

169201001.pdf-1-450R

KG  
11365  
449





KG 11365.449

Record of Observations  
by

W<sup>m</sup> Maxwell Reed

Vol. IV



















KG-11365449























Saturday April 8<sup>9</sup> 1892 11

Bright stars

Bright stars No. 21

$$\begin{array}{r} \underline{b\ 1\ x\ d_e} \\ d_e\ x\ 4\ a \end{array}$$

Lm

No 28

$$\begin{array}{r} \underline{c\ 5\ d_e} \\ d_e\ 4\ d \end{array}$$

Lm

No 22 ✓

$$\begin{array}{r} \underline{d_e = d} \\ \underline{e \neq d_e} \end{array}$$

Lm

No 23

$$\begin{array}{r} \underline{a\ 2\ d_e} \\ d_e\ 3\ b \end{array}$$

Lm

Nova Aurigae

$$\begin{array}{r} \underline{l\ 3\ \pi} \\ +\ \pi\ 4\ m \end{array}$$

Lm

$$\begin{array}{r} \underline{l\ 2\ 6} \\ +\ 6\ 5\ m \end{array}$$

$$\begin{array}{r} \underline{l\ 1\ p} \\ +\ p\ 5\ m \end{array}$$



Saturday April 8<sup>9</sup> 1892  
Nova Aurigae

+  $\begin{matrix} \alpha & 4 & \phi \\ \phi & 3 & \underline{m} \end{matrix}$

LM

+  $\begin{matrix} \beta & 2 & \underline{\beta} \\ \beta & 3 & \underline{c} \end{matrix}$

(ocur) B

+  $\begin{matrix} \alpha & 2 & \gamma \\ \gamma & 1 & \underline{b} \end{matrix}$

(ocur) B

+  $\begin{matrix} \beta & 2 & c \\ \epsilon & 2 & \underline{c} \end{matrix}$

8.0

Nova Aurigae ✓

Invisible  
star No 5 visible

H

T Cassiope ✓

10.0

$\underline{v} 2 \ell$

Z, L, m

S Persei ✓

$v = 6^{\text{th}}$

10.1

$\alpha 5 \underline{v}$

$v = \underline{b}$

$\alpha \underline{b} 4 \underline{c}$

Saturday April 9<sup>th</sup> 1892

8 Persei ✓  
Green glass

$$\frac{b}{v} = 3v$$

$$\frac{v}{v} = 2e$$

L Am

10.3

R Zynco's ✓

$$\frac{e}{v} = 2v$$

$$\frac{v}{v} = 3f$$

$$\frac{v}{v} = 2R$$

Green glass

$$\frac{e}{v} = 5v$$

$$\frac{v}{v} = f$$

R Ursae Majoris ✓

10.8

$$\frac{h}{v} = 2v$$

$$\frac{v}{v} = 3k$$

$$\frac{v}{v} = 1R$$

Green glass

$$\frac{h}{v} = 5v$$

$$\frac{v}{v} = k$$

S Bontis ✓

10.9

$$d = v$$

$$\frac{v}{v} = 1e$$

$$\frac{v}{v} = 0R$$

$$d = v$$

$$\frac{v}{v} = e$$



Saturday April 8<sup>th</sup> 1892

S Boatis ✓

Green Glass { d 1v  
v = e

L M

R Urae Minoris ✓

d = v

$\frac{v}{4} = e$   
v = 5R

Green Glass

d 1v

$\frac{v}{2} = e$

11.2

R Draconis ✓

n 1v

$\frac{v}{4} = 0$

v = 0R

Green Glass

n 5v

$\frac{v}{5} = 0$

T Caphri ✓

f = v

$\frac{v}{4} = h$

v = 7R





16

Saturday. April 8<sup>9</sup> 1892

R Ferris Minoris ✓

12.5

$$g = 2.5$$

$$v = 2.5 R$$

1.4 m

Green Slur

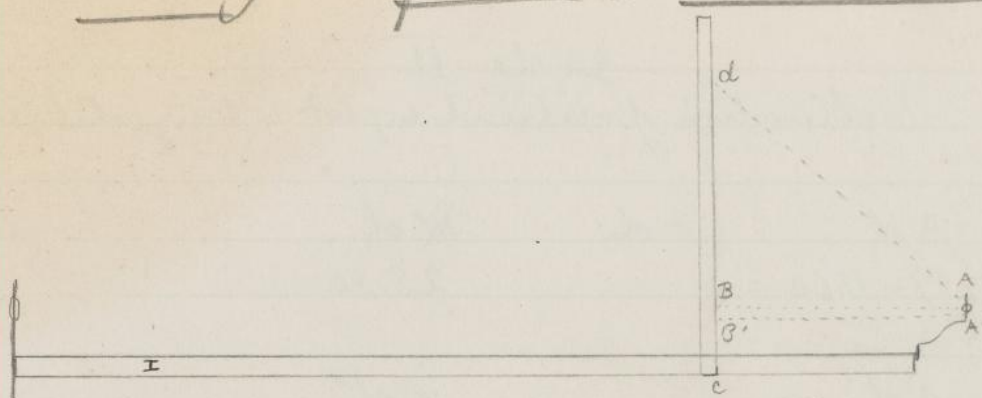
$$v = k$$

barely seen, very faint

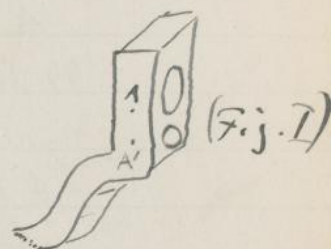
1.5 m1.4 m

Sunday April 9<sup>th</sup> 1892

17



Measurements of AB  
Point A is shown in (figure I)  
(w. steel rule)



Side I

cm	cm	cm
44.81	- 18.67	= 26.14
44.01	- 17.86	= 26.15
42.16	- 16.00	= 26.16
41.29	- 15.13	= 26.16
40.52	- 14.36	= 26.16

Mean = 26.156

Final Mean = 26.398

Side II

cm	cm	cm
36.82	- 10.56	= 26.26
34.71	- 8.44	= 26.27
34.03	- 7.76	= 26.27
32.82	- 6.56	= 26.26
31.70	- 5.44	= 26.26

Mean = 26.640

Measurement of CB  
(Its own scale)

side I  
~~7.89~~

side ~~II~~  
4.89



Side II  
Inclination of vertical sight to horizontal sight.

$A d$	$B d$	$\cancel{K} d$
$44.97 - 11.60 =$		$25.50$

$A d'$		$c d'$
$44.96 - 12.04 =$		$24.75$

$A d''$		$c d''$
$44.36 - \overset{12.16}{\cancel{23.45}} =$		$23.45$

$A d'''$		$c d'''$
$44.32 - 12.70$		$22.46$

$A d^{IV}$		$c d^{IV}$
$44.28 - 13.20$		$21.42$

$A d^V$		$c d^V$
$44.24 - 13.73$		$20.35$

$A d^VI$		$c d^VI$
$44.14 - 15.01$		$17.40$

$A d^{VII}$		$c d^{VII}$
$44.01 - 16.17$		$18.50$

$A d^{VIII}$		$c d^{VIII}$
$43.78 - \overset{16.40}{\cancel{15.15}} =$		$12.52$

$A d^IX$		$c d^IX$
$43.59 - 16.91$		$9.51$





20

Sunday April 9<sup>10</sup> 1892

## Side I

Inclination of vertical sight to horizontal sight

A d

c d

42.26 - 8.91

25.90

- 9.06

A d<sup>I</sup>c d<sup>I</sup>

40.70 - 9.06

23.02

39.51 - 9.46

20.05

38.85 - ~~11.23~~ ~~10.06~~ 10.11

17.12

37.90 - <sup>34</sup>~~10.28~~

14.02

37.25 - <sup>51</sup>~~10.44~~~~11.23~~  
11.04

41.11 - 8.66

24.34

41.70 - 5.90

36.65

















Sunday April 9<sup>th</sup> 1892  
 Nova Aurigae ✓

27

10.0

Invisible  
 & visible

Hm

4826 R Hydrae ✓

10.5

 $\underline{c} 2 \checkmark$  (sec) $\geq L \underline{m}$  $\checkmark 5 \underline{d}$  (sec) $\checkmark = 1 R$ 

4847 S Virginis ✓

 $\checkmark 3 \checkmark$  $\checkmark 3 f$  $\checkmark = 4 R$  $C? L \underline{m}$ 

Halo around Moon

Measurement of  $L$   
 Red Halo cirro-cumulus clouds.

Reaching I 6.50 6  
 II 6.40

I 6.40

II 6.25

I 6.22

II 6.05

Sunday April 8<sup>th</sup> 1892

Halv (Continued)

12:19

I 6.12

II 6.00

12:20

I 6.22

II 6.05

12:21

I 6.30

II 6.13

The clouds have been growing continually thicker since these measurements began. The halo of light is now too much broken for measurement.



Monday April 11 1892

29

Bright star No 24

$\frac{a1d}{Lc15}$

Lm

8.7

S Persei ✓

Lm

$\frac{a1d}{Lc15}$

$\frac{v16}{Lc15}$

$\frac{v6e}{Lc15}$

Green Glass

$\frac{v3e}{Lc15}$

$\frac{b3}{Lc15}$  ✓  $\frac{b2}{Lc15}$  ✓

8.8

Iona Augae ✓

Hm

$\frac{v}{Lc15}$  invisible

$\frac{u}{Lc15}$  visible

Expected variable DM +0.2729' Lm  
R.A. 10 5.8.10 +0.38'

10.2

$\frac{v2}{Lc15}$  +0.2728 (7.5) magn  
 $\frac{v}{Lc15} = 2R$

10.4

DM +1.2501 magn  
6.2

1 V

+1.2501 (6.2) magn

+0.2728 (7.5) magn

Monday April 11 1892.

<sup>Casum</sup>  
R ~~Casum~~ Van. ✓ L Pr  
I 4v

10.7

10.8

5237 R Boetis ✓ L Pr  
below 9.0 magn.

~~549~~ X  
~~549~~ S Librae

5501 S Serpens 4 Pr

5504 S Coronae ✓

h 2v see

v = d w.m.R.

Green glass

d 1v

h 3v

548<sup>4?</sup>  
550<sup>2?</sup>

550<sup>2?</sup> U Coronae ✓  
u 2f

11.3

12.0

R Coronae ✓ (ocw) <sup>B</sup> W/m  
d 3v

(w.m.R. (thin) magn  
v = 7<sup>±</sup>

Susp. Van  $\delta m + 0.2729$  ✓

12.1

$\delta m + 1.2501(6.2)$  1 ✓

v 1  $\delta m + 0.2728(7.5)$

L Pr  
17



Monday April 11 1892

5687

R Serpentis ✓

12.4

invisible  
or visibleL m

12.7

5889

U Herculis ✓

 $v = c'$ L m

14.10

 $\beta$  Lyrae ✓ $\frac{\theta}{\beta} \frac{1}{4} \frac{\beta}{k}$ E m

Nova Aurigae ✓

9.6

East Equatorial

 $v = (\text{star } 10)$  $v = 4 (\text{star } 11)$ m

$$\begin{array}{r} 26.068 \\ 25.970 \\ \hline 52.038 \\ 26.019 \end{array}$$



Tuesday April 12 1892

Nova Aurigae

7.7

variable Invisible  
u visible

CH m

Cumulus

Nov Variable No 4 ✓

8.0  
7.2

d 3 V

v 5 e

v = 10 R

C L m

Seen through very thin cirrus clouds

8.6

<sup>2</sup> ✓  
Nova Aurigae  
East Equatorial (15<sup>min</sup>)  
(star 10) 3 V

6

Wednesday April 13 1892

Adjustment of Sextant  
Measurement of  $A'B'$  (see P. 17)

Side II	Side I
<del>34.01</del>	44.34
<del>33.78</del>	<u>18.38</u>
7.94	25.96
<u>26.07</u>	43.67
33.21	<u>17.69</u>
7.15	25.98
<u>26.06</u>	42.54
32.39	<u>16.58</u>
6.31	25.96
<u>26.08</u>	41.65
31.90	<u>15.69</u>
5.84	25.96
<u>26.06</u>	45.29
31.57	<u>19.30</u>
5.50	25.99
<u>26.07</u>	

Mean = 26.068

Mean = 25.970

Final Mean = 26.019

Measurements · CB'

Side I

Side II

~~3.45~~~~3.60~~

3.57

3.60

By sighting

3.43

3.42

3.44

3.41

3.41

3.39

3.42

3.39

3.42

3.38

I-II

 $\Sigma = 17.12$ 

16.99

 $N_0 = 5$  $N_0 = 5$  $\Sigma/N_0 = 3.424$ 

3.398

0.026



Inclination of vertical sight.  
Side II

$$\begin{array}{ll} A' d & c d \\ 39.20 - 4.71 = & 26.49 \end{array}$$

$$\begin{array}{ll} A' d' & c d' \\ 39.18 - 4.73 = & 22.82 \end{array}$$

$$\begin{array}{ll} A' d^{\text{II}} & c d^{\text{II}} \\ 44.43 - 15.06 & 17.09 \end{array}$$

$$\begin{array}{ll} A' d^{\text{III}} & c d^{\text{III}} \\ 44.10 - 16.35 & 13.05 \end{array}$$

$$\begin{array}{ll} A' d^{\text{IV}} & c d^{\text{IV}} \\ 44.09 - 17.19 & 12.24 \end{array}$$

/

# Inclination of vertical sight

## Side I

$$A'D$$

$$42.24 - 6.90$$

$$CD$$

$$27.50$$

$$A'D'$$

$$40.23 - 7.20$$

$$CD'$$

$$23.99$$

$$A'D''$$

$$89.05 - 7.37$$

$$CD''$$

$$21.73$$

$$A'D'''$$

$$88.41 - 7.95$$

$$CD'''$$

$$19.55$$

$$A'D^{IV}$$

$$\frac{86.68}{77.65} - 8.46$$

$$CD^{IV}$$

$$14.65$$

# Parallel readings on vertical sight

Side II cm	Side I cm	I-II cm	
8.12	8.18	0.06	
11.71	11.79	0.08	
15.60	15.65	0.05	
18.42	18.49	0.07	
21.96	22.03	0.07	0.33
		Mean = 0.066	
4.36	4.40	0.04	
5.98	6.01	0.03	
7.10	7.13	0.03	
8.33	8.39	0.06	
9.34	9.39	0.05	0.21
10.60	10.62	0.02	
11.67	11.71	0.04	
12.63	12.69	0.06	
13.73	13.79	0.06	
14.62	14.69	0.07	0.25
15.71	15.74	0.03	$\Sigma = 7.11$
18.59	16.61	0.02	$\Sigma = 1.44$
17.74	17.79	0.05	$N_0 = 28$
18.92	18.98	0.06	$\Sigma/N_0 = 0.051$
19.68	19.72	0.04	0.20
20.39	20.43	0.04	
21.62	21.69	0.07	
22.38	22.43	0.05	
23.69	23.74	0.05	
24.44	24.50	0.06	0.27
25.31	25.41	0.10	
26.39	26.43	0.04	
26.53	26.50	0.03	0.18 (0.30)



Wednesday April 13 1892

9.0

T Cassiope ✓  
 $v = l$   
 $v = 5^m$

L Z M

9.0

S Cassiope ✓  
 $v$  invisible  
 $\mu$  visible

L M

9.1

S Puer ✓  
 $v = 4^c$   
 $v = 1^b$   
 $a = 5^v$   
 $v = 7^R$

Z

9.2

Green glass  
 $v = 1^v$   
 $v = 1^c$

Z

9.3

T Puer ✓  
 $v = 6^R$   
 $v = 5^d$   
 $c = 4^v$

Z

9.4

R Aurigae ✓  
~~invisible~~  
 $v = m$

Wednesday April 13, 1892

R & Lyncis ✓

L In

9.4

$\frac{e}{4} \checkmark$

$\frac{v}{4} \checkmark$

$\frac{v}{1} \checkmark$

$\frac{v}{3} R$

Green Glass

$\frac{v}{4} \checkmark$

$\frac{e}{6} \checkmark$

$\frac{v}{2} \checkmark$

9.5

R Ursae Mag. ✓

$v = 6R$

$\frac{h}{3} \checkmark$

$\frac{v}{2} h$

9.6

Green Glass

$v = h$

$\frac{h}{4} v$

S Urs. Mag. ✓

$v = \frac{h}{2}$

$\frac{g}{5} v$

$v = \frac{1}{3} R$

9.7

Green Glass

$\frac{h}{6} \checkmark$

$\frac{g}{6} v$

40

Wednesday April 13, 1892

9.8

S Bootis ✓

I in $e 1 \checkmark$  $d = \checkmark$  $c 5 \checkmark$  $v = 0 R$ 

Green Glass

 $c 6 \checkmark$  $e 1 \checkmark$  $d 2 \checkmark$ 

9.9

R Mus. Minors ✓

 $d 2 \checkmark$  $v 3 \underline{e}$  $v = 2 \frac{R}{21}$ 

Green Glass

 $d 2 \checkmark$  $v 3 \underline{e}$ 

10.0

R Draconis ✓

 $\underline{m} \quad \underline{v} \checkmark$  $v 2 0$  $v = 0 R$ 

Green Glass

 $0 2 \checkmark$



Wednesday April 13 1892.

