

KG  
11366  
v. 318



















Oberon Atlas Abap.  
 Reg. Decl. 8.30 July 1883

Scorpius (Lail)  
 Brighter nearby d is full gl

$c = 4.6$   
 $c = 5.5$  ag.  
 d not visible  
 eye d = g

8.40  
 8.40  
 8.40

Argulus

$c = 4.6$   
 $c = 4.5$  Argulus  
 $c = 4.6$  Argulus

8.48 c = 0  
 h = p Arg.  
 i = n Arg.  
 j = c Arg.  
 c = k Scorpi.  
 d = i, Scorpi.  
 e = v Sagitt.  
 f = p "  
 g = d "

Result: Alt. 4.0 2.0  
 2.9 2.3



Aug. 11, 1883,

Region of R' Bootis S. obs.

| g 20 | h | Time (B. 20h)     | T                 | $\delta$          | Magn. |
|------|---|-------------------|-------------------|-------------------|-------|
|      |   | 0 <sup>3</sup> .0 | 0 <sup>5</sup> .0 | 0 <sup>3</sup> .0 | 8.5   |
|      |   | 6.0               | 6.0               | 6.0               | 9.5   |
|      |   | 14.0              | 13.5              | 13.7              | 2.7   |
| R    |   | 48.7              | 49.5              | 49.2              | 10.0  |
|      |   |                   |                   |                   | 8.2   |

Nothing following.

|    |                   |                   |                   |      |      |
|----|-------------------|-------------------|-------------------|------|------|
|    | 0 <sup>3</sup> .0 | 0 <sup>5</sup> .0 | 0 <sup>3</sup> .0 | 10.0 | 10.7 |
| R  | 8.5               | 8.5               | 8.5               | 0.3  | 11.2 |
| R  | 20.0              | 20.0              | 20.0              | 0.0  | 8.2  |
| p? | 21.5              | 21.5              | 21.5              | 10.2 | 12.0 |
| l  | 31.7              | 31.7              | 31.7              | 2.2  | 11.8 |
| m  | 41.0              | 41.0              | 40.8              | 12.6 | 6.0  |

Check of right ascensions.

|   |                 |                 |      |                      |                 |                 |      |      |
|---|-----------------|-----------------|------|----------------------|-----------------|-----------------|------|------|
| R | 19 <sup>h</sup> | 14 <sup>m</sup> | 44.8 | <del>40.0</del> 50.0 | 19 <sup>h</sup> | 20 <sup>m</sup> | 52.3 | 0.0  |
| R |                 | 15              | 22.7 | 37.9                 |                 | 21              | 29.5 | 37.2 |
| R |                 |                 | 34.3 | 49.5                 |                 |                 | 41.6 | 49.3 |
| l |                 |                 | 45.8 | 61.0                 |                 |                 | 53.3 | 61.0 |

Too much moonlight for this region; will probably need revision.

Looked at  $\alpha$  Virginis early in the evening but could see so few stars near it that it is evidently useless to observe the region to form a chart this season.



Aug. 21. 1883.

Peters' New Asteroid <sup>(234)</sup> (9 mag.) Notes.

$$\begin{array}{r} * \quad 21 \quad 14 \quad 43 \quad -14 \quad 46 \quad 53 \\ \quad 19 \quad 35 \\ \hline \quad -1 \quad 44 \end{array}$$

$$\begin{array}{r} 19 \quad 41.5 \\ 21 \quad 19 \\ \hline -1 \quad 34 \end{array}$$

$$\begin{array}{r} 19 \quad 45 \\ 21 \quad 19 \\ \hline -1 \quad 34 \end{array}$$

$$\begin{array}{r} 20 \quad 5 \\ 21 \quad 19 \\ \hline -1 \quad 14 \end{array}$$

$$\begin{array}{r} 20 \quad 17 \\ 21 \quad 19 \\ \hline -1 \quad 2 \end{array}$$

$$\begin{array}{r} 20 \quad 20 \\ 21 \quad 19 \\ \hline -1 \quad 59 \\ 20 \quad 24 \\ 21 \quad 19 \\ \hline -1 \quad 54 \end{array}$$

$$\begin{array}{r} * \quad 21 \quad 14 \quad 0 \quad -15 \quad 33 \quad 14 \\ \quad \quad +1 \quad 33 \quad \quad \quad +1 \quad 14 \\ \hline * \quad 21 \quad 15 \quad 33 \quad -15 \quad 25 \quad 0 \\ \quad \quad 21 \quad 15 \quad 56 \quad -15 \quad 19 \\ \hline \quad \quad \quad +23 \quad \quad \quad +6 \end{array}$$

Aug. 21. 1883.

0 Sec. 0'  
17 9  
54.5 5.8

0 0  
17 9  
54.7 5.8

~~25.7~~  
250.6

47/64 (1.45  
47  
210 580  
118 290  
22 36.80

3A 2V

47/31.4 (.22  
376 24  
20 324  
164  
19.6A

~~25~~

~~4 10~~

19

34.4  
7  
24 3.6  
3  
240.6

19.7  
137.9  
1.7  
136.2

- 4 1  
21 19 40  
21 15 39

- 2° 16'  
13 7.6  
- 15 23.6



Aug. 21, 1863.

$$\begin{array}{r}
 21 \quad 14 \quad 0 \quad -15 \quad 33 \quad 14 \\
 + \quad 1 \quad 33 \quad + \quad + \quad 14 \\
 \hline
 21 \quad 15 \quad 33 \quad -15 \quad 25 \quad 0 \\
 \hline
 21 \quad 15 \quad 39 \quad -15 \quad 23 \quad 36 \\
 + \quad 6 \quad + \quad 1 \quad 24
 \end{array}$$

Asteroid found, in about ~~pos.~~  
 Pos. Zero 36.2 computed position  
 45.  
 A 1.2

27.7

32.5

52.2

54.5

$$\begin{array}{r}
 22 \quad 27 \\
 1 \quad 14 \\
 \hline
 21 \quad 13
 \end{array}$$

0 51.2 33.3  
 \* 59.0  
 \* 14.6 19.6  
 0 24.5

0 16.5 33.0  
 \* 24.1  
 \* 44.0 19.9  
 0 49.5

Transits for motion.

Aug. 21. 1863.

22<sup>h</sup> 33<sup>m</sup> ~~14.2~~  
 18.2  
 20.5  
 46.2  
 50.0

35 ~~4.7~~  
 41.2

Transits.

~~22<sup>h</sup> 57<sup>m</sup> 38.0~~ W. Obs. + Obs of Chron.  
~~43.5~~ B. Recorder

|                                |      |                |                   |
|--------------------------------|------|----------------|-------------------|
| 23 <sup>h</sup> 0 <sup>m</sup> | 19.0 | 3 <sup>m</sup> | 19.3 <sup>s</sup> |
|                                | 24.0 |                | 24.6              |
|                                | 38.7 |                | 38.5              |
|                                | 39.0 |                | 39.0              |

|    |   |      |   |      |
|----|---|------|---|------|
| 23 | 1 | 13.0 | 4 | 3.6  |
|    |   | 18.0 |   | 8.7  |
|    |   | 32.5 |   | 22.6 |
|    |   | 33.0 |   | 23.2 |

|                |       |                |                   |
|----------------|-------|----------------|-------------------|
| 2 <sup>m</sup> | 6.2   | 4 <sup>m</sup> | 56.7 <sup>s</sup> |
|                | 1.0   | 5 <sup>m</sup> | 1.2               |
|                | 6.2   |                | 15.5              |
|                | 20.2  |                | 16.0              |
|                | 21.80 |                |                   |



6

Aug. 21. 1883.

|                 |                |      |    |      |
|-----------------|----------------|------|----|------|
| 23 <sup>h</sup> | 5 <sup>m</sup> | 47.7 | 10 | 9.6  |
|                 |                | 52.6 |    | 14.2 |
|                 | 6 <sup>m</sup> | 7.5  |    | 28.6 |
|                 |                | 8.0  |    | 29.5 |

|                |      |    |      |
|----------------|------|----|------|
| 6 <sup>m</sup> | 41.0 | 11 | 2.6  |
|                | 46.0 |    | 7.5  |
| 7 <sup>m</sup> | 0.1  |    | 21.5 |
|                | 0.6  |    | 22.7 |

|                |      |                 |      |
|----------------|------|-----------------|------|
| 7 <sup>m</sup> | 27.2 | 12 <sup>m</sup> | 21.7 |
|                | 32.1 |                 | 26.7 |
|                | 46.6 | 12 <sup>m</sup> | 40.6 |
|                | 47.0 |                 | 41.8 |

|                |      |    |      |
|----------------|------|----|------|
| 8 <sup>m</sup> | 21.6 | 14 | 5.7  |
|                | 26.0 |    | 10.3 |
|                | 40.4 |    | 24.4 |
|                | 41.0 |    | 26.0 |

|                |                 |    |                 |      |
|----------------|-----------------|----|-----------------|------|
| 9 <sup>m</sup> | <del>12.0</del> | 17 | <del>26.0</del> | 18.0 |
|                | <del>16.6</del> |    | <del>31.2</del> | 22.5 |
|                |                 |    | <del>44.7</del> | 36.5 |
|                |                 |    | <del>46.6</del> | 38.5 |

Aug. 21. 1883.

Chron. used in preceding  
Transits was B. 236.

~~Order 0 \* 0 \*~~

Order 234 \* 234 \*

Both in southern half of square.

Comp. star pos. at 2133A (mag.)

Bond 236.

|    |    |      |
|----|----|------|
| 23 | 35 | 27.1 |
|    | 36 | 27.2 |

Bond 394

|    |    |     |
|----|----|-----|
| 13 | 37 | 0.0 |
|    | 38 | 0.0 |



Aug. 22. 1883,  
 Peters' New Asteroid (234) Tr. obs.  
 Pos. Last night.

$$\begin{array}{r} 21 \quad 16 \\ 20 \quad 37 \\ \hline - \quad 39 \end{array}$$

$$-15 \quad 19 \quad \neq$$

$$\begin{array}{r} 21 \quad 15 \\ 20 \quad 50 \\ \hline 0 \quad \overset{2}{\cancel{5}}5 \end{array}$$

$$2^m \quad 15^s$$

$$\begin{array}{r} 0^m \quad 36^s \\ 1^m \quad \overset{3}{\cancel{4}}9^s \\ \hline 24 \\ 1 \quad 15 \\ \hline 20 \\ 0 \quad 55 \end{array}$$

$$\begin{array}{r} 2 \quad 15 \\ \hline 37 \\ 1 \quad 38 \\ \hline 24 \\ 1 \quad 14 \\ \hline 20 \\ 0 \quad 54 \end{array}$$

$$\begin{array}{r} 32' \text{ South} \\ 5' \\ \hline 27' \\ 12' \\ \hline 15' \text{ South} \\ 14' \\ \hline 1' \end{array}$$

$$\begin{array}{r} 32' \\ 5' \\ \hline 27' \\ 12' \\ \hline 15' \\ 14' \\ \hline 1' \end{array}$$

Aug. 22, 1883.

$$\begin{array}{r} 21 \quad 38 \\ 21 \quad 16 \\ \hline + 17 \\ \hline \end{array}$$

$$\begin{array}{r} 2^m \quad 15^s \quad 27' \\ \quad \quad 26 \quad 14' \\ \hline 2 \quad 49 \\ 1. \quad 43 \end{array}$$

$$\begin{array}{r} 16.5 \\ 2.7 \\ \hline \end{array} \quad \begin{array}{r} 4' \\ 5.8' \end{array}$$

declin. 3.8 } at 22<sup>h</sup> 8<sup>m</sup>.  
4.8

$$\begin{array}{r} 0^0 \quad 83.3 \\ 45 \\ \hline 0^0 \quad 128.3^0 \end{array}$$

Order Star, Asteroid, Asteroid, Star. Both in Southern half of square.

Asteroid follows star fifteen seconds & is from 4.5 south of it.

Comp. star = Oe. A. ~~at~~ Southern Cross  
No. 21323 (mag.)

Use last 10 sets rejecting those followed by long rattles.



Aug. 24. 1883.

Peter's New Asteroid, (234) W. obs.

$$\begin{array}{r} 21 \quad 16 \quad -14.8 \\ 20 \quad 57 \\ \hline -19 \end{array}$$

$$\begin{array}{r} 21 \quad 16 \\ 20 \quad 59 \quad 30 \\ \hline -16 \quad 30 \end{array}$$

18' same time.

27' foll. 11<sup>s</sup>.

40' = 7<sup>s</sup>

precedes 2.5<sup>s</sup> 2.1' south

" 1.5<sup>s</sup> 0.5' north.

follows 7.5<sup>s</sup>, a little south.

Asteroid precedes companion star 59<sup>s</sup> and is 8' north

$$\begin{array}{r} 0 \quad 77.9 \\ 45.0 \\ \hline 182.9 \end{array}$$

Order, Asteroid, Asteroid, Star, Star.

Asteroid in northern half, Star in southern half of square.

Used Frochham 1327 on Chronograph

Aug. 24, 1883.

Comp. star beltgens' Southern Cross.  
# 21325 (mag. 4)



August 25, 1883.

*I Herculis*

Wobs.

18 4 + 31.0  
 20 55  
 2 51

*I Herculis* found - region  
 thoroughly identified - estimated  
 magnitude 10.6.

0.7 of a magn. fainter than a  
 star which precedes it 4 seconds  
 and is one minute north.

| $t$       | decl. | magn      |
|-----------|-------|-----------|
| 56        | 8.5   | 7.5 7.0   |
| 57 27.2   | { 7.8 | 12 11.5   |
| 11.2 23.0 | { 7   | 13 12     |
| 13.2      | 3     | 13.5 13   |
| 30.6      | { 6.3 | 13 12.4   |
|           | { 5.2 | 13.8 12.9 |
| 36.4      | 9     | 10.3 10.0 |
| 42.4      | { 2.9 | 10.5 10.6 |
|           | { 7.5 | 13.8 13.0 |
|           | 18    | 13.8 13.0 |
| 5-5.0     | 10    | Var Var   |
| 0.0       | 7.2   | 14.5 13.5 |
| 24.2      | 9     | 15 14.0   |
| 34.0      | 8     | 14.9 14.0 |
| 46.2      | 7     | 14.5 13.8 |

August 25, 1883

|    | t |                  | decl  | magn               |
|----|---|------------------|-------|--------------------|
| 22 | 3 | 14.0             | 8.5   | 7.0                |
|    |   | 19.1             | { 7.8 | 11.5               |
|    |   | 23.2             | { 7   | 12                 |
|    |   | <sup>29</sup> 29 | 3     | 13                 |
|    |   | 38.8             | { 6.3 | <sup>14</sup> 12.4 |
|    |   |                  | { 5.2 | 12.9               |
|    |   | 44.0             | 9     | 10.0               |
|    |   | 51.8             | { 2.9 | 10.6               |
|    |   |                  | { 7.5 | 13.0               |
|    | 4 | 3.1              | 1.8   | 13.0               |
|    |   | 8.0              | 10    | Var.               |
|    |   | 18.3             | 7.2   | 13.5               |
|    |   | 32.3             | 9     | 14.0               |
|    |   | 42.0             | 8     | 14.0               |
|    |   | 54.5             | 7     | 13.8               |

Same again

|    |                    |      |       |                    |
|----|--------------------|------|-------|--------------------|
| 9  | 51.5               | 12.3 | 8.5   | 7.0                |
|    | 5-7.7              | 19.0 | { 7.8 | 11.5               |
|    |                    |      | { 7   | 12                 |
| 10 | 1.5                | 38.4 | 3     | 13                 |
|    | <sup>6.5</sup> 6.5 |      | { 6.3 | <sup>14</sup> 12.4 |
|    | 16.3               | 44   | { 5.2 | 12.9               |
|    | 22.2               | 44.0 | 9     | 10.0               |
|    | 28.8               | 53.0 | { 2.9 | 10.6               |
|    |                    |      | { 7.5 | 13.0               |
|    | 40.4               | 2.4  | 1.8   | 13.0               |
|    | 45.3               | 7.7  | 10.0  | Var                |
|    | 56.2               |      | 7.2   | 13.5               |



August 25 1883

|    |      |   |      |
|----|------|---|------|
| 11 | 11.0 | 9 | 14.0 |
|    | 20.0 | 8 | 14.0 |
|    | 32.2 | 7 | 13.8 |

Other side

| t                               |      |    | s  | magn |     |      |
|---------------------------------|------|----|----|------|-----|------|
| 22 <sup>h</sup> 18 <sup>m</sup> | 20.0 | 22 | 16 | 51.3 | 0   | 14   |
|                                 | 24.8 |    |    | 57.5 | 6   | 13.9 |
|                                 | 28.5 |    |    | 10.7 | { 7 | 13.8 |
|                                 |      |    |    |      | 9   | 13.9 |
|                                 | 33.2 |    |    |      | 1   | 13.7 |
|                                 | 46.0 |    |    |      | 6   | 13.5 |
|                                 | 51.8 |    |    |      | 10  | 10.2 |
|                                 | 56.2 |    |    |      | 2.8 | 13   |
|                                 | 58.4 |    |    |      | 2.5 | 13   |
|                                 | 59.0 |    |    |      | 4   | 13.3 |
| 19                              | 5.3  |    |    |      | 1.8 | 13.5 |
|                                 | 10.0 |    |    |      | 9   | 13.5 |
|                                 | 19.0 |    |    |      | 7   | 13   |
|                                 | 28.8 |    |    |      | 4   | 11   |
|                                 | 30.8 |    |    |      | 7.2 | 12.9 |
|                                 | 35.8 |    |    |      | 2.5 | 13   |
|                                 | 40.5 |    |    |      | 1.8 | 13.8 |
|                                 | 44.8 |    |    |      | 7   | 13.5 |
|                                 | 47.9 |    |    |      |     |      |

August 25, 1883 -  
Same again

|    |               |                |               |
|----|---------------|----------------|---------------|
| 25 | 22.3          | 0              | 14            |
|    | 28.0          | 6              | 13.9          |
|    | 30.8          | { 7            | 13.8          |
|    |               | { 9            | 13.9          |
|    | 35.5          | 1              | 13.7          |
|    | 48.5          | 6              | 13.5          |
|    | 55.0          | 1              | 10.2          |
|    | 58.7          | 0              | Var           |
| 26 | 18            | 2.8            | 13            |
|    | <del>40</del> | <del>2.5</del> | <del>13</del> |
|    | 8.2           | 4              | 13.3          |
|    | 11.7          | 1.8            | 13.5          |
|    | 20.3          | 9              | 13.5          |
|    | 30.2          | 7              | 13            |
|    | 32.5          | 4              | 11            |
|    | 37.5          | 7.2            | 12.9          |
|    | 40.9          | 2.5            | 13            |
|    | 45.2          | 1.8            | 13.8          |
|    | 48.4          | 7              | 13.5          |



August 27, 1883.

Series L.

Revision of Vol. VI. S. obs.

Began with star at  $17^h 30^m 0^s$

" at  $20^h 26^m 0^s$

|               |               |               |               |      |               |                 |  |
|---------------|---------------|---------------|---------------|------|---------------|-----------------|--|
| 9.7           | b $20^h 30^m$ | b $20^h 36^m$ |               |      |               |                 |  |
| 9.7           | 78            | 8.2           | 5.6           | 10   | 4.0           | 0.5             | } Only one signal here<br>on chronograph sheet.<br>The same occurs on<br>July 26, 1883. See record<br>for that date. |
| 0.8           | 9.7           | 8.2           | 7.7           | 5.8  | 20            | 1.2             |  |
| 8             | 9.5           | 7.8           | 9.0           | 7.8  | {50.40}       | 12              |  |
| 7.2           | 9.7           | 5.7           | 5.6           | 5.8  | {40.50}       | 5               |  |
| 3.0           | 9.5           | 5.7           | 9.0           | 7.8  | 20            | b $21^h 0^m$    |  |
| 24 {9.8}      | 3.0           | 9.8           | 1.7           | 10.5 | a $20^h 54^m$ | Ended with      |  |
| {7.2}         | 30            | 7.8           | 1.7           | 6.8  | 20            | star at         |  |
| 30            | a $20^h 34^m$ | 2.8           | 2.7           | 10.5 | 5.4           | $18^h 3^m 50.6$ |  |
| 9.8           | 3.4           | 9.8           | 5.0           | 8.5  | 1.8           |                 |  |
| a $20^h 28^m$ | 3.6           | 2.8           | 5.0           | 6.5  | 6.8           |                 |  |
| 4.0           | 3.4           | 11.0          | 2.7           | 8.5  | 1.8           |                 |  |
| 8.0           | 3.6           | 5.5           | 5.3           | 3.5  | 5.4           |                 |  |
| 0.7           | 0.4           | 7.0           | 7.7           | 3.8  | 11.0          |                 |  |
| 4.0           | 4             | 4.8           | 5.3           | 3.5  | 6.8           |                 |  |
| 8.0           | 0.9           | 5.5           | 7.5           | 3.8  | 11.0          |                 |  |
| 9.0           | 5.3           | 7.0           | 7.7           | 8.0  | b $20^h 55^m$ |                 |  |
| 5.5           | 6.8           | 4.7           | 7.5           | 10.3 | 3.8           |                 |  |
| 7             | 9             | 4.8           | b $20^h 47.2$ | 8.5  | 3.8           |                 |  |
| 9.0           | 5.3           | 4.7           | 5.5           | 10.3 | 4.7           |                 |  |
| 5.5           | 6.8           | a $20^h 43.5$ | 6.5           | 8.0  | 10.0          |                 |  |
| 8.8           | 3.0           | 1.3           | 7.4           | 7.3  | 4.7           |                 |  |
| 7.5           | 4.8           | 6.8           | 5.5           | 8.5  | 10.0          |                 |  |
| 8.8           | 4.2           | 1.3           | 6.5           | 2.0  | 2.5           |                 |  |
| 7.5           | 3.0           | 6.8           | 7.4           | 7.3  | 2.5           |                 |  |
| 7.8           | 4.8           | 7.7           | 1.0           | 5.0  | 0.5           |                 |  |

August 28, 1883 -

Revision of Vol. VI S. obs.  
 Began with star at  $18^h 0^m 59.8$   
 " at  $18^h 57^m 59.8$

Chronograph gave out; series abandoned.

Eclipse, Dis. Sup. III. S. obs.  
 Phot. H. Comp. with sat. I.

B. + C. 1182.

Bond 394

15 44 48.3  
 45 48.3

16 4 44.5  
 5 0.0

+18 56.2

15 57 46.4  
 23 41.1

16 21 27.5  
 4 0.0

17 27.5

15 44 48.3

16 2 15.4

15 50 32.0

52.0

51 15.5

29.0

40.5

52 0.0

287.5

31.4

266.2

31.0

266.2

31.0



Aug. 24. 1883.

|    |    |      |       |   |
|----|----|------|-------|---|
| 15 | √2 | 17.0 | 24.1  |   |
|    |    | 37.5 | 27.3  | 2 |
|    |    | 54.0 | 247.0 |   |
|    | √3 | 10.0 | 24.0  |   |
|    |    | 23.0 | 246.4 |   |
|    |    | 40.0 | 32.1  | 3 |
|    |    | 54.0 | 244.6 |   |
|    | √4 | 9.0  | 29.0  |   |
|    |    | 21.0 | 246.7 |   |
|    |    | 36.5 | 32.0  | 4 |
|    |    | 50.0 | 290.0 |   |
|    | √5 | 4.5  | 31.7  |   |
|    |    | 19.0 | 244.0 |   |
|    |    | 34.0 | 31.1  | 5 |
|    |    | 44.5 | 245.4 |   |
|    | √6 | 3.5  | 31.3  |   |
|    |    | 15.5 | 245.3 | 6 |
|    |    | 29.5 | 30.0  |   |
|    | √7 | 2.0  | 249.4 |   |
|    |    | 14.5 | 31.1  |   |
|    |    | 26.0 | 291.3 |   |
|    |    | 34.0 | 24.5  |   |
|    |    | 49.0 | 291.3 |   |
|    |    | 59.0 | 24.3  |   |
|    | √8 | 8.0  | 294.3 |   |
|    |    | 14.5 | 24.4  |   |
|    |    | 26.5 | 249.7 |   |
|    |    | 41.0 | 21.2  |   |

Aug. 22, 1243.

|    |    |      |       |
|----|----|------|-------|
| 15 | vt | 0.0  | 293.3 |
|    | 59 | 0.0  | 27.7  |
|    |    | 9.0  | 297.0 |
|    |    | 19.5 | 25.7  |
|    |    | 29.0 | 292.0 |
|    |    | 39.0 | 22.4  |
|    |    | 51.5 | 292.0 |
| 16 | 0  | 2.0  | 23.9  |
|    |    | 13.5 | 292.1 |
|    |    | 25.0 | 20.2  |
|    |    | 39.0 | 297.3 |
|    |    | 55.0 | 14.2  |
|    | 1  | 10.0 | 302.2 |
|    |    | 24.5 | 10.4  |
|    |    | 33.0 | 300.0 |
|    |    | 42.0 | 10.0  |
|    |    | 51.0 | 303.3 |
|    | 2  | 15.5 | 7.0   |
|    |    | 21.5 | Seen. |
|    |    | 35.0 | 311.3 |
|    |    | 45.0 | 7.0   |

Clock not running, Images very dim. Not seen later.

Limit of Vis.

|               |    |      |                 |
|---------------|----|------|-----------------|
| 16            | 4  | 2.0  | 311.0           |
|               |    | 37.0 | 6.0             |
|               |    | 59.0 | 311.2           |
|               | 5  | 16.0 | 7.0             |
| B. + C. 1142. |    |      | Boud 394.       |
| 16            | 11 | 48.1 | 16 31 44.5      |
|               |    |      | 0.0             |
|               | 12 | 48.1 | 32 0.0 +18 56.4 |



August 29, 1883

This series rejected (results probably vitiated by clouds).  
 Re-vision of Vol. VT. 5. obs -  
 Began with star at  $18^h 0^m 59.8$   
 " at  $19^h 6^m 59.8$

|               |               |               |                             |               |                     |                             |
|---------------|---------------|---------------|-----------------------------|---------------|---------------------|-----------------------------|
| 1.8           | 8.3           | 7.87          | 9.0                         | 3.0           | 6.5                 |                             |
| 2.0           | 7.5           | 7.75          | 24                          | 10.0          | 6.57                |                             |
| 18            | 83            | 9.0           | 38                          | 3.0           | 5.0                 |                             |
| 20            | a $19^h 17.7$ | 9.8           | a $19^h 27.0$               | 100           | Clouds.             |                             |
| 2.4           | 0.0           | b $19^h 22.0$ | 9.0                         | 4.7           | b $19^h 42.4$       |                             |
| 7.7           | 7.6           | 9.0           | 9.3                         | 4.7           | Became cloudy       |                             |
| 2.4           | 0             | 4.8           | 9.37                        | 4.6           | but cleared.        |                             |
| 7.7           | 3.5           | 4.8           | 10.2                        | 4.6           | Began again         |                             |
| 0.4           | 6.57          | 0.8           | 10.2                        | 0.5           | with star at        |                             |
| 4             | 7.5           | 2.2           | b $19^h 28.9$               | 7.2           | $18^h 30^m 2.1$     |                             |
| a $19^h 9.4$  | 7.5           | 8             | 5.5                         | 7.2           | t = $20^h 25^m 2.1$ |                             |
| -1.0          | 5.07          | 2.2           | 9.2                         | 5             | 0.0                 | 4.7                         |
| b $19^h 13.6$ | 3.5           | 6.4           | 9.2                         | 8.5           | 0                   | 5.8                         |
| 6.8           | 6.5           | 7.8           | Clouds                      | 6.67          | 8.1                 | 2.7                         |
| 7.0           | 5.0           | 6.4           | Suspected<br>at $19^h 30^m$ | 8.5           | 6.37                | 5.87                        |
| 6.8           | 7.5           | 7.8           | 3.3                         | 6.6           | 8.1                 | 2.5                         |
| 6.0           | 4.5           | 6.2           | 3.3                         | b $19^h 38.6$ | a $20^h 27.1$       | 4.7                         |
| 5.57          | 4.5           | 7.9           | 9.7                         | 0.6           | 6.3                 |                             |
| 7.07          | 3.0           | 6.2           | 9.7                         | 8.87          | 0.1                 | Reject                      |
| 6.0           | 6.97          | 3.8           | 11.0                        | 6.5           | 1                   |                             |
| 5.5           | 3.07          | 2.47          | 10.4                        | 9.0           | 7.8                 | Became<br>cloudy<br>again - |
| 8.0           | 6.9           | 7.97          | 11.0                        | 8.0           | 8.0                 |                             |
| 7.8           | 5.0           | 3.8           | 10.4                        | 8.87          | 7.5                 |                             |
| 7.57          | 5.0           | 2.87          | 1.0                         | 9.07          | 7.87                |                             |
| 8.07          | 7.7           | 2.47          | 1.0                         | 8.0           | 8.07                |                             |
| 7.8           | 7.8           | 3.5           | a $19^h 34.6$               | 5.0           | 7.5                 |                             |

August 30, 1883 -

Tried various regions for observations,  
but clouds soon interfered in all.  
Left off at 9<sup>h</sup> 30<sup>m</sup>.



Aug. 31, 1883.

R Sagittarii.

Obs.

d foll. R 98.5, 3.5 south.

Region in Milky Way, stars on chart few and hence identification difficult, but apparently the star selected as R is the only suitable one.

Stars south of R

|    | Time | B, 236 |       | $\delta$ | Magn.   |
|----|------|--------|-------|----------|---------|
| 1  | a    | 0.0    | 0.0   | 2.3      | 10.5    |
| 2  |      | 1.0    | 0.7   | 6.5      | 10.2    |
| 3  |      | 9.0    | 9.3   | 3.6      | 10.9    |
| 4  |      | 14.0   | 14.5  | 9.0      | 13.2    |
| 5  |      | 18.5   | 19.0  | 5.0      | 12.8    |
| 6  | b    | 36.5   | 36.5  | 6.8      | 11.2    |
| 7  |      | 52.0   | 52.0  | 4.8      | 12.5    |
| 8  | c    | 69.5   | 69.5  | 6.6      | 11.5    |
| 9  |      | 71.0   | 71.0  | 8.8      | 12.2    |
| 10 |      | 72.0   | 72.0  | 10.0     | 10.4 R. |
| 11 |      | 95.5   | 96.0  | 9.8      | 10.7    |
| 12 |      | 97.0   | 97.0  | 11.3     | 13.8    |
| 13 | d    | 113.5  | 113.0 | 6.5      | 13.5    |

Check of right ascensions.

|   |    |    |      |       |
|---|----|----|------|-------|
| a | 20 | 24 | 44.6 | 0.0   |
| b |    | 25 | 20.3 | 35.7  |
| c |    | 25 | 53.3 | 68.7  |
| d |    | 26 | 37.0 | 142.4 |

Aug. 31, 1883,

Stars north of R.

|   |   | Time              | B 236             | S   | Mayer  |
|---|---|-------------------|-------------------|-----|--------|
| 1 | a | 0 <sup>s</sup> .0 | 0 <sup>s</sup> .0 | 8.0 | 11.7   |
| 2 |   | 7.0               | 7.0               | 3.5 | 12.8   |
| 3 |   | 31.0              | 31.0              | 0.0 | 13.1   |
| 4 |   | 33.5              | 33.5              | 1.7 | 12.6   |
| 5 | b | 41.5              | 41.5              | 2.3 | 12.5   |
| 6 |   | 45.0              | 45.0              | 5.7 | 12.8   |
| 7 |   | 45.2              | 45.2              | 0.0 | 10.4 R |
| 8 |   | 56.0              | 56.0              | 6.2 | 11.3   |
| 9 | c | 87.5              | 87.5              | 6.5 | 9.8    |

Check of right ascensions.

|   |    |    |      |      |
|---|----|----|------|------|
| a | 20 | 49 | 19.3 | 0.0  |
| b |    | 50 | 0.2  | 40.9 |
| c |    | 50 | 46.5 | 87.2 |

Only the brighter and a few of the fainter stars observed in the above series. The faint stars are very numerous.

S Sagittarii

S. obs.

A star on the chart at  $19^h 12^m - 19^\circ 7.5'$  precedes this star  $61^s$ ,  $9'$  south. There seems to be no other star answering to S.

|         | Time.             | S                 | Mayer. |                    |
|---------|-------------------|-------------------|--------|--------------------|
| S. Sag. | 0 <sup>s</sup> .0 | 0 <sup>s</sup> .0 | 3.0    | 13.5               |
|         | 21.0              | 21.4              | 2.5    | 13.7 X             |
|         | 24.9              | 29.5              | 1.6    | 11.9 Chandler's α. |
|         | 34.0              | 34.5              | 2.0    | 13.0 γ             |



Aug. 31, 1883.

10 40 I Sagittarii continued.  
y 4 S 2 x S. obs.

The comparison stars x and y defined by the transits on the previous page.

S = y 7 x W. obs.

II Sagittarii. W. obs.

Region thoroughly identified.

11 23 I = C 7 a (notation of chart)  
It is red, color 3, possibly banded but cannot be sure of the latter as the star is <sup>rather</sup> low and flickering.

The bright star at  $19^h 10^m 50^s \pm$  R.A. and  $-16.2 \pm$  Dec. by chart, is red, color 2, and very beautifully banded.

Bright lines almost suspected, especially in the orange, but this may be due to the effect of the channeling produced by the dark bands.

11 45 Closed dome. W.

I about 10 mag.

The red star is Oeltgen 19382. See p. 26. It has been previously observed here and published in A.N.



Sept. 1. 1853.

Suspected var. near S. Oph. W. obs.

$$\begin{array}{r} 16 \quad 23 \quad -16.2 \\ 12 \quad 37 \\ \hline +2 \quad 14 \end{array}$$

Suspected var. decidedly ftr. than when last obs. It is now <sup>0.3+</sup> mag. ftr. than star preceding it 30.5 sec. and 2.7 north.

8 7 - also 1.5 mag. ftr. than star fol. & sec. and 3' south. - this last star being 1.5 mags. ftr. than "f." W. obs.

Est. mag. of ~~the~~ susp. var. 12. W. obs.

The suspected variable is the star h of the chart.

|   | Time              | S   | Magn. | S. obs. |
|---|-------------------|-----|-------|---------|
| w (a star entered on the chart, no letters) | 0 <sup>h</sup> .0 | 5.7 | 9     |         |
| x   | 4.5               | 2.7 | 10.5  |         |
| y   | 15.0              | 0.0 | 10    |         |
| h (of the chart)                            | 36.0              | 2.9 | 10    |         |
| f (of the chart)                            | 59.0              | 9.0 | 9     |         |

8 30      w 1 h : h 3 x      S. obs.

The star here called h may be that following Mr. Wendell's h 8<sup>s</sup>, in that case, diff. by 10<sup>s</sup> not seen. See p. 28 for observations of Mr. Wendell's h. Diff. of 0<sup>h</sup> 33' between w and the bright star north of it; 31' between h and the star of 8 magn. south of it; (these are estimates made by passing from star to star on the way.) 33' + 3' + 31' = 67', which agrees well with the interval between the northern and southern stars on the chart.



Sept. 1, 1883.

R Corvinae.

S. obs.

R follows f  $2^{\circ}$ ,  $7'.5$  south.  
 f " e  $8^{\circ}.5$ ,  $7'.7$  south.  
 R " b  $41^{\circ}.5$ ,  $3'.5$  south.

y follows d  $6^{\circ}$ ,  $3'$  south.

9 30

y 2 R R 2 f

S. obs.

y is too near d to be a convenient comparison star, but there is no good star near a little brighter than R.

Red star in region of  $\gamma$  Sagittarii, S. obs.

This red star, noticed yesterday by Mr. Wendell, precedes a bright star ( $\alpha$  Sagittarii)  $2^m 34^s$ ,  $3'$  north. It shows bands, while  $\alpha$  Sagittarii does not, at least this evening, the seeing being bad.

The red star is Oeltgen 19382. It is not in U. A.

Star x in region of  $\gamma$  Sagittarii not in place on chart, but there is one following f  $24^{\circ}$ ,  $1'$  north. The other two stars marked on the chart close to x follow f  $25^{\circ}$  and  $29^{\circ}.5$ , respectively  $1'$  and  $2'.5$  south of f. The southern star following f  $24^{\circ}$  is the faintest of the three, about half a magnitude fainter than either of the others. On the chart x is said to be missing.

Sept. 1. 1883.

W. Looked at Red Star in region  
of  $\Pi$  Sagittarii, found last night.

$$\begin{array}{r} 19 \quad 11 \quad -16.2 \\ 21 \quad 42 \\ \hline +2 \quad 31 \end{array}$$

$$\begin{array}{r} 21 \quad 42 \\ 19 \quad 11 \\ \hline +2 \quad 37 \end{array}$$

Fog now too thick to see star.  
Only a very few stars near zenith visible.  
Closed dome, W. obs.

11 15



Sept. 2, 1883

Stars in region of suspected variable  
comparison star "h" near  $\delta$  Ophiuchi.  
S. obs.

Besides the stars mentioned on p. 25, there are two fainter ones, respectively preceding  $f$   $63^\circ$  and  $33^\circ$ , south about  $1'$  and  $3.2'$ . The first of these may be the preceding of the three stars marked on the chart, and the second may be the true "h". It seems to be the star observed to be variable by Mr. Wendell.

Hence substitute  $z$  for  $h$  in the observations on p. 25, made by S. Call the first star (pr.  $f$   $63^\circ$ )  $t$  and the second  $h$ . There is a star prec.  $f$   $17^\circ 5'$ ,  $0.5'$  south. Call this  $z$ .

8 50

$h = t + 2z$  S. obs.

Observations much hindered by thin clouds.

A faint star follows  $t$   $1.5'$ ,  $1'$  south.

Stars in this region, from observations on p. 25 and here.

- 1  $t$ ; pr.  $f$   $63^\circ$ ,  $1'$  s.
- 2 pr.  $f$   $61.5^\circ$ ,  $2'$  s.
- 3  $w$ ; pr.  $f$   $59^\circ$ ,  $3.3'$  s.
- 4  $x$ ; pr.  $f$   $54.5^\circ$ ,  $6.3'$  s.
- 5  $y$ ; pr.  $f$   $44^\circ$ ,  $9'$  s.
- 6  $h$ ; pr.  $f$   $33^\circ$ ,  $3.2'$  s.
- 7  $u$ ; pr.  $f$   $23^\circ$ ,  $6.1'$  s.
- 8  $z$ ; pr.  $f$   $17.5^\circ$ ,  $0.5'$  s.

$f$  is the star so called on the chart.

$t$  is probably the prec. of the three stars on the chart.

$h$  is the suspected variable, supposed to be the  $h$  of the chart.

Sept. 3. 1853.

Suspected Comet (Brooks) Tr. obs.

$$16 \quad 45 \quad +64^0$$

$$\begin{array}{r} 18 \quad 27 \\ \hline 1 \quad 42 \end{array}$$

$$\begin{array}{r} t = 18 \quad 43 \quad +64.8 \\ \hline 2 \quad 10 \\ 16 \quad 33 \end{array}$$

$$\begin{array}{r} t = 18 \quad 51 \quad +64.85 \\ \hline 2 \quad 18 \\ 16 \quad 33 \end{array}$$

$$\begin{array}{r} * \quad 18 \quad 57 \quad 56.2 \\ \text{Obs. obs.} \quad 58 \quad 47.7 \end{array} \left. \vphantom{\begin{array}{r} * \quad 18 \quad 57 \quad 56.2 \\ \text{Obs. obs.} \quad 58 \quad 47.7 \end{array}} \right\} \text{1st. transit.} \quad 51.5$$

$$\begin{array}{r} * \quad 59 \quad 7.5 \\ \text{E.} \quad 59.8 \end{array} \left. \vphantom{\begin{array}{r} * \quad 59 \quad 7.5 \\ \text{E.} \quad 59.8 \end{array}} \right\} \text{2d} \quad \text{"} \quad 52.3$$

$$\begin{array}{r} * \quad 19 \quad 0 \quad 18.4 \\ \text{E.} \quad 1 \quad 10.8 \end{array} \left. \vphantom{\begin{array}{r} * \quad 19 \quad 0 \quad 18.4 \\ \text{E.} \quad 1 \quad 10.8 \end{array}} \right\} \text{3d.} \quad \text{"} \quad 52.6$$

$$\begin{array}{r} * \quad 1 \quad 23.4 \\ \text{E.} \quad 2 \quad 16.3 \\ * \quad 20.5 \end{array} \left. \vphantom{\begin{array}{r} * \quad 1 \quad 23.4 \\ \text{E.} \quad 2 \quad 16.3 \\ * \quad 20.5 \end{array}} \right\} \text{4th} \quad \text{"} \quad 52.9$$

Nebulous object 6.7' north of principal star  
2.8' north of last star.



Sept. 3, 1883

Series LI.

Re-vision of Vol. VI. S. obs.

Began with star at  $18^h 0^m 59.8$   
 " at  $19^h 35^m 59.8$

|                        |                        |                        |                        |           |                       |           |           |           |
|------------------------|------------------------|------------------------|------------------------|-----------|-----------------------|-----------|-----------|-----------|
| 1.8                    | 9.0                    | 30}                    | 7.5                    | 53        | 90                    | 6.0       | 7.6       | 30        |
| 2.0                    | 4.9                    | 60}                    | 58                     | 8.4       | a 20 <sup>h</sup> 3.2 | 2.7       | 2.5       | 40}       |
| 18                     | 60}                    | 50                     | 75                     | 10.3      | 2.6                   | 60        | 40        | 33}       |
| 20                     | 50                     | 73                     | 5.7                    | 8.3       | 26                    | 27        | 76        | 90        |
| 2.4                    | 90                     | a 19 <sup>h</sup> 48.1 | 7.7                    | 8.4       | 4.2                   | 46        | 2.6       | a 20 20.3 |
| 7.5                    | 49                     | 4.0                    | 5.7                    | 10.3      | 4.3                   | 1.8       | 2.6       | 4.2       |
| 2.4                    | b 19 <sup>h</sup> 43.5 | 40                     | 3.3                    | 8.3       | 4.2                   | 1.9       | -0.3      | 4.2       |
| 7.5                    | 7.8                    | 2.7                    | 2.0                    | b 19 59.4 | 0.1                   | 4.8       | 8.8       | 2.5       |
| 0.4                    | 5.2                    | 6.3                    | 7.7                    | 3.1       | 4.3                   | 1.8       | 9.3       | 5.1       |
| 4                      | 7.0                    | 2.7                    | 3.3                    | 3.1       | 6.8                   | 7.8       | 8.8       | 2.6       |
| a 19 <sup>h</sup> 38.5 | 5.2                    | 6.3                    | 2.5                    | 1.8       | 6.8                   | 1.8       | 9.3       | 2.5       |
| 6.0                    | 7.8                    | 7.6                    | 3.2                    | 1.8       | 1                     | 4.8       | 1.9       | 5.1       |
| 7.5                    | 5.0                    | 7.7                    | 2.0                    | 9.5       | 8.0                   | 7.8       | 4.9       | 7.5       |
| 6.0                    | 50                     | 7.6                    | 8.6                    | 9.5       | 6.3                   | b 20 10.7 | 1.9       | 2.6       |
| -1.5                   | 8.0                    | 8.5                    | 2.5                    | 10.3      | 8.0                   | 2.2       | 4.9       | 7.0       |
| 7.5                    | 7.0                    | 7.7                    | 3.2                    | 10.1      | 6.3                   | 0.2       | b 20 17.9 | 8.2       |
| 5.0                    | 8.0                    | 8.5                    | 8.6                    | 10.3      | 0.2                   | 2.2       | 3.8       | 7.2       |
| 5.0                    | 0.0                    | b 19 <sup>h</sup> 51.2 | a 19 <sup>h</sup> 56.2 | 0.2       | 8.2                   | 2         | 3.8       | 7.5       |
| 10.5                   | 7.4                    | 4.6                    | 8.7                    | 2.8       | 8.3                   | 2.7       | 5.6       | 7.0       |
| 10.4                   | 0                      | 4.6                    | 10.0                   | 10.5      | 2                     | 7.7       | 1.9       | 8.2       |
| 10.4                   | Probably 3.0           | 3.0                    | 0.4                    | 8.7       | 10.1                  | 7.7       | 2.7       | 5.6       |
| 6.6                    | 6.2                    | 6.2                    | 1.3                    | 10.0      | 9.0                   | 8.2       | 7.7       | 4.4       |
| 6.7                    | 7.4                    | 7.4                    | 4                      | 4.7       | 2.8                   | 8.3       | a 20 13.1 | 3.0       |
| 6.6                    | 7.3                    | 1.3                    | 5.3                    | 2         | 7.7                   | 2.5       | 3.5       | 7.8       |
| 5.0                    | 4.9                    | 5.8                    | 4.7                    | 10.5      | 4.6                   | 4.0       | 1.9       | 5.5       |

Sept. 3, 1883 -

|               |           |      |              |
|---------------|-----------|------|--------------|
| 55            | 73        | 80   | 70           |
| 78            | 6 20 29.8 | 92   | 80}          |
| 9.2           | 2.8       | 4.0  | 24}          |
| 6.8           | 4.5       | 80   | 7.0          |
| 92            | 9.0       | 90   | 7.0          |
| 3.7           | 8.0       | 40   | 24           |
| 1.8           | 10.5      | 23   | 24           |
| 11.0          | 7.5       | 12   | 2.5          |
| 40            | 5.0       | 23   | 25           |
| End of record | 6.0       | 25   | 12 a 20 38.8 |
| 18            | 30        | 5.7  | 7.5          |
| 11.0          | 0.5       | 33   | 7.5          |
| a 20 27.8     | 90        | 8.2  | 7.5 prec.    |
| 1.6           | 80        | 5.7  | 8.5          |
| 7.7           | 75        | 0.5  | 7.5 fol.     |
| 7.3           | 40        | 33   | 8.2          |
| 16            | 23.7      | 80   | 6 20 41.2    |
| 10.0          | 5         | 7.2  |              |
| 77            | 23        | 5    |              |
| 73            | 85        | 78   |              |
| 1.7           | 85        | 11.3 |              |
| 10.0          | 10.1      | 9.9  |              |
| 8.0           | 9.5       | 7.0  |              |
| 2.5           | 10.1      | 78.7 |              |
| 4.7           | 6 20 32.6 | 90   |              |
| 7.3           | 4.8       | 72   |              |
| 17            | 8.3       | 3.5  |              |
| 75            | 95        | 90   |              |
| 25            | 40        | 8.5  |              |
| 47            | 9.2       | 2.4  |              |

Weights of Chronograph  
run down and drum failed  
to turn after observing  
for about 50 minutes -

Records extends to star at  
18<sup>h</sup> 46<sup>m</sup> 3<sup>s</sup>

Sheet actually read to 18<sup>h</sup> 51<sup>m</sup> 19<sup>s</sup>



Sept. 3, 1883.

