

KG
11365
499

KG 11965.499



KG 11365.499



June 14, 1885
 Lucis 59. $49^{\circ} 50'$ to $50^{\circ} 0'$
 Beginning with $2m + 49^{\circ} 1839$
 Twilight.

P. obs.

8 33 Began 1839

8 45 1921

9 27 2024

DM. $+49^{\circ} 2026$ 4 brighter by estimate
 than $+49^{\circ} 2027$

9 44 Ended 2077

Stars foll. of Chhinski.

10 12

0.93

1.11

0.98

0.80

10 15

0.82

0.89

10 19

1.42

1.72

1.39

June 14, 1885.

j
0.58

10 24

0.51

0.53

i

10 27

0.61

0.65

0.76

L

10 30

0.75

0.68

0.73

h

10 34

1.57

1.72

2.06

d

10 37

1.45

1.39

1.34

a too light

e

10 40

1.18

1.18

0.93

June 28, 1885
 Photometer I. Region of η Ophiuchi. S. obs.

9 17

0.89
 0.92
 0.81

9 27

0.78
 0.91
 0.74

9 32

c
 1.80
 1.55
 1.91

9 38

h
 0.75
 0.71
 0.65

9 51

h
 2.62
 2.26
 2.13

9 56

d
 0.98
 1.06
 1.23

June 18, 1885.

e

1.06

0.91

0.94

10 0

i & j not seen.
a too bright.

♂ Aquilae Phot. S. Gr. obs.

$$\begin{array}{r} 19 \quad 20 \\ 17 \quad 22 \\ \hline -12 \quad 0 \end{array} \quad + 2.9$$

10 44

e
too bright.

f
3.53
3.59
3.77

10 56

11 0

g
2.57
2.63
2.87

June 1st. 1885.

11 3

2.51

2.29

2.22

11 6

1.16

1.13

1.19

11 6

K not seen,

b
too brk.

d
too brk.

a
too brk.

c
too brk.

11 17

1.91

1.97

2.06

Richs. June 19, 1885

Wedge Series 60.
Began with Oh Aug 2083
Ended " " " $\frac{2440}{2083}$

8 40
10 45

The whole evening was occupied by this Series which was slow and fatiguing on account of the great altitude. Hare angle at beginning about 2.5^h and at end 10^h west.

Clouds which were low & well on bying of the evening have now risen but probably have not affected series.

600 B236 = 60.2 Stretched Index all over 1.1

June 21, 1885,

Reappearance of Jupiter I. Pobs. I. rec.
Photometer R. Compared with lat. II.

7 31 12 Suspected

24 0.6

38 73.4

51 351.4

57 76.4

32 7 347.8

15 81.6

24 344.8

32 81.2

212 345.3

55 85.4

33 3 348.2

14 91.9

24 344.0

33 88.2

44 341.3

53 88.6

34 1 339.0

11 92.0

18 336.8

28 90.3

36 340.1

45 89.2

52 339.3

35 2 89.2

10 338.7

23 88.3

June 21, 1885

7	35	39	342.6	
		48	89.0	
		56	341.8	
	36	8	90.0	—
		18	345.2	
		26	91.4	
		35	343.5	
		48	85.4	
	37	0	343.3	—
		7	90.4	
		15	345.4	
		24	86.2	
		36	344.0	—
		44	87.3	
		53	342.3	
	38	6	86.6	—
		15	346.9	
		23	85.2	
		37	344.8	
		48	85.6	
		57	345.2	—
	39	14	86.6	
		16	339.4	
		24	86.6	—

Limit of visibility, twilight now
less than at first.

39	52	88	
40	2	59.8	51.0
	12	112.4	
	18	63.3	50.9
			101.9 51.0

June 21, 1885

B 86 1182

7 44 31.2

45 31.2

B 394

7 46 0.0

47 0.0

June 22. 1885.

122 R Sagittae ^{and comp. stars.} Wedge Phot. H. 63

$$\begin{array}{r} 20 \quad \gamma \quad + 15.8 \\ 16 \quad 10 \\ \hline - 3. \quad 57 \end{array}$$

$$10 \quad 22 \quad \begin{array}{r} \gamma \\ 40.1 \end{array} \quad 34 \quad 6.8 >$$

$$\begin{array}{r} f \\ 38.5 \end{array} \quad 33 \quad 6.5 >$$

$$\begin{array}{r} d \\ 33.0 \end{array} \quad \begin{array}{r} 28 \\ 29 \end{array} \quad 5.6 >$$

$$\begin{array}{r} R \\ 38.9 \end{array} \quad 33 \quad 6.6 >$$

$$\begin{array}{r} A \\ 47.0 \end{array} \quad 40 \quad 8.0 >$$

$$\begin{array}{r} C \\ 39.9 \end{array} \quad 34 \quad 6.8 >$$

June 22. 1885.

b

39.9

34 6.8 >

June 23, 1885.
 Region of δ Serpenteis. Wedge photometer.
 S. obs.
 Clouds interfere.

9 40

b	42.9	36	7.3
c	30.2	26	5.2
h	18.9	1.6	3.2
d	30.0	26	5.1
f	18.9	16	3.2
ft	44.7	38	7.7

52^s f b, 1' north

sp of 3

10 0

Clouds.

121 δ Aquilae Wedge Phot. Tr. obs.
 20 $\frac{1}{2}$ + 14.2
 17 $\frac{1}{5}$
 - 3 2

42.7 36 7.3

10 52

Cloudy

Large masses of cloud passing
 and much more coming. Evidently
 too cloudy to continue.

June 25. 1845.

and comp. stars

σ Aquilae, Hodge & Phot. Tr. obs.

20 7
16 9

- 3 5 A

$\hat{+} 14.2$

f 34.5

~~29~~ 64.0[^] 5.7 >

g 52.4

33 74.9[^] 6.4 >

b

25.3 22 50.1[^] 4.3 >

c

30.7 ~~26~~ 64.1[^] 5.4 >

s

31.0 ~~26~~ 62.7[^] 5.3 >

d

22.6 ~~24~~ 54.8[^] 4.7 >

a

40.1 ~~34~~ 79.1[^] 6.7 >

a

39.0 33

June 25. 1885.

d
26.2 22s
31.7 27c
33.4 28b
24.8 24g
36.5 34f
32.5 28
$$\begin{array}{r} 16 \quad 4 \\ 1 \quad 16 \\ \hline 17 \quad 15 \end{array}$$
104 *T. Aquilae* and comp. stars
18 33 Wedge Phot. M. obs.
+ 7.2
$$\begin{array}{r} 17 \quad 15 \\ \hline 11 \quad 18 \end{array}$$
d
41.7 37 83.7 74 >

June 25. 1945.

a

43.0 37 83.7[^] 7.3 >

J

37.0 33 74.0[^] 6.8 >

c

41.1 36 80.7[^] 7.1 >

b

35.7 37 73.0[^] 6.4 >

b

37.3 32.

c

39.6

J

40.0

a

50.3 } Reg.

a again,
40.7

d

42.0

11 17

June 26, 1885

Experiments by Mrs. W. H. Pitting on
photographing the moon.

8 30 Two minute exposure No 200
Eight " " "
From " " (spoiled)

9 00 Tended exposure

Thin clouds cleared up 9 25
No 201 ✓

9 24 39 } haze.
26 39 } exposed 2 minutes
28 51 } "
29 51 } " 1 minute
31 12 } "
31 42 } " 30 seconds
32 33 } "
32 48 } " 15 "

10 22 33 } No 202 ✓
24 33 } clear
25 29 }
26 29 } 2 minutes
28 21 } 1 minute
28 51 } 30 seconds
30 47 } 15 seconds
31 2 }

sky clear at this station

June 26, 1885

No. 203

10 32 25 } 2 minutes. Clear.
 34 30 } Check at 10 and 11
 days for 5 hours

35 18 } 1 minute
 36 18 }

37 55 } 30 hours slight haze
 38 25 }
 39 26 } 15 hours.
 39 41 }

No. 204 ✓

11 1 1 } 60 hours clear
 2 1 } clouds
 37 31 } 30 hours clear.
 38 1 }
 38 51 } 15 hours half cloud
 39 6 } clear
 45 8.5 } 7.5
 45 16 }

11 45 45 } 60 hours No. 205 ✓
 46 45 } clear
 47 36 } 30 "
 48 6 }
 48 43 } 15 "
 48 58 }
 49 45 } 7.5 "
 49 52.5 }

June 26, 1885

11	59	42	}	2 min.	No. 206 ✓
12	1	42			
	2	40	}	1 min.	Clear
	3	40			
	4	52	}	30 rounds	ft. haze
	5	12			
	7	31	}	15 rounds	v. light haze
	7	46			
	10	26	}	60 rounds	No 207
	11	26			
					hazy
					light clear
	13	28	}	30 rounds.	
	13	58			
	14	51	}	15 rounds.	
	15	6			
	17	27.5	}	7.5 rounds	
		41.5			
				140	

July 2, '85.

Continuation of experiment of W. H.
 Picking of photographic comparisons of
 the Sun, Moon, & Sky.

A.M.

11 15 Exp Sun 2 4 8 sec. No. 208.

" Sky 8 sec. 10 cm. ap.

Sky comparison to bright

11 45 Exp Sun 2 4 8 16 sec No 209

" Sky 2 sec 10 cm. ap.

Result Sun about 2000 times as bright as sky

12 10 Exp Sky 15 sec .33 cm. ap. No 201 (cont.)

Result Sky over 800 times as bright as Moon
 (Moon hazy)

12 25 Exp Sky 4 sec. .33 cm. ap. No 202 (cont.)

Result Sky about 800 times as bright as Moon.
 (Moon clear)

1 00 Exp Sky 12 sec .16 cm ap No. 203 (cont.)

Result Sky about 600 times as bright as Moon
 (Moon clear)

1 30 Exp Sun 2 4 8 16 sec No 210

" Sky 4 sec 10 cm ap.

Result Sun about 2000 times as bright.

July 2 1865

2 00 Exp Sun 2 sec, No 206 cont.

Result Sun equals 300 000 Moons.

2 30 Exp Sun 2 sec No 209 cont

Result Sun equals 300 000 Moons.

The Sun was always taken with stop = ^{.016}~~.017~~ cms
 " Moon " " " " = 3.65 cms

The other apertures measured more accurately }
 were used for the { = 1.00 "
 Sky on different occasions. { = .358 "
 { = .204 "

The 1.00 cm. aperture is the most convenient
 one to employ for comparisons with the Sun, &
 the .204 cm. one is the most convenient one to use
 for comparisons with the Moon.

July 6. 1885.

Stars near Pol. Phot. S. W. obs.

15 45

Ag. 9

Stopped by clouds.

July 8 1885
 Photometer J. Leob.
 Region of δ Aquilae.

γ
 2.43

2.01

q 30

2.40

h

1.90

1.80

q 35

1.79

k

0.95

0.84

q 40

0.84

j (following star of a close pair)

0.91

0.88

q 48

0.94

f

2.61

2.09

q 55

2.67

July 8, 1885

9 57

4.09
3.98
4.48

10 0

i
1.89
1.810
1.71

10 7

d
5.84
5.119
5.160

a, b, and c too bright

Region of θ Aquilae

10 33

1.92
1.75
1.90

10 36

h
1.19
1.40
1.31

July 8, 1885
 small star south of j on chart not seen

j
 0.96
 0.90
 1.04

10 411

k
 0.75
 0.78
 0.85

e
 2.65
 2.53
 2.20

10 52

i
 1.28
 1.05
 1.17

10 56

g
 1.75
 1.62
 1.52

11 0

c
 5.44
 5.86
 5.48

11 6

July 8, 1885

d

3.44

3.58

2.91

a and b too bright

11 9

July 9, 1885

Comet (Burnard?) Pobs.

Bar micrometer set at 0.2 (zero 45.2)

Star South, Comet north

X¹⁹ 26 48.0

X 58.8

~~20~~ ~~21~~ Y lost; clouds.

X 19 31 49.0 108.0 10.0

X 59.0 29.5

✓ 33 1.2 17.5 15.1

✓ 16.3 25.1

X 33 28.0 66.5 10.5

X 38.5 27.6

✓ 34 40.6 94.1 12.9

✓ 53.5 23.4

X 35 10.8 31.5 9.9

X 20.7 27.5

✓ 36 22.0 59.0 15.0

✓ 37.0 24.9

July 9, 1885

+	19	37	40.0	89.8	9.8
+			49.8	26.4	
+		38	51.2	56.2	13.8
+		39	5.0		<u>23.6</u>

x	19	39	24.5	60.0	11.0
x			35.5		28.2
+		40	36.9	88.2	14.4
+			51.3		<u>25.4</u>

x	19	41	12.8	36.0	10.4
x			23.2		27.0
+		42	25.0	63.0	13.0
+			38.0		<u>23.4</u>
x		49	38.2		
x			9.0		
x			12.0		

Comet nearly
Central over
Step of 12 mag.
obs. difficult

The last star is in the north and goes through the corner of the square; the last signal is for its reappearance.

19	51	9.7	31.7	12.3
		22.0		25.6
	52	23.0	57.3	11.3
		34.3		<u>23.6</u>

July 9, 1889

19	52	51.0	55.1	13.1
	53	4.1		
	54	3.0	24.5	13.6
		16.6	19.6	<u>28.7</u>

Correct above
Clear of star
abs. better.

19	54	34.9	83.1	13.3
		48.2		
	55	46.7	23.6	
	56	0.70	46.7	13.3
				<u>26.6</u>

x	19	56	21.8	} 56.5	57	28.2	12.9
x			34.7				
		57	33.6	24.5			
			47.4	81.0			13.8
	20	4	19.0	} dis,	re,		<u>26.7</u>
			22.0				
x		6	8.0	} south half	29.0	c	
x			37.0				
			<u>57.5</u>				
x		9	17.2 a	} 44.2	9	29.1 a	9.8
x			27.0 b				
x			41.0 a	58.2	9	40.5 b	23.8
x			54.0 b	76.0	9		27.0
				81.0			

The stars a and b in north
half; another star about same time
goes across the middle of square
Zero observed again 314.8

July 9, 1885.

Zero again 315.6

315.7

315.7

315.6

these 4 settings
more accurate than
the preceding.

Sid. time 20^h 23^m

B 236

20 29 36

20 30 36

F 1327

20 30 0

20 31 0

Comp. Star = U.I. XVIII. 254.

S.T. B236	$\Delta\alpha$	$\Delta\delta$
19 ^h 37 ^m 48.00	1 ^m 13.85	11 48
19 55 20.8	1 12.28	11 38
9 ^m 57.08	26.13	
19 ^h 46 ^m 25.54	1 ^m 13.06	11' 43"

\angle north foll. *

~~Sid. 6484 from W. XVIII. 254~~

The place of comp. star and with compass is "a" 1885.0

~~as in W. XVIII. 17 13 19.44 - 6 8 48.4~~

a = L.L. 31580 17 11 59.62 - 6 6 56.3

= W. 17.254 17 13 19.41 - 6 8 48.4

= Lam. 2366 17 14 39.45 - 6 10 32.3

17 16 32.62 - 6 12 34.6

16 32.18 12 43.6

16 32.40 12 47.4

July 10, 1885
 Bar micrometer. Comet (Barnard) S. obs.
 $a = W, 17.254 = \text{Comp. star of last night}$
 $b = \text{Schj. 6184} - \text{double; Sep. Comp. obs}$
 $c = (17^h 19^m - 6^\circ 30'; 8 \text{ mag})$

Zero 182
 set at 227

b outside north of centre
 inside south " "
 c inside south " "

nucleus pretty well defined & in n.p. part.

b	16	41	54.5	41	58.50	8.0	
b		42	2.5				2 19.85
		44	5.5	44	18.35	25.7	
			31.2				-3 41.45 18.5
c		47	37.7	47	59.80	44.2	
c		48	21.9				
b	16	49	31.0	49	35.10	8.2	
b			39.2				2 19.30
		51	42.1	51	54.40	24.6	
		52	6.7				-5 41.60 20.8
c		55	13.3	55	36.00	45.4	
c			58.7				

July 10, 1885

$$\begin{array}{r}
 2 \quad 16 \quad 58 \quad 21.2 \\
 2 \quad \quad \quad 29.8 \\
 \hline
 58 \quad 32.0 \\
 58 \quad 44.10 \\
 \hline
 56.2
 \end{array}$$

$$\begin{array}{r}
 8.4 \\
 + 2 \quad 15.72 \\
 \hline
 24.2 \\
 - 3 \quad 42.05 \\
 \hline
 21.3
 \end{array}$$

$$\begin{array}{r}
 C \quad 17 \quad 2 \quad 3.5 \\
 C \quad \quad \quad 49.0
 \end{array}$$

B	17	3	10.0	3	14.15	8.3	
B			18.3				+2 18.3
C		5	21.6	5	32.35	21.5	
C			43.1				-3 42.35
C		8	52.1	9	14.70	45.2	23.7
C		9	37.3				

Year	Age	Weight (kg)	Length (cm)	Condition
17	9	57.7	10	1.95
10	6.2			8.5
				+ 2 17.65
12	9.2		12	19.60
		20.8		
		30.0		
				- 3 43.05
15	40.1		16	2.65
				40.1
16	25.2			

$\Delta \alpha \quad \text{E} - \text{Zc}$ $\overline{+3}^{\sim} \quad 42.10$ 21.72
 $\Delta \Gamma \quad \text{E} - \text{c}$ $\overline{-21} \quad 41.9$ 162.9
 $3 \quad 236$ $16 \quad 58 \quad 33.6$ -10
 1927 -300 161.9

Mean of 6 times B_{236}
 $B_{236} 13.7$ just
 fid. t.

