.3	
8 13 12 9.3	53	28	8.8	35	4	52.1	3.9	
			8.7	55	4	57.9	4.9	
8 14 8 6.0	53	37	5.7	50	1	24.1	37.2	
			6.0	50	one	26.2	42.1	
8 15 23 7.5	54	20	7.2	5	2	44.9	57.5	
			6.9	5	2	49.8	2.9	
8 19 16 8.7	54	24	8.7	5	1	36.1	48.6	
				5	1	44.6	58.9	



False stroke & rather full S

rej S for 9.4

Happy -  
Five wires for S

Not seen sure  
Star comes too soon -

# ? # should be  $53^\circ$ .  
5 strokes for S

Seeing very fine indeed  
" " " "

92

1878 March 4

Obs. M. A. R. M. A. R.

"

5-

Rec- f. J. M. J. F. M.

"

6 mag

4 56 11 8.3 54<sup>0</sup> 10

4 56 41 9.3 52 3

5 6 55 8.8 53 2

9.2	20	3	42.4	56.1
9.3	20	3	40.1	53.8

Mar. 4  
" 5-

5 12 33 9.4 53 44

5 45 28 8.8 54 29

9.1	55	2	27.8	40.9
-----	----	---	------	------

Mar 5-

5 49 7 9.0 52 40

9.1	45	1	22.8	35.9
-----	----	---	------	------

Mar 5-

6 11 47 8.5 54 43

8.3	40	4	22.7	33.1
-----	----	---	------	------

" 4

8.4	40	4	48.7	58.8
-----	----	---	------	------

" 5-

6 13 33 8.2 53 18

8.3	10	0	8.3	21.9
-----	----	---	-----	------

" 4

8.3	10	0	12.1	23.1
-----	----	---	------	------

" 5-

6 18 9 9.2 54 39

9.2	45	2	16.1	28.7
-----	----	---	------	------

" 4

9.2	45	2	19.0	30.6
-----	----	---	------	------

" 5-

6 20 1 9.3 50 59

9.4	25	3	22.7	34.8
-----	----	---	------	------

" 5-

6 39 9 9.0 52 9

9.0	20	0	31.8	45.9
-----	----	---	------	------

" 5-

6 41 2 8.5 54 21

9.3	5-	1	36.2	48.8
-----	----	---	------	------

" 4

8.6	5-	1	48.6	0.3
-----	----	---	------	-----

" 5-

7 0 43 9.0 53 24

8.8	0	4	18.8	28.8
-----	---	---	------	------

" 5-

7 12 3 9.2 52 31

9.1	55	1	23.0	35.4
-----	----	---	------	------

" 5-

~~7 20 42 9.0 52 13~~~~7 21 11~~



Not seen  
Not seen

Not seen

N.A.R. Obs.  
J. L.M. Rec-  
1878. March 6

		E.	G.	Mag.
45	2	187	31.1	9.1
25	3	21.5	34.7	9.3

Not seen here  
Perhaps wrong S  
Lost 1<sup>st</sup> with Clouds  
False stroke & rattle after

55	1	20.0	32.9	9.1
----	---	------	------	-----

94/878 March 5-

						Mag			E.	L.	
7	20	42	9.0	52	15-	9.0	10	2	10.1	22.9	Mar 5-
7	21	11	9.3	52	13	7.3					
						9.3	10	2	31.9	44.9	" "
7	48	27	9.5	51	32	9.5	55	1	21.1	34.0	" 5-
7	49	14	9.0	51	22	8.8	0	4	35.9	48.0	" 5-
7	30	11	8.0	49	51						
8	10	23	9.4	52	57	9.4	30	2	5.7	17.2	" 5-
8	13	9	9.2	53	2	9.3	25	1	19.0	32.8	" 5-
8	13	59	8.8	53	24	8.5	0	4	26.1	36.9	" 5-
8	15	16	8.4	54	53-	8.0	30	2	16.4	27.8	" 5-
8	19	16	8.7	53	24	8.4	5-	0	27.1	39.0	" 5-

Seeing very good.



March 6. 95

		E	L	Mag	Bright # not obs'd
	'	"	"		
10	2	21.5	34.2	9.1	
Mon. 6	False strokes	4 rattle after S			
10	2	21.2	34.7	9.4	
55	1	33.1	46.8	9.6	
5	0	7.9	21.5	8.5	

Not seen sure -

96 1878 March. 16  
March. 19Obs. H. A. R. H. A. R.  
Rec. J. F. M. J. F. M.