10.2

$\delta$  Cephei ✓

$$v = qR$$

$$v \times \frac{3}{f}$$

$$e \frac{5}{v}$$

Green glass

$$v = h$$

$$v = f$$

$v_c$  invisible

L m

10.5

$\delta$  Cephei ✓

$$m \approx \frac{1}{2}$$

$$V \approx m$$

L

10.6

5770

R Herculis ✓

$v$  invisible

$q$  &  $w$  in R. visible

L

10.6

5889

W Herculis ✓

$$v = \frac{e}{2}$$

10.7

~~1682~~ W Herculis

L

m

10.9

$\beta$  Lyrae ✓

$$\beta \approx \frac{1}{2}$$

$$\gamma \approx \frac{1}{2}$$

E

m

Wednesday April 19<sup>3</sup> 1892  
~~Thursday~~ ~~Friday~~ ~~Saturday~~

11.1

6044 S Hercules ✓

$$\begin{array}{r} g = v \\ v = 4h \\ v = 5R \end{array}$$

Lm

11.3

6512 T Hercules ✓

$$\begin{array}{r} l = 2v \\ v = 2m \end{array}$$

11.4

New Star N.B. ✓ Hydra

$$\begin{array}{r} l = v \\ v = 3\beta \\ v = 10R \end{array}$$

$$\begin{array}{r} v = 2l \\ v = 4\beta \end{array}$$

$$\begin{array}{r} d = v \\ v = 3\gamma \end{array}$$

Green Stars

$$\begin{array}{r} v = 2d \\ v = 3\beta \\ v = \text{yellow} \\ \beta = \text{green} \end{array}$$

Lm

Wednesday April 13 1892 43

12.0

New Variable No 9 Cygnus

$$\frac{0.2}{v} = 2v$$

$$v = 2\varepsilon$$

$$v = 0R$$

Green Glass

$$\frac{0.4}{v} = 4v$$

$$v = 1\varepsilon$$

L Am

New Variable No 12 ✓

12.4

$$\frac{2.1}{v} = 1v$$

$$v = 6$$

$$v = 4R$$

R Cursing ✓

12.6

Seeing very poor  
 $v_c + 0$  very faint.

$$\frac{0.3}{v} = 3v$$

$$R = 8R$$

Z

$$v = e$$

WNR B Z

I don't find it somewhat  
 doubtful.

Nova Aurigae  
 East Equatorial.

8.4

$$(star 10) 6v$$

$$v 2 (star 14)$$

$$v 5 (star 13)$$



Wednesday April 19<sup>th</sup> 1892

Effect of star out of Focus

Wedge East Equatorial,

In Focus  
(focus.)

~~8.7.8~~ 6.9

1.1

4.3

98.0

1.0

3.0

6.1

3.8

3.1

4.9

$$\Sigma = 32.2 \quad N_0 = 10 \quad \Sigma/N_0 = 3.2$$

Measurements Focus = 3.2

2.59

2.66

2.21

2.55

2.49

2.45

2.67

2.28

2.55

2.47

Wednesday April 18<sup>3</sup> 1892

45

Out of Focus. 957.0

2.37

2.27

2.10

2.13

2.08

2.30

2.31

2.28

2.53

2.25

Out of Focus 90.0

2.30

1.99

2.12

2.09

2.04

1.86

1.90

1.96

2.16

1.80

1.88

Out of Focus 857.0

1.51

1.69

1.70

1.70

April 13 Wednesday 1892

$$\begin{array}{r} 1.59 \\ \hline 1.51 \\ 1.34 \end{array} \quad ?$$

Amalthea star  
In focus 3.2

2.75  
2.42  
2.31  
2.33  
2.36  
2.21  
2.18  
2.31  
2.30  
2.50

out of focus 95.0

2.26  
1.91  
2.00  
2.11  
1.91  
1.90  
2.09  
2.14  
2.09  
2.32



Wednesday April 13 1882

out of Focus \$190.0

2.119

1.94

1.91

2.07

2.06

1.96

1.95

2.01

1.80

1.80

out of Focus \$85.0

1.90

2.00

2.04

1.54

1.61

1.62

1.63

1.46

1.70

1.65

out of Focus 55.0

1.50 - ?

1.14

1.20

1.29

} Dawn

Wednesday April 13 1892

15<sup>h</sup> 13<sup>m</sup> 56<sup>s</sup>

3.22

2.57

3.00

3.25

3.23

15<sup>h</sup> 15<sup>m</sup> 58<sup>s</sup>

2.91

3.00

3.00

3.09

2.88

15<sup>h</sup> 15<sup>m</sup> 59<sup>s</sup>

2.70

2.70

3.04

3.10

3.09

16:1

2.70

3.12

2.74

2.71

2.90

16:3

2.75

2.85

2.89

3.08

Wednesday April 13 1892

16:5

2.73

3.11

3.21

2.99

3.24

16:6

2.99

3.10

3.14

2.99

3.10

16:8

2.90

2.93

3.25

3.40

3.50

16:9

3.72

3.55

3.22

3.34

3.46

16:11

3.49

3.60

3.50

3.64

~~3.24~~

3.70



Wednesday April 12 1892

16:13

3:60

3:30

4:03

4:02

3:46

3:60

16:14

3:81

3:70

3:91

3:92

4:10

16:15

3:80

3:85

3:79

3:82

4:20

16:17

3:85

3:80

4:00

4:09

4:10

16:18

4:03

4:37

4:20

4:25

Wednesday April 13 1892

51

16:19

3.92

4.59

4.67

4.85

5.10

4.69

16:21

4.78

4.67

4.45

4.60

4.63

16:22

5.03

4.81

4.80

4.63

4.90

16:22.1

4.78

5.06

5.02

5.15

5.22

16:26

5.32

5.15

5.10

5.26

5.30

16:27

52

Wednesday April 13 1892

16:28

5.71  
 5.31  
 5.24  
 5.10  
 5.00

16:29

5.30  
 5.36  
 5.23  
 5.38  
 5.30

16:30

5.63  
 5.55  
 5.24  
 5.33  
 5.59

16:32

5.53  
 5.49  
 5.69  
 5.43  
 5.40

16:33

6.10  
 5.73  
 5.66  
 5.74  
 5.81



Wednesday April 13 1892  
 watch ~~was~~ is twenty two (22<sup>s</sup>) seconds slow,

5.78

5.72

5.90

5.91

5.76

16:34

5.81

5.67

~~5.50~~~~5.52~~

5.92

6.00

5.88

16:36

6.04

5.77

5.82

6.09

6.03

16:38

6.27

5.89

6.17

6.01

5.88

16:40

6.33

5.90

6.40

5.89

6.32

16:41

Saturday April 16 1892

12.4 X Cygni ✓  
variable > 11.0<sup>magn.</sup>

L. M.

I can not identify with sufficient precision to know whether the var. is one of a group of joint stars or not.

Long Cirrus clouds extending from north to south.

Sunday April 17 1892

55

$\beta$  Lyrae ✓

14.6

$\frac{3\beta}{\beta 10}$

E m

x R Bontis

a 36

b 5c

c 2d

d 3 e

Seeing poor m F



Tuesday April 19 1692

8.0

✓ None Among  
invisible  
y and a visible

H

✗  $n_c = x$   
 $w - 4 \text{ } n_c$

✗  $\left\{ \begin{array}{l} w - 4 x \\ x - 3 y \\ y - 2 a \end{array} \right.$

✗  $\pi_c - 3 w$   
 $w - 3 \pi_c$

✗  $\rho_c - 4 w$   
 $w - 3 \rho_c$

✗  $\phi_c - 2 w$   
 $w - 4 \phi_c$

✗  $w - 2 m_c$   
 $m_c - 3 x$

✗  $\sigma - 3 m$   
 $l - 5 \sigma$

Tuesday April 19, 1892

R Comae

Order of  
brightness

L

a' 5 a

a 2 b

b 4 c

c 4 d'

d' 2 d

d 3 f

Abandoned e

d = e

f 3 g

Abandoned g

f 4 h

h 3 k

k 4 l

l 5 m

m 3 n

m 2 n

n 5 o

o 3 p

p 4 q

q 3 R

a'

a

b

c

d'

d

f

h

k

l

m

n

o

p

q

R

R Lyrae

V 2 e

V = 1 R

d 5 v

L

L

10.7

Tuesday April 19 1892

R Insar Inag. ✓

$$v = k$$

$$\frac{k}{4} v$$

$$v = 1R$$

Green Glass

$$k 3v$$

S Boatis

$\beta$  Zyrac ✓

$$\gamma 3 \beta$$

$$\beta 2 \{$$

E

12.2

$$\gamma 1 \beta$$

$$\beta 4 \{$$

E

12.6

I consider this observation the more accurate.

R Draconis ✓

$$0.4 v$$

$$v 2 k$$

T Cephei ✓

$$2.6 v$$

$$v 2 f$$

$$v = 10R$$

12.8



Tuesday April 19 1892

T Cephei ✓

Green Island

f 2v  
v 1h

L

S Cephei ✓

m 2v  
v 4m

L

13.2

R Cassiopeiae ✓

e 1v  
v 4f

(w R) B

14.8

o 2v  
v 4 1/2

L

v = 7R

R Bootis

a 3b

F m

b 5c

c 4d

F

abundant from d + e which have  
been scratched: -d &

Wednesday April 20 1892

Town Amiga

Invisible  
y visible

X w 4 x  
x 3 y

X x 2 m<sub>c</sub>  
m<sub>c</sub> 3 y

X a' 1 y

X w 2 m<sub>c</sub>  
m<sub>c</sub> 4 x

X w 2 p<sub>c</sub>  
p<sub>c</sub> 4 w

S Persei ✓

b 1 v

v 4 c

v = 6<sup>R</sup>

Green Glass

v 4 c 1 v

to 5 v

H

L

L

9.1

Wednesday April 20, 1892

✓ Rusei ✓

L

9.2

e 4 v  
v 2 d

Green Glass

v 2 d

e 6 v

5237

X

✓ R Bootis ✓

a 2 b

b 5 c

c 4 d

e 4 f

f 4 g

g 2 h

h 4 i

i 4 j

l 3 m

m 3 n

n 4 o

o 3 p

p 3 q

q 3 r

r 4 s

s 4 t

t 4 u

u 4 v

v 4 w

w 4 x

x 4 y

y 4 z

F

L

L

H

H

H

H

H

H

H

H

10.2



Wednesday April 20, 1892.

5501 S Serpenti

a3 b

L

b3 c

10134

Meteor just passed through field  
going north

c3 d

d5 e

~~e5 f~~

~~f5 g~~

e4 b

b2 g

g3 h

h4 k

k4 l

l4 m

m4 n

n2 o

o4 p

p3 q

q5 r

r3 s

Wednesday April 20 1892

S Librae

$\alpha^3 56$

$\underline{630}$

Electric Light =  $\underline{m}$

Clouds in South  
and North,

$\beta$  Lyrae ✓

$\gamma 1 \underline{\beta}$

E

1526



64

Saturday April 23 1892

Aurora ✓

8:13

batches of light extending  
to  $40^\circ$  above horizon at  
North point. Magn. 3  
extends from East to West

8:22

aurora

$$c = 37^\circ$$

$$b = 10^\circ$$

$$\text{magn} = 3$$

Aurora

— mean Reaching reduced to Side I  
— L corresponding to reaching  
— L corrected for movement of  
2 hours previous  
— Smith disk corresponding to 1862

E  
E

8:27

a Low + sharp arch

$$(b+a)c = \left( \begin{array}{c} 23.95 \\ 24.08 \end{array} \right) \begin{array}{c} \text{II} \\ \text{I} \end{array} \text{ (upper) } 24.02 \quad 38.3$$

magn. 3<sup>d</sup>

$$(b+a)c = \left( \begin{array}{c} 24.38 \\ 24.40 \end{array} \right) \begin{array}{c} \text{II} \\ \text{I} \end{array} \text{ (upper) } 24.42 \quad 38.9$$

8:32

$$(b+a)c = \left( \begin{array}{c} 23.35 \\ 23.45 \end{array} \right) \begin{array}{c} \text{II} \\ \text{I} \end{array} \text{ (upper) } 23.42 \quad 37.5$$

magn. 3<sup>d</sup>

$$b = 3^\circ$$

E

8:35

$$(b+a)c = \left( \begin{array}{c} 22.36 \\ 22.40 \end{array} \right) \begin{array}{c} \text{II} \\ \text{I} \end{array} \text{ (upper) } 22.40 \quad 36.1$$

magn. 2<sup>d</sup>

E



Saturday April 23 1892

65

8:35

Curran  
a faint arch.  
C & a = 22  
mag 3

E

8:39

(b + a) =  $\begin{pmatrix} 22:39 & \text{II} \\ 22:35 & \text{I} \end{pmatrix}$  upper

22.39

37.4 85.0 84.7

36.1

S

8:43

(b + a) =  $\begin{pmatrix} 22:45 & \text{II} \\ 22:49 & \text{I} \end{pmatrix}$  upper

22.50

37.5 87.8

36.2

S

8:43

a Faint arch (trans)  
still at about ~~22~~ c = 25°

E

8:48

a + a =  $\begin{pmatrix} 22:18 & \text{II} \\ 22:13 & \text{I} \end{pmatrix}$  upper

22.18

37.0 84.3

35.7

S

8:51

b + a =  $\begin{pmatrix} 21:75 & \text{II} \\ 21:50 & \text{I} \end{pmatrix}$  upper  
b = 3°

21.50

37.5 87.8

35.2

S

mag = 2<sup>cl</sup>

E

8:53

a + b =  $\begin{pmatrix} 21:42 & \text{II} \\ 21:50 & \text{I} \end{pmatrix}$  upper

21.48

35.9 83.2

34.6

S

8:56

a =  $\begin{pmatrix} 18:95 & \text{II} \\ 19:00 & \text{I} \end{pmatrix}$  ~~upper~~

19.00

32.4 79.7

31.1

34.3 81.6

20.36 33.0

8:58

a + b =  $\begin{pmatrix} 20:30 & \text{II} \\ 20:37 & \text{I} \end{pmatrix}$  upper