C.M.T. of obsn

$$\begin{array}{r} 16 \ 58 \ 336 \\ - 300 \\ \hline 16 \ 58 \ 336 \\ 7 \ 15 \ 8 \\ \hline 9 \ 42 \ 58.2 \\ 1 \ 355 \\ \hline 9 \ 41 \ 20 \end{array}$$

July 10, 1885
determination of diff. $b - a$
both north half

Diff

b	17	17	47.0	18	13.15	52.3	6.3
b		18	39.3				
a		20	53.2	20	56.25	6.3	
a			59.5			<u>46.0</u>	

~~a - b + 2 43.10~~

b	17	21	23.0	21	48.85	51.7	6.2
b		22	14.7				
a		24	29.0	24	32.10	6.2	
a			35.2			<u>45.5</u>	

+2 43.25

b	17	24	48.5	25	14.50	52.0	
b		25	40.5				
a		27	55.0	27	59.55		
a		28	0.7				

+2 43.35

~~5.7~~
46.3

b	17	28	14.5	28	40.35		
b		29	6.2				
a		31	21.0	31	23.75	51.7	
a		31	26.5				

+2 43.46

5.5
46.2

b	17	31	54.2	32	19.00	51.4	
b		32	45.6				
a		35	1.0	35	3.55		
a		35	6.1				

+2 43.75

5.1
46.3

mean = +2 43.37 46.06

$$b - a = +2^m 43.37 + 5^s 43.4$$

July 14 1885

B235

1327

17 47 45.5
48 45.7

17 48 0.
17 49 0.

From prec. obs we get

H.C.O. mean time	$\Delta \alpha$	$\Delta \delta$
July 10 ^d 9 ^h 41 ^m 20 ^s	$\delta - c$	$\delta - c$
	$-3^m 42.10^s$	$-2' 41.9''$

not corrected for refraction

Place of Comp stars

	1885.0	1885.0
$C = \Delta 31699$	17 15 14.88 -6 23 20.5	17° 19' 48.50 - 6° 28' 35.0
$= M, 17.312$	16 35.55 -6 25 2.2	17 19 48.69 -6 28 30.6

$b = \Delta 1923$ (Cat Gen) 17 10 51.33 -6 14 36.3 17 13 48.10 -6 18 24.5

Δ and middle point reduce to southern Comp

	0.00	-4.
17 13 48.10	-6 18 28.5	

$b = \Delta 6184$ 17 12 43.61 -6 17 11.1 17 13 47.92 -6 18 32.3

	$\Delta \alpha$	$\Delta \delta$
The above stars give also $b-a$	+2 43.37	+5' 43.4"
" " " " " $b-c$	-6 0.84	+10 15.4

July 11. 1885

Comet (Barnard). Bar micrometer. S. obs.

Position of square; hole in n. p. corner
Zero 43.8~~Zero 43.8~~ (star runs on inner edge of bar)
~~Set at~~ that is, southern edge of northern bar.

S. obs

hole in n. fork Comet; Zero 133.5

Set at 88.8

nucleus rather diffuse, & in n. p. part

in south half
stars d & e in north half

			Mem	Diff	d	e - e
e	16	30	55.8			
d	31	11.7	31	15.40	39.2	
e		35.0	31	29.10	34.8	
d		46.5				
e	33	31.9	33	50.20	36.6	
e	34	8.5				

e	16	34	31.0			
d		38.3	34	46.00	30.0	
e	35	1.0	d 34	59.60	42.6	
d		20.9				
e	36	58.5	37	20.85	44.7	
e	37	43.2				

July 11, 1885

Turned square 90°
Set at 178.6

Mean Diff. d

e-e

d	16	39	42.7	d	40	1.25	37.1	-2	35.45	74.9
d			58.2	d	40	15.85	35.3			
d		40	19.8	d	40	15.85	35.3			
d			33.5					+2	20.85	2.5
e		42	17.8	e	42	36.70	37.8			
e		44	55.6							

d	16	43	20.0	d	43	36.25	32.5	-2	35.25	73.9
d			30.7	d	43	50.70	40.0			
d			52.5	d	43	50.70	40.0			
d		44	10.7					+2	20.80	1.4
e		45	50.8	e	45	11.50	41.4			
e		46	32.2							

d	16	47	20.0	d	47	35.50	31.0	-2	35.90	71.8
d			30.5	d	47	50.35	39.7			
d			51.0	d	47	50.35	39.7			
d		48	10.2					+2	21.05	1.1
e		49	51.0	e	50	11.40	40.8			
e		50	31.8							

Turned square 90°; set at 88.6

d	16	51	22.0	d	51	37.15	30.3	-2	36.25	72.5
d		51	32.8	d	51	52.25	39.5			
d			52.3	d	51	52.25	39.5			
d		52	12.0					+2	21.15	2.7
e		53	52.3	e	54	13.4	42.2			
e		54	34.5							

42 = mean

+2 21.03

1.93

-2

35.42

73

-5' 39.8

Mean of Times of
 16 41 28.6
 16 40 58.1
 16 39 58.6
 16 38 58.7
 16 37 58.8
 16 36 58.9
 16 35 59.0
 16 34 59.1
 16 33 59.2
 16 32 59.3
 16 31 59.4
 16 30 59.5
 16 29 59.6
 16 28 59.7
 16 27 59.8
 16 26 59.9
 16 25 60.0
 16 24 60.1
 16 23 60.2
 16 22 60.3
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 16 05 62.0
 16 04 62.1
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 16 02 62.3
 16 01 62.4
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 06 04 122.1
 06 03 122.2
 06 02 122.3
 06 01 122.4
 06 00 122.5
 05 59 122.6
 05 58 122.7
 05 57 122.8
 05 56 122.9
 05 55 123.0
 05

July 11 / 85

B236

Tr 1327

16 58 45.5

16 59 0.0

Hole in sf corner
Zero 223°.5

Hole in sp corner
313°.8

9 30

All four determinations of zero made with the star of magn. 5 at $17^h 46^m -5^\circ$ on Berlin chart, running on southern edge of northern bar.

If allowed to run off beyond square at the corner where the hole is, the star leaves the bar slightly, but not much.

It is possible that in the transits on pages 30, 31, when the star δ was outside of the square to the north, the northern corner of the square may have been that where the hole is, and the transits of δ may have been made inaccurate by the star's appearing through the hole, or rather through the crack which crosses the bar where the hole is. In that case, the comet's place must be referred to C exclusively, but

July 11, 1883

the difference between b and a , determined by transits, page 32, in which both stars were inside the square, may be correct.

Photometer I. Loh.

Stars near pole.

D.M. $+89^{\circ} 37'$ too bright

11 2

a
1.94
1.35
1.35

4.64

 b

2.65

2.71

2.79

8.15

11 9

 c

1.39

1.42

1.50

4.31

11 14

 e

1.07

1.09

1.21

3.37

11 20

 d

3.64

3.01

3.40

11 25

July 11, 1885.

11 32

$$\begin{array}{r}
 1.112 \\
 0.91 \\
 \hline
 1.111 \\
 \hline
 3.14
 \end{array}$$

g not seen
h

11 40

$$\begin{array}{r}
 3.71 \\
 3.12 \\
 \hline
 3.65 \\
 \hline
 10.48
 \end{array}$$

$$l = l$$

$$2.08$$

$$2.29$$

11 43

$$\begin{array}{r}
 1.74 \\
 \hline
 6.11
 \end{array}$$

$$R$$

$$1.93$$

$$2.18$$

11 47

$$\begin{array}{r}
 2.53 \\
 \hline
 6.64
 \end{array}$$

July 12, 1885
Conrad Barnard

B236

Hx 1327

16 15 57 43.5

15 58 0.0

1327 fast

Zen 19.5
19.6
19.4

Sorat 64.5

f & ☉ in north half P. obs.
g in south outside
mean diff ~~f~~ f

f	16	34	51.5	35 16.00		
f		35	44.5	34 46.00	53.0	+1 17.35 42.3
☉		36	30.0	36 35.35	10.7	
☉		36	40.7			
g		37	49.7	37 54.10	4.8	
g		37	58.5			

f		38	20.2	38 46.55	53.3	
f		39	12.5			+1 17.30 42.6
☉		39	58.8	40 4.15	10.7	
☉		40	9.5			
g		41	19.0	41 23.25	8.5	
g		41	27.5			

July 12/85

Set at 1545

f-f

f	16	45	42.5	0	193.7 46.8		
			51.2	0			
f		46	42.0	0	46	16.65	50.8
			50.5	0	92.5 46.2		
♂		47	28.0			+1	16.65 40.2
♂		47	38.6		47	33.30	10.6
g		48	49.5	*	48	52.60	6.2
g			55.7		48	6.95	16.7
g		49	12.4	0			
		49	21.2	*			
f	16	50	12.0	0	549	46.6	50.8
f			20.6	0			
						+1	16.20 40.3
♂			57.5		51	2.75	10.5
♂		51	8.0				
g		52	19.5			22.50	6.0
g			25.5				

Travels of f marked 0 are over extensions
of bar towards pole & pole

July 12, 1945.

Set at 244.5

← f

f	16	53	39.2 07 48.7	} 54. 13.7 ⁶⁵	50.0	+1 16.80 39.7
f	54	38.7 46.0 07				
≡	33	25.0	} 55 30.15	10.3		
≡		35.3				
g	56	47.6	} 56 50.20	5.2		S' { 8 tent (spoke) thru hole in bar
g		52.8				

f	57	38.5 07 48.5	} 58 13.7 ¹⁰	49.4	+1 16.80 37.8
f	58	37.9 47.5 07			
≡	59	23.4	} 59 29.20	11.6	
≡		35.0			
g	17	0 46.7	0 49.55	5.7	
g		0 52.4			

July 12, 1885-

Set at 334.5

d-f

f	17	2	50.2 0}	3	22.8 ⁸²	53.4
			56.1 }			
f	3		49.5			
			55.5 0			
	4		30.2	4	38.25	16.1
			46.3			
g	5		54.7	5	59.20	9.0
g	6		3.7			

+1 15.43 37.3

f	17	6	20.0 0			
			26.2	6	53.4 ⁰⁸	54.48
f	7		20.6			
			25.5 0			
	8		59.6	8	7.55	15.9
			15.5			
	9		24.6	9	29.10	9.0
			33.6			

+1 14.47 38.5

d-f +1 ⁴² 16.25 + 4' 56.10

39.84
597.6
298.80
2.70
296.10

Mean B 236 & times 16 52 52.3
B 236 far - 28

76 52 24
7 23 1
9 24 23
1 33

C. M. J. 9 27 50.
4 44 31.

S. M. J. = 14 12 27.

July 12. 1885

From previous obs of f over side bars in
last six sets the value of diagonal

883.0

884.5

883.0

880.0

881.0

891.1

Mean

883.8

July 15, 1885

Experimental observations, variable star regions
R. Scotti (105) Wedge photometer. Sol.

d	45.0	41.9	86.9	15.3	7.6 >
m	39.6	41.0	80.6	14.2	7.1 >
e	40.7	42.5	83.2	14.6	7.3 >
a	48.1	47.0	95.1	16.7	8.4 >
f	too bright				8.5
b	48.7	47.2	95.9	16.9	8.4 >
c	47.5	49.8	97.3	17.1	8.6 >
R	49.8	48.0	97.8	17.2	8.6 >

10 115

17 79 -9.8
 17 79
 +1 √√

3 21 66
 12) 201
 17
 34
 42
 17 6 40
 4 30
 17 2 10
 10 5 5
 85
 265
 424
 4.505

14) 66
 5.5
 11.0
 2.7
 14
 9 31
 .09
 85
 7.65

July 15, 1883-
Comet (Burnard)

W. obs.

Zero 9:7
45,
54.7

Nucleus moderately distinct, in
prec. part of comet-
Comet northern, star southern part-
of Osquian

~~19 56 42.0 Comet
55.2 Star
57 26.6 Comet
22.0 Star reject~~

19 57 53.9 Comet
59.6 Star
58 25.3 Comet
33.7 Star

19 58 53.3
59 1.9
27.7
36.0

19 59 55.4
20 0 3.0
28.2
36.2

July 15 1885

20 0 56.4

01 3.1

28.8

36.6

Comp. star is Tricise.
17^h 43. 4.9 mag.

20 2 15.4

22.0

47.2

55.3

20 3

~~12.1~~~~18.3~~~~44.0~~~~57.2~~

(2y 52.2)

Bond 236 used.

Comet 1.5 in diameter
 Comparison star fth. and brighter
 component of a coarse double
 Position on Berlin chart about
 17^h 2^m - 90.4

July 15. 1885.

Bond 236.

7^h

12

32.2

13

32.4

Bond 394.

23^h17^m

0.0

12

0.0

July 16, 1885,

Crank for moving shutters found bent yesterday evening, apparently by some blow received July 12th or later. This evening, it broke on first handling, preventing observations.

July 17 1885
 Wedge photometer S. obs.
 Region of ϵ γ a (W) ϕ η χ ψ ω ν μ λ κ ι θ δ γ β α

This designation afterwards
 changed to V; 866 called W

9.24

d	39.4	38.3	77.7 [^]	13.5	6.8
c	43.1	41.4	84.5 [^]	14.6	7.4
y	30.0	32.8	62.8 [^]	10.9	5.5
x	14.0	14.5	28.5 [^]	4.9	2.5
q	30.7	30.6	61.3 [^]	10.6	5.3
k	31.0	29.0	60.0 [^]	10.4	5.2
w	27.0	26.5	53.5 [^]	9.2	4.7
h	30.2	29.0	59.2 [^]	10.2	5.2
m	25.8	21.1	46.9 [^]	8.1	4.1
e	32.1	36.0	38.0 38.0	6.6 6.6	3.3 5.9
f (pre.)	20.0	21.3	41.3 [^]	7.1	3.6
f (fol.)	26.7	28.3	55.0 [^]	9.5	4.8
a	37.6	39.7	77.3 [^]	13.4	6.7

10 15

a has Comp. 2 ft., 210° 4"

Two stars about place of 'f', both observed.

Comet Barnard S. obs.

Comet found; appearance as on previous nights
 341.5 Zero but nucleus less definite

Side of square by stopwatch

43.0 - 0.9 42.1

85.8 ^{not} _{at back} 42.8

127.1
42.37

128.0

42.2

42.47

142.7

Stopwatch runs
 180.6 while B 226 runs 180.0

Subtract 0.9 from stopwatch
 readings

Diagonal (square set 26.5)

Outside bars 131.9 twice 131.0

Inside " 111.4 " 110.5

4 | 243.3 41 | 241.5

60.8 diagonal

Diagonal from value of side 88.8" 890.5

" " outside and inside bars

Focus of eyepiece that giving
 best view of bars to S. and
 usually employed by him.

July 17. 1845.
Comet Barnard
Pos. Loo.

W. obs.

$$\begin{array}{r} 341.5 \\ 45. \\ \hline 26.5 \end{array}$$

19	19	26.2	0=
		45.6	0=
	21	5.5	*
		36.0	*

22	54.5
23	30.4
24	32.4

25	59.5
26	35.0
27	37.2
28	26.2

30	2.0
	36.4
31	39.3
32	29.4

July 17. 1885.
~~34 12.5~~

35 14.9

48.7

36 51.5

37 41.9

~~38 41.4~~

~~39 41.4~~

41 32.0

42 5.2

43 9.0

43 59.5

45 12.6 \equiv

45 44.9 \equiv

46 50.0 *

47 40.9 *

Both in southern half of square.

~~Comp. Star outside Chart at~~

Comp. Star *Trisid. 17^h No. 32* 9 mag. (1st part)

2 10.2
 1 5.0

3 15.2

Diagonal of Square.

260.3 (4 times) outside.

228.5

" inside.

2/488.8

61.1

-0.9

60.2

= Diagonal, (not red. to Equator.)
 = Cor. for ~~small~~ error of stop watch.
 not red. to Eq.

July 17. 1885.

Bond 236.			Bond 394.		
✓	41	7.3	²¹ 7	38	0.0
	42	7.6		39	0.0

Comet moderately distinct and nucleus fairly well defined, but not as well as on previous night owing probably to some haze. Rather bright star also in field with comet which makes it look fainter, and more difficult to measure.
Lr.

July 19, 1885

9 0 Thin streaks of cloud everywhere; sky unfit for photometric observations.

Bar micrometer s. obs.

Zero 352.1 hole sp
82.0 hole n.p.

Setting 82.0
Side of square hole n.p., eyepiece out
Transits in different parts of bars

7.8	6.2	5.5	6.3	5.0	
49.5	48.1	47.3	48.2	46.7	
<u>41.7</u>	<u>41.9</u>	<u>41.8</u>	<u>41.9</u>	<u>41.7</u>	mean 41.80

Eye-piece in.
Zero reexamined. Setting 82.0 hole n.p.

6.1	4.4	5.5	5.2	6.5	Transits in same
47.6	45.9	47.4	46.9	48.3	parts of bars as
<u>41.5</u>	<u>41.5</u>	<u>41.9</u>	<u>41.7</u>	<u>41.8</u>	in last set
					mean 41.68

Setting 127.0 eyepiece in; hole n.
Transits across outside bars and square.

s of centre	s of centre	n of centre	n of centre	s of centre
8.0	7.5	10.2	7.9	5.5
17.7	17.4	16.0	17.0	21.1
67.1	66.8	69.4	67.0	64.8
76.9	76.5	75.0	76.1	80.1

68.9	69.0	64.8	68.2	74.6	Mean
<u>49.4</u>	<u>49.4</u>	<u>53.4</u>	<u>50.0</u>	<u>43.7</u>	2/118.28
118.3	118.4	118.2	118.2	118.3	59.14

July 19, 1885

Eyepiece out; hole n. Letting 127.0

6.0	6.0	8.5	9.4	6.5
15.1	15.2	13.5	17.0	21.7
65.5	65.4	67.3	68.6	66.3
74.2	74.1	72.6	76.5	80.9

Transits arranged
as in last set.

68.2	68.1	57.1	57.1	74.4	Mean	
50.4	50.2	64.1	51.6	44.6		
118.6	118.3	53.8	118.7	119.0		
					2	118.50
						59.25

Zero 172.1; hole nf.

