

KG  
11365  
249

L. 11

*Reduction of Zones . 2.*

*Comparison of magnitudes*  
L.L.B.

*1859.*

Sold by T. Groom & Co., Stationers, India Building, 82 State St., Boston.

KG 11365.249

The only comparison of magnitudes  
in this volume is that on the 1st  
page the rest of the volume  
contains the chronograph records of  
certain zones mostly without  
dates



1861 June 17

x 14 1 2.3 6.3 22.35  
 a 24.7 28.6

3 9 x  
 9 39.5 a

14 2 29.9 33.8 22.20  
 52.0 56.1

2 16.5 x  
 8 50 a

3 42.9 46.9 22.20  
 4 5.1 9.1  
 5 14.2 18.1

1 19 x  
 7 55 a  
 8 8 3

6 27.2 31.2  
 6 49.3 53.3 22.10  
 7 58.4 62.3

1 19.5 x  
 7 55 a  
 8 8.5 6

22.21 11 14 33.34 + 0 47 34.6  
 1 31.20 14 33.61 29.0

11 14 33.48 + 0 47 31.8 - 2 1859.0 (Obs. 1861.5)  
 - 0.01 - 0.2

Smiley

247

From Low  $\frac{117}{108.}$

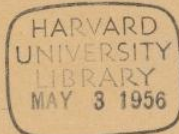
KG 11365.249

Including repetition of Aug. 1862 Aug - 29

| L     | CB    | No | CB    | L        |
|-------|-------|----|-------|----------|
| 9.00  | 9.54  | 31 | 8.90  | 8.94 17  |
| 9.51  | 10.79 | 31 | 10.16 | 9.40 28  |
| 10.03 | 11.51 | 55 | 11.00 | 10.11 32 |
| 10.50 | 11.71 | 27 | 11.55 | 10.31 31 |
| 11.06 | 11.93 | 53 | 11.99 | 10.58 62 |
| 11.50 | 12.32 | 19 | 12.59 | 11.10 25 |
|       |       |    |       | 200      |

| CB               | No               |
|------------------|------------------|
| 9.22             | 8.97             |
| 9.95             | 9.20             |
| 10.47            | 9.46             |
| 10.90            | 9.81             |
| 11.25            | 10.97            |
| 11.53            | 10.17            |
| 11.63            | 10.40            |
| <del>11.69</del> | <del>10.17</del> |
| 11.91            | 10.82            |
| 12.45            | 11.30            |

| Offense | L        |
|---------|----------|
| 9.      | 8.8      |
| 9.10    | 9.1      |
| 10.     | 9.3 9.25 |
| 10.11   | 9.5      |
| 11.     | 9.9      |
| 11.5    | 10.2     |
| 12.     | 10.9     |
| 12.13   | 11.3     |
| 13.     | 11.7     |



Magnitudes compared.

A. Mr. Coolidge. Some 3. returned by J.H.S.

Mag. S. C. Mean.

8.0 6.5 1  
 7.5 1 7.62  
 9.0 1

9.0 8.5 1  
 9.0 4  
 9.5 1

10.0 2  
 10.5 2  
 10.8 1  
 11.8 1

9.5 9.0 2  
 10.0 1  
 10.5 6  
 11.0 6  
 11.5 2  
 11.8 1

10.0 10.5 1  
 11.0 9  
 11.2 2  
 11.5 2  
 11.8 1  
 12.0 8  
 12.5 1  
 13.0 1

10.5 10.5 1  
 11.0 2  
 11.5 5  
 12.0 7  
 11.0 11.0 10  
 11.2 2  
 12.0 12

11.5 5  
 11.8 1  
 12.5 1

Mag. S. Mag. S.

11.5 11.5 1  
 12.0 9  
 12.5 5  
 13.0 4

Converso ordine

C. S.

6.5 8.0 1  
 7.5 8.0 1  
 8.5 9.0 1  
 9.0 8.0 1

9.0 4  
 9.5 2

9.5 9.0 1

10.0 9.0 2

9.5 1

10.5 9.0 2

9.5 6

10.0 1

10.5 1

10.8 9.0 1

11.0 9.5 6

10.0 2

10.5 2

11.0 11

11.5 9.5 2

10.0 2

10.5 5

11.0 5

11.5 1

12.8 9.0 1

9.5 1

10.0 1

11.0 1

12.32

C. S.

12.0 10.0 8  
 10.5 7  
 11.0 12  
 11.5 9

12.5 10.0 1  
 11.0 1

11.5 5

12.0 10.0 1

11.0 1

11.5 4

Mean

C. S.  
 8.88 9.00 8

10.32 9.43 14

10.99 10.36 22

11.50 10.53 15

11.98 10.71 40

12.32 11.19 13

Zone 119. June 7<sup>th</sup>, 1859.

13<sup>th</sup>

|                 |      |                 |
|-----------------|------|-----------------|
| 54 <sup>m</sup> | 50.3 | 54.3            |
| <del>55</del>   | 6.9  | <del>10.7</del> |
| 56              | 6.9  | 10.7            |
| 57              | 13.4 | 17.0            |
|                 |      | 19.2            |
|                 | 21.0 | 25.0            |
| 58              | 49.5 | 53.5            |
| 59              | 41.1 | 46.8            |
| 14 0            | 22.4 | 26.5            |
| 1               | 2.7  | 6.7             |
|                 | 4.3  | 8.2             |

13

|      |      |      |
|------|------|------|
| 54   | 50.1 | 54.0 |
| 55   | 23.4 | 27.0 |
|      | 6.8  | 10.7 |
| 57   | 13.2 | 17.1 |
|      | 15.3 | 19.2 |
|      | 20.8 | 24.9 |
| 58   | 49.3 | 53.0 |
| 59   | 41.0 | 45.0 |
| 14 0 | 22.5 | 26.3 |
| 1    | 2.7  | 6.5  |
|      | 4.1  | 8.0  |



|    |   |      |      |
|----|---|------|------|
| 14 | 2 | 50.4 | 54.2 |
|    | 3 | 7.0  | 11.0 |
|    |   | 46.6 | 50.5 |
|    | 4 | 13.9 | 17.9 |
|    |   |      |      |
|    | 5 | 36.5 | 42.4 |
|    |   |      | 49.5 |
|    |   |      | 53.4 |
|    | 6 | 21.0 | 24.7 |
|    |   | 23.6 | 27.8 |
|    |   | 30.2 | 34.1 |
|    |   |      | 55.1 |

|    |   |      |      |
|----|---|------|------|
| 7  |   | 37.9 | 41.8 |
| 8  |   | 49.6 | 53.4 |
|    |   | 50.5 | 54.4 |
| 9  | 3 | 53.9 | 57.9 |
| 10 |   | 19.8 | 23.8 |
|    |   |      | 27.7 |

|    |  |      |      |
|----|--|------|------|
| 11 |  | 6.7  | 10.8 |
|    |  | 51.5 | 55.5 |
| 12 |  | 13.8 | 17.9 |
| 13 |  | 2.7  | 6.6  |
| 14 |  | 17.0 | 21.0 |
|    |  | 25.8 | 29.8 |

|    |  |      |      |
|----|--|------|------|
| 14 |  | 40.9 | 44.9 |
|    |  | 47.8 | 51.7 |

|    |  |      |      |
|----|--|------|------|
| 15 |  | 37.1 | 41.0 |
| 17 |  | 3.8  | 7.7  |
|    |  | 17.6 | 21.6 |

|    |  |     |      |
|----|--|-----|------|
| 18 |  | 8.1 | 11.8 |
|----|--|-----|------|

|    |   |      |      |
|----|---|------|------|
| 14 | 2 | 50.1 | 54.0 |
|    | 3 | 6.9  | 10.9 |
|    |   | 46.2 | 50.2 |
|    | 4 | 13.5 | 17.3 |
|    |   |      |      |
|    | 5 | 38.3 | 41.9 |
|    |   |      | 45.7 |
|    |   |      | 48.9 |
|    | 6 | 20.5 | 24.5 |
|    |   | 23.5 | 27.4 |
|    |   | 29.9 | 33.8 |
|    |   | 50.9 | 54.9 |

|    |  |      |      |
|----|--|------|------|
| 7  |  | 37.5 | 41.7 |
| 8  |  | 49.3 |      |
|    |  | 50.3 | 54.3 |
| 9  |  |      | 15.9 |
| 9  |  | 53.6 | 57.7 |
| 10 |  | 19.3 | 23.6 |
|    |  |      | 27.4 |

|    |  |      |      |
|----|--|------|------|
| 11 |  | 6.4  | 10.6 |
|    |  | 51.2 | 55.2 |
| 12 |  | 13.6 | 17.8 |
| 13 |  | 2.5  | 6.4  |
|    |  | 16.7 | 20.6 |
|    |  | 25.6 | 29.6 |

|    |  |      |      |
|----|--|------|------|
| 14 |  |      | 44.6 |
|    |  | 47.4 | 51.5 |

|    |  |      |      |
|----|--|------|------|
| 15 |  | 36.0 | 40.6 |
| 17 |  | 3.7  | 7.5  |
|    |  | 17.4 | 21.4 |

|    |  |     |      |
|----|--|-----|------|
| 19 |  | 7.8 | 11.7 |
|----|--|-----|------|