The upper side of arch is more sharply defined than the lower side

66

Saturday April 23 1892

m m

9:12

Aurora ✓

$$b = \begin{pmatrix} 5.37 & \text{II} \\ 5.43 & \text{I} \end{pmatrix}$$

5.42

5.6

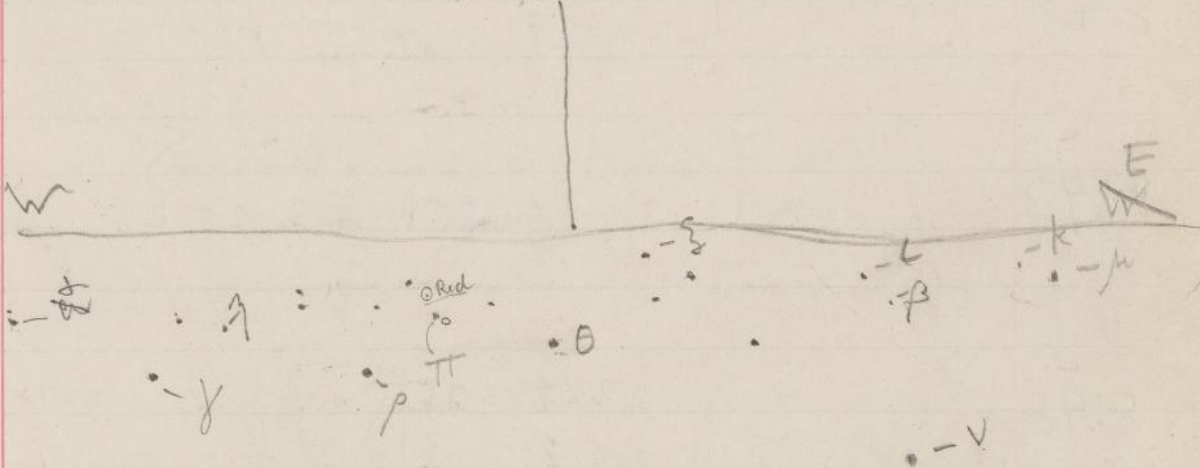
4.3

S

mag = 2

Electric Light

N. 110



Aurora ✓

9:10

$$a+b = \begin{pmatrix} 21.19 & \text{I} \\ 21.16 & \text{II} \end{pmatrix} \text{ w/m}$$

21.20

35.6

81.6

34.3

S

9:12

$$a+b = \begin{pmatrix} 22.17 & \text{II} \\ 22.24 & \text{I} \end{pmatrix} \text{ w/m}$$

22.23

37.1

35.8

S 77.3

9:14

$$a = \begin{pmatrix} 18.28 & \text{II} \\ 18.31 & \text{I} \end{pmatrix} \text{ w/m}$$

18.32

30.0

29.7

S

9:17

$$a+b = \begin{pmatrix} 20.08 & \text{II} \\ 20.03 & \text{I} \end{pmatrix} \text{ w/m}$$

20.05

33.8

32.5

S



Saturday April 23 1892

67

Aurora ✓

9:21

$$b = \begin{pmatrix} 5.44 & \text{II} \\ 5.50 & \text{I} \end{pmatrix} \text{Lower} \quad 5.49 \quad 4.2 \quad S$$

$$(c) \alpha = \begin{pmatrix} 6.05 & \text{I} \\ 5.98 & \text{II} \end{pmatrix} \text{Lower} \quad 6.04 \quad 5.7 \quad S$$

9:28

$$a = \begin{pmatrix} 17.76 & \text{II} \\ 17.80 & \text{I} \end{pmatrix} \text{upper} \quad 17.80 \quad 30.2 \quad 28.9 \quad 77.5 \quad S$$

$$(b+c) \alpha = \begin{pmatrix} 10.55 & \text{I} \\ 10.52 & \text{II} \end{pmatrix} \text{Lower} \quad 10.56 \quad 167.3 \quad S$$

$$a+b = \begin{pmatrix} 21.25 & \text{I} \\ 21.10 & \text{II} \end{pmatrix} \text{upper} \quad 21.20 \quad 35.6 \quad 34.3 \quad 52.9 \quad S$$

$$(b+c) \beta = \begin{pmatrix} 9.80 & \text{II} \\ 9.95 & \text{I} \end{pmatrix} \text{Lower} \quad 9.90 \quad 14.0 \quad S$$

$$a = \begin{pmatrix} 17.08 & \text{I} \\ 17.03 & \text{II} \end{pmatrix} \text{upper} \quad 17.08 \quad 29.0 \quad 27.9 \quad 76.3 \quad S$$

9:39

$$(a+b) \gamma = \begin{pmatrix} 10.85 & \text{I} \\ 10.85 & \text{II} \end{pmatrix} \text{Lower} \quad 10.88 \quad 16.0 \quad S$$

9:44

$$a+b = \begin{pmatrix} 19.80 & \text{II} \\ 19.75 & \text{I} \end{pmatrix} \text{upper} \quad 19.80 \quad 33.5 \quad 32.2 \quad 88.8 \quad S$$

9:47

$$a+b = \begin{pmatrix} 20.33 & \text{I} \\ 20.30 & \text{II} \end{pmatrix} \text{u/lr} \quad 20.34 \quad 34.3 \quad 33.0 \quad 98.6 \quad S$$



Saturday April 23 1892

Aurora ✓

33.6 80.9  
32.3

19.92

9:50

$$a+b = \begin{pmatrix} 19.86 & \text{II} \\ 19.91 & \text{I} \end{pmatrix} \text{upper } S$$

There is a indication that the arch  
will break in to two concentric arches,  
a tendency in eastern half to form  
from the streamers.

9:52

$$b = \begin{pmatrix} 6.50 & \text{II} \\ 6.55 & \text{I} \end{pmatrix} \text{Lower } S$$

6.55

Major 2<sup>d</sup>~~9:54~~

add

~~$$a+b = \begin{pmatrix} 18.25 & \text{II} \\ 18.30 & \text{I} \end{pmatrix} \text{Lower } S$$~~

34.6 81.9  
33.3

20.85

9:56

$$a+b = \begin{pmatrix} 20.85 & \text{I} \\ 20.80 & \text{II} \end{pmatrix} \text{upper } S$$

32.3 79.6  
31.0

10:32

$$a+b = \begin{pmatrix} 19.10 & \text{I} \\ 19.06 & \text{II} \end{pmatrix} \text{upper } S$$

19.10

32.1 79.8  
30.8

10:34

$$a+b = \begin{pmatrix} 18.92 & \text{I} \\ 18.89 & \text{II} \end{pmatrix} \text{upper } S$$

18.93

31.7 79.4  
30.4

10:35

$$b = \begin{pmatrix} 6.42 & \text{I} \\ 6.40 & \text{II} \end{pmatrix} \text{Lower } S$$

6.43

31.7 79.4  
30.4

small streamers are forming below  
the arch. Arch now & then becomes  
unsymmetrical.

$$b = 80$$

E

Saturday April 23 1892

69

Aurora

(c) d	5.18	I Zone	S
e	6.30		
a	7.40		
γ	8.08		
θ	9.40		
λ	8.05		
κ	8.12		
μ	7.95		
ν	9.94		

10.53

$a+b = \begin{pmatrix} 18.02 \text{ I} \\ 18.00 \text{ II} \end{pmatrix}$  upper

36.0  
34.7  
36.2  
81.3

S

10.55

$C = 12^\circ$

✓ -

E

$B = 7.62$  I Zone S

A faint dark streak divides the arch into two consecutive arches. Each arch having  $B = \frac{1}{3}$  of above value.  
The Zone arch = 2<sup>d</sup> max upper arch = 3<sup>d</sup> max.

(c) h	8.48	I Zone	S
ν	10.33		
	8.86		
θ	9.68		
γ	8.50		
λ	8.48		
κ	8.98		

11.04

Arch made irregular by streamers



Saturday April 23 1892

Amor  
 stream more ~~west~~ East,  
 at  $3^\circ$  in 12 seconds,  
 $c' \text{ set} = 1^\circ$  in 4 seconds.

This obs. was made on stream in  
 the north

In west stream have little or  
 no movement,

11:10

Some faint streams start  
 from within  $6^\circ$  of horizon

Y Virginia

$a^2 5 a'$

$a' 5 a$

$a 5 b$

$b 4 c$

$\{ a 4 b'$

$\{ b' 3 b$

abandoned c

$c' 6 d$

$d 3 e$

$f 5 g$

$g 3 h$

$h 5 k'$

$k' 4 m$

old k is lost (position)

$m 4 n$



Saturday April 23 1892

71

Amura (Arch)

13:2

a+b  $\left( \begin{array}{c} 22.88 \text{ I} \\ 22.80 \text{ II} \end{array} \right)$  upper

22.86

~~41.3~~ 36.7

S 37.6

36.3

13:43

a+b  $\left( \begin{array}{c} 22.55 \text{ I} \\ 22.45 \text{ II} \end{array} \right)$  upper

22.53

S 37.6

36.3

13:6

a+b  $\left( \begin{array}{c} 22.55 \text{ I} \\ 22.45 \text{ II} \end{array} \right)$  upper

22.54

S

(C)  $\gamma$  6.07 I Lower

S

$\rho$  6.75

$\pi$  6.62

$\theta$  6.60

$\nu$  6.73

6.62

6.30

6.60

$B = 5.73$  I Lower

S

$B = 4^\circ$

$C = 90$

$m_{\text{app}} = 3$

13:20

A very faint Arch

$m_{\text{app}} = 3$

14:57

a+b  $\left( \begin{array}{c} 24.33 \text{ II} \\ 24.37 \text{ I} \end{array} \right)$  upper

24.38

36.7  
39.6  
38.8

41.0 S  
40.2

14:59

a+b  $\left( \begin{array}{c} 25.40 \text{ II} \\ 25.40 \text{ I} \end{array} \right)$  upper

25.44

57.5

S

72

Saturday April 23 1892

Aurora ✓

15.2

$$a+b = \begin{pmatrix} 25.08 & \text{I} \\ 25.04 & \text{II} \end{pmatrix} \text{ upper}$$

25.08

40.6

39.8

S

Aurora too faint to observe accurately.

 $\beta$  Lyrae ✓

15.2

$$\beta = \beta$$

$$\beta 1 \delta$$

$$\beta 2 \theta$$

E

15.3

R Cassiopeia ✓

v 1 f

(w m R) B

Sunday April 24 1892

Lora Amisae

H

$$\begin{array}{r} \times \left\{ \begin{array}{l} w 4 x \\ x 3 y \\ a' 1 y \end{array} \right. \\ \times \end{array}$$

S. Pucci

L

$$a 5 v$$

$$v 3 c$$

$$b 2 v$$

Green Glas

$$v 1 c$$

$$b 3 v$$

43-21

R Virginis ✓

L

$$a 5 b$$

$$b = 4^R$$

$$b 2 c$$

$$c 4 d$$

$$d 3 e$$

$$e 6 f$$

$$f 2 g$$

$$g 3 h$$

$$h 4 k$$

$$v = 2^R$$

$$h = v$$

$$v 3 k$$



Sunday April 24 1892

R Virginis (continued)

$$\begin{array}{r} k \ 5 \ l \\ l \ 4 \ m \\ m \ 5 \ m \\ m \ 3 \ 0 \\ \hline o \ 4 \ h \\ h \ 4 \ g \\ \hline \end{array}$$

$$\begin{array}{r} g \ 3 \ R \\ R \ 4 \ S \\ S \ 3 \ T \\ \hline T \ 3 \ u \\ \hline \end{array}$$

$$d_e = S$$

$$d_e \ 4 \ T$$

$$\begin{array}{l} S \ 2 \ e_c \\ e_c \ 2 \ T \end{array}$$

$$\begin{array}{l} T \ 3 \ f_c \\ f_c = u \end{array}$$

$$\begin{array}{l} b_c = g \\ b_c \ 5 \ R \\ \hline \end{array}$$

$$\begin{array}{l} 121 \ a_c \\ a_c \ 5 \ g \end{array}$$

Sunday April 24 1892

12.4

Amora (Arch)  
 $a+b \left( \begin{array}{c} 23.62 \text{ I} \\ 23.58 \text{ II} \end{array} \right) \text{ upper } 23.62$   
 magn 3  
 $C = 6^\circ$

36.4  
 39.1  
 37.8  
 S

12.4

~~12.4~~

$a+b \left( \begin{array}{c} 23.77 \text{ II} \\ 23.82 \text{ I} \end{array} \right) \text{ upper } 23.82$

39.3  
 38.0  
 S

12.29

$B = 6^\circ$   
 magn 2

E

12.36

$B = 3^\circ$   
 magn 2

E

14.0

Irregular patches of light  
 $b+c = 10^\circ \pm$

R Ursae Majoris ✓

14.9

h 4v  
 v 1k

L

S Ursae Majoris ✓

15.0

h 3v  
 v 1k

L

✓ S Bootis ✓

15.1

v 3f

L

Sunday April 24 1892

15.2

R Draconis ✓

$$v = \frac{1}{2}f$$

L

+ Aphel ✓

15.2

$$e 5v$$

$$v = 3f$$

$$v = \frac{1}{2}gR$$

L

S Aphel ✓

15.3

$$l 3v$$

$$v = 2m$$

L

R Cassiop ✓

$$o 2v_e$$

$$v_e = 3f$$

$$v = 8R$$

L

15.4

$$v = 1f$$

Dawn L

$\beta$  Zyrac ✓

15.5

$$\frac{1}{2}v_p$$

$$\beta 10$$

E



Monday April 25 1892 <sup>77</sup>

Aurora

Band from East to West

+5 E 1 19

+23:40 W 0 24

7 57 +23 20 W 3 21

+8 50 E 0 29

+24 0 W 2 29

7 59 +22 0 W 3 58

-0 20 E 1 45

+16 40 W 1 12

8 3 +28 0 W 3 36

+20 20 W 5 22

+23 15 W 3 43

8:5 +6 9 W 1 48

Monday April 25 1892

Southern ✓

+16 40 W 4 27

+10 16 W 2 9

+5 10 W 0 13

8 7.5

Band has become too faint & scattered for further observation.

The band, though out this of observations, was broken with many dark rifts. It resembled the drawings of the Milky way lately executed at the Lick Ross Observatory.

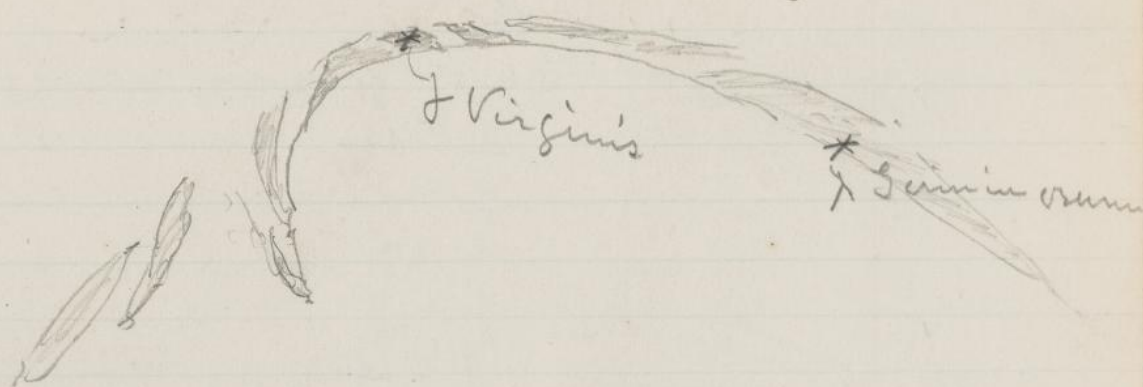
Also similar patches of light would rise like smoke <sup>or flames</sup> from a living hoarf. In such cases the patches of ~~light~~ <sup>smoke</sup> from or upwards went from East to West.

The band gave the appearance of a very much splintered band, cut obliquely to the grains.

At the top of this page the word Southern ~~refers~~ means that of two bands of light then existing the Southern one was observed, the Northern one was broader & shorter.



Monday April 25 1892<sup>79</sup> ✓



The above sketch represents the aspect of the band when first seen, which was a few minutes before the observations began.

9:40 This sketch is made now from memory.