Hour angle $1^h 30^m$ west at close of
observations; sid. time about $18^h 20^m$ Decl. reading for star $+1^\circ.1$ Decl. reading for β Ophiuchi $+4^\circ.3$ Decl. of β Ophiuchi, 1880, $+4^\circ.6$ Rec. $5\frac{1}{2}$ years $-.2$ $+4.4$ Decl. of star observed $+1.2$ For "eyepiece out" length of visible part of
sliding tube of eyepiece 27.26 cm.For "eyepiece in" corresponding length 1.3 cm.Ordinary focus used by S. nearly same as "eyepiece
out"; at least 2 cm.

Log cos 1.2	9.999990	
Log 15	1.17609	1.17599
Log 41.80	1.62118	Log $\sqrt{2}$
	1.17599	0.15051
Log 41.68	1.61993	1.32650
		Log 59.25
		1.77269
		Log 59.14
		1.77188
626.86	2.79717	2.94768
	0.17057	886.50
625.06	2.79592	2.94868
		886.55
		2.94643
		883.95
		2.94787
		886.89

23 10

July 19, 1885.

Independent determinations of the best focus for the bars by P. and W. give 2.0 cm. for the length of the visible part of the sliding tube of the eyepiece. These determinations were made by diffused daylight and by means of the fine hairs seen sticking to the edges of the bars.

Side of square by direct measurement on scale, without } 2.08 cm. P. obs.
magnifying power } 2.08 cm. W. obs.

From book R 56 p. 165 1" in cm. in the focus of the E. Equatorial is 0.0033093 its logarithm being 7.519678

Log 2.08	0.318063	
Log 626.86	2.798385	
Log $\sqrt{2}$	0.150515	
Log 889.0	2.948900	

Log 626.86 from p. 53	2.79717		
Log 0.003309 as above	7.51968	0.31685	2.0742

Difference resulting for side of square too small to be determined without magnifying power.

July 20, 1885.
 Measures by Coast Survey micrometer. Unit $\frac{1}{24}$ inch

0	0	33.0259	34.195	52.650	53.844
		.0136	.189	.651	.822
		.0090	.192	.649	.850
		.0010	.195	.645	.847
		.0240	.200	.650	.837
		.0250	.175	.645	.846
		.0160	.205	.644	.846
		.0100	.204	.652	.823
		.0210	.185	.655	.837
		.0120	.213	.652	.824

33.0157	34.1953	52.6493	53.8376
0.1796		0.1883	

Disappearances 19.6336

Log 1.293000

Log $\frac{1}{24}$ 8.619789

Log 0.3927 9.595165

At. co. 0.0903937 0.404835

Log 2.078 0.317624

0.150515

0.468139

2.480322

Log 888.1 2.948461

19.6423 Reappearances

1.293193

8.619789

0.404835

0.317817

0.150515

0.468332

2.480322

2.948654

Log 888.5

Thin Clouds

Examination of bar, micron.

1/4 of n.p. Zero 103.5 S. obs.

1/4 mile n.f. Zero 193.6

Hole of Setting, 193.6

Transits of two stars.

7.5	20.8	6.6	19.7	5.1	18.2	Means
48.9	62.5	48.2	61.7	46.7	60.7	
441.4	441.7	441.6	442.0	441.6	442.5	

Hole nr. Setting 1035

$$\Delta \alpha \left. \begin{array}{l} 13.3 \\ 13.6 \\ 13.1 \\ 13.5 \\ 13.1 \\ 14.0 \end{array} \right\} 13.43$$

7.7	20.8	3.5	16.6	6.1	19.4
<u>49.2</u>	<u>62.6</u>	<u>45.1</u>	<u>58.4</u>	<u>47.7</u>	<u>61.2</u>
a41.5	b41.8	a41.6	b41.8	a41.6	b41.8

41.57 41.80

$$\Delta x \left. \begin{array}{l} 13.1 \\ 13.4 \\ 13.1 \\ 13.3 \\ 13.3 \\ 13.5 \end{array} \right\} 13.28$$

General mean 41.55 ± 1.90

Booth stars 41.72

See p. 58.

Hole n. Setting 1485

Both stars south half

3.2	5.4	4.3	4.2	5.2	a, outside bar
13.5	12.6	11.7	15.3	16.8	a, square
43.3	42.2	41.5	45.0	46.2	b, square
59.5	61.4	60.3	60.7	61.6	b, square
62.3	64.7	63.2	63.3	64.5	a, square
72.5	71.6	70.6	74.4	75.1	a, outside bar

Diagonal by transits of "a"; by transits of "b"

69.3 118.1	70.2 118.1	70.2 118.1	68.3 118.3	$\Delta\alpha$ 75.8	$\Delta\alpha$ 84.2	$\Delta\alpha$ 84.1	$\Delta\alpha$ 59.3
48.8 59.05	48.8 59.05	48.8 59.05	50.9	102.8 27.0	76.8	110.7	86.0
66.2 118.3	66.2 117.9	66.6 118.4	67.7	77.3	26.8	81.9 27.1	55.1 26.9
52.1	51.7	51.8	51.4 117.7	103.6 26.3	47.2	(109.2)	82.0
66.3 117.8	70.3 118.2	66.4 117.4	70.2	74.9	27.0	84.1 26.2	59.0 26.9
51.5	47.4	51.0	48.7 118.9	101.8	50.0	(110.3)	83.9
70.2 118.2	70.6 118.6	67.2 118.1	69.8	78.6	27.1	76.9 26.8	79.8 26.6
48.0	48.0	50.9	48.3 118.1	105.7	50.6	106.4	59.2 26.5
69.4 117.6	66.0 118.3	67.4 118.0	67.2 118.0	81.3 26.5	79.4 26.7	81.7 26.4	58.7 26.7
47.7 118.00	52.3	50.0	50.8	107.8	52.7	106.1	85.6
Mean 59.00	Mean 59.18	Mean 59.10	Mean 59.10	26.76	26.74	26.58	26.78
North	North	North	North	South	South	South	South

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July 21, 1885.
 Both stars north half

7.5	18.1	11.1 4.0	11.1 5.1	4.8	6.0	b outside
18.1	16.0	11.1	13.0	13.0	14.4	b square
21.4	19.1	14.1	15.6	16.1	17.5	a, square
36.4	37	33.1	34.4	34.0	35.2	a, square
66.1		62.9	64.0	63.9	65.0	b, square
77.6		70.6	71.5	72.0	73.4	b, outside

a north, b south

7.1	7.8	6.8	6.6	4.5	7.5	a, outside
18.0	15.1	18.1	17.9	15.9	14.7	a, square
36.7	37.5	36.9	36.6	34.5	37.6	b, square
66.1	66.8	66.0		63.9	67.0	a, square
74.0	71.5	73.4		71.9	70.5	b, square
77.0	74.0	77.1		75.1	73.5	a, outside

a north, b south

8.6	7.0	7.6	8.0	8.9	b, outside
12.0	9.9	11.0	11.1	12.0	a, square
18.0	16.0	18.6	18.7	17.4	b, square
47.3	45.2	48.0	48.1	46.7	a, square
68.0	66.0	67.3	67.0	68.2	b, square
76.9	74.7	77.8	77.8	76.1	b, outside

$\Delta\delta$	$\Delta\delta$
48.8 32.6	48.0 33.9
16.2	15.0
52.1 32.9	51.8 32.8
19.2	19.0
67.5 32.7	57.0 32.2
18.8	18.4
48.0 32.3	50.9 33.0
15.7	17.6
47.7 32.3	50.6 32.9
15.4	17.7 32.8
South 16.28	North 16.39
Mean 16.34	

$\Delta\delta$	$\Delta\delta$
48.1 85.4	35.3 85.3
37.3	50.0
51.7 85.7	35.3 85.3
34.0	50.0
47.9 84.4	37.0 85.7
36.5	48.7
48.0 85.4	37.0 85.3
37.4	48.3
52.3 85.2	34.7 85.5
32.9	50.8
North and South 42.61	Mean 42.66

Long 16.34	1.213252
Long 15.40 - 0.4	1.176080
Long 245.09	2.589332

By transits across square "a" not inclined, "a" precedes "b" 13.36

By transits across inclined square both stars in same half, "a" is north of "b" 4' 5.1"

Long 16.34, $\Delta\delta$ 13.27, $\Delta\delta$ 4' 7.2"

July 21, 1885
Hols of Zerk 283.5

Setting 282.5

4.8	18.1	6.6	20.0	6.8	20.1
46.5	60.0	48.5	61.8	48.6	61.9
41.7	41.9	41.9	41.8	41.8	41.8

$\Delta\alpha$
13.3
13.5
13.4
13.3
13.3
13.5
[12.7]
13.3
13.5
13.3
13.5
13.4
13.5
13.2
13.4
13.4
13.4
18 | 64
13.36

9.5	23.0	7.9	21.2	9.7	23.0
[57.6?]	64.5	49.5	63.0	54.6	65.1
[42.9]	41.5	41.6	41.8	41.9	42.1

The bracketed observation was somewhat doubted at the moment, but agrees nearly with the rest, so that no change of importance would be made by rejecting it.

12.6	26.0	13.5	26.7	8.7	22.1
------	------	------	------	-----	------

54.5	68.0	55.2	68.6	50.5	63.9
------	------	------	------	------	------

41.9	42.0	41.7	41.9	41.8	41.8
------	------	------	------	------	------

Page 56 13.43
" 56 13.28
" 58 } 40.08
3 x 13.36 }
5 | 66.79
13.36

10 25

Means 41.90 41.80 41.73 41.83 41.83 41.90

General mean, a , 41.82 ; b , 41.84 ; both, 41.83

$$\text{Page 56, } 41.72 \times 2 = 83.46$$

$$\text{" 58, } 41.83 \times 3 = 125.49$$

$$5 \overline{) 208.95} \quad 41.79$$

In all the observations of this evening the focus of the eyepiece was set at 2.0 as determined top of 1.54, and the points of transit over the bars were varied.

Star a is H.P. 2882, 41 Ophiuchi, Lamont 5541
Star b is Lamont 5544, magn. 9.

18 59		19.4	
1 47.5	17 11.5	1 25	17 39
-0.7		+4.3	
	41 Ophi. 2 17 10.4		β Ophi. 2 17 37.5
	0 = 0.3		δ +4.6
	$\Delta\alpha$ 0.1	$\Delta\delta$ -0.3	

July 21, 1885

Observations made with Chron. B. 236, 32^s.5 fast of F. 1327 at 19^h 15^m sid. time. Hence chronometer seems to have gained 47^s in ten days (see p. 36). Rate of F. 1327 small. Hence rate of chronometer in 1^m to be neglected. See also p. 60.

Diagonal by transits across square; by direct transits, (see p. 56, foot).

Log 41.79	1.621072	Log 59.05	1.771229
	1.32650	Log 15 cos -0.4	1.176080
Log 885.28	2.94757	Log 885.73	2.947300
Log cos -0.4	9.999989	Diagonal by Δ^0 (see p. 57, foot)	
Log $\sqrt{2}$	0.150515	Log 59.00	1.770852
Log 15	1.176091	Log 15 cos -0.4	1.176080
Log 886.218	2.947667	Log 884.98	2.946932

If the thickness of the bars is sufficient to affect the transits at all, the effect ^{might} be to shorten the transits, so that the side or diagonal determined by transits ^{would} be less than that found by measurement, but this is not likely.

Diagonal determined by different methods.

Transits across square 886.5; 30 transits, ~~2~~ 2 disappearances observed in each.
 Direct transits across outside bars and square inclined 45° } 885.7; 20 transits, 4 disappearances observed in each.
 From the difference of declination } 885.0; { sum of results in 2 sets of 10 transits,
 of 2 stars as observed in same and in opposite halves of square } 4 disappearances observed in each.

Results for ~~set~~ of 2 stars.

Transits across square 13.36; 30 observations, 2 disappearances observed in each,
 Transits across inclined square } 13.38; 5 observations, 4 disappearances observed in each,
 with stars in south half } 13.37; 5 " " " " " "
 In north half } 13.34; 10 " " " " " "

July 22, 1885

25

Chron. B. 236 fast at F. 1327 31.5

Hence no correction for rate to be applied to observations of yesterday. See page 59.

9 0

Comparison stars for R. Serpentis (80)

Wedge photometer. S. obs.

9 13

f 37.1 35.3 72.4¹ 12.3 6.2 >

R 28.0 31.0 59.0¹ 10.1 5.0 >

y 20.0 22.5 42.5¹ 4.3 3.6 >

x 21.0 22.3 43.3¹ 4.4 3.7 >

R if seen, too faint for wedge.

n 24.0 24.0 48.0¹ 8.2 4.1 >

b 31.9 34.3 n f and brighter of two; comp. 230°, 25°

m 26.1 26.5 66.2¹ 11.3 5.6 >

g^(s) 38.0 39.0 52.6¹ 9.0 4.5 >

c 45.1 46.9 77.0¹ 13.2 6.5 >

q⁽ⁿ⁾ 34.0 35.0 92.0¹ 15.4 7.8 >

k 24.8 27.0 69.0¹ 11.1 5.9 >

h 24.8 27.0 51.8¹ 8.9 4.4 >

pu 32.0 27.8 59.8¹ 10.2 5.1 >

10 0

July 22, 1885
Comparison stars for R Herenlis (83)

10	19	e	34.4	35.9	68.3 70.3 ¹	11.8	5.8 ⁷ >
		x	24.9	29.8	52.7 54.4 ¹	9.2	4.8 ⁴ >
		b	28.1	25.2	51.3 53.3 ¹	9.0	4.5 ³ >
		g	34.0	39.0	71.0 73.0 ¹	12.2	6.1 ⁰ >
		l	35.2	33.2	66.4 68.4 ¹	11.4	5.1 ⁶ >
		TR	34.9	37.7	70.6 72.6 ¹	12.2	5.9 ² >
		a	26.0	24.0	45.3 50.0 ¹	8.4	4.1 ⁰ >
		c	25.0	27.9	50.9 52.9 ¹	8.9	4.1 ³ >
		n	18.0	18.1	34.1 36.1 ¹	6.1	2.9 ² >
		q	12.1	12.2	22.3 24.3 ¹	4.1	1.9 ² >
		d	30.6	34.0	62.6 64.6 ¹	10.9	5.1 ³ >
		r	16.5	17.7	32.2 34.2 ¹	5.1	2.1 ⁷ >
		h	40.0	42.1	80.1 82.1 ¹	13.8	6.1 ⁷ >

40 53

11 5 Stopwatch runs to 61.5 while 7.1327 runs 60.0
Subtract 1.0 from stopwatch

July 23, 1885.

Wedge Photometer P.O.B.

Comparison stars for η Herculis (58)

9	5	v	33.2	35.3	68.5 [^]	11.4	5.7 >
		h	36.0	38.5	74.5 [^]	12.4	6.2 >
	(3)	a(sp)	21.2	23.7	44.9 [^]	7.5	3.8 >
		z	17.9	17.1	35.0 [^]	5.8	2.9 >
		y	12.2	12.0	24.2 [^]	4.0	2.0 >
	(6)	a(nf)	31.9	37.7	69.6 37.6	6.6	5.2 3.3 >
		x	18.4	22.8	41.2 [^]	6.9	3.5 >
		u	42.1	40.0	82.1 [^]	13.1	6.9 >
		b	31.4	27.1	58.5 [^]	9.8	4.9 >
		c	25.0	26.3	57.3 [^]	8.6	4.3 >
		g	41.9	41.2	83.1 [^]	14.0	7.0 >
		m	41.3	40.3	81.6 [^]	13.6	6.9 >
		n	44.1	45.4	89.5 [^]	15.0	7.5 >

9 47

Comparison stars for δ Herculis (92)

10	10	d'	34.0	31.9	65.9 [^]	11.3	5.6 >
		c	31.0	30.3	61.3 [^]	10.4	5.2 >
		d	31.9	32.1	64.0 [^]	10.9	5.4 >
		f	43.4	43.0	86.4 [^]	14.1	7.3 >
		k	39.6	38.8	78.4 [^]	13.1	6.7 >
		h	36.9	31.8	68.7 [^]	11.4	5.8 >
		tr	23.1	24.9	48.0 [^]	8.2	4.1 >
		s	32.8	34.1	66.9 [^]	11.1	5.7 >
		b	29.3	28.7	58.0 [^]	9.7	5.0 >
		a	23.0	22.6	45.6 [^]	7.8	3.9 >
		y	15.9	15.8	31.7 [^]	5.4	2.7 >

northern of a group; fainter than a star sp.

July 23, 1885.

x(s)	16.9	17.8	34.7 ¹	5.7	29 >
x(m)	11.0	10.0	21.0 ¹	36	18 >
m	11.2	11.1	22.3 ¹	38	19 >
e	37.9	36.3	74.2 ¹	127	63 >

11 2

11 10 Stopwatch runs to 60.9 while F.1327 runs 60.0
 Subtract 0.9 from stopwatch readings.

July 27, 1885

Wedge photometer S. S.

Comparison stars for ϵ Serpentis (77).