|    |                 |                 |
|----|-----------------|-----------------|
| 20 | 31.0            | 34.6            |
| 21 | 5.2             | 13.2            |
|    | 41.9            | 45.9            |
| 22 | 3.0             | 7.2             |
|    | 22.2            | 26.1            |
|    | 26.5            | 30.5            |
| 23 | 27.8            | 31.6            |
|    | 57.1            | 61.0            |
| 24 | 4.8             | 8.7             |
| 25 | 32.6            | 37.7            |
|    | <del>45.7</del> | <del>49.5</del> |
|    | 45.7            | 49.5            |
|    | 52.0            | 55.9            |
| 27 | 2.1             | 6.1             |
| 28 | 7.0             | 11.2            |
|    | 15.3            |                 |
|    | 34.9            | 39.1            |
|    | 46.7            | 50.7            |
| 29 | 8.1             | 11.9            |
|    | 36.3            | 40.3            |
| 31 | 32.7            | 36.7            |
| 32 | 1.4             | 5.2             |
|    | 43.9            | 47.8            |
| 33 | 15.3            | 23.3            |
|    | 49.5            | 53.7            |
| 34 | 16.5            | 20.4            |
|    | 33.1            | 37.2            |
| 36 | 58.6            | 62.3            |
| 37 | 4.2             | 8.0             |
|    | 17.5            | 21.4            |
| 38 | 28.6            | 32.4            |
|    | 45.5            | 49.4            |
|    | 59.9            | 63.7            |

|    |                 |                 |
|----|-----------------|-----------------|
| 20 | 30.8            | 34.7            |
| 21 | 9.0             | 13.0            |
|    | 41.7            | 45.8            |
| 22 | 2.8             | 6.8             |
|    | 22.0            | 26.0            |
|    |                 | 30.3            |
| 23 | 27.6            | 31.3            |
|    | 57.0            | 60.9            |
| 24 | 4.7             | 8.4             |
| 25 |                 | 37.3            |
|    | 45.4            | 49.3            |
|    |                 | 55.7            |
| 27 | 1.9             | 6.0             |
| 28 | 7.0             | <del>11.2</del> |
|    |                 | 18.9            |
|    | 34.9            | 38.9            |
|    | 46.5            | 50.5            |
| 29 | 7.8             | 11.8            |
|    | 36.2            | 40.2            |
| 31 | 32.6            | 36.6            |
| 32 | 1.1             | 5.0             |
|    | 43.7            | 47.6            |
| 33 | 19.0            | 23.1            |
|    | 47.4            | 51.4            |
| 34 | 16.2            | 20.4            |
|    | 33.0            | 36.8            |
| 36 | 58.3            | 62.4            |
| 37 | 4.0             | 7.4             |
|    | 17.2            | 21.0            |
|    | 26.0            | 30.1            |
|    | <del>36.2</del> | <del>40.3</del> |
| 38 | 28.4            | 32.5            |
|    | 45.5            | 49.5            |
|    | 59.8            | 63.7            |



14

39 46.9 51.0  
40 0.8 4.8  
34.4 38.5

44.9 48.5

41 29.5 33.4  
58.9 61.7  
42 0.8 4.9  
10.8 14.7  
15.9 19.9  
30.0 34.1  
43 28.0 32.2

44.8  
45 10.2 13.9  
27.5 31.4  
40.0 44.4  
43.5 47.5

46 19.0 23.1  
26.8 30.6  
51.6 55.7  
53.3 57.3

47 15.0 19.2

48 49.8 53.6  
45.1 49.1  
49 2.6 6.6  
51.3 55.1  
50 49.7  
51 14.4 18.4  
42.3 46.4  
52 33.6 37.5

39 46.7 50.8  
40 0.8 4.6  
34.3 38.3

48.7

41 29.2 33.0  
58.5  
42 0.7 4.3  
10.5 14.5  
15.5 19.4  
29.9 33.9  
43 28.0 31.9

44.5 53.5  
45 9.7 13.7  
27.1 31.0  
43.0?  
~~42.0~~ 47.5

46 18.7 22.8  
26.7 30.5  
51.8 55.7

47 15.0 18.9

48 49.6 53.6  
44.9 48.8  
49 2.7  
51.0 55.0  
50 45.6 49.5  
51 14.2 18.2  
42.1 46.1  
52 33.4 37.4  
59.5 63.5



|     |      |      |
|-----|------|------|
| 53  | 56.0 | 59.9 |
| 54  | 6.4  | 10.3 |
|     | 27.1 | 30.9 |
|     | 29.8 | 33.8 |
| 55  | 32.9 | 36.7 |
| 56  | 13.6 | 17.6 |
| 58  | 14.0 | 18.0 |
|     | 23.7 | 27.7 |
|     | 25.2 | 29.1 |
|     |      | 34.6 |
| 59  | 12.5 | 16.6 |
|     | 42.0 | 46.0 |
|     | 23.6 |      |
| 151 | 13.6 | 17.3 |
|     | 26.4 | 30.6 |
| 2   | 8.3  | 12.4 |
|     | 37.4 | 41.3 |
| 4   | 5.0  | 8.9  |
|     | 24.0 | 27.8 |
|     | 29.0 | 33.0 |
|     | 47.4 | 51.5 |
| 5   | 6.5  | 10.4 |
|     | 8.8  | 12.9 |
|     | 13.9 | 17.9 |
| 6   | 12.9 | 16.8 |
| 7   | 9.1  | 13.0 |
| 8   | 37.9 | 41.9 |

|                 |      |      |
|-----------------|------|------|
| 53 <sup>m</sup> | 56.0 | 59.8 |
| 54              | 26.9 | 30.7 |
|                 | 32.6 | 36.5 |
| 56              | 13.5 | 17.3 |
|                 | 29.8 | 33.7 |
| 58              | 13.6 | 17.6 |
|                 | 25.0 | 29.0 |
| 59              |      | 16.5 |
|                 | 41.8 | 45.8 |
| 15              |      |      |
| 2               |      | 12.0 |
| 4               | 4.8  | 8.7  |
|                 | 23.8 | 27.8 |
|                 | 28.9 | 32.8 |
|                 | 47.4 | 51.3 |
| 5               | 6.2  | 10.0 |
|                 | 13.5 | 17.7 |
| 6               | 12.7 | 16.7 |
| 7               | 8.9  | 12.8 |
|                 | 46.3 | 50.3 |
| 8               | 37.9 | 41.7 |



12 28.0 31.8  
30.3 34.1  
57.7 61.8

13 9.6 13.9  
16.8 18.7  
46.1 50.2

14 4.5 8.5  
5.6 9.4

15.9 19.8  
45.1 49.1

15 50.0 54.0

16 57.1 61.0

17 10.6 14.4  
50.6 54.4

18 38.7 42.7  
54.3 58.2  
56.5 60.4

19 9.3 13.2

20 3.9 7.9  
5.3 9.3  
34.4 38.5

21 23.3 27.3  
34.1

22 12.2 16.3  
13.0  
39.1 42.9

23 22.2 26.2  
41.2 45.3

15 9 27.3 31.8  
10 20.6 24.4  
43.6 47.5  
11 38.6 42.7

12 0.4 4.2  
7 27.8 31.8  
30.0 33.8  
57.7 61.8

13 14.7 18.6  
46.0 50.0  
14 4.6 8.6

44.7 48.7  
15 49.9 54.0  
16 57.0 60.9

17 50.2 54.0  
18 39.4 42.5  
54.1 58.1  
56.3 60.5

19 9.0 13.0

20 3.8 7.8  
5.1 9.2  
34.4 38.1

21 23.0 27.1  
29.9 33.9

22 12.3 16.0  
38.8 42.8

23 22.0 25.8



24<sup>m</sup> 1.3 5.2  
16.8 20.5  
46.7 48.7

25 30.5 38.4  
48.0

26 15.5 19.6  
45.1 49.2

51.5 55.7  
27 25.8 29.8

52.8 56.9  
28 ? 8.5 ?  
28.4 32.3

29 30.4 34.3

30 1.2 5.3

28.3 32.1

52.7 56.6

31 7.0 11.1

39.1 42.9

59.2 63.1

32 25.6 29.6

33 39.5 43.3  
54.1

34 49.5 53.4

35 24.1 28.0

36 1.3 3.9  
19.0 22.9

38 4.7 8.7  
32.5 36.3  
52.0 55.8

15 24 1.1 5.0  
16.4 20.4  
46.4 48.5

25 30.2 38.1

45.3 —

26 15.4 19.4  
45.0 49.0

51.4 55.5

27 25.7 29.7

52.6 56.8

28 28.1 32.2

30.1 34.1

30 1.0 4.0

28.0 32.1

52.4 56.7

31 6.9 10.8

42.9 47.2

58.9 62.8

32 25.4 29.4

33 39.2 43.1

34 49.4 53.1

35 24.0 28.0

36 19.0 22.7

38 4.6 8.5  
32.4 36.0  
52.5 55.8



40 11.2 15.0  
32.9 36.9

41 47.2 51.2  
45.4  
49.3 53.4

42 10.9 14.9  
47.9 52.0

43 7.5 11.6

44 7.8 11.7  
17.4 21.3  
46 37.8 41.8

47 30.9 34.9  
41.4 45.4  
54.7 58.7

48 26.8  
57.8

49 4.5 8.5  
6.5 (11.1)  
12.3

50 5.9 9.9  
51 9.6 13.5

16.9  
51 20.0 23.9

51 49.2 53.0  
50.3 (54.7)  
54.0 58.3

52 32.2 36.3

53 1.6 5.5

15  
40 10.9 14.9  
32.6 36.8

41 47.0 50.8  
45.0 49.0  
53.1

42 10.8 14.5  
47.6 51.8

43 7.2 11.6

44 11.4

17.2 21.3  
46 37.6 41.7

47 30.7 34.7  
41.1 45.3  
54.6 58.7

48 26.4 30.4  
53.5 57.5

49 4.3 8.2  
6.2 10.0  
7.7 11.9

50  
51 9.2 13.2

19.8 23.9

49.0 52.9

5  
54.2 58.0

52 32.2 36.1

53 1.4 5.4



791645 99  
72096

|      |      |        |
|------|------|--------|
| 54   | 9.2  | 13.4   |
|      | 17.0 | 20.9   |
|      | 19.1 | 23.0   |
|      | 59.3 | 69.2   |
| 55   | 17.3 | 21.2   |
|      | 41.8 | 45.6   |
| 58   | 40.6 | 44.6   |
| 59   | 32.6 | 36.5   |
| 16 0 | 14.2 | 18.2   |
|      | 47.0 | 50.8   |
| 1    | 24.5 | (26.9) |
| 2    | 38.2 | 42.0   |
| 3    | 44.0 | 48.1   |