5 45 28 88 54 29

5 49 7 9.0 52 40

6 39 9 9.0 52 7

7 0 43 9.0 53 24

7 12 23 9.3 52 14

7 50 11 8.0 49 51 ex  
carefully

8 10 23 9.4 52 57

8 13 11 9.3 53 47

8 13 59 9.8 53 24

8 15 16 8.4 54 55

8 19 16 8.7 53 24

			E.	G.	
8.9	20	0	37.3	38.9	March 16
9.2	20	0	51.1	7.2	" 19
9.0	0	1	23.2	40.2	" 16
8.3	0	3	50.1	4.0 X?	" 19
9.0	10	2	16.9	33.8	" 16
8.4	10	2	7.1	22.4	" 19
8.0	35	2	29.9	47.9	" 16
8.2	35	2	32.7	47.9	" 19
9.1	30	2	0.4	15.0	" 19
9.0	40	1	30.0	47.9	" 16
9.0	40	1	34.0	48.9	" 19
8.5	0	3	48.4	3.8	" 16
8.0	0	4	18.8	32.1	" 19
7.8	30	2	2.9	19.0	" 16
8.2	30	2	16.7	29.9	" 19
8.8	5	0	27.7	46.0	" 16
8.2	5	0	37.1	51.8	" 19



Comes too early.

rej. A+.

rej. A+.

Seeing pretty good. March 16.  
Seeing very fine. March 19.

98 1878

March 20  
" 26Obs. W. A. R.  
Rec. J. F. M.

1877 [Kae.proj.]

								E.	L.		
	<sup>20</sup> 48	<sup>3</sup> 27	9.5	<sup>50</sup> 51	<sup>32</sup>	9.5	55-	1	38.0	57.9	March. 20
						9.5	55-	1	36.0	49.9	" 26
7	49	14	9.0	51	22	8.5	5-	0	4.2	18.2	" 20
						8.7	5-	0	9.7	23.5	" 26
8	13	9	9.2	53	2	9.3	25-	0	36.2	50.9	" 20
						9.0	25-	1	23.9	36.9	" 26

" 26 Rec. J. S. M.



Seeing very fine.

100 1878

March - 30  
" 31Obs. H. A. R.  
Rec. J. F. M.

E

Q

$\phi$	$m$	$S$	$\rho$	$\phi$	$\gamma$								
59	28	90	54	37	8.9	50	1	244	399	March	30		
					9.3	50	1	38.9	53.0	"	31		
10	26	6	9.2	51	4	9.0	25	1	49.8	5.3	"	30	
					9.3	25	2	3.1	18.8	"	31		
10	36	16	9.5	54	23	9.5	5	0	55.5	2.9	"	30	
"	"	"	"	"	"	9.3	5	1	11.0	25.1	"	30	
						9.5	5	0	46.2	52.4	"	31	
10	43	1	8.1	52	29	9.4	5	1	0.1	14.3	"	31	
									Not seen, sure				
10	44	22	8.9	51	48	9.0	40	0	34.7	51.3	"	30	
10	46	17	9.1	50	5				Not seen.				
									Not seen, sure.				
10	49	24	8.9	53	39	8.8	50	0	32.4	48.6	"	30	
						8.5	50	0	32.2	47.7	"	31	
10	52	51	8.9	53	55	8.9	30	4	10.9	25.0	"	30	
						8.4	30	4	19.2	32.9	"	31	
10	59	19	8.0	54	23	8.0	5	2	22.0	36.5	"	30	
						8.0	5	2	16.9	30.1	"	31	
10	59	52	9.2	54	29	9.5	55	4	44.8	59.8	"	30	
						9.5	0	0	1.3	17.0	"	31	
11	4	2	8.0	58	28	8.9	0	0	20.1	35.9	"	30	
						8.4	0	0	16.6	31.9	"	31	
11	12	23	9.5	50	27	8.0	45	3	51.2	5.0	"	30	
						9.5	45	4	21.9	36.0	"	30	
						8.0	45	4	12.1	25.9	"	31	
						9.5	45	4	45.5	0.9	"	31	



Rej. A+,  
Rej. A+,

New Zero for sheet.

Seeing very good -  
Seeing pretty bad.

102

1878, Apr. 18

1878, May 2

Obs. W.A.R. W.A.R.  
Rec. J.Z.M. J.Z.M.