Suspected Comet (Brooks) Mobs

|                 |                |      |      |
|-----------------|----------------|------|------|
| 21 <sup>h</sup> | 6 <sup>m</sup> | 12.3 | 46.2 |
|-----------------|----------------|------|------|

58.5

7

9.2

10.7

~~7~~~~9.2~~

7

57.7

45.7

43.2

11.3

54.5

Diff.  $\rho$ ; Comet n of 1<sup>st</sup> star 5.2  
 " n of 2<sup>d</sup> star 9.8

---

$\Delta \alpha$  96<sup>s</sup> between 2 stars.

$\Delta \alpha$  2<sup>nd</sup> 30<sup>s</sup> between 2 stars.

46<sup>s</sup>

"

"

"

2

37

2

576

1

46

1630

Zero

45.

208.

Set.

Sept. 3. 1883.  
Comet Brooks.

W. obs.

Order \* \* E E

\* in southern and E in northern  
half of square.

Comp. star 2 m. +  $64^{\circ} 1139$ . (mag. 5.5)

|         |    |      |       |    |     |
|---------|----|------|-------|----|-----|
| BB 1182 |    |      | B 394 |    |     |
| 13      | 56 | 21.0 | 14    | 16 | 0.0 |
|         | 57 | 21.0 |       | 17 | 0.0 |

BB 1182 put forward,  
BB 1182      B 394

|    |    |      |    |    |     |
|----|----|------|----|----|-----|
| 14 | 29 | 20.8 | 14 | 29 | 0.0 |
|    | 30 | 20.8 | 14 | 30 | 0.0 |

-36.3  
Disappearance of Jupiter I.

|    |    |    |
|----|----|----|
| 14 | 42 | 15 |
|    | 23 | 41 |
| 15 | 5  | 56 |

Photometer R.      S. obs. & rec.  
Compared with Jupiter III.

|    |    |    |       |
|----|----|----|-------|
| 14 | 57 | 53 | 119.2 |
|    | 52 | 42 | 192.6 |
|    | 53 | 11 | 117.2 |
|    |    | 31 | 194.7 |



Sept. 3, 1883.

|    |    |    |       |
|----|----|----|-------|
| 14 | 53 | 59 | 122.3 |
|    | 54 | 23 | 193.8 |
|    |    | 45 | 115.5 |
|    | 55 | 9  | 197.4 |
|    |    | 31 | 111.2 |
|    |    | 57 | 191.5 |
|    | 56 | 8  | 112.0 |
|    |    | 25 | 200.2 |
|    |    | 41 | 117.0 |
|    |    | 56 | 200.0 |
|    | 57 | 12 | 116.1 |
|    |    | 34 | 194.6 |
|    |    | 52 | 120.0 |
|    | 58 | 8  | 199.4 |
|    |    | 24 | 115.4 |
|    |    | 39 | 202.2 |
|    |    | 54 | 113.6 |
|    | 59 | 10 | 197.7 |
|    |    | 29 | 113.7 |
|    |    | 48 | 198.9 |
| 15 | 0  | 56 | 119.1 |
|    | 1  | 21 | 195.3 |
|    |    | 46 | 123.3 |
|    |    | 57 | 192.6 |
|    | 2  | 13 | 116.1 |
|    |    | 34 | 196.3 |
|    |    | 52 | 112.9 |
|    | 3  | 7  | 195.4 |
|    |    | 23 | 115.0 |
|    |    | 37 | 211.2 |

Sept. 3, 1883.

|    |   |    |       |
|----|---|----|-------|
| 14 | 3 | 55 | 115.7 |
|    | 4 | 15 | 198.8 |
|    |   | 31 | 120.0 |
|    |   | 45 | 199.0 |
|    |   | 58 | 117.0 |
| 5  |   | 9  | 195.8 |
|    |   | 21 | 123.0 |
|    |   | 34 | 186.5 |
| 6  |   | 48 | 128.2 |
|    |   | 1  | 181.5 |
|    |   | 12 | 133.5 |
|    |   | 25 | 189.8 |
|    |   | 39 | 136.5 |
|    |   | 54 | 173.8 |

Not seen later.

Limit of visibility, Jupiter III,

|              |    |       |
|--------------|----|-------|
| 7            | 23 | 140.0 |
| <del>7</del> | 54 | 173.6 |
| 8            | 11 | 144.6 |
|              | 34 | 172.0 |

B. 6, 1182

|    |    |      |
|----|----|------|
| 15 | 22 | 20.7 |
|    | 23 | 20.7 |

B. 394 44.5

|    |    |       |
|----|----|-------|
| 15 | 22 | 0.0   |
|    | 23 | 0.0   |
|    |    | -36.2 |



Sept 4, 1883.

Series LII.

Re-vision of Vol. VI. S. 56  
 Began with star at  $18^h 59^m$   
 " at  $19^h 29^m 59.8$

|           |           |           |           |           |          |           |           |     |
|-----------|-----------|-----------|-----------|-----------|----------|-----------|-----------|-----|
| 2.0       | 80        | b 19 45.3 | -0.5      | 0.7       | 8.0      | 8.0       | 1.0       | 91  |
| 2.2       | 83        | 6.8       | 9.6       | 3.0       | 95       | 33        | 62        | 74  |
| 20        | 74        | 5.0       | 27        | 10.5      | 93       | 80        | 5.0       | 8.3 |
| 22        | 83        | 6.8       | 3.8       | 3.0       | 80       | 2.8       | 4.7       | 8.3 |
| 2.5       | 7.7       | 5.0       | 9.6       | 7         | 5.5      | 4.9       | 1.0       | 6.2 |
| 7.6       | 77        | 1.0       | a 19 50.6 | 10.0      | 6.8      | 8.0       | 2.5       | 8.2 |
| 2.5       | 3.5       | 2.2       | 9.7       | 3.0       | 3.3      | 2.8       | 10.3      | 6.7 |
| 7.6       | 6.8       | 10.7      | 10.3      | 3.0       | 6.8      | 4.9       | 5.0       | 6.7 |
| 0.8       | 7.8       | 2.2       | 9.7       | 4.9       | 3.3      | 8.0       | 4.7       | 8.2 |
| 8         | 3.5       | 9.5       | 10.3      | 4.9       | 5.5      | 3.0       | 10.3      | 9.9 |
| a 19 32.3 | 6.8       | 6.6       | 5.1       | 4.8       | a 20 3.8 | 3.0       | b 20 14.3 | 7.4 |
| -1.0      | 7.8       | 7.9       | 6.0       | 4.8       | 2.3      | 9.9       | 4.9       | 9.9 |
| 6.0       | a 19 42.1 | 9.5       | 5.1       | 0.5       | 2.4      | 10.2      | 4.9       | 4.7 |
| 6.0       | 4.8       | 6.6       | 6.0       | 7.5       | 5.4      | 9.9       | 0.3       | 2.3 |
| b 19 36.5 | 4.8       | 7.9       | 9.5       | b 19 59.8 | 2.3      | 10.2      | 2.8       | 7.4 |
| 7.2       | 3.3       | 6.5       | 9.6       | 7.5       | 8.2      | a 20 11.0 | 3         | 4.7 |
| 7.3       | 6.7       | 7.8       | 9.5       | 5         | 2.4      | 2.3       | 3.0       | 0.5 |
| 7.2       | 3.3       | 6.5       | 9.6       | 9.0       | 5.4      | 5.6       | 2.8       | 2.3 |
| 10.0      | 6.7       | 4.0       | 3.7       | 7.0       | 8.2      | 2.3       | 7.8       | 5   |
| 5.5       | 7.7       | 2.4       | 3.7       | 9.0       | 2.5      | 5.6       | 3.0       | 7.0 |
| 7.3       | 7.7       | 7.8       | 10.0      | 7.0       | 1.1      | 4.7       | 7.5       | 7.0 |
| 10.0      | 8.0       | 4.0       | 10.0      | 1.0       | 2.5      | 4.7       | 9.1       | 2.2 |
| 5.5       | 9.5       | 2.7       | 11.0      | 9.3       | 11       | 6.2       | 7.4       | 7.9 |
| 8.0       | 8.0       | 3.8       | 10.5      | 9.5       | b 20 6.1 | 2.5       | 7.8       | 7.5 |
| 7.4       | 9.5       | 2.4       | 11.0      | 10        | 3.3      | 7.5       | 2.2       | 2.2 |

Sept 4, 1883.

|           |           |      |           |           |  |
|-----------|-----------|------|-----------|-----------|--|
| 10.4      | 24        | 40   | a 20 35.1 | 3.3       | 42   |
| 6.0       | 98        | 1.5  | 7.7       | 46        | 6.0  |
| 79        | 98        | 90   | 2.5       | 20        | 49   |
| 74        | 107       | 15   | 2.7       | 33        | 60   |
| 2.0       | 10.6      | 8.4  | 7.5       | 9.4       | 3.5  |
| 60        | 10.0      | 0.1  | 3.0       | 0.2       | 35   |
| 103       | 107       | 84   | 2.5       | 10.0      | 8  |
| 8.5       | 10.6      | 4.5  | 6.5       | 7.0       | bb 20 <sup>h</sup> 45.1                                    |
| 3.0       | 5.1       | 1    | 2.6       | 94        | ended with star at<br>19 <sup>h</sup> 15 <sup>m</sup> 18.4 |
| 5.0       | 9.5       | 7.7  | 3.0       | 10        |  |
| 7.7       | 100       | 9.5  | 6.5       | 100       |  |
| 3.5       | 51        | 2.6  | b 20 36.8 | 8.3       |  |
| 10        | 10.0      | 4.5  | 2.4       | 60        |  |
| 20        | 9.0       | 70   | 6.7       | 2         |  |
| 90        | 9.5       | 95   | 2.4       | 75        |  |
| 50        | 5.0       | 25   | 0.2       | b 20 40.5 |  |
| 30        | 100       | 5.2  | 6.7       | 2.2       | did not<br>disap.  |
| 70        | 90        | 2.5  | 6.0       | 8.5       | 2 <sup>nd</sup> sig.                                       |
| a 20 24.2 | b 20 27.9 | 52   | 2.7       | 8.5       |  |
| 6.5       | 3.0       | 25   | 6.0       | 7.9       |  |
| 34        | 2.6       | 30   | 7.5       | 7.9       |  |
| 9.9       | 50        | 30   | 7.6       | a 20 42.4 |  |
| 9.7       | 2.0       | 8.0  | 5.1       | 10.1      |  |
| 64        | 30        | 8.1  | 2.0       | 6.7       |  |
| 7.6       | 2.6       | 9.3  | 7.5       | 6.7       |  |
| 30        | 20        | 80   | 20        | 10.1      |  |
| 1.5       | 6.8       | 10.0 | 5.1       | 5.3       |  |
| 70        | 4.0       | 81   | 7.6       | 4.2       |  |
| 2.4       | 9.0       | 100  | 4.8       | 4.9       |  |
| 20        | 68        | 93   | 20        | 53        |  |



Sept. 4, 1883.

Comet Brooks W. obs.

|       |    |
|-------|----|
| 16    | 35 |
| 20    | 53 |
| <hr/> |    |
|       | 18 |

|       |       |
|-------|-------|
| Pos 0 | 162.6 |
|       | 45    |
|       | <hr/> |
|       | 207.6 |

~~on first star,  
Order: Star, Star, Comet, Comet -  
Both in northern half of square  
Five complete sets on first star~~

~~Order on second star: Star, Star, Comet,  
Comet Star in southern Comet in  
northern half of field square.  
Reject. - Chronograph failed in above sets.~~

A second series was then taken.  
One set secured <sup>second set failed.</sup> Came up cloudy.  
Order 2 W. + 64° 1138, 1139. 1138. 1139, Comet,  
Comet.

Comet and 1139 in northern, and 1138 in  
southern half of square.

Sept 4 1883

New series of observations later, Chron. <sup>B. 236 used.</sup>  
~~eye~~ in northern half

|              |   |    |      |                   |     |
|--------------|---|----|------|-------------------|-----|
| S            | 0 | 18 | 0.5  | 1132              | 1st |
| n            |   | #  | 22.7 | 1139              | 2nd |
| S            |   |    | 38.0 | <del>#</del> 1132 | 1st |
| n            |   |    | 50.5 | 1139              | 2nd |
| <del>✓</del> |   | 19 | 16.0 |                   | OE  |
| <del>✓</del> |   | 20 | 36.2 |                   | OE  |

|              |   |    |      |  |
|--------------|---|----|------|--|
| S            | 0 | 21 | 10.2 |  |
| n            |   |    | 34.5 |  |
| S            |   |    | 49.2 |  |
| n            |   | 22 | 2.2  |  |
| <del>✓</del> |   |    | 24.2 |  |
| <del>✓</del> |   | 23 | 44.5 |  |

|              |   |    |      |  |
|--------------|---|----|------|--|
| S            | 0 | 24 | 32.0 |  |
| n            |   |    | 55.2 |  |
| S            |   | 25 | 10.6 |  |
| n            |   |    | 22.1 |  |
| <del>✓</del> |   |    | 42.6 |  |
| <del>✓</del> |   | 27 | 4.0  |  |



Sept 4, 83

|              |   |    |      |               |
|--------------|---|----|------|---------------|
| S            | 0 | 27 | 30.8 |               |
| N            |   |    | 55.1 |               |
| S            |   | 28 | 10.2 |               |
| N            |   |    | 22.9 |               |
| <del>S</del> |   |    | 45.5 |               |
| <del>N</del> |   | 30 | —    | lost by elds. |

Bond 236.

|   |    |      |
|---|----|------|
| 0 | 54 | 32.3 |
|   | 55 | 32.4 |

Bond 394.

|    |   |     |
|----|---|-----|
| 14 | 1 | 0.0 |
|    | 2 | 0.0 |

∴ Bond 236 is  $2^m$  20.1' slow.

In the preceding series the two comparison stars used were the same as those of the earlier series, viz.

Northern star = Dec.  $+64^\circ$  1139.Southern " = "  $+64^\circ$  1138.

Comet and 1139 in northern half of square.

~~1138~~ Star 1138 " southern " " "

Sept. 5, 1883.

## SEARCHING REPORT

Heading (Check one box only)

- 16  
18
- ☐ Identification guaranteed  
☐ Identification **not** guaranteed  
☐ Conflict  
☐ No conflict

Other headings searched and Comments:

## Edition Report

Latest Widener edition

Year

Call number

☐ Only edition☐ No edition☐ Earlier☐ Later☐ 5 or more

} editions in Widener

☐ Earlier☐ Later

} editions in K

Author number (unless shown above)

Order  
Southern  
CometUse  
sixth

Reje

Southern  
half  
half  
Comps

Magns. 9.0 and 8.5

W. obs

+64.8

Northern star.  
star, Comet,

at end of

acession of rattles.

t in Southern  
in northern

1134 &amp; 1139.



Sept. 5, 1883.

Brooks Comet. W. obs

$$\begin{array}{r} 16 \quad 34 \\ 18 \quad 37 \\ \hline 2 \quad 3 \end{array} \quad +64.8$$

$$\begin{array}{r} \text{Pos. 0} = 160.5 \\ 45 \\ \hline 205.5 \end{array}$$

Order - Southern star, Northern star,  
Southern star, Northern star, Comet,  
Comet

Use last of two close taps at end of  
sixth set.

Reject set followed by succession of rattles.

Southern star and comet in southern  
half and northern star in northern  
half of square.

Comp. stars.  $\Delta M, +64^{\circ} 11' 34''$  &  $1139$ .  
Heags. 9.0 and 8.5

Sept 5, 1883-

Series LIII.

Re-vision of Vol. VI. S. obs.  
 Began with star  $18^h 40^m 18^s$   
 " at  $20^h 9^m 18^s$

|         |           |           |         |           |      |         |         |
|---------|-----------|-----------|---------|-----------|------|---------|---------|
| 1.9     | 10.0      | 75        | 5.8     | 7.8       | 7.4  | 70      | 6.7     |
| 19      | 25        | 53        | 100     | 7.5       | 7.5  | 103     | 7.6     |
| 7.7     | 27        | 10.0      | 1       | 9.0       | 3.0  | 105     | 10.8    |
| 8.2     | 30        | 7.0       | 8.5     | 6.5       | 10.2 | 25      | 6.6     |
| 7.7     | 80        | 70        | 4.0     | 3.5       | 70   | 4       | 6.7     |
|         | 100       | 100       | 70      | 30        | 80   | 90      | 10.8    |
| 8.2     | 5.1       | 7.0       | 2.5     | 20        | 11.0 | 2.5     | 7.6     |
| 0.3     | 51        | 4.2       | 60      | 7.5       | 2.0  | 6.2     | 20 35.1 |
| 3.4     | 2.7       | 20 19.5   | 0.1     | 80        | 30   | 10.0    | 6.5     |
| 3       | 2.5       | 42        | 25      | 60        | 100  | 7.5     | 1.0     |
| 3.4     | 2.5       | 70        | 80      | 30        | 110  | 1.0     | 7.5     |
| 20 11.9 | 27        | 7.7       | 7.0     | 10.0      | 20   | 2.5     | 1.5     |
| 2.5     | 6 20 16.1 | 5.2       | 1.5     | 7.7       | 4.5  | 60      | 11.0    |
| 9.9     | 16        | 7.7       | 3.0     | 100       | 2.5  | 100     | 6.5     |
| 2.5     | 10.2      | 2.5       | 6.0     | 70        | 5.0  | 7.5     | 10      |
| 9.9     | 1.7       | 0.5       | 5       | 10.1      | 7.5  | 10.2    | 4.0     |
| 4.5     | 16        | 10.2      | 2.6     | 8.8       | 40   | 10      | 1.5     |
| 0.2     | 6.2       | 5.5       | 7.5     | 8.0       | 2.5  | 20 31.6 | 110     |
| 4.5     | 10.2      | 2.5       | 20      | 100       | -0.6 | 10.6    | 40      |
| 3.0     | 17        | 5         | 2.5     | 8.8       | 10.8 | 10.2    | 20 36.7 |
| 2.5     | 5.5       | 10.2      | 30      | 3.0       | 7.5  | 1.5     | 1.0     |
| 2.7     | 7.5       | 10.0      | 50      | 7.5       | 10.3 | 10.6    | 4.6     |
| 1       | 5.3       | 6 20 21.7 | 20 23.9 | 80        | 7.0  | 1.5     | 2.0     |
| 8.0     | 6.2       | 0.1       | 2.0     | 6 20 27.0 | 10.5 | 20 33.4 | 10      |
| 2.5     | 5.4       | 6.8       | 3.0     | 7.8       | 9.0  | 6.6     | 3.8     |
|         |           |           |         | 30        |      |         | 4.6     |



Sept 5, 1883.

|      |            |           |           |           |          |          |           |
|------|------------|-----------|-----------|-----------|----------|----------|-----------|
| 20   | 98}        | 40        | 3.0       | 1.5}      | 75       | 8.0      | 9.0}      |
| 38   | 75}        | 90        | 6.9       | 72}       | 5.1      | 2.8      | 70}       |
| 5.6  | a 20 43.3. | 108       | 70}       | 2.6       | 10.0     | 76}      | 61        |
| 9.0  | 3.0        | 65        | 68}       | 2.4       | 74}      | 58       | 90        |
| 3.0  | 2.4        | a 20 48.8 | 30        | 15        | 50       | 70       | 51        |
| 0.5  | 30         | 0.1       | 69        | 26        | 100      | 68       | 10.0      |
| 56   | 24         | 7.0       | 8.8       | 24        | 5.5      | 75       | 7.6       |
| 5    | 3.0        | 6.0       | 6.5       | 7.7       | 5.8      | 20       | 8.5       |
| 30   | 3.4        | 4.5       | 4.0       | 10.5      | 6.3      | 25       | 9.7       |
| 80   | 30         | 0.5}      | 88        | 8.0       | 55       | 3.4      | 100       |
| 28   | 2.0}       | 60}       | 3.0       | 9.7       | a 21 2.4 | 3.0      | 76        |
| 20   | 3.4}       | 1         | 2.0}      | 7.3}      | 58       | 3.4}     | 4.8}      |
| 28   | 7.5        | 70        | 6.5}      | 100}      | 63       | 30}      | 8.5}      |
| 20   | 20         | 5         | 30        | 77}       | 0.2      | 25       | 7.3}      |
| 7.5  | 75         | 40        | 6.0       | 80        | 7.0      | a 21 6.8 | 98}       |
| 7.8  | 10.0       | 7.0}      | 20        | 90        | 70       | 4.7      | 4.5}      |
| 10.2 | 6.5        | 20}       | a 20 54.3 | 7.7       | 5        | 10.3     | 70}       |
| 78}  | 3.4        | 1.5       | 8.5}      | 70        | 9.0}     | 47       | 4.5       |
| 75}  | -0.8       | 70        | 60}       | 2.8       | 1.7}     | 6.5      | 6.0       |
| 7.0  | 100}       | b 20 50.9 | 8.4       | b 20 58.3 | 10.9     | 7.5      | 45        |
| 10.2 | 6.5}       | 15        | 2.6       | 75}       | 90       | 10.3     | 7.0       |
| 70   | 3.4        | 10.0      | 26        | 28}       | 2.5}     | 65       | 60        |
| 0.1  | b 20 46.7  | 8.3       | 8.5       | 1.9       | 10}      | 75       | 8.0       |
| 9.8  | 7.4        | 100       | 8.4       | 1.0       | 0.1      | 10.3     | 70        |
| 7.0  | 5.3        | 10.5      | 1.0       | 19        | 10.9     | 10.3     | 10        |
| 98   | 7.4        | 10.1      | 0.9       | 10.1      | 25       | b 21 9.1 | a 21 12.7 |
| 70   | 53         | 83        | 16        | 10        | 1        | 3.2      | 80        |
| 6.5  | 10.8       | 7.6       | 9         | 7.5}      | 5.8      | 7.0}     | 7.7}      |
| 65   | 9.0        | 101       | 4.5       | 101}      | 6.1      | 9.8}     | 100}      |
| 78   | 4.0        | 103       | 7.2       | 7.4       | 6.8      | 3.2      | 11.0      |
| 98   | 6.5        | 6.8       | 4.5       | 6.8       | 7.5      | 98       | 110       |

probably 10  
or 10.0

Sept. 5, 1883 -

|           |      |  |
|-----------|------|--|
| 70        | 90   | 80   |
| 80        | 82   | 102  |
| 100       | 83   | 621208                                       |
| 65        | 100  | 6.8}   |
| 63        | 30   | 7.6}   |
| 100       | 22   | 11.3   |
| 80        | 10.5 | 68   |
| 65        | 7.5  | 76   |
| 63        | 80   | 10.1   |
| 62114.7   | 90   | 8.6  |
| 17        | 20   | 101  |
| 17        | 75   | 23   |
| 90        | 100  | 23   |
| 70        | 74   | 25   |
| 73        | 99   | 20   |
| 45        | 60   | 86   |
| 90        | 74   | 90   |
| 70        | 90}  | 25   |
| 72        | 60}  | 20   |
| 8.57      | 99   | 10.5   |
| 45}       | 90   | 90   |
| 28        | 94   | 105  |
| 17        | 102  | Ob 21 <sup>h</sup> 25.0                      |
| 80        | 78   | Ended with                                   |
| 30        | 40   | star at 19 <sup>h</sup> 55 <sup>m</sup> 13.5 |
| 85        | 90   |  |
| 17        | 98}  |  |
| 80        | 100} |  |
| a 21 16.9 | 103  |  |
| 90        | 70   |  |
| 82        | 40   |  |



Sept. 6. 1883.

Comet Brooks.

W. obs.

$$\begin{array}{r}
 16 \quad 34 \quad + 64.6 \\
 18 \quad 43 \\
 \hline
 +2 \quad 9
 \end{array}$$

$$\begin{array}{r}
 \text{Pos. 0} \quad 322.3 \\
 \quad \quad 45.0 \\
 \hline
 \quad \quad 277.3
 \end{array}$$

Order Comet, first star,  
Comet, second star, first  
star, second star.

Comet in northern half of square  
Both stars in southern of square.

First Star is 2 M. +64° 1140 (mag. 7.7)  
Second " " " +64° 1142 (mag. 9.1)

Sept. 6, 1883.  
Series LIV.

Re-vision of Vol. VII S. obs.  
Began with star at  $19^h 10^m 2^s$   
" at  $20^h 42^m 2^s$

|           |           |           |      |           |          |          |          |           |
|-----------|-----------|-----------|------|-----------|----------|----------|----------|-----------|
| 7.4       | 35        | 0.0       | 6.8  | 25        | 75       | 10.0     | 24       | 6.5       |
| 9.9       | 18        | 6.8       | 3.0  | 80 prec   | 80       | 10.0     | 0        | 7.5       |
| 7.4       | 7.4       | 5.5       | 6.7  | 80 fol    | 90       | 5.5      | 5.5      | 10.0      |
| 7.0       | 18        | 4.8       | 10.5 | a 20 58.3 | 7.8      | 10.5     | 5.5      | 6.0       |
| 7.0       | b 20 48.1 | 5.5       | 7.4  | 0.6       | 7.0      | 5.6      | 6.0      | 10.2      |
| 9.9       | 7.4       | 1.07      | 6.8  | 11.0      | 2.8      | 6.0      | 1.0      | a 21 11.8 |
| a 20 43.4 | 9.8       | 0         | 3.0  | 6         | b 20 1.2 | 5.5      | 6.5      | 10.2      |
| -0.1      | 6.2       | 6.0       | 6.7  | 4.3       | 2.8      | 10.0     | 7.5      | 3.0       |
| 9.8       | 3.3       | 4.8       | 8.5  | 7.0       | 7.5      | 5.6      | 8.0      | 3.5       |
| 7.0       | 6.2       | 6.8       | 6.5  | 11.0      | 2.0      | 6.7      | 1        | 9.57      |
| 9.8       | 9.8       | 1.57      | 4.0  | 4.0       | 0.5      | a 21 5.8 | 2.6      | 7.0       |
| 7.0       | 3.3       | 1.0       | 8.5  | 6.0       | 2.0      | 8.0      | 5.5      | 4.0       |
| 7.8       | -0.3      | 6.8       | 5.0  | 1.0       | 10.0     | 0.0      | 6.0      | 3.5       |
| 9.5       | 7.2       | 1.5       | 3.0  | 2.6       | 5        | 7.9      | 7.0      | 9.0       |
| 10.2      | 5.5       | 9.7       | 2.0  | 2.3       | 7.5      | 8.0      | 7.5      | 7.4       |
| 10.2      | 7.2       | b 20 54.3 | 6.5  | 1.0       | 10.0     | 7.9      | 2.0      | 9.0       |
| 9.5       | 5.5       | 8.2       | 4.0  | 2.6       | 7.4      | 0        | 2.5      | 7.0       |
| 7.8       | a 20 50.8 | 9.7       | 3.0  | 2.3       | 6.7      | 2.0      | 3.5      | 4.9       |
| 3.0       | 10.5      | 11.0      | 5.8  | 7.5       | 7.5      | 8.5      | b 21 9.5 | 7.4       |
| 2.3       | 8.9       | 10.5      | 2.0  | 10.3      | 5.0      | 10.7     | 3.5      | 9.0       |
| 2.5       | 6.3       | 10.2      | 10.5 | 10.2      | 7.4      | 8.5      | 2.0      | 4.9       |
| 3.0       | 9.3       | 8.0       | 8.3  | 8.0       | 10.0     | 2.0      | 11.5     | b 21 13.7 |
| 2.3       | 8.9       | 11.0      | 6.0  | 10.3      | 6.7      | 2.4      | 4.4      | 10.0      |
| 3.5       | 10.5      | 7.4       | 8.2  | 9.0       | 5.0      | 0.0      | 10.0     | 7.6       |
| 6.8       | 6.3       | 10.2      | 10.5 | 7.0       | 10.0     | 10.7     | 7.8      | 8.3       |
| 6.8       | 9.3       | 10.5      | 2.5  | 10.5      |          | 5.5      | 3.0      | 9.7       |



Sept. 6, 1883.

|        |       |        |             |                     |        |        |        |        |        |
|--------|-------|--------|-------------|---------------------|--------|--------|--------|--------|--------|
| 100}   | 4.0   | 8.5    | 100         | 25                  | 6.8    | 6.6    | 81     | 10.3   | 8.6    |
| 76}    | 85    | 75     | 2.0         | 11.0                | 6.7}   | 40     | 4.7    | 83     | 10.3   |
| 4.8}   | 65    | 4.8}   | 80          | 7.8                 | 6}     | 53     | 6.2    | 4.3    | 60     |
| 80}    | 40    | 60}    | 9.0         | Rej signal<br>after | 11.0   | 60     | 2.0    | 2.0}   | 7.4}   |
| 98     | 83    | 80     | 20          | 110                 | 8.0    | 60     | 50     | 103}   | 83}    |
| 10.6}  | 10    | 48     | 90          | 2.5                 | 6.0    | 4.0    | 40     | 20     | 10.2}  |
| 48}    | 7.4}  | 9.0    | 10.3        | 7.5                 | 2.15}  | 67     | 8.0    | 6.6}   | 43     |
| 7.0}   | 7.8}  | 10.2   | 9.8         | 2.1312              | 80     | 9.0    | 6.0}   | 7.5    | 32     |
| 106}   | 80    | 77     | 9.7         | 2.4                 | 60     | 60     | 20     | 75     | 73     |
| 77     | 74    | 3.8    | 0.5         | 8.0                 | 110    | 7.3    | 10.8   | 7.4    | 6.4    |
| 10.2}  | 10    | 90     | 98}         | 25                  | 10.2   | 4.8    | 6.9    | 7.4    | 21.543 |
| 70}    | 78    | 10.2}  | 97}         | 24                  | 4.6    | 40     | 60     | 21.497 | 64     |
| 76     | 8.3   | 10.2}  | 7.7         | 75                  | 4.2    | 70     | 8.0    | 7.3    | 3.2    |
| 7.5}   | 7.8   | 70     | 2.0         | 9.0                 | 106    | 80     | 55     | 6.5    | 5.0    |
| 102}   | 83    | 20     | 4.5         | 6.0                 | 21.358 | 73     | 7.8}   | 6.5    | 3.2    |
| 11.0   | 78    | 10.2   | 10          | 10.4                | 6.7    | 2.6    | 6.9}   | 7.3    | 5.0    |
| 110    | 8.2   | 21.240 | 75          | 8.5}                | 6.7    | 30     | 50     | 8.5    | 10.0   |
| 75     | 9.8   | 0.2    | 9.2         | 90}                 | 11.2   | 2.0    | 80     | 8.2    | 9.0    |
| 7.8    | 3.0   | 7.0}   | 3.0         | 60}                 | 1.6    | 3.3    | 7.8    | 7.0    | 4.0    |
| 6.7    | 1.8   | 7.8}   | 40          | 105                 | 11.2   | 2.5    | 7.5    | 2.5    | 21.557 |
| 6.3    | 10.6  | 11.0   | 20          | 5.2}                | 16     | 20}    | 3.2    | 8.5    | 8.8    |
| 76     | 7.5   | 10     | 7.0}        | 8.5}                | 10.6   | 3.3}   | 2.3    | 8.3    | 4.0    |
| 67     | 30    | 70}    | 90}         | 9.0                 | 5.1    | 21.411 | 80     | 7.3}   | 5.2}   |
| 63     | 10.0} | 78}    | 6.8}        | 7.5                 | 6.2    | 2.3    | 10.0   | 70}    | 100    |
| 21.177 | 106}  | 110    | 30}         | 50                  | 106    | 8.2    | 30     | 2.6    | 90}    |
| 1.5    | 20    | 5.2    | prec 21.297 | 21.335              | 10.6   | 2.3    | 2.3    | 2.5    | 1.0    |
| 15     | 75    | 5.2    | fol 70      | 75                  | 51     | 4.6    | 21.455 | 26     | 5.5    |
| 6.2    | 7.3   | 10.0   | 68          | 0.6}                | 62     | 8.1    | 2.7    | 8.0    | 50     |
| 8.5    | 9.0   | 5.2    | prec 4.0    | 90}                 | 4.0    | 5.0    | 100    | 70     | 80     |
| 6.5    | 6.0   | 5.2    | fol 2.5     | 7.6                 | 106    | 8.2    | 8.3    | 80     | 10}    |
| 6.2    | 7.3   | 8.0    | 40          | 9                   | 5.3    | 4.6    | 2.7    | 6.0    | 55}    |

Sept. 6, 1883.

|      |          |              |
|------|----------|--------------|
| 9.5  | 11.2     | 1.6          |
| 5.8  | 7.3      | 4.7          |
| 8.2  | 30}      | 6.0          |
| 7.5  | 110}     | 16           |
| 7.6  | 70}      | 11.5}        |
| 30   | 112}     | 30}          |
| 40   | a 22 1.6 | 40           |
| 90   | 1.8      | 11.5         |
| 76}  | 10.0     | b 22 7.8     |
| 60}  | 3.0      | Ended at     |
| 50   | 3.5}     | 20h 35m 27.7 |
| 75   | 9.0}     |              |
| 100  | 18       |              |
| 74   | 90       | free         |
| 100  | 35       |              |
| 7.3  | 90       | fol          |
| 74   | 30}      |              |
| 73   | 6.5      | probably 6.5 |
| -0.1 | b 22 3.2 |              |
| 0.5  | 8.8      |              |
| -1   | 6.8      |              |
| 9.2  | 70       |              |
| 8.5  | 3.6      |              |
| 2.0  | 80       |              |
| 6.0} | 68       |              |
| 9.5} | 36       |              |
| 3}   | a 22 4.5 |              |
| 80   | 6.5      |              |
| 35   | 3.8      |              |
| 11.0 | 38       |              |
| 60   | 65       |              |



Sept. 6. 1883.

Comet Brooks.

W. obs.

$$\begin{array}{r} 16 \quad 34 \quad +64.6 \\ \underline{\quad 2 \quad 13 \quad} \\ +9 \quad 39 \end{array}$$

$$\begin{array}{r} \quad 2 \quad 20 \\ \underline{\quad 2 \quad 20} \\ +9 \quad 46 \end{array}$$

$$\begin{array}{r} \text{Pos. Zero} \quad 179.6 \\ \quad \quad \quad 45.0 \\ \hline \quad \quad \quad 224.6 \end{array}$$

Order. Comet, Comet, 1<sup>st</sup> star,  
1<sup>st</sup> star, 2<sup>d</sup> star, 2<sup>d</sup> star.

All in southern half of square.

1<sup>st</sup> Star is D.M. +64° 1140 (mag. 7.7)  
2<sup>d</sup> " " " +64° 1142 (mag. 9.1)

6 sets taken. - Reject fifth set.

Chrom. 3451 used. Chrom. 3451 is 3.2 feet.

Sept. 7. 1883.

Comet Brooks.

W. obs.

$$\begin{array}{r} 16 \quad 34 \quad +64.2 \\ 14 \quad 25 \\ \hline +1 \quad 51 \end{array}$$

$$16 \quad 29 \quad +62.5$$

$$\begin{array}{r} R \quad 49 \quad 48.5 \\ 50 \quad 17.5 \end{array}$$

$$\text{Pos. 0} = 68.6$$

K5

$$113.6$$

| $\alpha$ | (s) | $a(n)$ | $b(n)$  | $\alpha$ | (s)  | $a(n)$ | $b(n)$ | $\alpha$ | (s)  | $a(n)$ | $b(n)$ | $\alpha$ | (s) | $a(n)$ | $b(n)$ |
|----------|-----|--------|---------|----------|------|--------|--------|----------|------|--------|--------|----------|-----|--------|--------|
| 19       | 5   | 59.5   | 8 32.3  | 9        | 25.7 |        |        |          |      |        |        |          |     |        |        |
| 7        |     | 8.4    | 9 6.0   | 10       | 32.9 | 4      | 30.4   |          |      |        |        |          |     |        |        |
| 18       |     | 7.9    | 17 38.3 | 19       | 58.6 | 2      | 11.2   | 68.9     | 33.7 | 67.2   | 6      | 50.7     |     |        |        |
| 11       |     | 17.0   | 13 49.0 | 14       | 42.0 |        |        |          |      |        |        |          |     |        |        |
| 12       |     | 23.5   | 14 22.2 | 15       | 49.2 |        |        |          |      |        |        |          |     |        |        |
| 23       |     | 40.5   | 28 11.2 | 30       | 31.2 | 4      | 30.7   | 66.5     | 33.2 | 67.2   | 6      | 50.7     |     |        |        |
| 16       |     | 35.1   | 19 7.2  | 20       | 1.4  |        |        |          |      |        |        |          |     |        |        |
| 17       |     | 41.5   | 19 40.7 | 21       | 7.6  |        |        |          |      |        |        |          |     |        |        |
| 34       |     | 16.6   | 38 47.9 | 41       | 9.0  | 4      | 31.3   | 66.4     | 33.5 | 66.2   | 6      | 52.4     |     |        |        |
| 21       |     | 41.1   | 24 14.1 | 25       | 7.2  |        |        |          |      |        |        |          |     |        |        |
| 22       |     | 46.2   | 24 46.2 | 26       | 14.0 |        |        |          |      |        |        |          |     |        |        |
| 44       |     | 27.4   | 49 0.3  | 51       | 21.2 | 4      | 32.9   | 65.2     | 32.1 | 66.8   | 6      | 53.8     |     |        |        |
| 26       |     | 47.8   | 29 22.0 | 30       | 16.0 |        |        |          |      |        |        |          |     |        |        |
| 27       |     | 54.7   | 29 54.5 | 31       | 20.0 |        |        |          |      |        |        |          |     |        |        |
| 54       |     | 42.5   | 59 16.5 | 61       | 37.0 | 4      | 34.0   | 66.9     | 32.5 | 65.0   | 6      | 54.5     |     |        |        |



Sept 7, 1883  
Means of Runners alone

170 14.9  
~~17~~ 17 1.49

|       |       |
|-------|-------|
| 102.6 | 136.1 |
| 99.7  | 133.7 |
| 99.9  | 132.6 |
| 97.3  | 132.0 |
| 99.4  | 131.9 |

4 31.86 6 52.42 99.78 133.26

B. 236.  
~~19 37 52.2~~  
19 36 22.2

B. 394.  
~~8 33 30.0~~  
8 34 0.0

Comp. Stars. +6 K° 1140 (7.7 cl.)  
and +6 K° 1142 (9.1 cl.)

Sept. 7, 1883.

Series IV. { Re-observed on account of difficulty  
found in reduction, see Series I, IX.

Re-vision of Vol. VI. S. obs.