9 26

b	41.2	43.8	85.0 [^]	44.5	72 >
c	34.0	35.3	69.3 [^]	44.9	59 >
h	22.4	23.4	45.8 [^]	48	39 >
d	29.1	30.9	60.0 [^]	10.3	52 >
f	29.0	30.1	59.1 [^]	10.1	50 >
t	45.2	43.9	88.2 [^]	15.2	76 >
n	21.0	20.3	41.3 [^]	7.1	36 >
s	15.4	14.6	30.0 [^]	5.1	26 >

m visible but too faint for wedge; moonlight

q	18.9	20.0	38.9 [^]	6.7	33 >
p	17.5	20.0	37.5 [^]	6.1	32 >
g	25.2	25.1	50.3 [^]	8.6	43 >
w	42.0	40.1	82.1 [^]	14.1	71 >
a	41.8	41.0	82.8 [^]	14.2	71 >
c	36.9	37.1	74.0 [^]	12.7	64 >

10 2

July 27, 1885

Comparison Stars for δ Bootis (71)

10 14

~~50.8~~ 52.2
 34.2
 74.9
 165.7

~~prec. star of a group~~Comparison Stars for δ Bootis (71)

10 46

c	40.8	41.3	82.1 ¹	8.5	4.2 ¹
b	38.6	43.1	81.7 ¹	8.4	4.2 ¹
y	57.2	61.0	118.2 ¹	12.2	6.0 ¹
jk	71.0	72.0	143.0 ¹	14.9	7.4 ¹
m	40.2	39.0	79.2 ¹	8.2	4.0 ¹
x	23.4	19.8	43.2 ¹	4.4	2.2 ¹
l	53.0	46.4	99.4 ¹	10.2	5.1 ¹
d	46.2	45.3	91.5 ¹	9.4	4.8 ¹
a	43.6	43.0	86.6 ¹	8.9	4.5 ¹
e	48.1	52.9	101.0 ¹	10.5	5.3 ¹
f	57.8	56.1	113.9 ¹	12.0	5.9 ¹
g	66.0	65.0	131.0 ¹	13.5	6.8 ¹
h	66.7	68.7	135.4 ¹	14.4	7.0 ¹

prec. of 2 equal stars

11 30

Stopwatch runs to 61.0 while B 236 runs 60.0
 Subtract 0.9 from stopwatch readings

11 32

July 28, 1885

Wedge photometer

S. John

Comparison Stars for R Optimeter (94)

9 20

R	29.1	29.8	58.9 [^]	10.0	50 >
C	29.7	29.0	58.7 [^]	10.0	50 >
R	21.9	21.1	43.0 [^]	4.3	3.7 >
b	16.5	17.8	34.3 [^]	5.8	2.9 >
a	18.1	17.5	35.6 [^]	6.4	3.0 >
d	35.9	36.3	72.2 [^]	12.3	6.1 >
e	39.0	34.8	73.8 [^]	12.5	6.3 >
m ^(s)	45.0	45.1	90.1 [^]	15.3	7.7 >
y	42.8	45.7	88.5 [^]	15.0	7.5 >

(13) Star pr. R 1^s 3' n. 11.3 ~~10.9~~ 11.1(14) Star foll. a 18^s 0.5 s' 13.0 13.0(15) Star pr. a 49^s same s' 24.1 23.022.4[^] 3.8 1.9 >

26.0 > 4.4 2.2 >

47.1[^] 8.0 4.0 >

10

July 28, 1885,
Comparison stars for R Bootis (73)

10 28	Q	34.7	32.7	67.4 ¹	10.6	53 >
	h	23.9	22.0	45.9 ¹	7.2	36 >
	R	20.2	18.3	38.5 ¹	6.0	30 >
	R	20.0	19.0	39.0 ¹	6.1	31 >
	r	10.1	10.2	20.3 ²	2.2	16 >
	l	17.8	17.0	34.8 ¹	5.5	24.2 >
	m	12.1	11.9	24.0 ¹	3.8	19 >
	q	22.5	26.4	42.9 ¹	7.7	29 >
	d	29.0	33.0	49.1 ¹	6.1	49 >
	d	38.4	38.7	62.0 ¹	9.8	61 >
	b	41.0	43.0	77.1 ¹	12.1	66 >
	a	48.0	45.0	84.0 ¹	15.3	73 >
				93.0 ²	14.5	73 >

11 4

11 5 Stopwatch runs to 61.5 while B. 236 runs 60.5
Subtract 0.9 from stopwatch readings

July 30. 1885.

Too cloudy for Photometry with either instrument as showed Mr. Brashear a double star. W.

ϵ Erynni.

$$\begin{array}{r} 20 \quad 53 \quad +3.9 \\ 18 \quad 18 \\ \hline -2 \quad 35 \end{array}$$

Became thickly cloudy again.

Aug. 4. 1885.

Stars near pole. Ir. obs.
 Sup. 37 for last observation of this region.

19	22	+89.9
17	30	
<hr/>		
-2		

Diff. +89° 37 too bright
 Photometer J.

a

2.03

2.09

2.11

6.23

b

1.46

1.86

1.61

4.93

c

0.87

0.84

0.86

2.62

e

0.49

0.49

0.43

1.41

Aug. 4, 1885

d

9 17

$$\begin{array}{r} 1.11 \\ 1.23 \\ 1.18 \\ \hline 3.52 \end{array}$$

0.46

9 28

$$\begin{array}{r} 0.47 \\ 0.58 \\ \hline 1.05 \end{array}$$

9 33

$$\begin{array}{r} 0.34 \\ 0.31 \\ 0.20 \\ \hline 0.85 \end{array}$$

9 53

$$\begin{array}{r} 0.76 \\ 0.93 \\ 0.95 \\ \hline 2.64 \end{array}$$

9 54

$$\begin{array}{r} 1.25 \\ 1.46 \\ 1.40 \\ \hline 4.11 \end{array}$$

9 56

$$\begin{array}{r} 1.61 \\ 1.65 \\ 1.67 \\ \hline 4.93 \end{array}$$

Aug. 4, 1885.

$$19 \ 21 = 10^h \ 12$$

Barnard's Comet.

$$\begin{array}{r} 16 \ 40 \\ 19 \ 21 \\ \hline 72 \ 41 \end{array} \quad -19.5$$

Comet low - not found.
Sky milky in appearance.

Aug. 6. 1845.

Barnard's Comet. W. obs.

$$16 \quad 34.0 \quad -20.5$$

$$17^h \quad 0^m 55.5 = 7^h \quad 44^m 5.5$$

$$\cancel{17} \quad 16 \quad 35 \quad -17.5$$

$$\begin{array}{r} 17 \quad 2 \\ \hline +27 \end{array}$$

$\sqrt{-2}$

$$\begin{array}{r} 34 \\ 16 \quad 35 \\ \hline 17 \quad 9 \end{array}$$

$$\begin{array}{r} 16 \quad 35 \\ 17 \quad 9 \\ \hline 34 \end{array}$$

$$\begin{array}{r} 16 \quad 47 \quad -20.2 \\ 17 \quad 11 \\ \hline +24 \end{array}$$

Pos. Zero 65.2

$$\begin{array}{r} 45. \\ \hline 110.2 \\ 90. \\ \hline 200.2 \end{array}$$

Aug. 6. 1885,

17 54 16.0 *
22.2 *
55 0.2 E
44.0 E

56 29.2
42.7

57 13.2
52.0

58 46.2
59.4

59 31.2
18 0 14.3

~~3 24.4~~

4 12.9
28.0
56.5

5 43.0

7 40.0
54.7

8 24.0

9 10.3

Aug. 6. 1885.

~~12 10 49.4~~
~~11 3.6~~

12 13 22.5

46.0

14 11.2

15 1.2

23 35.2

48.1

24 16.2

25 4.6

~~26 32.8~~

~~46.0~~

28 15.0

22.3

56.5

29 44.5

Both comet and star in northern half of square.

Comet rather faint - nucleus fairly well defined. Comet about 1' in diam.

Chron B. 236 used.

Comp. star A. 02 (-15° to -31°) No. 15881-2 May 8.9

Aug. 6. 1885.

B. 236.
 18 42 39.3
 43 39.5

B. 394.
 9 23 0.0
 24 0.0

Photometer I

Stars near pole

P. obs.

a

9 45

0.99
 1.31
 1.02
 3.32

b

9 46

0.88
 0.94
 0.90
 2.72

c

9 53

0.76
 0.71
 0.69
 2.16

d

9 55

0.93
 0.90
 1.10
 2.93

e

9 57

0.55
 0.58
 0.53
 1.66

Aug. 6, 1885

9 59

$$\begin{array}{r}
 f \\
 0.51 \\
 0.59 \\
 0.62 \\
 \hline
 1.72
 \end{array}$$

10 5

$$\begin{array}{r}
 b \\
 0.69 \\
 0.71 \\
 0.78 \\
 \hline
 2.18
 \end{array}$$

10 7

$$\begin{array}{r}
 k \\
 0.89 \\
 0.83 \\
 0.95 \\
 \hline
 2.67
 \end{array}$$

10 9

$$\begin{array}{r}
 h \\
 1.01 \\
 1.53 \\
 1.34 \\
 \hline
 3.88
 \end{array}$$

g too faint

Aug 6, 1885.
S. L. L.

10 20

a

$$\begin{array}{r} 1.15 \\ 1.03 \\ 0.94 \\ \hline 3.12 \end{array}$$

b

$$\begin{array}{r} 1.12 \\ 1.06 \\ 1.12 \\ \hline 3.30 \end{array}$$

10 28

c

$$\begin{array}{r} 0.61 \\ 0.60 \\ 0.58 \\ \hline 1.79 \end{array}$$

d

$$\begin{array}{r} 0.96 \\ 0.95 \\ 0.90 \\ \hline 2.81 \end{array}$$

10 34

e

$$\begin{array}{r} 0.40 \\ 0.44 \\ 0.41 \\ \hline 1.25 \end{array}$$

Aug 6. 1885.

10 38

$$\begin{array}{r}
 f \\
 0.48 \\
 0.50 \\
 0.48 \\
 \hline
 1.46
 \end{array}$$

10 45

g not seen with certainty.

$$\begin{array}{r}
 l \\
 0.64 \\
 0.65 \\
 0.65 \\
 \hline
 1.94
 \end{array}$$

$$\begin{array}{r}
 R \\
 0.79 \\
 0.77 \\
 0.79 \\
 \hline
 2.35
 \end{array}$$

$$\begin{array}{r}
 R \\
 0.96 \\
 1.04 \\
 1.31 \\
 \hline
 3.31
 \end{array}$$

10 54

331

Aug. 8. 1885.

$$17 \cdot 10 = 7 \cdot 46$$

Comp. Stars for Var.
22 & Coronae.

Gr.

$$\begin{array}{r} 15 \quad 52 \quad + 27.3 \\ 17 \quad 32 \\ \hline + 1 \quad 40 \end{array}$$

~~9~~
~~43.0~~

g	43.0	43.1	86.1 ¹	136	68 >
f	35.5	39.2	74.7 ¹	118	59 >
e	42.3	42.0	84.3 ¹	133	67 >
d	37.9	39.2	77.1 ¹	122	61 >
c	40.2	41.8	82.0 ¹	120	65 >

The above stars were each observed twice before observing the next.

b	41.2	48.9	90.1 ¹	113	71 >
d	49.0	51.0	100.0 ¹	157	79 >
a	51.0	51.0	102.0 ¹	162	82 >
b	54.2	56.8	111.0 ¹	145	88 >
c	53.3	52.2	105.5 ¹	164	83 >
y	39.0	42.0	81.0 ¹	129	64 >
d(Hayn)	40.8	42.6	83.4 ¹	132	66 >
g(Hayn)	38.5	35.0	73.5 ¹	117	58 >

From h to g inclusive the stars were each once observed, and repeated in the reverse order as usual.

Aug. 8, 1885

Comparison stars for δ Serpentis (77) I. obs.

9 410

b	45.1	45.4	-0.3	90.5 ⁺	45.5	7.1 >
e	32.9	34.7	-1.8	67.6 ⁺	44.6	5.7 >
h	27.9	25.5	+1.3	53.5 ⁺	4.4	4.5 >
d	32.7	31.7	-1.0	64.4 ⁺	11.0	5.5 >
f	30.6	31.9	-1.3	62.5 ⁺	10.4	5.3 >
k	43.6	46.3	-2.7	89.9 ⁺	7.7	>
m	21.9	26.3	-4.4	48.2 ⁺	4.1	>
s	15.8	16.8	-1.0	32.6 ⁺	2.8	>
n	10.5	10.6	-0.1	21.1 ⁺	1.8	>
g	24.3	24.2	+0.1	48.5 ⁺	4.2	>
p	22.4	25.8	-3.4	48.2 ⁺	4.1	>
q	23.6	27.2	-3.6	50.8 ⁺	4.4	>
w	45.9	45.0	+0.9	90.9 ⁺	4.8	>
a	39.0	38.0	+1.0	77.0 ⁺	6.6	>
c	38.2	40.0	-1.8	78.2 ⁺	6.7	>

10 12

Repetition

10 27

Hagen's found γ above to be identical with δ and h of original list. A diff.

The star taken for δ has another falling at 2.5 sec. 10" south half a magn. fainter than m .

Schoenfeld says a 12.7 magn. fall. var. 2 sec. 0.4 north (See above).

Aug. 11. 1885.

17 30 $\sqrt{1.5} = 1.22$ Mr. J.

91 a Tr. Herculis (Comp. Stars) Mr.

$$\begin{array}{r} 16 \quad 29 \\ 17 \quad 32 \\ \hline +1 \quad 3 \end{array} \quad + 3.4 \times$$

$$\begin{array}{r} 17 \quad 51 \\ 16 \quad 29 \\ \hline +1 \quad 22 \end{array} = 2 \quad \checkmark$$

						Est. magn.
8 22	a	52.7 56.9	109.6 ¹	7.7 >		8.5
	d ²	43.6 37.8	81.4 ¹	5.7 >		9.8
	W	51.0 50.9	101.9 ¹	7.1 >		9.4
	z	19.5 25.3	44.8 ¹	3.1 >		12.6
	g	39.1 41.0	80.1 ¹	5.6 >		10.2
	h	28.8 32.0	60.8 ¹	4.3 >	fall. southern	11.4
	x	25.4 34.0	59.4 ¹	4.2 >	brighter of 2	11.5
	s	48.0 48.7	96.7 ¹	6.8 >		9.7
	d ¹	57.2 56.9	114.1 ¹	8.0 >		9.0
	b	46.8 49.0	95.8 ¹	6.7 >		9.1

55

Magnitudes estimated after wedge measures. Magnitudes on lists evidently vague, so that the regions must be inspected with the telescope to see if there are more comparison stars needed.

Aug. 11, 1885.

9 5 Star foll. x 36° in same P ; prec. and
brighter of three; magnitude estimated 11.0
Interval in wedge 30.0 30.4 60.4 ~~31.4~~ 2

9 10 Star prec. W 51° , 2' north, est. magn. 12.0
Interval in wedge 25.0, 25.0 50.0 35

9 17 Star prec. W 3° , 5' south, est. magn. 13.1
on same scale as before.
Interval in wedge 16.8, 15.1 31.9 2.2

9 20 Star prec. W 20° , 4' south, est. magn. 13.8
Too faint for wedge

* See next page.

Comparison stars for γ Bootis, S. obs

9 45

c	40.1	4.1 >	
b	39.7	4.1 >	
y	42.8	4.4 >	prec. of 2 equal stars
j	49.6	5.1 >	foll. — " —
k	68.1	7.1 >	
m	38.1	3.9 >	
x	29.8	3.1 >	
s	56.9	5.9 >	
d	37.1	3.8 >	
a	41.9	4.3 >	
e	48.3	5.0 >	
f	58.6	6.2 >	
g	58.0	6.0 >	

10 9 for clouds

Aug. 11. 1885.

* In my estimates of magnitudes last night on comparison stars for γ & δ Herculis. I think I adopted rather too bright a scale at the beginning, but the estimates ~~being~~ being only rough, and merely in order to see if additional ^{stars} needed to be inserted to make the series well distributed in magnitude, an attempt was made to adhere to the first adopted scale throughout in order to preserve a correct relative difference.

W.

Aug. 12. 1st & 5.

1st 40- = 9h 57-

122 R Sagittae 50. obs.

Comp. Stars.

20	2	+16.2
19	3	
-1	0	

19 4 = 9 ~ 1
Cloudy and near meridian.
abandoned.

23 R Herculis.

15	55	+18.2
19	39	
+3	44	

Became wholly cloudy.

Aug. 15, 1885

Wedge Photometer. L. J. S. Jr.
Comparison stars for δ Bootis (71).

8 48	c	48.8	44.9	93.9 [^] 48 >
	b	40.7	37.3	78.0 [^] 41 >
	y pr.	52.9	50.1	103.0 [^] 53 >
	y full.	57.7	52.7	110.4 [^] 56 >
	k	75.0	72.1	147.1 [^] 76 >
	m	42.2	41.2	83.4 [^] 43 >
	x	29.0	27.9	56.9 [^] 29 >
		24.3	20.6	44.9 [^] 23 >
		21.1	20.3	41.4 [^] 21 >
	s	58.0	53.7	111.7 [^] 57 >
	d	42.0	44.0	86.0 [^] 45 >
	a	42.9	45.9	88.8 [^] 46 >
	e	47.2	53.2	100.4 [^] 52 >
	f	57.1	58.9	116.0 [^] 60 >
	g	59.7	64.9	124.6 [^] 65 >
9 45	pr	68.1	71.8	139.9 [^] 73 >

Star following, in about 7^s, 1' north (15)
Star following, in about 5, 1' south

Aug. 15, 1885
Comparison Runs of β Coronae (78).

10	27	q	39.2	35.0	74.2 [^]	56 >
		h	51.3	51.9	103.2 [^]	7.1 >
		y	20.1	21.7	41.8 [^]	3.1 >
		x	24.0	20.9	44.9 [^]	34 >
		l	33.5	31.0	64.5 [^]	48 >
		t	15.3	13.6	28.9 [^]	22 >
		s	31.0	26.9	57.9 [^]	43 >
		p	30.0	24.7	54.7 [^]	4.1 >
		z	18.9	16.1	35.0 [^]	26 >
		w	15.7	18.2	33.9 [^]	25 >
		m	31.2	39.0	70.2 [^]	53 >
		g	24.9	27.5	52.4 [^]	39 >
		e	38.4	39.0	77.4 [^]	58 >
		b	39.3	41.3	80.6 [^]	60 >
		c	42.0	41.7	83.7 [^]	63 >

11 15

11 32

Stopwatch runs to 60^s.9 while B. 236 runs 60^s.0
Subtract 0^s.9 from stopwatch readings.