m	s		0	1	9.5	5	0	55.2	12.0
36	16	9.5	54	23	9.5	50	0	51.8	11.5
					9.4	5	0	51.3	24.8
44	22	—	51	48	9.0	40	0	45.7	8.7
					9.2	40	0	39.4	59.4
46	17	9.1	<del>50</del> 49	<del>5</del> 55	9.5			Not seen, sure	
					9.0	30	4	8.9	26.3
58	53	9.3	50	47	9.2	40	2	7.6	23.3
					9.2	40	2	5.8	24.8
11	4	27	9.0	53	14	8.8	15	1	20.8
						9.0	15	1	24.0
									43.6
25	50	8.1	50	12	8.5	15	2	24.8	41.7
					8.2	15	2	17.1	35.2
30	55	6.6	51	20	5.5	10	0	2.4	19.1
					6.5	5	4	56.7	15.7
32	37	9.0	54	29	9.2	0	1	4.8	20.8
					9.1	0	0	53.9	13.0
34	7	9.3	49	47	9.0	40	2	55.3	11.4
					9.3	40	2	46.0	59.0
37	14	9.5	52	13	9.3	15	1	42.3	59.1
					9.5	15	1	37.8	58.0
38	38	9.0	54	37	7.7	45	4	57.3	12.9
					9.0	50	0	18.0	34.0
					7.0	45	4	58.5	7.4
					9.2	50	0	48.6	8.1
43	26	6.8	54	59	7.2	30	1	29.6	46.7
					7.4	30	1	50.9	9.1
45	23	9.0	55	2	9.3	25	2	13.1	29.1
					9.3	25	2	8.2	27.2
47	59	8.7	54	57	7.8	30	2	30.9	46.9
					8.4	30	2	34.9	53.1
51	6	9.0	50	46	9.5	40	3	5.6	24.0



Pr. #. Should be prob. foll. #

Ref. A<sub>+1</sub>

Ref. A<sub>+1</sub>

Reg. order

Upper #

104

578, Apr. 18

May 2

m	s								
58	0	9.5	51°	47'	9.5	40	2	49.1	5.2
					98	40	2	22.1	42.5
58	28	8.2	51	0	7.2	25	3	58.5	13.9
					7.0	25	3	59.6	18.8



Seeing, moderately good.  
Seeing very good.

106

1878 May 6 (unc)

Obs. W.A.R. May 6  
Rec. F.T. May 6

For first part of May

exp. 110

12 2 25 80 49 52  
~~12 54 53 83 54 55~~  
~~12 52 43 83 53 48~~  
 12 3 57 94 53 48

7.3 35 0 41.1 0.1  
~~7.0 83 0 43.0 2.3~~  
~~7.3 35 0 47.3 5.4~~  
 9.5 40 1 11.1 30.1  
 9.5 40 1 10.5 29.6

12 18 43 94 49 50

9.5 35 3 27.9 47.1  
 9.2 35 3 23.4 40.9

12 23 8 86 49 45

Lost  
 8.7 45 0 19.6 37.7

12 47 25 80 49 45

9.2 40 4 58.5 16.9  
 8.8 40 4 56.9 14.9

12 50 7 94 53 29

8.6 0 2 51.2 9.4  
 7.4 0 3 4.9 23.1

12 52 43 93 53 29

9.3 0 1 5.9 23.4  
 9.0 0 0 46.6 4.9

12 55 0 80 52 17

13 0 54 83 52 56

Not seen  
 Not seen  
 8.8 30 4 28.0 46.8  
 8.7 30 4 34.2 52.9

13 2 25 95 49 49

9.4 40 1 43.1 1.6  
 9.5 40 1 54.8 12.9

13 4 21 80 51 22 X

9.1 5 3 11.0 29.9  
 9.1 5 3 8.2 26.9

13 9 38 82 54 48

8.8 40 0 43.9 2.1  
 40 0 18.1 35.9

13 10 49 88 53 55

8.7 30 4 34.9 53.1  
 8.2 30 4 22.9 41.9

13 16 5 91 54 2

9.3 25 2 57.4 15.9  
 9.3 25 2 55.8 13.9

~~13 20 54 94 51 33~~

13 17 32 94 49 56

9.4 30 3 5.3 23.8  
 9.2 30 3 6.4 24.1

~~13 22 58 95 51 14~~

13 19 15 90 50 40

8.8 50 0 9.2 27.9  
 9.0 50 0 11.9 29.3

13 20 54 94 51 33

9.3 55 1 2.9 22.0  
 9.4 55 1 12.8 30.9



Prob. wrong, #  
False strokes & rattle foll. S

Close double, upper #  
Faint comp. pr. below, Upper #

Very close + faint comp. pr. below.

Rej. all wires but A,  
Faint comp. foll's above

108

1878, May 2

May 6

13 22 58	25	51 14	6.4	10	4	31.7	50.3
13 32 57	80	51 37	8.0	50	3	0.3	19.7
13 35 27	71	53 50	7.5	35	3	39.5	57.8
13 <del>44 12</del> 43 25	95	54 59	Not				
13 44 12	90	53 17	9.1	10	1	46.4	5.3
13 51 16	95	53 35	9.5	50	4	4.1	22.7
13 53 40	91	54 6	8.7	20	2	16.8	35.4
13 55 23	88	53 33	8.5	55	1	11.5	30.5
13 58 40	neb.	54 57	Failed to see with light turned off				
<del>14 10 48</del>	<del>85</del>	<del>51 3</del>					
<del>14 11 35</del>	<del>80</del>	<del>53 22</del>					



Seeing very good

110

1878, May 4

Obs. M.A. R.  
Rec. f.t.m

May 6

~~11 46 17 91 49 55~~  
~~11 31 5 91 51 54~~

9.1  
 9.3

30  
 30  
 30

3  
 4

55.7  
 0.9

14.7  
 20.6

Not seen, sure  
 Not seen

~~11 47 31 92 54 5~~  
~~11 32 19 92 49 52~~

9.3  
 8.7

35  
 35

2  
 2

26.7  
 11.6

46.9  
 30.7

~~11 46 17 91 49 55~~  
~~11 44 45 85 55 1~~

8.3

25

4

11.4

29.4

Not seen.