Began with star at  $19^h 50^m 0.8$ ; decl.  $10' 46''$ 

" at  $20^h 15^m 0.8$  (This first star observed is at decl.  $3'$ ;  
the second is probably that at  $19^h 50^m 0.8$ , decl.  $10' 46''$ . But even  
after this change the chronograph readings seem to disagree with the catalogue. The  
region was therefore re-observed Oct. 5, 1883, Series I, IX. See p. 113.)

|                |                |         |          |         |        |         |      |
|----------------|----------------|---------|----------|---------|--------|---------|------|
| 3.0            | 78             | 10.3    | 5        | 4.0     | 99     | 62033.3 | 2.3  |
| <del>7.3</del> | 85             | 7.4     | 3.6      | 3.8     | 82     | 4.5X    | 5.5  |
| 10.3           | 3.0 prec       | 1.5     | 5        | 11.0    | 8.0    | 0.0     | 4.0  |
| 30             | 3.0 fol        | 62022.2 | 60       | 8.4     | 2031.5 | 30      | 20   |
| 103            | 10.0           | 102     | 94       | 3.5     | 6.5    | -1.6    | 25   |
| 7.5            | 7.7            | 75      | 7.5      | 30      | 30     | 0       | 8.0  |
| 0.3            | 30 prec        | 4.6     | 3.2      | 28      | 2.0    | 2034.5  | 20   |
| 8.0            | 30 fol         | 15      | 30       | X       | 2.5    | -0.1    | 50   |
| 6.0            | 100            | 4.5     | 80       | 80      | 80     | 5.8     | 5.5  |
| 2.0            | 6.8            | 46      | 8.0      | 30      | 4.0    | -1      | 1.6  |
| 7.5            | <del>7.7</del> | 45      | 35       | 62028.2 | 60     | 2.0     | 80   |
| 2              | 10.6           | 2.0     | 70       | 8.0     | 20     | 5.8     | 5.5  |
| 8.0            | -0.8           | 2.4     | 7.0      | 10.0    | 25     | 6.0     | 7.5  |
| 9.5            | 68             | 0.5     | 80       | 80      | 8.0    | 2.4     | 20   |
| 80             | 7.0            | 20      | 10.3     | 100     | 4.0    | 20      | 10.8 |
| 60             | 106            | 24      | 70       | 4.0     | 2.0    | 6.0     | 0.6  |
| 20             | 70             | 5       | 3.0      | 8.6     | 6.0    | 2.0     | 7.5  |
| 80             | 8.0            | 8.9     | 6.8      | 9.5     | 7.0    | 3.3     | 10.8 |
| 9.5            | 7.3            | 6.0     | 5.5      | 4.0     | 9.0    | 2.3     | 6.6  |
| a 2017.3       | 10.2           | 0.6     | 103      | 86      | 8.0    | 4.0     | 6    |
| 6.0            | 80             | 89      | 0        | 95      | 4.5    | 20      | 10.5 |
| 4.0            | 73             | 60      | 30       | 8.7     | 60     | 40      | 7.5  |
| 7.8            | 102            | 7.0     | 55       | 8.7     | 50     | 7.9     | 6.5  |
| 8.5            | 6.5            | 0.0     | 68       | 9.9     | 20     | 4.5     | 10.0 |
| 60             | -0.5           | 70      | a 2026.9 | 8.2     | 2.1    | 3.5     | 10.5 |
| 40             | 6.5            | 6.5     | 5.6      | 3.5     | 80     | 6.0     | 4    |



Sept 7 1883

|           |           |           |           |           |          |          |           |
|-----------|-----------|-----------|-----------|-----------|----------|----------|-----------|
| 1.8}      | 6.0}      | 6.3       | a 20 52.0 | 7.3}      | 9.5      | 47       | 3.4       |
| 7.5}      | 4.0}      | 2.2       | 10.3      | 20}       | 6.8      | 20       | 3.5       |
| 100       | 4.0       | 7.5       | 6.8       | b 20 56.1 | a 21 29  | 3.8      | 8.5       |
| 18        | 0.0       | 6.8}      | 6.5       | 3.5       | 3.0      | 3.5      | 3.4       |
| 8.0       | 6.0       | 6.3}      | 6.8       | 6.7       | 3.0      | 10.3     | 8.5       |
| 2.4       | 0         | 2.2       | 3.0}      | 3.8}      | 2.0      | 9.8      | 2.8       |
| 5.0       | 6.2}      | 8.2       | 6.5}      | 3.5}      | 3.0      | 3.8      | 3.8       |
| 8.0       | 6.0}      | 7.0       | b 20 53.4 | 1.8       | 10.7     | 7.5}     | 3.0       |
| 2.4       | 6.2       | 8.2       | 6.0}      | 6.5       | 1.5      | 3.5}     | 3.0       |
| 5.0       | 3.2       | b 20 49.9 | 1.5}      | 3.5       | 2.0      | 10.0}    | 9.5       |
| 4.9       | 7.0       | 7.3       | 7.0       | 1.8       | 3.0      | 8.0      | 10.3      |
| 4.9       | 7.7       | 1.8       | 4.0       | 9.0       | 10.5     | 9.0      | 3.5       |
| 11.0      | 10.0      | 3.0       | 8.0}      | 3.4       | 6.0}     | 7.5      | 10.0      |
| 100       | 3.0       | 5.0       | 7.0}      | 1.7       | 1.5}     | 8.0      | 10.3      |
| b 20 42.7 | 6.0       | 2.0}      | 4.0}      | 9.0       | b 21 5.0 | a 21 9.3 | 9.8       |
| 11.0      | 4.9       | 1.8}      | 2.0}      | 1.7}      | 3.3      | 7.8      | 10.0      |
| 4.5}      | 6.0}      | 7.5       | 8.0}      | 3.4}      | 6.0      | 3.0      | b 21 13.9 |
| 100}      | 8.0}      | 3.0       | 8.0       | 2.3       | 3.3      | 10.0     | 9.8       |
| 6.0       | 2.0}      | 5.0       | 8.0}      | 3.0       | 2.2      | 10.0     | 3.2       |
| 10.0      | 2.0       | 9.8       | 5.0}      | 8.5}      | 6.0      | 3.0      | 10.2      |
| 8.0       | 5.0       | 7.3}      | 7.0       | 3.0}      | 8.4      | 7.0      | 9.8       |
| 11.0      | a 20 27.2 | 2.0}      | 7.5       | 2.3       | 6.5}     | 10.0     | prec. 2.5 |
| 100       | 3.4       | 4.9       | 7.5       | 7.5}      | 2.2}     | 10.0     | fol. 6.0  |
| 4.5       | 3.4       | 9.3}      | 9.0       | 8.5}      | 6.0      | 7.5}     | 3.8}      |
| 11.0      | 0.8       | 9.0}      | 7.5       | 7.5       | 8.4      | 7.7}     | 9.0}      |
| 6.8       | 8.5       | 4.8}      | 0.6       | 5.6       | 6.5      | 2.6      | 2.6       |
| 6.0       | 2.4       | 7.5}      | 7.3       | 5.6       | 0.0      | 7.5}     | 6.0       |
| 4.5       | 8         | 5.0       | 2.0       | 2.0       | 10.7     | 7.7}     | 2.5       |
| 11.0      | 8.5       | 10.3}     | 9.0       | 9.5       | 4.7      | 2.6      | 7.4}      |
| 6.0       | 2.4       | 4.8}      | 7.5       | 6.8       | 2.0      | 3.5      | 2.6}      |
| 5.0       | 7.5       | 9.0}      | 6         | 2.0       | 0        | 2.8      | 1.8       |

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|           |                             |          |  |
|-----------|-----------------------------|----------|--|
| 6.5       | 103                         | 6        | 5.1  |
| 74        | 105                         | 407      | 108  |
| 11.0      | 0                           | 68}      | 51   |
| 2.0       | 76                          | 78       | 0.0  |
| 23        | 11.0                        | 8.0      | 4.9  |
| 7.0       | 11.5                        | 10.5     | 5.6  |
| 8.2       | 3.5}                        | 6.0      | 2.6  |
| 18        | 75}                         | 80       | 3  |
| 70        | <del>80</del>               | 60       | 40   |
| 10.0      | 0.07                        | 105      | 56   |
| 5.0       | 8.0}                        | 7.0      | 26   |
| 0.0       | 30}                         | 7.8      | 6.21 29.3  |
| 8.0       | 0}                          | 9.5}     | 6.8  |
| 10.0      | 80                          | 78}      | 2.8  |
| 5.0       | -0.5                        | 7.0      | 6.8  |
| 07        | 5.5                         | 70 prec. | 8.0}   |
| 80}       | 9.5 <sup>Went through</sup> | 4.9      | 28}  |
| 10.2      | 1.3                         | 70 fol   | 1.8}   |
| a 21 17.4 | 55                          | 49       | 2.0}   |
| 10.2      | 4.7                         | 7.6      | 80}  |
| 10.4      | 13                          | 7.4      | 20   |
| 8.3       | 6.0                         | 9.0      | 18   |
| 2.0       | 4.0                         | 33       | 10.9   |
| 10.0      | 0.5                         | 11.0     | 10.9   |
| 83        | 60                          | 337      | bb 21 <sup>h</sup> 31.9                                      |
| 10.3      | b-22 22.7                   | 76}      | Ended with   |
| 2.0       | 5                           | 737      | star at  |
| 10.3      | 1.5                         | 80}      | 21 <sup>h</sup> 5 <sup>m</sup> 48.3                          |
| 10.3      | 6.3                         | 5.0      | Chronograph irregular. Record can be                         |
| 10.5      | 7.8                         | 10.0}    | easily read to 20 <sup>h</sup> 32 <sup>m</sup> and with some |
| 0.0       | 4.0                         | 5.0}     | trouble to 21 <sup>h</sup> .                                 |



Sept 9

$$\begin{array}{r} B \ 225 \\ \hline 54 \\ 18 \ (49) \ 5.0 \end{array}$$

$$\begin{array}{r} B \ 394 \\ \hline 6 \ 39 \ 5 \\ 7 \ (42) \ 0 \end{array}$$

$$\begin{array}{r} B \ 236 \\ \hline 18 \ 55 \ 26 \end{array}$$

$$\begin{array}{r} TMS \ 1227 \\ \hline 18 \ 58 \ 0 \end{array}$$

$$\begin{array}{r} 8.8 \\ 45. \\ \hline 53.8 \end{array}$$

$$\begin{array}{r} 20 \ 2 \ 25.0 \\ 2 \ 58.8 \\ 3 \ 21.2 \end{array}$$

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Sept 9, 1883

A. 5. obs.

Conjo Plan Dm 63 - 1283

South

X north

1855-

E E X X

Dm 63 1283

20 7 48.0 20 9 47.0

9 14.5

17 2.5

- X -

20 11 38.6 13 19.5

12 9.8 14 52.2

11m 54.2 14 5.85 - 2 11.65 31.2 92.7 61.5

15 10.5 16 51.5

15 45.0 18 27.0

15 27.75 17 39.25 2 11.50 34.5 95.5 61.0

18 48.2 20 29.7

19 22.0 22 4.8

19 5.1 21 17.25 2 12.15 33.8 95.1 61.3

22 34.0 24 15.7

23 2.1 25 43.4

22 48.05 24 59.55 2 11.50 28.1 87.7 59.6

26 4.5 27 48.9

26 34.4 29 13.6

26 19.45 28 30.25 2 10.80 29.9 86.7 56.8

20 19 6.9 2 11.52 31.50 91.54 60.04



Sept 9

Confer sta. Dr 63.1280

X X

| (S)         | X (2)      |             |      |       |       |       |
|-------------|------------|-------------|------|-------|-------|-------|
| 20 31 132   | 20 31 19.0 |             |      |       |       |       |
| 31 50.2     | 31 45.0    |             |      |       |       |       |
| 31 31.7     | 31 32.0    | $\bar{x}_0$ | 0.30 | 37.0  | 26.0  | 63.0  |
| 33 44.3     | 33 23.2    |             |      |       |       |       |
| 54.0        | 36.2       |             |      |       |       |       |
| 33 29.15    | 33 29.7    | $\bar{x}_0$ | 0.55 | 49.7  | 13.0  | 62.7  |
| 34 18.7     | 34 37.0    |             |      |       |       |       |
| 35 4.5      | 50.5       |             |      |       |       |       |
| 34 41.6     | 34 43.7    | -0          | 2.15 | 45.8  | 13.5  | 59.4  |
| 36 35.1     | 36 54.9    |             |      |       |       |       |
| 37 22.2     | 37 9.5     |             |      |       |       |       |
| 36 58.65    | 37 2.2     | -0          | 3.55 | 47.1  | 14.6  | 61.7  |
| 38 5.6      | 38 38.9    |             |      |       |       |       |
| 39 38.6     | 39 55.1    |             |      |       |       |       |
| 40 22.9     | 40 12.0    |             |      |       |       |       |
| 40 0.75     | 40 3.55    | -0          | 2.80 | 44.3  | 16.9  | 61.2  |
| 41 59.0     | 42 15.2    |             |      |       |       |       |
| 42 40.0     | 21.0       |             |      |       |       |       |
| 42 49.5     | 42 23.1    | -0          | 3.60 | 46.0  | 15.8  | 56.8  |
| 44 42.0     | 45 0.1     |             |      |       |       |       |
| 45 25.6     | 45 16.0    |             |      |       |       |       |
| 45 3.8      | 45 8.05    | -0          | 4.25 | 43.6  | 15.9  | 59.5  |
| 45 45.0     | 46 3.2     |             |      |       |       |       |
| 46 29.8     | 18.5       |             |      |       |       |       |
| 46 7.4      | 46 10.85   | -0          | 3.45 | 44.8  | 15.3  | 60.1  |
| 46 44.0     | 46 1.0     |             |      |       |       |       |
| 47 25.2     | 14.5       |             |      |       |       |       |
| 47 4.6      | 7.75       | -0          | 3.15 | 41.2  | 13.5  | 54.6  |
| 20 39 41.90 |            | -0          | 2.64 | 43.83 | 16.06 | 59.89 |

Sept 7

B 235

|    |    |      |
|----|----|------|
| 20 | 52 | 24.2 |
|    | 53 | 24.3 |

B 294

|   |    |     |
|---|----|-----|
| 9 | 40 | 0.0 |
|   | 41 | 0.0 |

B 236

|    |    |      |
|----|----|------|
| 20 | 54 | 26.2 |
|----|----|------|

B 294

|    |    |    |
|----|----|----|
| 25 | 57 | 0. |
|----|----|----|

~~Comparison of stars~~~~e north & south~~~~21 38 34.0~~~~39 22.0~~

The 1st star used in this obs of  
 is not a catalogue star  
 Hence the following compar.  
 were made with Sm. 63.1284



Sept 7. 1883

59

Dm 63-1283

D.m 63-1284

x north

x South

|            |  |    |       |       |       |        |
|------------|--|----|-------|-------|-------|--------|
| 21 38 34.0 | <sup>21</sup><br><del>20</del> 39 59.5 |    |       |       |       |        |
| 39 22.0    | 40 55.0                                |    |       |       |       |        |
| 38 58.00   | 40 27.25                               | -1 | 29.25 | 48.0  | 55.5  | 103.5  |
| 41 10.2    | 42 35.9                                |    |       |       |       |        |
| 41 59.0    | 43 30.7                                |    |       |       |       |        |
| 41 34.60   | 43 3.30                                | 1  | 28.70 | 488   | 54.8  | 103.6  |
| 43 43.8    | 45 10.0                                |    |       |       |       |        |
| 44 33.2    | 46 4.0                                 |    |       |       |       |        |
| 44 8.50    | 45 37.0                                | 1  | 28.50 | 49.4  | 54.0  | 103.4  |
| 46 19.0    | 47 45.1                                |    |       |       |       |        |
| 47 9.0     | 48 39.9                                |    |       |       |       |        |
| 46 44.0    | 48 12.5                                | 1  | 28.50 | 50.0  | 54.8  | 104.8  |
| 49 15.7    | 50 40.4                                |    |       |       |       |        |
| 50 4.0     | 51 36.0                                |    |       |       |       |        |
| 49 39.85   | 51 8.20                                | 1  | 28.35 | 483   | 55.4  | 102.7  |
| 52 22.3    | 53 48.6                                |    |       |       |       |        |
| 53 11.2    | 54 42.6                                |    |       |       |       |        |
| 52 46.75   | 54 15.6                                | 1  | 28.85 | 48.9  | 54.0  | 102.9  |
| <hr/>      |  |    |       |       |       |        |
|            |  | -1 | 28.69 | 48.90 | 54.75 | 103.65 |

2.015569  
 0.875061  


---

 2.890630  
 9.648368  


---

 2.538948  
 345.9  
 889.8  


---

 543.9  
 9' 3.9

Sept 10, 1883

B. & C. 1182

~~4~~ 22 41.9  
23 41.7  
24 41.7

B 394

~~16~~ 23 00  
24 00  
25 00  
+ 2.8

16 35 38.8  
24  
16 59 38.8  
19  
16 59 57.8

Eclipse Jup. I (dis.) S. obs. Cu. rec.  
Compare with Jup. III. Phot. R.

|   |    |      |      |
|---|----|------|------|
| 4 | 50 | 12.0 | 1.3  |
|   |    | 30.8 | 94.2 |
|   |    | 49.0 | 9.3  |
|   | 51 | 92   | 89.8 |
|   |    | 31.7 | 10.3 |
|   |    | 52.2 | 52.2 |
|   | 52 | 9.0  | 3.2  |
|   |    | 20.0 | 91.0 |
|   |    | 32.5 | 1.0  |
|   |    | 47.0 | 95.0 |



Sept. 10, 1883.

|   |    |      |       |   |
|---|----|------|-------|---|
| 4 | 52 | 59.3 | 4.8   |   |
|   | 53 | 9.0  | 92.8  | - |
|   |    | 31.0 | 9.2   |   |
|   |    | 39.5 | 90.8  |   |
|   |    | 46.2 | 357.8 |   |
|   |    | 56.3 | 97.2  |   |
|   | 54 | 5.0  | 356.2 | - |
|   |    | 14.0 | 102.0 |   |
|   |    | 34.2 | 1.3   |   |
|   |    | 41.8 | 93.0  |   |
|   |    | 54.8 | 2.8   |   |
|   | 55 | 2.5  | 99.0  |   |
|   |    | 14.7 | 358.1 |   |
|   |    | 24.0 | 102.8 |   |
|   |    | 38.5 | 357.0 |   |
|   |    | 49.2 | 98.5  |   |
|   |    | 57.8 | 358.0 |   |
|   | 56 | 8.0  | 99.2  | - |
|   |    | 17.8 | 1.5   |   |
|   |    | 26.2 | 100.7 |   |
|   |    | 37.7 | 7.3   |   |
|   |    | 51.3 | 99.2  |   |
|   |    | 59.3 | 4.6   |   |
|   | 57 | 8.3  | 91.7  |   |
|   |    | 19.2 | 0.0   |   |
|   |    | 32.8 | 89.2  | - |
|   |    | 42.0 | 4.2   |   |
|   |    | 53.3 | 89.7  |   |
|   | 58 | 4.8  | 8.8   |   |

Sept. 10, 1883 -

|    |    |      |           |
|----|----|------|-----------|
| 4  | 58 | 13.3 | 87.0      |
|    |    | 22.0 | 13.5      |
|    |    | 28.7 | 86.3      |
|    |    | 35.0 | 10.2      |
|    |    | 41.8 | 82.0      |
|    |    | 48.5 | 8.8       |
|    |    | 55.5 | 74.5      |
| 59 |    | 2.5  | 18.5      |
|    |    | 11.3 | 73.8      |
|    |    | 19.5 | 17.2      |
|    |    | 26.8 | seen      |
|    |    | 35.0 | 68.2      |
|    |    | 41.7 | Respected |

Limit of Vis.

|   |   |      |      |
|---|---|------|------|
| 5 | 0 | 23.8 | 35.2 |
|   |   | 45.5 | 57.0 |
|   | 1 | 8.5  | 34.0 |
|   |   | 31.2 | 67.8 |

Seeing very bad; satellites often disappearing entirely. The limit of visibility represents the limit at favorable moments.

|            |    |      |       |    |            |
|------------|----|------|-------|----|------------|
| B & C 1182 |    |      | B 394 |    |            |
| 5          | 10 | 41.6 | 17    | 11 | 44.5<br>00 |
|            | 11 | 41.6 |       | 12 | 00         |

+2.9 -



Sept. 17, 1883.

B & C 1182

3 7 23.7  
8 23.7

B 394

15 8 00

9 00

15 3 11

23 42

15 26 53

36

15 27 29

Disap. of Jupiter II.

Sept. 18, 1883.

Vernier 344.8 star runs on face.  
S. obs.

Limits of Search for Swift's comet,  
17<sup>h</sup> 45<sup>m</sup> to 18<sup>h</sup> 30<sup>m</sup>

G 21 10

t 2 52

L 18 18

$\delta + 72.5$  to  $+74^\circ$

Examined this region by sweeping  
in declination and also in right  
ascension without finding anything.

10 0 Comet Brooks also looked for by S. & G.  
Moonlight too strong for faint objects.

B 4 C 1182

4 19 21.3

20 21.3

16 32 3

23 41

16 55 44

39 -

16 56 23

B 394

16 20 44.5

21 00

+23.2

Eclipse Jupiter IV - Dis. Obs. Cu. rec.  
Compared with III.

Phot. H.



Sept. 18, 1883.

|              |   |    |      |       |
|--------------|---|----|------|-------|
| <del>B</del> | 4 | 35 | 20.3 | 219.4 |
|              |   |    | 43.0 | 276.6 |
|              |   | 37 | 39.5 | 49.5  |
|              |   |    | 54.8 | 102.7 |
|              |   | 38 | 11.3 | 44.8  |
|              |   |    | 22.5 | 98.8  |
|              |   |    | 41.2 | 47.7  |
|              |   |    | 53.0 | 98.3  |
|              |   | 39 | 14.8 | 53.0  |
|              |   |    | 33.7 | 96.0  |
|              |   |    | 50.5 | 50.3  |
|              |   | 40 | 3.0  | 97.0  |
|              |   |    | 16.8 | 49.4  |
|              |   |    | 27.2 | 96.4  |
|              |   |    | 37.7 | 48.0  |
|              |   |    | 50.5 | 95.9  |
|              |   | 41 | 2.5  | 46.5  |
|              |   |    | 17.3 | 95.5  |
|              |   |    | 41.8 | 44.7  |
|              |   | 42 | 38.0 | 102.1 |
|              |   |    | 54.2 | 45.0  |
|              |   | 43 | 10.5 | 99.9  |
|              |   |    | 23.2 | 41.2  |
|              |   |    | 36.8 | 100.0 |
|              |   |    | 49.7 | 43.7  |
|              |   | 44 | 4.0  | 99.5  |
|              |   |    | 19.3 | 41.8  |
|              |   |    | 36.8 | 104.0 |
|              |   |    | 57.5 | 44.2  |

Sept. 18, 1883.

|   |    |      |      |
|---|----|------|------|
| 4 | 45 | 11.2 | 99.6 |
|   |    | 27.5 | 41.7 |
|   |    | 43.5 | 99.6 |
|   |    | 59.5 | 47.8 |
|   | 46 | 15.8 | 96.0 |
|   | 47 | 46.5 | 43.0 |
|   |    | 57.5 | 97.0 |
|   | 48 | 11.2 | 45.5 |
|   |    | 25.0 | 96.8 |
|   |    | 45.0 | 43.3 |
|   |    | 57.8 | 99.4 |
|   | 49 | 11.3 | 42.8 |
|   |    | 22.0 | 96.0 |
|   | 50 | 2.0  | 44.8 |
|   |    | 17.0 | 97.0 |
|   |    | 33.5 | 46.0 |
|   |    | 45.5 | 93.5 |
|   | 51 | 2.5  | 45.7 |
|   |    | 16.2 | 90.0 |
|   |    | 33.0 | 46.2 |
|   |    | 43.5 | 90.8 |
|   |    | 59.0 | 46.5 |
|   | 52 | 11.5 | 92.0 |
|   |    | 23.7 | 45.5 |
|   |    | 34.5 | 94.3 |
|   |    | 47.0 | 45.8 |
|   |    | 57.2 | 91.2 |
|   | 53 | 8.3  | 48.0 |
|   |    | 21.2 | 90.4 |
|   |    | 31.3 | 43.3 |

Clock ~~stop~~

←



Sept 18, 1883

|   |    |      |      |
|---|----|------|------|
| 4 | 53 | 41.2 | 90.9 |
|   |    | 52.5 | 47.0 |
|   | 54 | 5.2  | 93.7 |
|   |    | 18.3 | 46.7 |
|   |    | 30.5 | 92.1 |
|   |    | 41.8 | 50.0 |
|   |    | 52.2 | 93.3 |
|   | 55 | 19.4 | 46.4 |
|   |    | 33.0 | 90.0 |
|   |    | 49.2 | 46.0 |
|   |    | 0.7  | 88.2 |
|   | 56 | 12.5 | 49.6 |
|   |    | 23.0 | 87.7 |
|   |    | 37.2 | 47.6 |
|   |    | 47.2 | 88.7 |
|   |    | 57.5 | 48.7 |
|   |    | 11.2 | 90.4 |
|   |    | 21.8 | 50.1 |
|   |    | 33.2 | 86.2 |
|   | 58 | 49.7 | 50.8 |
|   |    | 0.5  | 84.9 |
|   |    | 10.9 | 53.0 |
|   |    | 21.3 | 84.2 |
|   |    | 36.3 | 52.3 |
|   |    | 46.1 | 88.6 |
|   |    | 57.5 | 53.0 |
|   | 59 | 11.0 | 85.8 |
|   |    | 23.5 | 53.1 |
|   |    | 35.0 | 83.6 |
|   |    | 46.8 | 52.0 |

Sept 18, 1883.

|   |    |      |      |
|---|----|------|------|
| 4 | 59 | 57.5 | 81.7 |
| 5 | 0  | 11.3 | 55.2 |
|   |    | 22.3 | 81.3 |
|   |    | 34.7 | 54.9 |
|   |    | 46.8 | 80.4 |
|   |    | 58.8 | 56.5 |
|   | 1  | 12.3 | 79.4 |
|   |    | 26.5 | 58.3 |
|   |    | 39.7 | 77.5 |
|   |    | 53.5 | 56.8 |
|   | 2  | 12.2 | Seen |

Limit of Visibility.

|   |   |      |      |
|---|---|------|------|
| 5 | 3 | 12.3 | 57.2 |
|   |   | 30.5 | 79.1 |
|   |   | 48.2 | 58.3 |
|   | 4 | 1.7  | 79.0 |

B 4 C 11 P 2

|   |    |      |
|---|----|------|
| 5 | 9  | 21.5 |
|   | 10 | 21.4 |

B 394

|    |    |       |
|----|----|-------|
| 17 | 10 | 44.5  |
|    | 11 | 00    |
|    |    | +23.0 |



Wednesday Sept 19, 1883

Brooks to 1883

A.S. Observer

12 57 17  
~~23 41~~  
 13 20 58  
~~13 21 40~~

B 46 1182.

12 30 18.3  
 31 18.3

B 394

12 31 <sup>44.5</sup> 00  
 32 00  
 +26.2

Disappearance of Jupiter I Sobs. bu. rec.  
 Photometer R. Compared with Jupiter III.

|   |    |      |       |
|---|----|------|-------|
| 1 | 13 | 57.5 | 260.8 |
|   | 14 | 24.0 | 344.7 |
|   |    | 48.3 | 255.5 |
|   |    | 59.0 | 349.7 |
|   | 15 | 10.4 | 246.2 |
|   |    | 19.2 | 341.7 |
|   |    | 29.3 | 259.0 |
|   |    | 41.7 | 344.5 |
|   |    | 52.3 | 252.0 |
|   | 16 | 0.5  | 354.0 |
|   |    | 13.4 | 244.0 |
|   |    | 24.3 | 354.7 |
|   |    | 33.5 | 248.0 |
|   |    | 47.5 | 355.4 |
|   |    | 59.8 | 254.0 |
|   | 17 | 13.3 | 352.8 |
|   |    | 26.5 | 255.0 |

Sept. 19, 1883.

|   |    |      |            |
|---|----|------|------------|
| 1 | 17 | 36.8 | 358.0      |
|   |    | 45.8 | 254.2      |
|   |    | 55.2 | 353.8      |
|   | 18 | 6.5  | 245.4      |
|   |    | 18.2 | 345.0      |
|   |    | 30.7 | 249.9      |
|   |    | 49.2 | 354.8      |
|   | 19 | 6.3  | 258.0      |
|   |    | 21.2 | 348.3      |
|   |    | 38.7 | 267.0      |
|   |    | 56.0 | 344.2      |
|   |    | 9.3  | Seen       |
|   | 20 | 21.3 | 262.0      |
|   |    | 39.2 | Suspected. |

### Limit of Visibility

|    |                |       |
|----|----------------|-------|
| 21 | <del>7.1</del> |       |
|    | 7.5            | 251.3 |
|    | 21.5           | 346.0 |
| 22 | 44.8           | 237.7 |
|    | 2.5            | 31.5  |

Satellites not visible till shortly before disappearance. Jupiter IV too faint for use in comparison, but Jupiter III which was used, too near planet for convenience. All satellites very variable in constantly changing haze, which increased so rapidly just after the disappearance as to make the



Sept. 19, 1883,  
measuring of the limit of visibility entirely  
worthless.

B 46 1182  
/ 31 18.2  
32 18.2

B 394  
13 32 44.5  
33 00  
+ 26.3

72

Sept. 20, 1883,

Vernier 8.6 when star runs on bar  
 45,  
 53.6 S. obs.

8 0

Looked for comet Brooks. Region  
 accurately known, but comet invisible  
 in haze. Haze afterwards increased.



Sept. 21, 1883-

Comet Brooks.

S. obs.

Pos. 0 7.75  
 45.  
 Set at 52.75

Three object observed, Comet,  
 (DM + 61° 1595) and (DM + 60° 1682)

~~Order~~ Comet and 1595 in north half of  
 square, 1682 in South half.

Order - Comet, 1595, Comet, 1682, 1595, 1682.

~~transits~~ Part of comet observed - a nucleus  
 as towards the northern side of nebulosity;  
 condensed but hardly stellar.

Radcl. 3571 = DM. + 60° 1682

|  |       |                 |                 |       |      |                |   |           |
|--|-------|-----------------|-----------------|-------|------|----------------|---|-----------|
| 1  | 14.95 | 20 <sup>h</sup> | 21 <sup>m</sup> | 52.3  | =    | Bunker 5444 =  | " | +61° 1595 |
|  | 13.55 |                 |                 |       |      |                |   |           |
|  | 13.25 |                 | 22              | 46.2  | 1595 | Or. A. 16341 = | " | +61° 1595 |
|  | 13.05 |                 |                 |       |      |                |   |           |
|  | 11.70 |                 |                 | 52.20 |      |                |   |           |
|  | 66.50 |                 |                 |       |      |                |   |           |
| 1  | 13.30 |                 | 23              | 44.8  | 1682 |                |   |           |
|  |       |                 | 24              | 28.2  | 1595 |                |   |           |
| 2  | 11.20 |                 | 25              | 22.1  | 1682 |                |   |           |
| 2  | 10.30 |                 |                 |       |      |                |   |           |
| 2  | 9.75  |                 |                 |       |      |                |   |           |
| 2  | 8.15  |                 |                 |       |      |                |   |           |
|  | 48.55 |                 |                 |       |      |                |   |           |
| 2  | 9.75  |                 |                 |       |      |                |   |           |
| Comet. $\frac{1}{2}$ sum 20 <sup>h</sup> 22 <sup>m</sup> 22.25 ✓ |       |                 |                 |       |      |                |   |           |
| $\frac{1}{2}$ diff. 0 29.95                                      |       |                 |                 |       |      |                |   |           |
| 1595 $\frac{1}{2}$ sum 20 23 37.20 ✓                             |       |                 |                 |       |      |                |   |           |
| $\frac{1}{2}$ diff. 0 51.00                                      |       |                 |                 |       |      |                |   |           |
| 1682 $\frac{1}{2}$ sum 20 24 33.45 ✓                             |       |                 |                 |       |      |                |   |           |
| $\frac{1}{2}$ diff. 0 28.65                                      |       |                 |                 |       |      |                |   |           |

Sept 21, 1883.

$\infty$  20 <sup>29</sup> ~~30~~ 40.75 ✓ 20 29 4.1  $\infty$   
 1595 80 54.30 ✓ 30 0.3 1595 29 4.1  
 1682 31 51.05 ✓ 30 17.4

$\infty$  0 36.65  
 1595 0 54.00  
 1682 0 45.45

31 5.6 1682 29 4.1  
 48.3 1595 30 17.4  
 32 36.5 1682 29 21.5  
 40.8  
 31 5.6  
 32 36.5 1682 29 40.8  
 63 42.1  
 31 51.0  
 29 40.8  
 Diff 2 10.2

30 0.3  
 31 48.3  
 61 48.6  
 30 54.3  
 29 40.8  
 Diff 1 13.5

$\infty$  20 34 35.85 ✓  
 1595 35 49.10 ✓  
 1682 36 45.60 ✓

$\infty$  0 35.85  
 1595 0 54.10  
 1682 0 45.60

34 0.0  $\infty$   
 55.0 1595 34 0.0  
 35 11.7  $\infty$   
 36 0.0 1682  
 43.2 1595  
 37 31.2 1682

Diff 2 10.2

34 0.0  
 35 11.7  
 69 11.7  
 34 35.8

34 55.0  
 36 43.2  
 70 98.2  
 35 49.1  
 34 35.8  
 Diff 1 13.3

36 0.0  
 37 31.2  
 73 31.2  
 36 45.6  
 34 35.8  
 Diff 2 89.8

$\infty$  20 38 49.35 ✓  
 1595 40 2.40 ✓  
 1682 40 58.50 ✓

$\infty$  0 33.75  
 1595 0 49.40  
 1682 0 50.40

38 15.6  
 39 13.0  
 23.1  
 40 8.1  
 51.8  
 41 48.9

38 15.6  
 39 23.1  
 77 38.7  
 38 49.4

39 13.0  
 40 51.8  
 79 64.8  
 39 2.4  
 40 49.4  
 Diff 1 13.0

40 8.1  
 41 48.9  
 81 57.0  
 40 58.5  
 38 42.4  
 Diff 2 9.1

$\infty$  20 42 55.85 ✓  
 1595 44 7.55 ✓  
 1682 45 4.00 ✓

$\infty$  0 33.35  
 1595 0 49.45  
 1682 0 50.30

42 22.5  $\infty$   
 43 18.1 x  
 29.2  $\infty$   
 44 13.7 2  
 57.0 x  
 45 54.3 2

42 22.5  
 43 29.2  
 85 51.7  
 42 55.8

43 18.1  
 44 57.0  
 88 75.1  
 44 07.6  
 42 55.8  
 44 13.7  
 45 54.3  
 90 8.0  
 45 4.0  
 42 55.8  
 Diff 2 8.2



B. 236

20 51 27.5

20 54 32.0

B. 394

8 52 00

8 55 4

Jobs -

Pos. 0 7.3

Pos. 0 (again) 7.95

Set at  $\frac{45.1 + \text{Mean of two Pos. O.}}{52.6}$

~~Comet,  $+61^{\circ}1695, +61^{\circ}1595, +61^{\circ}159$~~ 

~~Comet, Comet, 1595, 1596, 1595, 1596~~

~~Comet 1595 in South P.~~

Comet, Comet, 1595, 1595, 1598, 1598

Coenact 2nd 1595 in south half ~~and~~  
1598 in north half.

| 21   | 20    | 58.50 | 21 <sup>h</sup> | 20 <sup>m</sup> | 35.3 | 20 35.3     | 22 0.7      |
|------|-------|-------|-----------------|-----------------|------|-------------|-------------|
| 1595 | 22    | 12.55 | ✓               | 21              | 21.7 | 21 21.7     | 22 24.4     |
| 1598 | 26    | 29.15 | ✓               | 21              | 21.7 | 41 57.0     | 44 25.1     |
|      |       |       |                 | 22              | 0.7  | 20 58.5     | 22 12.6     |
|      |       |       |                 |                 |      |             | 20 58.5     |
| 0    | 23.20 |       |                 |                 |      | 25 44.3     | Diff 1 14.1 |
| 1595 | 0     | 11.85 |                 |                 | 24.4 | 27 14.0     |             |
| 1598 | 0     | 44.85 |                 | 25              | 44.3 | 52 58.5     |             |
|      |       |       |                 | 26              | 29.2 | 20 58.5     |             |
|      |       |       |                 | 27              | 14.0 | Diff 5 30.7 |             |

76

Sept 21, 1883.

1682 outside the bar to the south after  
tips of 1595-

$\leq$  21 28 52.80  $\checkmark$  ~~21~~  
 1595 30 5.80  $\checkmark$   
 1682 31 1.55  $\checkmark$   
 1598 34 22.30  $\checkmark$

$\leq$  0 23.80  
 1595 0 12.50  
 1682 0 9.45  
 1598 0 43.90

28 29.0  $\leq$  28 29.0  
 29 16.6  $\leq$  29 16.6  
 53.3 1595 28 52.8

30 18.3 1595 30 52.1  
 52.1 1682 31 11.0

31 11.0 1682 31 1.6  
 33 38.4 1595 33 8.8  
 35 6.2 1598 35 29.6

29 53.3  
 30 18.3  
 60 11.6  
 30 5.8  
 28 52.8  
 Diff. 1 13.0

33 38.4  
 35 6.2  
 68 44.6  
 34 22.3  
 28 52.8  
 Diff. 5 29.6

$\leq$  21 35 51.90  $\checkmark$   
 1595 37 52.0  $\checkmark$   
 1682 38 1.10  $\checkmark$   
 1598 41 21.70  $\checkmark$

$\leq$  0 25.70  
 1595 0 12.60  
 1682 0 9.30  
 1598 0 43.70

35 26.7  
 36 17.1  
 52.6  
 37 17.1  $\frac{1}{2}$  early probably  
 37 51.8  
 38 10.4  
 40 38.0  
 42 5.4

35 26.7  
 36 17.1  
 71 43.8  
 35 51.9

37 51.8  
 38 10.4  
 76 2.2  
 38 1.1  
 35 51.9  
 Diff. 2 9.2

Note on fourth  
signal was  
"probably 0.5 early"

40 38.0  
 42 5.4  
 82 43.4  
 41 21.7  
 35 51.9  
 Diff. 5 29.8

$\leq$  21 42 59.35  $\checkmark$   
 1595 44 12.60  $\checkmark$   
 1682 45 7.90  $\checkmark$   
 1598 48 28.80  $\checkmark$

$\leq$  0 23.85  
 1595 0 12.90  
 1682 0 9.30  
 1598 0 43.80

42 35.5  
 43 23.2  
 59.7  
 44 25.5  
 58.6  
 45 17.2  
 47 45.0  
 49 12.6

42 35.5  
 43 23.2  
 85 58.7  
 42 59.4

44 25.5 44 58.6  
 44 58.6 45 17.2  
 89 24.1 90 15.8  
 44 42.0 45 7.9  
 42 58.4 42 59.4  
 1 42.6 Diff. 2 8.5

43 59.7  
 44 25.5  
 88 25.2  
 44 12.6  
 42 59.4  
 Diff. 1 13.2

47 45.0  
 49 12.6  
 96 57.6  
 42 59.4  
 48 28.8  
 42 59.4  
 29.4



Sept. 21, 1883.

$\leq 21$  50 5.05 ✓ 21  
 1595 51 18.25 ✓  
 1682 52 13.00 ✓  
 1598 55 33.90 ✓

49 40.4  
 50 29.7  
 100 10.1  
 50 5.0  
 51 4.3

32.2

51 4.3  
 51 32.2  
 102 36.5  
 51 18.2  
 50 5.0  
 diff 1 13.2

$\leq$  0 24.65  
 1595 0 13.95  
 1682 0 8.50  
 1598 0 43.60

52 4.5  
 21.5  
 54 50.3  
 56 17.5

52 4.5  
 52 21.5  
 104 26.0  
 52 13.0  
 50 5.0  
 Diff 2 8.0

54 50.3  
 56 17.5  
 111 7.8  
 55 33.9  
 50 5.0  
 diff 5 28.9

55 33.9  
 51 18.2  
 4 15.7

10 30

Looked for Swifts comet - but found nothing. S. abs -

B 236

B 394

~~22 31~~ → 0  
 22 35 44.5 10 36 0

∴ B 236 is  $\approx 51.1$  slow.

1 14.05  
 1 13.00  
 1 13.50  
 1 13.25  
 1 13.20  
 67.00  
 1 13.40

2 8.75  
 2 9.20  
 2 8.55  
 2 7.95  
 34.45  
 2 8.61

Time of first set

20 22 22.25  
 29 40.75  
 34 35.85  
 38 49.35  
 42 55.85  
 165 204.06  
 20 33 40.81

21 20 58.50  
 28 52.80  
 35 51.90  
 42 59.35  
 50 51.05  
 175 227.60  
 21 35 45.52

Time of second set

Sept. 22, 1883.

Series LVI.

Revision of Vol. VI

S. obs.

Began with star at 20 30 12

" at 20<sup>h</sup> 52<sup>m</sup> 1.2

|           |      |          |      |      |           |      |       |      |      |           |
|-----------|------|----------|------|------|-----------|------|-------|------|------|-----------|
|           | 1.0  | 1.8      | 20.7 | 103  | 2.7       | 2.5  | 2.0   | 9.0  | 5.37 | 100       |
|           | 7.0  | 84       | 23   | 65   | 3.3       | 20   | 10.27 | 0.8  | 70   | 50        |
| a 20 52.7 | 18   | 6.07     | 3.0  | 33   | 60        | 104  | 54    | 103  | 48.7 |           |
|           | 7.0  | 10.0     | 20   | 95   | 27        | 7.27 | 108   | 4.0  | 50   | 103       |
|           | 10   | 0.5      | 60   | 7.57 | 7.8       | 25   | 20    | 8    | 7.2  | 5.67      |
|           | 3.3  | 8.0      | 8.5  | 30   | 3.5       | 1.5  | 10.2  | 2.5  | 7.5  | 2.5       |
|           | 6.5  | 100      | 7.0  | 8.0  | 2.7       | 6.5  | 7.5   | 5.8  | 7.2  | 48        |
|           | 33   | 6.87     | 2.27 | 95   | 7.8       | 7.5  | 10.0  | 4.5  | 7.5  | 52        |
|           | 3.4  | 80       | 80   | 70   | 6.5       | 1.8  | 7.5   | 9.0  | 6.8  | 25        |
|           | 1.5  | 10       | 5.5  | 80   | 9.07      | 1.5  | 10.5  | 3.0  | 4.7  | 7.8       |
|           | 6.5  | 5.57     | 7.87 | 6.21 | 6.2       | 2.7  | 5.5   | 100  | 0.57 | 6.8       |
|           | 34   | 6.87     | 70   | 7.8  | 30        | 8.0  | 2.8   | 40   | 4.7  | 1.5       |
|           | 9.07 | 55       | 6.07 | 2.7  | 6.8       | 1.8  | 10.57 | 60   | 7.6  | 15        |
|           | 15   | 2.3      | 20   | 9.7  | 9.7       | 80   | 28    | 4    | 7.37 | 0.0       |
|           | 3.3  | 9.4      | 5.07 | 9.87 | 90        | 9.8  | 7.7   | 1.0  | 8.27 | 10.8      |
|           | 1.6  | 6.3      | 5.57 | 20   | a 21 10.5 | 0.0  | 10.7  | 6.2  | 3.0  | 10.2      |
|           | 90   | 23       | 90   | 70   | 97        | 7.8  | 11.0  | 7.7  | 11.0 | 10.1      |
|           | 15   | 94       | 60   | 97   | 9.5       | 9.8  | 3.5   | 10   | 74   | 0.17      |
|           | 33   | 20.7     | 50   | 98   | 2.8       | 3.4  | 8.0   | 10.5 | 80   | 0         |
| b 20 55.3 | 53   | 10.3     | 7.57 | 10.1 | 0         | 80   | 60    | 50   | 10.8 |           |
|           | 2.3  | 20       | 4.0  | 77   | 70.7      | 9.8  | 7.5   | 10.5 | 40   | a 21 24.3 |
|           | 3.0  | 3.0      | 2.0  | 26   | 24        | 74   | 110   | 77   | 110  | 10.1      |
|           | 30   | 30       | 40   | 75   | 55        | 6.21 | 144   | 80   | 8.07 | 10.0      |
|           | 84   | a 21 0.7 | 6.5  | 76   | 30        | 104  | -1.0  | 100  | 50   | 6.21 29.4 |
|           | 23   | 23       | 20   | 25   | 90        | 8.7  | 5.4   | 10.3 | 10.3 |           |



Sept 22, 1883.

|      |           |           |  |
|------|-----------|-----------|--|
| 5.6  | h-21 339  | 10.2      | 9.3  |
| 6.1  | 7.8       | 10.1      | 6.0  |
| 10.9 | 9.5       | 10.2      | 5.5  |
| 0.6  | 2.0       | 7.8       | 9.3  |
| 6.1  | 9.5       | 8.3       | 2.0  |
| 8.0  | 23        | 7.8       | 6.0  |
| 5.0  | 8.0       | 11.0      | 9.5  |
| 7.5  | 10.0      | 8.3       | 5.5  |
| 10.6 | 3.2       | 6.8       | 1.8  |
| 2.0  | 10.5      | 5.5       | 10.4   |
| 5    | 10.0      | 10.0      | 10.7   |
| 8.0  | 3.0       | 7.4       | 1.8  |
| 8.2  | 8.0       | 7.0       | 1.0  |
| 7.5  | 2.0       | 5.5       | 0.8  |
| 2.0  | 10.5      | 7.4       | 10.4   |
| 8.2  | 8.0       | a-21 40.7 | 8  |
| 7.0  | 2.0       | 1.0       | h-21 46.1  |
| 5.3  | 0.6       | 9.4       | 2.5  |
| 7.0  | 6.5       | 7.7       | 6.8  |
| 3.2  | 8.5       | 9.4       | 6.0  |
| 5.3  | 6         | 10        | 7.4  |
| 10.3 | 9.8       | 0.2       | 2.5  |
| 3.0  | 6.0       | 4.0       | 6.5  |
| 3.0  | 8.5       | 7.4       | 7.4  |
| 3.5  | 9.8       | 5.5       | 6.0  |
| 3.0  | a-21 37.8 | 2         | h-21 47.0  |
| 8.2  | 4.2       | 4.0       | Ended with star at 21 <sup>h</sup> 24 <sup>m</sup> 0.4 |
| 10.3 | 10.3      | 5.5       | Record confused after 21 <sup>h</sup> 11 <sup>m</sup>  |
| 8.2  | 10.1      | 2.6       |  |
| 3.5  | 4.2       | 9.5       |  |
|      | 10.3      |           |  |

Sept. 22, 1883

Comet Brooks

Star runs on bar at  $342.5$   
 $45.$

Setting for transits  $27.5$

S. obs. chronograph.

Comparison star D.M. +60° 1675

Star south half, comet north half of square  
 Star, star, comet, comet.

D.M. +60° 1676 also observed  
 between 1675 and comet. Both stars in  
 south half; order 1675, 1675, 1676, 1676, comet, comet.

In the second set take the mean of  
 two signals for the last transit of comet.

In the fifth set, the position was so  
 changed that the order was 1675, 1676,  
 1675, 1676, comet, comet.

Another series taken with D.M. +60°  
 1682 as comparison star. Comet in south  
 half, star in north; order comet, comet  
 star, star. In fourth set take mean of  
 two signals at last transit of star.

Comet about equal in brightness to  
 D.M. +60° 1682; no nebulosity visible except  
 at first when it was higher in the sky.

It would be taken for a star; a great  
 change from yesterday.