|    |      |      |      |
|----|------|------|------|
| 15 | 54   | 9.2  | 13.3 |
|    |      | 16.7 | 20.7 |
|    |      | 18.9 | 22.9 |
|    |      | 59.0 | 63.0 |
|    | 55   | 16.9 | 21.0 |
|    |      | 41.5 | 45.4 |
|    | 56   | 30.5 | 34.3 |
|    | 58   | 40.4 | 44.2 |
|    | 59   | 32.4 | 36.5 |
|    | 16 0 | 14.1 | 18.1 |
|    |      | 46.8 | 50.7 |
|    | 1    | 20.3 | 24.3 |
|    | 2    | 37.7 | 41.8 |
|    | 3    | 16.2 | 20.1 |
|    |      | 21.6 | 25.4 |
|    |      | 43.8 | 47.8 |







June 12. A.M. read off with scale.

|    |    |                 |      |
|----|----|-----------------|------|
| 15 | 57 | 5.7             | 9.6  |
|    | 58 | 15.8            | 19.8 |
|    |    | B.              |      |
|    | 59 | 1.0             | 4.9  |
|    | 59 | <del>50.0</del> | 43.9 |
|    |    | 49.3            | 53.4 |
| 16 | 0  | 11.6            | 15.5 |
|    |    | 14.3            | 18.5 |
|    |    | 29.9            | 33.8 |
|    |    | 27.             |      |
|    | 1  | 4.7             | 8.6  |
|    |    | 23.3            | 27.2 |
|    |    | 36.3            | 40.5 |
|    | 2  | 11.0            | 15.1 |
|    |    | 2.              |      |
|    | 3  | 0.7             | 4.9  |
|    |    | 21.4            | 25.1 |
|    |    | 45.6            | 49.2 |



|    |    |        |      |
|----|----|--------|------|
| 16 | 5  | 44.0   | 48.0 |
|    | 6  | 6.4    | 10.2 |
|    |    | B.D.B. |      |
|    | 8  | 20.0   | 24.0 |
|    | 9  | 3.5    | 7.6  |
|    |    | 4.2    | 8.0  |
|    |    | B.     |      |
|    | 9  | 39.6   | 43.4 |
|    | 10 | 8.8    | 12.5 |
|    |    | 16.9   | 20.8 |
|    |    | B.D.   |      |
|    | 11 | 17.2   | 21.2 |
|    | 12 | 6.2    |      |
|    |    | 10.1   | 14.0 |
|    |    |        | 53.2 |
|    | 13 | 4.9    | 8.8  |
|    |    | 13.1   | 17.0 |
|    |    | B.D.   |      |
|    | 13 | 41.0   | 44.9 |
|    | 14 | 3.4    | 7.3  |
|    |    | 33.2   | 37.3 |
|    |    | 53.6   | 57.5 |
|    | 15 | 2.1    | 6.0  |
|    |    | D.     |      |
|    |    | 19.2   | 23.0 |
|    |    | 21.9   | 25.7 |
|    |    | B.D.   |      |
|    | 16 | 10.6   | 14.5 |
|    |    | 12.0   | 15.9 |
|    |    | 24.0   | 27.9 |
|    |    | B.     |      |
|    |    | 50.2   | 54.2 |
|    | 17 | 7.0    | 11.0 |
|    |    | B.     |      |
|    |    | 37.6   | 41.5 |
|    | 18 | 7.6    | 11.2 |
|    |    | D.     |      |
|    |    | 23.5   | 27.4 |
|    |    | D.     |      |
|    | 20 | 1.9    | 6.1  |



|      |      |      |
|------|------|------|
| 10   | 20.2 | 24.2 |
|      | 28.8 | 32.8 |
| 21   | 13.7 | 7.4  |
|      | 26.6 | 30.4 |
|      | 34.1 | 38.3 |
|      | B.D. |      |
| 21   | 50.4 | 54.6 |
| x 22 | 29.3 | 33.2 |
|      | B.   |      |
| 23   | 8.6  | 12.5 |
|      | 46.4 | 50.3 |
| 24   | 7.8  | 11.9 |
|      | 8.   |      |
|      |      | 50.7 |
|      | 52.9 | 56.9 |
|      | 8.   |      |
| 25   | 20.5 | 24.4 |
|      | 22.2 | 26.2 |
|      | B.   |      |
| 27   | 16.7 | 20.6 |
|      | 46.2 | 50.5 |
| 28   | 16.6 | 20.7 |
|      | 35.3 | 39.4 |
|      | B.D. |      |
| 29   | 10.7 | 15.0 |
|      | 36.8 | 40.7 |
| 30   | 28.0 | 32.9 |
|      | 44.1 | 48.0 |
|      | 45.7 | 49.7 |
| 31   | 0.0  | 4.1  |
|      | 13.5 | 17.6 |
|      | 37.4 | 41.4 |
| 32   | 45.8 | 49.7 |
|      | B.D. |      |
| 32   | 46.1 | 50.2 |
|      | 47.1 | 51.2 |
|      | 57.6 | 61.6 |
| 33   | 10.5 | 14.5 |
|      | 87.3 |      |
| 33   | 38.8 | 42.3 |



|    |        |      |
|----|--------|------|
| 33 | 46.7   | 50.8 |
| 34 | 1.5    | 5.5  |
| 35 | 10.0   | 14.1 |
|    | 12.7   | 17.0 |
|    | B.     |      |
| 34 | 45.1   | 49.1 |
| 35 | 11.6   | 15.8 |
|    | 29.3   | 33.3 |
|    | 52.2   | 56.2 |
|    | B.     |      |
| 36 | 14.7   | 18.7 |
|    | B.     |      |
| 37 |        | 34.0 |
|    | 37.0   | 40.9 |
|    | B.     |      |
| 38 | 31.4   | 35.5 |
|    | 34.6   | 38.7 |
|    |        | 41.9 |
| 39 | 1.0    | 5.1  |
|    | B.     |      |
| 39 | 43.3   | 47.2 |
|    | 55.5   | 59.2 |
| 40 | 10.7   | 14.5 |
|    | 11.3   | 15.2 |
|    | B.     |      |
|    | 58.6   | 62.7 |
| 41 | 15.2   | 19.3 |
|    | B.     |      |
|    | 56.9   | 61.0 |
| 42 | (19.7) | 23.4 |
|    | 30.5   | 34.7 |
|    | 51.8   | 55.7 |
|    | B.     |      |
| 43 | 9.7    | 13.3 |
| 44 | 13.5   | 17.5 |
|    | 25.1   | 29.0 |



1 124 26.2 30.0  
 28.2 32.1  
 D.B.  
 44 53.1 57.1  
 45 6.4 10.4  
 B.  
 45 41.6 —  
 — 15.3

46  
 46 25.0 28.7  
 37.2 41.2  
 53.0 56.9  
 B.D.B.  
 47 51.6 55.7

49 50.9 54.9  
 50 10.7 14.8  
 49.7 53.8  
 58.3 62.3  
 51 6.4 10.3  
 18.9 22.8  
 28.2 32.2  
 B  
 51.5 55.4  
 58.2 62.3  
 B

52 19.0 23.0  
 D.B.  
 58.7 62.7  
 53 21.0 24.8  
 35.9 40.0  
 B.D.B.  
 54 0.7 4.7  
 2.9 6.6  
 20.0 24.0  
 D.  
 34.2 38.2  
 43.1 47.1



16 54, 52.1 56.2

D.

55 45.7 49.6

56 0.7 4.7

57 58.7 62.8

58 6.3

B. 2.3

59 50.1 54.1

58 8.6 12.6

D.

58 56.0 60.0

59 26.1 29.9

37.2 41.3

49.1 53.0

D.B.

17 0 19.0 23.1

27.2 31.2

44.6 48.3

D.D.

1 19.9 23.9

39.4 43.3

2 1.3 5.1

32.0 36.1

37.6 41.8

B.

3 4.6 8.6

37.4 41.1

D.D.D.