~~11 47 31 92 54 5~~  
~~11 46 17 91 49 55~~

~~11 51 6 94 50 46~~  
~~11 47 31 92 54 5~~

9.5  
 9.5

20  
 20

4  
 4

30.9  
 42.7

50.9  
 0.9

11 51 6 8.0 50 46

9.4

40

3

15.1

33.9



Ref. A<sub>+1</sub>

Hazy. <sup>2<sup>nd</sup> in</sup> 344 miles (?)

Upper 4 pr. #

May 7  
May 8

Oba W.A.R. W.A.R.  
Rec. f. f. m. f. f. m.

hms 01  
1315 95-515-

11 32 19 92 49 52

1144 W- 85 55 1

11 47 31 82 54 5-

11 51 6 9.0 50 46

11 59 37 70 ~~49~~ 52

12 238 86 49 55

12 50 15 90 53 47

~~125243 93 53 29~~  
~~12550 50 52 7~~

130 53 88 F1 41 22

131 20 91 52 56

$$\begin{array}{r} 139 \quad 17 \quad 25 \quad 54 \quad 75 \\ \underline{139 \quad 17 \quad 25 \quad 54 \quad 75} \\ 139 \quad 21 \quad 70 \end{array}$$

~~13 12 8 77 50 27~~  
13 12 8 77 50 27 28

13 12 47 84 52 10

~~13 43 14 80 54 42~~  
~~13 22 58 78 51 14~~

20

Not seen  
Clouds

9.2 35 2 14,8 32,8

Clouds

8.8	25	3	57.0	14.5
-----	----	---	------	------

9.0	25	3	45.7	3.1
-----	----	---	------	-----

9.2	20	4	44.5	1.5
-----	----	---	------	-----

9.4	20	4	40.2	58.0
-----	----	---	------	------

9.5 40 3 11.4 29.5

9.3 40 3 4.1 22.8

7.2	35	2	17.4	35.1
-----	----	---	------	------

7.0	85	2	23.9	43.2
-----	----	---	------	------

8.5 45 0 18.9 37.9

8.9 40 3 24.0 42.2

9.2 40 3 17.2 35.7

9.2	20	3	36.1	55.0
-----	----	---	------	------

9.3	20	3	41.1	59.8
-----	----	---	------	------

Not seen

88	30	3	482	6.5
----	----	---	-----	-----

8.7	30	3	39.8	59.5
-----	----	---	------	------

8.7	30	1	29.7	47.8
-----	----	---	------	------

8.8	30	1	38.1	56.1
-----	----	---	------	------

7.7	0	3	14,1	31,5
-----	---	---	------	------

8,3	0	3	10,8	28,5
-----	---	---	------	------

8.8	15	2	25.6	44.5
-----	----	---	------	------

8.8	15	3	37.4	56.2
-----	----	---	------	------

8.0	10	4	328	51.1
-----	----	---	-----	------

7.6	10	4	33.3	52.2
-----	----	---	------	------



Lost  $1\frac{1}{2}$  min Ref.  $A_{+1}$

Upper # Ref.  $A_{+1}$

~~Upper #~~ Lower # ?  
Lower #

Lost  $1\frac{1}{2}$  3 min

Seeing very bad

114 1878, May 7

13 32 57 8.0 51 37	7.4	50	2	47.1	5.1	
13 35 27 7.1 53 50	6.8	35	4	8.8	26.7	
13 43 25 9.5 54 59	Not seen					
13 44 12 8.0 53 17	9.0	10	1	13.1	31.8	
13 51 16 8.5 53 30	9.7	50	3	58.0	16.9	
13 53 40 9.0 54 6	9.1	20	2	18.2	35.4	fol. #
13 55 23 8.8 53 33						



Seeing, moderately good

116

1878, ~~June 3~~ June 3 Obs. W.A.R. W.A.R.  
Rec'd. J. M. J. M.