A more careful comparison makes the comet  
 now about as much fainter than D.M. +61° 1595  
 as that is fainter than D.M. +60° 1682.

11 30



S. L.

Attempted observations of Comet  
Brooks but found it too cloudy.  
Saw the Comet with Mgr. Chandler's  
telescope about 8<sup>h</sup> 30<sup>m</sup>. It is now  
much blurred and no longer resembles  
a star. When out of focus so that  
the stars were also blurred, the comet-  
and DM. +61° 1595 appeared equal.

| <u>1<sup>st</sup> set</u>                 | <u>2<sup>nd</sup> set</u> | <u>3<sup>rd</sup> set</u> | <u>4<sup>th</sup> set</u> | <u>5<sup>th</sup> set</u> |
|---|---------------------------|---------------------------|---------------------------|---------------------------|
| 22 <sup>h</sup> 27 <sup>m</sup> 15.0 (75) | 32 <sup>m</sup> 6.5 (74)  | 37 <sup>m</sup> 36.0 (75) | 42 <sup>m</sup> 37.0 (74) | 47 <sup>m</sup> 43.5 (74) |
| 28 33.9 (75)                              | 33 24.7 (75)              | 38 54.3 (75)              | 43 54.7 (75)              | 49 10.7 (76)              |
| 28 42.4 (76)                              | 33 34.0 (76)              | 39 3.5 (76)               | 44 43 (76)                | 49 14.6 (75)              |
| 29 14.7 (76)                              | 34 6.4 (76)               | 39 35.2 (76)              | 44 35.8 (76)              | 49 55.8 (76)              |
| 30 39.6 (E)                               | 35 31.0 (E)               | 40 59.5 (E)               | 45 59.8 (E)               | 51 19.7 (E)               |
| 31 25.0 (E)                               | 36 19.8 (E)               | 41 50.0 (E)               | 46 50.6 (E)               | 51 57.6 (E)               |
| <del>31 46.9</del>                        |                           |                           |                           |                           |

| <del><math>0''</math> set.</del> |                 | $7''$ set.                      | <u><math>2\frac{\alpha}{\pi}</math> series.</u> |                | $9''$ set. | $10''$ set.    |                  |
|----------------------------------|-----------------|---------------------------------|---|----------------|------------|----------------|------------------|
| <del>53</del>                    | <del>35.0</del> | 55 46.2 $\in$                   | 59  | 22.4 ( $\in$ ) | 2          | 43.2 ( $\in$ ) | 5 54.2 ( $\in$ ) |
| <del>53</del>                    | <del>57.0</del> | 56 42.3 $\in$ 23 <sup>h</sup> 0 |   | 1.4 ( $\in$ )  | 3          | 34.2 ( $\in$ ) | 6 27.2 ( $\in$ ) |
|                                  |                 | 58 4.5 ( $\in$ )                | 1   | 24.1 ( $\in$ ) | 5          | 1.4 ( $\in$ )  | 7 54.5 ( $\in$ ) |
|                                  |                 | 58 33.6 ( $\in$ )               | 2   | 9.6 ( $\in$ )  | 5          | 29.9 ( $\in$ ) | 8 44.6 ( $\in$ ) |

"<sup>th</sup> set

9 9.7 (~~a~~) sheet of Sept. 22. The time is that of F. 1827.

9 53.4 (~~e~~) The 6<sup>th</sup> set apparently consists of some

" 20.9 (~~s~~) accidental breaks without meaning. The seventh

" 55.9 (~~s~~) signal in the first set is also unmeaning.

In the second set the mean of two signals for the last transit of ~~e~~ has been taken.

" " tenth set. " " " " " " " " " " " "

Sept. 24, 1883.

B+C 1182

5 32 5.7

33 5.7

Previous to eclipse, about 17<sup>h</sup> 15<sup>m</sup> m. t. looked at region of Comet Brooks. Comet thought to be identified, but nearly resembled a star in the twilight. In brightness it now seemed half way from D.M. +61° 15' 5.7 to D.M. +60° 18' 5.7. S. obs.

Eclipse Jup. II

S. obs. Cu. rec.

Compared. with Jup I.

Phot. No. Dis.

17 39 32

23 41

18 3 13

54

18 4 07

5 46 39.0

24.5

47 2.0

109.0

30.5

27.5

~~59.5~~

59.5

108.0

48 25.0

31.0

42.5

112.0

56.5

31.0

49 8.5

104.0

23.5

26.5

38.5

109.8

50.0

26.5

50 1.5

107.3

12.5

28.8

30.5

114.6



Sept. 24, 1883.

|   |    |      |       |
|---|----|------|-------|
| 5 | 50 | 49.0 | 24.0  |
|   | 51 | 0.5  | 108.0 |
|   |    | 34.5 | 28.3  |
|   |    | 48.5 | 110.5 |
|   | 52 | 0.0  | 29.3  |
|   |    | 11.0 | 112.0 |
|   |    | 45.5 | 21.8  |
|   | 53 | 0.5  | 109.0 |
|   |    | 13.5 | 25.8  |
|   |    | 28.0 | 112.0 |
|   |    | 40.0 | 29.0  |
|   |    | 52.5 | 109.4 |
|   | 55 | 21.5 | 25.7  |
|   |    | 53.0 | 113.0 |
|   | 56 | 28.0 | 23.8  |
|   |    | 42.0 | 116.0 |
|   | 58 | 19.0 | 32.0  |
|   |    | 32.5 | 117.0 |
|   | 59 | 4.5  | 26.7  |
|   |    | 30.5 | 112.0 |
|   |    | 47.5 | 30.0  |
| 6 | 0  | 2.5  | 115.5 |

Satellite no longer visible in Photometer.

6 1 35.0 with common eyepiece  
 Satellite II 1 Mag. fainter than Satellite I  
 1 57.0 Satellite II suspected

B+C 1182

6 14 5.3  
 15 5.3

B 394

44.5  
 18 15 0.0  
 16 0.0 + 39.2

Sept. 25, 1883.

Comet Brooks

S. obs.

8 30

Comet now a round nebulous object about 2' across, with central condensation but no definite nucleus. No appearance of tail. Comet pretty bright but could not now be compared to a star. The object seen Sept. 24 at 17<sup>h</sup> 15<sup>m</sup> was probably a star.

Observations of position not apparently important, as Mr. Chandler is taking some with his instrument which must be fully as good, now that the comet is so easily visible, as any taken with the large telescope.

Telescope accordingly employed in photographic experiments by Mr. Edmands this evening.



Sept. 26, 1883

Comet Brooks -

|        |             |
|--------|-------------|
| Pos. 0 | 146.3       |
|        | 45          |
| Set at | <hr/> 191.3 |

DM. +54° 1727 & Comet-  
 star, comet, star, comet.  
 star south, comet north, 5 sets. Chironograph.  
 Spectrum of comet mainly gaseous,  
 slight appearance of continuous spectrum  
 also.

B. & C. 1182  
 8 53 58.2  
 54 58.2

B. 394  
 8 55 00  
 56 00

Sept 26, 1883.  
Series LVII.

Re-vision of Vol. VII. S. obs.  
Began at 22<sup>h</sup> 46<sup>m</sup> 1.2  
" with star at 20<sup>h</sup> 30<sup>m</sup> 1.2

|                |           |      |           |               |      |           |           |         |
|----------------|-----------|------|-----------|---------------|------|-----------|-----------|---------|
| 1.0}           | 5.0}      | 20   | 30        | 1             | 10.0 | 30        | 9.8       |         |
| 6.0}           | 28}       | 2.0  | 20        | 73            | 90   | a 23 8.3  | 75}       |         |
| 10             | 20        | 2.7  | 103       | 2.5           | 2.4  | 100       | 105}      |         |
| 60             | 7.0       | 1.5  | b 22 58.7 | 75            | 5.5  | 10.1      | 109       |         |
| 3.2            | 80        | 20   | 28        | 25            | 26   | 8.2       | 90        |         |
| 2.3            | 70        | 27   | 10.8      | <del>35</del> | 100  | 1.3       | 70        |         |
| 23             | 9.9       | 5.3} | 10.2      | 3.2           | 24   | 4.5       | -0.8      |         |
| 6.2            | 7.8}      | 15}  | 9.7       | 2.5}          | 55   | 10.0}     | 5.1       |         |
| 3.3}           | 1.0}      | 3.3  | 28        | 11.0}         | 6.8  | 8.0}      | 9.0       | did not |
| 32}            | 99        | 55   | 102       | 30            | 10   | 100       | 0.8       | disap   |
| 0.8            | 78        | 33   | 8.0       | 8.0           | 6.0  | 5.0       | 51        |         |
| 63             | 65        | 6.8  | 4.0}      | 7.8}          | 68   | 25        | 3.8       |         |
| a 22 48.0      | 10        | 2.2  | 10.8}     | 2.5}          | 1.1  | 50        | 5.2}      |         |
| 33             | b 22 52.3 | 5.7  | 40        | 35            | 10   | 100}      | 2.0}      |         |
| 8.7}           | 5.4}      | 8.0} | 80        | 3.2           | 60   | 40}       | 8}        |         |
| 8}             | 65}       | 60}  | 7.5       | 2.6           | 7.8  | 7.0       | 30        |         |
| 2.8            | 55        | 58   | 2.5       | 7.8           | 11   | 10.0      | 0.0       |         |
| 1.0            | 1.8       | 10   | 9.7       | 8.2}          | 7.8  | 70        | 50        |         |
| 87             | 8.3       | 50   | 9.8       | 23}           | 9.6  | 10.3      | a 23 13.6 |         |
| 28}            | 6.0       | 58   | 2.5       | 2.5           | -0.2 | 100       | 0         |         |
| 10}            | 18        | 80   | 7.5       | 9.5           | 7.5  | 103       |           |         |
| 10.1           | 83        | 90   | 97        | b 23 4.2      | 97   | b 23 10.6 |           | Rec     |
| 2.0            | 60        | 10.3 | 98        | 80            | 3.0} | 7.5       |           | next    |
| 2.8            | a 22 53.8 | 4.0  | 0.1       | 95            | -2}  | 10.5      |           | page    |
| 10.1           | 2.6       | 2.0  | 7.3}      | 9.0           | 7.5  | 12.9      |           |         |
| <del>8.0</del> | -1.6      | 0    | 7.5}      | 2.6           | 10.0 | 7.8       |           |         |



Sept. 26, 1883

|           |      |           |      |           |           |           |           |       |  |
|-----------|------|-----------|------|-----------|-----------|-----------|-----------|-------|--|
| 58        | 70   | -2        | 3.0  | 20        | 65        | 9.3       | 2.7       | 10.2  |  |
| 7.4       | 30   | 100       | 65   | 70        | 50        | 102       | 53        | 98    |  |
| 36        | 65   | 0.0       | 50   | 0.5       | 73        | 79        | 27        | 28.2  |  |
| 10.2      | 80   | 102       | 100  | 5.7       | 10        | 90        | 78        | 28    |  |
| 50        | 108  | 101       | 30   | 8.2       | 90        | 23        | 72        | 102   |  |
| 30        | 9.7  | 100       | 28   | 5         | 7.5       | 60        | 9.5       | 66.23 |  |
| 70        | 4.9  | 0         | 28   | 90        | 10        | 5.5       | 2.4       |       |  |
| 102       | 10.2 | a 23 23.7 | 3.2  | 50        | 90        | 70        | 74        |       |  |
| 10.1      | 100  | 8.0       | 8.0  | 82        | 0.1       | 23        | 77        |       |  |
| 5.1       | 49   | 3.0       | 100  | 90        | 75        | 60        | 90        |       |  |
| 51        | -0.6 | 5.5       | 8.6  | 3.6       | 5.1       | 55        | 25        |       |  |
| 101       | 40   | 6.0       | 80   | 100       | 1         | 70        | 5.1       |       |  |
| 6.5       | 103  | 80        | 86   | a 23 32.2 | 51        | b 23 40.9 | 0.8       |       |  |
| 11.0      | 5.0  | 30        | 28   | 10.0      | 2.4       | 1.3       | -0.5      |       |  |
| 7.0       | 2.3  | 10.6      | 100  | 100       | 6.5       | 22        | -0.5      |       |  |
| 110       | 30   | 0.5       | 100  | 30        | 24        | 9.7       | 8.0       |       |  |
| 65        | 23   | 60        | 9.5  | 10.2      | 6.5       | 13        | 7.5       |       |  |
| 8.0       | 50   | 8.3       | 8.7  | 100       | a 23 37.9 | 0.6       | 10        |       |  |
| 7.0       | 2.6  | 7.0       | 1.5  | 102       | 2.4       | 22        | -5        |       |  |
| 60        | 8.5  | 90        | 9.5  | 7.6       | 8.7       | 90        | 6.8       |       |  |
| 4.7       | 7.5  | 1.5       | 1.5  | 8.0       | 5.1       | 6         | 8.1       |       |  |
| 70        | 26   | 10        | 77   | 5.5       | 24        | a 23 43.7 | 2.4       |       |  |
| 60        | 8.5  | 7.5       | 9.9  | 7.6       | 80        | 9.8       | 6.8       |       |  |
| b 23 16.7 | 7.5  | 7.8       | 30   | 10.9      | 51        | 9.8       | 6.0       |       |  |
| 47        | 1.0  | 60        | 10.0 | 50        | 0.8       | 10        | 2.4       |       |  |
| 7.4       | 10   | 10        | 30   | 7.5       | 10.3      | 2.3       | a 23 49.2 |       |  |
| 8.0       | -0   | 6.8       | 90   | 6.7       | 10.5      | 5.0       | 7.9       |       |  |
| 6.5       | 1    | 5.2       | 7.6  | 5.3       | 8         | 10        | 7.4       |       |  |
| 2.8       | 10.2 | 7.8       | 1.8  | 108       | 10.5      | 5.6       | 7.4       |       |  |
| 10.8      | 10.8 | b 23 25.7 | 100  | 7.3       | 7.9       | 2.3       | 9.8       |       |  |
|           |      |           |      |           |           | 50        | 2.8       |       |  |

Sept. 26, 1883,  
 Star runs on bar 161.5  
 45

A. Scarle obs set  $\frac{161.5}{45}$  206.5

60° 1677.  
 Dm 1684

Star south  
 Star north

| (-) |          | (+) |         |    |       |       |       |       |          |
|-----|----------|-----|---------|----|-------|-------|-------|-------|----------|
|     |          |     |         |    |       |       |       |       |          |
| 1   | 58 23.4  | 1   | 59 22.1 |    |       |       |       |       |          |
|     | 59 14.2  |     | 59 30.7 |    |       |       |       |       |          |
| 1   | 58 48.80 | 59  | 26.40   | +1 | 22.40 | 50.8  | 8.6   | 59.4  |          |
| 2   | 1 4.5    | 1   | 59 55.7 |    |       |       |       |       |          |
|     | 1 46.0   | 2   | 0 11.2  |    |       |       |       |       |          |
| 1   | 25.25    | 2   | 0 3.45  | +1 | 21.80 | 41.5  | 15.5  | 57.0  |          |
| 2   | 3 19.7   | 2   | 2 13.0  |    |       |       |       |       |          |
|     | 4 3.4    |     | 2 25.5  |    |       |       |       |       |          |
| 3   | 41.55    | 2   | 19.25   | +1 | 22.30 | 43.7  | 12.5  | 56.2  |          |
| 2   | 5 36.9   | 2   | 4 30.2  |    |       |       |       |       |          |
|     | 6 26.2   |     | 4 42.5  |    |       |       |       |       |          |
| 6   | 1.55     | 4   | 36.35   | +1 | 25.70 | 49.3  | 12.3  | 61.6  | (?) Reg. |
| 2   | 8 39.6   | 2   | 7 34.5  |    |       |       |       |       |          |
|     | 9 27.6   |     | 7 45.0  |    |       |       |       |       |          |
| 9   | 3.60     | 7   | 39.75   | +1 | 23.85 | 48.0  | 10.5  | 58.5  |          |
| 2   | 11 12.2  | 2   | 10 6.2  |    |       |       |       |       |          |
|     | 12 0.0   |     | 10 16.0 |    |       |       |       |       |          |
| 2   | 11 36.10 | 10  | 11.10   | +1 | 25.00 | 47.8  | 9.8   | 57.6  |          |
|     |          |     |         | +1 | 23.07 | 46.85 | 11.53 | 57.74 |          |

For farther reduction see Const Reduction Book p. 124.



a handle Obs Sept 26, 1883

with Sn 59. 1727 = BB.VI. 1727.  
~~with~~ ~~in~~ ~~north~~  
 with in north

|           |           |       |       |        |       |      |
|-----------|-----------|-------|-------|--------|-------|------|
| 2 15 18.2 | 2 14 20.7 |       |       |        |       |      |
| 15 40.7   | 16 3.73   |       |       |        |       |      |
| 16 3.73   | 15 18.2   | E - * | ΔE    | Δ*     |       |      |
| 15 29.45  | 15 42.00  | +0    | 17.45 | 22.5   | 102.6 | 80.1 |
| 2 17 17.0 | 16 17.0   |       |       |        |       |      |
| 17 42.8   | 18 0.0    |       |       |        |       |      |
| 17 29.90  | 17 8.50   | +0    | 21.40 | 25.8   | 103.0 | 77.2 |
| 2 20 18.5 | 19 19.2   |       |       |        |       |      |
| 20 42.3   | 21 2.2    |       |       |        |       |      |
| 20 30.40  | 20 10.70  | +0    | 19.70 | 23.8   | 103.0 | 79.2 |
| 2 22 16.3 | 21 15.2   |       |       |        |       |      |
| 22 41.5   | 22 59.6   |       |       |        |       |      |
| 22 28.90  | 22 7.40   | +0    | 21.50 | 25.2   | 104.4 | 79.2 |
| 24 27.4   | 23 30.5   |       |       |        |       |      |
| 24 43.0   | 25 1.2    |       |       |        |       |      |
| 24 35.20  | 24 15.85  | +0    | 19.35 | 19.6   | 90.7  | 75.1 |
| mean.     |           |       |       | 42.9   | 503.7 |      |
| 2 20 6.77 | +0 19.88  |       | 22.58 | 100.74 | 72.16 |      |

B 236  
 h m s  
 2 30 54.7

B 294  
 14 11 0

B 236  
 2 32 11.0

B 1327  
 2 35 0.0

∴ B 236 is 2" 5.9 slow.

Sept 26, 1883.

B + C 1182

2 38 56.7

39 56.7

B 394

14 40 <sup>44.5</sup> 00

14 41 00

+47.8

14 50 30

23 41

15 14 11

1 3.3

15 15 14.3

Eclipse Jup. I. S. obs. bn. rec.  
 Compared with ~~Phot. R~~ Sat. TV Dis.  
 Phot R.

Block failed after running some time, and delayed observations.

3 8 18.0

108.7

34.0

224.0

48.5

100.2

9 3.5

219.8

15.0

104.5

25.6

220.0

37.3

109.1

10 7.2

220.5

25.0

106.2

39.3

213.3

50.0

115.5

11 0.0

213.0

7.5

108.3

←



Sept 26, 1883.

|                     |    |      |         |
|---------------------|----|------|---------|
| 3                   | 11 | 17.2 | 207.0   |
|                     |    | 27.5 | 119.5   |
|                     |    | 36.8 | 205.0   |
|                     |    | 46.2 | 124.5 # |
|                     |    | 52.5 | 200.8   |
|                     | 12 | 0.5  | 127.0   |
|                     |    | 7.8  | 197.7 # |
|                     |    | 16.3 | 131.3   |
|                     |    | 23.2 | 193.8   |
|                     |    | 31.5 | 137.0   |
|                     |    | 39.0 | 194.7   |
|                     |    | 46.2 | 125.2   |
|                     |    | 55.3 | 198.4   |
|                     | 13 | 4.0  | 122.5   |
|                     |    | 13.0 | 203.3   |
|                     |    | 20.2 | 135.2   |
|                     |    | 28.0 | 186.5   |
|                     |    | 36.8 | 109.8   |
|                     |    | 44.0 | 190.8   |
|                     |    | 53.3 | 145.0   |
|                     | 14 | 3.8  | seen    |
| Limit of visibility |    | 24.2 | 134.5   |
|                     |    | 39.4 | 182.3   |
|                     |    | 48.5 | 144.0   |
|                     | 15 | 3.3  | 186.8   |

Seeing very variable.

B4 C 1182

3 21 56.3

22 56.3

B3 39K

15 23 44.5

24 00  
+48.2

Sept. 27, 1883.

Early evening of Sept. 27 clear, but haze came on immediately after twilight, becoming thicker soon afterwards. Adjusted Photometer A, which has just been repaired at Clark's.

The comet was in a little group of stars, and one star was involved in the coma on the northern side and appeared at first like a nucleus. But before the comet ceased to be visible it seemed to have moved a little southward with respect to this point of light, which was therefore pretty certainly a star. Besides, the central condensation of the comet was seen, or at least strongly suspected, having much the appearance which it had Sept. 26.

The spectrum of the star was very faint, but continuous; of the comet, mainly or wholly gaseous. L. obs.



$$\begin{aligned} 2.2.02 &= 3.21 \text{ Ab.} = 0.02 \\ \text{u u x} &= 3.21 \text{ u} = \frac{0.02}{0.00} \end{aligned}$$

Oct. 1 1883.

Comet of 1812.

S. obs.

6700

Appearance seen through prism as before;  
generally gaseous, with some continuous spectrum.

Photometer Q. Comp. star of Draconis  
Comet below star and to left (about  $320''$ ).

7 20

9.7 } Central condensation  
10.3  
10.2

10.07<sup>r</sup>

Focus for star

3.1

3.2

3.6

3.30<sup>r</sup>10.07<sup>r</sup>  
3.30<sup>r</sup>Eq. 6.77 = 0.23079<sup>r</sup>4.1529<sup>r</sup>

2.11

2.22

9.08<sup>r</sup> the cor. magn.

7 30

15.7 } Mean brightness of coma.  
18.6  
17.7

14.00<sup>r</sup>

Focus for star

3.4

4.4

4.4

3.8

4.2

120.2<sup>r</sup>9.04<sup>r</sup>

9.6

9.8

10.3

3/29.7<sup>r</sup>9.90<sup>r</sup>14.00<sup>r</sup>  
4.04<sup>r</sup>Eq. 9.96 = 0.99426<sup>r</sup>4.99130<sup>r</sup>

2.11

2.22

9.92<sup>r</sup> the cor. magn.

7 37

9.6 } Central condensation,  
9.8  
10.3

9.90

4.04<sup>r</sup>Eq. 5.66 = 0.76790<sup>r</sup>3.23950<sup>r</sup>

2.11

2.22



Oct. 1, 1883.

Star runs on bar 359.0

Rattly before and after  $21^h 51^m$  by F. 3451.

Pen failed

Star runs on bar 359.0. Set at 44.0

5 or 6 sets with D.M.  $+58^\circ 1641$

last minute  $22^h 43^m$  by F. 3451.

Pen failed

First minute  $22^h 45^m$  by F. 3451.

In the sets with D.M.  $+58^\circ 1641$ , star beyond the square, to the south, comet inside square, north half. Star, star, comet, comet. Both disappearances & reappearances observed.

Take second of 2 signals for reappearance when two occur.

Another series with D.M.  $+58^\circ 1649$ .

Comet, comet, star, star. Comet north half, star south half. Disappearances and reappearances. 5 sets. Comet particularly faint in fourth set.

Star runs on bar 359.0

Rattle just after  $23^h 31^m$  by F. 3451.

Nucleus of comet tolerably distinct, not stellar, unless there were two bright points close together, approximately pr. & foll., as sometimes seemed to be the case.

Early in the evening while the comet was well seen, there was some appearance of tail on the n. side.



Oct. 3, 1883

S. obs.

First minute  $19^h 54^m$  by 7.3451

Star runs on bar 359.2

Set

44.2

Comet of 1812 & D.M.  $+58^\circ 16' 44''$

Comet north half, star south half,

Order Comet dis., Comet re., Comet dis.,

Star dis., Comet re., Star re., Star dis., Star re.

In first set reject a signal between  
3<sup>d</sup> and 4<sup>th</sup> of above.

Better reject all previous to a set  
beginning with 3 rattles, as those  
preceding were made without the full  
aperture. After moving down comet  
better seen. In these observations separate  
signals are given for ~~the~~ 2<sup>d</sup> reappearance  
of comet and 1<sup>st</sup> of star, but in fact  
the first of these two signals corresponds  
to both phenomena. The star was always  
out before the second signal.

5 more sets with D.M.  $+58^\circ 16' 41''$ .

Star north half, Comet south half.

Star dis., re. Star dis., re. Comet dis., re.

Comet dis., re.

Rattle just after  $20^h 56^m$  by 7.3451.

9 0 Nucleus moderately distinct, not stellar.  
Coma faint, more abundant on the S.E. side;  
but on the N.W. side there are slight indications  
of a dark space with a little light on



$$\frac{22.05}{11.025} = 34.1 \text{ Ab. } 0.2$$

$$\frac{22.05}{11.025} = \sqrt{3.3} \text{ Ab. } = 0.16$$

$$\frac{11.025}{11.025} = 34.1 \text{ Ab. } 0.2$$

$$\frac{11.025}{11.025} = \sqrt{2.9} \text{ Ab. } = 0.16$$

Oct. 3, 1883

$$\frac{11.025}{11.025} = 34.1 \text{ Ab. } 0.2$$

Each side, as if a tail might be forming.  
S. obs.

9 0 Spectrum of Comet partly gaseous and partly continuous. More appearance of continuous spectrum than before.  
S. obs.

Comet 1812

Phot. Q

Comp. star  $\eta$  Draconis

Star above comet

Nucleus of comet.

14.5

14.63

S. obs

15.0

$$\frac{14.63}{\sqrt{2.0}} = 0.94596$$

14.4

8.72940

$$\frac{3}{\sqrt{14.63}} = 14.63$$

2.11

2.62

9.66 ~~to~~ corr. by eye.

Focus of star.

5.7

S. obs

5.5

6.2

$$\frac{3}{\sqrt{17.4}} = 5.20$$

Average brightness of coma.

24.7

Altered place of star in prism.

36.6

30.97

S. obs

31.6

$$\frac{30.97}{\sqrt{2.0}} = 1.41111$$

$$\frac{3}{\sqrt{92.9}} = 30.97$$

2.05555

2.11

2.62

Focus

11.99 ~~to~~ corr. by eye.

5.0

5.3

5.3

5.6

5.20



Oct. 3, 1883.

Nucleus

9 21

$$\begin{array}{r} 14.4 \\ 15.2 \\ 15.7 \\ \hline 3/45.3 \\ \hline 15.10 \end{array} \quad \begin{array}{r} 15.10 \\ 15.20 \\ \hline 4.9.90 = 0.9956 \end{array} \quad \begin{array}{r} S. obs. \\ 4.97220 \\ 2.11 \\ \hline 2.82 \\ 9.91 = \text{uncor. temp.} \end{array}$$

Nucleus of Comet

9 26

$$\begin{array}{r} 12.5 \\ 13.5 \\ 11.4 \\ \hline 3/37.4 \\ \hline 12.47 \end{array} \quad \begin{array}{r} 12.47 \\ 6.07 \\ \hline 4.6.80 = 0.2061 \end{array} \quad \begin{array}{r} Edmands obs. \\ 4.03090 \\ 2.11 \\ \hline 2.82 \\ 4.96 = \text{uncor. temp.} \end{array}$$

Focus

9 28

$$\begin{array}{r} 5.7 \\ 6.0 \\ 6.5 \\ \hline 3/18.2 \\ \hline 6.07 \end{array} \quad \begin{array}{r} Ed - " obs. \end{array}$$

Average brightness of Coma

9 31

$$\begin{array}{r} 27.0 \\ 29.4 \\ 31.9 \\ \hline 3/88.3 \\ \hline 29.43 \\ 6.20 \\ \hline 4.23.23 = 1.36605 \end{array} \quad \begin{array}{r} Ed - " obs. \\ 6.23025 \\ 2.11 \\ \hline 2.82 \\ 11.076 = \text{uncor. temp.} \end{array}$$

Focus

9 33

$$\begin{array}{r} 6.6 \\ 5.9 \\ 6.1 \\ \hline 3/18.6 \\ \hline 6.20 \end{array} \quad \begin{array}{r} Ed - " obs. \end{array}$$

Nucleus

9 35

$$\begin{array}{r} 12.4 \\ 12.4 \\ 11.6 \\ \hline 3/36.4 \\ \hline 12.13 \end{array} \quad \begin{array}{r} 12.13 \\ 6.20 \\ \hline 4.5.93 = 0.7730 \end{array} \quad \begin{array}{r} Ed - " obs. \\ 3.26525 \\ 2.11 \\ \hline 2.82 \\ 4.20 = \text{uncor. temp.} \end{array}$$

Oct. 3. 1883.

Photometer R. DM. + 68° 1645  
 Compared with DM. + 68° 1646

~~287.6~~ ~~36.2~~ ~~< star 1646 disap.~~ ~~S. obs.~~

9 49

9 55

225.7 < star 1645 disap.  
 291.0 65.3^  
 40.0 76.0^  
 116.0 141.3^ 2.7^

S. obs.

10 2

216.7 < 1645 disap.  
 311.2 94.5^  
 14.8 112.7^  
 127.5 207.2^ 1.5^

S. obs.

1645 above

10 21

200.5 < 1646 disap.  
 309.7 109.2^ Edmands obs.  
 205.2 108.0^  
 313.2 217.2^ 1.3^

10 30

295.1 < Upper one disap. (1646)  
 49.2 114.1^ Ed - .. obs.  
 111.0 110.2^  
 221.2 224.3^ 4.1^



Oct. 3, 1883.

1644 compared with 1645

10 42

$$\begin{array}{r}
 324.6 < 1645 \text{ disap.} \\
 13.2 \quad 48.6^{\wedge} \\
 150.1 \quad \overline{136.7} \\
 200.0 \quad \underline{49.9^{\wedge}} \\
 \quad 98.5^{\wedge} \quad 3.7^{\vee}
 \end{array}$$

S. obs

10 46

$$\begin{array}{r}
 240.8 < 1645 \text{ disap.} \\
 289.8 \quad 49.0^{\wedge} \\
 57.5 \quad \underline{53.9^{\wedge}} \\
 111.4 \quad 102.9^{\wedge} \quad 3.6^{\vee}
 \end{array}$$

S. obs.

10 52

$$\begin{array}{r}
 227.9 < 1645 \text{ disap.} \\
 289.1 \quad 61.2^{\wedge} \\
 61.8 \quad \underline{42.3^{\wedge}} \\
 104.1 \quad 103.5^{\wedge} \quad 3.6^{\vee}
 \end{array}$$

Ed - " obs

~~10 57~~

11 0

$$\begin{array}{r}
 \cancel{150.8} < 1645 \text{ disap.} \\
 \cancel{200.2} \\
 148.3 < 1645 \text{ disap.} \\
 197.0 \quad 48.7^{\wedge} \\
 324.1 \quad \underline{39.8^{\wedge}} \\
 13.9 \quad 88.5^{\wedge} \quad K.0^{\vee}
 \end{array}$$

Ed - " obs

Oct. 3, 1883.

Re-vision of Vol. VII.

S. O. Hs.

Began with star at  $21^h 0^m 4.6$   
 " at  $0^h 42^m 4.6$

|             |      |      |                               |
|-------------|------|------|-------------------------------|
| 3.7         | 25   | 3    | $20^h 54.9$                   |
| 3.7         | 60   | 46.6 | 5.57 8.7                      |
| 6.5         | 6.8  | 74   | 2.3                           |
| 5.8         | 68   | 4.0  | 2.3                           |
| 7.5         | 0.5  | 55   | 9.87                          |
| 2.0         | 5    | 10.3 | 80                            |
| 10.0        | 9.8  | 2.0  | 6.5                           |
| 6.5         | 9.7  | 4.0  | 0.5                           |
| 2.0         | 9.6  | 10.2 | 6.07                          |
| 5.8         | -0.1 | 10.3 | 9.0                           |
| 7.5         | 9.7  | 2.0  | 5                             |
| $20^h 44.6$ | 9.8  | 9.0  | 6.5                           |
| 10.0        | 9.6  | 2.3  | 6.0                           |
| 9.6         | 4.7  | 10.2 | 7.6 <small>neg. rate.</small> |
| 4.0         | 5.0  | 2.0  | 8.0                           |
| 6.0         | 9.8  | 2.5  | 7.6                           |
| 6.0         | 5.0  | 7.0  | 8.0                           |
| 4.0         | -0.3 | 8.0  | $60^h 57.4$                   |
| 3.0         | 4.7  | 7.0  | Clouds                        |
| 9.6         | 7.6  | 2.5  |                               |
| 3.8         | 8.0  | 9.0  |                               |
| 2.0         | 6.0  | 7.0  |                               |
| 2.0         | 0.3  | 0.4  |                               |
| 2.5         | 7.6  | 9.0  |                               |
| 3.0         | 6.0  | 4    |                               |
| 1.5         | 7.4  | 7.0  |                               |

The two stars at  $5.8$  and  $7.5$  which come together are ~~the~~  $DM. + 50$  4665 & 4666. The difference of  $5^s$  in the Bond zone is an error, apparently, in the place of the last one. But there is a star at  $2.0$  pretty closely following them and observed in this series.



Oct 3, 1883.

|           |                 |
|-----------|-----------------|
| B4b 1182  | B 394           |
| 3 35 55.3 | 14 49 00        |
| 36 55.3   | 50 00           |
|           | <del>44.5</del> |
|           | <del>10.8</del> |

|           |                 |
|-----------|-----------------|
| B4b 1182  | B 394           |
| 3 50 55.2 | 15 4 00         |
| 51 55.2   | 5 00            |
|           | <del>44.5</del> |
|           | <del>10.4</del> |

|    |    |      |
|----|----|------|
| 15 | 1  | 51.1 |
|    | 23 | 41   |
| 15 | 25 | 32.1 |
|    | 46 | 55.2 |
| 16 | 12 | 27.3 |

+ by B4C 1182

Eclipse Jup. III (Resp.) S. obs. Cu. rec.  
 Compared with Jup I Phot. H.

Limit of Visibility.

|   |   |      |      |
|---|---|------|------|
| 4 | 6 | 52.8 | 40.6 |
|   | 7 | 12.4 | 99.0 |
|   |   | 32.5 | 38.7 |
|   |   | 59.5 | 99.0 |

Oct. 3, 1883.

|   |    |      |           |
|---|----|------|-----------|
| 4 | 14 | 19.8 | Respected |
|   |    | 41.6 | Reem      |
|   |    | 46.8 | 43.0      |
|   | 15 | 0.5  | 98.5      |
|   |    | 14.2 | 30.5      |
|   |    | 29.5 | 101.5     |
|   |    | 41.2 | 36.4      |
|   |    | 56.8 | 104.8     |
|   | 16 | 10.0 | 40.7      |
|   |    | 29.0 | 108.0     |
|   |    | 41.0 | 39.8      |
|   |    | 53.5 | 111.0     |
|   | 17 | 4.2  | 32.5      |
|   |    | 15.4 | 107.5     |
|   |    | 24.3 | 34.5      |
|   |    | 36.2 | 108.7     |
|   |    | 45.5 | 36.2      |
|   |    | 53.8 | 115.2     |
|   | 18 | 5.2  | 36.5      |
|   |    | 17.0 | 110.0     |
|   |    | 31.2 | 31.0      |
|   |    | 39.5 | 120.0     |
|   |    | 46.8 | 32.0      |
|   |    | 55.2 | 118.4     |
|   | 19 | 7.0  | 33.0      |
|   |    | 15.2 | 120.0     |
|   |    | 23.5 | 24.3      |
|   |    | 33.5 | 118.5     |
|   |    | 43.0 | 23.8      |



Oct. 3, 1883.

|    |      |       |   |
|----|------|-------|---|
| 19 | 52.2 | 120.0 |   |
|    | 59.7 | 22.0  |   |
| 20 | 7.5  | 119.8 |   |
|    | 17.3 | 23.0  |   |
|    | 26.0 | 118.8 |   |
|    | 36.8 | 25.0  |   |
|    | 46.7 | 120.8 |   |
|    | 55.5 | 25.2  |   |
| 21 | 5.2  | 120.0 |   |
|    | 14.0 | 23.7  |   |
|    | 27.0 | 119.0 | 1 |
|    | 37.5 | 21.5  |   |
|    | 48.5 | 121.8 |   |
|    | 58.2 | 22.7  |   |
| 22 | 14.3 | 120.0 | 2 |
|    | 34.3 | 16.1  |   |
|    | 52.8 | 117.7 |   |
| 23 | 10.5 | 20.5  |   |
|    | 24.3 | 118.3 | 3 |
|    | 36.0 | 19.0  |   |
|    | 49.5 | 114.2 |   |
| 24 | 2.3  | 17.4  |   |
|    | 18.3 | 114.5 | 4 |
|    | 33.2 | 23.1  |   |
|    | 47.2 | 117.8 |   |
| 25 | 4.0  | 20.2  |   |
|    | 21.3 | 117.8 | 5 |
|    | 38.3 | 21.2  |   |
|    | 49.7 | 115.9 |   |
| 26 | 4.5  | 24.3  |   |

Oct. 3, 1883

|   |    |      |       |    |
|---|----|------|-------|----|
| 4 | 26 | 17.3 | 121.5 |    |
|   |    | 31.4 | 19.7  | 6  |
|   |    | 45.7 | 117.6 |    |
|   | 27 | 18.2 | 19.2  |    |
|   |    | 30.5 | 123.6 | 7  |
|   |    | 50.5 | 17.3  |    |
|   | 28 | 10.0 | 122.7 |    |
|   |    | 29.5 | 18.3  |    |
|   |    | 44.6 | 121.7 | 8  |
|   |    | 59.2 | 17.4  |    |
|   | 29 | 19.4 | 125.1 |    |
|   |    | 38.0 | 15.1  |    |
|   |    | 58.3 | 119.5 | 9  |
|   | 30 | 12.5 | 19.0  |    |
|   |    | 28.3 | 126.0 |    |
|   |    | 44.2 | 21.5  |    |
|   |    | 59.0 | 122.6 | 10 |
|   | 31 | 19.3 | 24.0  |    |
|   |    | 39.4 | 117.4 |    |

B &amp; C 1182

|   |    |      |
|---|----|------|
| 4 | 36 | 55.0 |
|   | 37 | 55.0 |

B &amp; C 1182

|   |    |      |
|---|----|------|
| 5 | 29 | 54.4 |
|   | 30 | 54.4 |

B 394

|    |    |          |
|----|----|----------|
| 15 | 49 | 44.5     |
|    | 50 | 00       |
| 51 | 00 | 00       |
|    |    | -47.10.5 |

B 394

|    |    |         |
|----|----|---------|
| 16 | 43 | 44.5    |
|    | 44 | 00      |
|    |    | -47.9.9 |



Oct. 3, 1883.

$$\begin{array}{r}
 16 \quad 43 \quad 41.2 \\
 \quad 23 \quad 41 \\
 \hline
 17 \quad 7 \quad 22.2
 \end{array}$$

Disappearance of Sar. I      S. obs. Curves  
 Compared with Sar. II      Plot 14.

|         |    |             |       |
|---------|----|-------------|-------|
| 17<br>5 | 34 | 49.0        | 111.0 |
|         | 35 | 9.2         | 210.0 |
|         |    | 26.0        | 112.5 |
|         |    | 56.0        | 208.5 |
|         | 36 | <u>16.5</u> | 112.8 |
|         |    | 33.3        | 210.6 |
|         |    | 49.0        | 115.2 |
|         | 37 | <u>2.4</u>  | 210.0 |
|         |    | 15.3        | 109.8 |
|         |    | 29.5        | 212.1 |
|         |    | 49.5        | 111.0 |
|         | 38 | 0.5         | 213.1 |
|         |    | 12.2        | 109.8 |
|         |    | 25.0        | 211.5 |
|         |    | 36.4        | 112.0 |
|         |    | 48.7        | 210.4 |
|         | 39 | 0.5         | 110.5 |
|         |    | 11.5        | 208.8 |
|         |    | 24.2        | 107.6 |
|         |    | 39.3        | 214.7 |
|         | 40 | 10.0        | 116.3 |

Oct. 3, 1883.

|   |    |      |       |
|---|----|------|-------|
| 5 | 40 | 22.5 | 211.9 |
|   |    | 33.7 | 118.0 |
|   |    | 44.2 | 205.4 |
|   |    | 54.2 | 114.8 |
|   | 41 | 2.7  | 204.5 |
|   |    | 11.2 | 114.2 |
|   |    | 19.3 | 212.1 |
|   |    | 32.2 | 110.8 |
|   |    | 41.3 | 212.9 |
|   |    | 55.4 | 107.8 |
|   | 42 | 8.3  | 213.0 |
|   |    | 21.8 | 103.8 |
|   |    | 38.7 | 217.0 |
|   |    | 56.5 | 106.5 |
|   | 43 | 10.8 | 212.0 |
|   |    | 23.8 | 108.0 |
|   |    | 37.3 | 212.0 |
|   |    | 51.4 | 109.2 |
|   | 44 | 2.0  | 212.0 |
|   |    | 18.2 | 108.0 |
|   |    | 30.3 | 208.5 |
|   |    | 44.3 | 102.0 |
|   | 45 | 0.5  | 210.7 |
|   |    | 33.5 | 108.0 |
|   |    | 47.0 | 210.2 |
|   | 46 | 0.8  | 111.8 |
|   |    | 12.5 | 208.0 |
|   |    | 23.5 | 111.3 |
|   |    | 34.3 | 211.2 |
|   |    | 48.6 | 109.5 |



Oct. 3, 1883.

|   |    |      |       |
|---|----|------|-------|
| 5 | 47 | 4.6  | 210.5 |
|   |    | 15.4 | 102.0 |
|   |    | 32.3 | 217.8 |
|   | 48 | 2.3  | 112.0 |
|   |    | 12.5 | 216.5 |
|   |    | 33.3 | 106.3 |
|   |    | 49.7 | 214.8 |
|   | 49 | 10.7 | 110.8 |
|   |    | 24.8 | 209.8 |
|   |    | 37.3 | 107.3 |
|   |    | 56.7 | 215.2 |
|   | 50 | 8.8  | 113.0 |
|   |    | 27.8 | 216.3 |
|   |    | 41.3 | 107.8 |
|   |    | 56.4 | 219.2 |
|   | 51 | 12.4 | 111.0 |
|   |    | 23.5 | 220.1 |
|   |    | 36.2 | 111.8 |
|   |    | 48.0 | 216.1 |
|   |    | 59.2 | 110.2 |
|   | 52 | 13.8 | 215.8 |
|   |    | 28.7 | 114.0 |
|   |    | 42.0 | 214.0 |
|   |    | 53.2 | 109.0 |
|   | 53 | 5.3  | 211.0 |
|   |    | 15.5 | 111.0 |
|   |    | 26.0 | 214.8 |
|   |    | 39.8 | 117.5 |
|   |    | 52.2 | 210.3 |
|   | 54 | 1.5  | 120.8 |

Oct. 3, 1883.

|   |    |      |           |
|---|----|------|-----------|
| 5 | 54 | 14.3 | 208.0     |
|   |    | 36.3 | Suspected |

Limit of Visibility

|    |      |       |
|----|------|-------|
| 55 | 7.5  | 121.0 |
|    | 19.8 | 201.6 |
|    | 35.0 | 111.3 |
|    | 49.8 | 201.5 |

Seeing extremely variable; satellites often entirely 'disappearing' for a considerable time. This was also the case in the previous reappearance of Jupiter III. On this account, the comparisons in the last set were begun very early.

B 46 1182

|   |   |      |
|---|---|------|
| 6 | 2 | 54.3 |
|   | 3 | 54.3 |

B 394

|    |    |    |
|----|----|----|
| 17 | 16 | 00 |
|    | 17 | 00 |

~~46<sup>m</sup> 9.8~~  
 47 9.2



Oct. 4, 1883,

S. L. S.

7 45

Spectrum of comet of 1812 faint largely continuous. Comet faint, diffuse, nucleus visible but not bright or stellar. Appearance of structure suspected as in sketch.