Aurora ✓

$$c = 12^\circ$$

$$b = 3^\circ$$

48° from north point to west extremity

$$a = 24^\circ$$

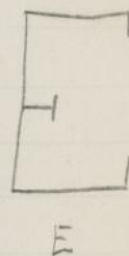
magn. 2

A faint arch.

$$b = 1^\circ$$

magn. 3

$$c = 10$$



45-<sup>2</sup>/<sub>3</sub> R Virginis

$$a = 4b$$

$$b = 6^R$$

$$b = 5c$$

L



Monday April 25- 1892

45-31 R Virginia (continued)

L

c 5 d

d 3 e

e 6 f

f 2 g

g 4 h

h 4 k

k 4 l

l 2 m

m 3 n

n 4 o

o 4 p

p 3 q ✓

q 2 R

R 3 S

S 3 T

T 2 u

u 1 a c

a c 4 q ✓

Aurora ✓

c = 9°

azimuth = 35° 20'

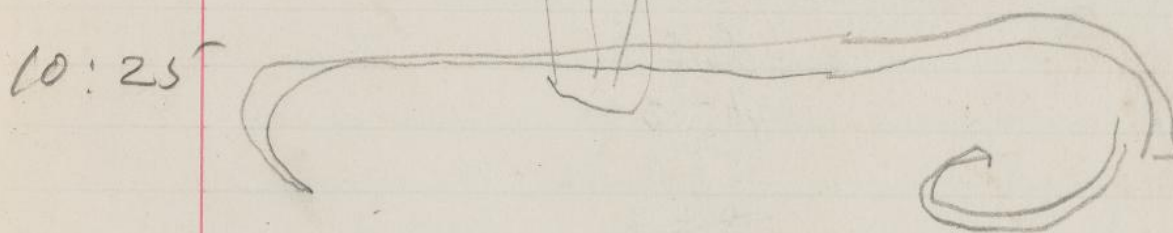
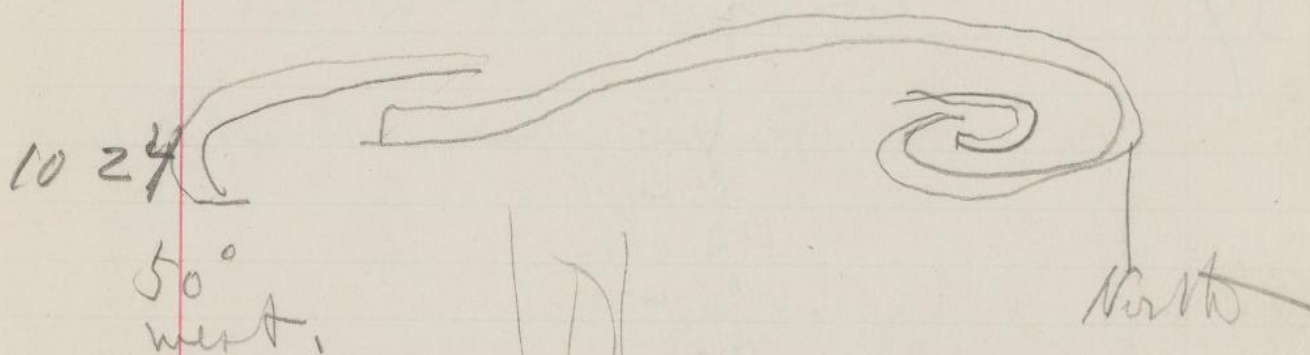
b = 1

streamer

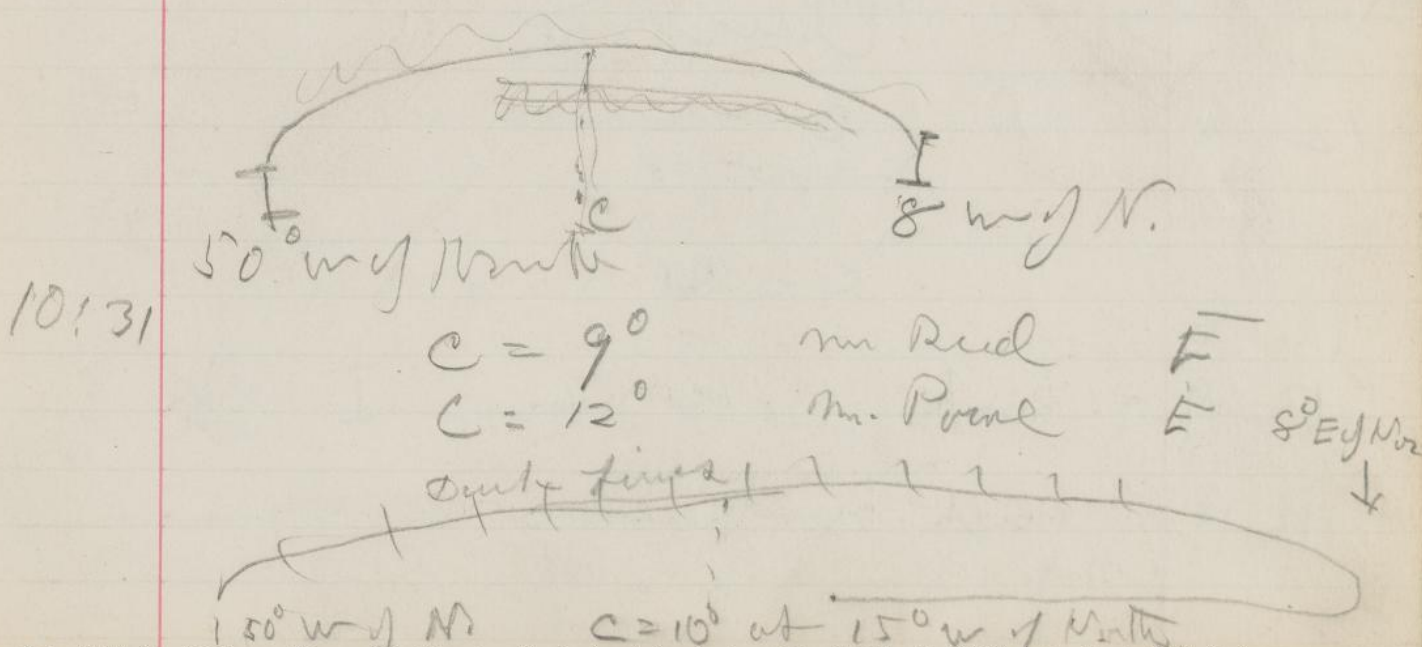
extending upward 10°

Above time 3<sup>m</sup> fast This refers only  
to 10:28

Monday April 25-1892  
✓



bulk of light  
travelled East 7° in 25<sup>s</sup>





Sunday April 25-1892.  
Aurora

~~B = 5° in W m R~~

B = 7° T. E. Rowe.

10:37

at azimuth W 25°

R Virgins (continued) L

b c 1 q  
p b b c  
b c 3 R

d c = S

d c 3 T

~~S = c~~

d c = T

d c 3 u

L  
|  
L

Aurora

12:6

c = 21°

mag. 1

E

c = 21°

E

12 8

12 9

a+b 13.38 Lower I  $\frac{20.9}{11.5} - \frac{22.4}{-}$  S

12 10

arch broken in to stream  
converging to a point at



Monday April 25 1892 ✓

12:13

6° west of  $\Delta$  Coronae. W.M.R.

12:15

5 west of  $\Delta$  Coronae T.E.P.

General appearance as in above sketch. Nearly half of arcuatus are covered. At East & West streamers change in usual manner as shown in sketch but then converge to one point. Color white magnified 2<sup>d</sup> pt.

Inclination of streamers

west 40°  $\angle$  75° to WEast 10°  $\angle$  83° to EEast 70°  $\angle$  72° to E.

12:30

Monday April 25 1892

48.

4816

V virginis

a 4 b

L

b 4 c

c 3 d

d 3 e

e 5 f'

f' 2<sup>3</sup> fabandon former f at  $-2^{\circ} 8'$ 

f 4 h

h 3 k

abandon g

k 5 l

l 5 m

~~abandon m~~

m 3 n

Anna ✓

14:35

Streamers converge to a point  
4° west of Heculis

Inclination of streamers

West 40° L 70° W

West 75° L 90°

East 50 L 57° E

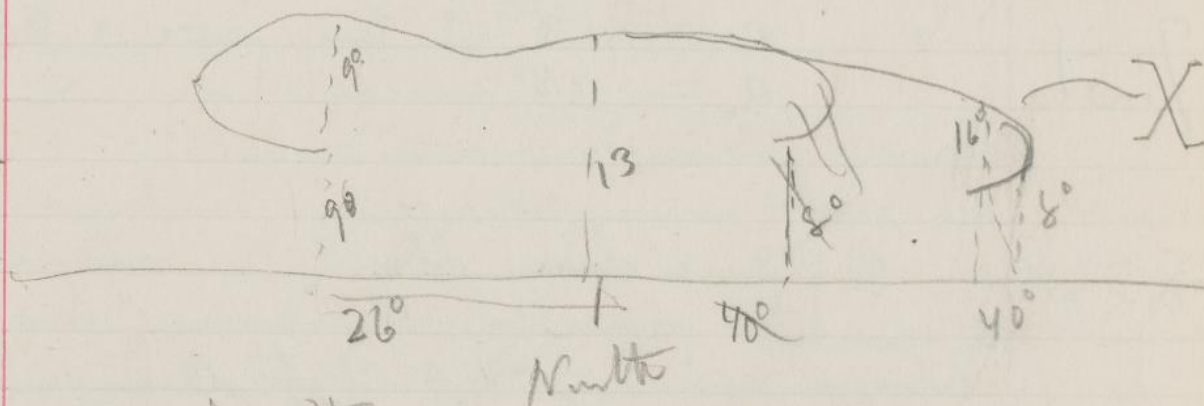


Monday April 25 1892

85

✓✓✓✓

14:52

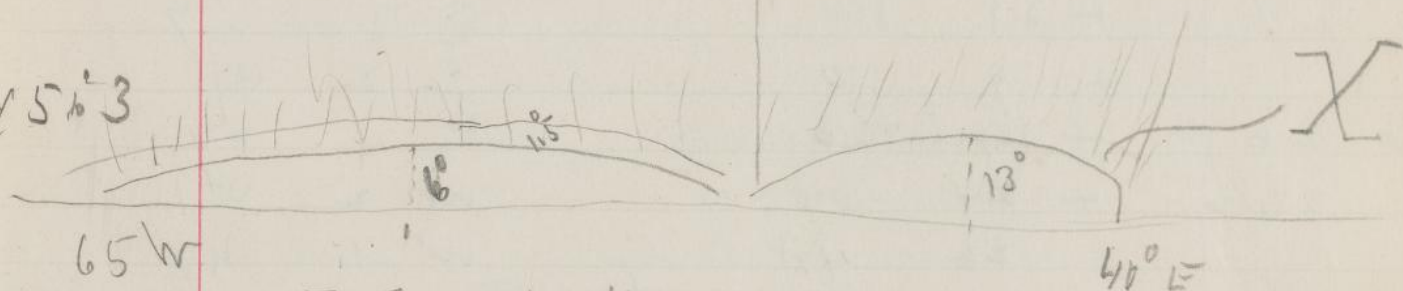


Velocity East 1.5 in 50s

14:58

Streamers converge 5° south of Heculis,

15:3



X in both drawings are identical features.

$\beta$  Lyrae ✓

15:2

$\beta 4 \beta$   
 $\beta 2 \beta$



Tuesday April 26, 1892  
Aurora Anch

7:51

$e = 13^\circ$  twilight  $\Sigma$   
 $B = 3^\circ$   $\Sigma$

7:56.5

A sudden flash of light like  
a meteor coming from N. May = Venus.  
about  $2^\circ$  East of  $\gamma$  Aurigae.

Aurora band extending east to  
west & south of Zenith. Following observations are  
by pointing the West Equatorial Tel. at middle of band.

8 23	+ 20	30	W 3	28
8 24	+ 27	30	W 1	5-7
8 24	+ 21	10	E 1	3 7
8 26	+ 9	50	E 2	47
26 1/2	+ 19	30	W 4	27
	+ 24	00	W 2	5-1
	26	40	W 1	49
27		very faint		
	+ 20	10	W 0	16
28	+ 11	30	E 1	5-1
29	+ 15	05	W 5	14
30	+ 20	5-1	W 2	21
8 30 1/2				

Traces still in S.W.  
~~Clock in fast.~~ Clock was right.

Band about  $2^\circ$ - $3^\circ$  in width  
with breaks & rifts such as were  
seen last night. Observations

Tuesday April 26 1892 87

on its general features were very casual all attention being paid to determining its position.

Mr. Pome was making naked eye observations in Gemini when the band suddenly appeared we commenced to observe it about 1.5 minutes afterwards.

9.2

S Persei Aurora L

b 1 v

v 4 c

v = b<sup>R</sup>

Green Glass

v 1 c

b b v

4826 R Hydrae

4847 S Virginis L

a b b

b 3 c

c b d

d b e

e 4 f

f 2 g

g 5 h



Tuesday April 26 1892

~~S~~ R Virginis

L

n 3 k

k 4 l

l 3 n

Abandoned m

n 3 o

o 2 p

p 3 q

10:15-

Mercury passed through tel. from  
W to E  $-7.0^\circ$  13 26' Magnitude 9

q 3 R

R 2 S

S 3 T

T 3 u

u 3 w

w 4 x

s 3 d<sub>c</sub>

d<sub>c</sub> = T

d<sub>c</sub> 3 u

e f c = w

e c 2 x

x 3 f c

c c = p

o 3 c



Tuesday April 26 1892

~~S~~ ~~R~~ Virginis

$$a = 5^R$$

$$v = 4^R$$

$$a_c = h$$

$$a_c \perp k$$

$$v_c = x$$

$$v_c \perp y$$

L  
|  
b  
|  
H  
H

5494 ~~alt~~ S Lithue

~~\* mP~~

~~a 3 b c~~    a 3 b  
~~c 4 3 b~~    b 3 c  
~~b 5 d~~    c 5 d

~~b = from c~~    ~~c = from b~~

d 4 e  
e 3 f  
f 4 g

g 3 h  
h 4 k

k 5 l

l 3 m  
m 4 n

l c = m  
l c 3 m

L  
|

Tuesday April 26 1892

S Titae ✓

m 6  $\beta_c$

$\beta_c$  1 n

$v \div d$

$v 2 e$

L  
L

12.4

X

~~0 3~~

m 3 0

0 5  $\beta_c$

$\beta_c$  5  $\beta_c$

$\beta_c$  3 R

H

$\beta_c$  1  $\beta_c$

$\beta_c$  2 R

Wednesday April 25<sup>th</sup> 1892

91

$\beta$  Lyrae ✓

$\gamma^4 \beta$   
 $\beta 1 \frac{3}{5}$

12.4

R Hydræ ✓

~~y 5 Rv (sec)~~

12.7

c 1 v (sec)

a'3 a

a 4 b

b 5 c

c 4 d

~~d 3 e~~

L  
1  
L

X



Wednesday ~~April~~<sup>May</sup> 4 1892

8.5

S Persei ✓

64v

v 1 c

m L

R Hydree

~~a~~ a 5  $\beta$

See Klein

L E

$\beta$  5  $\gamma$

$\delta$  4  $\delta$

$\epsilon$  3  $\epsilon$

$\zeta$  3  $\zeta$

$\eta$  5  $\eta$

$\theta$  3  $\theta$

$\iota$  4  $\iota$   $\lambda$

$\mu$  4  $\mu$

$\nu$  3  $\nu$

$\omega$  5 0

0 5  $\pi$

$\pi$  4  $\rho$

$\rho$  5  $\sigma$

$\rho = a$  in see chart

d 4 e

e 5 f

f 4 g

g 4 h

h 3 k

k 3 l

Wednesday <sup>May</sup> April 4 1892

R Wyckae (continued)

l 3 m

m 3 n

a 5 b

b 6 c

c 3 d

L m

L m

Saturday May 7 1892

Aurora  
arch

13 59

highest point of arch  $10^\circ$  west of North point on horizon. E  
at this point arch is  $10^\circ$  from lower edge to horizon and  $2^\circ$  thick. E  
faint streamers — some extend from beneath the arch. E

14:06

a ball of light on <sup>eastern</sup> ~~western~~ edge of arch moved east  $6''$  in 1 minute E

14:07

center of arch  $7^\circ$  east of North point on horizon. E

14:12

center of arch  $16^\circ$  east of North point on horizon. E



Monday May 16 1892

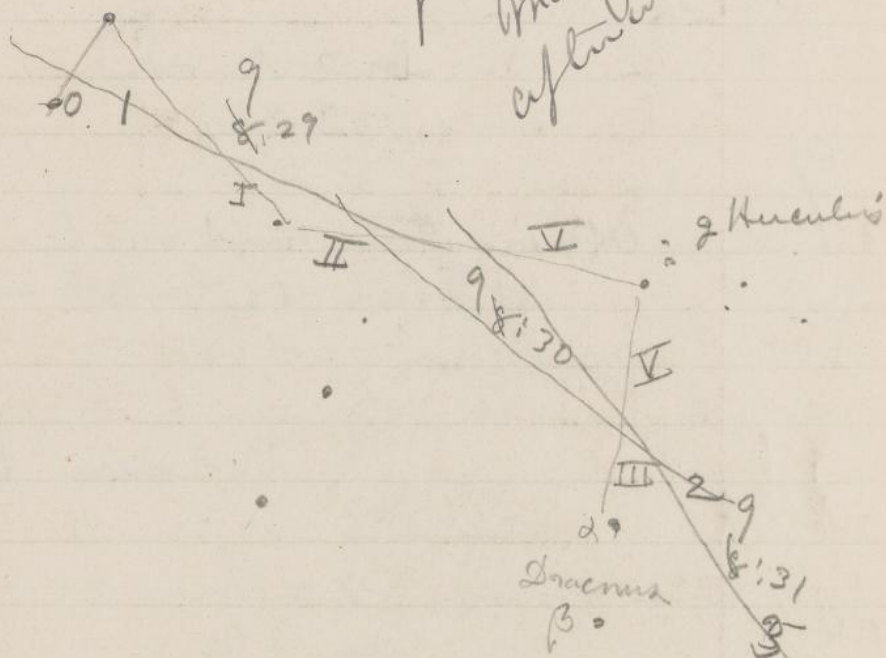
95

Band

9  
8:29

unusually

This was  
probably a cloud  
moving across  
afterward.