September 1, 1885

11 15 Cleared suddenly permitting a examination
of the charge in tube of Andromeda announced
by Dr. Hartwig.

The Moon has risen and is at the Zenith but
the nebula is easily seen with a light cluster
point of view, which shows no disk with

11 30 With glasses 103 & 401. 1 ring, 2, 3 feet away.
With spectroscopic a continuous spectrum is well
shown with suspicion of bands.

Found Calling star in nebula S

S 2 Δ 40° 158

Δ 40° 158 S

Δ 40° 158 S a

that is not brighter than a much further than 158

40° 7.5 Δ 40° 158

.. a

0 9.0
0 9.1

8.5 #

12 15 Neb. = Δ 40° 167 5 + 40° 165 7.6-8.0 = 7.8
+ 40° 158

Neb. = 39° 167 8 39 166 = 7.1 8 8.5 = 8.3

Neb. = 2 for 40° 158 7.5

Neb. + 40° 167 5 40 165 =

7.7

7.8

7.1 * 29° 167
8.5 * 39 166

September 2. 1885

7 45 Search for Prodes Comet. P. obs.
 ST H.A. Du. RA
 18 50 5^h 8^m W 36.5 13 42

Zals at 190 191.0
 190.9
 191.5
 33 191.1 let at 1246.1

Star a DM +36° 2411
 b +36° 2416 0° 146 1

c Comet outside ^{square} 19 27 35.7
 c " ^{Southern} half 53.3

a Star a Southern half 28.5 38.2

c Comet 44.1

a Star a 29 4.1

c Comet 7.5

Star b ^{Northern} half 32 58.2

Star b too near corner

C near edge of field 33 41.6

c 34 3.7

a 42.9

c 42.9

a 35 5.2

c near edge of field 35 15.4

b Southern half 34 2.1

b 8.2

Sept. 2. 1888

Star b
b39 15.8
21.3

X

C

40 6.1

a

30.5

C

41 7.3

a

7.3

b

44 4.2

b

9.6

b

45 18.0

b

23.3

All in above set in Southern half of square
 Above them sets not employed.

C

Northern Half

47 49.0

a

Northern

+36° 24' 11"

48 41.3

C

N. half

26.7

a

N. half

49 8.9

② m +36° 24' 14"
 → d star to 6' S. of a. 8.5 Mag. (S. half)

d

D.M.

24' 14"

50 43.6

b

N. Half.

+36° 24' 16"

51 14.9

b

"

52 19.3

53 29.3

C

Northern half of sq

52 31.0

a

44.6

C

53 6.9

a

48.2

Sept. 2, 1885

Star td	55	59.6
d	56	23.7
b	57	53.2
b	57	9.1

C	A 19	^h 58m ^s 38.4	N half
a		59 49.1	N. Half.
C		53 11.1	
a		52.3	

d	20	1	3.2	S half
d			28.5	
b		2	0.2	N half
b			12.6	

0 236 1

		3 38.1	
		48.0	
C		4 18.5	N half
a		29.1	
C		39.2	
a		5 19.5	
C		5 43.1	N half
a		51.7	
C		6 1.1	
a		42.0	

Sept 2 1885

C	20 ^h	^m 7	32.0	SV	half	0	326	1
a			42.1				49	
C		8	8.0				36	
a			47.4					
<u>C</u>		9	6.6					
a			15.0					
C			40.0					
a		10	19.9					
						0	56	1
		^s 11	30.0	SV	half			
a			37.2					
C			47.0					
<u>a</u>		12	25.9					
C			47.0					
a			52.7					
C		13	2.5					
a			41.7					

Comet moderately bright

Diameter = 2' No marked ~~essential~~ condensation

September 2, 1885
 Light of star = White of Androm. P. ob.

22 ⁿ 26	^S	^{time X, 136}	
a	33.1 (stop watch)	4.1	4.1
S	46.0 ^{stop} mag. Const.	5.8 [52.2] 7.0	c
b	51.2 8.0 14.4	6.4 6.9 108.4 7.3	
a	54.9 7.5 14.4	6.9 7.4 118.3 7.9	f
S	49.4	6.2 6.4	g
C	54.9 7.6 14.5	6.9 7.5 115.3 7.8	
S	48.5	6.1 6.5	
d	55.3 8.7 15.6	6.9 7.5 116.2 7.9	
S	52.1	6.5 7.0	
e	49.9 7.6 13.8	6.2 6.8 102.9 7.1	
S	51.9	6.5 7.0	
f	47.2 9.1 15.0	5.9 6.4 92.2 6.3	
S	56.1	7.0 7.6	
g	45.3 9.2 14.9	5.7 6.4 91.0 6.2	

22 43	^S	^{time X, 136}	
a	45.1	5.6 6.1	6.1 ^{Center drawn}
g	45.7 9.2 14.9	5.7 6.2	^{mag. quoted}
S	52.9	6.6 7.1	
f	45.0 9.1 14.7	5.6 6.1	
S	55.2	6.9 7.5	
e	54.0 7.6 14.4	6.8 7.3	
S	47.8	6.0 6.5	
d	60.9 8.7 16.3	7.6 8.3	
S	56.0	7.0 7.6	
C	60.4 7.6 15.2	7.6 8.2	
S	55.9	7.0 7.6	

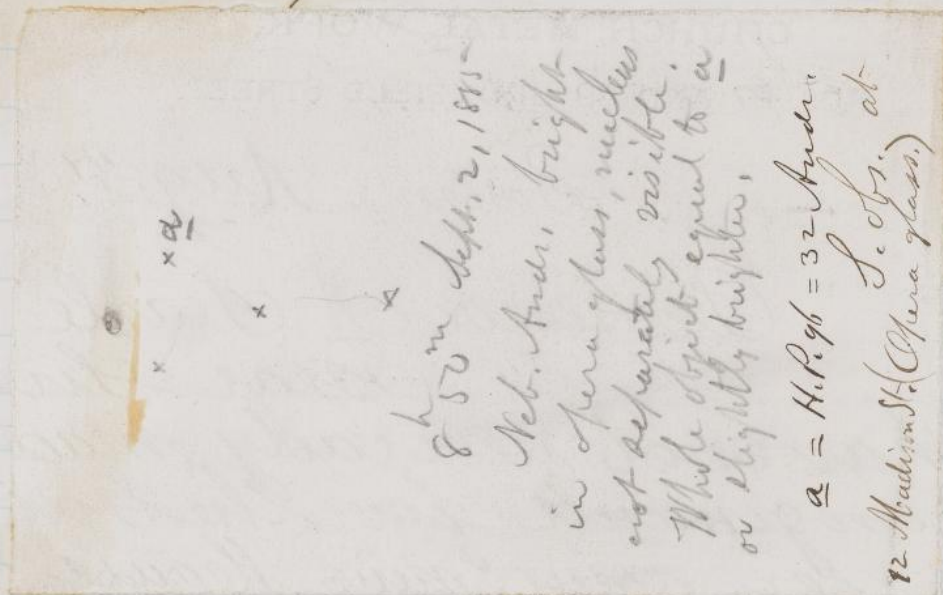
September 2, 1885.

			$\frac{\text{range of } X}{\text{Const.}}$	
b	57.2	7.2	2.0	15.2
s	54.3	6.8		
a	63.4	7.9	7.5	15.4
				14.9 mean.

Examined star with spectroscop.
Spectrum mainly continuous, but bands suspected.

	Sept 2		Mean	Obs.		Sept 3
mls			5.6	40° 148	mls	
a	69	7.9	7.4	40° 167	7.6	7.7 7.8
b	64	7.2	6.8	40° 165	8.0	7.1 7.5
c	69	7.6	7.2	40° 158	7.5	7.1 7.4
d	69	7.6	7.2	39° 166	8.5	7.2 8.0
e	62	6.8	6.5	39° 167	7.1	6.7 6.6
f	59	5.6	5.8	40° 149	9.1	6.5 6.4
g	57	5.7	5.7	40° 145	9.0	$\frac{6.0}{6.90} \frac{6.4}{7.16}$
s	5.8	6.6	6.2			6.4 6.7
	62	6.9	6.6			7.0 7.0
	61	6.0	6.0			7.2 7.1
	65	7.0	6.8			6.7 7.3
	65	7.0	6.8			6.7 7.0
	7.0	6.8	6.9			7.1 7.3
Mean	63.5	6.72	6.55			6.85 7.07
	Assume mean 6.5					

Sept. 2, 1885.



Cor. for .B. 236 assumed 54.1° fast

Sept. 3. 1845.

Brooks Comet. = ϵ 1845. III.

W. obs.

12 3 N.Y. = 7h 2m J.

$$\begin{array}{r} 13 \quad 45 \\ 12 \quad 2 \\ \hline +4 \quad 23 \end{array} \quad +37^{\circ} 20'$$

$$\begin{array}{r} 12 \quad 16 \\ \hline +4 \quad 31 \end{array}$$

$$\begin{array}{r} 12 \quad 30 \\ 13 \quad 45 \\ \hline +4 \quad 45 \end{array}$$

$$\begin{array}{r} 4 \quad 10 \\ 12 \quad 37 \\ \hline 16 \quad 27 \end{array} \quad 34.7$$

$$\begin{array}{r} 12 \quad 37 \\ 13 \quad 45 \\ \hline +4 \quad 52 \end{array}$$

Sept. 3. 1885.

$$\begin{array}{r} 297.0 \\ 45. \\ \hline 252.0 \end{array}$$

$$\begin{array}{r} 252.0 \\ 90 \\ \hline 342.0 \end{array}$$

~~$$\begin{array}{r} 19^h \quad 37.4 \\ 11.4 \\ \hline 46.0 \end{array}$$~~

16	10.2	OE
	46.9	OE
5	51.2	*
6	22.4	*

79	37.0
10	14.9
11	12.1
	54.4

12	32.6
13	17.0
14	19.5
14	55.7

Sept. 3, 1845.

19	17	44.4
	14	20.2
	19	22.0
	20	1.0

20	54.4	←
----	------	---

22	19.3	⊖
----	------	---

22	46.7	⊖
----	------	---

23	42.0	×
----	------	---

24	36.4	×
----	------	---

26	7.2
----	-----

26	46.6
----	------

27	46.0
----	------

28	33.2
----	------

31	27
----	----

32	21.0
----	------

20.0

33	53.0
----	------

34	33.5
----	------

35	31.5
----	------

36	14.6
----	------

37	27
----	----

38	34.0
----	------

39	16.4
----	------

40	11.9
----	------

41	54.2
----	------

Sept. 3, 1885.

In first four sets the comp. star was. $2m. + 37^{\circ} 246K (A.A)$

In last four sets the comp. star was $2m. + 37^{\circ} 246V (9.4)$

Pos. Circle changed 90° between two series.

In all sets the order was the same, and in all the comet was in southern and star in northern half of square.

Comet 1.5 in diam. with cent. condensation but rather poorly defined nucleus.

B. 394.
 $\begin{array}{r} 46 \quad 0.0 \\ 47 \quad 0.0 \end{array}$

B. 236.
 $\begin{array}{r} 19 \quad 55 \quad 46.5 \\ \quad 56 \quad 46.6 \end{array}$

$\therefore B \ 236. \text{ is } 53.4 \text{ feet.}$

Sept. 3. 1455.

$$\begin{array}{r}
 0 \quad 36 \quad + 40.5 \\
 20 \quad 11 \\
 \hline
 19 \quad 35 \\
 2/4 \\
 \hline
 17 \quad 25
 \end{array}$$

$$\begin{array}{r}
 20 \quad 20 \\
 0 \quad 26 \\
 \hline
 19 \quad 46
 \end{array}$$

Sept. 3 1885.

Light of star in Nebula of Andromeda.
See page 92

		Stop watch			
21 ^h 30 ^m 10 ^h 25 ^m	Star a	61.5	7.7	124.3	8.3
	s	57.6	6.4	[55.7]	7.5
	b	57.1	7.1	117.1	7.8
	s	56.2	7.0	116.2	
	c	57.1	7.1	116.2	7.9
	s	57.8	7.2		
	d	57.9	7.2	121.6	8.3
	s	53.7	6.7		
	e	53.7	6.7	106.9	7.3
	s	53.4	6.7		
	f	52.1	6.5	103.7	7.1
	s	56.5	7.1		
	g	48.2	6.0	99.4	6.8
	Neb. south of g.	49.9	6.2		6.8
	g	51.2	6.4		
	s	53.5	6.7		
	f	51.6	6.4		
	s	56.0	7.0		
	e	53.2	6.6		
	s	57.0	7.1		
	d	63.7	8.0		
	s	58.6	7.3		
	c	59.1	7.4		
	s	56.1	7.0		
	b	60.0	7.5		

September 3, 1885.

$10^h 55^m$ Star α S	5-8.2	7.3
a	62.8	7.8

Spectrum well seen - no bands perceptible
 a 14th mag. star precedes (~~dist 80° 20"~~)
 Star in nebulae, position angle 80° dist.
 $20''$ precedes about one Rec. hence dist $10''$
A second star

11.2

A second star at position angle 260°
 follows $10.2''$

Sept. 6, 1885.

Brooks Count.

W. obs.

$$\begin{array}{r}
 14 \quad 3 \quad + 32.5 \\
 12 \quad 22 \\
 \hline
 + 4 \quad 25
 \end{array}$$

43

4 40

$$\begin{array}{r}
 18 \quad 50 \quad 32.2 \\
 4 \quad 45 \\
 \hline
 14 \quad 5
 \end{array}$$

Comp star $38^{\circ} 25' 13''$ aComp star $38^{\circ} 25' 20'' = 27$ ~~Comp star $38^{\circ} 25' 24'' = 28$~~ Zero 37.5 Cur

45

82.5 4 sets with star a

a and both in north half

X	19	30	47.4	30	2.70	30.6	
X		31	18.0		+3 1270		6.2
CE		33	57.0	34	15.40	36.8	
de		34	338				

Sept 6, 1885

X	19	35	4.235	35	19.35	30.3	
X		35	34.5				
//		38	15.5		3	14.20	5.8
//		38	51.6	38	22.55	36.1	

X		39	17.5	39	32.10	29.2	
X		39	46.7				
//		42	30.5		3	15.95	5.9
//		43	5.6	42	48.05	35.1	

X		43	29.0	43	43.50	29.0	
X		43	58.0				
//		46	43.0		3	15.85	3.7
//		47	15.7	46	59.35	32.7	

X	45	with star	2	+	3	14.68	5.40
--------------	---------------	----------------------	--------------	--------------	--------------	------------------	-----------------

19 40 39.1^r means 0.1 times.

Sept 6 contd

Banks

4 sets with 3

and 10 left in south half

8:28 AM

✓	19	49	46.8	49	58.90	24.2	
✓		50	11.0		-1 3.55		40.7
X		50	30.0	51	2.45	64.9	
X		51	34.9				

✓		51	57.5	52	9.55	24.1	
✓		52	21.6		1 2.40		41.0
X		52	39.4	53	11.95	65.1	
X		53	44.5				

✓		54	9.5	54	21.45	24.1	
✓		54	33.4		1 1.45		41.3
X		54	50.2	55	22.90	65.4	
X		55	55.6				

✓		56	23.2	56	35.35	24.3	
✓		56	47.5		1 0.85		41.3
X		57	3.4	57	36.20	65.6	
X		58	9.0				

- 1 2.06 41.07

19 53 16.3^v = mean of 05 times.

Sept. 6. 1885.

Bond 236.

B. 394

20 2 34.2

2 4.4 0.0

9 34.5

4.4 0.0

\therefore B. 236 is ~~45.0~~ ^{51.4} feet.
 51.4

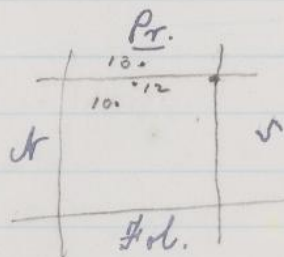
Sept. 7. 1st & 5.

Brooks Count.

Sr. No.

$$\begin{array}{r} 14 \quad 10 \\ 19 \quad 10 \\ \hline + 5 \end{array} \quad + 34.9$$

$$\begin{array}{r} 5 \quad 12 \\ 19 \quad 24 \\ \hline 14 \quad 16 \end{array}$$



2 m. + 39° 27' 44" is missing.

$$\begin{array}{r} 37.7 \\ 45.1 \\ \hline 22.7 \end{array}$$

Sept. 7. 1885

20	~	71.5	*
		46.4	*
		55.0	⊖
3		55.0	⊖

4 / 39.0

5 / 5.2

5 / 4.5

Some clearer.

20	45	49.5
	46	4.0

52.0

20.7 ~ Cloudy.

Some clearer.

~~50.0~~

50	7.5
	25.0

51.7

51	39.5
----	------

55	25.0
----	------

41.7

56	11.2
----	------

54.4

Sept. 7, 1885.

20 58 7.7
23.7
54.0

59 39.7

21 0 13.4
29.2
1 1.9
44.7

2 17.8
33.2
3 5.6
49.2

Order in all the sets $\times \times \equiv \equiv$
Both in northern half of square.

Comp. star = 2m + 3p (27.36 19.1)

Transits poor on account of cloud
and low altitude.

Comet 2' in diam. - cent. condensation
Nucleus poorly defined.

Sept. 7. 1225.