12 53 54	9.2	49	52				Not seen	
							Not seen	
12 54 53	8.3	54	55	8.5	30	3	10.9	28.8
				8.6	30	2	54.1	9.8
13 0 22	8.6	54	57	8.7	20	1	31.8	51.6
				9.0	20	1	53.1	10.3
13 13 54	54	81		9.4	55	2	16.9	35.2
13 12 21	8.2	49	56	9.0	30	2	43.2	1.2
				9.0	30	3	12.6	29.8
13 43 14	5.0	54	32	9.0	55	2	0.1	18.2
<del>13 43 26</del>	<del>8.2</del>	<del>53</del>	<del>33</del>	9.1	50	3	21.6	40.3
13 57 26	8.2							
13 55 15	8.0	53	48	9.0	40	2	50.8	8.9
				9.3	40	3	20.1	37.7
14 10 45	7.5	51	3	8.9	25	1	44.6	3.0
				9.1	25	1	89.9	57.9
14 11 25	8.9	57	43	9.0	45	1	41.0	59.9
				9.0	45	1	39.6	58.8
14 21 23	8.5	54	33					
14 30 53	9.1	55	0	9.1	25	3	45.0	1.9
14 44 14	8.1	53	9					
				8.0	15	4	39.1	56.4
14 51 57	8.8	53	10					
				9.0	15	3	24.9	42.8
14 55 49	7.5	54	23					



Lost 1<sup>st</sup> wire  
Twilight

Ref.  $A_{+1}$

Prob. wrong #

Mean  $S + RA$

~~Pa. #~~

Gas flickering stopped on account of  
 $A_{-1}$

Seeing very good

118

1878, June 6  
1878, June 9Obs. W.A.R. W.A.R.  
Rec. J.T.M. J.T.M.

130 38 88 51 41 22

1 19 90 52 42

12 15 90 52 2

13 43 14 90 54 32

13 51 26 92 53 33

13 55 23 - 53 33

14 11 35 90 53 23

14 21 23 85 54 23  
18

14 30 53 91 55 0

14 44 14 81 53 9

14 51 51 88 53 10

14 55 40 75 49 56

15 16 19 58 52 27

~~15 24 35~~

9.2 25 2 20.9 39.6

9.1 45 2 10.1 27.2

9.3 45 1 57.2 15.0

9.6 50 3 51.1 8.1

9.6 50 3 24.8 43.2

8.1 55 1 12.2 29.9

8.5 55 1 16.9 35.0

9.3 5 1 13.8 31.1

9.0 5 1 17.7 35.9

Not seen

8.2 10 1 31.3 49.9

9.3 25 4 0.9 16.6

9.0 25 3 56.9 14.8

7.8 15 4 37.9 54.8

7.8 15 4 36.0 53.9

8.6 15 3 30.2 47.8

9.0 15 3 25.1 43.5

7.5 30 2 29.0 46.5

7.2 30 2 21.8 40.1

5.6 0 3 41.2 59.1

5.8 0 3 43.7 112



not seen

not seen

Ref. A<sub>+1</sub>

Ref. A<sub>+1</sub>

Seeing pretty fair.  
Seeing very good.

3 43 20 92 54 42

14 11 31 75 50 43

14 21 23 85 54 18

14 58 49 75 54 23

15 29 35 90 52 9

15 25 26 91 51 20





122

June 19, 1878  
June 20,Obs. W.A.R. W.A.R.  
Rec. J.F.M. J.F.M.

14	11	31	7.5	50	43	78	40	3	41.2	48.9
						79	40	3	44.7	(0.9) (50.9?)
14	21	23	8.5	54	18	8.4	10	0	52.7	10.2
						8.6	10	1	30.5	48.1
14	56	5	9.5	54	57	Not seen, hazy				
						Not seen, rain				
15	24	35	9.0	52	9	9.2	15	4	19.1	36.9
						9.3	15	4	21.2	38.6
15	25	23	9.1	51	20	9.2	5	2	53.7	11.0
						9.3	5	2	50.4	7.2



Seeing moderately good, rather hazy.  
Seeing very good.

See page 126 for the zone that precedes this one

124

1878

July 10  
July 13Obs. M.A.R. M.A.R.  
Rec. J.F. Mc. J.F. Mc.

16 18 57 8.9 49 53

8.9 35 0 6.0 27.2

9.0 30 4 56.0 16.4

~~16 45 10 7.7 51 0~~not seen  
not seen since

16 50 5 8.9 51 20

9.0 5 1 50.5 13.2

16 54 26 8.4 49 51

9.3 35 1 27.5 49.2

9.3 35 1 27.8 49.1

17 6 3 9.0 55 5

9.3 20 3 44.9 6.0

Not seen

17 7 3 9.3 49 56 22

9.2 30 1 48.1 9.4

17 7 49 8.4 51 28

7.8 55 4 6.8 27.8



Seeing pretty good  
Seeing pretty bad.