Pos 0 337.5  
45  
382.5

Chronograph  
Observations

Set at 22.5

Reject one series at the beginning. The first series to be read has 3 short rattles at the beginning. Comp. star DM. +58° 1645.  
1<sup>st</sup> set; both objects south half; ~~the~~ comet dis. & re. star dis. and re.; star dis. & re., comet dis. & re.  
2<sup>d</sup> set; both in north half; star dis. & re., comet dis. & re., comet dis. & re., star dis. & re.  
3<sup>d</sup> & 5<sup>th</sup> sets like 1<sup>st</sup>; 4<sup>th</sup> & 6<sup>th</sup> sets like 2<sup>d</sup>.

Oct. 4, 1883.

after these six sets reject one set containing only four signals. The first set to be read begins with four rattles.

Comparison star  $\Delta 458^{\circ} 1644$

First set both objects in south half.

Star  $\Delta$  dis.  $\Delta$  re. Comet dis.  $\Delta$  re.  
Comet Dis. Star Dis. Comet Re. Star Re.

Second set - both objects in north half -  
Comet Dis. Star Dis. Comet Re. Star Re.

Star Dis. Star Re. Comet Dis. Comet Re.

Third and fifth sets like the first.

Fourth and sixth sets like the second.

During fifth set some confusion of time-pieces -

Pos.  $\circ$  67.4

Rattle before  $\Delta$  after 21<sup>h</sup> 35 7.3451 on  
Chronograph Sheet —



Oct 4, 1883  
 Re-vision of Vol. VII  
 Began with star at 21<sup>h</sup> 0<sup>m</sup> 4<sup>s</sup>  
 " at 22<sup>h</sup> 20<sup>m</sup> 4<sup>s</sup>

S. obs

Series LVIII.

|                         |                          |      |                     |           |                           |           |           |           |          |          |
|-------------------------|--------------------------|------|---------------------|-----------|---------------------------|-----------|-----------|-----------|----------|----------|
| 4.0                     | 8.0                      | 7.8  | 28                  | 50        | 0.0                       | 5.5       | 1.5       | 8.0       | 82       | 29       |
| 4.0                     | 7.5                      | 5.0  | a 22 31.9           | 2.5       | 7.0                       | 5.0       | 1.0       | 2.4       | 9.7      | 8.4      |
| 6.8                     | 2.5                      | 6.5  | 8.8                 | 8.0       | 8.3                       | 6.3       | 5.5       | 8.0       | 9.7      | 8.4      |
| 6.2                     | 11.5                     | 10.0 | 7.5                 | 8.5       | 0                         | 1.8       | 1.6       | 6.5       | 5.2      | 3.2      |
| 7.8                     | 8.0                      | 2.5  | 1.0                 | 2.5       | 7.0                       | 5.5       | 2.5       | 5.2       | 5.2      | 1.0      |
| 2.4                     | 7.0                      | 1.0  | 8.8                 | b 22 35.7 | b 22 39.3                 | 5.0       | 4.0       | 2.4       | 10.0     | 1.0      |
| 10.1                    | 0.5                      | 1.6  | 1.0                 | 3.0       | 4.7                       | 6.3       | 2.5       | 5.2       | 7.5      | 3.2      |
| 6.8                     | 5                        | 8.0  | 7.5                 | 9.7       | 4.7                       | a 22 47.9 | 6.5       | 7.7       | 10.0     | b 23 6.4 |
| 2.4                     | 7.1 <sup>note 10.0</sup> | 7.5  | 9.5                 | 9.5       | 10.5                      | 10.4      | 2.5       | 7.3       | 7.5      | 1.6      |
| 6.2                     | 9.9                      | 6.0  | 2.6                 | 3.0       | 1.8                       | 10.4      | 7.6       | 7.7       | a 23 2.7 | 4.5      |
| 7.8                     | 9.8                      | 1.0  | 2.6                 | 9.7       | 8.0                       | 0.8       | 6.9       | 7.3       | 1.0      | 10.0     |
| a 22 22.1               | 5.0                      | 6.0  | 9.5                 | 10.0      | 10.5                      | 1.9       | 8.8       | b 22 54.2 | 1.2      | 1.6      |
| 10.1                    | -1.0                     | 7.5  | 7.5                 | 9.5       | 4.8                       | 9.0       | 2.2       | 8.5       | 6.0      | 2.3      |
| 9.0                     | 10.1                     | 4.5  | 7.5 <sup>pl</sup>   | 10.0      | 1.0                       | 8         | 6.9       | 2.5       | 1.0      | 4.5      |
| 4.5                     | 5.0                      | 6.0  | 1.8                 | 7.3       | 8.0                       | 0.5       | 7.6       | 8.5       | 1.2      | 10.0     |
| 9.0                     | 9.9                      | 2.7  | 7.0                 | 7.9       | 4.8                       | 0.6       | 9.0       | 10.0      | 6.0      | 1.0      |
| 10.1                    | 9.8                      | 4.0  | 7.5 <sup>prec</sup> | 10.3      | 0.6                       | 1.9       | 3.0       | 2.5       | 5.2      | 2.3      |
| 4.5                     | a 22 27.1                | 10.8 | 5.5                 | 7.3       | 5.3                       | 9.0       | 2.5       | 10.0      | 5.6      | 7.0      |
| 3.5                     | 8.0                      | 2.7  | 1.0                 | 7.9       | 10.0                      | 6         | 4.9       | -0.2      | 5.2      | 7.5      |
| 10.1                    | 2.6                      | 9.8  | 7.5 <sup>fol</sup>  | 5.5       | 10.2                      | 5         | 3.0       | 10.1      | 9.0      | 1.0      |
| 4.7 <sup>2nd sig.</sup> | 5.0                      | 2.5  | 6.0                 | 4.8       | 5.3                       | 9.8       | 7.3       | 10.2      | 1.5      | 7.0      |
| 2.0                     | 5.5                      | 10.8 | 7.0                 | 10.3      | 6                         | 9.0       | 8.0       | 10.1      | 2.9      | 7.5      |
| 3.5                     | 8.0                      | 2.5  | 0.0                 | 6.8       | 10.2                      | 9.8       | 4.9       | 10.2      | 5.6      | 11.0     |
| 4.6                     | 2.6                      | 2.8  | 5.2                 | 5.5       | 11.0                      | 9.0       | 7.3       | 7.6       | 9.0      | 11.0     |
| 2.0                     | 10.0                     | 7.6  | 8.0                 | 4.8       | 10.0                      | 1.0       | a 22 51.7 | 7.6       | 8.3      | 4.8      |
| b 22 24.1               | 0.2                      | 9.0  | 0                   | 6.8       | 11.0 <sup>note 11.0</sup> | 2.5       | 8.0       | 8.2       | 1.5      | 10.8     |
| 2.5                     | 5.5                      | 7.6  | 8.5                 | 8.3       | 1.8                       | 4.5       | 6.5       | 11.3      | 8.3      | 10.7     |

Oct. 4, 1883.

48 50  
 108 89  
 107 7.5  
 9.9 100  
 5.0 82  
 6.2 75  
 50 82  
 7.6<sup>20</sup> sig 7.4  
 100 } 74  
 6-23 11.8 6-23 16.3  
 10.0 Ended with  
 0.6 star at 21<sup>h</sup> 55<sup>m</sup>

3.5  
 6 Rattle before and after 23<sup>h</sup> 22<sup>m</sup> of 1327  
 100 Put on Fl. 3451 and rattled before and  
 35 after 23<sup>h</sup> 26<sup>m</sup> put 1327 back again  
 3.6 and rattled before and after 23<sup>h</sup> 29<sup>m</sup>

10.3

3.9

3.6

103

4.0

~~Fl.~~ 1327 = 23<sup>h</sup> 44<sup>m</sup> 0<sup>s</sup> 0

Fl. 3451 = 23 44 28

~~57.1~~

4.7

3.9

8.8

4.0

5.0

4.7

10.1



October 5 1883.

Series LIX. Revision of Vol. VII.

S. obs

Began with <sup>a</sup> star <sup>preceding that last</sup> at 19<sup>h</sup> 50<sup>m</sup> 0.8Began at 21<sup>h</sup> 14<sup>m</sup> 0.8 [This is a reobservation of Series IV.]  
See p. 62.

|   |      |      |      |                        |      |          |         |                                  |      |          |
|---|------|------|------|------------------------|------|----------|---------|----------------------------------|------|----------|
| 19 <sup>h</sup> 50 <sup>m</sup> 0.8 (?) | 2.5  | 6.0  | 0.5  | Rej. at<br>rattle here | 92   | 1.0      | 6.0     | 5.4                              | 10.3 | 7.5      |
|   | 10.3 | 0.0  | 10   | 55                     | 76   | 25       | 51      | 621 <sup>h</sup> 41 <sup>m</sup> | 30   | 75       |
|   | 25   | 70   | 20   | 74                     | 10.3 | -0.3     | 30      | 54                               | 70   | 80       |
|   | 103  | 7.5  | 10   | 621 258                | 9.0  | 1.8      | 60      | 10.4                             | 5.5  | 9.5      |
|   | 8.0  | 60   | 9.0  | 6.0                    | 3.0  | 20       | 9.0     | 5.2                              | 2.0  | 75       |
|   | 6.1  | 0    | 6.3  | 4.0                    | 103  | 18       | 5.5     | 10.4                             | 80   | 95       |
|   | 2.3  | 75   | 1.5  | 11.0                   | 4.5  | 5.0      | 50      | 10.8                             | 103  | 7.7      |
|   | 8.0  | 8.5  | 90   | 9.0                    | 90   | 621 33.2 | 2.0     | 7.2                              | 6.2  | 3.5      |
|   | 80   | 7.5  | 60   | 60                     | 8.8  | 50       | 80      | 10.8                             | 2.2  | 6.0      |
|   | 10.0 | 10.5 | 0.5  | 3.5                    | 30   | 0.5      | 55      | 7.2                              | 20   | 2.4      |
|   | 50   | 85   | 8.0  | 6.5                    | 45   | 6.6      | 7.8     | 5.2                              | 60   | 10.3     |
|   | 20   | 75   | 6.5  | 40                     | 2.3  | 5        | 20      | 7.4                              | 50   | 75       |
|   | 80   | 105  | 80   | 65                     | 80   | 66       | 1.5     | 6.8                              | 4.7  | 30       |
|   | 100  | 65   | 5    | 35                     | 4.7  | 6.7      | 7.8     | 5.0                              | 23   | 10.0     |
| 21 <sup>h</sup> 15 <sup>m</sup> 9       | -0.3 | 60   | 80   | 23                     | 2.8  | 7.2      | 0.6     | 21 46.4                          | 7.8  |          |
|   | 6.0  | 2.4  | 7.5  | 8.0                    | 9.0  | 6.7      | 1.8     | 70                               | 4.7  | 100      |
|   | 4.0  | 60   | 3.2  | 10.0                   | 2.5  | 2.4      | 21 38.7 | 60                               | 1.6  | 20       |
|   | 9.0  | 7.5  | 8.5  | 2.5                    | 4.7  | 4.5      | 8.2     | 5.0                              | 9.8  | 5.5      |
|   | 60   | 2.0  | 32   | 80                     | 6.5  | 2.8      | 7.2     | 50                               | 2.5  | 10.1     |
|   | 40   | 20   | 75   | 100                    | 7.5  | 2.4      | 10.2    | 0.7                              | -0.2 | 100      |
|   | 90   | 4.9  | 7.0  | 25                     | 9.0  | 50       | 2.5     | 6                                | 20   | 7.9      |
|   | 10.1 | 75   | 11.0 | 10.0                   | 5.2  | 5.0      | 8.2     | 7                                | 30   | 5.2      |
|   | 7.9  | 4.8  | 10.3 | 9.5                    | 50   | 8.8      | 0.0     | 6.8                              | 100  | 5.5      |
|   | 10.1 | 10   | 80   | 9.5                    | 2.5  | 5.1      | 100     | 50                               | 7.9  | 5.2      |
|   | 7.0  | 4.9  | 75   | 100                    | 20   | 50       | 0       | 6.8                              | 7.5  | 10.1     |
|   | 7.9  | 4.8  | 7.4  | 21 28.5                | 60   | 6.8      | 2.5     | 40                               | 2.5  | 621 50.8 |
|   | 0.2  | 2.4  | 5.5  | 9.2                    | 90   | 3.2      | 5.5     | 7.3                              | 2.5  | 7.4      |
|   | 11.0 | 2.5  | 10.3 | 7.6                    | 52   | 80       | 5.5     | 8.0                              | 2.5  | 7.0      |

Oct. 5, 1883.

Series I.X.

Revision of Vol VI. 5.06

Began <sup>with star at</sup> at 21<sup>h</sup> 30<sup>m</sup> 12.7" at 22<sup>h</sup> — —

7.4 2.0  
 3.2 7.2  
 7.0 4.9  
 9.0 } 2.0  
 2.0 } 9.9  
 7.0 4.5  
 3.4 2.2  
 7.0 9.9  
 9.4 4.5  
 9.0 } 2.2  
 2.0 } b-21 57.2  
 5.2 2.6  
 8.3 4.0  
 5.0 9.5  
 9.0 4.0  
 11.0 2.6  
 8.0 2.5  
 a 21 53.7 } 2.5  
 1.0 9.0  
 1.0 9.0  
 2.5 2.3  
 7.5 2.2  
 7.7 9.0  
 2.5 2.3  
 7.5 } 2.2  
 3.0 } b-22 0.3  
 4.8 Ended at  
 7.3 20<sup>h</sup> 35<sup>m</sup>  
 4.9  
 4.8

4.5 10.3 8.8 6.8 9.8 7.2 2.7  
 0.0 10.1 0.8 } 10 } 3.0 7.3 2.7  
 -1.0 10.2 2.8 <sup>2d</sup> Aug } 9 } 9.8 10.0 } 3.5  
 8.0 10.3 } 5.3 6.8 10.2 8.0 } 9.0  
 4.5 10.1 } 9.0 10.6 3.2 7.2 }  
 0 10.2 8.0 10.0 } 3.0 6.0 3.5  
 8.0 b-22 29.9 10 10.6 } 3.4 } 9.0  
 6.0 7.4 2.8 10.0 10.3 } 10.0 7.2  
 8.2 7.4 8.0 4.5 4.3 4.7 6.0  
 1.8 11.0 a 22 37.2 10.3 3.2 6.0 4.8  
 8.0 9.6 8.2 <sup>Ref. 10.2</sup> 7.2 } 8.0 4.7 7.0  
 6.0 9.6 8.2 4.5 } 3.4 b-22 49.8 8.0  
 5.1 5.2 3.1 10.3 5.0 10.2 7.2  
 1.8 5.2 0.8 10.2 4.3 -0.5 6.0  
 a 22 24.7 9.9 8 9.8 10.0 6.7 4.8  
 5.1 7.5 3.1 9.8 5.0 -0.2 8.0  
 7.5 9.9 1.2 7.7 0.8 } 10.2 7.0  
 6.9 7.5 4.5 4.7 8.0 } 0.3 a 22 55.3  
 7.5 b-22 33.4 9.8 3.0 7.5 } 9.0 7.3  
 6.9 0.7 2.4 } 4.7 10.0 } 2.4 7.3  
 8.5 1.0 1.2 } 7.7 } 2 7.0 5.0  
 2.4 5.7 4.5 3.0 } 8.0 9.0 5.0  
 9.9 7 9.9 } 10.2 7.5 3 b-22 56.6  
 8.5 10 2.4 } 3.1 8.0 2.4 Ended  
 9.9 5.7 1.0 3.1 7.3 4.0 at  
 2.4 5.4 0.9 10.2 8.8 4.0 22<sup>h</sup> 3<sup>m</sup>



Oct. 5. 1883.  
 Pos =  
 Comet Brooks.

K. obs.

$$\begin{array}{r} 16 \quad 30 \\ 23 \quad 15 \\ \hline + 6 \quad 45 \\ \hline \end{array} \quad + 57.9$$

|                 |                 |                    |         |          |
|-----------------|-----------------|--------------------|---------|----------|
| 23 <sup>h</sup> | 48 <sup>m</sup> | 20 <sup>s</sup> .2 | Star #1 | Mag. 9.5 |
|                 |                 | 24.3               | " #2    | " 9.5    |
|                 |                 | 33.6               | " #3    | " 9.8    |
|                 |                 | 48.6               | " #4    | " 8      |

Comparison Star is #4.

Decl. of #4 = 0, of #3 = 4.8, of #2 = 9, of #1 = 10.8

∴ Comp. Star = 2<sup>nd</sup>. + 52° 16' 46" (A.O. 4)

$$\begin{array}{r} \text{Pos. 0} \quad 259.2 \\ \quad \quad 45 \\ \hline \end{array}$$

Set at 304.2

Under Star Comet Star Comet  
 Star in northern half and comet in  
 Southern half of square.

Six sets taken - reject second.

Nebulosity about comet estimated at  
 7' to 8' in diameter. Nucleus quite  
 stellar. There is a rather bright enve-  
 lope about nucleus a 1' to 1.5 in diameter  
 gradually fading out. Brightness of nucleus

Oct. 5, 1883.  
estimated at 10.5 mag.

Spectra of nucleus mainly  
continuous.

B. + C. 1183.

13 45 30.0  
46 30.0

Bond 394.

14 25 0.0  
26 0.0

Phot R. Reap. Jupiter IV + 39<sup>m</sup> 14.5  
Comp. sat. Jup. III. S. obs.  
135

13 49 7.0 Suspected

20.0 326.0

31.0 146.0

42.5 142.0

51.0 179.0

59.0 149.0

59 6.0 174.5

15.0 146.5

24.0 176.0

32.5 145.0

41.0 172.5

54.5 142.2

58 0.6 175.1

7.0 144.2

14.0 177.0

22.0 144.0



Oct. 5, 1883.

|    |      |       |
|----|------|-------|
| ✓1 | 31.0 | 179.2 |
|    | 40.0 | 140.5 |
|    | 42.0 | 181.7 |
|    | 15.0 | 140.8 |
| ✓2 | 2.0  | 112.0 |
|    | 8.0  | 140.2 |
|    | 15.0 | 120.1 |
|    | 22.0 | 140.7 |
|    | 30.0 | 177.0 |
|    | 40.5 | 142.5 |
|    | 45.0 | 121.5 |
|    | 55.0 | 140.2 |
| ✓3 | 3.0  | 121.9 |
|    | 11.0 | 141.7 |
|    | 15.0 | 120.0 |
|    | 26.5 | 130.0 |
|    | 35.0 | 120.0 |
|    | 55.5 | 135.8 |
| ✓4 | 7.0  | 114.9 |
|    | 19.0 | 136.8 |
|    | 27.0 | 127.0 |
|    | 34.5 | 135.5 |
|    | 44.0 | 160.2 |
|    | 51.0 | 140.6 |
| ✓5 | 2.0  | 145.0 |
|    | 11.0 | 130.0 |
|    | 18.5 | 186.4 |
|    | 27.5 | 135.0 |
|    | 35.0 | 140.2 |

Oct. 5, 1883,

|      |      |       |
|------|------|-------|
| 55   | 47.0 | 1357  |
|      | 56.0 | 156.5 |
| 56   | 6.5  | 133.3 |
|      | 16.5 | 190.0 |
|      | 24.0 | 132.0 |
|      | 32.5 | 188.2 |
|      | 41.0 | 132.5 |
|      | 49.5 | 190.3 |
|      | 59.0 | 138.0 |
| 57   | 7.5  | 188.0 |
|      | 30.0 | 129.0 |
|      | 39.5 | 187.1 |
|      | 49.5 | 133.8 |
| 58   | 11.0 | 164.9 |
|      | 23.0 | 131.2 |
|      | 31.5 | 189.2 |
|      | 40.0 | 134.5 |
|      | 49.5 | 186.5 |
| 59   | 1.5  | 127.1 |
|      | 12.0 | 182.0 |
|      | 23.5 | 129.0 |
|      | 33.0 | 191.5 |
|      | 55.0 | 135.6 |
| 14 0 | 11.0 | 185.2 |
|      | 22.0 | 134.5 |
|      | 34.0 | 186.5 |
|      | 51.0 | 133.0 |
| 1    | 0.0  | 190.2 |



Oct. 5, 1883,

|    |   |      |       |   |
|----|---|------|-------|---|
| 14 | 1 | 26.5 | 131.1 |   |
|    |   | 40.0 | 127.1 |   |
|    |   | 51.5 | 130.1 |   |
|    | 2 | 1.0  | 129.5 |   |
|    |   | 9.0  | 134.4 |   |
|    |   | 21.5 | 190.0 |   |
|    |   | 31.0 | 133.0 |   |
|    |   | 46.0 | 194.2 |   |
|    | 3 | 3.0  | 125.6 |   |
|    |   | 14.0 | 190.0 |   |
|    |   | 26.5 | 130.3 |   |
|    |   | 37.0 | 193.2 |   |
|    |   | 55.0 | 125.0 | → |
|    | 4 | 9.0  | 190.0 |   |
|    |   | 27.0 | 129.0 |   |
|    |   | 36.0 | 164.0 |   |
|    |   | 47.5 | 130.4 |   |
|    | 5 | 1.0  | 125.1 |   |
|    |   | 11.0 | 125.0 |   |
|    |   | 22.0 | 129.1 |   |
|    |   | 31.0 | 131.9 |   |
|    |   | 43.5 | 127.5 |   |
|    | 6 | 1.0  | 133.0 |   |
|    |   | 11.0 | 192.3 |   |
|    |   | 24.0 | 130.4 |   |
|    |   | 35.0 | 190.4 |   |
|    |   | 46.0 | 127.2 |   |
|    | 7 | 2.0  | 191.1 |   |

Oct. 5, 1883.

|    |   |      |       |
|----|---|------|-------|
| 14 | 7 | 19.0 | 130.0 |
|    |   | 21.0 | 125.2 |
|    |   | 50.5 | 130.2 |
|    | 8 | 2.0  | 190.1 |

Limit of Vis.

|    |   |      |       |
|----|---|------|-------|
| 14 | A | 24.0 | 142.5 |
|    |   | 30.5 | 170.0 |
|    |   | 46.5 | 152.1 |
|    |   | 57.5 | 170.6 |

Phot R, Comp, sat No. 3,  
Reps. ~~to~~ Sat. 4.

B. + C. 1182.

|    |    |      |
|----|----|------|
| 14 | 15 | 29.5 |
|    | 16 | 29.5 |

Boud 394  
 14 57 0.0<sup>44.5</sup>  
 54 0.0  
 +41 15.0



$$2.2.0 \equiv = 37.0 \text{ Ab.} = 0.02$$

$$11.11 * = 36.4 \text{ " } = \frac{0.02}{0.00}$$

121

Oct. 7, 1883

Comet of 1812

S. obs.

Moonlight

6 50

Spectrum continuous wholly or mainly.  
No tail visible. Nucleus tolerably  
distinct, not shaggy.

Photometer Q  
Companion star of Draconis, above  
and to the right (about  $45^\circ$ )

Nucleus

7

$$\begin{array}{r} 14.20 \\ 6.40 \\ \hline 4.7.20 = 0.49209 \\ 4.46045 \\ 2.11 \\ \hline 2.22 \\ \hline 9.39 \text{ Uncor. mag.} \\ \text{No cor.} \end{array}$$

14.3

14.2

14.1

14.20

Focus

6.2

6.0

7.0

3/14.2

6.40

Mean brightness of coma

7

$$\begin{array}{r} 23.53 \\ 6.40 \\ \hline 4.17.13 = 1.23376 \\ 6.16220 \\ 2.22 \\ \hline 11.10 \text{ Uncor. mag.} \\ \text{No cor.} \end{array}$$

22.1

25.8

22.7

3/10.6

3/10.6

23.53

23.53

24.2

24.5

25.8

6/25.1

24.1

24.5

24.23

$$\begin{array}{r} 24.23 \\ 6.73 \\ \hline 4.12.10 = 1.25764 \\ 6.22240 \\ 2.11 \\ \hline 11.22 \text{ Uncor. mag.} \\ \text{No cor.} \end{array}$$

$$\begin{array}{r} 24.12 \\ 6.40 \\ \hline 4.17.20 = 1.24993 \\ 6.24905 \\ 2.22 \\ \hline 14.12 \text{ Uncor. mag.} \end{array}$$

$$\begin{array}{r} 24.12 \\ 6.24905 \\ 2.22 \\ \hline 14.12 \text{ Uncor. mag.} \end{array}$$

7

12

$$\begin{array}{r} 24.23 \\ 6.73 \\ \hline 4.12.10 = 1.25764 \\ 6.22240 \\ 2.11 \\ \hline 11.22 \text{ Uncor. mag.} \\ \text{No cor.} \end{array}$$

$$\begin{array}{r} 24.23 \\ 6.73 \\ \hline 4.12.10 = 1.25764 \\ 6.22240 \\ 2.11 \\ \hline 11.22 \text{ Uncor. mag.} \\ \text{No cor.} \end{array}$$

$$\begin{array}{r} 24.23 \\ 6.73 \\ \hline 4.12.10 = 1.25764 \\ 6.22240 \\ 2.11 \\ \hline 11.22 \text{ Uncor. mag.} \\ \text{No cor.} \end{array}$$

Oct. 7, 1883.

Focus.

7.1  
7.0  
6.1 $\frac{3 \times 20.2}{6.73}$ 

Nucleus.

15.9  
16.3 $\frac{3 \times 14.4}{15.53}$ 

$$\begin{array}{r} 15.53 \\ 6.73 \\ \hline 2.20 \end{array} = 0.94442$$

K. 7 22 K 0

2.11

2.22

unc. neg. 9.65 +  
no cor.

7 15

R Delphini S. and C. obs.

8 45

No appearance of Schönfeld's star a  
sp the variable star.C. suspects nebulosity around three  
little stars n of the variable.

brightest of this group is 13 m.

n 1.5 of R Delph and spec 19.5



Oct. 9, 1923.

Suspected Var. near  $\alpha$ . Ophiuchi.  
(Schönfeld's "h") W. obs.

$$\begin{array}{r} 16 \quad 23 \\ 19 \quad 44 \\ \hline +3 \quad 21 \end{array} \quad -16.2$$

Transit  
h 9.8  
x 19.4 23.3  
y 42.7

13<sup>s</sup> W. obs.

Star (a') foll. f 37.5  
24.5, 0.5 south of f.  
This star called a' provisionally

18<sup>s</sup> 48 25  
27<sup>s</sup> 51 29

Star foll. t 3.5, 1' north of t. (See p. 28)

Star b' foll f 15<sup>s</sup>, 1.5 south of f (See R106, 202)

7 10

~~h = t + b'~~ h = t + b' W. obs.  
h not seen well enough to compare S. obs.

h more easily seen than b' - estimated  
at .4 or .5  $\delta$  or  $\alpha$  than b' as nearly as an  
estimate can be made in the moonlight  
and at the low altitude. W. obs.

Oct. 9, 1883.

T Pegasi. I. obs.

Diff of A. R. 23.2 Diff of Decl. 6  
 Region well identified. Nothing seen  
 in place of T Pegasi. There is a faint  
 star 3' north of the place of T.

R Pegasi I. obs.

Region well identified.  
 12 R R 3 m

R Lacertan I. obs.

Region well identified  
 R not just as on chart, if seen.

|      | transit | decl. |
|------|---------|-------|
| y    | 0 0     | 5     |
| w    | 4.2     | 0     |
| R(?) | 12.5    | 2     |
| x    | 25.3    | 5.5   |
| c    | 35.3    | 6     |

same again

|      |      |
|------|------|
| y    | 0.0  |
| w    | 4.0  |
| R(?) | 12.3 |
| x    | 25.0 |
| c    | 35.1 |

y 2 R R 3 w



Oct. 9, 1883.

10 5

Comet of 1812 Feb.  
Appearance unchanged, Sept. 12,  
Spectrum still continuous, and  
as far as can be seen, no gaseous  
spectrum. Moonlight.

Oct 10, 1883

Ditaf Jupiter VII Robt. R. R.  
Phyl. H.  
H.C.

|    |    |    |       |
|----|----|----|-------|
| 18 | 48 | 34 | 266.1 |
|    | 49 | 12 | 3.7   |
|    | 49 | 58 | 270.2 |
|    | 50 | 21 | 26    |
|    |    | 51 | 266.0 |
|    | 51 | 9  | 4.3   |
|    |    | 38 | 268.2 |
|    |    | 57 | 3.4   |
|    | 52 | 18 | 267.4 |
|    |    | 59 | 7.3   |
|    | 53 | 25 | 268.2 |
|    | 53 | 58 | 6.6   |
|    |    | 47 | 268.0 |
|    | 54 | 12 | 3.6   |
|    |    | 34 | 267.4 |
|    | 55 | 59 | 4.2   |
|    | 56 | 26 | 266.2 |
|    |    | 51 | 2.2   |
|    | 57 | 13 | 266.2 |
|    | 57 | 34 | 2.4   |
|    | 58 | 00 | 269.6 |
|    | 58 | 24 | 2.6   |
|    | 59 | 19 | 266.2 |
|    |    | 46 | 9.1   |
|    | 0  | 10 | 267.8 |
|    |    | 40 | 8.8   |

back



|    |   |    |       |             |
|----|---|----|-------|-------------|
| 19 | 1 | 4  | 268.4 |             |
|    |   | 33 | 7.2   |             |
|    |   | 56 | 271.6 |             |
| 2  |   | 34 | 7.0   |             |
|    |   | 54 | 265.4 |             |
| 3  |   | 13 | 4.6   |             |
| 3  |   | 33 | 269.2 |             |
|    |   | 56 | 4.1   |             |
| 4  |   | 16 | 270.6 |             |
|    |   | 38 | 4.6   |             |
| 5  |   | 4  | 268.7 |             |
|    |   | 27 | 359.9 |             |
|    |   | 48 | 274.2 |             |
| 6  |   | 8  | 355.8 |             |
|    |   | 27 | 273.6 |             |
|    |   | 44 | 359.8 |             |
| 7  |   | 8  | 277.4 |             |
|    |   | 27 | 353.2 |             |
|    |   | 44 | 279.7 |             |
| 8  |   | 4  | 351.6 |             |
|    |   | 23 | 284.8 |             |
|    |   | 38 | 351.4 |             |
|    |   | 56 | 285.6 |             |
| 9  |   | 12 | 348.2 |             |
|    |   | 32 | 288.6 |             |
| 10 |   | 6  | 339.4 |             |
| 10 |   | 31 | 293.8 |             |
|    |   | 56 | 35.2  | Probe 335.2 |
| 11 |   | 10 | 99.8  | " 299.4     |
|    |   | 31 | 28.4  | " 324.4     |

Limit test

12 50 305.2

21 328.2

43 298.0

14 9 326.3

2nd run.

Comparison with ~~Phot.~~ Satell. T.

B 394<sup>44.5</sup>

16 27 0.0

16 28 0.0

19 26 45.0

19 27 45.2

~~-2.09~~ <sup>h m s</sup>

-3 h 0 m 0.5<sup>s</sup>



Oct. 11. 1883.

Cusp. Var. near S. oph. (Schoenfeld's "h")

$$\begin{array}{r} 16 \quad 23 \\ 19 \quad 52 \\ \hline +3 \quad 26 \end{array}$$

+16.2

W. obs.

$$\begin{array}{r} 16 \quad 23 \\ 19 \quad 52 \\ \hline +3 \quad 35 \end{array}$$

$$\begin{array}{r} 16 \quad 23 \\ 20 \quad 5 \\ \hline +3 \quad 42 \end{array}$$

Too much cloud and thick haze to see variable. No stars in vicinity visible except 4<sup>th</sup> mag.

W. obs.

Comet 1812.

W. obs.

$$\begin{array}{r} 16 \quad 35 \\ 20 \quad 14 \\ \hline +3 \quad 43 \end{array} \quad +56.6$$

Comet unchanged. Spectrum <sup>of nucleus</sup> mainly continuous

W. obs.

Oct. 11, 1883.

147-148 No. 2 not seen. Moonlight and haze. Look again.  
 No. 13 in place. (Wrong in No. Catalogue). Look to see if  
 not already observed. (Observed both in series  
 889.)

Star runs on bar 172.9  
 45

Set 217.9

Nos. 31, 32, 34, 35.

All north half

Order 31, 32, 32, 31, 35, 34, 34, 35

B 236

22<sup>h</sup> 27 24.6  
 45.7  
 54.5  
 59.0

22 30 50.2

31 11.6

23.3

28.4

32 16.0

23.5

28 50.0  
 58.5

29 12.5  
 35.7

41.6

33 4.8

Result of reduction below.

32 foll. 31 0<sup>m</sup> 8.15, north 196.35

34 " 31 1 23.42, " 153.30

35 " 31 1 30.88, south 83.40

By Vol. VI, pp. 184-185 (mean).

32 foll. 31 0<sup>m</sup> 7.82, north 195.90

34 " 31 1 23.24, " 98.50

35 " 31 1 31.24, south about 180"

31 and 32 seem to agree well enough.  
 34 may have moved. 35, data insufficient.

| No. 31   | No. 32   | No. 34   | No. 35   | $\Delta$ from 31       | Interval | Interval |
|----------|----------|----------|----------|------------------------|----------|----------|
| 27 24.6  | 27 45.7  | 28 58.5  | 28 50.0  | 32 0 <sup>m</sup> 8.30 | 31       | 35       |
| 59.0     | 54.5     | 41.6     | 41.6     | 8.15                   | 34.4     | 45.7     |
| 27 41.80 | 27 50.10 | 29 12.5  | 29 35.7  | 8.20                   | 38.2     | 46.8     |
|          |          | 29 5.50  | 29 12.85 | 8.05                   | 35.8     | 49.9     |
| 30 50.2  | 31 11.6  | 32 23.5  | 32 16.0  | 8.05                   | 31.2     | 42.7     |
| 31 28.4  | 31 23.3  | 33 41.6  | 33 4.8   | 8.15                   | 33.1     | 44.2     |
| 31 9.30  | 31 17.45 | 32 32.55 | 32 40.40 | 8.05                   | 35.8     | 46.26    |
| 34 10.7  | 34 32.3  | 35 44.5  | 35 35.7  | 8.15                   | 32       |          |
| 34 49.5  | 34 44.3  | 36 2.5   | 36 25.6  | 8.15                   | 31       |          |
| 34 30.10 | 34 38.30 | 35 53.50 | 36 0.65  | 8.15                   | 32       |          |
| 39 58.5  | 40 19.4  | 41 32.0  | 41 23.6  | 8.15                   | 31       |          |
| 40 29.7  | 40 24.9  | 42 42.7  | 42 6.3   | 8.15                   | 34       |          |
| 40 14.40 | 40 22.75 | 41 37.35 | 41 44.95 | 8.15                   | 32       |          |
| 42 27.6  | 42 48.8  | 44 1.3   | 44 53.0  | 8.15                   | 31       |          |
| 43 0.7   | 42 55.6  | 44 14.0  | 44 37.2  | 8.15                   | 34       |          |
| 42 44.15 | 42 52.20 | 44 7.65  | 44 15.10 | 8.15                   | 32       |          |



Oct. 11. 1883.

Nos. 51-52  
Both North half.

Order. 51, (51+52). 52

22 34 10.7  
32.344.3  
49.535 35.7  
44.536 2.5  
25.639 52.5  
40 19.424.9  
29.741 23.6  
32.042.7  
6.342 27.6  
45.1

55.6

43 0.7

53.0

44 1.3

14.0

37.2

50 32.5

51.0

51 27.7

By Vol. VI, 52 follows 51 24.45, south 183.75  
52 " 51 24.25, " 183.00

No. 53 seems to be in place, but is the southernmost of a triangle, the n.p. star of which is the brightest of the three and the other two are about equal. No doubt the n.p. star was observed in the revision. (So also was the n.f. star in series 8; n.f. star and not n.p. star in series 10).

All north half { 3 transits on this page, 2 more p. 132.

Order, 52, 52, 53, n.p. star, n.p. star, 53.

23 9 13.8

31.6 12 59.7

10 24 13 17.5

30.5 16.5

11 51.5

15 52.1

16 6.3

17 2.5

8.5

32

52.0

21.3

40.8

By reduction below, No. 53 is nearly in place, Probably June 1888, in Vol. VI is right for the S of this star, although rejected in Vol. VI.

| Mean of transits.    |                       |                       | Interval |       |        | n.p. star foll. 52<br>1 <sup>m</sup> 15.55<br>north of 52 15.45<br>53 foll. 52<br>1 <sup>m</sup> 22.32<br>south of 52 181.20<br>By Vol. VI, Δ 1 <sup>m</sup> 22.64<br>Δ 124.8 |
|----------------------|-----------------------|-----------------------|----------|-------|--------|---|
| 52                   | 53                    | n.p.                  | 52       | n.p.  | 53     |   |
| 9 <sup>m</sup> 22.70 | 10 <sup>m</sup> 44.75 | 10 <sup>m</sup> 38.00 | 17.8     | 15.0  | 41.5   |   |
| 13 8.60              | 14 31.00              | 14 24.25              | 17.8     | 15.5  | 42.0   |   |
| 15 59.20             | 17 21.65              | 17 14.90              | 14.2     | 12.8  | 38.3   |   |
| 18 50.70             | 20 12.85              | 20 6.35               | 14.0     | 11.9  | 38.3   |   |
| 21 38.45             | 23 1.00               | 22 53.90              | 13.9     | 12.2  | 38.4   |   |
|                      | 22.05                 | 1 15.30               | 15.54    | 13.48 | 39.70  |   |
|                      | 22.40                 | 15.65                 |          | +2.06 | -24.16 |   |
|                      | 22.45                 | 15.70                 |          | 1.03  | 12.08  |   |
|                      | 22.55                 | 15.65                 |          |       |        |   |



Oct. 11, 1883

Transits of Nos. 52 &amp; 53, with star n.p. 53.

23 18 437

57.7

537

20 01.4

12.3

32.0

21 31.5

45.4

22 41.8

47.8

23 0

20.2

Nos. 36 & 37 are identical. There is a faint star 3.5 south and a little preceding a brighter one. The faint star is No. 38, apparently see p. 161.

Nos. 36 &amp; 38

North half

Order 36, 38, 38, 36

|    |    |       |    |          |    |         |    |          |    |          |
|----|----|-------|----|----------|----|---------|----|----------|----|----------|
| 23 | 38 | 53.3  | 40 | 21.0     | 42 | 7.0     | 43 | 39.5     | 45 | 10.8     |
|    | 39 | 8.7   |    | 34.15    |    | 20.4    |    | 52.7     |    | 24.2     |
|    |    | 26.4  |    | 54.8     |    | 40.3    |    | 44 12.9  |    | 43.6     |
|    |    | 33.0  |    | 41 1.0   |    | 47.0    |    | 19.7     |    | 50.5     |
|    | 39 | 14.15 |    | 40 41.15 |    | 42 27.0 |    | 43 59.60 |    | 45 30.65 |
|    |    | 17.55 |    | 44.65    |    | 30.35   |    | 44 2.80  |    | 33.90    |
|    |    | 3.40  |    | 3.50     |    | 3.35    |    | 3.20     |    | 3.25     |
|    |    | 37.7  |    | 39.7     |    | 40.0    |    | 40.2     |    | 39.7     |
|    |    | 17.7  |    | 20.3     |    | 19.9    |    | 20.2     |    | 19.4     |
|    |    | 20.0  |    | 19.4     |    | 20.1    |    | 20.0     |    | 20.3     |

 $\Delta\alpha$  3.34 $\Delta\delta$  19.96 9.98 149.7 $\Delta\alpha$  from Catalogue (Vol. VI p. 184, 185) $\Delta\delta$  from Catalogue

38-36 3.15

38-37 2.96

38-36 135.8

38-37 (mean) 151.5

The faint star visible here seems to answer to No. 37 in  $\delta$  and sufficiently in  $\alpha$ . No. 36 is an error in Vol. VI unless there may be a faint star between the two observed here. Look again on a dark night.



Oct. 14. 1883.

Comet 1812. S. h. P. m.

Star Star Comet Comet

Star - South Comet - north half of field

Star 22 48 47.8

Star Comet together 49 46.4

Comet 50 46.2

The star is

D.M. +55° 1862

Transit taken to fix position of  
object supposed to be the cometStar being 2<sup>nd</sup> place R.A. 16 36.2 Dec. +55 57  
Comet faint in moonlight; nucleus visible, coma not easily seen.  
Observer. of Comp. Stars of Cygni with Wadg.

2 45.0

Interrupted by clouds.

Oct. 15, 1883.

Comet of 1812.

N. obs.

16 39 +56.2  
 21 25  
 +4 46  
 21 34  
 +4 55

3 11  
 5/191  
 3A

16 40  
 21 44  
 5 4

16/191 (12  
 16  
 31

8 53 Comet not certainly seen - Moon  
 very bright. N. obs.