It then swung so low as to  
be visible to horizon.

The Band was faint and only  $10^{\circ}$ - $15^{\circ}$   
high and perhaps  $2^{\circ}$ - $3^{\circ}$  wide.  
Lower edge was well defined but the  
upper was irregular.

It resembled an incandescent  
cirrus cloud: but I think it improbable  
that it was not an auroral band.

During appearance there was an  
aurora in north, partly concealed by  
clouds. Many streamers were visible  
above clouds. No other clouds

Monday May 16 1892

in hams exact seen horizon  
in North-West.

R Lynceis ✓

b 3v

S L

v 3c

v = 3R

9.9

Observation not reliable on account  
of clouds.

R Ursae Majoris ✓ Ch

v = m

v 4 n

10.0

S Ursae Majoris ✓

b 5v

L

v = m

10.2

R Ursae Minoris ✓

c = v

v 4 d

v = 2R

L

10.2



Monday May 16 1892

10.3

R Draconis ✓  
p 3v

tt

Amura ✓  
Circle

Z + a + b

86.8

88.0

87.7

86.9

86.0

86.3

86.8

86.0

86.2

Sext. B

10:30

10:39

10:42.5

Magnitude 3<sup>d</sup>



Monday May 16 1892  
 T Cephri ✓

10.9

esu  
 v 2 f

L

Anna

Arch ✓

Sept B

2+a+b 86.1

87.1

11:0

87.11

86.6

11:1

Arch is heating up.  
 Arch 3<sup>rd</sup>

on a star

77.4

77.4

77.3

77.4

Arch ✓

Sept B

11:8

87.9

86.9

86.5

11:12

86.7

Sept B  
 E

$b = 2^0$

Magnitude 3d

Monday May 16 1892

99

$\delta$  Cygni ✓

11.3

$n 3v$   
 $v 20$

H

$\beta$  Lyrae ✓

11.6

$\delta 2\beta$   
 $\beta 4\beta$   
          

E

Aurora ✓

11:37

Aurora

2 + 6 + a

86.2

86.3

86.0

B = 2°

Sext. B

Sext. B  
E

11:39

Magn 3d

New Vm No 4 ✓

12.0

d 4v

v 3e

v = 10R

L

12:4

Aurora

Aurora ✓

87.0

87.0

87.2

Sext B

12:17

Aurora 2° (very faint)

11.99



Monday May 16 1892

12.4

New Van No 9 Ag gms ✓

max 1 v

v 2 ~~x~~  $\beta$

v = 10 R

L

12.5

New Van No. 12 ✓

C 2 v

v 4 d

v 5 b

Aurora

Arch ✓

Sext B

12:38.5

83.5

83.6

84.0

83.8

84.0

b = 2°

E

12:41.5

82.8 ✓

82.8

83.5

83.3

83.4

83.6

83.1

Sext B

12:44.5

12:48



Monday May 16 1892

101

Answer ✓

These observations (on P100) are  
to zenith dist. of the lower edge of  
the arch ~~found~~ at is highest point  
from the horizon and which is  
about  $5^{\circ}$  W of the North point.

	$\times$ l	$\times$ k	$\times$ h $\times$ g	$\times$ f	$\times$ e	$\times$ d	$\times$ c	$\times$ G	$\times$ a	✓
	12:55		12:58		13:11					
b	84.3		85.1		84.2					
c	84.0		84.0		84.0					
d	82.3		83.0		83.8					
e	84.0		83.1		84.2					
f	85.2		85.6		85.6					
					131.3.5					

Monday May 16 1892

S Persei

✓

14.5

$$\frac{v}{c} = \frac{c}{5v}$$

m h

Green Glass

$$c 3v$$

m h

Tuesday May 17 1892

103

R Hydral

2 4 β

β 4 γ

γ 3 δ

δ 4 ε

ε 1 ζ

ζ 5 η

η 3 θ

θ 3 λ

λ 4 μ

μ 5 ν

ν 5 ο

ο 4 π

π 3 ρ

ρ 5 σ

a is the same as

a 3 b

b 5 c

c 3 d

d 4 e

e 6 f

f 3 g

g 3 h

h 4 k

E

E

B

B

X

ρ

h

(



Tuesday May 17 1892

R Hydrae ✓

k 3 l

l 4 m

m 3 n

v = 7<sup>R</sup>

l 3 v

v 3 f

$o'_c = m$

$o'_c \rightarrow l$

k +  $o'_c$

omission

$b_c = m$

$o'_c = l$

$o'_c \rightarrow m$

Interval between  $o'_c$  and l + m too  
great for accurate comparison.

R Camelopard ✓

f 3 v

v 3 g

11.2

4300 X Virgo

a 4 b

b 4 c

c 4 d

Tuesday May 17 1892

105

4300 X Virginia

X  $\begin{array}{r} d 5 e \\ l 6 f \\ \hline f 4 g \end{array}$

L

11:59

✓ meter at 11<sup>h</sup> 54<sup>m</sup> + 10°  
sowing S E

~~$\begin{array}{r} g 4 h \\ h 5 k \\ \hline k 2 l \end{array}$~~

$\begin{array}{r} g 5 h \\ h 4 k \\ k 1 l \end{array}$

X

$\begin{array}{r} c 5 d \\ \hline d e = d \end{array}$

l 2 a c

$\begin{array}{r} l 3 v \\ r 2 k \end{array}$

L

Tuesday May 17 1892

4315 R Cyrae Ber. ✓

a 3 b

b 2 c

c 3 d<sup>2</sup>

d<sup>2</sup> 3 d omit d'

d 1 e

e 3 f

f 3 g

g 3 h

h 4 k

k 3 l

l 5 m

m 3 n

n 6 p omit o.

p 5 q

q 3 R

a = R

v < R

β Cyrae ✓

1 2 β  
β 4 5

12.9



Tuesday May 17 1892

$\beta$  Lyrae ✓

14.4

$$\lambda = \frac{\beta}{\beta_5 \frac{3}{5}}$$

m. E

+

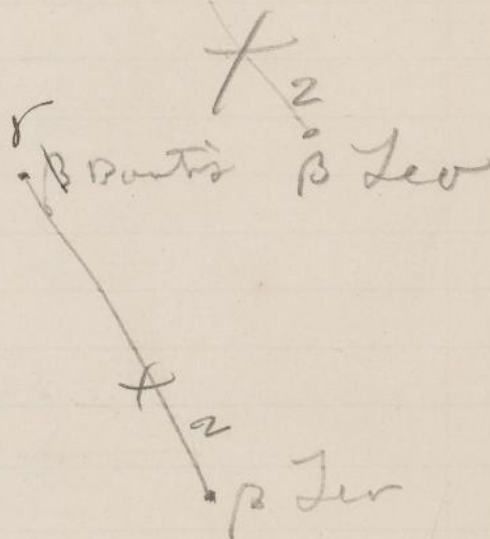
Wednesday May 18 1892 ✓

8:18

Vertex at

$\delta$  Bootis ✓

18:23



~~At about~~ ~~Stellar~~ units  
at about vertex from all  
of sky North of  $\epsilon$  & the front  
on horizon. At about  
this the Aurora was beamed  
at the vertex as spin on water  
is at the meeting of ecliptic ✓

8:25 The Aurora crown in faint

Wednesday May 18 1892

109

patches all beams except  
to south of  $-26^\circ$

8:25

$\delta$  Bantis ✓

~~X 3.  $\beta$  Leonis~~

$\delta$  Bantis ✓

8:33.5

Magnitude 2<sup>d</sup>

~~X 4  $\beta$  Leonis~~

$\delta$  Bantis ✓

8:37

~~X 4  $\beta$  Leonis~~

8:41

This was determined  
with considerable  
precision.

$\delta$  Bantis ✓  
~~X 0.45~~  
~~X 0.45~~  
 $\beta$  Leonis

8:44

At 8 streamer in NW  
moving W. w. vel of about  $1^\circ$  in  $10^3$ .  
But latter movement not vel. subject  
to doubt.



Wednesday May 18 1892  
Aurora. ✓

Streamers tinged with red  
in NE + NW in N greenish white,  
stream even whole northern  
hemis. ✓

✓  $\beta$  Bantis

8:53

vertex  $X^{10}_{.5}$  ✓

•  $\beta$  Leonis

✓  $\beta$  Bantis

8:56

well determined - vertex  $X^{10}_{.5}$  ✓  
•  $\beta$  Leonis

8:55

I watched one streamer about 50°  
long in the west for 1 min with  
out detecting any any lateral movement.

✓  $\beta$  Bantis

9:00

vertex  $X^{20}_{.5}$

•  $\beta$  Leonis

✓  $\beta$  Bantis

9:01

vertex  $X^{20}_{.5}$  ✓

•  $\beta$  Leonis

Wednesday May 18 1892

mean error of watch used in  
aurora is 7<sup>s</sup> slow.

9:49

vertex at d Bontis ✓

R Hydrus

E

$\alpha 5 \beta$  Faint flash E  
 $\beta 4 \gamma$  of aurora over the  
 $\gamma 3 \delta$  region.

$\delta 3 \epsilon$   
 $\epsilon 2 \zeta$

$\sim$   
33 12

22

27

34 faint I

38

41

59

34 10

16

partial

28

"

41

46

II

35 10

14

III

23

Wednesday May 18 1892

10:38

Vertex  $\frac{1}{2}$  way from  $\alpha$  Coronae  
to  $\alpha$  Bootis

The above readings of  
~~time~~ <sup>time</sup> ~~are~~ indicates successive flash  
is of the aurora <sup>at</sup> in the same point  
in the heavens. That point was  
very near the vertex. ~~and each~~  
~~flash had about the same shape~~  
~~as the succeeding one.~~  
All the flashes bore the same  
shape and <sup>outline</sup> ~~outline~~. A  
dark rift running NE + SW  
kept the same position  
throughout.

42<sup>m</sup> 5-5<sup>s</sup>

43

03

06

08

IV

43

02

08

12

13 faint

22 partial

V



Wednesday May 18 1892

The streamers and portions of streamers in N. are perfectly stationary, while at the center there are large and rapid pulsations

h m s ✓  
10 46 14 5

19 20

39

45

50

58

59

03

12

14

15

16

17

18

19

20

21

22

23

24

25

26

27

28

29

30

31

32

33

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280

281

282

283

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294

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297

298

Wednesday May 18 1892

$\frac{10}{5} = 2$

All the aureole visible <sup>highland</sup> is a  
stratified ~~in the strata~~ east and  
west, ~~also~~ <sup>on</sup> the meridian it is  
 $20^{\circ}$  from the N horizon and  $25^{\circ}$  from  
southern horizon, and runs almost  
due east.

~~In the last half hour the  
band has moved south  $1/4^\circ$~~

The altitude of the N end of  
the band has increased  $.4^{\circ}$  in  
 $16^m$  and is now on touching  
 $\beta$  Cassiopeia.

R Hyohal

In the previous observations on the position of the vertex,  $\gamma$  Bootis is the name of the star used and not  $\beta$  Bootis as recorded.

note



Wednesday May 18 1892 ✓

11:21

Vertex is at  $\angle$  Corona  
well determined. ✓

11:23

Vertex well determined  $2^{\circ}$  E  
and  $1^{\circ}$  S of  $\angle$  Corona. ✓

11:24

Vertex  $2^{\circ}$  E +  $1^{\circ}$  S of  $\angle$  Corona  
well determined. ✓

11:28

Vanishing point about  $1^{\circ}$  south  
of  $\angle$  Corona.

The whole N half of beam  
was ~~small~~ mass of streamers and  
patches of light.

Reviewed Conf. Slays in M. Weyl  
Comet (Swift)  $+30^{\circ}$   $23^h 20^m$

Bright star-like nucleus. The pe-  
numbra of light slightly elongated toward  
the west. But seeing poor :- comet near  
horizon and covered by auroral flashes.

$\gamma$  Cygni ✓

Variable Invisible

$< 12^m$

$2^m < \gamma$



Wednesday May 18. 1892

4948 R Canum Venentici

a 3 b	F	m
b 3 c	F	
c 4 d	F	
d 3 e	L	
e 4 f		
f 2 g		
g 5 h		
h 8 4 k		
k 3 l		
l 3 m		
m 3 n		
n' 3 o		
{ o 3 p } omit 1/2		
{ p 3 q }		
o 4 q		
q 4 R		
R 3 S		
S 3 T		
T 3 u	L	
T 4 u	H	
u 3 x omit w		
x 4 y	H	m
z 3 R	L	m
z c = q		
o 3 d c		

Wednesday ~~April~~ May 18 1892

4948

R. C. Vennitai

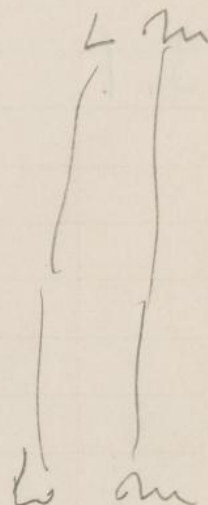
$$R = \frac{\beta_c}{93 \beta_c}$$

$$u_1 d_c$$

$$d_c 2 \gamma$$

$$\gamma 3 l_c$$

$$l_c 2 \gamma$$



$\beta$  Zyrac ✓

14.7

$$\frac{\theta}{0} 3 \beta$$

$$\frac{0}{\beta} 2 \beta$$

$$\frac{\beta}{\beta} 4 \delta$$

$$\frac{\beta}{\beta} 3 \underline{\xi}$$

E m

Tuesday May 24 1892  
R Cassiopea ✓

13.1

$$\begin{array}{c} g \frac{2}{5} v \\ \frac{2}{5} h \end{array}$$
 ~~$\frac{1}{2} h = R$~~ 
 $h = v_c$ 
 $v_c = 3g$ 
 $v = 4R$ 

$$\begin{array}{c} L \\ | \\ L \end{array}$$

$\beta$  Zyrac ✓

13.4

$$\begin{array}{c} a_4 \beta_c \\ \beta_c 4b \end{array}$$

$$\begin{array}{c} L \\ | \\ L \end{array}$$

$$\begin{array}{c} \gamma 5 \beta \\ \beta 2 \} \end{array}$$



Saturday May 28 1892

119

5494

S Librae

X *ml*

a 3 c

c 3 b

b 4 d

d 4 e

e 3 f

f 5 g

g 3 h

h 4 k

k 6 l

m 5 n

n 3 o

o 3 p

p 4 q

q 4 R

R

*tail*

Meteor

10:44 Motion South at RA.  $15^h 13^m - 20^\circ$

l 2 m'

m' 6 n

Substitute m' for m. m has a rather close companion with H (pomer)

g 2 b<sub>c</sub> not a very accurate  
b<sub>c</sub> 2 R who, on account of  
faintness + distance

c<sub>c</sub> = g Equally doubtful  
for above reasons

L

L

H

H

H

H

H

H

H

Saturday May 28 1892

1410

S Persei ✓

C3v

v3d

v24R

L<sub>0</sub> $\beta$  Zyrac ✓

1411

 $\beta 1\gamma$ 

E

 $\gamma^2\beta$ 

E

Tuesday May 31 1892

121

9.1

R Lynceis ✓

$b = v$   
 $v = 2e$   
 $v = 6R$

mL

9.3

~~44~~

R Ursa Majoris ✓

$b = v$

mL

9.4

✓

Ursa Majoris ✓

$b = v$   
 $v = 2e$

mL

9.6

S Ursa Maj. ✓

$v = 5$  m 5v  
 $v = 12$

mL

9.8

R Camelopardalis ✓

$c = 2v$   
 $v = 4d$

mL

R Draco ✓

$b = R = 2v$

mL



Tuesday May 31 1892

S Cygni ✓

Invisible

m h

T Cygni ✓

e 4 v

v 3 f

v = 8 R

m h

S Cygni ✓

var. Invisible

k visible.

e m h

New Variable at ✓

14 22.1

+ 5°

2

(1900) (?)