Star in neb. of Andromeda.

$$\begin{array}{r}
 0 \quad 36 \quad + 40.5 \quad \text{W. obs.} \\
 21 \quad 18 \\
 \hline
 20 \quad 42 \\
 - 7 \quad 18
 \end{array}$$

$$\begin{array}{r}
 139.0 \\
 90. \\
 \hline
 49.0
 \end{array}$$

v	44.9	5.6	50.4	6.3	95.3 [50.3] 6.8
a	55.8	7.0	63.5	7.9	119.3 8.0
s	43.4	5.4	54.9	6.9	98.3
b	51.2	6.4	61.5 63.2	7.2	124.7 8.4
r	51.0	6.4	51.9	6.5	102.9
c	59.2	7.4	60.0	7.5	119.2 8.1
x	44.1	6.0	53.2	6.6	101.3
d	56.0	7.0	59.2	7.4	115.2 7.8
r	47.7	6.0	52.0	6.5	99.7
e	53.3	6.7	56.0	7.0	109.3 7.4
s	47.8	6.0	54.6	6.4	102.4
f	46.8	5.2	50.0	6.2	96.8 6.6
fs	48.8	6.1	54.9	6.9	103.7
g	49.1	6.1	51.0	6.4	100.8 6.8

Sept. 10. 1225.

New star in Neb. of Andromeda,
Mr. obs.

0 36 +40.5

22 1A
- 2 1A

10	45	s	50.0	6.2	51.8	6.5	101.8 [52.0] 7.0
		a	62.5	7.2	64.5	8.1	127.0 8.5
		s	50.5	6.3	52.2	6.5	102.7
		b	63.4	7.9	63.2	4.0	127.2 8.5
		s	52.5	6.6	51.5	6.4	104.0
		c	59.9	7.5	62.6	7.2	122.5 8.3
		s	55.5	6.9	52.0	6.5	107.5
		d	61.0	7.6	63.2	2.0	124.8 8.5
		s	52.6	6.6	49.2	6.2	101.8
		e	54.1	6.2	55.5	6.9	109.6 7.5
		s	52.4	6.6	50.5	6.3	102.9
		f	53.2	6.7	51.2	6.5	105.6 7.2
		s	53.2	6.7	52.2	6.6	106.6
		g	48.2	6.0	42.2	6.0	96.4 6.6

For Spectrum continuous.

Bright ~~line~~^{bands} thought to be seen
in the yellow as well as toward
the more refrangible end of
the spectrum.

Sept. 10. 1885.

Re-examined with spectrocope.
Very certain that there are two or
three ^{bright} bands in the yellowish green
as well as one in the blueish ^{indistinct} and
possibly one between these also.

Tried another eyepiece on spectrocope.
The above confirmed. One ^{bright} band in
the yellowish green seems to be quite
strongly marked, and persistent.

Star a little south preceding the
principal, small knot of light
in nebula. and definitely separated from
it.

Sept. 11. 1885.

~~A Vulpeculae.
Comp. Stars.~~

W. obs.

~~$$\begin{array}{r}
 19 \quad 45 \\
 21 \quad 50 \\
 \hline
 +2 \quad 5
 \end{array}
 +27.3$$~~

91 a W. Herculis.
Comp. Stars.

W. obs.

$$16 \quad 34 \quad +73.0$$

Rather low.

New star in Neb. Andromeda. W. obs.

$$\begin{array}{r}
 0 \quad 36 \\
 22 \quad 24 \\
 \hline
 -2 \quad 12
 \end{array}
 +40.5$$

Star in nebula about the same as
last night. W.

Sept. 12. 1885.

Location of star in Neb. of Antennae.

$$\begin{array}{r} 3.2\sqrt{} \\ \sqrt{} \\ \hline 16.2\sqrt{} \end{array}$$

$$\begin{array}{r} -19.4 \\ \sqrt{} \\ \hline 99.0 \end{array}$$

$$\begin{array}{r} 0 \quad 3\sqrt{} \quad 4 \\ \quad \quad -16 \\ \hline 0 \quad 34 \quad 44 \end{array}$$

$$\begin{array}{r} 49 \quad 29 \quad 46 \\ \quad \quad +1 \quad 39 \\ \hline 49 \quad 31 \quad 25 \\ 40 \quad 24 \quad 35 \end{array}$$

$$\begin{array}{r} \text{Pos. Zero. } 204.7 \\ \quad \quad 45. \\ \hline 159.7 \end{array}$$

22	25	16.3	N. Star.
	25	43.1	" "
	27	4.4	Comp. star.
	28	1.4	" "

28	47.2
29	14.7
30	36.1
31	33.0

Sept. 12, 1885.

22	33	12.2
	33	46.0
	35	6.2
	36	4.0

37	24.9
38	24.2
40	19.0
41	12.6
42	37.0
43	7.7

44	1.7
45	1.2
46	19.4
46	510.2

47	35.5
48	35.5
49	53.2
50	24.0

Order in all the sets the same.
In first three sets, both stars in
southern half, and in last three
sets both in northern half of square.

Comp. star 2 M. + 40° 154 (9.0)

Sept. 12, 1885.

Star apparently about same brightness as last night. Star preceding and a little south of central knot of light in nebula.

The impression of bright bands as seen the other night, confirmed also to night.

B. 236.

23	16	33.7
	17	33.7

B. 394.

11	31	0.0
	32	0.0

Sept. 16. 1885.

Star in Neb. of Andromeda.
H. obs.

$$\begin{array}{r}
 0 \quad 36 \quad +40.5 \\
 21 \quad 18 \\
 \hline
 20 \quad 39 \\
 20 \quad 42
 \end{array}$$

$$\begin{array}{r}
 \text{Zero. } 204.1 \\
 45. \\
 \hline
 163.1
 \end{array}$$

21	38	20.4	neb. *
32	51.9	neb. *	
40	8.2	Comp. *	
41	10.0	Comp. *	

41	48.9
42	20.1
43	38.0
44	38.4

Sept. 16. 1245.

45 24.0

45 55.1

47 12.5

48 13.0

49 25.4

50 21.7

51 43.4

52 10.2

52 57.8

53 54.4

55 15.5

55 42.5

56 24.0

57 20.4

58 41.6

59 8.6

Order in all the sets the same,
Nebula star and comp. star both in
same half of square.

In first three sets both stars in south-
ern half of square and in last three
sets both in northern half.

Comp star is Dr. +40° 154 (9.0),
same as on previous evening.

Sept. 16. 1885.

Owing to moonlight a very good estimate of mag. cannot be obtained upon same scale as previous evenings when there was no appreciable moon, but the star seems to be somewhat fainter - perhaps, roughly, about 9 mag.

Comp Stars for
122 R Sagittae. M. obs.

$$\begin{array}{r} 20 \quad 7 \quad + 15.2 \\ 22 \quad 19 \\ \hline + 2 \quad 12 \end{array}$$

$$\begin{array}{r} 199.5 \\ 90.0 \\ \hline 289.5 \end{array}$$

1	d	31.0	29.1	60.1^	51 >
2	f	34.2	41.3	79.5^	6.8 >
3	g	40.9	40.9	81.8^	70 >
4	g	45.0	43.2	88.8^	75 >
5	R	37.5(?)	31.4	32.7641^	54 >
	e	36.2	wrong star.		
6	c	31.0	33.7	64.7^	55 >
7	b	36.0	36.2	72.2^	61 >

Sept. 16. 1945.

2	a	H ^α)	17.0	15.0	32.0 ¹ 2.7>
9	b		32.0	31.4	63.4 ¹ 5.1>
12	c		35.0	34.2	69.2 ¹ 5.9>
16	c		37.6	36.5	74.1 ¹ 6.3>
11	e		36.2	36.2	72.4 ¹ 6.2>

Stop watch reads 60.2 when B 236
reads 60.0. Subtract 1.0 for index error.

Sept. 17. 1885.

Star in Nebula of Andromeda,
measures of light with *W. obs.*
wedg.

$$\begin{array}{r} 0 \quad 36 \quad +40.5 \\ 21 \quad 49 \\ + 21 \quad 13 \end{array}$$

$$\begin{array}{r} 28 \\ 249.5 \\ 180 \\ \hline 109.5 \end{array}$$

s 45.0	48.0	[48.0] 65
a 60.8	63.5	124.3 83
s 47.5	50.1	
b 60.1	61.7	121.8 82
s 47.6	47.3	
c 54.7 61.2	61.0	[60.0] 82
s 49.0	50.2	
d 61.8	63.0	124.8 85
s 49.2	48.0	
e 56.3	56.8	113.1 77
s 48.2	47.5	
f 51.5	49.3	100.8 69
s 48.2	45.8	
g 48.1	50.2	98.3 67

Sept. 20 1885.

Star - h₁ - Andromeda.

O. J. S.

7 13

B 236

19 30

a	52.8	112.9	7.6
S	43.0	[44.0]	5.9
b	52.0	110.2	7.4
S	42.6		
c	54.0	110.2	7.5
S	41.0		
d	56.1	113.1	7.7
S	43.4		
de	43.6	89.8	6.1
S	44.8		
f	43.0	90.0	6.1
S	42.0		
g	45.2	95.8	6.5
21 mb.	41.5		5.6

g 49.6

S 40.4

f 47.0

S 48.0

e 46.2

S 47.4

d 57.0

S 45.3

c 56.2

S 45.1

h 57.2

S 44.4

a 59.1

For reduction for star
in tab. on this and sub-
sequent pages when obs.
were taken in this form.
The sums were taken on
each comp. star but
the mean of all the obs.
of S, before reduction.

7 38

7 53

Sept. 24, 1885

Wedge Photometer, S. L. S.

Star in nebula of Andromeda.

9	0	a	60.2	8.1
		S	41.7 [41.3]	5.6
		b	51.9	7.0
		S	41.3	
		c	55.1	7.5
		S	39.7	
		d	45.8	6.2
		S	43.0	
		e	57.0	7.8
		S	40.7	
9	25	clouds		

Sept. 25, 1885.

Wedge photometer, S. Ls.
star in nebula of Andromeda.

8 37

a	56.4	114.8	77
s	35.7	[41.8]	56
b	54.7	112.1	75
s	39.7		
c	56.8	109.8	75
s	41.9		
d	46.8	91.9	62
s	40.3		
e	56.6	111.8	76
s	43.3		
f	44.0	89.0	61
s	45.2		
g	44.1	91.2	62
2 ^d neb	37.7		51
g	47.1		
s	43.2		
f	45.0		
s	42.8		
e	55.2		
s	43.2		
d	45.1		
s	42.0		
c	53.0		
s	42.9		
b	57.4		
s	41.9		
a	58.0		

9 28

Sept. 25, 1885

Region of J Herculis (100)

10 55

f	37.7	35.5	73.2 [^]	5.6 >
d	33.1	29.0	62.1 [^]	4.4 >
e	37.4	35.1	72.5 [^]	5.4 >
c	42.0	36.7	78.7 [^]	6.0 >
n	12.2	10.7	22.9 [^]	1.7 >
x	15.0	15.0	30.0 [^]	2.3 >
q	18.3	21.0	39.3 [^]	3.0 >
h	26.8	24.2	51.0 [^]	3.9 >
j	41.8	41.4	83.2 [^]	6.3 >
h	31.0	27.6	58.6 [^]	4.4 >
m	not seen			
a	29.1	31.9	61.0 [^]	4.6 >
i	22.7	21.2	43.9 [^]	3.3 >
g	42.1	42.0	84.1 [^]	6.4 >
z	suspected			
b	41.0	37.0	78.0 [^]	5.9 >

11 35

11 42

Stopwatch runs 61.4 while B. 236 runs 60.0
 Subtract 0.9 from stopwatch readings.

Sept. 26, 1885.

Wedge Photometer, S. L.

Region of R Cygni. (114)

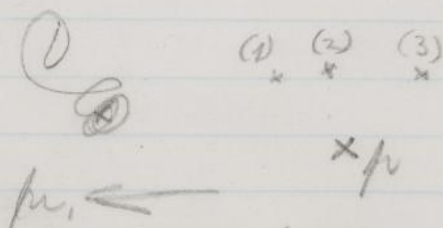
10 33

μ	69.0	69.0	138.0 ¹	49 >
χ	31.5	26.1	57.6 ¹	33 >
t^n	43.4	39.3	82.7 ¹	47 >
R suspected				
e	48.8	57.9	55.0	[53.9] ¹ 6.1 >
d	44.3	47.9	92.2 ¹	53 >
g	57.0	58.2	115.2 ¹	6.6 >
h	46.0	45.0	91.0 ¹	52 >
m	61.0	59.1	120.1 ¹	40 >
$a(H)$	42.8	41.0	83.8 ¹	48 >
$e(H)$	34.0	34.8	68.8 ¹	39 >

(3) 16.3 18.5 34.8¹ 20 >(1) 16.9 17.0 32.9¹ 1.9 >(2) 15.2 15.0 30.2¹ 1.7 >

11 25

The third observation of e was made just after the second, from an apprehension that the stop-watch might not have been set properly before the second observation. The three faint stars (3), (1), (2), were observed after the others had been observed twice. They are south of μ , as in sketch below.



11 45

Some thin patches of cloud seen on going out of Observatory which may have affected observations

Sept. 28, 1885

Wedge Photometer, 5 obs.

Region of γ Herculis (100)

8 30

f	41.0	38.8	79.8 [^]	61 >
d	37.3	35.4	72.7 [^]	55 >
e	40.2	38.1	78.3 [^]	59 >
c	42.1	41.5	83.6 [^]	64 >
n	15.9	13.7	29.6 [^]	22 >
x	23.2	24.8	48.0 [^]	36 >
q	23.0	21.5	44.5 [^]	34. >
h	27.1	27.9	53.0 [^]	42 >
T	46.7	40.9	87.6 [^]	67 >
p	29.5	29.4	58.9 [^]	44 >
m	10.5	10.0	20.5 [^]	16 >
a	31.8	35.0	66.8 [^]	51. >
v	27.7	26.1	53.8 [^]	41. >
g	42.3	42.3	84.6 [^]	64. >
z	23.8	22.7	46.5 [^]	35 >
b	40.7	41.0	81.7 [^]	62 >

prec. of a close pair; the other star at 110° , $\Delta 2^s$

9 16

Moon 70° or 80° high at end of observations.The star z follows g 79° , $1.5'$ north

No star found answering to z as catalogued.

There are stars following g about 35° and 50° near same D.

Sept. 28, 1885

Region of δ Vulpeculae (116)

10 15

h 36.8 34.9 71.7[^] 57 >K 35.0 29.7 64.7[^] 51 >~~aa~~ 28.7m 27.5 32.4 59.9[^] 47 >g 36.8 37.0 73.8[^] 58 >d 30.2 27.9 58.1[^] 46 >S 33.2 33.0 66.2[^] 52 >b 33.0 26.8 59.8[^] 47 >a 30.8 27.6 58.4[^] 46 > southern of twoC 32.0 33.5 65.5[^] 52 >p 38.0 39.8 77.8[^] 61 >f 39.5 38.2 77.7[^] 61 >b(Hayn) 21.6 24.0 45.6[^] 36 > southern of twoc(") 21.9 19.8 41.7[^] 33 >e(") 24.7 28.0 52.7[^] 42 >

10 56

11 20

Fog and some clouds visible on
going out of Observatory.

Sept. 30, 1883

Wedge Photometer. S. obs.
Region of R Cygni (H4)

8	50	c	55.0	59.9	114.9	6.5	>
		p	67.8	72.5	140.3	8.0	>
		X	35.0	35.8	70.8	4.0	>
		t ⁿ	43.1	50.0	93.1	5.3	>
		R	15.0	17.1	32.1	1.8	>
		d	50.1	55.3	105.4	6.0	>
		g	61.4	64.7	126.1	7.2	>
		gh	48.8	51.9	100.7	5.7	>
		m	58.1	65.9	124.0	7.2	>
		a(Hagen)	48.6	44.7	93.3	5.3	>
		e(Hagen)	40.0	40.1	80.1	4.6	>
		(1)	23.3	24.6	47.9	2.7	>
		(2)	20.9	21.9	42.8	2.4	>
		(3)	25.7	25.0	50.7	2.9	>
		(4)	16.2	15.8	32.0	1.8	>

(17) Call 4, 17 (17) (4) is a star 12^s foll. tⁿ, 1' north. For (1) (2) (3),
see page 125.

9 45 R assumed as on June 4, 1883, when a special chart of the region was made. By estimate it is fainter than (4) by 0.2 magn. although the wedge seems to make them equal.

10 23 Stopwatch runs to 61.8 while B236 runs 60.0
Subtract 8.9 from stopwatch readings

Sept. 30, 1885
Region of S Vulpeculae (116)

10 43

h 36.8 36.1 72.9¹ 58 >K 33.2 32.4 65.6¹ 52 >m 31.7 31.8 63.5¹ 50 >g 32.9 35.9 68.8¹ 54 >d ~~31.4~~ 33.0 34.6 67.6¹ 53 >S 33.9 34.1 68.0¹ 54 >b 29.3 34.0 63.3¹ 50 >a 30.5 ~~37.1~~ 31.0 61.5¹ 49 > *southern of two*c 32.9 34.5 67.4¹ 53 >p 39.2 42.1 81.3¹ 64 >j 43.7 44.2 87.9¹ 69 >b (Hagen) 23.0 25.6 48.6¹ 38 > *southern of two*c (Hagen) 23.0 29.8 52.8¹ 42 >e (Hagen) 31.1 32.3 63.4¹ 50 >

11 30

Oct. 5, 1885

Wedge Photometer P.O.B.
Star in nebula of Andromeda

8 52

a 61.1 8.2

s 39.6 [42.9] 5.8

b 57.0 7.7

s 45.0

c 56.5 7.7

s 45.0

d 51.5 7.0

s ~~38.0~~ cloud passing

e 42.0

s

9 14

cloudy

(Oct. 9, 1885,

Wedge Photometer S. obs.

6 30

Nebula in Andromeda.

Comparison stars of Parkhurst & Eadie.

Eadie's y, z supposed to be two stars
both npl neb'Parkhurst's group of stars ~~to~~ ~~be~~ not
found near the star supposed to be his b
and no group resembling them found in the
region.

7 0

Brooks' Comet. W. obs.

18	0	+ 40.2
20	55	
<hr/>		
+ 2	55	

Pos Zero 275.1
 145.

 320.1

21 39

Comet seen and region identified
 but comet faint and so many quite bright
 stars in the field in close proximity, that
 it is impossible, after long trials, to dis-
 tinguish comet from stars in observation, with
 certainty.