4 34.1 38.1

5 26.5 30.3

43.7 47.7

52.7 56.7

6 8.3 12.3

7.2 11.0

10.0 13.9

B. 50.5 54.1

37.2 41.2

43.5 47.6



|    |   |      |      |
|----|---|------|------|
| 17 | 8 | 3.7  | 7.7  |
|    |   | DB.B |      |
| 10 |   | 1.7  | 5.8  |
|    |   | 13.3 | 17.1 |
|    |   | 34.3 |      |
|    |   | 36.0 | 39.8 |
|    |   | 45.0 | 49.0 |
|    |   | DB.  |      |
| 11 |   | 5.9  | 9.9  |
|    |   | 27.9 | 31.8 |
|    |   | 44.6 | 48.8 |
|    |   | DB.  |      |
| 12 |   | 0.3  | 4.4  |
|    |   | 13.4 | 17.3 |
|    |   | DB.B |      |
|    |   | 51.8 | 55.7 |
| 13 |   | 52.2 | 56.1 |
|    |   | DB.  |      |
| 14 |   | 13.4 | 17.4 |
|    |   | 56.5 | 60.7 |
| 15 |   | 7.9  | 11.9 |
| 16 |   | 3.2  | 7.2  |
|    |   | DB.  |      |
|    |   | 20.0 | 24.0 |
|    |   | 41.2 | 45.0 |
|    |   | 43.1 | 47.3 |
| 17 |   | 1.0  | 4.9  |
|    |   | DB.  |      |
| 18 |   |      | 47.8 |
|    |   | 48.3 | 52.3 |
|    |   | 59.8 | 63.8 |
| 19 |   | 8.2  | 12.1 |
|    |   | 17.5 | 21.5 |
|    |   | DB.  |      |
| 20 |   | 0.9  | 4.9  |
|    |   | 23.1 | 27.0 |
| 21 |   | 5.5  | 9.6  |
|    |   | 34.6 | 38.5 |



11 2' D.

23 2.0 5.9

9.1

30.6 34.9

31.6 35.5

32.6 36.4

D.

24 14.2 18.0

44.6 48.6

25 17.8 21.7

47.4

26 16.1 20.0

B.B.

27 8.0 12.0

17 24 14.2 18.0

44.6 48.6

25 17.8 21.7

47.4

26 16.1 20.0

27 8.0 12.0







|    |    |      |      |
|----|----|------|------|
| 17 | 36 | 49.0 | 53.1 |
|    | 39 | 0.9  | 5.0  |
|    |    | 33.9 | 37.9 |
|    |    | 55.1 | 59.0 |
|    |    | 55.7 | 59.7 |
|    |    | 0.3  |      |
| 40 |    | 56.3 | 60.3 |
| 41 |    | 10.2 | 14.3 |
|    |    | 24.7 | 28.7 |
|    |    | 0.0  |      |
|    |    | 52.8 | 56.9 |
| 42 |    | 4.2  | 8.3  |
|    |    | 35.3 | 39.3 |
|    |    | 0.3  |      |
|    |    | 50.0 | 53.9 |
| 43 |    | 45.4 | 49.3 |
| 44 |    | 8.5  | 12.6 |
|    |    | 19.6 | 24.0 |
|    |    | 20.4 | 24.5 |
|    |    | 31.5 | 35.6 |
|    |    | 43.9 | 48.0 |
|    |    | 0.0  |      |
| 46 |    | 30.3 | 36.3 |
|    |    | 46.6 | 51.9 |
|    |    | 55.0 | 58.9 |
|    |    | 0.3  |      |
| 47 |    | 22.0 | 25.0 |
|    |    | 22.6 | 26.3 |
|    |    | 0.0  |      |
| 48 |    | 10.9 | 14.9 |
|    |    | 18.1 | 22.1 |
|    |    | 30.1 | 33.8 |
|    |    | 56.0 | 60.1 |
| 49 |    | 7.9  |      |
|    |    | 26.3 | 12.1 |
|    |    | 0.3  |      |



|      |      |            |
|------|------|------------|
| 51   | 27.0 | 31.0       |
|      | 52.8 | 56.6       |
|      | 53.3 | 57.2       |
|      | D.   |            |
| 52   | 9.3  | 13.3       |
|      | 25.9 | —          |
|      | 33.2 | 37.3       |
| ✓ 53 | 16.0 | 20.0 nodes |
|      | 49.0 | 52.9       |
|      | 57.0 | 60.9       |
| 54   | 2.5  | 6.6        |
|      | B.D. |            |
|      | 33.6 | 37.9       |
|      | 39.6 | 43.5       |
|      | 44.9 | 49.0       |
|      | B.   |            |
| 55   | 30.1 | 34.1       |
|      | 33.3 | 37.3       |
|      | 48.1 | 52.0       |
|      | D.   |            |
| 56   | 6.3  | 10.2       |
|      | 16.6 | 20.6       |
|      | 29.7 | 33.6       |
|      | B.D. |            |
|      | 49.1 | 53.3       |
|      | B.D. | 57.4       |
| 57   | 33.9 | 37.9       |
|      | 45.3 | 49.1       |
|      | B.   |            |
| 58   | 24.8 | 28.6       |
|      | 32.3 | 36.2       |
| 59   | 4.0  | 8.0        |
|      | D.B. |            |
| 59   | 40.5 | 44.2       |
| 14 0 | 1.1  | 5.1        |
|      | B.   |            |
| 0    | 22.1 | 26.3       |
|      | 25.0 | 28.8       |



B.D.N.D.

46

1 14.3 16.2  
 21.6 (25.9) doubtful  
 26.5 20.7  
 B.

1 49.4 53.6  
 2 16.9 20.9  
 25.0

31.1 35.2  
 40.4 44.5

3 11.7 ~~16.0~~  
 16.0 19.9

B.  
 3 48.0 52.0  
 48.3 52.3

S.B.D.  
 4 32.5 36.5  
 5 48.7 52.5  
 7 16.0 19.9  
 21.4 25.5

8 6.3  
 15.7 19.8  
 21.6  
 B.

10 5.1 9.1  
 57.2 61.3

11 29.5 33.4  
 30.2 34.3  
 S.B.

12 14.9 18.9  
 16.0 20.0







Revision of [131]

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B. and S.  
H. 20 5 0

Kind off without sale

|    |      |      |
|----|------|------|
| 21 | 18   | 6.4  |
|    | 11.3 | 15.2 |

|    |      |
|----|------|
| 19 | 17.4 |
|----|------|

|    |      |      |
|----|------|------|
| 20 | 40.6 | 44.6 |
| 21 | 26.2 | 30.0 |
| 22 | 10.9 | 14.9 |
| 22 | 22.3 | 26.3 |

Sept 3. 1860. 2 H.S.

4 50 sec w lat

3 24

0 07 AR lat

5

2 48 fine w lat

3 12 ? AR lat

0 30

7 16

1 16

2 25

5 14

2 30.8 34.2

24 19.3 23.3

24 47.4 51.4

25 22.3 26.3

26 27.5

26 45.8 50.1

52.3 56.4

27 30.3 34.2

45.7 49.5

57.8 61.5

31 51.8

32 3.2

32 39.4 43.5

33 0.7 4.7

15.9 19.9

56.0 59.8

36 (6.1) (10.1) *all wrong here  
lamp out*

37 4.2

42.1

46. -

10 40 ? AR doubtful

B, B

5 27

9 2 46

S.B.

0 32 n.s.

3 08 see win bar.

9 24 see win bar

5 51 n.s.

2 39

6 26?

8 20

1 56 firm win bar

4 08 " " bar

4 41

B

6 39

6 36

9-10 0 28

dots one minute

7 - see win bar

9 - 2 bar

4 40

7 - see win bar

8 26

2?

0 26

2?

} see win bar

|    |                         |      |
|----|-------------------------|------|
| 42 |                         | 38.6 |
|    |                         | 54.1 |
| 43 | 29.6                    | 32.6 |
|    | 33.4                    | 37.1 |
|    | 56.0                    | 59.9 |
| 44 | 9.7                     | 13.7 |
| 44 | 31.6                    | 35.3 |
| 45 | 1.5                     | 5.3  |
|    | 37.1                    | 41.1 |
| 46 | 19.1                    |      |
|    |                         | 25.1 |
| 47 | 20.0                    | 24.8 |
| 47 | 36.0                    | 39.8 |
| 48 | 4.2                     | 8.1  |
| 49 | 1.1                     | —    |
| 49 | 17.9                    | 21.7 |
| 49 | <del>40.1</del><br>40.0 | 44.6 |
| 52 | 54.0                    | 58.0 |
| 52 | 55.2                    | 59.3 |
|    | 58.0                    | 62.3 |
|    | 7.13                    |      |
| 53 | 56.8                    | 60.9 |
| 54 | 6.1                     | 9.5  |

58.0  
14.5-  
44.0  
51.0

26. D. 2

10 — mid —

5 — mid "

1 12

3 10 n.s

10 45

7 40

8

8 45

5 24

2 7

B.

5 4 see case file

7 12 find in box

10 30 a?

8 20

3 44

7 34 a?

4 17

8 28

3 39

6 36

7 32 mid

B. B.

5 20

10 20?