~~22 59 41.5~~

Observations of comparison stars for R Cygni  
 with wedge photometer.

l 22<sup>h</sup> 59<sup>m</sup> 41.5 47.3 S. obs.  
 23 0 28.8  
 x 23 2 56.2 22.3  
 3 18.5



Oct. 15, 1853.

|   |                 |                |                   |      |
|---|-----------------|----------------|-------------------|------|
| g | 23 <sup>h</sup> | 3 <sup>m</sup> | 36.3 <sup>s</sup> | 17.5 |
|   |                 |                | 53.8              |      |

|   |    |   |      |      |
|---|----|---|------|------|
| d | 23 | 4 | 23.2 | 43.1 |
|   |    | 5 | 6.3  |      |

|   |    |   |      |      |
|---|----|---|------|------|
| g | 23 | 5 | 54.2 | 56.8 |
|   |    | 6 | 51.0 |      |

|   |    |   |      |                    |
|---|----|---|------|--------------------|
| k | 23 | 8 | 15.5 | 1 <sup>m</sup> 2.8 |
|   |    | 9 | 18.3 |                    |

|   |    |    |      |                    |
|---|----|----|------|--------------------|
| m | 23 | 9  | 49.8 | 1 <sup>m</sup> 1.9 |
|   |    | 10 | 51.7 |                    |

|   |    |    |      |      |
|---|----|----|------|------|
| h | 23 | 11 | 49.7 | 51.1 |
|   |    | 12 | 40.8 |      |

|   |    |    |      |                    |
|---|----|----|------|--------------------|
| m | 23 | 13 | 26.4 | 1 <sup>m</sup> 1.3 |
|   |    | 14 | 27.7 |                    |

|   |    |    |      |                    |
|---|----|----|------|--------------------|
| l | 23 | 16 | 17.5 | 1 <sup>m</sup> 7.7 |
|   |    | 17 | 25.2 |                    |

Again in reverse order. S. obs.

|   |    |    |      |                    |
|---|----|----|------|--------------------|
| l | 23 | 17 | 44.7 | 1 <sup>m</sup> 9.5 |
|   |    | 18 | 54.2 |                    |

|   |    |    |      |                    |
|---|----|----|------|--------------------|
| m | 23 | 19 | 15.0 | 1 <sup>m</sup> 0.2 |
|   |    | 20 | 15.2 |                    |

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|   |                 |                 |      |      |
|---|-----------------|-----------------|------|------|
| h | 23 <sup>h</sup> | 20 <sup>m</sup> | 43.4 | 54.3 |
|   |                 | 21              | 37.7 |      |

|   |    |    |      |      |
|---|----|----|------|------|
| m | 23 | 22 | 41.3 | 46.7 |
|   |    | 23 | 28.0 |      |

|   |    |    |      |                    |
|---|----|----|------|--------------------|
| k | 23 | 28 | 53.8 | 1 <sup>m</sup> 5.4 |
|   |    | 24 | 59.2 |                    |

|   |    |    |      |      |
|---|----|----|------|------|
| g | 23 | 25 | 27.2 | 56.5 |
|   |    | 26 | 23.7 |      |

|   |    |    |      |      |
|---|----|----|------|------|
| d | 23 | 27 | 58.4 | 49.6 |
|   |    | 28 | 48.0 |      |

|   |    |    |      |      |
|---|----|----|------|------|
| v | 23 | 29 | 11.1 | 20.1 |
|   |    |    | 31.2 |      |

|   |    |    |      |      |
|---|----|----|------|------|
| x | 23 | 29 | 44.7 | 27.6 |
|   |    | 30 | 12.3 |      |

|   |    |    |      |      |
|---|----|----|------|------|
| e | 23 | 30 | 44.0 | 57.7 |
|   |    | 31 | 41.7 |      |

|   |                |                |      |      |         |
|---|----------------|----------------|------|------|---------|
| e | 0 <sup>h</sup> | 7 <sup>m</sup> | 40.8 | 42.9 | P. obs. |
|   |                | 8              | 23.7 |      |         |

|   |   |   |      |      |
|---|---|---|------|------|
| x | 0 | 9 | 19.2 | 21.1 |
|   |   |   | 40.3 |      |



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|          |                |                |      |      |
|----------|----------------|----------------|------|------|
| $\gamma$ | 0 <sup>h</sup> | 9 <sup>m</sup> | 56.0 |      |
|          |                | 10             | 11.0 | 15.0 |

|     |   |    |      |   |
|-----|---|----|------|---|
| $R$ | 0 | 10 | 30.3 | 4 |
|     |   | 11 | 5.7  |   |

|                         |              |               |                |  |
|-------------------------|--------------|---------------|----------------|--|
| * 1' north<br>of var. 3 | <del>0</del> | <del>12</del> | <del>1.2</del> |  |
|                         | 0            | 13            | 23.3           |  |
|                         |              | 14            | 3.4            |  |

|                                |              |               |                 |  |
|--------------------------------|--------------|---------------|-----------------|--|
| <del><math>\alpha</math></del> | <del>0</del> | <del>14</del> | <del>19.0</del> |  |
|                                |              | Rej-          | 42.5            |  |

|          |   |    |      |  |
|----------|---|----|------|--|
| $\alpha$ | 0 | 16 | 12.3 |  |
|          |   |    | 57.7 |  |

|          |   |    |      |  |
|----------|---|----|------|--|
| $\gamma$ | 0 | 17 | 37.3 |  |
|          |   | 18 | 32.2 |  |

|     |   |    |      |  |
|-----|---|----|------|--|
| $k$ | 0 | 19 | 54.5 |  |
|     |   | 20 | 56.3 |  |

|     |   |    |      |  |
|-----|---|----|------|--|
| $n$ | 0 | 21 | 47.0 |  |
|     |   | 22 | 2.5  |  |

|     |   |    |      |  |
|-----|---|----|------|--|
| $L$ | 0 | 23 | 15.3 |  |
|     |   | 24 | 7.4  |  |

|     |   |    |      |   |
|-----|---|----|------|---|
| $m$ | 0 | 24 | 39.7 | 8 |
|     |   | 25 | 36.5 |   |

|     |   |    |      |                     |
|-----|---|----|------|---------------------|
| $l$ | 0 | 26 | 18.0 | 1 <sup>m</sup> 10.0 |
|     |   | 27 | 28.0 |                     |

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|                               |   |    |      |                    |
|-------------------------------|---|----|------|--------------------|
| e                             | 0 | 27 | 54.5 | 1 <sup>m</sup> 8.0 |
|                               |   | 29 | 2.5  |                    |
| m                             | 0 | 29 | 30.3 | 1 <sup>m</sup> 1.1 |
|                               |   | 30 | 31.4 |                    |
| R                             | 0 | 31 | 3.2  | 45.8               |
|                               |   |    | 49.0 |                    |
| n                             | 0 | 33 | 11.0 | 1 <sup>m</sup> 3.2 |
|                               |   | 34 | 14.2 |                    |
| R                             | 0 | 34 | 31.1 | 1 <sup>m</sup> 4.1 |
|                               |   | 35 | 35.2 |                    |
| q                             | 0 | 35 | 59.0 | 1 <sup>m</sup> 3.2 |
|                               |   | 36 | 2.2  |                    |
| d                             | 0 | 37 | 49.5 | 36.7               |
|                               |   | 38 | 26.2 |                    |
| Star, 1' north of<br>Variable | 0 | 38 | 52.8 | 31.5               |
|                               |   | 39 | 24.3 |                    |
| R                             | 0 | 39 | 49.7 | 27.6               |
|                               |   | 40 | 27.3 |                    |
| g                             | 0 | 40 | 47.2 | 16.3               |
|                               |   | 41 | 3.5  |                    |



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|        |   |    |      |      |
|--------|---|----|------|------|
| $\chi$ | 0 | 41 | 19.1 | 27.2 |
|        |   |    | 46.3 |      |

|            |   |    |      |      |
|------------|---|----|------|------|
| $\epsilon$ | 0 | 42 | 39.7 | 57.6 |
|            |   | 43 | 37.3 |      |

|     |   |    |      |      |        |
|-----|---|----|------|------|--------|
| $R$ | 0 | 44 | 17.2 | 43.1 | S. obs |
|     |   | 45 | 0.3  |      |        |

|                               |   |    |      |      |        |
|-------------------------------|---|----|------|------|--------|
| Star 1' north<br>of variable. | 0 | 45 | 13.2 | 45.2 | S. obs |
|                               |   |    | 58.4 |      |        |

|                |   |    |        |      |         |
|----------------|---|----|--------|------|---------|
| Tr. of $R$     | 0 | 46 | 31.2 - | 39.2 | S. obs. |
| " of Star 1'm. |   |    | 33.0   | 46.0 |         |
| Dis. of $R$    |   | 47 | 10.4   |      |         |
| " of Star 1'm. |   |    | 19.0   |      |         |

~~2 bts.~~

|                           |  |  |  |         |
|---------------------------|--|--|--|---------|
| Star 1'm, 2 bts. than $R$ |  |  |  | P. obs. |
| " " " " "                 |  |  |  | S. obs. |

Comet (Brooks) 1812  
Comparison star M. + 55 1865. S. obs

|       |                |                 |      |       |       |
|-------|----------------|-----------------|------|-------|-------|
| Comet | 1 <sup>h</sup> | 20 <sup>m</sup> | 23.3 | 135.5 | 67.75 |
|-------|----------------|-----------------|------|-------|-------|

|      |  |  |      |      |       |
|------|--|--|------|------|-------|
| Star |  |  | 29.2 | 78.2 | 39.10 |
|------|--|--|------|------|-------|

|      |  |  |      |           |       |
|------|--|--|------|-----------|-------|
| Star |  |  | 49.0 | Star p.m. | 28.65 |
|------|--|--|------|-----------|-------|

|       |    |      |        |
|-------|----|------|--------|
| Comet | 21 | 52.2 | 88.9 * |
|-------|----|------|--------|

|                                  |      |      |       |
|----------------------------------|------|------|-------|
| Both in northern half of square. | 19.8 | 69.1 | 34.55 |
|----------------------------------|------|------|-------|

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Transits again

|       |                |                 |      |
|-------|----------------|-----------------|------|
| Comet | 1 <sup>h</sup> | 22 <sup>m</sup> | 23.2 |
| Star  |                |                 | 29.2 |
| Star  |                |                 | 39.7 |
| Comet |                | 23              | 43.3 |

|       |       |
|-------|-------|
| 12.65 | 63.25 |
| 68.9  | 34.11 |
|       | 28.80 |

80.1 40.05

10.5 5.25

34.80

~~39.7~~~~42.2~~

Transits again

34 — 28  
~~27~~

S. obs

|       |                |                 |      |
|-------|----------------|-----------------|------|
| Comet | 1 <sup>h</sup> | 34 <sup>m</sup> | 32.4 |
| Star  |                |                 | 38.1 |
| Star  |                |                 | 48.7 |
| Comet |                | 35              | 54.3 |

|       |       |
|-------|-------|
| 146.7 | 73.35 |
| 86.8  | 43.40 |

29.95

81.9 71.3 35.65

10.6

Again

|       |                |    |      |
|-------|----------------|----|------|
| Comet | 1 <sup>h</sup> | 36 | 11.4 |
| Star  |                |    | 17.3 |
| Star  |                |    | 36.0 |
| Comet |                | 37 | 40.7 |

|       |       |
|-------|-------|
| 112.1 | 56.05 |
| 53.3  | 26.65 |

29.40

89.3 70.6 35.30

18.7

12 10

Previous to these transits spectrum of comet observed by P. and S., who found it continuous.

Coma not visible, but nucleus a little blurred. However, it would be taken for a star if it did not move.



Oct. 15, 1883-

## Transits

|       |                |                 |                   |       |      |        |
|-------|----------------|-----------------|-------------------|-------|------|--------|
| Comet | 1 <sup>h</sup> | 48 <sup>m</sup> | 37.7 <sup>s</sup> | 160.1 |      | S. obs |
| Star  |                |                 | 44.0              | 99.8  | 60.3 | 30.15  |
| Star  |                |                 | 55.8              | 84.7  |      |        |
| Comet |                | 50              | 2.4               | 111.8 | 72.9 | 36.45  |

## Again

|       |   |    |      |       |      |        |
|-------|---|----|------|-------|------|--------|
| Comet | 1 | 50 | 31.3 |       |      | S. obs |
| Star  |   |    | 37.2 | 74.51 |      |        |
| Star  |   |    | 47.8 | 85.10 | 60.1 | 30.05  |
| Comet |   | 51 | 53.8 | 82.5  |      |        |
|       |   |    |      | 10.6  | 71.9 | 35.95  |

## Brightness of comet

12 20 Comet 3 DM. + 53° 1866. DM + 53° 1869 S. obs  
Comet

Oct 16, 1883  
 Com 1812.

16 37.1 +55 42

16 35 56.3

19 55

3 30

6 30 Comet examined by P. and I. It has now no visible nucleus, but is round, dense, and pretty bright; spectrum continuous, so far as can be seen.

6 45 258.5 zero W. obs. for position  
 45 with chronograph  
 303.5 Letting

Comet north half, star south half.

The star is D.M. +55° 1876.

Order comet, comet, star, star.

Pen failed

First minute of new series 20<sup>h</sup> 38<sup>m</sup> by 7.3451

Bright part of Comet estimated at 1' in diameter  
 In moonlight there is a central  
 surrounding nebulosity



Oct. 16, 1883

R Persei<sup>(16)</sup> comparison stars. P. obs

|                 |                                |      |         |                                     |    |      |          |
|-----------------|--------------------------------|------|---------|-------------------------------------|----|------|----------|
| g               | 22 <sup>h</sup> 0 <sup>m</sup> | 28.5 | 35.9    | 77.8 <sup>h</sup> 57 <sup>v</sup>   | 35 | 37.4 | 41.9     |
|                 | 1                              | 4.4  |         |                                     | 36 | 19.3 |          |
| n               | 1                              | 36.5 | 14.0    | 86.9 <sup>h</sup> 27 <sup>v</sup>   | 34 | 25.5 | 22.9     |
|                 |                                | 50.5 |         |                                     |    | 48.4 |          |
| k               | 2                              | 16.2 | 28.5    | 59.3 <sup>h</sup> 43 <sup>v</sup>   | 33 | 22.2 | 30.8     |
|                 |                                | 44.7 |         |                                     |    | 53.0 |          |
| h               | 2                              | 58.0 | 37.3    | 75.1 <sup>h</sup> 54 <sup>v</sup>   | 32 | 25.5 | 37.8     |
|                 | 3                              | 35.3 |         |                                     | 33 | 3.3  |          |
| a               | 3                              | 49.7 | 50.6    | 105.7 <sup>h</sup> 7.6 <sup>v</sup> | 31 | 15.2 | 55.1     |
|                 | 4                              | 40.3 |         |                                     | 32 | 10.3 |          |
| f               | 5                              | 1.2  | 35.3    | 75.1 <sup>h</sup> 54 <sup>v</sup>   | 30 | 17.0 | 39.8     |
|                 |                                | 36.5 |         |                                     |    | 56.8 |          |
| e               | 5                              | 53.0 | 33.4    | 72.4 <sup>h</sup> 5.2 <sup>v</sup>  | 29 | 23.5 | 39.0     |
|                 | 6                              | 26.4 |         |                                     | 30 | 2.5  |          |
| d               | 6                              | 47.2 | 41.2    | 85.4 <sup>h</sup> 6.1 <sup>v</sup>  | 28 | 23.3 | 44.2     |
|                 | 7                              | 28.4 |         |                                     | 29 | 7.5  |          |
| b               | 10                             | 6.9  | 47.3    | 89.7 <sup>h</sup> 6.5 <sup>v</sup>  | 27 | 22.3 | 42.4     |
|                 |                                | 54.2 |         |                                     | 28 | 4.7  |          |
| R <del>10</del> | 11                             | 28.7 | 12.3    | 30.0 <sup>h</sup> 2.2 <sup>v</sup>  | 26 | 29.5 | 17.7     |
|                 |                                | 41.0 |         |                                     |    | 47.2 |          |
| q               | 12                             | 20.3 | 9.7     | 9.7 <sup>h</sup> 1.4 <sup>v</sup>   | 25 | 42.0 | not seen |
|                 |                                | 30.0 |         |                                     |    |      |          |
| r               | 14                             | 14.7 | too ft. |                                     | 24 | 58.7 | too ft.  |
| m               | 14                             | 45.0 | 22.2    | 47.4 <sup>h</sup> 3.4 <sup>v</sup>  | 23 | 29.8 | 25.2     |
|                 | 15                             | 7.2  |         |                                     |    | 55.0 |          |
| l               |                                | 29.3 | 27.9    | 56.1 <sup>h</sup> 4.0 <sup>v</sup>  | 22 | 21.5 | 28.2     |
|                 |                                | 57.2 |         |                                     |    | 49.7 |          |
| p               | 16                             | 24.0 | 11.7    | 24.1 <sup>h</sup> 1.7 <sup>v</sup>  | 21 | 48.4 | 12.4     |
|                 |                                | 35.7 |         |                                     | 22 | 0.8  |          |

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|   |                                 |      |      |      |      |                 |      |      |
|---|---------------------------------|------|------|------|------|-----------------|------|------|
| o | 22 <sup>h</sup> 18 <sup>m</sup> | 10.3 | 12.9 | 25.9 | 19.2 | 21 <sup>m</sup> | 16.3 | 13.0 |
|   |                                 | 23.2 |      |      |      |                 | 29.3 |      |
| c |                                 | 43.4 | 48.8 | 99.1 | 7.1  | 19              | 53.7 | 50.3 |
|   | 19                              | 32.2 |      |      |      | 20              | 44.0 |      |

~~R to f~~  
9 00

R 2 p  
m 3 R

<sup>s</sup>  
P. obs.

|   |                                 |      |      |       |    |                      |      |        |
|---|---------------------------------|------|------|-------|----|----------------------|------|--------|
|   |                                 |      |      |       |    |                      |      | S obs. |
| g | 22 <sup>h</sup> 56 <sup>m</sup> | 37.2 | 42.1 | 86.6  | 23 | 29 <sup>m</sup> 43.0 | 44.5 |        |
|   | 57                              | 19.3 |      |       |    | 30                   | 27.5 |        |
| n | 58                              | 58.9 | 23.3 | 46.2  | 33 | 28                   | 53.3 | 22.9   |
|   | 59                              | 22.2 |      |       |    | 29                   | 16.2 |        |
| k |                                 | 32.8 | 34.5 | 68.1  | 49 | 28                   | 1.7  | 33.6   |
|   | 23 0                            | 7.3  |      |       |    |                      | 35.3 |        |
| L |                                 | 41.7 | 39.8 | 80.1  | 58 | 27                   | 7.2  | 40.2   |
|   | 1                               | 21.5 |      |       |    |                      | 47.5 |        |
| a | 2                               | 9.3  | 56.0 | 108.4 | 78 | 26                   | 3.3  | 52.4   |
|   | 3                               | 5.3  |      |       |    |                      | 55.7 |        |
| f |                                 | 38.0 | 43.5 | 85.5  | 62 | 25                   | 2.5  | 42.0   |
|   | 4                               | 21.5 |      |       |    |                      | 44.5 |        |
| e |                                 | 40.3 | 37.2 | 76.2  | 55 | 24                   | 11.8 | 39.0   |
|   | 5                               | 17.5 |      |       |    |                      | 50.8 |        |
| d |                                 | 47.5 | 46.5 | 81.3  | 59 | 22                   | 52.5 | 34.8   |
|   | 6                               | 34.0 |      |       |    | 23                   | 27.3 |        |
| b | 7                               | 2.3  | 52.2 | 102.7 | 74 | 21                   | 36.0 | 50.5   |
|   | 7                               | 54.5 |      |       |    | 22                   | 26.5 |        |
| R | 8                               | 52.2 | 22.6 | 41.4  | 30 | 20                   | 40.5 | 18.8   |
|   | 9                               | 14.8 |      |       |    |                      | 59.3 |        |



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|   |   |   |
|---|---|---|
| g | too ft.   | too ft.                                   |
| r | too ft.   | too ft.                                   |
| m | 23 <sup>h</sup> 11 <sup>m</sup> 32.3 28.4 54.9 <sup>^</sup> 40 <sup>v</sup> | 23 <sup>h</sup> 19 <sup>m</sup> 48.0 26.5 |
| l | 12 0.7 15.0 29.3 57.4 <sup>^</sup> 41 <sup>v</sup>                          | 20 14.5 19 4.2 28.1                       |
| p | 13 19.3 18.2 38.3 <sup>^</sup> 28 <sup>v</sup>                              | 18 27.0 20.1                              |
| o | 14 5.0 17.2 34.4 <sup>^</sup> 25 <sup>v</sup>                               | 17 47.4 17.1                              |
| c | 15 46.3 51.3 103.6 <sup>^</sup> 7.5 <sup>v</sup>                            | 16 6.0 52.3                               |

g 54 m 3 R 5.00  
R 3 0

|   |   |                           |
|---|---|---------------------------|
| g | 23 <sup>h</sup> 51 <sup>m</sup> 10.3 40.2 81.7 <sup>^</sup> 60 <sup>v</sup> | 35 <sup>m</sup> 44.2 41.5 |
| m | 52 23.2 21.0 42.5 <sup>^</sup> 31 <sup>v</sup>                              | 36 25.7 34 24.5 21.5      |
| l | 53 6.0 28.8 61.1 <sup>^</sup> 44 <sup>v</sup>                               | 33 33.0 32.3              |
| h | 54 24.0 32.2 72.5 <sup>^</sup> 52 <sup>v</sup>                              | 34 5.3 32 24.7 40.3       |
| a | 55 17.3 53.1 101.0 <sup>^</sup> 73 <sup>v</sup>                             | 33 5.0 31 12.2 47.9       |
| f | 56 10.4 36.5 74.9 <sup>^</sup> 54 <sup>v</sup>                              | 32 0.1 29 32.0 38.4       |

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|   |                 |    |      |      |      |                   |    |      |      |
|---|-----------------|----|------|------|------|-------------------|----|------|------|
| e | 23 <sup>h</sup> | 58 | 6.7  | 36.5 | 74.8 | 54.0 <sup>h</sup> | 28 | 30.5 | 38.3 |
|   |                 |    | 43.2 |      |      |                   | 29 | 8.8  |      |
| d |                 | 59 | 37.5 | 46.0 | 90.2 | 6.5 <sup>v</sup>  | 26 | 44.3 | 44.2 |
|   | 0               | 0  | 23.5 |      |      |                   | 27 | 28.5 |      |
| b |                 | 1  | 1.0  | 45.8 | 95.6 | 6.9 <sup>v</sup>  | 25 | 23.8 | 49.8 |
|   |                 |    | 46.8 |      |      |                   | 26 | 13.6 |      |
| R |                 | 2  | 44.3 | 20.2 | 37.5 | 2.7 <sup>v</sup>  | 20 | 25.3 | 17.3 |
|   |                 | 3  | 4.5  |      |      |                   |    | 42.6 |      |
|   |                 |    | 37.2 | 14.6 | 26.6 | 1.9 <sup>v</sup>  | 19 | 40.2 | 12.0 |
|   |                 |    | 51.8 |      |      |                   |    | 52.2 |      |
|   |                 | 4  | 37.0 | 12.7 | 26.7 | 1.9 <sup>v</sup>  | 18 | 49.8 | 14.0 |
|   |                 |    | 49.7 |      |      |                   | 19 | 3.8  |      |
| m |                 | 5  | 49.7 | 18.5 | 38.6 | 2.8 <sup>v</sup>  | 17 | 26.2 | 20.1 |
|   |                 | 6  | 8.2  |      |      |                   |    | 46.3 |      |
| e |                 |    | 26.5 | 22.2 | 45.8 | 3.3 <sup>v</sup>  | 16 | 39.2 | 23.6 |
|   |                 |    | 48.7 |      |      |                   | 17 | 2.8  |      |
| p |                 | 8  | 14.2 | 16.8 | 33.5 | 2.4 <sup>v</sup>  | 16 | 2.3  | 16.7 |
|   |                 |    | 18.2 |      |      |                   |    | 19.0 |      |
| o |                 |    | 44.5 | 17.0 | 32.5 | 2.3 <sup>v</sup>  | 15 | 11.7 | 15.5 |
|   |                 | 9  | 1.5  |      |      |                   |    | 27.2 |      |
| c |                 | 11 | 23.3 | 50.9 | 99.0 | 7.1 <sup>v</sup>  | 13 | 26.2 | 48.1 |
|   |                 | 12 | 14.2 |      |      |                   | 14 | 14.3 |      |



Oct. 17. 1853.

Comet Brooks (1812) W. obs.

16 32 + 55.6

20 0

+3 22

20 4

+3 26

Spectrum continuous.  
Nucleus 1' in diameter. } W. obs.

Suspected Var. near  $\delta$ . Ophiuchi.  
(Schoufeld's "h")

16 23 - 16.2

20 25

+4 2

7 0

h more easily seen than either  
a' or b'; probably 0.3 or 0.4 magn.  
brighter than either. W. obs.

Region low; moonlight and haze.

Oct. 17, 1883.

Comet Brooks (1812) N. obs.

Pos. 0 293.7

Set at  $\frac{45}{338.7}$ 

Order: Comet Comet Star Star  
 Comet in Southern Star in Northern  
 half of square

Same. Comparison star used as  
 that of last night (Oct 16) = DM +55° 1876.

Looked at Neptune, near the moon.  
 P. S. W.

$$\begin{array}{r} 17 \\ 55 \\ \hline 27 \end{array}$$

$$\begin{array}{r} + 3.5 \\ 27 \\ \hline 280 \\ 70 \\ \hline 9.1.0 \end{array}$$

$$\begin{array}{r} 22 \ 20 \\ 4 \ 55 \\ \hline 3 \ 15 \end{array}$$

$$\begin{array}{r} + 13.17 \\ 27 \\ \hline 10536 \\ 2634 \\ \hline 362.76 \\ 6' \end{array}$$

At 9<sup>h</sup> mean time the  
 planet was about 14'  
 north of the apparent  
 position of the Moon's  
 north limb, and would  
 evidently not be occulted.

$$\begin{array}{r} 3 \ 15 \ 9 \\ 1 \ 38 \\ \hline 3 \ 16 \ 47 \\ 3 \ 10 \ 39 \\ \hline - 3 \ 8 \end{array}$$

$$\begin{array}{r} 16 \ 2 \\ 6 \\ \hline 16 \ 8 \\ 16 \ 6 \\ \hline - 2 \end{array}$$



Oct 17, 1883.

Revision of zones, Vol. VII. Examination of some doubtful cases.

S. obs.

23 46 32.3

57.5

Vol. VII, pp. 186, 187.

Bar micrometer.

47

14.5

Zones 147, 148.

43.2

Stars No. 55, 56, 57, and  
a following star.

55 and 56 in north half,

52.5

others in south half.

55.3

889".8 diagonal

48

20.5

56 foll. 55  $27^{\circ}.0$ 56 south of 55  $21^{\circ}.7$   $25^{\circ}.5$ 57 foll. 55  $1^m 14^s.5$ 57 south of 55 D-33.7  $384^{\circ}.3$ Star foll. 55  $1^m 23^s.1$ south of 55 (D-45.5)  $212^{\circ}.3$   $57$ 

55

56

1+3

2+4

46 32.3

46 57.5

47 52.5

47 55.3

47 14.5

21.1

47 43.2

22.8

48 40.5

24.0

48 20.5

12.6

46 53.4

47 20.4

48 16.5

48 7.9

Mean  $\Delta\alpha$  55 & 56  $27^{\circ}.00$  Vol. VII  $26^{\circ}.65$  $\Delta\delta$  (56 south)  $23^{\circ}.2$   $18^{\circ}.0$ Hence (from p. 150) Cor. to Vol. VII for 57, by 56,  $-0^{\circ}.48$ ,  $-13^{\circ}.8$ 55,  $-0^{\circ}.18$ ,  $-18^{\circ}.0$ Mean, with double weight to 55  $-0^{\circ}.28$ ,  $-16^{\circ}.6$ 

23

55

29.0

54.5

-55

55 50.0

42.0

21.0

56

11.0

-56

56 17.0

44.9

22.4

 $\Delta\alpha$   $27^{\circ}.0$  $\Delta\delta$   $21^{\circ}.0$ 

39.4

49.0

52.2

40.0

12.8

37.5

48.3

57

57 2.5

 $20.6$   $\Delta\alpha$   $1^m 12^s.5$  $10.3$   $\Delta\delta$  D-31.3 $420^{\circ}.3$ 

\* 58

57 13.2

48.5  $\Delta\alpha$   $1^m 23^s.2$ 24.2  $\Delta\delta$  D-43.2

211.8

58

57 26.2

44.3  $\Delta\alpha$   $1^m 36^s.2$ 22.2  $\Delta\delta$  D-43.2

241.8

Should apparently be 17.8

1+3

55 29.0

Oct. 17, 1883.

|  |                                     |              |                     |                             |
|--|-------------------------------------|--------------|---------------------|-----------------------------|
| 0 <sup>h</sup> 1 <sup>m</sup> 58.4 = #55 |                                     | 25.6         | 28.8                | S. 5.5                      |
| 57 foll. 55                              | 1 <sup>m</sup> 14.5                 | 2 27.2 = #55 | 2 <sup>m</sup> 12.8 | 14.4 Δα 1 <sup>m</sup> 14.8 |
|  |                                     | 3 8.0 = #57  |                     |                             |
|  |                                     | 47.2 = #57   | 3 27.6              | 39.2 Δδ <del>34.0</del>     |
|  | Rej. [12.5]<br>app. error in record |              | 19.6                | P-34.0<br>379.8             |
|  | 14.4                                | Again        |                     |                             |
|  | 14.4                                | 4 2.0 = #55  |                     |                             |
|  | 14.4                                | 30.8 = #55   | 4 16.4              | 28.8 Δα 1 <sup>m</sup> 14.4 |
|  | 1 <sup>m</sup> 14.42                | 5 11.0 = #57 | 5 30.8              | 39.7 Δδ D-34.2              |
| 57 south of 55                           | <del>21.0</del> 384.3               | 50.7 = #57   |                     | 376.8                       |
|  | 21.0 [420.3]                        |              |                     |                             |
|  | 379.8                               | Again        |                     |                             |
|  | 376.8                               | 6 2.2 = #55  | 6 16.6              | 28.8 Δα 1 <sup>m</sup> 14.4 |
|  | 376.8                               |              |                     |                             |
|  | 377.7                               | 31.0 = #55   |                     | Δδ D-34.2                   |
|  | Mean 379.4                          |              |                     | 376.8                       |
| Vol. VI Δα 1 <sup>m</sup> 14.60          |                                     | 7 11.2 = #57 | 7 31.0              | 39.6                        |
| Δδ <del>34.0</del> 361.4                 |                                     | 50.8 = #57   |                     |                             |

10 30

55 in north half and 57 in south  
half of square.

|                                |         |   |    |           |
|--------------------------------|---------|---|----|-----------|
| Stars 62 and 63                |         | { In the observations for revision of zones<br>63 doubtless went so far south of the bar<br>that the time of transit is only an estimate. |    |           |
| 0                              | 20      | 20.4 = #62  | 20 | 34.2 27.6 |
| 63 foll. 62                    |         | 48.0 = #62  |    |           |
| <del>1<sup>m</sup> 1.8</del>   | 21      | 20.9 = #63  | 21 | 36.0 30.3 |
| 2.0                            |         | 51.2 = #63  |    |           |
| 1.9                            |         | Again   |    |           |
| 1.9                            |         |   |    |           |
| 1 <sup>m</sup> 1.90            | 22      | 8.5 = #62   | 22 | 20.0 23.0 |
| 63 north of 62                 |         | 31.5 = #62  |    |           |
| 2.7                            |         | 9.3 = #63   | 23 | 22.0 25.4 |
| 2.4                            |         | 34.7 = #63  |    |           |
| 2.5                            |         |   |    |           |
| 2.4                            |         |   |    |           |
| 2.5                            |         |   |    |           |
| 2) 37.5 18.75                  | 23      |   |    |           |
| Vol. VI Δα 1 <sup>m</sup> 1.69 |         |   |    |           |
| 1 1.75                         | Δδ 20.0 |   |    |           |
| 1 1.72                         | 17.9    |   |    |           |
|                                | 18.95   |   |    |           |

Both stars in south half

S. 5.5



Q C 17, 1883

again

0 26 14.3 26 26.3 24.0

38.3

27 14.9 27 28.2 26.5

41.4

again

27 54.2 28 7.5 26.6

28 20.8

55.0

29 14.0 38.0

29 33.0 apparently 23.0

Reject for  
apparent  
error in  
record.

again

29 51.8 30 ~~14.5~~ 25.4

30 17.2

52.2

31 6.1 27.8

31 20.0

Stars 64 and 65

37 9.1 29.6 41.0

16.0 27.4 22.7

38.7

50.1

First transit belongs to following 2d an 3d  
 transits = preceding star 4th tr. = following star  
 Preceding south half Following north half

39 40.3 60.8 41.0

47.2 58.7 23.0

40 10.2

21.3

Oct. 17, 1883.  
again

|             |                |                  |      |      |      |
|-------------|----------------|------------------|------|------|------|
| 65 foll. 64 | 0 <sup>h</sup> | 40 <sup>m</sup>  | 38.3 | 59.2 | 41.9 |
|             |                |                  | 46.0 | 57.9 | 22.0 |
| 2.2         |                | 42 <sup>41</sup> | 8.0  |      |      |
| 2.1         |                |                  | 20.2 |      |      |
| 2.2         |                |                  |      |      |      |
| 2.4         |                |                  |      |      |      |
| 2.3         |                |                  |      |      |      |
| <u>2.24</u> |                |                  |      |      |      |

Again

|                |              |    |      |      |      |
|----------------|--------------|----|------|------|------|
|                |              |    | 33.3 | 54.3 | 41.9 |
| 65 north of 64 |              |    | 40.7 | 51.9 | 22.3 |
| 63.7           |              | 42 | 3.0  |      |      |
| 64.0           |              |    | 15.2 |      |      |
| 63.9           |              |    |      |      |      |
| 64.2           |              |    |      |      |      |
| <u>64.3</u>    |              |    |      |      |      |
| 20.1           |              |    |      |      |      |
| 64.0           | "            |    |      |      |      |
| 32.0           | 889.8        |    |      |      |      |
| 960            | 480          |    |      |      |      |
|                | <u>409.8</u> |    |      |      |      |

Again

|            |             |              |    |     |
|------------|-------------|--------------|----|-----|
| Vol. VI Δ2 | 2.15        | Δδ 361.4     | 43 | 6.0 |
|            | <u>2.00</u> |              |    |     |
|            | 2.08        |              |    |     |
|            |             | 49.4         |    |     |
|            |             | <u>416.4</u> |    |     |

~~Δ2~~ Zones 147 and 148 disagree for δ of No. 64. A note says "Zone 148 correct", ~~and in fact~~ but the minute of mean declination is left to agree with Zone 147.

~~Δ2~~ The declination is 49" less by Zone 148, and with this correction the Δδ will agree with the observations above.



Oct. 18, 1883.

Suspected Var. near  $\delta$  Oph.  
(Schönfeld's "h") W. obs.

$$\begin{array}{r} 16 \quad 23 \quad -16.2 \\ 20 \quad 2 \\ \hline +3 \quad 45 \end{array}$$

6 40

5 2 2  
2 3 a'

P. obs.

(0.5)

+ a'

6 52 Var. 1.5 t  
Var. 7 a'

} W. obs.

Comet 1812 (Brooks.)

$$\begin{array}{r} 16 \quad 39 \quad 55.5 \\ 20 \quad 40 \\ \hline +4 \quad 1 \end{array}$$

Spectrum continuous. Comet about the same as last night. Somewhat central. Considerable central condensation, somewhat stellar. Entire nebulosity 2' in diameter.

Oct. 18, 1883.

21 16 43.0

17 56.7

19 21.2

21 10.5

22 45.2 1<sup>st</sup> 34.7

23 24.0 33.3

57.3

24 16.6

25 5.3

24

17.5

8'

$$\begin{array}{r} 49 \\ 24 \\ \hline 113 \end{array}$$

$$\begin{array}{r} 33 \\ 48 \\ \hline 22 \\ 139 \\ \hline 17 \end{array}$$

Pos 0

79.6

45

124.6

Order Star Comet Star Comet  
 Comet in northern Star in Southern half  
 of square



Oct. 18, 1883.

Comp. star 2 M. +55° 1873 (4.3)  
 7 sets taken on comet, - reject first two.  
 R Arctis.

|    |   |       |
|----|---|-------|
| 2  | 2 | +24.4 |
| 22 | 7 |       |
| -4 | 1 |       |

|    |    |   |    |
|----|----|---|----|
| 22 | 12 | 1 | 45 |
| -3 | 56 | 2 | 1  |
|    |    | 2 | 57 |

~~138~~

22 18 32.0

36.0

37.2

59.0

19

9.3

34.3

21

55.0

22

8.3

8 37

Var. seen, but very faint, <sup>Bright</sup> moonlight also.  
 Est. 14.5 mag. W. obs.  
 Var. not seen by S.

Oct. 19. 1883.

B. + C. 1122.

|    |    |      |
|----|----|------|
| 10 | 21 | 26.4 |
|    | 22 | 26.6 |

Bond 394

|    |    |         |
|----|----|---------|
| 14 | 58 | 44.5    |
|    |    | 0.0     |
|    | 59 | 0.0     |
|    | +4 | 36 18.1 |

|    |    |    |
|----|----|----|
| 14 | 46 | 16 |
|----|----|----|

|  |    |    |
|--|----|----|
|  | 23 | 41 |
|--|----|----|

|    |    |    |
|----|----|----|
| 15 | 9  | 57 |
|    | 58 | 10 |

|  |    |    |
|--|----|----|
|  | 11 | 57 |
|--|----|----|

|    |    |    |
|----|----|----|
| 10 | 21 | 26 |
|----|----|----|

|    |    |    |
|----|----|----|
| 10 | 33 | 23 |
|----|----|----|

Phot. R.

App. time eclipse.  
S. obs.

Dis. Jup. II. (See note above.)

|    |    |      |       |
|----|----|------|-------|
| 10 | 30 | 10.5 | 224.5 |
|    |    | 19.5 | 291.0 |
|    |    | 29.0 | 226.2 |
|    |    | 36.4 | 249.5 |
|    |    | 41.5 | 218.0 |
|    |    | 47.5 | 244.2 |
|    |    | 54.5 | 217.2 |
| 31 |    | 2.0  | 249.3 |
|    |    | 8.5  | 220.4 |
|    |    | 15.0 | 296.6 |
|    |    | 22.5 | 226.6 |
|    |    | 30.5 | 296.0 |
|    |    | 38.0 | 222.0 |
|    |    | 43.0 | 291.7 |



Oct. 19. 1883.

|       |      |       |
|-------|------|-------|
|       | 50.0 | 221.7 |
|       | 56.0 | 295.5 |
| 22    | 2.0  | 219.4 |
|       | 8.0  | 297.2 |
|       | 22.0 | 212.0 |
|       | 20.5 | 225.0 |
| <hr/> |      |       |
|       | 29.5 | 233.7 |
|       | 46.5 | 217.2 |
|       | 54.0 | 233.4 |
| 23    | 7.5  | 272.2 |
|       | 12.0 | 232.7 |
|       | 19.0 | 271.3 |
|       | 27.0 | 239.1 |
|       | 34.5 | 271.2 |
|       | 40.5 | 241.5 |
|       | 46.5 | 270.0 |
|       | 51.5 | 241.4 |
|       | 58.5 | 267.0 |
| 24    | 7.5  | Seen. |

Limit of Vis. of up. II. comp. with  
 of up. III.

|    |    |      |       |
|----|----|------|-------|
| 10 | 37 | 12.0 | 247.8 |
|    |    | 22.5 | 266.2 |
|    |    | 32.0 | 246.9 |
|    |    | 41.5 | 265.0 |

Comparisons previous to time in above  
 series were between up. I and up. III.  
 afterwards between up. II. and III.

Oct. 19. 1883.  
Images readjusted.

Dis. of Jup. I. Phot. R.  
P. obs. Compared with Jup. III.

|    |    |      |       |
|----|----|------|-------|
| 10 | K1 | 22.0 | 221.3 |
|    |    | 29.5 | 297.2 |
|    |    | 39.0 | 219.0 |
|    |    | 45.0 | 295.2 |
|    |    | 53.0 | 219.0 |
|    |    | 59.5 | 302.0 |
|    | K2 | 4.0  | 221.0 |
|    |    | 13.5 | 296.2 |
|    |    | 20.5 | 212.1 |
|    |    | 27.0 | 302.2 |
|    |    | 34.0 | 219.5 |
|    |    | 43.0 | 295.7 |
|    |    | 51.0 | 217.3 |
|    | K3 | 2.5  | 297.8 |
|    |    | 10.5 | 212.4 |
|    |    | 16.5 | 296.5 |
|    |    | 24.0 | 221.2 |
|    |    | 30.0 | 299.5 |
|    |    | 36.5 | 220.3 |
|    |    | 42.5 | 297.5 |
|    |    | 50.0 | 216.6 |
|    |    | 57.0 | 290.5 |
|    | K4 | 3.0  | 223.2 |
|    |    | 8.5  | 295.8 |



Oct. 19. 1883.

|    |    |      |       |
|----|----|------|-------|
| 10 | 44 | 14.5 | 222.5 |
|    |    | 21.0 | 291.6 |
|    |    | 27.5 | 225.6 |
|    |    | 33.0 | 266.1 |
|    |    | 40.5 | 217.3 |
|    |    | 47.0 | 269.3 |
|    |    | 54.0 | 231.7 |
|    | 45 | 0.0  | 269.0 |
|    |    | 2.0  | 238.0 |
|    |    | 14.0 | 267.0 |
|    |    | 20.5 | 233.3 |
|    |    | 26.5 | 278.0 |
|    |    | 31.5 | 234.7 |
|    |    | 37.5 | 278.0 |
|    |    | 44.0 | 205.0 |
|    |    | 50.0 | 272.2 |
|    |    | 55.5 | 242.2 |
|    | 46 | 2.0  | 271.0 |
|    |    | 9.0  | 249.3 |

Not seen later,  
Limit of Vis.

|    |      |       |
|----|------|-------|
| 46 | 34.0 | 249.5 |
|    | 42.5 | 266.2 |
|    | 51.0 | 249.0 |
|    | 54.5 | 275.2 |

B. + C. 1182.

|    |    |      |
|----|----|------|
| 10 | 51 | 26.1 |
|    | 52 | 26.1 |

Bond 394.

|    |    |      |
|----|----|------|
| 15 | 28 | 44.5 |
|    |    | 0.0  |
|    | 29 | 0.0  |
|    |    | 44.5 |
|    |    | 36.4 |
|    |    | 18.4 |

Oct. 21, 1883

S. John

23 47 31.0  
 48 13.3  
 49 40.4  
 10.0  
 43.6  
 50 3.0  
~~49.6~~

51 ~~2.5~~  
~~11.5~~  
 52 ~~46.5~~  
~~15.3~~  
 54 7.5  
 53 3.3  
 55 16.5  
 50.6  
 56 20.0  
 43.4

|    |    |      |       |        |       |       |        |        |       |        |
|----|----|------|-------|--------|-------|-------|--------|--------|-------|--------|
| 23 | 58 | 20.8 | 47    | 52.15  | 54    | 30.40 | 58     | 41.40  | 63.05 | 121.15 |
|    | 59 | 2.0  | 48    | 55.20  | 55    | 33.55 | 59     | 44.70  | 63.15 | 121.30 |
|    |    | 30.0 | 49    | 53.30  | 56    | 31.70 | 60     | 42.60  | 63.30 | 121.20 |
|    |    | 59.4 | 5     | 42.3   |       | 45.8  |        | 41.2   | 63.17 | 121.22 |
| 0  | 0  | 33.5 | 12.7  | 29.6   | 11.7  | 34.1  | 11.8   | 29.4   |       |        |
|    |    | 51.7 | 22.9  | 19.4   | 22.4  | 23.4  | 23.0   | 18.2   |       |        |
|    |    |      | 63.5  | 114.5  | 58.5  | 116.0 | 59.0   | 115.0  |       |        |
|    |    |      | 31.75 | 57.25  | 29.75 | 56.0  | 29.50  | 57.5   |       |        |
|    |    |      | 95.25 | 171.75 | 88.25 | 168.0 | 88.50  | 172.5  |       |        |
|    |    |      |       |        |       |       | 88.25  | 168.0  |       |        |
|    |    |      |       |        |       |       | 95.25  | 171.75 |       |        |
|    |    |      |       |        |       |       | 272.00 | 512.25 |       |        |
|    |    |      |       |        |       |       | 90.67  | 170.75 |       |        |

3 stars all in - north  
 half of square

Above transits are of stars 1, 2, 3 in Vol. VI  
 Zones 147, 148. No. 2 seen this evening (sep. 130).  
 It follows No. 1 63.17, 90.67 north. { Magn. of  
 By Vol. VI 63.37, 95.15 " { No. 2 about  
 0.20 4.48 12.5

No. 3 follows No. 1 121.22, 170.75 north  
 By Vol. VI 121.78, 175.40 "  
 0.56 4.65

The bright star (No. 1) may have moved a little  
 with respect to the other two.



Oct. 21, 1883.

10 30

Looked at Nos. 34 and 37. The star said to precede No. 34 was suspected occasionally, but not certainly seen. At all events, there was no appearance of such a star a minute farther south, so that no motion of 34 is indicated, and the position of zone 148 is to be preferred to that of zone 147. (See p. 130).

No star visible intermediate between 37 and 38 in  $\delta$ . No. 36 may therefore be presumed to be identical with No. 37. (See p. 132.)

Moon risen, and sky hazy. A very faint star might easily be missed.

October 22, 1883.

8 0 Region of Aquilae } W. obs.  
 following and from  
 5' south to 5' north  
 observed twice with chronograph.