$\Delta m + 5.2879$  (7.8) 5 v

v 2  $\Delta m + 5.2880$  (8.4)  $\Delta L m$

$\beta$  Lyrae ✓

$\beta = 0$

$\beta = 3 \beta$

11.9

Tuesday May 31 1892

R Cassiopeiae ✓

L

12.2

g 1v  
v 3h  
v 25-R

Wednesday June 1 1892

$\beta$  Lyrae ✓

9.3

$d^3 \beta$   
 $\beta = \underline{AK}$

m

4300

X Virginis ✓

a s b

b u c

c s d

d s e

e s f

f s g

g s h

h y k

c y l e

d c i d

a x f 2 l

k 3 x a c

k 4 l

v = k

m L

L m

10.2



Wednesday June 1, 1892  
~~at the observatory~~

4315 R Comae Ber.

Revised list of comp. stars  
 Moon too near,

4421 R Virginis

L me

a5b

b3c

b3R

c3d

d2e

e3f

f3h

h2k

k4l

l4m

m5n

n4o

o3p



New Variable No 9 Cygnus

12.4

m2v

$v = \beta$

~~the~~ L

0.2 V<sub>R</sub>  
 $v = 4$

Wednesday June 1 1892

5504

S Coronal

a4b

b6c

c6d

4

 $\beta$  Lyrae ✓ $\frac{1}{2} = \beta$  $\beta 1 \frac{1}{2}$  $\beta 2 \underline{k}$ ~~Twilight~~  
Dawn.b2  $\beta_c$  $\beta_c 2 c$ 

" L

~~d2  $\beta_c$~~  ~~$\beta_c 1 b$~~  ~~$\beta_c 2 \underline{c}$~~ ~~ML~~

15.0

~~15.7~~

Thursday June 2 1892

$\beta$  Lyrae ✓

10.3

$\left\{ \begin{array}{l} \beta \\ \beta \end{array} \right. \begin{array}{l} 1 \\ 2 \end{array} \begin{array}{l} \beta \\ 0 \end{array}$

M

d 2  $\beta$ e

10.7

$\beta$ e 1 b

L m

$\beta$ e 2 e

5826 T Scorpion

$\begin{array}{l} a^2 4 a' \\ a' 4 a \\ a 3 a' b \\ b' 4 c' \end{array}$

L m

clouds stopped etc.

✓ Aurora

Auroral Light and occasionally streamers have been visible nearly all night through openings in the clouds. At about 14:30 a large number of streamers, with much shimmering, were seen in the North to N.W. Movement was apparently East.



128

Saturday June 4 1892 $\beta$  Lyrae ✓

13.6

 $\beta = \gamma$ 

E

Tuesday June 7 1892

129

S Serpenti's

m L

X a 6 6  
b 3 c

Friday June 10 1892

13.3

$\beta$  Zyrac ✓ m E  
 $\gamma = \beta$   
 $\gamma 1\beta$

S Superantis ✓ See P 129 m L  
 c 3 d  
 d 5 e  
 e 6 f  
 f  $\beta^3 g$   
 g 2 h  
 h 5 k  
 k 4 l  
 l 5 m  
m 2 n  
 n 3 o omit n

14.1

h 2 v  
 v 2 k

R. Cronae

e 4 f m L  
 f 3  $\frac{1}{2}$  g  
 omit h (= g)

g 4 k  
 k 3 l  
 l 3 m  
 m 4 n  
 n 4 o  
 o 4 p



Friday June 10 1892

131

R Corona

X  
O 4 q  
q 4 R  
R 4 T  
T 5 u

m L

S is missing, from chart.

S Persei ✓

C 4 v  
v 3 d  
v = 6 d

m L

14.8

Saturday June 11 1892

R Corona

d 6 e  
c 2 d (?)

m R

$\beta$  2 Inrae ✓

$\gamma^4 \beta$

m F

$\beta 3 \frac{1}{2}$

$\gamma$  Serpi

c' 5 d' ?

d' 3 b

b 5 c

c 3 d

d<sup>2</sup> 3<sup>2</sup> e'

+5.2879 d 5  
2880 = v

New Ver. 14 22 + 5<sup>0</sup> ✓

( $\phi m + 5.2879$ ) 5 v

m L

v = ( $\phi m + 5.2880$ )  
v = 1<sup>R</sup>

1992phae.proj...1508

Sunday June 12 1892

13.7

$\beta$  Lyrae ✓

$\gamma^6 \beta$   
 $\beta 1 \{$   
 $\underline{\quad}$

m E

S Corona

X f  
a 3 b'  
b' 3 b  
b 6 c  
c 3 d'  
d' 3 d



Monday June 14 1892

T Scorpii

X  
e' 42 f'  
f' 4 g'  
g' 3d

Wednesday June 16 1892

T Scorpii

X  
d 5 f  
f 4 e  
e 2 h'  
h' 3 g

L

β Zyrac ✓

E

(2.4)

β 1 }  
β 1 θ

5504

S Corvace

X  
h 4 k  
~~h 4 k~~  
k 3 l  
l 3 m

L m

Friday June 17 1892

Wound Alley 835 at  $11^h 30^m$

~~Correct  
time~~

Observatory

clock

$12^h 2^m 0^s$

$12^h 4^m 0^s$

$12^h 5^m 0^s$

Alley  
835

$12^h 1^m 51.5^s$

$12^h 3^m 51.6^s$

$12^h 4^m 51.5^s$

slow

8.5

8.4

8.5

mean  $\underline{8.47}$



Sat June 18 1892

9:20 Mound Alley 835-

observing clock			ally 835-			slow
g <sup>3</sup>	m	s	g	m	s	
26	0		25	58		2.0
27	0		26	58.1		1.9
28	0		27	58.1		1.9
						<hr/> mean 1.93

S. Corona

Sunday June 19 1892

wound ally 11:45<sup>u</sup>

Obsen. clock

11 48 0<sup>s</sup>

49 0

50 0

ally 835<sup>u</sup>

41 48 1.0

49 1.1

50 1.0

Fast

1.0

1.1

1.0

mean 1.03

m 19  
T 20  
w 21

Wednesday November <sup>16</sup>~~21~~ 1892

139

7.3

Put this on proper Page.

S Persei

f 6 v  
v 2 g

L

Comet in Anchomeclae E

Anch. Neb very much brighter than E  
perhaps 8 grades.

10.6

Y 4 E  
E 5 2

Nov. 16 1892  
See Page 170.

Aurora

f. and.

z x  
E  
Y #136

Slight glow over the top of a bank  
of cumulus clouds in N. 10°-25° W

8230

S Egerii

c 4 d  
d 5 e

L

2 4 v  
v 2 n



140

F S 2m 24  
21 2 3

Monday Oct 24 1892

h

9:0

Looked up Fathu Hagens Sun.  
var in Perseus near  $\delta$  Persei.

I find <sup>no</sup> star in the place described by  
Hagen as occupied by a 9 mag. not in Dm.  
3 up to the Souths following is a 12 mag  
star.

7560 ✓ R Vulpeculae

$v = m$  (see = a)

a' 6 a

a 3 b

b 4 c

c 3 d

d 4 e'

e 3 f

f 3 ~~g~~ k

k 3 ~~g~~ g'

g' 3 ~~g~~ e (see)

e 4 h'

h' 4 l

l 4 n

n 5 g'

~~Wednesday Oct 26 1892~~  
R v

141

Wednesday Oct 26 1892

7560 ✓ R Vulpeculae

~~a' a' 6 ~~g~~  
 a g ~~h~~ 5 c  
 b c 3 d  
 c d 4 e'  
 d e' 4 f  
 e' f 4 g' omit K  
 f g' 3 e (sec)  
 (k) e 4 l omit K'  
 g' l 4 m  
 (sec) e n 5 g  
 (k')  
 l m 2 v  
 n  
 g g<sub>c</sub> = R  
 a' 2 g~~

g 4 R

8373 S Pegasus

~~a 3 b  
 b 4 c  
 c 4 d  
 d 5 e~~

12:35 Meteor found through field of  
telescope viz, SE at RA. 23<sup>h</sup> 15<sup>m</sup> 48<sup>s</sup>



Wednesday Oct 26 1892

Meteor (continued)

Sid time 3<sup>h</sup> 12<sup>m</sup> from Cape 4<sup>h</sup> 2<sup>m</sup> W

✓ S Pegasi (continued) L

e 3 f

f 3 g

g 2 h

h 4 k

k 4 l

l 4 m

m 3 n

n 2 o

o 3 p

p 4 q

q 3 R

R 3 S

S 3 V

V 1 f

f 1 g

g 1 h

h 1 i

i 1 j

j 1 k

k 1 l

l 1 m

m 1 n

n 1 o

o 1 p

p 1 q

q 1 R

R 1 S

S 1 V

V 1 f

Meteor

Motion NW RA. 23 13 + 8°

Sid. Ti. 3<sup>h</sup> 55<sup>m</sup> HA 4<sup>h</sup> 38<sup>m</sup> W

S Pegasi (continued)

Hagens Sus Var in Perseus.

Sus Var (not visible)

3 35  
4 42  
5 49

Thursday Oct 27 1892

to Shepard St

Friday Oct 28 1892

18 shepardst  
early morning.

10.2

✓ R Draconis  
 $\frac{f}{v} 3v$   
 $\frac{v}{v} 1g$

Fussy  
Definition

L

10.3

✓ T Cephei  
 $\frac{h}{v} 3v$   
 $\frac{v}{v} 3g$   
 $v = gR$   
Green Glass  
\$  $\frac{h}{v} 3v$   
 $\frac{v}{v} 3k$

✓ S Cephei  
 $m 2v$   
 $v 1m$

✓ R Cassiope  
 $\frac{h}{v} 4v$   
 $\frac{v}{v} 2g$   
 $v = 2R$   
Green Glass  
 $\frac{q}{v} 5v$   
 $v = R$

10.8



Friday Oct. 28 1892

✓ T Cassiopeiae

 $g \ 6 \underline{v}$   
 $h \ 1 \underline{h}$   
 $v = 8 \underline{R}$ 

Green Glass

 $h \ 5 \underline{v}$  $k = \underline{v}$  $v \ 3 \underline{L}$ 

11.1

✓ S Cassiopeiae  
Invisible✓ R Aurigae  
 $g \ 2 \underline{v}$ ✓ R Lynx  
 $h \ 5 \underline{v}$ 

seen w. difficulty.

✓ R Ursae Maj.  
Invisible✓ T Ursae Majoris  
Invisible

✓ S Ursae Maj

 $d \ 5 \underline{v}$  $v = \underline{e}$  $v \ 6 \underline{f}$  $v = 7 \underline{R}$ estimates  
only approximate.

11.6

Z misty

Friday Oct. 28 1892

✓ R Camelopardi

f=v  
v4g

L misty

✓✓ S Bontis  
too near horizon  
invisible.

✓ R Ursae Minoris

d2v  
v2c

12:0

✓ New Var No 1  
v1d✓ New Var No 2  
v3g  
v5c✓ New Var No 12  
β2v  
v3g  
v=3R=3R

misty

✓ New Var No 13<sup>v</sup>  
p v β1v✓ S Persei  
f5v  
v2g

L

12:17



Friday Oct 28 1892

13.9

✓ + Posner

$v = d$

L

✓ New Var No 4

$d 3v$

$v 3e$

$e = 10R$

Frost remained from  
Object dark.

893

V Ceti

$a 5b$

$b 4c'$

$c 3c$

$d$  brighter than  $c$

Too (111) too extensive so near horizon.

1577

R Tauri

$a 5b$

$b 3c$

$c 2d'$

$d' 3d$

L

Fog prevents further observations



Saturday Oct 29 1892

149

10.6

✓ S Persei

f<sub>3v</sub>  
v<sub>4z</sub>

m L

6373 ✓ S Pegasi

X

aob

b<sub>5c</sub>

c<sub>3d</sub>

d<sub>5e</sub>

e<sub>4f</sub>

f<sub>3g</sub>

g<sub>3h</sub>

h<sub>4k</sub>

k<sub>3l</sub>

l<sub>3m</sub>

m<sub>3n</sub>

n<sub>4o</sub>

o<sub>3p</sub>

p<sub>5q</sub>

q<sub>2R</sub>

R

f<sub>4v</sub>

v<sub>2g</sub>

g

a<sub>c</sub> = R

R = b<sub>c</sub>

b<sub>c</sub> = s

(over)

Saturday Oct 29 1882  
~~111111~~ ~~1111~~ ~~11111111~~

S Pegasi (continued)

X

R 5 S

L m

$c_c = S$

Clouds stopped observing

R Ceti

~~2 3 d~~

d 3 L

L 5 c

c 4  $\beta$

$\beta$  4  $\gamma$

$\gamma$  4  $\delta$

$\delta$  2  $\epsilon$

$\epsilon$  3  $\eta$

$\eta$  4  $\theta$

$\theta$  5  $\iota$

$\iota$  4  $\kappa$

Stopped by clouds

Sunday Oct. 30 1892

R Cygni

In L

X

X

a 4 b

b 5 c

c 4 d

d = 2 R

d 4 e

e 4 f

f 4 g

g 3 h

h 4 k

~~k 4 l~~ k 6 l

l 3 m

m 5 n

n 2 0

o 6 p

p 3 q

q 3 q

q 3 R

R 4 S

a<sub>c</sub> = n

Cloudy

e



Sunday Oct. 30 1892

R Tauri.  
For a-d see P 148

d 3 e'

e' 3 e

e 4 f

f 3 g'

g' 4 g

g 4 h

L

✓ Meteor

16:14 movement SW

RA 4 24 +10° 0'

S.T. 7<sup>h</sup> 7<sup>m</sup> from L 2<sup>h</sup> 43<sup>m</sup>. W

R Tauri (continued)

h 4 k'

k' 3 l'

l' 3 l

l 24 l<sup>2</sup>

l<sup>2</sup> 3 X m

atmosphere too unsteady for these faint  
stars,

Thursday Nov. 3 1892

153

✓ New Var. No 8 Aquila

8.9

$V 3 \gamma$

d very much brighter than  $V$

$V = 10R$

Green ~~Blue~~ Green

$V 2 \alpha$

$V 1 \gamma$

L m Z

Z

9.0

✓ Delphinus

New Var No 11

$B 3 V$

$V 3 \alpha$

✓ New Var No 10

$\alpha 2 V$

9.1

Aquarius

$V 5 \beta$

✓ Lacertae New Var. No 14

$G = V$

$V 5 b$

$V = OR$

$\alpha$  missing.