W.

Oct. 14 1885

Observations by Professor Rogers to determine
velocity of comets from explosion at Hood Rock.
Minors. formed in melting surface. Object $\frac{1}{4}$ inch
wide soft. frozen illuminable. ^{about} 750 diameters.

B.L. 1182

11 00±

Comminution

Chromometer 12³5 fast of B 39⁴ will depend upon a
^{movable} focused epide line measurement on a melting surface
about on $\frac{1}{10000}$ in. in diameter. Continued. Motion
but epide line until 11^h 17^m 30^s near wound
one $\frac{1}{30000}$ in. away from fixed point. At 17^m 30^s
or probably 3 or 4 seconds earlier became a decided
traces of the surface ^{the entire surface} ^{at intensity} ^{it entirely out of}
focus. This continued, until about 20^m 10^s
when the point had moved very leaving the point
7 diameters from its original position. = $\frac{7}{50000}$ in.
About 10 or 15 seconds after the disturbance was
first noticed, heard the rumbling of a ice cart
on the hill beyond the Catholic Church. ~~The~~
center of. When the disturbance ceased the cart was
about 200 ft. this side of the Catholic Church.
Opposite the Observatory the ^{photometer} disturbance had entirely
ceased. Since this disturbance no change took
place - position of the point became ^{about} until the close
of the observation at 11^h 45^m
Rate of ^{Chromometer} ~~and~~ ^{approximate}

Oct. 10, 1885

B 1182

16	46	12.9
	47	12.9

B 394

16	46	0.0
	47	0.0

17	14	53
	8	12

17	23	7
----	----	---

Phot. R. Pat. I Dis. can. with 1d. Jell. IV. *John Proc.*

17 15 00 ^x	17 14 37	38.6	
5 - 12 ^x	53	148.5	1 109.9 ⁻
17 10 48 ^x	15 9	43.0	100.0 ⁻
	20	143.0	<u>105.0⁻</u> -0.6 ⁻
	31	41.5	
15 40 ^x	40	141.4	2 99.9 ⁻
-12	50	41.8	97.2 ⁻
15 33 ^x	59	139.0	<u>98.6⁻</u> -0.3 ⁻
	16 9	41.0	
16 28 ^x	24	143.0	3 102.0 ⁻
-12	33	48.2	99.8 ⁻
16 16 ^x	45	138.0	<u>95.9⁻</u> -0.2 ⁻
	54	49.0	
17 08 ^x	17 3	137.8	4 88.8 ⁻
-12	12	44.5	99.5 ^x
16 56 ^x	21	144.0	<u>94.2⁻</u> -0.2 ⁻
	31	42.0	
17 42 ^x	38	141.1	✓ 99.1 ⁻
-12	47	46.2	90.9 ⁻
17 30 ^x	54	137.1	<u>95.0⁻</u> -0.2 ⁻

Oct 10, 1885

17 18 24 ^x 17	18 9	49.1		
- 12	18	139.7	6	90.6 [✓]
<u>17 18 12^x</u>	29	48.1		96.1 [✓]
18 59 ^x	<u>38</u>	144.2	*	<u>93.4^x</u> -0.1 [✓]
-12	46	48.1		
<u>18 47^x</u>	56	138.5	7	92.4 ^x
19 10 [✓]	19 4	41.0		<u>100.0^x</u>
19	<u>11</u>	145.0	*	<u>98.2^x</u> -0.3 [✓]
28	22	45.0	95.4 [✓]	-0.2 [✓]
37	31	140.4	29.7 [✓]	-0.4 [✓]
46	40	40.7	105.3 [✓]	-0.6 [✓]
55	49	146.0	ttt 92.6^x	-0.3 [✓]
20 05 [✓]	58	47.4	26.6 [✓]	+0.1 [✓]
15	20 7	134.0	24.5 [✓]	+0.1 [✓]
24	17	45.5	92.2 [✓]	-0.1 [✓]
33	27	138.3	24.3 [✓]	+0.1 [✓]
43	36	50.0	27.3 [✓]	+0.1 [✓]
50	45	137.3	27.0 [✓]	+0.1 [✓]
58	55	50.3	24.2 [✓]	+0.2 [✓]
21 5 [✓]	21 2	134.5	24.3 [✓]	+0.2 [✓]
12	10	50.2	26.2 [✓]	+0.1 [✓]
19	17	137.0	29.0 [✓]	±0.0 [✓]
25	24	48.0	24.4 [✓]	+0.2 [✓]
32	31	132.4	20.4 [✓]	+0.4 [✓]
38	37	52.0	72.3 [✓]	+0.4 [✓]
45	44	130.3	23.5 [✓]	+0.2 [✓]
	50	46.4	72.7 [✓]	+0.4 [✓]
	57	125.5	64.9 [✓]	+1.0 [✓]

Oct 10 1885

17 21 5X	17 22 6	60.6	
22 01	13	1280	67.4" + 0.9"
12	24	59.7	62.3" + 0.8"
14	28	126.0	66.3" + 0.9"
16	34		60.3" + 1.2"
26	38	65.7	
34	46	seen.	
46	58	Suspended	

Sung had. latitude within of intervals

Limit visibility

17 24 16	17 24 0	57.4	
-12	12	130.3	72.9"
24 04	22	59.7	60.5"
	32	120.2	<u>66.7</u> + 0.9"

B 86. 1142

17	30	12.3
1	31	12.3

B 394

17	30	0.0
1	31	0.0

Before 17^h 15^m corr = -13 secs.
 after 17^h 15^m corr = -12 secs.

Oct. 16, 1885,
 Wedge photometer. S. Dr.
 Stars near nebula of Andromeda.

6	21	a	57.1	115.0	7.7
		s	25.9	[29.3]	4.0
		b	55.9	109.3	7.3
		s	27.1		
		c	52.5	103.5	7.0
		s	26.9		
		d	42.5	86.8	5.9
		s	30.3		
		e	55.5	109.5	7.4
		s	30.3		
		f	46.0	89.0	6.1
		s	29.9		
		g	42.4	85.6	5.8
		s	30.2		
		h	17.0	34.0	2.3
		s	28.5		
		2 ^d neb	30.8		4.2
		s	29.1		
		h	17.0		
		s	30.2		
		g	43.2		
		s	29.9		
		f	43.0		
		s	29.2		
		e	54.0		
		s	30.3		
		d	44.3		
		s	30.0		

Oct. 16, 1885

	c	51.0
	s	30.1
	h	53.4
	s	31.1
7 13	a	57.9

Stars s, and a to g inclusive, as on page 93. Star h precedes s 10^5 , 0.2 south.

Oct. 17, 1885. Transfer to page 139.

Comparison stars for χ Cygni ~~439~~

Between n and w in brightness, one of triangle between e and χ ; uncertain as yet which of the 3.

For next star fainter than ~~to~~ w, one of two in line with south side of this triangle to w.

For next star, one following χ .

Stopped by sudden gathering of clouds.

Oct. 17, 1885

Wedge photometer. S. obs.

Stars near nebula in Andromeda.

6 25

f	37.0	76.1	52
g	40.6	79.9	54
h	14.0	30.0	20
s	26.9	[28.8]	39
x	36.8	69.4	47
y	35.1	73.0	49
z	35.1	66.0	44
s	30.3		
r	21.8	44.1	30
q	28.6	60.6	41
r	30.3	57.4	38
s	28.9		
2 ^d neb	28.9		39
s	27.4		
r	27.1		
q	32.0		
r	22.3		
s	31.5		
z	30.9		
y	37.9		
x	32.6		
s	27.8		
h	16.0		
q	39.3		
f	39.1		

6 56

Stars f, g, h, s, as on Oct. 16 (p. 136, 137).

Stars x foll. f about 15', 7' south; z prec. s 32', q' north.

y prec. z 41', 1' south; r prec. s 12', 6' south;

Oct. 17, 1885.

g, prec. a $7^{\text{h}} 15'$ south; p, prec. g, $14^{\text{h}} 3'$ north.
The stars x, y, z, are supposed to be those
so called by Eadie.

It was noticed after the photometric
observations that the course of the stars
was not perpendicular to the transit bar.
The position reading had to be increased
 12° to correct this error. The error
did not appear to exist at the beginning
of the observations, when however it was
assumed that the eyepiece had not
been disturbed since the previous set.

The eyepiece was somewhat loose in the tube.
It may have been disturbed during or
after the observations, but probably was
not. The most probable explanation is
perhaps that the telescope was handled
by some one after the observations of Oct. 16.
In that case an allowance for oblique
motion should be made in the reduction
of the observations this evening.

Comparison stars for χ Cygni.
Record entered by mistake on
page 139, which see.

Oct. 23, 1885

Comparison stars for χ Cygni. Lohs,

6 0
to

7 0

Between α and α_0 in brightness, northern star of triangle north foll. k on chart.

Fainter than w , ~~and~~ the sf star of two nearly in line from triangle to w , and sp χ_0 or perhaps better, a star foll. that between α & w .
Next star of χ .

Star 4' s of χ .

Star 2' s of χ , about 2^s foll. last.

sf of 2 faint stars preceding the last two.

These stars located more definitely as follows:

s foll. k 29^s, north 9'.5

$\{ t$ foll. s 36^s, north 1'

$\{ \odot t$ prec. χ 25^s, north 3'.5

x foll. t 40^s, south 1'.

$\{ y$ foll. t 26^s, south 7'.5

$\{ y$ foll. χ 1^s, south 4'.

z foll. y 1^s.5, north 2'.

zz prec. y 9^s.5, north 1'. It has a companion of about equal brightness preceding it about 2^s, north 0'.8.

Oct. 23, 1885
Wedge Photometer. S. Abs.

Comparison stars for χ Cygni (117)

8 48	e	52.3	53.1	105.4 ¹	48.48	7.9 ^{>}
	u	43.6	44.2	87.8 ¹	66.64	6.6 ^{>}
	k	47.5	43.9	91.4 ¹	68.67	6.9 ^{>}
	s	39.1	39.1	78.2 ¹	58.54	5.9 ^{>}
	t	27.1	26.8	53.9 ¹	40.39	4.0 ^{>}
	l	45.2	46.0	91.2 ¹	68.67	6.8 ^{>}
	zz	12.1	11.3	23.4 ¹	18.16	1.8 ^{>}
	y	14.0	15.8	29.8 ¹	22.21	2.2 ^{>}
	z	11.8	12.8	24.6 ¹	17.17	1.8 ^{>}
	χ	29.4	30.8	60.2 ¹	45.44	4.5 ^{>}
	x	21.0	20.8	41.8 ¹	31.30	3.1 ^{>}
	wo	31.0	36.1	67.1 ¹	50.49	5.0 ^{>}
	m	39.0	43.1	82.1 ¹	61.61	6.1 ^{>}
	n	40.5	38.5	79.0 ¹	58.58	5.9 ^{>}

9 25

9 30

Stopwatch runs to 61^s while F. 1327 runs 60^s
Subtract 0^s9 from stopwatch readings.

(Oct. 23, 1885

Comparison stars for δ Cygni. (119)

10	15	d	48.5	46.0	94.5 [^]	44 ^{>}
		w	31.7	35.8	67.5 [^]	32 ^{>}
		c	41.0	39.6	80.6 [^]	39 ^{>}
		y	not seen			
		s	34.3	38.2	72.5 [^]	34 ^{>}
		a	51.2	48.9	100.1 [^]	47 ^{>}
		z	27.9	30.1	58.0 [^]	27 ^{>}
		x	25.0	20.0	45.0 [^]	22 ^{>}
		b	46.3	55.9	102.2 [^]	49 ^{>}
		h	30.8	43.5	74.3 [^]	36 ^{>}
		g	51.8	49.1	100.9 [^]	47 ^{>}
10	40					

These observations were made at about the same altitude as those of χ Cygni (p. 141), so that the determining stars e, o, k, l, m, n, of χ Cygni will probably answer for this set also. There seems to be no need of interpolating additional comparison stars among those above, although the magnitudes assigned to them in the list show considerable intervals.

Oct. 24, 1885.

Wedge photometer. S only.

6 30

Examined region of χ Cygni, the moon being low, but found no fainter stars visible than yesterday; sky rather hazy.

Comparison stars of R Delphini (123)

8 28

g 26.8 25.7 $52.5^{\circ} 46 >$ g/k 29.8 25.0 $54.8^{\circ} 48 >$ m 34.7 30.8 $65.5^{\circ} 58 >$ f(1) 23.3 17.9 $41.2^{\circ} 36 >$ d(1) 23.2 19.8 $43.0^{\circ} 37 >$ x 20.0 13.8 $33.8^{\circ} 30 >$

f(2) seems to be same as f(1)

y 9.9 9.0 $18.9^{\circ} 17 >$ fb(1) 21.9 24.6 $46.5^{\circ} 40 >$ a 10.6 9.8 $20.4^{\circ} 18 >$ g(1) 12.3 11.8 $24.1^{\circ} 21 >$

R not seen

e(1) 23.6 23.6 $47.2^{\circ} 42 >$ c(1) 28.9 28.0 $56.9^{\circ} 50 >$ c(2) 25.5 27.5 $53.0^{\circ} 46 >$ b(2) 33.0 33.0 $66.0^{\circ} 57 >$ g(2) 21.0 20.2 $41.2^{\circ} 36 >$ h 27.1 32.1 $59.2^{\circ} 52 >$ d(2) 33.0 34.6 $67.6^{\circ} 59 >$ e(2) 42.5 43.4 $85.9^{\circ} 76 >$

g(3) Probably same as c(1)

g(1) has a faint companion sp and another about equal nf.

g(2) not on chart, precedes place in list, ^(about 6') 6' south of e. h assumed to be star at $9^{\circ} 10' 31''$; d(2) assumed to be star at $7^{\circ} 14' 9'' 31''$.

Oct. 24, 1885
Comparison stars for α Cygni (125).

10 24	p	52.3	59.0	111.8 [^]	6.7 >
	q	55.2	49.8	105.0 [^]	6.3 >
	r	54.0	52.0	106.0 [^]	6.4 >
	s	35.0	39.0	74.0 [^]	4.4 >
	d	29.0	29.4	58.4 [^]	3.5 >
	c	20.1	23.1	43.2 [^]	2.6 >
	m	33.6	35.0	68.6 [^]	4.1 >
	u	32.1	35.5	67.6 [^]	4.1 >
	g	50.6	54.3	104.9 [^]	6.3 >
	b	28.1	30.0	58.1 [^]	3.5 >
	g	40.0	40.4	80.4 [^]	4.8 >
	x	15.0	17.0	32.0 [^]	1.9 >
10 36	y	14.0	13.0	27.0 [^]	1.6 >

x and y follow δ 29^s, 0.2 south and 0.8 north.
x has another star about equal, foll. about 5^s,
a little south.

Oct. 26. 1885.

21 50 S.T. = 7^h 20 m. S.

$$\begin{array}{r} 20 \quad 7 \\ 22 \quad 10 \\ \hline + 2 \quad 3 \end{array} \quad + 15.2$$

Pos Zero 160.3

Set at $\frac{70.}{70.3}$
Wedge photometry. W. obs.
R Sagittae (122)

1 d	27.0	31.9	58.9 ¹ 50 >
2 a	12.5	19.0	37.5 ¹ 32 >
2 f	38.2	41.0	79.2 ¹ 67 >
3 g	32.9 (41.7)	44.4	86.1 ¹ 73 >
4 a	43.5	44.4	87.9 ¹ 75 >
10 c	35.9 32.0	35.3	67.3 ¹ 57 >
11 c	37.5	37.7	75.2 ¹ 64 >
5 R	32.3	39.6	77.9 ¹ 66 >
6 c	35.9	36.7	72.6 ¹ 62 >
12 c	39.2	41.8	81.0 ¹ 69 >
	40.0	39.2	79.2 ¹ 67 >
9 b	33.2	32.2	66.0 ¹ 56 >

8 55

In obs. of "3 g" a second obs. was taken in first series, as the first^{obs.} was thought not to be quite correct.

The obs. marked out on "10 c" was erroneously recorded there instead of on "6 c" as it should have been.

W.

Oct. 26, 1885
Wedge Photometer S. L. S.
Comparison stars of S Delphini (127)

9 20	d(1)	21.1	24.1	45.2 [^]	38 >
	a	27.4	27.9	55.3 [^]	47 >
	b	27.0	28.1	55.1 [^]	47 >
	c	34.2	32.9	67.1 [^]	57 >
	S	28.1	29.6	57.7 [^]	49 >
	g	21.0	21.8	42.8 [^]	36 >
	m(1)	13.2	14.1	27.3 [^]	23 >
	d(2)	32.8	35.8	68.6 [^]	58 >
	f	21.6	20.8	42.4 [^]	36 >
	m(2)	16.5	18.0	34.5 [^]	29 >

9 50

By estimate, $b \approx 3a$; $c \approx 2S$.
d(2) is a close double star, components north & south.
m(2) was taken to be the S₁ and somewhat
the brightest of a line of three stars. Perhaps
the whole group forms the object described as
of magn. 9.2, but even in that case it is
somewhat unaccountable unless the star is
variable.

Region of T Delphini further examined.
The comparison star m(2) for S Delphini, already
mentioned, fully identified as to place.

T Delphini, which is near, is very faint.
There is a star following it about 12° in same
S which might be mistaken for T. This star is
not on the chart for S Delphini, which includes
the region. No chart found for T Delphini.
Region now rather too low for observation at night.

10 10

Oct. 26, 1883.

Comparison stars of T Pegasi (136)

10 30	b	21.9	23.0	44.9 ¹	3.9 >
	T	not seen			
	x	16.7	16.5	33.8 ²	2.9 >
	y	17.0	17.9	34.9 ¹	3.0 >
	z	21.0	23.1	44.1 ¹	3.8 >
10 40	z	17.2	17.0	34.2 ¹	3.0 >

By estimate $x \approx y$; $y = z$.

z is a 'B.M. star, suspected of variability by S.C. Chandler from its faintness in 1883. It seems still to be faint.