7877hae.proj.1557R

126 1878 June 26  
July 1

W. L. M. A. R.  
Rec. J. T. M.

15	24	19	7.5	54	23	7.2	5	1	17.9	35.0
<del>15</del>	<del>24</del>	<del>19</del>				<del>6.8</del>	<del>5</del>	<del>1</del>	<del>38.9</del>	<del>56.7</del>
15	24	19	9.0	49	56	7.4	5	1	17.3	37.2
						<del>6.8</del>	<del>5</del>	<del>1</del>	<del>40.1</del>	<del>57.0</del>
						9.1	30	1	29.3	49.4
15	56	5	9.5	54	57	9.6	30	1	19.4	36.4
						9.7	30	1	11.5	31.1
16	5	21	8.5	51	12	8.2	15	2	1.9	16.3
						8.4	15	1	55.9	15.5
16	17	33	9.5	54	22	9.6	5	0	35.9	54.5
						9.5	5	0	4.8	24.7
16	18	54	9.1	49	49	8.9	35	3	57.8	13.9
						8.9	35	3	45.9	4.3



Reg. order

Reg.  $A_{+1}$

Seeing very good  
Seeing very good.

128

1878, July 16  
July 22  
July 23Obs. W.A.R. W.A.R. W.A.R.  
Ref. J.T.M. J.T.M. J.T.M.

16 18 57 89 49 53

9.0 35 0 2.1 23.9

~~16 48 16 77 51 0~~~~8.8~~~~30~~~~4~~~~57.6~~~~18.1~~~~16 50 5 89 51 20~~~~8.9~~~~35~~~~0~~~~8.1~~~~29.1~~

July 23

~~16 45 10 77 51 0~~~~9.7~~~~35~~~~0~~~~8.1~~~~29.1~~

July 23

~~17 6 3 90 55 5~~~~7.5~~~~25~~~~3~~~~48.0~~~~9.6~~

July 23

~~16 50 5 89 51 20~~~~8.8~~~~5~~~~2~~~~6.9~~~~27.4~~

July 23

17 7 3 93 49 56

9.0

30

4

38.6

59.0

July 23

9.3

30

1

59.9

20.7

July 23

17 8 15 85 49 57

9.0

35

1

50.9

12.5

July 23

8.6

35

2

0.8

21.2

July 23

17 34 3 92 55 2

Not seen, sure

~~17 47 42 99 54 28~~~~17 43 59 85 53 3~~

17 47 42 94 54 28

17 50 23 88 53 18

17 56 44 88 50 39

17 58 20 89 54 17



July 23 Reg. A<sub>+1</sub> False stroke after A2

Ind. wire & foll. #?

July 23, Lower & foll. #

130

1878 July 24

July 31

Obs. W.A.R.

Rec'd F.m.

W.A.R.

f 7. m.

1877phae.pro

July 31 Recpt. Time f

									E	G
16	48	10	77	51	0	78	25	3	58.9	19.4
						7.2	25	3	46.6	9.0
16	50	5	88	51	20	9.1	5	2	2.6	24.1
						9.1	5	2	6.5	29.1
17	7	88	90	54	12	9.1	10	4	29.6	48.1
						8.9	15	0	15.1	38.5
17	7	46	93	54	13	9.3	10	4	29.6	48.1
						9.1	15	0	15.1	38.5
17	34	3	92	55	2	9.3	20	4	27.1	47.2
						9.4	20	3	48.9	10.1
17	43	59	71	53	3				Not seen	
									Not seen, sure	
17	47	42	94	54	28	9.3	55	4	15.2	34.2
17	50	23	88	53	18	9.0	5	4	31.8	51.2
17	56	44	88	50	39	9.0	45	2	57.9	18.1
17	58	20	89	54	17	8.9	10	0	34.0	55.3



2<sup>nd</sup> S pr, 1 stroke each S. Rej. S before the wires.

4<sup>th</sup> wire of 2<sup>nd</sup> #?

Rej. A<sub>+1</sub>

Rej. A<sub>+1</sub> Seeing very good

132

Aug 14 1878  
W.R. Jones  
W.R. JonesAug 20 1878  
W.R. Jones  
W.R. Jones

17 7 49 8.2 51 28 8.5 55 3 23.1 44.3 Aug 14

17 42 15 8.3 51 18 8.6 25 2 14.7 35.4

17 43 59 8.5 13 ②

Not seen under.