9.3

✓ Cygnus New Var No 9

$V = \alpha$

$V = 1R$

9.5

✓ New Var No 12

$b 4 V$

$V = \Sigma$

$V = 5R$

L m



Thursday Nov. 3 1892

10.2

✓ Delphinus New Var No. 13 L m  
 $d \ 3v$   
 $v \ 2\beta$

10.3

Canis major ✓ New Var No 4  
 $v \ 1e$   
 $d \ 5v$   
 $v = 10R$

10.5

✓ S Porsei  
 $f \ 4v$   
 $v \ 4g$

8270 R Pegasi

$a \ 6b$   
 $b = e$

Interval between e and d too large.

Clouds

11.1

✓ R Ursa Majoris  
 $m \ 2v$   
 $v = m$



Sunday Nov 6 1892  
 ✓ 7560 R Vulpeculae

X  
 a' 5 a  
 a 4 b  
 b 3 c  
 c 3 d  
 d 5 e  
 e' 4 f  
 f 5 g'  
 g' 3 e (sec)  
 e 4 d  
 d 5 n  
 n 3 R  
 R 2

Variable Invisible

8290 R Pyxasi

a 4 b

X  
 \* e 3 f  
 e f 4 g  
 f g 2 h  
 g h 6 k  
 h k 2 l  
 k l 6 m  
 l m 2 n  
 m n 2 o  
 n o 3 p  
 o p 3 q  
 q 3 R

L m

L m

Sunday Nov. 6 1892

R Pezari

LM

S 3 T

T 4 U

6373 S Pezari

X

a 3 b

b 4 c

c 2 d

d 4 e

e 3 f

f 3 g

g 3 h

h 4 i

i 5 l

l 3 m

m 2 n

n 4 o

o 2 p

p 6 q

q 3 R

 $a_c = \frac{1}{2} R$ R 4 b<sub>c</sub>

Jupiter

W a b o d E

a 2 c

c 1 d

d 3 b

Sunday Nov 6 1892

~~837~~ ✓ S Porei

g 4v  
to 4h

4m

1400



~~Sunday~~ Nov. 6 1892  
Monday Nov 7 1892

6905 R. Saggiattini

2

a 5b

b 5c

c 4d

d 3e

e' 5xf

f 2g

g 4h

h 5k

k 3l

l 3m

m 2n

n 5o

o 4p

p 5q

q 4dc

dc = m

q 3R

dc = q

~~R = dc~~

✓

meter

from NE to SW

R.A.  $19^h 10^m \oplus - 19^0$  H.A.  $3^h 19^m W$

17:6

S T  
 $22^h 35^m$

Monday Nov. 7 1892

159

R Cygni

R 2  $\alpha_c$

$\alpha_c$  3 S

g 3  $\alpha_c$

$\alpha_c = R$

$\alpha_c$  5 S

$w = \alpha_c$

$\alpha_c$  3 0

~~g 3  $\alpha_c$~~

7120

✓ X

R Cygni  
g 3  $\alpha_c$

$\alpha_c$  4 v

v = f

~~v =  $\alpha_c$~~

Clouds.

L

Mr



Thursday Nov 10 1892

14.9

Comet (Announced Nov. 9) Biela(?)

$\alpha$  = Anchom. Neb. in magn.

$\times 5$   $\alpha$

star  $\gamma$  is  $\Delta m + 43^{\circ} 234$  5.2<sup>magn.</sup>

Seeing poor, bright moon light  
apparently clear sky in region of And.

Nova Aurigae

$s \times \alpha \times v$

$v 3 T$

Seeing poor sky clear (apparently)

✓ Perseus. New Var No 1

$\alpha 3 v$

$v 2 \beta$

Perseus New Var No 2

Identification doubtful

Chart by Photo. department disgracefully poor.

✓ S Persei

$f 4 v$

$v 4 g$

✓ Meteor

$\sim$   
15:58

Motion w to  $\mathbb{E}$  S. Time. = 7:35<sup>m</sup> H.A. 4<sup>m</sup> 1<sup>m</sup> W.

R.A. 3,33.2<sup>m</sup> +62° 20'



Thursday Nov 10 1892

161

Camelopardus ✓ New Var No 4

d 4v

v 2e

v = 10R

L m

Clouds from N.W.  
stop observations.

Friday Nov. 11 1892

7261

R. Delphinus

R. Cygni

~~P2 ac~~

p2 ac

ac = q

q 4 de

de = R

p2  $\beta_e$

$\beta_e$  1 q

Comet

Neb. in And 5  $\sigma$

$\sigma$  3 Y

nb

• • -Y

•

•

\* p And

Seeing good.

7299

✓ U Cygni

de = q

de 4 R

~~f = p~~

v = 10 R

f = 8 Blue mist

8.4

Friday Nov 11 1892

7299

 $\checkmark$  u Cygni

L

~~9c3~~  
19

9/3 ec

ec 2 R

e 3v

v 2f

ec = g

9.6

7428  $\checkmark$  Cygni

v 3g

L

9.8

nrc

ec = 0

bc 1 m

m 4 bc

7468 J Aquarii

L

n 4 ac

ac 20

R 4 ec

ec = 8

J = ec



Friday Nov. 11 1892,

6230 S Aquarii

L

bc = 3

R 5 bc

X

V 2 u

u 3 W

dc = u

u to (s.c.c.) y

W is " X

85<sup>1</sup> 82 R Aquarii

L

a 5 b

b 4 c

c 6 d

d 4 e

e 3 f

f 5 g Companion to

g missing

g 5 h

h 5 k

k 4 l

l 5 m

m 3 n

n 5 o

o 5 p

Friday Nov- 11 1842.

8290 ✓ R Pegasi

$$w = \frac{4}{4} fc$$

$$w = 4 fc$$

L

$$\frac{4}{1} \frac{4}{1} \frac{3}{0} \frac{7}{1}$$

10.3

$$v = w$$

✓ Nova Aurigae

L

10.4

~~Data~~ Definition very poor

$$v = q$$

11.2

R Androm.

L

$$a = 3 b$$

$$b = 5 c$$

$$c = 3 d$$

$$d = 3 f$$

~~fronquin~~

$$f = 4 g$$

$$g = 2 h$$

$$h = 3 i$$

$$i = 4 j$$

$$(sec) e = 4 d$$

$$2 = 4 \beta$$

$$\beta = 3 (f)$$

$$f = 3 l$$

$$l = 3 n$$

$$n = 4 r$$

$$r = 3 f(sec)$$

~~Nov~~  
Friday Feb. 11 1892

✓ R Andromedae (continued)

~~f 5 n (sec k)~~

f 5<sup>4</sup> 0 (sec c)

0 4 d

d 5 n (sec k)

n 5 s

s 4 R

R 4 u

s 2 dc

dc 4 R

v 2 f (sec)

s 4 fc

fc 2 R

~~ac 2 f~~

ac 2 n

l 4 ac



Sunday Nov 13 1892

T Hucul's

$a_c = m$  definition  $l_{\text{max}} L$

$\alpha_c = k$

7045-

✓

R Cygni

L

$\alpha_c 1 S$

R 4  $\alpha_c$

definition  $l_{\text{max}}$

R 2  $\alpha_c$

$\alpha_c 4 S$

m 4  $\alpha_c$

L

$\alpha_c$

m 1  $\alpha_c$

$\alpha_c 5 0$

v Invisible

9.6

Comet in Androm.

Androm. Neb. 6  $\alpha_c$

L

star 2  $\alpha_c$

$\alpha_c$  3 star 2

reb.

comet

Scoring  
Sel

2.

\* f. back

Sunday Nov. 13 1892

7299 U Cygni

p1 dc  
dec 9

✓

Meteor

10:56

from East to West

R.A.  $20^h 15^m + 47^{\circ} 0'$  H.A.  $5^h 42^m$  W  
Sid. T.  $155^m$

✓ U Cygni (continued)

lc = 9  
lc 5 R

X used in last observation of Nov 11  
is T Cygni. It is therefore un-  
suitable for prismatic comparison  
work except to determine its own  
variations.

l 2 ✓

v 3 f

v = 10 R

f = 10 Blueness.

L

✓ Cygni

m 3 bc

bc 1 m

Sunday Nov. 13 1892

✓ Cygni

$n_3 c_c$

$c_c = 0$

✓ Cassiopeia

hiv

vzk

clouds?, L

10.7



Wednesday Nov. 16 1892

See for original send P139

6

Meteor

Position unknown

Movement W

approx. RA  $2^h + 47^0$  Zenith

10:30

Wednesday Nov. 16, 1892  
7299 U Cygni.

a 4 b

b 3 c

c 3 d

d 4 e

e 5 f

~~b 4 g~~ f 4 g

~~b 4 h~~ g 5 h

h 4 k

k 5 l

l 5<sup>2</sup> m

m 3 n

n 3 o

o 2 p

p 5 q

q 5 R

✓ l<sub>c</sub> = f

l<sub>c</sub> 4 R

Melvin

Melvin W 45° N

Sid. T. 3:36 HA 7 18 W

RA 20 19 + 48°

11:34

U Cygni (continued)

R<sub>1</sub>

p 5 d<sub>c</sub>

d<sub>c</sub> 2 f.

Wednesday Nov. 16 1892

7428 ✓ V Cygni

a 26

b 5e

c 6d

d 3e

e 5f

f 3g

g 4h

h 3k

k 5l

l 4m

m 3n

n 40

o 4p

q 1v

r 2h

r = ~~2~~ 8Rm 4b<sub>c</sub>b<sub>c</sub> = nb<sub>c</sub> 50C<sub>c</sub> = 0n 6 C<sub>c</sub>



Wednesday Nov. 16 1892

✓ R Draconis

13.9

121v  
v4l

✓ T Cephei

14.0

8<sup>3</sup>v  
8v2k

✓ S Cephei

14.1

#n3v

14.2

✓

✓ R Cassiope

R1v

14.3

✓ T Cassiope

h2v  
v2k

✓ S Cassiope

14.4

05v  
v2h

✓ R Antares

14.4

8<sup>2</sup>v  
v1h

Wednesday Nov. 16 1892

✓ R Ursa Major

14.6

✓ h 4 ✓

6

v 5 ✓

14.7

✓

T Ursa Majoris

02 ✓

✓

✓

Meteor

14.47

Meteor

h 45° W

Sid T. 6

149<sup>m</sup>

HA 5<sup>h</sup> 50<sup>m</sup> F

R.A. 12<sup>h</sup>

40<sup>m</sup>

+ 61° 40'

14.8

✓

S Ursa Majoris

f 2 ✓

v = 2

✓

✓

S Boötis

c = v

v 2 ✓

14.9

✓

R Camelopardalis

15.0

v = 4

✓

New Ven No 1

β 2 ✓

15.2

Wechselung Nov 16 1892

15.3

✓ New Van No 4

d 4 v

v 2 e

v = 10 R

✓ Nova Aurigae

R 3 v

v = 8

15.7

3170

S Hydrae

a 2 b

b 6 c

c 5 d

d 3 e

e 3 f

f 6 g

g 4 h

h' 5 h

h 5 k'

k' 5 k

k 4 l<sup>2</sup>l<sup>2</sup> 5 l'l<sup>2</sup> 2 a<sub>c</sub>a<sub>c</sub> 4 l'b<sub>c</sub> 4 l'l<sup>2</sup> 2 b<sub>c</sub>



Wednesday Nov. 16 1892

✓ S Hydrae (continued)

$$c_e = l'$$

$$l^2 6 c_e$$

L

16.7

$$d 4.5$$

$$v = e$$

Thursday Nov. 17 1892

177

Comet in And.

y 4 E  
E 4 Z

E

7.3

Comet very faint, not comparable w.  
neb. in And.

~~7.220~~ S Cygni

7.5

g 5 v  
v 2 h

h

7.42

Meteor S. L.A. 125° + 2°  
Sid. T. 23<sup>h</sup> 47<sup>m</sup> H.A. 148<sup>m</sup> E Magn. 8

R Piscium

a 4 b

b 5 c

c 3 d

h

Too cloudy for further observation in  
this region or anywhere else.

V. Citi  
too cloudy in this region

Sunday Nov. 20 1892

Comet by Brooks

R.A. 12:56 + 12 59

513

R Piscium

h

d 4 e'

e' 3 e

e 3 4'

f 3 4'

f 3 4'

g 4 h

h 5 h

Comet in Andromeda -  
Andromeda, Mass.

6.5-

Y 4 e

h

✓ R Piscium

h

h 3 h

h 4 h'

e 5 m

m 3 m

m 5 0

0 5 p

10.5-

~~m 7 v~~

m = v

v 5 2



Sunday Nov 20, 1892

X R Puerim

$b_c = 0$   
 $0 \ 3 \ c$   
 $c \ 3 \ f$   
 $m \ 2 \ a$   
 $a \ 2 \ m$

782 R Arctis

$\checkmark 89 \cdot 3 \ X \ c \ e \ i$   
 $a \ b \ f,$   
 $b \ 5 \ c$   
 $c \ 4 \ c$

$\Delta$  too bright at 3 b

~~XXXXX~~ X  $c \ 3 \ e$   
 $e \ 3 \ f$   
 $f \ 0 \ v \ g$   
 $g \ 6 \ h$   
 $h \ 3 \ k$   
 $k \ 3 \ l$   
 $l \ 5 \ m$   
 $m \ 3 \ n$

$v = g$   
 $v \ 5 \ h$

$n \ 4 \ b$   
 $b_c = 0$   
 $m \ X \ 2 \ a$   
 $a \ c \ 4 \ n$

Sunday Nov. 20 1892

Comet in Andromedae

a more careful estimate  
than the former obs.

11.5

y 6 ~~6~~  
~~6~~ 2 2

E

782 R Arietis

a' 3 ~~6~~

omit a ~~ma~~ of redness.

b 3 c

omit d a trifle red

c 3 e

e 5 f

✓ Meteor

12.13 movement west  $\text{R.A. } 23^{\text{h}} + 23$  Magn 8.  
S. time 4:30 HA  $2^{\text{h}} 24^{\text{m}}$  west

R Arietis

f 6 g

g 4 ~~h~~

h 5 k

k 4 l

l 4 m

m 5 n

n 3 o

o 3 p

Sunday Nov. 20 1892

R Arietis (continued)

X 159  
93R

✓ Meteor

13:47

Meteor N 20 W 1 mag 9.0

R.A. 2<sup>h</sup> 12<sup>m</sup> + 25<sup>s</sup> H.A. 3<sup>h</sup> 5<sup>m</sup> W Sid.T. 6<sup>h</sup> 54<sup>m</sup>

✓ R Arietis

R 5 S

S 4 T

T 4 U

V = S

0 2 d<sub>c</sub>

d<sub>c</sub> 2 h

β<sub>c</sub> = 0

β<sub>c</sub> 4 h

g<sub>c</sub> 2 d<sub>c</sub>

h<sub>c</sub> 2 R

f<sub>c</sub> = S

T 4 g<sub>c</sub>

g<sub>c</sub> = U



Sunday Nov. 20 1892

Nova Cliniae  
v=3

L

Comet announced Nov 20

Sid  
Time  
h m  
9:20

South.



$$a = 2m + 13.2625$$

$$b = " + 13.2622$$

$$c = " + 13.2623$$

$$d = a + 13.2624$$

Comet.

Comet is a small round disk with a fairly well marked nucleus. with higher power, however, this nucleus disappears. Object is perhaps the 10<sup>th</sup> mag.