Revised with chronometer

| Time (B236)    |                | Margin. |         | P. Aquilae |
|----------------|----------------|---------|---------|------------|
| 0 <sup>m</sup> | 0 <sup>n</sup> | 22      | 30      |            |
| 1              | 58.7           | 1       | 32 40.0 | 5 3        |
| 2              | 7.7            | 2       | 49.     | 7.5 10.5   |
| 2              | 17.7           | 3       | 59      | 5 12       |
| 2              | 27.7           | 4       | 33 19   | 4.5 11.5   |
| 2              | 35.7           | 5       | 47      | 3 14       |
| 2              | 46.0           | 6       | 27.3    | 2.5 11     |
| 2              | 55.5           | 7       | 36.8    | 2.7 10.5   |
| 3              | 4.7            | 8       | 46      | 1.5 12.5   |
| 3              | 13.0           | 9       | 54.3    | 4 13.8     |
| 3              | 19.7           | 10      | 34 1    | 5.3 12     |
| 3              | 21.7           | 11      | 3       | 4 10.5     |
| 3              | 45.7           | 12      | 27.     | 4.3 10.3   |
| 4              | 1.7            | 13      | 43      | 2.5 12.5   |
| 4              | 2.7            | 14      | 44      | 3 9.5      |
| 4              | 17.7           | 15      | 59      | 3.2 10     |
| 4              | 24.4           | 16      | 35 15.7 | 2 12.5     |
| 4              | 33.7           | 17      | 15      | 2.5 12     |
| 4              | 42.4           | 18      | 23.7    | 3 11.8     |
| 4              | 46.7           | 19      | 28      | 4 11       |
| 5              | 2.7            | 20      | 44      | 3.6 11     |
| 5              | 15.7           | 21      | 57      | 1 11       |
|                |                |         |         | 5.3 10     |



Oct. 22, 1883.

|   |      |    |    |      |   |     |      |
|---|------|----|----|------|---|-----|------|
| ✓ | 26.7 | 22 | 22 | 36   | 8 | 3   | 12   |
| ✓ | 32.7 | 23 |    | 14   |   | 4.8 | 11.8 |
| ✓ | 48.7 | 24 |    | 30   |   | 3.9 | 12.5 |
| 6 | 4.9  | 25 |    | 46.2 |   | 0.8 | 12.5 |
|   |      |    |    | 57.5 |   | 4.3 | 9    |
|   |      | 27 |    | 13.2 |   | 1.8 | 12.7 |
|   |      |    |    | 21   |   | 3.8 | 12   |
|   |      |    |    | 31   |   | 4.1 | 13   |
|   |      |    |    | 42.5 |   | 1.5 | 12.5 |
|   |      |    |    | 51.2 |   | 4.5 | 12.5 |
|   |      |    |    | 66   |   | 1   | 11.8 |

|    |                 |    | Time (B.236) | S    | Magn. |      |
|----|-----------------|----|--------------|------|-------|------|
| 1  | 10 <sup>m</sup> | 22 | 39           | 14.2 | 5     | 3    |
| 2  | 2               | 5  | 4.1          | 13.0 | 7.5   | 10.5 |
| 3  | 1               | 5  | 9.3          | 13.5 | 8     | 13.5 |
| 4  | 3               | 2  | 1.3          | 15.5 |       | 12.5 |
| 5  | 4               | 2  | 18.3         | 32.0 | 6.2   | 12.5 |
| 6  |                 | 2  | 21.0         | 34.7 | 5.3   | 12.2 |
| 7  | 5               | 2  | 26.3         | 40.0 | 5.5   | 13   |
| 8  | 6               | 2  | 33.5         | 47.2 | 7.5   | 13   |
| 9  | 7               | 2  | 46.8         | 0.5  | 9.5   | 12.5 |
| 10 | 8               | 2  | 51.3         | [5]  | 6.2   | 12.7 |
| 11 | 9               | 3  | 22.5         | 36.2 | 8.3   | 8.7  |
| 12 |                 | 3  | 28.0         | 41.7 | 10.3  | 12.7 |
| 13 | 10              | 3  | 46.7         | 0.4  | 9.1   | 12.7 |
| 14 |                 | 3  | 50.7         | 4.4  | 9.5   | 12.6 |
| 15 | 11              | 4  | 0.3          | 14   | 8.3   | 11   |
| 16 | 12              | 4  | 3.3          | 17   | 8.3   | 12.7 |
| 17 |                 | 4  | 53.6         | 7.3  | 6.3   | 12.7 |
| 18 | 13              | 4  | 56.3         | 10.4 | 7.5   | 11.6 |
| 19 |                 | 5  | 0.0          | 13.2 | 6.3   | 12.6 |
| 20 | 14              | 5  | 16.5         | 30.2 | 5.3   | 11   |
| 21 | 15              | 5  | 24.3         | 38   | 9.1   | 12   |
| 22 | 16              | 5  | 32.3         | 52.0 | 7.5   | 11   |

Oct. 22, 1883.

|    | Time (B. 236) | $\delta$ | Magn. |
|----|---------------|----------|-------|
| 23 | 50.0 22       | 9        | 13    |
| 24 | 45 6.0        | 5.5      | 12    |
| 25 | 21.7          | 9        | 10.5  |
| 26 | 31.0          | 14.8     | 8.8   |

~~25<sup>th</sup> pr. last~~ 6 — 12  
Additional stars.

|       |      |     |    |
|-------|------|-----|----|
| 22 48 | 20.7 | 9   | 13 |
|       | 23.0 | 5.5 | 12 |

This is same as first on this page

|       |      |     |      |
|-------|------|-----|------|
| 22 50 | 34.7 | 9.1 | 12   |
|       | 35.2 | 8.5 | 13.5 |

a (see last page)

|    |      |                     |      |
|----|------|---------------------|------|
| 52 | 18.7 | <del>12.8</del> 6.3 | 12.8 |
|    | 21.4 | 7.5                 | 11.0 |

b (see last page)

|    |      |     |      |
|----|------|-----|------|
| 53 | 26.3 | 7.5 | 11.0 |
|    | 30.0 | 6.3 | 12.6 |

b (see last page)

|    |     |     |      |
|----|-----|-----|------|
| 55 | 0.0 | 9.1 | 12   |
|    | 4.0 | 9.8 | 12.6 |

c (see last page)

|    |      |      |      |
|----|------|------|------|
| 56 | 43.0 | 8.3  | 8.7  |
|    | 48.5 | 10.0 | 12.7 |
|    | 55.2 | 9.9  | 12.7 |

d (see last page)

|    |      |     |      |
|----|------|-----|------|
| 59 | 13.0 | 6.2 | 12.5 |
|    | 15.7 | 8.3 | 12.2 |

e (see last page)

Have increasing hindering observations.



Pallas

Oct 22, 1883

$$\begin{array}{r} 1 \ 20 \quad -18^{\circ} \\ 23 \ 41 \\ \hline 1 \ 01 \end{array}$$

$$\begin{array}{r} 0 \ 52 \\ 23 \ 47 \\ \hline 1 \ 5 \end{array}$$

$$\begin{array}{r} 23 \ 50 \\ 1 \ 0 \\ \hline 0 \ 50 \end{array}$$

Oct 26 1883

Sun 101 for Photo. Lab.

 $\frac{15^\circ}{-10} \frac{4}{5} \frac{20}{15^\circ}$ 

 21 10 Suburban 2 50 W.  
 21 30

 $21^h$   
 at  $26^m$ 

nebula suspected.

Decl<sup>n</sup> -11.8 faint planetary31 38 Cluster at -8.8  $2^h 56^m$  West.

Series 61

Re-vision of Vol VI

S. obs

 Began with Plan at  $22^h 1^m 48.2^s$   
 at  $23^h 2^m 48.2^s$ 

|              |     |               |               |     |               |      |               |     |             |      |
|--------------|-----|---------------|---------------|-----|---------------|------|---------------|-----|-------------|------|
| 6.4          | 66  | 90            | 75            | 13  | $23^h 19.5^m$ | 6.8  | 10            | 7.0 | 9.2         | 7.4  |
| 5.0          | 65  | 80            | 22            | 3.2 | 9.2           | 50   | 108           | 53  | 92          | 0.3  |
| 4.0          | 49  | 37            | 75            | 8.0 | 9.2           | 68   | $23^h 26.2^m$ | 3.2 | 42          | 72   |
| 6.4          | 35  | $23^h 10.1^m$ | 10.2          | 0.5 | 10.4          | 4.8  | 2.3           | 70  | 42          | 3    |
| 6.0          | 49  | 40            | 8.0           | 20  | 7.0           | 50   | 4.6           | 32  | 28          | 10.2 |
| 7.5          | 35  | 0.5           | 75            | 50  | 10.4          | 11.0 | 23            | 9.5 | 6.0         | 10.2 |
| 50           | 5.3 | 40            | 22            | 35  | 70            | 48   | 46            | 95  | 28          | 8.5  |
| 40           | 7.7 | 5.3           | 0.8           | 10  | 4.0           | 110  | 4.5           | 5.5 | 60          | 8.5  |
| 7.5          | 53  | 6.5           | 102           | 75  | 10.0          | 1.8  | 45            | 55  | $23^h 33^m$ | 4.5  |
| 60           | 77  | .5            | 80            | 7.8 | 7.4           | 1.0  | 9.3           | 7.9 | 8.2         | 8.0  |
| $23^h 4.2^m$ | 9.0 | 53            | $23^h 15.5^m$ | 78  | 40            | 10.8 | 5.3           | 6.8 | 4.9         | 9.5  |
| 6.5          | 8.0 | 6.5           | 8             | 8.5 | 100           | 18   | 93            | 6.8 | 82          | 4.5  |
| 6.6          | 37  | 7.5           | 5.5           | 85  | 74            | 1.8  | 7.0           | 7.9 | 4.9         | 8.0  |



Oct 26, 1883

|      |        |      |      |     |
|------|--------|------|------|-----|
| 78   | 11.0   | 12   | 52   | 100 |
| 8.3  | 24 pre | 7.7  | 59   | 60  |
| 9.5  | 24 fol | 12   | 52   | 100 |
| 7.7  | 7.5    | 77   | 59   | 100 |
| 7.8  | 7.5    | 10.3 | 10.0 | 100 |
| 8.3  | 8.1    | 7.3  | 10.9 | 100 |
| 9.0  | 16     | 10.3 | 0.8  | 100 |
| 8.4  | 8.1    | 7.3  | 10.9 | 100 |
| 5.0  | 14     | 9.8  | 10.9 | 100 |
| 7.7  | 14     | 10.2 | 8    | 100 |
| 8.4  | 7.0    | 9.8  | 10.9 | 100 |
| 9.0  | 7.2    | 3.7  | 10.9 | 100 |
| 5.0  | 14     | 10.2 | 7.2  | 100 |
| 7.2  | 7.0    | 3.7  | 9.0  | 100 |
| 3.8  | 6.8    | 9.0  | 7.2  | 100 |
| 7.5  | 2.5    | 5.6  | 9.0  | 100 |
| 7.0  | 6.8    | 5.6  | 6.2  | 100 |
| 3.8  | 2.5    | 4.7  | 10.7 | 100 |
| 7.5  | 10.5   | 1.5  | 2.5  | 100 |
| 10.0 | 3.8    | 8.5  | 10.7 | 100 |
| 10.0 | 10.5   | 4.7  | 4.3  | 100 |
| 7.8  | 3.8    | 8.5  | 9.5  | 100 |
| 7.8  | 3.6    | 1.5  | 2.5  | 100 |
| 0.6  | 3.6    | 11.3 | 2.4  | 100 |
| 6    | 2.3    | 11.2 | 4.3  | 100 |
| 0.7  | 2.3    | 6.8  | 9.5  | 100 |
| 2.4  | 2.5    | 6.0  | 2.4  | 100 |
| 2.4  | 2.5    | 6.8  | 6.0  | 100 |
| 7    | 6.5    | 6.0  | 10.0 | 100 |
| 11.0 | 6.5    | 6.0  | 6.0  | 100 |

Looked for Pallas. At 11<sup>h</sup> 30<sup>m</sup> mean time Pallas follows two small stars respectively 70° and 42°, the fr. star 9' and the other 8'.5 north of Pallas. Declination circle -18.9; & (after allowance for error of chronometer) about 9<sup>h</sup> 5<sup>m</sup> as it should be. Region identified by several Oeltgen stars, most of which are in place; but there is a change, or more likely a catalogue error, in Os. 728-9, which seems to precede Os. 752 2<sup>m</sup> 50<sup>s</sup> instead of 3<sup>m</sup> 0<sup>s</sup>; and Os. 725 was not found.

Oct 26, 1883

B+C 1182

11 43 27.3

44 27.3

B 394

16 21 00

22 00

B+C 1182 changed so as to conform more nearly to the correct time.

4 25 27.3

26 27.3

27 27.3

16 25 00

26 00

27 00

Disappearance of Jupiter I.

16 51 13.8

23 41

17 14 54.8

+ 27.3

17 15 22.1

P. obs. En. rec.

Jupiter dimly visible through haze.  
 Satellite seen at intervals but not sufficiently to measure. Satisfactorily.

|   |    |      |       |
|---|----|------|-------|
| 5 | 11 | 50-  | Seen  |
|   | 11 | 54.5 | 184.4 |
|   | 12 | 55.5 | 260.2 |
|   | 13 | 10.2 | 190.1 |
|   |    | 31.3 | 256.0 |
|   | 14 | 1.5  | 190.6 |
|   |    | 16.8 | 253.9 |



Oct. 26, 1883.

 $\sqrt{2}$  14<sup>m</sup> 30.5 193.4

58.0

257.7

17<sup>m</sup> ~~17.5~~

Satel. gone.

Reject

17 22 36.6

23 41

17 46 17.6

+ 27.3

17 46 44.9

Disappearance of Jupiter II.

Too cloudy -

B 4 C 1182

5 40 26.5

41 26.7

42 26.7

B 394

17 40 00

41 00

42 00

Oct 30 1883.

Start for photographing whole  
 $0^{\circ} 5' - 5^{\circ}$  elev.  ~~$2^h 5^m$~~   $2^h 10^m$  west.

Begin at  $20^h 40^m$   
 end at  $21^h 10^m$

Close at  $-1^{\circ}$  at  $21^h 10^m$

Int. or Close.  $2^h 16^m$  at  $21^h 15^m - 0.9$   

$$\begin{array}{r} 2 \quad 16 \\ 18 \quad 59 \end{array}$$

B 236

F. 1327

21 42 00  
 43 00

21 45 30.5  
 46 30.5

2 45  
 21 - 45  


---

21 45  
 3  


---

 21 48  
 2 45  


---

 19 3

Decl.  $+1^{\circ}$  up to  $-1^{\circ}$   
 R.A. about  $19^h 4^m$   
 Object is G.C. AH73



Oct. 30, 1883.

Comet 1812 (Brooks.)

W. obs.

$$\begin{array}{r}
 16 \quad 47.5 \quad +52.6 \\
 22 \quad 3 \\
 \hline
 +5 \quad 16
 \end{array}$$

7 43 Comet in its normal state.  
 Sky dark - Nucleus considerably  
 bright - Total nebulosity about 3'  
 in diameter.

$$\begin{array}{r}
 t = 22 \quad 24 \quad 25 \\
 H.C. = 5 \quad 31 \\
 \hline
 R.A. = 16 \quad 56 \quad 35
 \end{array}$$

$$\begin{array}{r}
 \text{Pos. } 0 = 16.7 \\
 4.5 \\
 \hline
 61.7
 \end{array}$$

$$\begin{array}{r}
 t = 22 \quad 39 \\
 H.C. = 5 \quad 40
 \end{array}$$

$$\begin{array}{r}
 R.A. \quad 16 \quad 56 \\
 \text{Comp. Star} = \text{Dir.} + 53' 1916 (2.2) \\
 \text{Ordr. Comet, Star, Comet, Star.}
 \end{array}$$

Both in northern half of square.  
 Reject all sets before last long rattle  
 on account of clouds

Comp. Star 8.5 magn. Follows a star of  
 7.8 magn. by 3" and 15" and is 12' north of it.

October 30, 1883.

Comparison star follows Comet  $\frac{1}{2}$  Square  
and is 2' north, at 8<sup>h</sup> 30<sup>m</sup> mean time  
i. Comp. Star = +53° 19' 16" (A. 2 no letter)

Re-vision of Vol. VI. S. obs.  
Began with star at 23<sup>h</sup> 0<sup>m</sup> 15<sup>s</sup> 2  
" at 23<sup>h</sup> 49<sup>m</sup> 15<sup>s</sup> 2

|         |         |     |                    |                                   |      |                                   |                                   |                                   |                                   |                                   |
|---------|---------|-----|--------------------|-----------------------------------|------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|
| 5.0     | 104     | 88  | 7.1                | 56                                | 10.1 | 24                                | 5.3                               | 99                                | 2.8                               | 38                                |
| 5.6     | 25      | 110 | 15                 | 58                                | 11.0 | 0.5                               | 103                               | 20 <sup>h</sup> 25 <sup>m</sup> 9 | 6.0                               | 73                                |
| 50      | 104     | 7.0 | 71                 | 56                                | 5.0  | 20                                | 26                                | 49                                | 287                               | 387                               |
| 56      | 3.7     | 100 | 60 <sup>h</sup> 22 | 23                                | 110  | 78                                | 53                                | 108                               | 60                                | 103                               |
| 10.0    | 9.3     | 70  | 52                 | 23                                | 101  | 24                                | 23                                | 49                                | 60 <sup>h</sup> 32 <sup>m</sup> 0 | 33                                |
| 10.5    | 25      | 34  | 52                 | 48                                | 1.7  | 5                                 | 4.7                               | 108                               | 3.3                               | 35                                |
| 1.07    | 23      | 8.2 | 8.5                | 1.8                               | 50   | 4.9                               | 47                                | 7.5                               | 7.5                               | 33                                |
| 100     | 37      | 80  | 32                 | 48                                | 24   | 49                                | 60 <sup>h</sup> 21 <sup>m</sup> 5 | 42                                | 0.5                               | 35                                |
| 10.5    | 93      | 34  | 85                 | 18                                | 17   | 20 <sup>h</sup> 16 <sup>m</sup> 6 | 68                                | 75                                | 33                                | 10.1                              |
| 10      | 23      | 82  | 32                 | 22                                | 23   | 33                                | 4.0                               | 102                               | 75                                | 103                               |
| 23 51 8 | 9.5     | 80  | 0.5                | 6.5                               | 24   | 0.3                               | 40                                | 102                               | 5                                 | 98                                |
| 10.4    | 5.6     | 68  | 9.6                | 22                                | 23   | 33                                | 68                                | 42                                | 78                                | 101                               |
| 104     | 9.5     | 68  | 2.8                | 10.0                              | 0.0  | 6.0                               | 26                                | 7.8                               | 78                                | 103                               |
| 7.0     | 56      | 9.5 | 4.8                | 65                                | 0    | 3                                 | 26                                | 8.5                               | 49                                | 98                                |
| 10.0    | 4.8     | 9.5 | 5                  | 100                               | 48   | 60                                | 27                                | 78                                | 49                                | 60 <sup>h</sup> 41 <sup>m</sup> 3 |
| 8.5     | 48      | 9.7 | 9.6                | 4.7                               | 1.5  | 10.6                              | 27                                | 8.5                               | 58                                | 10.5                              |
| 58      | 4.5     | 2.5 | 2.5                | 7.4                               | 23   | 6.5                               | 11.2                              | 11.2                              | 3.0                               | 10.5                              |
| 100     | 4.5     | 7.6 | 10.3               | 8.2                               | 48   | 65                                | 38                                | 11.2                              | 58                                | 9.9                               |
| 70      | 23 57.3 | 257 | 48                 | 82                                | 7.8  | 106                               | 38                                | 2.0                               | 30                                | 99                                |
| 60      | 8.7     | 97  | 103                | 74                                | 2.0  | 1.0                               | 30                                | 8.5                               | 20 <sup>h</sup> 36 <sup>m</sup> 8 | 2.4                               |
| 85      | 11.0    | 76  | 20 <sup>h</sup> 59 | 49                                | 15   | 10.37                             | 99                                | 20                                | 103                               | 5.3                               |
| 23 527  | 10.0    | 1.5 | 5.8                | 60 <sup>h</sup> 10 <sup>m</sup> 6 | 23   | 10                                | 30                                | 85                                | 7.3                               | 24                                |



Oct 30, 1883

|      |      |     |                                 |                        |
|------|------|-----|---------------------------------|------------------------|
| 10.7 | 1.8  | 8.5 | 20 <sup>h</sup> 47 <sup>m</sup> | 20                     |
| 5.3  | 10.0 | 2.3 | 1.7                             | 10.3                   |
| 10.7 | 6.7  | 8.8 | 1.7                             | 8.5                    |
| 5.7  | 15.7 | 2.3 | 7.6                             | 10.3                   |
| 5.6  | 10.0 | 8.8 | 7.6                             | ft 0 <sup>h</sup> 49.6 |
| 5.7  | 6.7  | 2.2 | 2.0                             | Ended with last star   |
| 5.6  | 8.5  | 2.2 | 8.5                             | in 23 hours.           |

|       |    |
|-------|----|
| 23    | 35 |
| 0     | 55 |
| <hr/> |    |
| 1     | 20 |

Transit of bright  
star through wedge -  
SideStar at 23<sup>h</sup> 34<sup>m</sup> 54.3 +10.37 Magn. 6

Set at 0

Three taps

1<sup>st</sup> Transit over bar.2<sup>nd</sup> Entrance into wedge.3<sup>rd</sup> Exit from wedge.

Set at 5

Three taps - same as in  
preceding set.

Set at 10

Three taps - same as in  
first set.

|      |      |      |
|------|------|------|
| 0.9  | 0.0  | 0.9  |
| 6.3  | 4.9  | 7.9  |
| 50.4 | 50.6 | 53.7 |

Transit to entrance, (set at 0) 5.4 ; to exit, 49.5

" " " (" 5) 4.9 ; " , 50.6

" " " (" 10) 6.1 ; " , 52.8

Oct. 30, 1883.

Star,  $4^{\text{th}}$  n.  $9^{\text{m}} 3^{\text{s}}$  foll. Dec. 531 ?  
 3 n.  $9 7^{\text{s}}$  " " " ?

$$\begin{array}{r} 2.95 \\ \underline{33} \\ 885 \\ \underline{885} \\ 97. \end{array}$$

$$\underline{5013}$$

$$50110$$

$$5150$$

$$933$$

$$\underline{052} \quad 41^{\text{m}}$$

$$1948$$

$$19.5$$

$$\underline{33}$$

$$585$$

$$\underline{585}$$

$$643$$

$$10''43$$

$$1949$$

$$1959$$

$$t = \begin{array}{lll} 1^{\text{h}} & 36^{\text{m}} & 59.5 \\ & 38 & 26.3 \\ & 39 & 51.8 \end{array} \quad \begin{array}{l} 1^{\text{st}} \text{ Star} \\ 2^{\text{d}} \text{ " } \\ 3^{\text{d}} \text{ " } \end{array}$$

fol is South of  $2^{\text{d}}$  Star  $4'$

$$\textcircled{2} \quad 1 \quad 3 \quad 23 \quad -19^{\circ} 27$$

$$1^{\text{h}} \quad 52 \quad 49$$

$$5 \quad \frac{4}{3}$$

$$1 \quad 58 \quad 32$$

$$\text{Dec. 580 Dec-4 } 05423$$

$$106$$

child count



Nov. 1, 1883. Also Nov. 3 & 4; see below.  
 Stars following  $\beta$  Aquarii.  
 Star foll.  $\beta$  Aquarii @  $1^m 57^s.5$  to  $1^m 58^s.0$   
 5' north. Call this a. S. obs.

The decl. and magz. were entered Nov. 1. The times were added Nov. 3 & 4. Also the decl. and magz. of stars not seen Nov. 1, in brackets. A few faint stars towards the end were not seen Nov. 4.

|    |                      | Decl.   | Magz.     |
|----|----------------------|---|-----------|
| a  | 0.0                  | 9.8   | 11.0      |
| 37 | 4.0                  | 1.9   | 13.5      |
|    | 4.5                  | 9.8   | 14.3      |
|    |                      | 0.4   | 13.8 14.0 |
| 38 | 9.5                  | 4.5   | 13.3      |
| 39 | 15.5                 | 1.5   | 14.4      |
|    | 16.0                 | 6.0   | 14.2      |
| 44 | 18.0                 |   |           |
|    | 23.0 23.0            | 10.1  | 9.7 red   |
|    | 45.0                 | 2.5   | 14.7      |
| b  | 51.0                 | 3.5   | 15.0      |
|    | 54.5 54.5            | 8.4   | 10.1      |
|    | 55.0                 | [6.7]   | [14.8]    |
|    | 61.0                 | 2.5   | 14.5      |
|    | 68.0                 | 6.8   | 12.0      |
|    | 74.5                 | [2.0]   | [15.0]    |
|    | 93.5                 | 7.7   | 13.0      |
|    | 99.5                 | 1.7   | 14.8      |
|    | 102.0 [handily seen] | 3.0   | 15.0      |
|    |                      | { Note Nov. 14, 1883. Pretty faintly seen at 2 az. before 3.0 rather than 3.0 } |           |
|    | 111.0                | 6.5   | 13.3      |
|    | 116.0                | 6.0   | 13.0      |
| c  | 121.5 121.5          | 2.0   | 10.8      |
|    | 123.5                | 7.7   | 13.7      |
|    | 124.5                | 4.7   | 14.5      |
|    | 126.5                | 2.3   | 13.8      |
|    | 127.5                | 8.3   | 12.7      |
|    | 130.5                | 2.7   | 14.0      |
|    | 131.0                | 8.2   | 11.8      |
|    | 133.0                | 9.5   | 14.8      |

Nov. 1, 1883.

|   |                            | Decl | Magn. |
|---|----------------------------|------|-------|
|   | 137.5                      | 1.5  | 13.7  |
|   | 140.0                      | 8.0  | 14.6  |
|   | 141.0                      | 1.0  | 12.0  |
|   | 148.5                      | 6.0  | 14.2  |
|   | 149.0 (not certainly seen) | 2.0  | 14.5  |
|   | 152.0                      | 9.5  | 12.2  |
| d | 155.0 155.0                | 8.2  | 11.6  |
|   | 160.0                      | 1.6  | 14.0  |
|   | 172.0                      | 0.8  | 13.6  |
|   | 175.0                      | 7.5  | 14.5  |
|   | 177.0                      | 4.0  | 12.2  |
|   | 178.5                      | 3.5  | 14.7  |
|   | 180.0                      | 0.2  | 11.7  |
|   | 182.0                      | 1.5  | 14.0  |
|   | 188.0 (not certainly seen) | 6.5  | 14.8  |
|   | 189.0                      | 3.0  | 12.2  |
|   | 199.5                      | 5.0  | 14.3  |
|   | 200.5                      | 0.3  | 12.0  |
|   | 203.0                      | 6.2  | 15.0  |
|   | 216.5                      | 7.8  | 13.5  |
|   | 216.5 (not certainly seen) | 1.0  | 13.8  |
|   | 220.0                      | 8.3  | 13.5  |
|   | 222.0                      | 8.8  | 12.5  |
| e | 227.0 226.5                | 6.0  | 11.5  |
|   | 233.0                      | 10.0 | 14.0  |
|   | 238.5                      | 7.8  | 13.0  |
|   |                            | 3.5  | 15.0  |
|   |                            | 1.3  | 13.8  |
|   |                            | 2.0  | 14.0  |

{ Note Nov. 18, 1883. Both  
these stars seen; & for both  
149.5 rather than as before. }

{ Note Nov. 18, 1883. Thought  
to be visible about as described }

{ Note Nov. 18, 1883. If seen, & about  
203, but not certainly seen. }

{ Note Nov. 18, 1883. Pretty  
certainly seen; but < 14.0 }

{ Note Nov. 18, 1883. If seen,  
& 233; but doubtful }

6<sup>m</sup> from  
3 Aquarii



Nov. 1, 1883.

| Decl | Magn. |
|------|-------|
| 4.7  | 14.0  |
| 4.5  | 12.6  |
| 9.0  | 15.0  |
| 1.5  | 12.8  |
| 6.5  | 12.5  |
| 6.7  | 10.7  |

The star at decl. 6.0, magn. 11.5 must be approximately 6<sup>m</sup> from  $\beta$  Aquarii.

| Comet | 1812 (Brooks.) | W. obs. |
|-------|----------------|---------|
| 17    | 5              | +52.6   |
| 22    | 30             |         |
| +5    | 25             |         |

Comet's nucleus decidedly more stellar than when last seen, and nucleus brighter. The diameter of nebulosity is about the same (2.5 to 3') but relatively fainter and fading off more rapidly. The appearance is that of a bright & mag. star, quite small, and sharp, with a nebulosity perfectly visible but ~~relatively faint~~ fading off somewhat rapidly. Spectrum of nucleus sharp and continuous.

" " Coma, apparently " W. obs.

| $\delta$ Aquilae. |    |
|-------------------|----|
| 19                | 20 |
| 22                | 53 |
| +3                | 33 |

Nov. 1, 1883.

| Decl              | Magn.           |
|-------------------|-----------------|
| 7.5               | 10.9            |
| <del>8.8</del>    | <del>12.0</del> |
| <del>8.7</del>    | <del>11.8</del> |
| <del>7.0</del>    | <del>12.5</del> |
| <del>0.8</del>    | <del>13.5</del> |
| Stars in Southern |                 |
| Half of square    | 9               |
| <del>14.8</del>   | <del>13</del>   |
| <del>13.5</del>   | <del>13</del>   |

| Decl  | Magn     |
|-------|----------|
| 7.5   | 12       |
| 7.5   | 13       |
| 2.5   | 13       |
| 5     | 12.7     |
| 4.8   | 13       |
| 1     | 13       |
| 4.9   | 12.5     |
| 3.3   | 12.7     |
| 3.7   | 13.5     |
| 4.8   | 13.7     |
| 2.7   | 11.5     |
| { 0.5 | 12 } dbl |
|       | 12       |
| 4.8   | 13.5     |
| 4.8   | 10       |
| 2.5   | 14.7     |
| { 2   | 11 }     |
| { 2.5 | 13.5 }   |
| 4.5   | 13       |
| 3.8   | 13.5     |



Nov. 1. 1883.

| Decl  | Magn.  |
|-------|--------|
| 4.8   | 10.5   |
| 4.9   | 10.4   |
| 28    | 13     |
| 29    | 13     |
| 0.3   | 13     |
| 3.8   | 12.8   |
| { 1   | 12.5 } |
| { 0.6 | 13 }   |
| 0.8   | 13.5   |
| 2.3   | 13.3   |
| 2.2   | 13.4   |
| 1     | 13.3   |
| 2.5   | 14     |
| 2.5   | 13.5   |
| 0.3   | 13.5   |
| 0.3   | 14     |
| 4.5   | 11.5   |
| 1.3   | 12.7   |
| 1.2   | 14.2   |
| 4.7   | 11     |
| 4.0   | 11.2   |
| 5.0   | 13.9   |
| 1.0   | 11.5   |
| 1.0   | 12.5   |
| 5.0   | 12.5   |
| 0.8   | 12.7   |
| 3.7   | 14.5   |
| 3.9   | 14.6   |
| 0.2   | 14     |

Nov. 1, 1883

| Decl | Magn. |
|------|-------|
| 3.9  | 13.3  |
| 5    | 10    |
| 2    | 12.8  |
| 3    | 14.2  |
| 1.8  | 13.8  |
| 2.7  | 13.5  |
| 2.1  | 13.7  |
| 4.8  | 14.2  |
| 0.8  | 13.5  |
| 0.7  | 13    |
| 3.8  | 11    |
| 0.8  | 11    |
| 5    | 9     |
| 4    | 14    |
| 3.7  | 14.5  |
| 2.5  | 14.7  |
| 2    | 13.2  |
| 3.6  | 13.5  |
| 2    | 13.8  |
| 1.9  | 13.5  |
| 2.8  | 14    |
| 1.8  | 13.7  |
| 2.8  | 13.8  |
| 1.9  | 13.5  |
| 2.5  | 13.6  |
| 4.8  | 13.2  |
| 1.8  | 12    |
| 5    | 13.4  |
| 2.8  | 14    |



Nov. 1, 1883.

| Decl | Magn. |
|------|-------|
| 3.3  | 13.8  |
| 0.3  | 13.7  |
| 1    | 13.8  |
| 5    | 14    |
| 2    | 12.5  |
| 2.1  | 12.5  |
| 2.7  | 14.2  |
| 2.6  | 14.2  |
| 2.1  | 13.5  |
| 3    | 14    |
| 1.9  | 13.5  |
| 1    | 13.8  |

Interrupted by clouds.  
 When it finally cleared, region  
 too low to finish above. W.

Nov. 1, 1883.

15.7 Anetis

S. &amp; C. obs.

Examination of place of

Comparison star  $\times$  about  
 a star <sup>near</sup> the place of  $\times$  ~~lighter~~ the  
 place of  
 $14\frac{1}{2}$  m. perhaps  $\frac{1}{2}$  or 1 s. p.  $\times$  on chart

Transits of neighboring stars

Dec.

h m s

BD. +16° 250

e

1

8

49.5

8

BD. +16° 254?

(x)?

9

2.0

(not seen <sup>at</sup> moment of transit)

BD. +16° 355

6 mag

9

49.5

10

See A.N. 83,359, and V.G.S. 19,145.

Again

tDec.

mag.

e

1

12

11.2

8

9

(x)?

12

26.0 ::

3

14 $\frac{1}{2}$ 

6 mag

13

10.5

10

6

Besides this star, there are two  
 others in the region; one in line with  
 I and e, 2' or 3' prec. e, and 6' or 7' south  
 of it; magn. 13 to 13.5. The other star  
 is about 30' foll. e, 4' south of it; magn. 12 to 12.5



Nov. 1, 1883.

43 U Gem.

11 30

U = 105x

S. Obj.

Spectrum not peculiar.

Afterwards looked with Mr. Chandler's telescope, and made U = 11x; but still thought  $\delta$  brighter than U.

November 2, 1883

Stars following  $\alpha$  Aquarii

|   |   |      | $t$    |          | Decl.          | Sobe.            |
|---|---|------|--------|----------|----------------|------------------|
|   |   | $oh$ |        |          |                | Uagn             |
|   |   |      | $41^m$ | $52^s.3$ | $5.0$          | $2 = \alpha$     |
| a | 2 | 1.2  | 43     | 53.5     | 7              | 11               |
| b | 2 | 49.0 | 44     | 41.3     | 5.5            | 11.5             |
| c | 2 | 54.5 |        | 46.8     | 5.8            | 11.0             |
| d | 3 | 21.5 | 45     | 13.8     | 1.5            | 11.2             |
| e | 3 | 45.4 |        | 37.7     | { 0.8<br>5.2 } | { 12.5<br>11.5 } |
| f | 4 | 57.1 | 46     | 49.4     | 4.7            | 10.7             |
| g | 5 | 45.2 | 47     | 37.5     | 7.3            | 11.5             |
| h | 6 | 5.0  |        | 57.3     | 2              | 9.3              |

Principal stars as above.  
Revised for decl. & magn. of all.

|   |                |                |               |                |                                |                                 |
|---|----------------|----------------|---------------|----------------|--------------------------------|---------------------------------|
| a | 2 <sup>m</sup> | 1 <sup>m</sup> | <del>41</del> | <del>209</del> | 7.3<br><del>12.8</del><br>10.0 | 10.8<br><del>14.8</del><br>13.5 |
|   |                |                |               |                | 9.9                            | 14.0                            |
|   |                |                |               |                | 2.0                            | 12.7                            |
|   |                |                |               |                | 0.0                            | 14.2                            |
|   |                |                |               |                | 3.5                            | 13.9                            |
|   |                |                |               |                | 2.2                            | 14.8                            |
| b | 2              | 49             |               |                | 5.9                            | 11.0                            |
|   |                |                |               |                | 3.7                            | 13.0                            |
|   |                |                |               |                | 1.6                            | 13.3                            |
| c | 2              | 54             |               |                | 6.2                            | 10.7                            |
|   |                |                |               |                | 7.5                            | 14.7                            |
|   |                |                |               |                | 4.8                            | 14.0                            |
|   |                |                |               |                | 4.5                            | 14.6                            |
| d | 3              | 22             |               |                | 1.6                            | 10.9                            |
|   |                |                |               |                | 3.0                            | 14.2                            |



Nov. 2, 1883.









|                |                 |      |
|----------------|-----------------|------|
| e? { 3 ~ 4 v ~ | 7.5             | 14.5 |
|                | 6.0             | 13.3 |
|                | 5.8             | 12.5 |
|                | 0.7             | 12.8 |
|                | 1.0             | 13.6 |
|                | 6.1             | 13.8 |
|                | 5.9             | 14.0 |
|                | 3.5             | 14.8 |
|                | 3.7             | 14.3 |
|                | 7.8             | 13.7 |
|                | 1.3             | 13.9 |
|                | 4.0             | 13.0 |
|                | 9.0             | 14.1 |
| f 4 ~ v ~      | 2.2             | 14.0 |
|                | 4.8             | 10.3 |
|                | 7.9             | 11.8 |
|                | 0.5             | 13.5 |
|                | 3.6             | 14.2 |
|                | 4.2             | 13.4 |
|                | 0.3             | 13.5 |
| g v ~ 4 v ~    | 7.6             | 10.9 |
|                | 4.0             | 12.3 |
|                | <del>13.3</del> |      |
|                | 8.0             | 12.2 |
|                | 6.5             | 14.3 |
|                |                 | 12.8 |
|                | 10.0            | 14.0 |
| h 6 ~ v ~      | 3.5             | 12.4 |
|                | 2.4             | 9.3  |

*2 Aquarii continued, Nov 2, 1883.*

|                |                 |       | Decl | Mag  |                |
|----------------|-----------------|-------|------|------|----------------|
| 1 <sup>h</sup> | 40 <sup>m</sup> | 28.3  | 5.0  | 2    | = $\alpha$ Aqu |
| 42             | 29.3            | 121.0 | 7.3  | 10   |                |
|                |                 |       | 10.0 | 9.9  |                |
|                |                 |       | 1.8  | 12   |                |
| 43             | 23.2            | 174.9 | 6.2  | 11   |                |
|                | 49.2            | 200.9 | 1.8  | 10.8 |                |
| 45             | 10.8            | 282.5 | 4    | 13   |                |
|                | 25.3            | 297.0 | 4.5  | 12   |                |
| 46             | 33.5            | 365.2 | 2.4  | 9.3  |                |

No.

|    |                        |   |       |     |            |
|----|------------------------|---|-------|-----|------------|
| 48 | 11.3                   |   | 5.0   | 2   | = $\alpha$ |
| 50 | 12.3                   | 1 | 121.0 |     |            |
| 51 | 0.2                    | 2 | 164.9 | 5.8 | 11         |
|    | 32.8                   | 3 | 201.5 | 2   | 11         |
|    | 56.8                   | 4 | 225.5 | 1   | 11         |
| 52 | 46.3                   | 5 | 275.0 | 1   | 13         |
| 53 | 8.3                    | 6 | 297.0 | 5   | 11         |
|    | 39.2                   | 7 | 327.9 | 5   | 12         |
|    | 16.3 }<br>or<br>17.3 } | 8 | 365.0 | 2.4 | 9.3        |

Two transits with chronograph simultaneous with those by chronometer above. Region getting low and faint stars disappearing. In the second set the numbers 1, 2, etc. are recorded on the chronograph before the transits of the corresponding stars by signals each enclosed between rattles; 1 = , 2 = , 3 = , 4 = , 5 = , 6 = , 7 =  (On the chronograph, the marks are of course reversed, 6 becoming , etc.)



Nov. 3, 1883.

136 J Pegasi

W. obs.

21 2 11.9

21<sup>h</sup> 3<sup>m</sup> + 10.9  
 22 37  
 1 34

8 30 { ~~2h~~ Pbs  
~~1h~~  
 c 4 J

8 47 { ~~3a~~ W. obs.  
~~2b~~  
 c r. r J

9 0 S. obs.  
 The object called a in the sketch above is the variable star. Call the next object (Top of the sketch) x, call a star, 3<sup>rd</sup> pr. 8 3.5 north of the variable, y. Then x 3 J T 1 y

9 4 { x 3 J } W. obs. 22 J  
 { b 2 J } 61 J  
 32 y

9 12

7 3 4

Nov. 3. 14+3.

W. obs.

140 R Pegasi.  
~~0~~ 3 ~~+8.7~~

23 0 +8.7  
 0 4  
 +1 4

A star follows R 14 sec. 2' south.  
 Call this X

9 40 { R 1 w } W. obs.  
 { R 4 X }

9 40 { R 4 R } R obs.  
 R 1 m  
 R 3 X

R scarcely seen; not visible enough for  
 comparison. S. obs.

Comet 1812 (Brooks) W. obs.

17 9 +52.2  
 0 48  
 +7 39

Comet not seen. Sky rather thick.  
 W.



March 1883

Search for planet sub.

$+15^{\circ}$  to  $+20^{\circ}$

$19^h 20^m$  to  $20^h 0$

22 10

2 50

Obs.  $2^h 58^m$  w.

Report at 22 8 Chron 42.40

14 19.17

$8^h$  red. sec. spot.

36 18.9

Opt. or cluster.

57 16.4

Planet. neb.

$3^h 4^m$  w. 16.5 ab.  $23^h 3^m$

R.A.  $20^h +16.5$

0.0

6.5

DM.  $+16^{\circ}$  4162

26.0

0.4

DM.  $+16^{\circ}$  4166

75.

9.5

neb. 13 mag. n.

100.

8

DM.  $+16^{\circ}$  4171(?)

127.

3.8

DM.  $+16^{\circ}$  4177

Nov 14, 1883

|      | $\delta$ | Magn. | P. obs. |
|------|----------|-------|---------|
| 8.0  | 2.8      | 13    | a       |
|      | 5.7      | 13    | b       |
|      | 7.9      | 12.5  | c       |
| 12.5 | 3.2      | 13.   | neb     |
| 21.5 | 2.1      | 13.   | d       |

neb 2 a  
 b 1 neb  
 C 2 neb  
 neb 2 d

20.9  
 45 65.9 setting of bar minimum.  
 Southern half of square

~~39~~ 6.8  
~~42~~ 29.0  
 43 45.0 neb  
 44 5.5  
 35.5 - neb  
 51.0 3<sup>d</sup>  
 45 0.0  
 6.0 3<sup>d</sup>

~~41~~ 6.2  
~~41~~ 6.2

|    |      |      |                       |    |      |      |    |      |      |
|----|------|------|-----------------------|----|------|------|----|------|------|
| 45 | 51.0 | 46.0 | a 1 <sup>st</sup> bar | 48 | 48.0 | 46.0 | 51 | 43.2 | 46.3 |
| 46 | 37.0 |      | a 2 <sup>d</sup> ..   | 49 | 34.0 |      | 52 | 29.5 |      |
| 47 | 6.0  |      | neb 1 <sup>st</sup>   | 50 | 3.0  |      |    | 59.0 |      |
|    | 27.0 |      | b. 1 <sup>st</sup>    |    | 24.0 |      | 53 | 19.0 | 51.4 |
|    | 58.0 | 52.0 | neb. 2d               |    | 55.3 | 52.3 |    | 50.4 |      |
| 48 | 12.5 | 54.5 | c 1 <sup>st</sup>     | 51 | 9.5  | 53.0 | 54 | 4.5  | 55.3 |
|    | 21.5 |      | b 2d                  |    | 19.0 |      |    | 14.3 |      |
|    | 28.0 | 15.5 | c 2d                  |    | 25.5 | 16.0 |    | 21.0 | 16.5 |



Nov 4. 1883.

|                              |                      |         |        |     |        |         |
|------------------------------|----------------------|---------|--------|-----|--------|---------|
| $a = Dm + 16^\circ 41' 62''$ | $+ 1^\circ 18' 15''$ | $Dm$    | $46.1$ | $n$ | $5.5$  | $41.8$  |
| $b = Dm + 16^\circ 41' 66''$ | $p$                  | $26.0$  | $54.9$ | $s$ | $3.0$  | $21.6$  |
| $c = Dm + 16^\circ 41' 71''$ | $p$                  | $48.25$ | $16.0$ | $n$ | $36.9$ | $258.5$ |
| $d = Dm + 16^\circ 41' 77''$ |                      |         |        |     |        |         |

nb.

51.9

This Nov. is Dreyer 6879.

Susp. var. 549 ( $19^h 26^m 14^s + 17^\circ 24'.9$ )

25 47.5

26 27.5

26 53.0

27 9.0

27 44.3

S. and C. Br.

Star X identified.

No star seen  $2''$  north of it, or in that immediate neighborhood. There is a star  $16''$  following, nearly  $2'$  north.

Sun for planet nb.

Jpl.  $3^h 20^m$  East.Begin at  $1^h 0^m$ 

25

38.6

Dec 438  $6-6.5^\circ$ 

IV. 8 mag

Nov. 4, 1883.

B. G. 1182

13 12 0.3

13 0.3

13 12 34

23 41

13 36 15

1

13 37 15

13 26 44

59

27 11

25

35

46

28 0

9

23

40

52

29 5

20

31

42

55

30 13

25

43

50

B. 394<sup>44.5</sup>

13 11 0.0

12 0.0

-1<sup>m</sup> 15.8

Disappearance of  
Jupiter I. P. Obs. S. rec.  
Compared with Satellite II.  
Photometer R.

278.3

27.0

282.6

34.3

277.6

30.2

278.1

32.4

281.4

33.2

279.3

32.3

276.6

29.3

278.7

27.9

282.3

31.6

278.7

36.3



Nov. 4, 1883.

13 31 5 281.8

16 30.3

44 281.4

53 24.3

32 1 281.4

10 30.6

18 279.9

28 25.3

38 280.1

49 26.6

57 281.4

33 16 28.3

17 285.3

27 25.4

34 283.2

48 31.3

58 280.3

34 11 33.2

19 279.8

29 32.1

36 283.0

46 32.2

54 280.6

35 6 29.3

15 281.4

28 32.3

36 281.4

44 26.9

Nov. 4, 1883.

|     |    |    |       |
|-----|----|----|-------|
| 13  | 35 | 52 | 283.9 |
|     | 36 | 2  | 23.9  |
|     |    | 10 | 284.5 |
|     |    | 16 | 24.2  |
|     |    | 25 | 291.2 |
|     |    | 36 | 21.4  |
|     |    | 43 | 286.3 |
|     |    | 50 | 17.8  |
|     |    | 56 | 293.6 |
| 37  |    | 1  | 14.3  |
|     |    | 8  | 286.9 |
|     |    | 15 | 17.4  |
|     |    | 22 | 292.3 |
|     |    | 29 | 14.6  |
|     |    | 36 | 300.2 |
|     |    | 43 | 6.5   |
|     |    | 50 | 303.6 |
|     |    | 58 | 359.2 |
| 38. |    | 3  | 308.1 |
|     |    | 9  | 352.8 |
|     |    | 19 | 306.3 |

Limit of visibility

|    |    |    |       |
|----|----|----|-------|
| 13 | 39 | 22 | 318.5 |
|    |    | 45 | 347.2 |
|    |    | 57 | 314.3 |
|    | 40 | 10 | 352.6 |



Nov. 4, 1883

B 8 C. 1182  
 13 46 59.8  
 47 59.8

B. 394  
 13 46 0.0<sup>44.5</sup>  
 13 47 0.0  
 -1<sup>m</sup> 15<sup>s</sup> 3

~~Comet 1A12 (Brooks) N. 10.~~

~~17 13  
 3 1  
 ———  
 9 4.8  
 451.8~~

196

Nov. 5, 1883.  
 ♂ Andromeda. P. Sh.