55 4.0 7.9  
24.0

56 14.4 18.2  
41.3 45.1

57 37.8 41.9  
58 5.4 9.1  
14.6 18.3

26.9 30.6  
50.3 54.2

~~22~~

22 1 1.2  
10.1 14.3  
— 25.8  
35.7

1 21.6  
52.1 56.1

2 ~~21.6~~ 20.3 — 270.3

31.6 35.5

44.8 48.7

3 0.3 4.2  
— 13.5

4 ~~5.4~~  
~~5.4~~ 5.4  
~~10.3~~ 10.3  
21.0 25.0

5 25.4 29.3  
50.8

6 4.7

7 34.1  
9.0 13.1  
-43.9 47.8

[52.9]  
8 22.3 26.5

4 23  
7 08 sec line

1 04  
8 20

8 57  
9 29  
10 09

5 04 sec air way  
2 13  
D.B.D.

5 16  
9 14  
7 — fire in bed n.s.  
2 07  
6 51  
9 11 fire in bed  
7 09 fire in bed

4 40  
7 40 n.s.  
2 08  
2 50 fire in bed  
D.B. 29 fire in bed  
0 38 sec in n.s.  
9 42

4 08  
10 13  
3 — & no des. seen nearby  
D.B.D.  
6 26  
0 12  
4 26 n.s.  
2 31 &?  
6 39

|     |       |      |
|-----|-------|------|
| 278 | 5.88  | 68.1 |
| 9   | 11.8  |      |
|     | <hr/> | 17.7 |

|    |      |      |
|----|------|------|
| 10 | 7.8  |      |
|    | 14.1 | 18.5 |

|    |      |      |
|----|------|------|
| 10 | 38.4 | 42.2 |
|----|------|------|

|  |      |      |
|--|------|------|
|  | 56.4 | 60.2 |
|--|------|------|

|    |     |     |
|----|-----|-----|
| 11 | 3.2 | 7.0 |
|----|-----|-----|

|  |      |      |
|--|------|------|
|  | 21.6 | 25.7 |
|--|------|------|

|    |                 |  |
|----|-----------------|--|
| 12 | <del>24.2</del> |  |
|----|-----------------|--|

|  |      |      |
|--|------|------|
|  | 30.5 | 33.3 |
|--|------|------|

|    |     |      |
|----|-----|------|
| 13 | 7.6 | 11.6 |
|----|-----|------|

|    |      |      |
|----|------|------|
| 13 | 22.6 | 26.3 |
|----|------|------|

|    |      |      |
|----|------|------|
| 14 | 15.6 | 19.3 |
|----|------|------|

|  |      |                 |
|--|------|-----------------|
|  | 44.4 | <del>48.8</del> |
|--|------|-----------------|

|  |      |       |
|--|------|-------|
|  | 58.8 | <hr/> |
|--|------|-------|

|    |      |      |
|----|------|------|
| 15 | 29.0 | 33.3 |
|----|------|------|

|    |      |      |
|----|------|------|
| 16 | 45.4 | 49.4 |
|----|------|------|

|    |     |      |
|----|-----|------|
| 17 | 8.9 | 12.7 |
|----|-----|------|

|    |     |     |
|----|-----|-----|
| 18 | 5.3 | 9.3 |
|----|-----|-----|

|    |      |      |
|----|------|------|
| 20 | 24.3 | 28.3 |
|----|------|------|

|  |      |      |
|--|------|------|
|  | 58.1 | 62.2 |
|--|------|------|

|    |      |      |
|----|------|------|
| 21 | 31.0 | 35.1 |
|----|------|------|

3 8  
 7 20 see wire box  
 2 25 pt " "

0 47 2<sup>9</sup> " "

8 40 n.s.

B.D.

10 36

4 6

0 15

6 20

8 42 fine wire box

2 32 \*obscured

4 51

6 35

6 58

3 12

5 39 see wire box

10 33

B

9-10 3 18

-0 07

7-8 0 13

B.D. B.D.

3 36

1 16 ?

8 07

B.D.



7 36

2 50

8 55

10 5 2? n.s

2 16 m h

6 26

4 34

5 27

9 20

|               |                 |                 |
|---------------|-----------------|-----------------|
| 27            | 57.9            | —               |
| 27            | —               | 62.5            |
| 28            | 28.0            | 32.0            |
| 29            | 10.5            |                 |
|               | 37.1            | 41.2            |
|               |                 | 44.2            |
| 30            | 1.1             |                 |
|               | 42.3            | 45.9            |
| 31            | 10.0            | 14.0            |
|               | 18.0            | 22.0            |
|               | 29.1            | 33.1            |
| 32            | 2.2             | 6.6             |
|               | 12.9            | 16.9            |
| 33            | 1.6             | 5.7             |
|               | 14.8            | 18.8            |
|               | <del>24.0</del> | 26.0            |
|               | 41.4            | 45.5            |
|               | 50.6            | 54.5            |
| 35            | 23.8            | 27.6            |
| 36            | 2.2             | 5.2             |
| <del>36</del> | <del>25.6</del> | <del>29.9</del> |
|               | 35.6            | 39.9            |
|               |                 | 53.7            |
| 37            | 41.9            | 46.0            |
| 38            | 33.2            | 37.1            |
| 40            | 35.5            | 39.5            |
| 41            | 30.8            | 35.0            |
|               | 44.8            | 49.1            |

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1 2 sec win hr

8 13 fire " "

8 21

B.

10 - n.s. ? sec win only

9 3

7 -

1 20 sec win obs

6 42 fire win obs

3 37

D

6 17

3 48

1 10

8 38

3 2

10 26

1 54

3 14 fire win hr

8 24

1 10 n.s.

1 8

~~D~~ D B

5 20

1 50

6 0 1 win n.s.

2 36

1 52

8 24

10 26

1 38 sec win !

2.  
43

|      |      |
|------|------|
| 36.9 | 51.6 |
| 47.7 | 12.0 |
| 50.1 |      |
| 56.9 | 61.1 |

44

|      |      |
|------|------|
| 59.1 | 63.1 |
| 12.6 |      |
| 22.3 | 26.2 |

45

|      |      |
|------|------|
| 35.7 | 39.6 |
|------|------|

46

|     |     |
|-----|-----|
| 5.4 | 9.4 |
|-----|-----|

46

|      |      |
|------|------|
| 44.6 | 48.4 |
| 47.5 | 51—  |
| 59.0 | 63.1 |

47

|      |      |
|------|------|
| 23.5 | —    |
| —    | 45.0 |

|   |    |             |
|---|----|-------------|
| 3 | 6  | Eu wire low |
| 8 | 23 |             |
|   | 17 |             |
| 7 | 36 |             |

|   |    |     |
|---|----|-----|
| 2 | 43 | n.s |
|---|----|-----|

|   |    |     |
|---|----|-----|
| 9 | 34 | n.s |
|---|----|-----|

|   |    |  |
|---|----|--|
| 9 | 29 |  |
|---|----|--|

|       |  |  |
|-------|--|--|
| B.D.B |  |  |
|-------|--|--|

|   |    |  |
|---|----|--|
| 2 | 21 |  |
|---|----|--|

|   |   |          |
|---|---|----------|
| 3 | — | not obs. |
|---|---|----------|

|   |    |  |
|---|----|--|
| 2 | 23 |  |
|---|----|--|

|   |  |  |
|---|--|--|
| 2 |  |  |
|---|--|--|

|   |    |  |
|---|----|--|
| 7 | 43 |  |
|---|----|--|

|   |    |  |
|---|----|--|
| 3 | 26 |  |
|---|----|--|

|   |    |  |
|---|----|--|
| 2 | 36 |  |
|---|----|--|

|   |    |  |
|---|----|--|
| 8 | 50 |  |
|---|----|--|

|   |    |               |
|---|----|---------------|
| 9 | 15 | fine wire low |
|---|----|---------------|

|    |      |      |     |
|----|------|------|-----|
| 26 | 26.6 | 30.7 | 164 |
|    | 45.4 | 49.3 | 165 |

|    |       |       |     |
|----|-------|-------|-----|
| 27 | 38.6  | 42.7  | 167 |
| 28 | 11.6  | 15    | 168 |
|    | [15.9 | 20.0] | 169 |

|    |      |      |     |
|----|------|------|-----|
| 29 | 14.8 | 18.6 | 172 |
|    | 16.8 | 20.5 | 173 |
|    | 29.0 | 33.0 | 174 |

Start between 174-179 or.

|    |      |      |     |
|----|------|------|-----|
| 30 | 31.8 | 35.7 | 179 |
|----|------|------|-----|

|    |      |      |     |
|----|------|------|-----|
| 31 | 15.0 | 18.9 | 180 |
|----|------|------|-----|

|    |      |      |     |
|----|------|------|-----|
| 32 | 36.1 | 40.0 | 182 |
|    | 3.6  | 7.5  | 183 |

|    |     |     |     |
|----|-----|-----|-----|
| 33 | 1.5 | 5.3 | 184 |
|----|-----|-----|-----|

|  |      |      |     |
|--|------|------|-----|
|  | 20.0 | 24.0 | 185 |
|--|------|------|-----|

|    |      |      |     |
|----|------|------|-----|
| 34 | 33.8 | 37.5 | 186 |
|----|------|------|-----|

|  |      |      |
|--|------|------|
|  | 44.0 | 48.0 |
|--|------|------|

|  |   |      |
|--|---|------|
|  | 5 | 55.4 |
|--|---|------|

|    |      |      |
|----|------|------|
| 35 | 52.0 | 55.9 |
|----|------|------|

|    |      |      |
|----|------|------|
| 36 | 51.9 | 55.8 |
|----|------|------|

|    |      |      |
|----|------|------|
| 37 | 46.8 | 48.9 |
|----|------|------|

|    |     |     |
|----|-----|-----|
| 39 | 5.4 | 9.4 |
|----|-----|-----|

|    |      |      |
|----|------|------|
| 39 | 40.0 | 43.8 |
|----|------|------|

|    |       |       |
|----|-------|-------|
| 40 | [19.5 | 20.8] |
|    | 17.9  | 22.0  |

|    |      |      |
|----|------|------|
| 41 | 34.3 | 38.2 |
|----|------|------|

|    |     |     |
|----|-----|-----|
| 42 | 1.2 | 5.0 |
|----|-----|-----|

|    |      |      |
|----|------|------|
| 43 | 36.2 | 42.8 |
|----|------|------|

Sept. 6, 1860

Angle of Pos.  $353^{\circ} 26'$  nearly

DB

8 34

- 0 04

not seen

B

8 25 AR?