Approximate (1855.0) position of above comet.

$$\begin{array}{cccccc} u & m & s & & & \\ 12 & 55 & 49 & + & 13 & 37.0 \end{array}$$

Note. ~~2m + 26.2~~ <sup>(d)</sup> 2m + 13.2624 was not noticed in the tele- although found on the chart after I had stopped obs.

Monday Nov 21 1892

Comet in Circle

C. Stand T.  
4 m  
11:35

North.



Inner smaller circle represents nucleus of comet. ~~It~~ Two faint stars, as represented in the ~~the~~ above sketch are on each side of the nucleus, which is not however well defined. The outer dotted ring represents the limit of the surrounding nebulous disk.

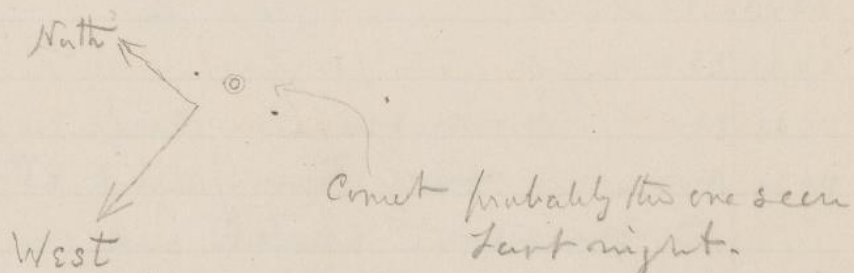


Monday Nov 21 1892

Comet Brooks

ret. in 12 56 & 13 30 by eichs

C. Stand T.  
in m  
4:15



\* proves to be comet.

I fail to see the object seen last night.  
in the place I then saw it. The  
above object is probably the comet of  
last night. They look alike and are  
about the same brightness.

The missing star Dm + 13.26.24 was  
not visible to night in the 15" telescope.

in m  
4:40

2<sup>d</sup> Position of above Brooks Comet.

⊙

slight evidence of movement.  
Object is surely a comet.

Note → Was unable to make a second observation  
of Andromeda Comet on account of clouds.



Monday Nov. 21 1892

5:15

Position of Comet Brooks



e is.  $\Delta m + 14^{\circ} 25' 78''$

g is.  $\Delta m + 14^{\circ} 25' 76''$

Approximate (1855.0) position of Comet according to  
above sketch

$12^{\text{h}} 57^{\text{m}} 31^{\text{s}} + 14^{\circ} 5' 3''$

Tuesday Nov 22 1892

6733 ✓ R Senti

h 6 h

h

k 4 d

d 6 m

m 3 m

n 3 0

o 6 p

v 6 h

7468 T Aquarii

a 4 h

b 3 c

c 6 d

d 3 e

e 5 f

f 2 g

g 5 h

h 3 k

k 5 l

l 3 m

m 4 n

n 3 0

o 4 p

✓ Motion

motion w 20° S 9.10 RA. 20 42 - 6  
Sd. 1236 HA 3/48 w

still

Tuesday Nov 22 1892

Count Caudronidae

8.3

$\sigma = 2$   
 $\sigma$  very much  $> \gamma$

E

8290 R Pegasi

845 R Ceti

893 U Ceti

X

a 6 b

b 5 c

c 3 e

L

Electric light on Caudronidae  
 stopped further observation.

2100 U Orionis

X

a 2 b

b 4 c

c 5 d

d 6 e

✓ Mitten

mm  
 8477

Motion S 15 E R.A.  $5^h 50^m + 20^s$  mag 6.5  
 Ciel J.  $8^h 35^m$  H.A.  $2^h 46^m$  W.

X U Orionis (continued)  
 e 5 f  
 f 6 g

L



Tuesday Nov 22 1892

2100

U Orionis (continued)

g 3 k h

h 5 k

k 5 l

l 6 m<sup>2</sup>m<sup>2</sup> 2 n'

n' 6 n

n 4 0'

e<sub>c</sub> = n

0' 4 0

0' 3 g<sub>c</sub>g<sub>c</sub> 2 00' 1 f<sub>c</sub>

keep watch of m' = l

l 4 v

v 2 m<sup>2</sup>

Friday Nov. 25 1892

- 14.4 ✓ T Cephei  
v 2 k  
v very red. L
- 14.6 ✓ S Cephei  
n 3 v  
v 3 0 H
- 14.8 ✓ R Cassiopeia  
R = v  
K J = v  
v 2 u H
- Seeing four abs. uncertain
- 15.1 ✓ IT Cassiopeia  
g 4 v  
v 2 h L
- 15.2 J ✓ S Cassiopeia  
K n = v  
v 3 0 L
- 15.2 ✓ R Antares  
h = v  
v 2 k  
g = v  
v 3 h  
v = R L



Friday Nov. 25 1892

15.3

✓ R Lynce's  
v Invisible

L

✓

✓ R Ursa Maj,

g 1v  
v 5h  
v = 4R.

15.5

✓ S Ursa Maj  
h 2v  
v 5h

L

✓

✓ S Bootis  
h 4v  
v 2c

15.7

L

✓ R Camelopardi  
h 5v

L

✓ R Draconis  
h 4v  
v 1d

15.8

L

✓ S Persei  
f 5v  
v 3g

16.0

L



1052pnae:proj...4568

Friday Nov. 25 1892

✓ Nova Aurigae

16.1

$N=9$   
 $\sqrt{4} R$

71

192

Saturday Nov. 26 1892

T Aquarii (?)

~~8230~~~~S Aquarii~~

5:15

$\begin{matrix} d & 3 & e' \\ e' & 5 & f' \\ f' & 3 & g \end{matrix}$ 
 This conf. made  
 when clouds were perhaps passing  
 over field.

m h

Friday Dec. 2 1892

R. Aquarii  
a 36'  
b' 56  
b 5c

L M

Seeing poor This interval is  
not too great in my opinion,  
and I see no way of improv-  
ing it.

c b d  
d 6  
e 34  
f 39  
g 4 h  
h 4 k  
k 4 l  
l 3 m

845- R. Uti

c 3 β  
β 3 γ  
γ 4 δ  
δ 3 ε  
ε 5 ζ  
ζ 3 η  
η 2 θ  
θ 2 λ  
λ 3 μ

fraction of 1/2  
-15.6507  
8m

L M

to go further λ 3 μ Moon too bright



Friday Dec. 2 1892.

493 U Ate

Too much moon light

m

2100

U Orionis

a 3 b

l m

b 3 c

c 6 d

d 3 e

e 5 e

e 4 f

f 5 g

~~f 3 g~~ g 3 h

~~g 3 h~~ h 3 k

k 5 l

l 6 m

m 24 n

3477

R Leonis Minoris

d 5 e

e 3 f

f 3 g

~~f 2 g~~ g 2

g 2 5 g

g 4 g

g 5 k

k 3 l

omit k = g

k 2 v

v 3 l

l m

Friday Dec 2 1892

4377

T Virginis

65

a b

L m

b = c

a 3 d

d 4 e

e 5 f

f 3 g

g' is brighter than f

Saturday Dec 3 1892

7261.

✓ R D effini

5.4

h 5 v  
v = 12

m L



Sunday Dec 4 1892

197

✓ T Carriacua

15.2

g 3v  
v 2h

m h

✓

✓

S Carriacua

15.3

m 5v  
v 2h

✓

S Persei

15.4

f 4Xv  
v 4g

✓

R Aurigae

15.5

f 3v

v 3g

✓

✓

R Ursae Majoris

15.6

v 2g

✓

✓

S Ursae Majoris

15.7

h 3v

v 2k

swing over

L m

Sunday Dec 4 1892

16.3

✓✓

✓ S Bootis

61V  
✓ 5C

✓ in

16.4

✓

R Daconis

m=V

17

Dec 5 1892 Monday

7261 R Delphine

5.3

$\times$   $\begin{matrix} e2f \\ f'4g \\ \text{omit } f' = \frac{f4g}{g} \end{matrix}$   
 $m4m$

$\begin{matrix} L \\ \times \end{matrix}$

7468 T Aquarii

$\times$   $\begin{matrix} d2e' \\ e'6f' \\ f'4g \\ n4p \end{matrix}$

$\begin{matrix} L \\ \end{matrix}$

8290 R Pegasi

8.30

$\times$   $\begin{matrix} d5f \\ \end{matrix}$

$\begin{matrix} L \\ \frac{m}{1} \end{matrix}$

8512 R Aquarii

$\times$   $\begin{matrix} a3h' \\ b5b \\ b4c \\ c6d \\ d5e \\ e3f \\ f4g \\ g3h \end{matrix}$



Monday Dec. 5- 1892

851- R Aquarii

L In

+ h 5 k  
h 4 l  
l 4 m  
m 3 n

845 R Ceti

L In

+ C 3 B  
B 5 X  
X 5 8  
8 6 π  
5 4 π'  
π 2 π  
5 3 8  
8 5 π  
π 3 θ  
θ 5 L  
L 3 λ  
λ 4 μ

893 U Ceti

L In

+ b X 4 c'  
c' 5 c  
c 5 e  
f = e  
e 4 f'  
f' 5 g  
h 3 h h 3 k  
h 4 h  
g 3 h'

Monday Dec. 5, 1892

893 + U Cte  
a' 3 b

L 2m

2100 U Orionis  
a 2 b

L 2m

~~4 c~~

~~g 4 d~~

~~d 2 e'~~

~~e' 5 e~~

~~e 4 f f~~

~~f 5 g~~

~~g 3 h h~~

~~h 3 h~~

~~h 6 l~~

~~l 6 m<sup>2</sup>~~

~~m<sup>2</sup> 5 n'~~

m' of ~~m' 1 l~~ (The original reading is correct)

265 + S Canis Minoris

a 5 h

b 6 c

c 3 d

L 2m

R Andromedae

mit f ad m' f o ch

n' 4 f (sec)

Monday Dec 5 1892

513

X

R Piscium

$a'4a$

+2.207

$a^24a'$

+2.211



Wednesday Dec 7. 1892

203

8230 S Aquarii

X e 4 d L  
d 5 e  
e 1 f  
f 5 g

See Mr. Oew about e + f.  
I think one of the latter better e could  
be abandoned as superfluous.

+ g 3 h L  
h 4 k  
k 3 l  
l 1 m  
m 4 n  
n 4 o

I think m had better be abandoned.  
These cases must have been over looked  
by Mr. Wendell when he was observing  
as usual through cumulus clouds.

n 5 o  
o 4 p  
p 3 R  
R 4 q ! L

I think R should be used.

Wednesday Dec 7 1892

Friday Dec 9 1892

Chron. Cally 835

Chron  
7 41 6.0  
7 42 6.1  
7 43 6.0

M.T. Clock  
7 42 0  
7 43 0  
7 44 0

Inventory New Var ✓ No 14

8.4

$e \approx v$   
 $r \approx 3 f$

L

Light clouds were passing over  
but I do not think they interfered w.  
above observation.

7:20 ✓ Cygnus

$v = d$  circum.

$v < k$

$v > m$

Clouds interfered w. observation.

New Var ✓ No 12

$v = \varepsilon$

Cygnus

New Var No 9 ✓

~~Am 2 V~~

~~Am 2 V~~  $v = d$

Swing from



Friday Dec 9 1892

Friday Dec 15 1892

10.2

✓ S Cygni  
d 35  
v 2.2

L

Seeing poor. Very pronounced diffraction  
ring around each star > 8.0.

✓ T Cephei  
d 35  
v 3 m

L

Seeing poor. Very much bothered by above  
diffraction rings.

I find rings are caused by moisture  
between lenses.

Friday Saturday Dec 16 1892

7.3

✓ S Cygni

d sv

v = e

L

7.4

✓ S Cephei

m sv

v = m

L

7.5

✓

✓ R Cassio

R zv

L

7.7

✓ T Cassio

g sv

v = h

L

7.8

✓

✓

S Cassio

l sv

v = m

L

5. Seeing very faint.  
8. Like looking up chimney.

8.2

✓

R Aurigae

v = f

L

8.6

✓

R Lynce

v = invisible

L

9.0

✓

Nova Aurigae

h = v

v = g

H



1892phae.proj...450R

~~Friedland~~ Friday Dec 16 1892 209

X R Ceti  
C' 54.394  
C' 4c L

✓ Meteor  
1417 Sid J. 8:17 Motion S Magn 8.5  
H.A. 0<sup>h</sup> 33<sup>m</sup> W Dec. +8° redchish.

S Ceti Minoris

d 5e L

e 5f

f 3g

g 6h

h 4k

k 6l

l 5m

m 3n

n 6o

o 4p

p 3q

k 4v

v 2l

The prism has fallen off the object glass. L

p 5g

g 4R

H

H

Friday Dec. 16 1892

2976

v Cenori

$\times$   $\begin{matrix} 23\beta \\ \beta 6a \end{matrix}$

L

S 17  
Su 18  
m 19

Tuesday  
~~Monday~~ Dec. 20 1892

211

R Ceynani (2<sup>d</sup> selection)

$\alpha$   $\frac{1}{2} \bar{x} a_c$   
 $a_c \frac{1}{2} k$

L

$a_c$  did not look like a real star the seeing was poor & for  $a_c$  perceived better definition than the others.

$b_c 2m$   
 $b 3 b_c$

$d_c 2p$   
 $\alpha 0 3 d_c$

L

112 ✓ R Anchored

$a 4b$

$b 6c$

$c 2d$

$c 5d$

L  
F  
R  
L

$v 1c$

$v \frac{1}{2} d$

$v = 4R$

L  
L

$d \frac{1}{2} 4 f$

$f 3 g^2$

$g 2 4 g'$

$g' 2 e$

$e 4 d$

$d 4 \beta$

L

9.3



Tuesday  
~~Monday~~ Dec. 20 1892

R Andromedae

33[7]

45h

l 3 m n'

~~n' 6 f (s.c.c.) n' 6 f (s.c.c.)~~

f (s.c.c.) 30

0 3 5

5 5 m

m 5 8

5 4 R

L

10.1

4 2 f (s.c.c.)

n' 4  $\frac{v_c}{2}$

n 2 d  $\frac{v_c}{2}$

d 4 5

R 3 4 e (s.c.c.)

a 2 n'

$\pm a_c = h$

n 3  $\frac{f_c}{2}$

f 1 R 5

J515 R Pincium

a 5 b

b 6 c

c 3 d

d 6 e'

e' 2 e

e 3 f'

f' 3 f

L

Tuesday Dec. 20 1892

v-13 R Piscium L  
 definition  $\begin{matrix} f4g \\ g3h \\ h4k \\ k3l \\ l5m \\ m4n \\ n5o \end{matrix}$

v Ceti L  
 $\begin{matrix} a^3 3 a^2 \\ a^2 4 a^1 \end{matrix}$

adapted sequence  
 $\begin{matrix} e \\ f \\ f' \end{matrix}$

Tuesday Dec. 20 1892  
 ✓ 3170 S Hydrae

a'3a

a5b

b4c

c5d

d3e

e4f

f5g

g5h

h'3h

h4k'

k5k

k4l<sup>2</sup>

l<sup>2</sup>h' l'

b3v

v1c

l<sup>2</sup>1v<sub>g</sub>

v3l

b<sub>c</sub> = l<sup>2</sup>

bc difficult to observe on account of a  
 faint companion.

a<sub>c</sub> = l<sup>2</sup>k

a<sub>c</sub> 5 l'

l<sup>2</sup>3 c<sub>o</sub>

c<sub>c</sub> 2 l'



Tuesday Dec. 20 1892

215

T Hydrus

a b a

a b b

b 3 c'

c' 5 c

c b d

d 5 e

e 4 f'

f' 6 f

f 4 g

K 3 L

L 3 m'

m' 4 <sup>m</sup> ~~2~~

a c = l

I could not find in the above the star called in  
final notation m. <sup>h</sup> 8 <sup>m</sup> 49 <sup>s</sup> 14.5 - <sup>0</sup> 48.9 <sup>m</sup> 9.6 <sup>2529</sup> (1855)







1892







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100729544, prof. J. J50R