McClean Spectroscope.

t 21 33.1

2 54.5

80.0

24 27.6

32.9

30.2

8.3

0 21.8 ~~7~~

17.2

17.9

21 41

47 Psc.

2 42

21 47.3

2 28.5

17.0

0 15.8

0 21.8

6.0

21 57.1

57 Psc.

0 40.3

14.5

2 43

0 40.3

22 2

2 38



Nov. 5. 1883.

$\delta$  Aquilae.  
 19 20 + 2.9  
 22 30  
 +3 10

N. obs.

~~Star~~  
 Stars fol.  $\delta$  Ag. in Northern Half. N. obs.  
 t Dec. Magn.

|    |    |                                |                               |                     |      |      |   |
|----|----|--------------------------------|-------------------------------|---------------------|------|------|---|
| 1  | 2  | # 0 star fol. $\delta$ Aquilae | 2 <sup>m</sup> 0 <sup>s</sup> | 1 <sup>m</sup> 52.7 | 7.7  | 12.5 | 2 |
| #  | 3  | 1 <sup>s</sup>                 | 1 <sup>m</sup> 59.3           | 8.3                 | 13.0 | 3    |   |
| 2  | 4  | 0.7                            | 2 1.3                         | 8.2                 | 12.8 | 4    |   |
|    |    | Same time                      | 2 2                           | 7.1                 | 13.7 |      |   |
|    |    | 8 <sup>s</sup>                 | 2 10                          | 9.0                 | 13.8 |      |   |
| 3  | 5  | 8 <sup>s</sup>                 | 2 12.3                        | 6.3                 | 12.8 | 5    |   |
| 4  | 6  | 3.5                            | 2 21.0                        | 8.7                 | 12.6 | 6    |   |
| 5  | 7  | 4 <sup>s</sup>                 | 2 26.3                        | 6.0                 | 13.0 | 7    |   |
|    |    | 4 <sup>s</sup>                 | 2 28                          | 5.5                 | 13.8 |      |   |
|    |    | 0.3                            | 2 28                          | 7.0                 | 13.0 |      |   |
|    | 8  | 4 <sup>s</sup>                 | 2 31                          | 8.2                 | 13.0 |      |   |
|    | 9  | 0.1                            | 2 31                          | 9.2                 | 13.9 |      |   |
|    |    | 4 <sup>s</sup>                 | 2 33.5                        | 8.1                 | 13.2 | 8    |   |
| 10 |    | 5 <sup>s</sup>                 | 2 40                          | 6.5                 | 13.0 |      |   |
|    | 9  | 5 <sup>s</sup>                 | 2 46.4                        | 9.7                 | 12.5 | 9    |   |
|    |    | 0.5                            | 2 47                          | 9.3                 | 14.0 |      |   |
|    |    | 2 <sup>s</sup>                 | 2 49                          | 5.2                 | 13.4 |      |   |
|    |    | 0.2                            | 2 49                          | 6.1                 | 14.0 |      |   |
|    |    | 2 <sup>s</sup>                 | 2 51                          | 9.0                 | 13.7 |      |   |
|    | 10 | 0.8                            | 2 51.3                        | 7.0                 | 12.8 | 10   |   |
|    |    | 7 <sup>s</sup>                 | 2 59.4                        | 8.0                 | 12.5 |      |   |
|    |    | 0.3                            | 3 0                           | 5.9                 | 13.4 |      |   |

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|    |               | t                         |   | Decl.             | Magn.           |                  |
|----|---------------|---------------------------|---|-------------------|-----------------|------------------|
| f  |               | 15 <sup>s</sup>           | 3 | 12.4              | 5.5             | 13.5             |
| 10 | <del>11</del> | 11 <sup>s</sup>           | 3 | <del>27.5</del> ✓ | 8.8             | 11               |
|    | <del>12</del> | 16 <sup>s</sup>           | 3 | 24.0              | 10.0            | 13.6             |
| 11 | <del>13</del> | 12 <sup>s</sup>           | 3 | 46.7              | 9.5             | 12.7             |
|    | <del>14</del> | 5 <sup>s</sup>            | 3 | 50.7              | 9.8             | 13.1             |
|    |               | <del>11<sup>s</sup></del> |   | <del>5.6</del>    | <del>10.7</del> | <del>14</del> 13 |
| 12 | <del>15</del> | 8 <sup>s</sup>            | 4 | 0.3               | 8.0             | 13.8             |
|    | <del>16</del> | 2 <sup>s</sup>            | 4 | 3.3               | 7.4             | 13.6             |
|    |               | 2 <sup>s</sup>            | 4 | 6                 | 8.6             | 9.0              |
|    | 4             | 2 <sup>s</sup>            | 4 | 8                 | Same            | 13.0             |
|    |               | 0.1                       | 4 | 8                 | 5.1             | 13.3             |
|    |               | 5 <sup>s</sup>            | 4 | 13                | 9.9             | 13.5             |
|    |               | 0.8                       | 4 | 14                | 9.9             | 13.9             |
|    |               | 3.5                       | 4 | 14                | 9.7             | 13.5             |
|    |               | 2.5                       | 4 | 21                | 6.0             | 13.3             |
|    |               | 3.5                       | 4 | 24                | 5.1             | 13.7             |
| 14 |               | 0.7                       | 4 | 25                | 9.8             | 13.5             |
|    |               | 5.0                       | 4 | 31                | 8.0             | 13.7             |
|    |               | 1 <sup>s</sup>            | 4 | 32                | 6.7             | 13.8             |
|    |               | 0.5                       | 4 | 33                | 5.3             | 14.0             |
|    |               | 2 <sup>s</sup>            | 4 | 35                | 6.2             | 13.9             |
|    |               | 2 <sup>s</sup>            | 4 | 37                | 6.3             | 14.3             |
|    |               | 1 <sup>s</sup>            | 4 | 34                | 5               | 14.0             |
|    |               | 7 <sup>s</sup>            | 4 | 46                | 5.3             | 12.0             |
|    |               | 6.5                       | 4 | 53.6              | 5.3             | 12.5             |
|    |               | 2 <sup>s</sup>            |   | 54                | 9.5             | 13.0             |
|    |               | 7.5                       | 4 | 56.3              | 8               | 10.8             |
|    |               | 13.5                      | ✓ | 0.0               | 7.3             | 13.2             |
|    |               | 4.5                       | ✓ | 4                 | 9.5             | 13.8             |
|    |               | 4.5                       | ✓ | 9                 | 9               | 13               |
|    |               |                           |   |                   |                 | 17               |
|    |               |                           |   |                   |                 | 18               |
|    |               |                           |   |                   |                 | 19               |



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| t                  |   |      | Decl. | Magn. |                |
|--------------------|---|------|-------|-------|----------------|
| 0 <sup>s</sup> .3  | ✓ | 9    | 8     | 13.2  |                |
| 0 <sup>s</sup> .1  | ✓ | 9    | 6     | 13.8  |                |
| 2 <sup>s</sup> .5  | ✓ | 11   | 6     | 14.0  |                |
| 1 <sup>s</sup> .0  | ✓ | 12   | 7     | 14.0  |                |
| 3 <sup>s</sup> .0  | ✓ | 15   | 8     | 14.5  |                |
| 2 <sup>s</sup> .0  | ✓ | 16.5 | 5     | 13.7  | 20             |
| 2 <sup>s</sup> .0  | ✓ | 20   | 6     | 10.0  |                |
| 2 <sup>s</sup> .0  | ✓ | 24.3 | 9     | 13.7  | 21             |
| 5 <sup>s</sup> .8  | ✓ | 26   | 9.9   | 12.0  |                |
| 9 <sup>s</sup> .0  | ✓ | 32.7 | 5     | 10.3  |                |
| 5 <sup>s</sup> .0  | ✓ | 34.3 | 8     | 11.0  | 22             |
| 12 <sup>s</sup> .0 | ✓ | 50.0 | 9.2   | 13.3  | 23             |
| 2 <sup>s</sup> .5  | ✓ | 52.3 | 6.5   | 12.0  | 24             |
| 16 <sup>s</sup> .0 | 6 | 5.0  | 9.7   | 10.8  | 25<br>65 stars |

Stars following  $\delta$  Aquilae. (Southern half.)  
W. O. L.

| <del>Stars</del> | t                 |                     | Decl. | Magn. |   |
|------------------|-------------------|---------------------|-------|-------|---|
| 0 Star.          | 0 <sup>s</sup>    | 1 <sup>m</sup> 58.8 | 7.7   | 12.5  | 1 |
|                  | 1 <sup>s</sup> .5 | 2                   | 4.5   | 14.0  |   |
|                  | 8 <sup>s</sup>    | 2                   | 7.7   | 13.9  | 2 |
|                  | 9 <sup>s</sup>    | 2                   | 17.7  | 13.6  | 3 |
|                  | 4 <sup>s</sup> .8 | 2                   | 22.3  | 13.7  |   |
|                  | 6 <sup>s</sup>    | 2                   | 27.7  | 14.0  | 4 |
|                  | 3 <sup>s</sup> .5 | 2                   | 32    | 13.9  |   |
|                  | 3 <sup>s</sup>    | 2                   | 35.7  | 12.0  | ✓ |
|                  | 0 <sup>s</sup> .5 | 2                   | 37    | 12.7  |   |
|                  | 0 <sup>s</sup> .6 | 2                   | 38    | 12.8  |   |
|                  | 4 <sup>s</sup>    | 2                   | 42    | 13.5  |   |

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| t                |                | Decl.    | Magn. |    |
|------------------|----------------|----------|-------|----|
| 3 <sup>s</sup>   | 2 <sup>m</sup> | 46.0 4.0 | 10.8  | 6  |
| 4 <sup>s</sup>   | 2              | 52 3.7   | 14.0  |    |
| 3 <sup>s</sup>   | 2              | 55. 2.8  | 14.0  |    |
| 0.1              | 2              | 55.5 2.2 | 13.5  | 7  |
| 6 <sup>s</sup>   | 3              | 2 4.0    | 14.0  |    |
| 2 <sup>s</sup>   | 3              | 4.7 4.3  | 13.7  | 8  |
| 1 <sup>s</sup>   | 3              | 6 3.5    | 14.0  |    |
| 7 <sup>s</sup>   | 3              | 13 3.0   | 13.8  |    |
| 7 <sup>s</sup>   | 3              | 19.7 4.0 | 10.4  | 10 |
| 1 <sup>s</sup>   | 3              | 21.7 4.2 | 10.2  | 11 |
| 5 <sup>s</sup>   | 3              | 25 3.0   | 14.3  |    |
| 8 <sup>s</sup>   | 3              | 33 4.7   | 13.9  |    |
| 5 <sup>s</sup>   | 3              | 38 4.8   | 14.0  |    |
| 7 <sup>s</sup>   | 3              | 45.7 2.5 | 13.0  | 12 |
| 4 <sup>s</sup>   | 3              | 49 4.5   | 13.9  |    |
| 6 <sup>s</sup>   | 3              | 54 3.0   | 14.0  |    |
| 9 <sup>s</sup>   | 4              | 1.7 3.0  | 8.7   | 13 |
| 10 <sup>s</sup>  | 4              | 2.7 4.0  | 10.5  | 14 |
| 1 <sup>s</sup>   | 4              | 4 2.8    | 13.0  |    |
| 1.5 <sup>s</sup> | 4              | 6 2.9    | 13.0  |    |
| 1 <sup>s</sup>   | 4              | 7 0.2    | 13.0  |    |
| 0.8              | 4              | 9 4.0    | 12.8  |    |
| 1 <sup>s</sup>   | 4              | 10 0.5   | 13.5  |    |
| 0.1              | 4              | 11 0.8   | 13.0  |    |
| 0.1              | 4              | 12 1.8   | 13.5  |    |
| 4 <sup>s</sup>   | 4              | 17 2.0   | 13.4  |    |
| 0.8              | 4              | 17.7 1.9 | 13.5  | 15 |
| 1 <sup>s</sup>   | 4              | 19 0.9   | 13.5  |    |
| 1 <sup>s</sup>   | 4              | 20 2.1   | 13.8  |    |



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| $t$                      |   | Decl.          | Magn.           |    |
|--------------------------|---|----------------|-----------------|----|
| 3 <sup>s</sup>           | 4 | 24.4 2.0       | 13.2            | 16 |
| 1 <sup>s</sup>           | 4 | 26 1.0         | 13.4            |    |
| 7 <sup>s</sup>           | 4 | 33.7 3.8       | 12.4            | 17 |
| 3.8                      | 4 | 37 1.0         | 13.3            |    |
| 5.5                      | 4 | 42.4 4.5       | 10.8            | 18 |
| 4.0                      | 4 | 46.7 3.9       | 10.8            | 19 |
| 16 <sup>s</sup>          | ✓ | 2.7 1.2        | 11.5            | 20 |
| 9 <sup>s</sup>           | ✓ | 13 0.8         | 13.5            |    |
| <del>2<sup>s</sup></del> |   | <del>2.7</del> | <del>13.5</del> |    |
| 1 <sup>s</sup>           | ✓ | 14 5.0         | 13.2            |    |
| 1 <sup>s</sup>           | ✓ | 15 0.8         | 13.5            |    |
| 1 <sup>s</sup>           | ✓ | 15.7 5.0       | 13.2            | 21 |
| 3.5                      | ✓ | 18 4.6         | 13.9            |    |
| 9 <sup>s</sup>           | ✓ | 26.7 3.0       | 13.5            | 22 |
| 5 <sup>s</sup>           | ✓ | 32.7 4.9       | 10.0            | 23 |
| 3 <sup>s</sup>           | ✓ | 36 2.0         | 13.5            |    |
| 6 <sup>s</sup>           | ✓ | 41 2.5         | 14.0            |    |
| 4 <sup>s</sup>           | ✓ | 45 1.8         | 13.8            |    |
| 2 <sup>s</sup>           | ✓ | 48.7 2.8       | 13.5            | 24 |
| 13 <sup>s</sup>          | 6 | 0 2.0          | 13.7            |    |
| 3 <sup>s</sup>           | 6 | 2 4.5          | 14.3            |    |
| 3.5                      | 6 | 4.9 0.8        | 11.5            | 25 |
| 0.1                      |   | 0.3            | 12.5            |    |
| <del>7<sup>s</sup></del> |   | <del>2.7</del> | <del>14.5</del> |    |
| <del>4<sup>s</sup></del> |   | <del>3.7</del> | <del>14.5</del> |    |
| 6 <sup>s</sup>           |   | 5.0            | 14.4            |    |
| 1 <sup>s</sup>           |   | 4.5            | 14.4            |    |
| 3.5                      |   | 0.7            | 12.3            |    |
| 2 <sup>s</sup>           |   | 3.5            | 12.5            |    |

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| t              | Decl. | Magn. |
|----------------|-------|-------|
| 1 <sup>s</sup> | 5.0   | 8.7   |
| 0.5            | 0.6   | 12.5  |

6856m.

Began with star 1<sup>m</sup> 52.5 Stars following  
 & Aquilae. S. obs.

Note Nov. 14, 1883. There is a confusion  
 here between two stars of magn. 13 at 8<sup>h</sup> 11<sup>m</sup>  
 one of which does follow & Aquilae 1<sup>m</sup> 52.5  
 while the other follows 2<sup>m</sup> 8, only has a brighter  
 star about the same 2<sup>m</sup> 8.

| Star foll. a                   | Decl.                 | Magn.        | S. obs.   |
|--------------------------------|-----------------------|--------------|-----------|
| (see R108, pp. 14, 27) (129.3) | 1 <sup>s</sup> 129    | 0.8 0.3      | 12.3 12.5 |
| (129.8)                        | 0.5 129.5             | 1.5          | 13.5      |
| (130.8)                        | 1 <sup>s</sup> 130.5  | 7.0          | 14.0      |
| 134.0 132.7                    | 3 <sup>s</sup> 133.5  | 7.5          | 12.8      |
| 134.8 134.6                    | 2 <sup>s</sup> 135.5  | 1.0          | 13.5      |
| (135.8)                        | 1 <sup>s</sup> 136.5  | 6.0          | 14.5      |
| 140.7                          | 4 <sup>s</sup> 140.5  | 6.5          | 13.0      |
| 142.7? 148.3                   | 7 <sup>s</sup> 147.5  | 4.5          | 14.0      |
| 150.4                          | 2 <sup>s</sup> 149.5  | 0 6.3 6.0    | 11.8 12.8 |
| 157.0 154.0                    | 6 <sup>s</sup> 155.5  | +1.5 6.0 5.3 | 11.9 12.8 |
| 157.6 154.8                    | 1 <sup>s</sup> 156.5  | 1.0          | 11.5      |
| 158.9 159.9                    | 3 <sup>s</sup> 159.5  | 3.5          | 13.0      |
| 160.9?                         | 2 <sup>s</sup> 161.5  | +1.0 1.8 1.5 | 7.7 9.0   |
| 162.5 161.9                    | 5 <sup>s</sup> 166.5  | +0.4 2.0 1.8 | 11.0 11.5 |
| 166.7                          | 2 <sup>s</sup> 168.5  | 8.5          | 11.5      |
| 168.2                          | 1 <sup>s</sup> 169.5  | 2.1          | 13.0      |
| 170.9 170.4                    | 1 <sup>s</sup> 170.5  | 9.5          | 12.8      |
| (171.9)                        | 1 <sup>s</sup> 171.5  | 4.0          | 13.3      |
| 172.9                          | 1 <sup>s</sup> 172.5  | 9.0          | 10.8      |
| 174.5?                         | 2 <sup>s</sup> 174.5  | 3.8          | 12.5      |
| 187.7                          | 15 <sup>s</sup> 187.5 | 3.5          | 12.7      |
| 189.9                          | 2 <sup>s</sup> 191.5  | -2.0 6.0 5.3 | 9.2 9.5   |



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|        | $t$   |                 | Decl.      |         | Magn.     |
|--------|-------|-----------------|------------|---------|-----------|
| 192.5  | 194.5 | 3 <sup>s</sup>  | 194.5      | 0.5     | 11.5      |
| 198.5? |       |                 |            |         |           |
| 202.1  | 202.0 | 10 <sup>s</sup> | 204.5-24   | 2.3 2.0 | 10.5 10.3 |
| 207.1? |       |                 |            |         |           |
| 210.7  | 207.7 | 2 <sup>s</sup>  | 206.5      | 4.0     | 13.2      |
| 207.1  | 207.7 | 4 <sup>s</sup>  | 210.5      | 6.2     | 13.0      |
| 214.7  |       |                 |            |         |           |
| 216.5  | 212.5 | 2 <sup>s</sup>  | 212.5      | 4.0     | 13.5      |
| 217.4  |       | 1 <sup>s</sup>  | 213.5      | 1.0     | 13.2      |
| 220.6  | 218.5 | 4 <sup>s</sup>  | 217.5      | 8.5     | 13.3      |
| 221.7  |       | 3 <sup>s</sup>  | 220.5      | 1.2     | 12.2      |
| 224.9  | 22    | 1 <sup>s</sup>  | 221.5      | 7.5     | 12.2      |
| 225.6  | 222.1 | 1 <sup>s</sup>  | 222.5+3.2  | 6.0 6.2 | 11.0 12.5 |
| 226.9  |       | 1 <sup>s</sup>  | 222.5      | 1.2     | 11.5      |
| 228.5  |       | 3 <sup>s</sup>  | 226.5      | 9.5     | 12.7      |
| 230.9  | 230.7 | 2 <sup>s</sup>  | 228.5      | 9.0     | 12.5      |
| 232.9  |       | 8 <sup>s</sup>  | 236.5      | 7.3     | 12.2      |
| 241.3  | 239.6 | 2 <sup>s</sup>  | 238.5 +5.0 | 2.7 2.4 | 8.8 11.2  |

The last star in this series follows the first star by  $1^m 30^s$   $1^m 55^s$  (see R 108, pp. 14, 27.)

|       |       |                 |       |     |      |
|-------|-------|-----------------|-------|-----|------|
| 245   | 240.5 | 2 <sup>s</sup>  | 240.5 | 4.3 | 13.3 |
| 248   | 243.5 | 3 <sup>s</sup>  | 243.5 | 5.8 | 13.0 |
| 249   | 246   | 3 <sup>s</sup>  | 246   | 1.8 | 13.3 |
| 250   | 247   | 1 <sup>s</sup>  | 247   | 6.2 | 13.8 |
| 251   | 248   | 1 <sup>s</sup>  | 248   | 8.3 | 13.4 |
| 253   | 250   | 2 <sup>s</sup>  | 250   | 3.3 | 13.5 |
| 255.1 | 252   | 2 <sup>s</sup>  | 252   | 7.8 | 12.0 |
| 256   | 253   | 1 <sup>s</sup>  | 253   | 1.7 | 12.7 |
| 257   | 254   | 1 <sup>s</sup>  | 254   | 9.7 | 11.2 |
| 258   | 256   | 2 <sup>s</sup>  | 256   | 9.3 | 12.5 |
| 264.2 | 266   | 10 <sup>s</sup> | 266   | 7.5 | 11.7 |
| 267   | 269   | 3 <sup>s</sup>  | 269   | 3.0 | 9.0  |

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|       |       | t                        |     | Decl.          | Magn.           |
|-------|-------|--------------------------|-----|----------------|-----------------|
| 268   |       | 2 <sup>s</sup>           | 271 | 9.5            | 14.0            |
|       |       | <del>2<sup>s</sup></del> |     | 10.6           | 13.0            |
| 275.0 |       | <del>2<sup>s</sup></del> | 178 | <del>7.2</del> | <del>11.5</del> |
| 276.1 | 269.5 | 1 <sup>s</sup>           | 279 | 7.3            | 11.5            |
| 282.0 | 277.1 | 9 <sup>s</sup>           | 284 | 7.2            | 13.0            |
| 286   | 283.7 | 4 <sup>s</sup>           | 293 | 6.2            | 13.3            |
| 287   | (285) | 1 <sup>s</sup>           | 294 | 2.3            | 13.2            |
| 289   | (288) | 3 <sup>s</sup>           | 297 | 4.0            | 13.3            |
| 290   | (289) | 1 <sup>s</sup>           | 298 | 1.0            | 12.0            |
| 290   | (289) | 0 <sup>s</sup>           | 298 | 0.2            | 12.0            |
| 291   | (290) | 1 <sup>s</sup>           | 299 | 7.5            | 13.5            |
| 294   | 293.4 | 4 <sup>s</sup>           | 303 | 8.0            | 13.0            |
| 297   | 296.7 | 3 <sup>s</sup>           | 306 | 6.0            | 13.3            |
| 297.5 | 297.7 | 1 <sup>s</sup>           | 307 | 3.2            | 13.1            |
| 301   |       | 6 <sup>s</sup>           | 313 | 2.2            | 12.8            |
| 302   | 307.8 | 1 <sup>s</sup>           | 314 | 3.8            | 12.8            |
| 307.8 | 308.4 | 10 <sup>s</sup>          | 324 | 0.2            | 11.5            |
|       | 309.5 |                          |     |                |                 |
| 310   | 312.3 | 1 <sup>s</sup>           | 325 | 9.0            | 12.0            |
| 312   | 316.6 | 1 <sup>s</sup>           | 326 | 5.0            | 13.2            |
| C     | 316.2 | 2 <sup>s</sup>           | 328 | -11.5 3.5 3.5  | 9.5 12.0        |

The last star in this series follows the first  
 one by 1<sup>m</sup> 13<sup>s</sup> [Apparently error in time; see last transits.]  
 1<sup>m</sup> 13<sup>s</sup> is right (see R<sup>108</sup>, p. 14, 27).

|         |       |                |           |         |          |
|---------|-------|----------------|-----------|---------|----------|
| 319     |       | 2 <sup>s</sup> | 330       | 0.2     | 13.0     |
| 323     |       | 3 <sup>s</sup> | 333       | 2.0     | 12.2     |
| 327     | 324.9 | 3 <sup>s</sup> | 336       | 2.4     | 12.0     |
| 329     | 330.9 | 2 <sup>s</sup> | 338       | 5.5     | 13.0     |
| 330     |       | 1 <sup>s</sup> | 339       | 8.0     | 13.2     |
| 331.2   |       | 0 <sup>s</sup> | 339 - 7.5 | 3.5 3.5 | 9.2 11.8 |
| 339     |       | 6 <sup>s</sup> | 345 - 5.5 | 6.2 5.0 | 9.2 12.0 |
| ? 344.0 |       | 4 <sup>s</sup> | 349 - 4.5 | 7.4 6.0 | 8.8 11.5 |



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|             | t               |           | Decl.   |  | Magn.     |
|-------------|-----------------|-----------|---------|--|-----------|
| 344         | 0 <sup>s</sup>  | 349       | 2.2     |  | 12.0      |
| 349 349.7   | 3 <sup>s</sup>  | 352 -2.3  | 8.3 7.0 |  | 9.0 11.6  |
| 357 357.3   | 7 <sup>s</sup>  | 359       | 3.5     |  | 13.0      |
| 360.3 360.0 | 2 <sup>s</sup>  | 361 -0.5  | 2.0 1.0 |  | 8.3 9.5   |
|             | 1 <sup>s</sup>  | 362       | 7.2     |  | 13.3      |
|             | 0 <sup>s</sup>  | 362       | 0.5     |  | 13.0      |
|             | 3 <sup>s</sup>  | 365       | 9.5     |  | 11.8      |
| 370.8       | 4 <sup>s</sup>  | 369       | 7.3     |  | 12.3      |
|             | 6 <sup>s</sup>  | 375 +11   | 5.0 4.8 |  | 9.6 12.5  |
|             | 2 <sup>s</sup>  | 377       | 0.3     |  | 10.0      |
|             | 12 <sup>s</sup> | 389       | 6.5     |  | 13.0      |
|             | 0 <sup>s</sup>  | 389 +15.5 | 9.5 9.4 |  | 10.2 12.2 |
|             | 10 <sup>s</sup> | 399       | 4.2     |  | 12.5      |
|             | 1 <sup>s</sup>  | 400       | 0.3     |  | 10.5      |
|             | 1 <sup>s</sup>  | 401       | 5.1     |  | 10.0      |
|             | 4 <sup>s</sup>  | 405 +14.5 | 6.5 5.7 |  | 7.8 9.8   |
|             | 5 <sup>s</sup>  | 410 +14.7 | 4.0 3.6 |  | 8.5 10.2  |

d

The last star ~~of~~ of this series follows the first one by 1<sup>m</sup> 49<sup>s</sup> (right; see R 108, p. 14).

~~On~~ ~~the~~ ~~stars~~ ~~were~~ ~~incorrectly~~ ~~identified~~; (see R 108, p. 14, 27).  
 Reject following transits and the final remark; the stars were incorrectly identified; (see R 108, p. 14, 27).  
 Stop watch - Decl Magn.

|                      |                          |                          |                |                 |
|----------------------|--------------------------|--------------------------|----------------|-----------------|
| <del>♂ Aquilae</del> | <del>0<sup>m</sup></del> | <del>0<sup>s</sup></del> | <del>5.0</del> |                 |
| <del>a</del>         | <del>1</del>             | <del>51.5</del>          | <del>4.0</del> | <del>12.5</del> |
| <del>b</del>         | <del>3</del>             | <del>21.0</del>          | <del>1.8</del> | <del>8.8</del>  |
| <del>c</del>         | <del>5</del>             | <del>15.5</del>          | <del>2.6</del> | <del>9.5</del>  |
| <del>d</del>         | <del>7</del>             | <del>4.0</del>           | <del>3.0</del> | <del>8.7</del>  |

Between a and b, in the full list pp. 202, 203, the telescope shifted about 1" in declination, as is shown by the final transits.

Nov. 5, 1883 -

|                |                     |   |        |               |         |
|----------------|---------------------|---|--------|---------------|---------|
|                | 27a                 | S | Amigae | <del>27</del> | S. obs. |
| 8              | 18                  |   | 34     | 40            |         |
| 1              | 28                  |   | 1      | 28            |         |
| <hr/>          |                     |   | <hr/>  |               |         |
| 7 <sub>5</sub> | <del>46</del><br>10 |   | 5      | 8             |         |

S fol. comp. star to 22<sup>s</sup> and is  
3.5 north of b

Star of fol. to 8.5 and is 4' north -

10 45 Color of S = 6 on a scale of 10. Magn. 12.7  
d 2 f f 1 e f. obs.

11 2 S 2 ~~e~~ e, c 3 S P. obs.

U. Gen.

11 15 e 2 u. u 3 b g 3 d d 1 e S obs.

11 25 e 3 u ~~u 2 b~~ ~~u 2 b~~ d ~~4~~ u c obs.  
u ~~6~~ a

11 30 e 3 u, u 2.5 b, d 4.5 u, u 5.5 a H. obs.

Comet 1812 (Brooks) W. obs.

17 13 + 51.8  

---

3 1  
14 12



Nov. 5. 1883.

Comet ~~was~~ quite near horizon. Has about its usual appearance.

Nucleus somewhat stellar but not nearly as bright <sup>absolutely</sup> (as well as can be determined at its low altitude) <sup>or</sup> relatively to surrounding nebulosity as when last seen. Total nebulosity about 3' diameter.

Spectrum apparently continuous.

Nebulosity distinct and marked whereas the other night it was faint. W. obs.

208

Nov. 6, 1883

U. A. Standards. No. 34

East Equat. Phot. H.

P. obs.

12. comp. brighter

123.1

68.3<sup>5</sup>^

188.4

304.9

63.0^

7.9

123.3^

3.0^

8 43

300.0

67.6^

S obs

7.6

122.5

64.7<sup>9</sup>^

189.4

132.3<sup>5</sup>^

2.9^

8 46

Clouds came on



Nov. 7 1883

6 10 U.C. Standard 490 P. obs. Foll. brighter  
 225.6 48.1<sup>^</sup>  
 273.7  
 43.7 49.9<sup>^</sup>  
 93.6 98.0<sup>^</sup> 3.7<sup>✓</sup>

6 15 222.0 52.5<sup>^</sup> S. obs.  
 274.5  
 45.9 48.6<sup>^</sup>  
 94.5 101.1<sup>^</sup> 3.6<sup>✓</sup>

6 20 U.C. Standard 496 P. obs. P. brighter.  
 122.6  
 195.5 72.9<sup>^</sup> p.e. dis.  
 298.8 79.0<sup>^</sup>  
 17.8 151.9<sup>^</sup> 2.5<sup>✓</sup>

6 25 99.2 100.4<sup>^</sup> - full obs. S. obs.  
 199.6  
 19.4 103.5<sup>^</sup>  
 123.0 204.0<sup>^</sup>  
 156.0 2.5<sup>✓</sup>

210

Nov. 7, 1883.

U. A. standard

5141

P. obs. Foll. brighter.

6 28

209.0

292.2

83.2<sup>^</sup>

27.9

111.4

83.5<sup>^</sup>166.7<sup>^</sup> 2.3<sup>✓</sup>

6 32

206.8

291.2

84.4<sup>^</sup>

26.4

111.9

85.5<sup>^</sup>169.9<sup>^</sup> 2.2<sup>✓</sup>

S. obs.

U. A. standard 34

212.2

282.2

70.0<sup>^</sup> m. dis.

34.8

101.0

66.2<sup>^</sup>136.2<sup>^</sup> 2.9<sup>✓</sup>

S. obs. P. brighter

6 46

6 50

30.0

102.4

215.0

283.2

~~68.4~~72.4<sup>^</sup>68.2<sup>^</sup>~~136.6~~140.6<sup>^</sup> 2.4<sup>✓</sup>

P. obs.



Nov. 7. 1883.

γ S. Cassio.

W. obs.

$$\begin{array}{r}
 1 \quad 4 \quad + 72.0 \\
 22 \quad 32 \\
 \hline
 - 22 \quad 30
 \end{array}$$

$$\begin{array}{r}
 1 \quad 10 \\
 22 \quad 57 \\
 \hline
 - 2 \quad 13
 \end{array}$$

$$\begin{array}{r}
 23 \quad 7 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 2 \quad 3
 \end{array}$$

8 v

Variable estimated at 12.9 magn.  
 " equals star 4<sup>s</sup> price.  
 1.3 minutes north

11 R Arctis

W. obs.

$$\begin{array}{r}
 2 \quad 7 \quad + 24.4 \\
 23 \quad 16 \\
 \hline
 - 2 \quad 51
 \end{array}$$

Var. estimated at 13 Magn.

" = star in same R.A. 3.3 South

Nov. 7. 1883.

10  $\beta$  Arietis.

Tr. obs.

$$\begin{array}{r}
 1 \quad 55 \quad +12.0 \\
 23 \quad 34 \\
 \hline
 -2 \quad 17
 \end{array}$$

Var. seen, but very faint. Near  
limit of visibility Est. mag. 14.4

14 R Ceti

Tr. obs.

$$\begin{array}{r}
 2 \quad 23 \quad -0.3 \\
 27 \quad 50 \\
 \hline
 -2 \quad 33
 \end{array}$$

8 53 Variable not seen

$$\begin{array}{r}
 1 \quad 24 \\
 0 \quad 7
 \end{array}$$



Nov. 7, 1883.

Re-vision of Vol. VI. See next page for remarks. S. obs.

| No.               |   |    |      | Diff. from No. 98 | Diff. from No. 97 |     | Diff. from No. 98 | Diff. from No. 97 | Magn. |
|-------------------|---|----|------|-------------------|-------------------|-----|-------------------|-------------------|-------|
|                   | 0 | 59 | 42.2 | 88.6              | 77.1              | 0   | -0.5              | -5.5              | 12.5  |
|                   |   |    | 44.6 | 86.2              | 74.7              | 87  | +3.2              | -1.8              | 12.0  |
| 94 (D.M. +0° 246) | 1 | 0  | 1.5  | 69.3              | 57.8              | 5.5 | +5.0              | 0.0               | 8.8   |
|                   |   |    | 15.0 | 55.8              | 44.3              | 9.7 | +9.2              | +4.2              | 11.0  |
| 97 (D.M. +0° 250) |   |    | 59.3 | 11.5              |                   | 5.5 | +5.0              |                   | 9.0   |
| 98 (D.M. +0° 251) |   | 1  | 10.8 |                   |                   | 0.5 |                   |                   | 7.8   |

|     | $\Delta \alpha$ from No. 111<br>These observations | Vol. VI.   |                                 |           | $\Delta \alpha$ from No. 111<br>Revision |     | $\Delta \delta$ from No. 111<br>These observations | Vol. VI.   |      | $\Delta \delta$ from No. 111<br>Revision |
|-----|--|------------|---------------------------------|-----------|--|-----|--|------------|------|--|
| 108 | 47.2, 48.3   | 47.8, 47.5 | 13 <sup>m</sup> 18 <sup>m</sup> | 16.3 24.0 | 48.4                                     | 2   | -3'  | -3.1, -3.0 | 9.5  | -3.7                                     |
| 109 | 16.3, 17.3   | 17.6       |                                 | 47.2 55.0 | 18.0, 17.7                               | 9   | +4'  | +4.3       | 12.0 | +3.8, +4.7                               |
| 110 | 14.9, 15.6   | 15.4, 15.3 |                                 | 48.6 56.7 | 15.5, 15.7                               | 3   | -2'  | -2.3, -2.1 | 10.5 | -2.2, -2.3                               |
| 111 |  |            | 14 19                           | 3.5 12.3  |  | 5   |  |            | 8.5  |  |
| 112 | 31.0, 30.8, 30.7                                   |            |                                 | 43.3      | 30.3, 30.4, 30.5                         | 7.5 | +2.5   | +3.2, +3.2 |      | +3.0, +3.5, +2.8                         |
|     | 32.9   |            |                                 | 45.2      | 32.6, 32.7, 32.5                         | 9.8 | +4.8   |            |      | +4.5, +5.2, +4.7                         |

|     | $\Delta \alpha$ from No. 116<br>These observations | Vol. VI.                                   |    |      |  | $\Delta \delta$ from No. 116<br>These observations | Vol. VI. |            |
|-----|--|--|----|------|--|--|----------|------------|
| 116 |  |  | 26 | 21.0 |  | 3.0  |          | 9.3        |
| 117 | 0 <sup>m</sup> 16.9                                | 0 <sup>m</sup> 17.15, 0 <sup>m</sup> 17.00 |    | 37.9 |  | 2.0  | -1.0     | 9.6        |
| 2   | 55.2   |  | 29 | 16.2 |  | 8.3  | +5.3     |            |
| 2   | 56.2   |  |    | 17.2 |  | 6.2  | +3.2     |            |
| 3   | 18.6   | 3 9.49, 3 9.63                             |    | 39.6 |  | 7.2  | +4.2     |            |
| 119 | 3 26.5   | 3 26.89, 3 26.68                           |    | 47.5 |  | 0.5  | -2.5     | 9.5        |
| 3   | 43.4   |  | 30 | 4.4  |  | 7.5  | +4.5     | 10.5       |
| 120 |  | 3 52.98, 3 52.87                           |    |      |  |  |          | +4.4, +4.4 |

|     |                     |    |      |     |      |
|-----|---------------------|----|------|-----|------|
| 116 |                     | 39 | 14.0 | 6.0 | 9.5  |
| 117 | 0 <sup>m</sup> 17.2 |    | 31.2 | 5.2 | 9.7  |
| 2   | 56.3                | 42 | 10.3 | 8.8 | 12.0 |
| 3   | 18.7                |    | 32.7 | 9.5 | 12.0 |
| 119 | 3 26.5              |    | 40.5 | 3.2 | 9.0  |



| $\Delta\alpha$ from No. 116.<br>These observations Vol. VI. |   |      | Nov. 7, 1883. |      |      | $\Delta\delta$ from No. 116<br>These observations |            |      |
|---|---|------|---------------|------|------|---|------------|------|
|   | 3 | 43.8 | 42            | 57.8 | 10.0 | +4.0  |            | 9.0  |
|   | 3 | 51.0 |               | 5.0  | 8.0  | +2.0  |            | 12.3 |
| 120   | 3 | 53.2 | 43            | 7.2  | 7.4  | +1.4  | +1.4, +1.4 | 11.0 |
| 121   | 4 | 38.7 |               | 52.7 | 2.3  | -3.7  | -3.2, -3.2 | 9.6  |
| 122   | 5 | 8.0  | 44            | 22.0 | 2.2  | -3.8  | -3.2, -3.2 | 10.8 |

Case 1. Stars 93 and 94.

93 is only once observed in Vol. VI, and only on one wire. The resulting  $\alpha$  is probably a little too small. No presumption of proper motion, or not enough to repay investigation. Another star of about equal brightness follows 93 about  $3^s$ , north  $3.7$ . It was observed in Series 10 and 11 of the revision, and the  $\delta$  entered for No. 94 in Vol. VI probably belongs to this star. The  $\delta$  entered for No. 95 probably belongs to No. 94, which will make the  $\delta$  of No. 94 agree with the  $\delta$  and with the sky.

Case 2. Stars 108 - 112. On the previous page, the transit recorded at  $14^m 3.5$  should almost certainly be  $14^m 4.5$ , as appears by comparison of the second series of transits with the values from Vol. VI and from the revision, Series 10 and 11. The second series of transits, assumed to be correct, agrees with the revision Series 10, in making placing No. 108 (Vol. VI, p. 188)  $0.5$  earlier than it appears in Vol. VI. Perhaps this star has a small proper motion. Near the place of 112 are two stars, as is shown in the present observations and also in Series 10, 11, 12 (after correction of Series 11 by means of the chronograph sheet, where both stars appear). One of these stars agrees with 112. There is a mistake of  $1''$  in the  $\delta$  in the M. catalogue, which explains the large residuals.

Case 3. Stars 118 - 122. Neither No. 118 nor this star supposed to have been observed instead of it in Series 12 appears in the observations above. Nos. 120 and 122 are probably in place, but as the region must be reexamined for No. 118, they can also be reobserved. No. 118 agrees with place in Vol. VI; the apparent error in place results from error in M. catalogue.



Nov. 8, 1883.

U. A. standard 490. Phot. H. S. obs. Foll. brighter

5 56  

$$\begin{array}{r} 308.4 \\ 5.7 \\ 120.12 \\ 187.0 \\ \hline 124.1^{\wedge} \end{array} \quad \begin{array}{l} 57.3^{\wedge} \text{ foll. dis.} \\ 66.8^{\wedge} \\ 3.1^{\checkmark} \end{array}$$

U. A. standard 496.

6 6  

$$\begin{array}{r} 210.6 \\ 288.4 \\ 29.0 \\ 109.8 \\ \hline 158.6^{\wedge} \end{array} \quad \begin{array}{l} 77.8^{\wedge} \text{ foll. dis.} \\ 80.8^{\wedge} \\ 7.8^{\checkmark} \end{array} \quad \text{S. obs. Pr. brighter.}$$

6 20 [ Star taken for U. A. standards 514. S. obs. South foll. brighter  

$$\begin{array}{r} 128.9 \\ 181.0 \\ 313.8 \\ 2.4 \\ \hline 100.7^{\wedge} \end{array} \quad \begin{array}{l} 52.1^{\wedge} \text{ sf dis.} \\ 48.6^{\wedge} \\ 3.6^{\checkmark} \end{array}$$

U. A. standard 514 identified by Dill.

6 48  

$$\begin{array}{r} 209.3 \\ 291.0 \\ 30.8 \\ 110.5 \\ \hline 161.4^{\wedge} \end{array} \quad \begin{array}{l} 81.7^{\wedge} \text{ foll. dis.} \\ 79.7^{\wedge} \\ 2.6^{\checkmark} \end{array} \quad \text{S. obs. Foll. brighter.}$$

490 & 496 were not identified by Dill, but were thought to look like the stars observed on Apr. 209.

Nov. 8. 1883.

Comet 1812 (Brooks) N. obs.

|       |    |       |
|-------|----|-------|
| 17    | 20 | +51.3 |
| 22    | 41 |       |
| <hr/> |    |       |
| +5    | 21 |       |

7 40 Comets' appearance about the same as when last seen. Nucleus about equal to 9.5 star. Nebulosity about 4' diam. Spectrum continuous.

|    |   |      |
|----|---|------|
| 23 | 1 | 0.0  |
|    |   | 14.5 |

|    |   |     |
|----|---|-----|
| 23 | 3 | 5.3 |
|    | 4 | 1.5 |

Pos. 0 =

|          |
|----------|
| 161.3    |
| <hr/> 45 |
| 2063     |

|       |    |
|-------|----|
| 17    | 20 |
| 23    | 35 |
| <hr/> |    |
| 6     | 15 |

The nearest comparison star is (lettered) is about 20' north of  $\epsilon$  so that transits will have to be taken first with reference to  $\epsilon$  and an intermediate star and then between intermediate star and lettered star.



Nov. 8. 1883.

Order in first series  $\equiv * * \equiv$   
 Comet in southern half inside and star  
 in northern half outside square.

Cloudy.

Order: Intermediate star, Comet, Intermediate star, Comet.

Comet in southern half inside of square  
 Intermediate star in northern half outside  
 of square.

Seven complete sets. Reject third  
 and sixth followed by short rattles

The lettered comparison star which is to  
 be joined to the comet by means of the inter-  
 mediate star is D M. + 51° 2206 (2.3)

Clouds prevented transits being taken to  
 join intermediate star with lettered star.

Nov. 8, 1883.

B. + C. 1182.

Bond 394.

10 55 21.2 10 55 0.0

10 56 21.4 56 0.0

10 57 21.5 57 0.0

Reap. Jap. III.

N. obs. Phot. H.

10 55 40  
23 41  
11 19 21

Time eclipse.

Cloudy. Jupiter not seen.













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