0 14 fin w in only

1 22

7 0

5 51 n.s.

1 33

7 28

D, D

5 33

1 17

4 25

B, D, D

7 4

6 13

8 4

2 0

9 12 fin wire lost

10 40 n.s.

9 34

6 41

8 51

4 32

9 13 AR?

6 51

B, B, D

0 12

5 8

4 49

|    |                |      |
|----|----------------|------|
| 43 | 55.8           | 59.9 |
| 44 | 0.7            | 4.7  |
|    | 52.3           | 56.3 |
| 45 | 29.7           | 33.6 |
|    | 30.7           | 34.3 |
| 46 | 55.9           | 59.9 |
| 47 | 19.8           | 23.9 |
|    | 29.2           | 33.4 |
| 48 | 16.0           | 20.0 |
| 49 | <del>2.0</del> | 8.2  |
|    | 24.3           | 28.5 |
|    | 41.0           | 45.0 |
| 50 | 51.6           | 55.4 |
|    | 26.2           | 30.3 |
| 50 | 59.4           |      |
| 51 | 02.5           | 06.3 |
|    | 32.0           |      |
|    | 35.4           | 39.4 |
| 52 | 20.7           | 24.5 |
|    | 26.7           | 31.0 |
|    | 49.0           | 53.0 |
| 53 | 0.1            | 4.0  |
|    | 12.5           | 16.4 |
| 53 | 23.3           | 27.4 |
| 54 | 30.9           | 34.9 |
| 55 | 16.4           | 20.3 |
| 55 | 54.4           | 58.3 |

0 10

2 12

7 33

2 43

-0 10 AR?

12 1 32

0 6

5 40

11 am 9 54

2 50

3 56

3 41

9 47

9 46

8 47

B.

6 57 See mem. but-

3 49

9 26 See mem. but-

2 38

2 34

9 35

2 43

2 58

3 28

B.

7 36 n.s.

2, B.D.

11 7 17

6 18

9 4

B

|    |    |      |      |
|----|----|------|------|
| 21 | 56 | 17.6 | 21.5 |
|    | 57 | 7.2  | 11.3 |
|    |    | 34.4 | 38.4 |
| 58 |    | 1.9  | 6.0  |
|    |    | 33.3 | 37.2 |

|    |   |      |      |
|----|---|------|------|
| 22 | 1 | 45.3 | 49.3 |
|    |   | 57.3 | 61.2 |
|    |   | 59.3 | 63.6 |
| 2  |   | 11.5 | 15.4 |
|    |   | 14.2 | 16.1 |

|   |  |      |      |
|---|--|------|------|
| 3 |  | 7.0  | 10.9 |
| 6 |  | 39.4 | 43.1 |
| 8 |  | 6.1  | 10.2 |
|   |  | 11.5 | 15.6 |

|    |  |      |      |
|----|--|------|------|
| 10 |  | 57.7 | 41.8 |
|    |  | 55.1 | 59.2 |
|    |  | 57.4 | 61.5 |
| 11 |  | 15.0 | 29.2 |

|    |  |      |      |
|----|--|------|------|
| 12 |  | 25.3 | 29.2 |
| 13 |  | 7.6  | 11.4 |
|    |  | 14.0 | 17.9 |

|  |  |      |      |
|--|--|------|------|
|  |  | 25.8 | 29.8 |
|  |  | 36.4 | 38.3 |
|  |  | 53.7 | 58.1 |

|    |  |      |      |
|----|--|------|------|
| 14 |  | 57.4 | 63.4 |
| 15 |  | 1.3  | 5.2  |
|    |  | 22.1 | 26.3 |

10 11 5 3

10 26

9 24

5 38

1 26

Break on mirror

6 6

4 49

3 52 n.s.

5 52

6 58 n.s.

D, D

6 9

10 4 40

8 6

3 29

B, B

10-11 0 5

11 5 13

9-10 6 4 n.s.

1 32

7 5

1 38

6 6

9 56

8 03

0 - n.s.

B, D, D

4 5

0 53 n.s. line arm?

3 12

15 ~~32.5~~ 32.5  
 16 4.9 8.7  
 17 48.9 52.9

18 49.9 53.0  
 19 ~~32~~ 32.1 36.0

20 5.7 9.7  
 36.0 40.0  
 38.2 42.0

21 53.3 57.6  
 54.1 58.2

22 39.8 43.7  
 23 34.7 38.8  
 24 [22.7] — clock break

— 20.7  
 25 21.1 25.0  
 50.3 54.0

27 24.8 28.9  
 44.7 48.7

~~28~~  
 28 [9.6] 13.2  
 28 20.3 24.3  
 28 46.5 50.5

29 13.8 17.8

29 — signal and clock break

30 24.8 28.6

31 16.2 18.1

~~47.0~~ ~~50.7~~  
~~49.0~~ 52.3

-0 - fin wire line

7 28

8 8

8 49

3, 3

11 10 47

9 52

11-12 10 4

6 22

9 37

7 6

D D B

10-11 5 54

10 18

0 26 su wire line

10 28 fin wire line

1 38

7 57

11 8 56

5 4

D,

6 22 fin wire?

2 51

8 47

B, B

5 1

11+ 7 24

8 46

3 27

2 25 AP line

5 24

Revising 133 (136 136 2ia)

~~29.3~~

22 25 39.5 33.3  
47.0 51.0  
26 16.2 20.5

21.9 25.9  
~~47~~  
42.0 46.0

28 48.1 52.5  
29 7.3 12.0  
21.7 25.5

30 37.3 41.2  
57.4 61.4  
31 34.3 38.3

32 16.4 20.4  
49.0 52.9  
33 8.5 12.6

43.6 47.4  
54.2 58.0  
34 31.9 36.0

35 34.4 38.0

37 47.3 51.2

38 8.2 12.0  
46.0 50.2

39 5.3 9.4

39 17.5 21.6

40 14.2 18.0

40 26.8 30.8

~~40~~  
40 58.6 62.9

40 41.3 45.3

Sept

Sept 13. 1860

Sept 15-

Wire  
lost.

|       |              |              |                         |
|-------|--------------|--------------|-------------------------|
|       | 6            | 26           |                         |
|       | 4            | 35           |                         |
|       | 5            | 29           |                         |
|       | 9            | 15           | 25                      |
|       |              | 03           |                         |
|       | 8            | 47           |                         |
|       | 6            | 54           |                         |
|       | 1            | -            | nil obs                 |
|       | 4            | 30           | 8? & 1st wire lost      |
| 10    | 8            | 52           |                         |
| 10    | 9            | 97           |                         |
|       | 4            | 26           | sec wire?               |
|       |              |              | D, D, D                 |
| 12    | 8            | 25           |                         |
| 10-11 | 2            | 29           | a line                  |
|       | 5            | 8            |                         |
|       | 5            | 45           |                         |
|       | 10           | 14           | D, 25                   |
| 11-12 | 6            | 16           |                         |
|       | 6            | 16           | 8?                      |
|       | <del>8</del> | <del>2</del> | two or three stars here |
|       | 5            | 0            | 1st wire lost           |
|       | 8            | 1            |                         |
|       | 4            | 18           |                         |
|       | 9            | 1            |                         |
|       | 4            | 14           |                         |
|       |              |              | D, D, D                 |
|       | 8            | 19           |                         |
|       | 7            | 58           |                         |
|       |              | 03           |                         |
|       | 8            | 58           |                         |
|       | 8            | 5            | 2nd wire lost           |

|       |    |    |            |
|-------|----|----|------------|
|       | 6  | 27 |            |
| 10-11 | 4  | 34 |            |
|       | 5  | 29 |            |
|       | 9  | 22 |            |
|       | 8  | 49 |            |
|       |    |    | D, long    |
| 10-11 | 6  | 53 |            |
| 11-12 | 1  | 49 |            |
| 11    | 4  | 28 |            |
|       |    |    | D, D       |
| 9     | 8  | 54 |            |
| 9-10  | 9  | 08 |            |
| 12    | 4  | 28 |            |
|       | 8  | 27 |            |
|       | 2  | 32 |            |
|       | 3  | 9  |            |
|       |    |    | D, D, D    |
|       | 5  | 46 |            |
| 9-10  | 10 | -  |            |
|       | 6  | 18 |            |
|       | 6  | 17 |            |
|       |    |    | D, D, D, D |
|       | 5  | 2  |            |

2<sup>nd</sup> wire?