17 47 48 8.8 54 46 9.4  
17 46 13 8.3 49 57

35 1 48.2 8.8 Aug 20  
25 4 50.1 5.3

17 47 41 8.8 54 46 1 9.0

45.1 48.3 48.2  
40.1 4.1 25.8 Aug 20

17 50 44 8.8 50 39 8.9  
17 50 23 8.8 53 18

5 4 19.8 41.9  
5 4 4.3 24.7 Aug 20  
45 2 5.1 25.0

17 50 44 8.8 50 39 8.8

8.6 45 3 4.9 25.6 Aug 20

18 2 50 8.7 52 10 8.6  
9.2 35 2 3.2 25.2 Aug 20

18 7 53 9.2 51 38 9.4  
9.2 45 3 40.7 1.0

45 3 9.1 30.9 Aug 20

18 9 18 8.4 52 2 8.2

25 0 11.0 32.9  
20 4 36.8 57.8 Aug 20

18 11 2 9.3 52 30 9.0  
8.5 55 3 4.9 26.2

55 2 40.2 1.3 Aug 20

18 18.7 8.9 53 26 8.9

— — 42.9 3.0  
55 4 48.7 9.9 Aug 20

18 19 12 6.8 51 29 6.5

55 3 8.0 27.2

18 39 1 8.8 50 0

25 1 13.3 33.7  
35 0 23.4 46.6 Aug 20

9.0



Roll = lower #

Upper + following star.

Lost second mi

Preceding of three #  
lost 1st two wires

middle + preceding of 3 #

A-2 following star

Aug 22<sup>nd</sup> M.A.R. obs.  
M.A.R. Readin.

Seeing very bad

Aug 26<sup>th</sup> M.A.R. obs.  
M.A.R. Readin.

17 42 15	83	51	58	—	25	1	31.8	55.0	
17 43 55	84	53	0		Not seen since.				
17 46 13	93	59	57	9.2	25	4	50.2	11.3	Aug 22
					30	0	27.7	49.1	Aug 26
17 47 48	88	54	46	8.0	40	1	4.8	25.9	Aug 22
	8.4				40	1	30.4	52.2	Aug 26
18 2 44	88	52	0	—	25	2	11.7	33.4	Aug 22
	8.5				25	2	28.9	50.4	Aug 26
18 8 11	80	54	31	7.4, OK	55	0	11.6	32.8	Aug 22
	8.3				55	0	21.8	44.2	Aug 26
18 10 6	84	54	30	9.5 OK for 22 <sup>nd</sup>	55	0	54.9	16.7	Aug 22
	8.8				55	1	38.6	59.0	Aug 26
18 18 32	80	53	21	OK	30	1	27.3	48.9	Aug 22
18 16 50	83	49	54						
18 18 32	80	53	21	8.5	5	1	—	44.2	Aug 22
	8.2				5	0	56.8	18.5	
18 19 24	74	55	4	OK for 22 <sup>nd</sup>	20	2	24.9	46.2	Aug 22
					20	2	17.0	37.2	Aug 26
19 36 11	80	53	18	9.0	5	2	26.2	48.3	Aug 22
	8.9				5	2	11.2	32.2	Aug 26
19 41 18	83	50	13						
19 44 22	81	51	1						
19 47 54	94	54	51						
19 49 21	80	52	53						
19 50 23	84	50	33						



$\delta - 2$ 

lost, at two miles.

 ref.  $\delta + 1$ 

following #

lost, at mile

 lost  $\delta - 1$

Aug 27<sup>th</sup> 1878J. R. Stes.  
2<sup>nd</sup> visit record

17	42	15	83	51	58	8.7	25	1	48.2	9.1	R	Aug 27
18	19	12	6.8	51	29	8.2	55	3	18.4	39.3	R	Aug 27
						7.3	55	3	29.2	31.0		Aug 29
19	36	15	87	55	9	8.6	15	2	48.4	8.0		Aug 29
												Aug 29
19	41	18	83	50	13		10	3	14.4	34.7	R	Aug 27
						8.4	10	3	18.3	38.1	R	Aug 29
18	44	22	81	57	1	8.8	20	4	44.6	4.4	R	Aug 27
						8.8	25	0	21.9			
			8.2			8.2			21.9	44.17	R	Aug 29
18	47	54	89	54	07	9.6	35	0	13.2	33.7	R	Aug 27
						9.5	35	0	14.2	34.8	R	Aug 29
19	48	10	80	51	58	9.1	25	3	38.2	59.0	R	Aug 27
						7.6	25	3	51.2	12.2	R	Aug 29
19	50	23	94	50	33							Aug 29
												Aug 29
19	54	40	88	50	40	9.1	45	0	51.8	12.1	R	Aug 27
						8.8	45	0	46.6	7.4	R	Aug 29
18	8	11	8.0	54	31	8.2	55	0	28.2	49.7		Aug 29 <sup>th</sup>
18	10	6	94	54	30	9.4	5	1	35.8	56.8		Aug 29
18	16	10	83	49	54	8.3	30	1	24.3	44.3		Aug 29



Reg  $A_{+1}$

Decided ~~between~~ ~~like~~ appearance

11  
 reg. 1st d  
 following ~~both~~ star ~~8.8~~ ~~fract~~ ~~8.1~~ ~~2 seconds late~~

Not seen sure.

Not seen sure.

Not seen sure

Good seeing

Aug 29 1878

138

1878, Sept. 2

Obs. W.A.R.