?

Signals &amp;c.

4.5

|    |      |      |
|----|------|------|
| 41 | 13.6 | 17.7 |
|    | 15.6 | 19.5 |
|    | —    | 22.2 |

|    |      |      |
|----|------|------|
| 44 | 26.1 | 28.0 |
|    | 25.7 | 29.8 |

|    |      |      |
|----|------|------|
| 48 | 44.1 | 48.0 |
| 49 | 51.7 | 55.8 |
| 49 | 41.4 | 45.6 |

|    |      |      |
|----|------|------|
| 50 | 13.7 | 17.7 |
|----|------|------|

|    |      |      |
|----|------|------|
| 50 | 57.6 | 55.6 |
|----|------|------|

|    |      |      |
|----|------|------|
| 50 | 52.3 | 56.3 |
|----|------|------|

|    |     |     |
|----|-----|-----|
| 51 | 4.1 | 9.0 |
|----|-----|-----|

|    |      |      |
|----|------|------|
| 51 | 46.0 | 50.0 |
|----|------|------|

|    |      |      |
|----|------|------|
| 51 | 44.0 | 54.2 |
|----|------|------|

|    |      |      |
|----|------|------|
| 52 | 24.7 | 28.5 |
|----|------|------|

|  |      |      |
|--|------|------|
|  | 36.8 | 38.7 |
|--|------|------|

|  |      |      |
|--|------|------|
|  | 57.3 | 61.3 |
|--|------|------|

|    |      |      |
|----|------|------|
| 53 | 49.6 | 53.6 |
|----|------|------|

|    |      |      |
|----|------|------|
| 54 | 40.7 | 44.6 |
|----|------|------|

|    |      |      |
|----|------|------|
| 55 | 53.3 | 57.3 |
|----|------|------|

|    |     |     |
|----|-----|-----|
| 56 | 0.3 | 4.4 |
|----|-----|-----|

|  |      |      |
|--|------|------|
|  | 14.5 | 18.6 |
|--|------|------|

|  |      |      |
|--|------|------|
|  | 37.5 | 41.4 |
|--|------|------|

|    |      |      |
|----|------|------|
| 57 | 18.0 | 21.9 |
|----|------|------|

|    |      |      |
|----|------|------|
| 57 | 45.4 | 49.3 |
|----|------|------|

51  
52  
53

Wire  
lost.

|    |                   |                                  |       |        |    |                      |
|----|-------------------|----------------------------------|-------|--------|----|----------------------|
|    | 10. 20            |                                  |       | 10     | 28 |                      |
|    | 7 14              | } ? ? in winter but, n.s. to see |       | 7      | 10 | n.s.                 |
|    | 9 12              |                                  |       | 9      | 10 | 1 n.s.               |
|    |                   |                                  |       | 03,    |    |                      |
| 12 | 10 30             |                                  |       |        |    |                      |
|    | 6 6               |                                  |       |        |    |                      |
|    | 6 8               |                                  |       | 6      | 8  |                      |
|    | 2 22              | n.s.                             |       | 2      | 30 | AR? Dec? Lamp fueled |
|    | 03                |                                  |       |        |    |                      |
|    | 5 47              |                                  |       |        |    |                      |
|    | 4 -               | here, not obs                    |       |        |    |                      |
|    | 1 21              |                                  |       |        |    |                      |
|    | 5 3               |                                  |       |        |    |                      |
|    | 8 43              | ?                                |       |        |    |                      |
|    | 2, long           |                                  |       |        |    |                      |
|    | 8 13              |                                  | 12    | 8      | 13 |                      |
|    | 2 32              |                                  |       | 2      | 30 |                      |
|    | 10 -              | not obs (all night)              |       | 10     | 0  |                      |
|    | 9 08              |                                  |       | 9      | 8  |                      |
|    | 8 10              |                                  |       | 8      | 10 |                      |
|    | 7 57              |                                  |       | 7      | 58 |                      |
|    |                   |                                  |       | 0      | 8  | 2                    |
|    |                   |                                  |       | 1      | 40 |                      |
|    | 2 57              |                                  |       | 2      | 52 | *                    |
|    | 2 1/2 with no obs |                                  |       | 11     | 08 |                      |
|    | 9 19              |                                  |       | 9      | 19 |                      |
|    | 4 04              |                                  |       | 4      | 3  |                      |
|    | 03, 0.03          |                                  |       | 0      | 22 |                      |
|    | 4 39              |                                  | 11-12 | 4      | 38 |                      |
|    | 8 41              |                                  |       |        |    |                      |
|    | 2 22              |                                  | 10-10 | 8      | 37 |                      |
|    | 3 0 & ?           |                                  |       | 03, 03 |    |                      |
|    |                   |                                  | 11    | 3      | 1  |                      |
|    | 5 34 (n.s.?)      |                                  |       |        |    |                      |
|    | 7 08              |                                  | 9     | 5      | 34 |                      |
|    | 1 14              |                                  | 10-11 | 7      | 11 |                      |
|    | 03                |                                  |       | 0      | 26 |                      |
|    |                   |                                  |       | 1      | 16 |                      |
|    |                   |                                  |       | 0      | 12 |                      |

|      |      |                |
|------|------|----------------|
| 58   | 12.8 | 16.6           |
|      | 27.3 | 31.3           |
| 59   | 2.2  | 6.3            |
| 28 0 | 2.2  | 6.0            |
|      | 36.9 | 40.7           |
|      | 45.9 | 50.0           |
|      | 55.3 | 59.2           |
| 1    | 23.9 | 28.0           |
| 1    | 33.1 | 37.1           |
|      | 52.0 | 55.8           |
| 2    |      | 1.9            |
| 2    | 27.0 | 31.1           |
| 3    | 16.0 | 19.9           |
| 3    | 56.3 | 60.4           |
| 4    | 22.2 | 26.3           |
| 5    | 13.1 | 16.9           |
| 5    | 3.4  | <del>7.7</del> |
| 6    | 11.0 | 15.0           |
| 6    | 27.4 | 32.6           |
| 6    | 31.4 | 35.3           |
| 7    | 14.7 | 18.4           |
| 9    | 18.3 | 22.4           |
| 9    | 43.4 | 47.7           |
| 10   | 3.9  | 7.9            |
| 10   | 19.3 | 23.3           |
| 10   | 22.0 | 26.2           |

9-10 7 4 sec wire wrong  
5 42  
9 10 see wire but

9 2  
3 13 see wire but  
2 35  $\delta?$

10 10 48  
10 6 43  
03

8 58 ? $\delta$   
11 7 20  
11-12 3 47

~~0 58~~

7 58  
9 19  
 $\delta$  long

1 53  
1 6 n.s.  $\delta?$   
03

6 18  
4 28  
6 32

6 04  
5 20 n.s.  
 $\delta$  n.s.

5 35  
0 56  $\delta?$   
5 25

1 30  
6 22  
6 5 n.s.

10-11 7 5  
9 5 40

9 15  
 $\delta$ . B, B

11 9 1  
3 12  
2 32

10 50  
6 42

10 5 57  
9-10 7 24  
3 50 1

7 57  
 $\delta$ . B, B  
9 18

1 50  
1 7  
 $\delta$ . B, B

6 16  
10 4 19  
10 6 34

10-11 6 8  
10 5 23  
 $\delta$

5 35  
0 50  
5 22

1 27  
6 20  
6 6

n.s.

Wire  
act



|       |    |       |                                            |  |          |  |                            |
|-------|----|-------|--------------------------------------------|--|----------|--|----------------------------|
|       | 7  | 50    |                                            |  | 20 65    |  |                            |
|       | 9  | 36    |                                            |  | 7 55     |  | 1 <sup>st</sup> wire wrong |
|       | 3  | 2     |                                            |  | 9 39     |  |                            |
|       |    |       |                                            |  | 3 8      |  |                            |
|       | 2  | 19    | n.s.                                       |  |          |  |                            |
|       | 3  | 18    |                                            |  | 3 26     |  |                            |
|       | 8  | 54    | spin wire loose                            |  | 9 1      |  |                            |
|       | 6  | 04    |                                            |  | 6 12     |  |                            |
|       |    |       | dots for one minute                        |  | 03       |  |                            |
|       |    |       | Meteor from n.f. h.s. p. 20° west vertical |  |          |  |                            |
| 11-12 | 6  | 29    |                                            |  | 6 38     |  |                            |
| 10    | 10 | 41    |                                            |  | 10 49    |  |                            |
| 11    | 7  | 00    |                                            |  | 7 7      |  |                            |
|       |    |       | B.B.                                       |  |          |  |                            |
| 11    | 7  | 13    |                                            |  | 7 24     |  |                            |
|       | 8  | 14    |                                            |  | 8 23     |  |                            |
|       | 8  | 6     |                                            |  | 8 03 17  |  |                            |
|       | 7  | 50    | n.s.                                       |  | 7 59     |  | n.s.                       |
|       | 1  | 0     | see wire loose                             |  | 0 21     |  |                            |
|       | 9  | 56    |                                            |  | 10 8     |  |                            |
|       | 6  | 3     |                                            |  | 6 13     |  |                            |
|       | 3  | 00 32 |                                            |  | 03 03 36 |  |                            |
| 10-11 | 10 | 31    |                                            |  | 10 38    |  |                            |
|       | 2  | 48    |                                            |  | 2 56     |  |                            |
|       | 9. |       |                                            |  | B.B.     |  |                            |
|       | 10 | 05    | false break between wires                  |  | 10 16    |  |                            |
|       | 5  | 28    |                                            |  | 10 14    |  |                            |
| 10-11 | 7  | 22    |                                            |  | 5 38     |  |                            |
|       | 6  | 24    | sun                                        |  | 03 03 33 |  |                            |
|       | 9  | 18    |                                            |  | 7 33     |  |                            |
|       |    |       |                                            |  | 4 50     |  |                            |
|       |    |       |                                            |  | 6 16     |  |                            |
|       |    |       |                                            |  | 9 28     |  |                            |
| 9-10  | 8  | 9     |                                            |  | 8 20     |  | n.s.                       |
| 7-10  | 3  | 53    |                                            |  | 4 0      |  |                            |
| 8-9   | 6  | 6     |                                            |  | 6 15     |  |                            |

10

8

9

9

8

7 26

4 53

B. B. B.

6 43

9 45 8?

9 33

1 16

Lamp went out

7 39

10-11 1 18

1 23

see wire line

8-9 9 4

first wire line

9-10 8 9

9-10 3 47

8-9 3 29

0 53

B. B. B. B.

7 55

2 55

8 51

7 27

7 6

1 54

236 = 22 16 1.0

16 4.8

B

7 27

5 3

6 54

9 48

9 38

1 20

no 8?

7 34

9 34

9 38

false break

no

Dots

1 25

9 12

8 16

D D

3 36

3 38

1 11 1

8 6

3 5

9 4

P?

9 39

7 —

2 —

~~1/2~~ ~~1/2~~ ~~1/2~~

~~In the center~~

10 47  
11 31  
22 4 15  
22 1 45  
21 29 45  
22 21  
19 47  
2 30  
17 40  
50 27  
26

Zone 133 etc. occurs following this

23 2 9.70 137  
10.90

2 27.80 10mg.

2 30.11 (11.12)

2 39.75 (12)

0 41 58.

44 00

47 57

41 12

40 44

This Dec chart is 40' 3.8"

All right except the above

1861 Oct 10.

236 = 22  
36 30.0  
37 19.0  
39 22.7  
39 48.0  
40 8.0  
40 24.0  
40 27.0

(A)

42 47.8  
42 55.1 a\* fol. 2.5 and Nuth 10"  
43 22.6 (B)

44 51.0  
45 1.5  
46 48.2

48 19.8  
48 35.2  
50 15.6  
52 7.8

(C)

1 17.7  
1 30.2

22 50 5.1  
22 57 3.1

10 25.6

10 37.0

10 53.0

12 13.4

12 19.7

(2)

12 52.4

13 5.8

14 15.0

14 16.0

This the wrong star, the right is in 14<sup>h</sup> 18<sup>m</sup>

15 7.0

Revision of [134 135]

Oct 16, 1860

7. H. S. etc.

Angle of Pos. 264° 22' or 84° 21'

236 = 21 35 41.0

35 53.2

2' 0

11 12

44 56.7

45 9.0

~~24.2~~

Revised

56 48.0

52.0

59.9

4.0

Chas. Linn

P.A.

2.134

9 may

21 59 54.2

9 27

(1)

3 39.2

21 26 26.1

8 40

(2)

3 57.8

44.7

0 4

(3)

5 31.0

28 17.9

2 50

(4)

5 45.6

28 32.5

4 52

(5)

6 27.2

29 14.1

7 6

(6)

6 36.3

27 23.2

8 24

(7)

7 24.0

30 10.9

4 3

(8)

7 44.2

30 31.1

7 38

(9)

8 27.2

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5 41

(10)

8 31.0

31 17.9

6 48

(11)

8 48.6

31 35.5

1 22

Oct. 16, 1860.

|      |                 |                                |      |           |    |      |     |     |
|------|-----------------|--------------------------------|------|-----------|----|------|-----|-----|
| (12) | 22 <sup>4</sup> | 9 <sup>5</sup>                 | 16.1 | 21        | 31 | 3.0  | 4   | 27  |
| (13) |                 | 10                             | 14.1 |           | 33 | 1.0  | 7   | 11  |
| (14) |                 | fol (13) about 18 <sup>5</sup> |      |           |    |      | 6   | 19  |
| (15) |                 | 11                             | 46.8 |           | 34 | 33.7 | 8   | 12  |
| (16) |                 | 11                             | 56.1 |           | 34 | 48.0 | 2   | 8   |
| (17) |                 | 14                             | 51.1 |           | 36 | 52.0 | 9   | 41  |
| (18) |                 | 14                             | 57.7 |           | 37 | 44.6 | 6   | 48  |
| (19) |                 | 16                             | 51.6 |           | 38 | 52.5 | 10  | 44  |
| (20) |                 | 16                             | 18.7 |           | 39 | 5.6  | 8   | 59  |
| (21) |                 | 16                             | 57.5 |           | 39 | 44.4 | 4   | 37  |
| (22) |                 | 17                             | 28.2 |           | 40 | 15.1 | 9   | 31  |
| (23) |                 | 17                             | 30.7 |           | 40 | 17.6 | 7   | 8   |
| (24) |                 | 19                             | 46.8 |           | 42 | 33.7 | + 0 | -22 |
| (25) |                 | 20                             | 12.0 |           | 42 | 58.9 | 0   | 41  |
| (26) |                 | 20                             | 14.0 |           | 43 | 0.9  | 5   | 13  |
| (27) |                 | 20                             | 51.0 |           | 43 | 37.9 | 4   | 58  |
| (28) |                 | 20                             | 58.0 |           | 43 | 44.9 | 8   | 18  |
| (29) |                 | 21                             | 13.7 |           | 44 | 0.6  | 2   | 20  |
| (30) |                 | 22                             | 5.0  |           | 44 | 57.9 | 7   | 41  |
| (31) |                 | 22                             | 42.1 |           | 45 | 29.0 | 2   | 50  |
| (32) |                 | 24                             | 8.0  |           | 46 | 54.9 | 1   | 41  |
| (33) |                 | 24                             | 32.2 |           | 47 | 19.1 | 0   | 18  |
| (34) |                 | 24                             | 41.5 |           | 47 | 28.8 | 5   | 51  |
| (35) |                 | 25                             | 28.7 |           | 48 | 15.6 | 10  | 34  |
| (36) |                 | 26                             | 37.8 |           | 49 | 24.7 | 3   | 49  |
| (37) |                 |                                | 54.0 | (double?) | 49 |      | 9   | 55  |
| (38) |                 | 27                             | 4.2  |           | 49 | 57.1 | 9   | 20  |
| (39) |                 | 27                             | 38.8 |           | 50 | 25.7 | 8   | 56  |
| (40) |                 | 28                             | 12.0 |           | 50 | 58.9 | 7   | 6   |
| (41) |                 | 28                             | 15.0 |           | 51 | 1.9  | 3   | 59  |
| (42) |                 | 28                             | 44.8 |           | 51 | 31.7 | 9   | 35  |
| (43) |                 | 28                             | 48.1 |           | 51 | 35.0 | 2   | 38  |
| (44) |                 | 29                             | 33.0 |           | 52 | 19.9 | 2   | 41  |
| (45) |                 | 29                             | 39.9 |           | 52 | 26.8 | 9   | 38? |
| (46) |                 | 30                             | 24.7 |           | 53 | 11.6 | 3   | 26  |
| (47) |                 | 30                             | 36.0 |           | 53 | 22.9 | 7   | 44  |
| (48) |                 | 30                             | 45.8 |           | 53 | 32.7 | 4   | 19  |
| (49) |                 | 30                             | 57.1 |           | 53 | 44.0 | 0   | 21  |
| (50) |                 | 31                             | 19.7 |           | 54 | 6.6  | 6   | 46  |
| (51) |                 | 31                             | 43.5 |           | 54 | 20.4 | 7   | 26  |

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22 48 10.0 7  
48 27.2

6 12  
2 38

22 50 19.6 1 44  
50 26.8 7 8  
50 42.3 10 8

28 17.7

(11) 22 53 16.6 22 14 58.9 5 9  
(12) 18.6 15 0.9 11 0  
(13) 29.0 15 21.3 3 47  
(14) 50 45.2 15 27.5 - 0 5  
(15) 54 22.0 16 4.6 7 28

(16) 57 6.0 18 48.3  
(17) 57 48.6 19 21.9 8 56  
(18) 58 22.0 20 5.3 10 0  
(19) 58 53.0 20 24.3 9 57  
(20) 58 53.0 20 27.3 10 12  
(21) 58 53.0 20 27.3 6 28

(11) 23 0 56.7 22 39.0 6 2  
(12) 1 52.0 20 34.3 10 25  
(13) 2 29.8 24 22.1 0 27  
(14) 2 42.0 24 25.3 10 30  
(15) 3 37.2 25 19.5 1 46  
(16) 4 7.1 25 49.4 4 7  
(17) 4 51.6 26 22.9 6 12  
(18) 5 42.0 27 24.0 9 4  
(19) 5 58.7 29 21.0 5 9