W.A.R.

1878, Sept. 9

Rev. J.F.M.

J.F.M.

							$\bar{E}$	$\bar{S}$
19 36 15 87 55 8	8.6	15	2	55.6	17.7			
	8.3	15	2	34.4	55.2			
19 41 11 85 53 42	8.2	40	4	14.8	37.1			
	8.9	40	4	36.0	52.1			
	8.3	40	4	6.9	27.8			
	9.2	40	4	33.6	54.8			
19 44 55 88 51 19	8.3	5	2	5.9	28.2			
	8.4	5	1	58.9	19.2			
19 48 3 93 50 27	7.7	55	4	38.9	59.2			
	7.1	55	4	36.1	56.4			
19 48 17 94 50 25	9.3	0	0	47.3	9.7			
	9.2	0	0	49.8	11.4			
19 50 17 98 50 49	8.0	35	2	4.6	27.3			
	7.0	35	2	14.2	35.9			
19 54 50 90 51 5	8.8	20	1	9.1	32.1			
	8.8	20	1	3.1	24.9			
19 58 14 93 53 3		20	0	14.4	37.8			
	9.2	20	3	28.8	50.1			
20 1 26 89 52 6	8.6	20	0	14.4	37.8			
	9.4	15	4	10.9	32.1			
20 9 59 85 55 0	8.0	15	4	31.1	52.2			



Rej.  $A_{+1}$

$2\frac{2}{11}$   $\delta$  pr.

$2\frac{2}{11}$   $\delta$  pr.

Lost  $1\frac{2}{11}$  wire

Lost all Rej all but last 2 wires

~~and~~  $1\frac{2}{11}$  stroke for  $2\frac{2}{11}$   $\delta$  on  $1\frac{2}{11}$  wire

Rej.  $A_{+1}$

Rej.  $A_{+1}$

Clouds

Upper + foll.  $\delta$

Rej. All but  $1\frac{2}{11}$  2 wires

$1\frac{2}{11}$  of double strokes belongs to  $2\frac{2}{11}$   $\delta$

Seeing pretty fair

Seeing pretty bad

140

1878, Sept. 12

Obs. W.A.R.

W.A.R.

Sept. 14

Rec. f.7 m.

f.7 m.

19 36 9 8.9 50 34

8.7 50 2 25.9 49.3

9.0 50 2 14.8 37.2 Sept. 14

19 42 44 7.8 51 30

19 50 23 9.4 50 33

9.4 50 2 55.6 18.9

9.2 50 2 53.6 16.2 Sept. 14

19 55 5 9.2 51 30

9.0 40 0 33.4 56.7

9.1 40 0 38.2 1.6 Sept. 14

19 58 14 9.3 53 3

9.2 20 3 40.0 2.5

9.0 20 3 40.6 2.9 Sept. 14

20 1 38 9.0 52 51

9.0 25 0 23.0 47.4

9.0 35 0 30.1 54.7 Sept. 14

~~20 13 4 8.2 54 0.9~~

8.8 50 0 27.0 49.3

~~20 9 40 8.9 50 36~~

8.9 50 0 25.8 48.9 Sept. 14

20 12 17 8.9 54 57 22

8.4 30 3 58.9 21.1

8.3 35 0 43.4 5.9 Sept. 14

20 13 4 8.2 54 59

8.5 30 4 16.2 37.2

8.5 35 1 20.8 44.1

20 15 48 8.4 55 8

7.7 15 2 33.1 55.1

7.3 15 2 31.1 52.7

20 19 17 7.3 54 9

8.0 20 1 30.1 53.0

~~20 20 59 8.0 53 37 22~~

9.1 20 1 49.2 5.9

20 22 59 8.0 53 37

8.4 45 2 53.9 16.1

20 22 39 9.5 52 14

9.5 10 0 27.5 51.9

20 30 7 9.3 52 23

7.6 0 3 44.9 -8.5

7.2 0 1 47.5 11.2



not seen, sure  
~~not seen~~

Upper + mid. of 3 stars. A <sup>mag.</sup> 9.3 pr. + a <sup>mag.</sup> 9.4 folls  
~~Both 2<sup>nd</sup> 8 pr. Lost 1 wire of 1<sup>st</sup>~~

Upper + foll. #  
 Both, 2<sup>nd</sup> 8 pr

False stroke near the 4<sup>th</sup> wire  
 2<sup>nd</sup> 8 pr.

Not seen

Sept. 14  
 Seeing pretty fair

~~Ind. wire + foll.~~

A <sup>mag.</sup> 9.3 foll's. Ref. the 3 wires of A<sub>+1</sub>

~~Ind. wire + foll. 2<sup>nd</sup> #. Reg order.~~ Sept. 12  
 Seeing very good indeed















1870pbae, no. 1, 1857R