Oct. 31. 1885.

$22^{\circ} 11' = 7^{\circ} 20' \text{ N. S.}$

127 S. Delphinus Tr. obs.
Comp. Star.

$$\begin{array}{r} 22 \quad 21 \\ 20 \quad 34 \\ + 1 \quad 47 \\ \hline \end{array} \quad + 17.0$$

Pos. Low 161.0

$$\begin{array}{r} 9.0 \\ \text{Set at.} \quad \hline 71.0 \end{array}$$

7 58	1 d'	31.9	37.8	69.7 [^]	59 >
	2 a	36.3	39.2	75.5 [^]	64 >
	3 b	40.5	40.0	80.5 [^]	68 >
	4 c	44.3	47.4	91.7 [^]	78 >
	5 d	41.0	40.4	81.4 [^]	69 >
	6 g	36.0	33.3	69.3 [^]	59 >
	7 m'	28.0	29.6	57.6 [^]	49 >
	8 d ²	46.3	42.7	89.0 [^]	76 >
	9 f	33.2	31.7	64.9 [^]	55 >
	10 m ²	32.2	32.7	64.9 [^]	55 >
	11 J	22.1	22.1	44.2 [^]	38 >

8 50

Oct. 31, 1885

Comparison stars of γ Delphini. Sols.
(128)

9 5-

S	36.3	37.0	73.3 [^]	6.2 >
d(1)	33.8	34.1	67.9 [^]	5.8 >
a	34.5	30.7	65.2 [^]	5.5 >
h	20.1	22.0	42.1 [^]	3.6 >
m	23.1	21.7	44.8 [^]	3.8 >
x	18.6	17.5	36.1 [^]	3.1 >
J	14.0	15.8	29.8 [^]	2.5 >
g	17.0	18.0	35.0 [^]	3.0 >
f	29.0	26.0	55.0 [^]	4.7 >
b	26.9	33.5	60.4 [^]	5.1 >
e e	43.0	42.8	85.8 [^]	7.3 >
d(2)	45.0	46.8	91.8 [^]	7.8 >

9 45-

m is the same as m(2) for γ Delphini,
for which see p. 146.

A faint star precedes g about 2^s (13)
slightly to the south; transit to disappearance
12.1, 11.0, in two trials.

23.1 2.0

Stops

Oct. 31 1885

Comparison stars of R. Vespuculae S. obs.
(132)

10 3	h	43.9	47.2	91.1 [^]	74 >
	b	42.0	40.9	82.9 [^]	67 68 >
	e	37.3	35.3	72.6 [^]	60 61 >
	x	24.0	25.9	49.9 [^]	40 >
	b	26.0	25.0	51.0 [^]	41 >
	w	12.3	14.0	26.3 [^]	21 >
	R	33.6	33.2	66.8 [^]	54 >
	C	19.8	20.4	40.2 [^]	33 >
	a	27.0	28.2	55.2 [^]	45 >
	z	17.8	17.5	35.3 [^]	29 >
	m	31.5	30.8	62.3 [^]	50 >
	y	22.0	21.1	43.1 [^]	35 >
	for	30.4	28.9	59.3 [^]	48 >
	g	42.0	38.0	80.0 [^]	66 >
	ff	46.3	45.0	91.3 [^]	74 >
	K	41.1	40.8	81.9 [^]	66 >

10 45

w is the preceding of a close faint pair

10 55

Stopwatch runs to 61.1 while 7.1327 runs 60.0
Subtract 0.9 from stopwatch readings.

Nov. 2, 1885.

Wedge photometer T. obs.
Star in nebula of Andromeda,
Star h as on pp. 136, 138

6 45 h 20.8 38.5 26
s 18.8 35.3 24
s 16.5
h 17.7

By estimate, h 15:

The nucleus following s is only suspected (as a stellar object) although the moon is absent and the altitude great. The nebula itself is so bright relatively to the stars as greatly to impede observation of s with the wedge.

6 53

$$\begin{array}{ccc} S.T. & & m.T. \\ 22 & 24 & = 7 \quad 30 \end{array}$$

Nov. 2, 1885.

Comp. Stars for 136 J Pegasi. N. H.

$$22 \quad 0 \quad +11.6$$

$$\begin{array}{r} 22 \quad 40 \\ \hline +40 \end{array}$$

44

Pos. Lero 138.8

$$\begin{array}{r} 90. \\ \hline \text{Set at } 48.8 \end{array}$$

8 25

(8) ~~does not disappear~~; ~~53.0 9.2~~(9) 49.0 45.0 94.0° 8.2 >(7) 53.7 51.2 104.9° 9.1 >16 36.4 37.8 72.9° 6.4 >27 28.2 23.7 51.9° 4.5 >3X 34.9 33.4 68.3° 5.9 >4y 34.9 39.8 74.7° 6.5 >5c 36.18 ~~39.40.8~~ 71.6° 6.8 >6z 37.4 33.1 70.5° 6.1 >(10) 25.2 25.8 51.0° 4.4 >(11) 25.3 28.9 54.2° 4.7 >(12) 22.0 20.9 42.9° 3.7 >

By estimate / J 1.5 (11)

9 0

(10) prec. J 11', 0.5 north

(11) foll. J 7' 1.0 south

(12) foll. J 16' 3.2 "

(12) prec. J 2', 6.0 "

Nov. 2, 1885

Wedge Photometer L.S.B.

Comparison stars of R Pegasi (140)

9 28	d(1)	38.3	37.5	75.8 [^] 6.6 >
	a	45.0	46.0	91.0 [^] 7.9 >
	s	23.1	22.9	46.0 [^] 4.0 >
	A	23.1	28.6	51.7 [^] 4.5 >
	g	17.1	17.5	34.6 [^] 3.0 >
	ge	17.0	21.4	38.4 [^] 3.3 >
	R	14.5	14.1	28.6 [^] 2.5 >
	L	18.1	17.3	35.4 [^] 3.1 >
	n	12.8	11.5	24.3 [^] 2.1 >
	c	31.0	32.0	63.0 [^] 5.5 >
	m	21.2	20.0	41.2 [^] 3.6 >
	K	33.3	31.6	64.9 [^] 5.6 >
	ky	30.8	34.6 28.1	58.9 [^] 5.1 >
	b	36.9	35.5	72.4 [^] 6.3 >

γ same as d(1)

d(2) same as f

10 10

Nov. 2, 1885

Comparison on stars of δ Pegasi (41)

10 20

n	39.2	40.8	80.0 [^]	70 >
R	37.0	31.5	68.5 [^]	60 >
h	33.0	33.1	66.1 [^]	58 >
d	25.2	26.4	51.6 [^]	45 >
p	46.0	45.5	91.5 [^]	81 >
g	33.1	28.0	61.1 [^]	54 >
e	34.0	31.5	65.5 [^]	58 >
a	23.0	16.5	39.5 [^]	35 >
f	30.0	32.5	62.5 [^]	55 >
s	36.8	46.2	77.0 [^]	68 >
b	23.9	26.9	50.8 [^]	45 >
m	32.2	36.0	68.2 [^]	59 >
c	25.1	30.7	55.8 [^]	49 >
x	17.1	17.1	34.2 [^]	30 >
y	13.7	12.5	26.2 [^]	23 >
z	12.1	11.4	23.5 [^]	21 >

11 13

x follows h about 14^s , same δ .
 y follows f " $2^s.5$, $3'$ south; it is the
 5th star of a triangle.
 z follows b " 10^s , near same δ .

Nov 2, 1985
~~Star~~²⁰ Jup I Phil-H. Pals. Pave.

This cloud at 17 26 medium cell mass

27	57	2834	}	318.7
28	35	351.2		
29	6	2879		
	34	3523		
30	class.	2825		
31	4	344.6		
	44	2925		
32	16	340.6		
	47	247.0		
33	25	not seen.		

At back of this cloud redder core appears during the eclipse making satellite at infrared invisible.

Satellite I can with II.

	B 394		B LC 1182
17	42.00	17	41 386
	43 00		42 386

Nov. 3, 1885,

$$22 \ 30 = 7 \ 30$$

126 a
~~127 a~~ V Cygni.
 Comp. Stars.

Tr. obs.

$$\begin{array}{r} 20 \ 3K \\ 22 \ 37 \\ \hline +2 \ 3 \end{array} \quad +47.6$$

$$\begin{array}{r} 20 \ 4J \\ 22 \ 5J \\ \hline +2 \ 10 \end{array} \quad \times 7.2$$

abandoned.

136 J Pegasi.

Tr. obs.

$$\begin{array}{r} 22 \ 0 \\ 23 \ 0 \\ \hline +1 \ 0 \end{array} \quad +11.8$$

$$\begin{array}{r} 20 \ 3K \\ 22 \ 11 \\ \hline 2 \ 33 \end{array} \quad \times 4.9$$

$$\begin{array}{r} 22 \ 0 \\ 22 \ 15 \\ \hline 1 \ 15 \end{array}$$

Nov. 3, 1885

Pos. Zero. 44.5

260

404.5

90

Sub. 314.5

8 30

(8)	50.6	50.4	101.0 [^]	88 >
(9)	44.9	46.0	90.9 [^]	79 >
(7)	50.2	50.5	100.7 [^]	88 >
16	34.0	34.8	68.8 [^]	60 >
27	24.6	24.7	49.3 [^]	43 >
3X	28.8	33.0	61.8 [^]	54 >
4Y	30.9	34.1	65.0 [^]	57 >
5C	33.0	35.1	68.1 [^]	59 >
6Z	31.1	35.0	66.1 [^]	58 >
(10)	25.0	27.0	52.0 [^]	45 >
(11)	26.3	26.5	52.8 [^]	46 >
(12)	20.8	22.7	43.5 [^]	38 >

9 5-

By estimate T 2 (11)

(10), (11), (12) as at foot of p. 152

Nov. 3 1885

Comp. stars of V Cygni (26a) Subs.

9 38

(g)	64.2	72.0	136.2 [^]	82 ^{>}
e	52.7	60.0	112.7 [^]	68 ^{>}
f	54.9	53.0	107.9 [^]	65 ^{>}
d	45.8	48.0	93.8 [^]	56 ^{>}
c	48.3	47.0	95.3 [^]	57 ^{>}
V	38.1	43.9	82.0 [^]	49 ^{>}
a	38.2	40.3	78.5 [^]	46 ^{>}
b	29.8	31.0	60.8 [^]	36 ^{>}
x ^k	17.7	24.0	41.7 [^]	25 ^{>}

10 13

x seems to be called k on the chart. The object observed is the sp. star of a triangle, and follows b about 7^s, 4.5 north.

Comp. stars of δ Arietis (10)

10 56

y	22.2	22.8	45.0 [^]	29 ^v
x	12.5	15.1	27.6 [^]	24 ^v
z	12.2	12.8	25.0 [^]	22 ^v
S	25.0	27.7	52.7 [^]	46 ^v
a	18.0	20.0	38.0 [^]	33 ^v
(6)	33.5	34.0	67.5 [^]	58 ^v
(7)	42.1	47.1	89.2 [^]	78 ^v
(8)	39.3	40.0	79.3 [^]	69 ^v
p	29.2	31.0	60.2 [^]	52 ^v

11 17

p is the star about 2' south of the group x y z; y is called g in the list.
My estimate p 2 S; S 3 a

Nov. 9, 1885

Wedge Photometer S. obs.
Comparison stars of χ Cygni (see pp. 140, 141)
(117)

9 17	e	56.5	57.0	113.5 [^]	8.5 >
	o	45.0	46.3	91.3 [^]	6.8 >
	k	45.1	50.0	95.1 [^]	7.1 >
	s	38.5	39.0	77.5 [^]	5.8 >
	t	32.0	30.0	62.0 [^]	4.6 >
	l	44.0	47.6	91.6 [^]	6.9 >
	zz	13.6	13.0	26.6 [^]	2.0 >
	y	16.9	19.9	36.8 [^]	2.8 >
	z	16.0	18.5	34.5 [^]	2.6 >
	χ	36.5	40.9	77.4 [^]	5.8 >
	xx	11.1	12.2	23.3 [^]	1.7 >
	x	22.7	23.0	45.7 [^]	3.4 >
	w	34.1	39.1	73.2 [^]	5.5 >
	m	42.7	44.9	87.6 [^]	6.5 >
	n	38.8	40.9	79.7 [^]	6.0 >

10 3

xx ~~is~~ foll. t about 10^s , $2'$ south. Another star equally faint, half way from t to xx.

Two faint stars following χ about 3^s and 6^s , $1.5'$ north would be good comparison stars but cannot be seen in the wedge.

By estimate $\chi = m$; but by estimate with finder, $m \approx 2 \chi$; $\chi' = s$.
 χ red in large telescope; color not noticeable in finder.

Nov. 9, 1885 Comparison stars of δ Cygni (119)

10 30

d	56.2	52.9	109.1 [^]	5.1 >
w	42.1	42.7	84.8 [^]	4.0 >
c	52.2	50.4	102.6 [^]	4.9 >
y	20.0	16.8	36.8 [^]	1.8 >
S	40.0	44.7	84.7 [^]	4.0 >
a	52.9	60.9	113.8 [^]	5.3 >
z	39.0	42.7	81.7 [^]	3.8 >
x	30.9	31.6	62.5 [^]	3.0 >
b	59.1	57.0	116.1 [^]	5.6 >
h	47.0	46.6	93.0 [^]	4.5 >
g	56.0	58.1	114.1 [^]	5.4 >
(12)	73.5	78.1	151.6 [^]	7.3 >
(13)	63.9	61.1	125.0 [^]	6.0 >
(14)	63.2	63.5	126.7 [^]	6.1 >

11 14

The object taken for y follows c 5^s,
0.3 south.

- (15) A star following c about 15^s, 4' south
measured 24.8 27.2 ^{52.0[^]} ^{2.5 >} It is fainter than x,
brighter than y.
By estimate, $S = h$

Nov. 11, 1885

Nebula of Andromeda S. obs.

6 5 By estimate h 3.5 s 5 nucleus of nebula
 The nucleus is hardly visible as a distinct object.

Wedge photometer. (See pp. 136, 138, 151.)
 Nucleus not visible in wedge.

h 20.0 382 2.6

s 15.1 31.1 2.1

2^d neb. 28.8 2.9

s 16.0

h 18.2

6 23 Clouds near, perhaps affecting observations.

6 25 Thin detached clouds scattered over most of the sky.

Nov. 17, 1885

6 10

Stopwatch runs to 61^s.2 while ~~12~~ 7,1327 runs 60^s.0
 Subtract 0.9 from stopwatch readings.

Wedge photometer

Comparison stars of χ Cygni. S. obs.

6 37

e	51.2	57.3	108.5 [^]	8.1 >
o	42.0	45.8	87.8 [^]	6.6 >
k	50.0	48.8	98.8 [^]	7.4 >
s	40.5	40.2	80.7 [^]	6.1 >
t	30.2	32.1	62.3 [^]	4.7 >
l	47.8	46.7	94.5 [^]	7.1 >
z z	14.9	14.9	29.8 [^]	2.2 >
y	20.7	22.2	42.9 [^]	3.2 >
z	16.9	15.8	32.7 [^]	2.5 >
χ	44.0	41.9	85.9 [^]	6.4 >
xx	11.0	10.7	21.7 [^]	1.6 >
x	24.3	29.0	53.3 [^]	4.0 >
w	38.3	37.9	76.2 [^]	5.7 >
n	44.0	43.7	87.7 [^]	6.6 >
m	45.1	46.2	91.3 [^]	6.8 >

By estimate

k 4 2 χ
 χ 3 m

7 20

S. obs.

Nov. 17. 1845.

Comp. Stars for ^{126 a} 127 or V Cygni. G. obs.~~20 40~~23 20 $\sqrt{1.2} = 1.1$ 24 E. V.
$$\begin{array}{r} 20 \quad 40 \\ + 2 \quad 40 \end{array}$$

+ 46.2

23 35

20 40

+ 2 52

20 37

23 35

44.9

20 40

23 40

$$\begin{array}{r} 20 \quad 40 \\ 23 \quad 40 \\ \hline 2 \quad 57 \end{array}$$

47.2

8 20	(9)	75.1	73.3	148.4 ^ 8.9 >
	1 e	54.2	57.7	112.5 ^ 6.8 >
	2 f	56.5	54.7	111.2 ^ 6.7 >
	3 d	47.7	48.0	95.7 ^ 5.7 >
	4 c	47.3	49.8	97.1 ^ 5.8 >
	5 b	46.8	49.0	95.8 ^ 5.7 >
	6 a	42.3	42.2	84.5 ^ 5.0 >
	7 b	33.2	31.4	64.6 ^ 3.9 >
8 53	8 h	24.0	22.7	46.7 ^ 2.8 >
8 53		C 1 V		

9 40

Nov. 17, 1885

Comparison stars of γ Boötis (5)
S. obs.~~h 18.1~~
~~e 17.1~~
~~k 12.7~~

Done interferes.

h	21.7	21.9	43.6 [^]	37 ^v
e	17.9	17.6	35.5 [^]	31 ^v
k	17.1	16.8	33.9 [^]	29 ^v

i not seen; perhaps same as a(1)

a(1)	14.3	17.0	31.3 [^]	27 ^v
------	------	------	-------------------	-----------------

γ	16.0	17.4	33.4 [^]	29 ^v
----------	------	------	-------------------	-----------------

f(1)	23.3	27.1	50.4 [^]	43 ^v
------	------	------	-------------------	-----------------

m	12.8	13.0	25.8 [^]	22 ^v
---	------	------	-------------------	-----------------

c(1)	21.9	20.4	42.3 [^]	36 ^v
------	------	------	-------------------	-----------------

d probably same as m

c(2)	28.1	26.0	54.1 [^]	47 ^v
------	------	------	-------------------	-----------------

b	22.3	17.9	40.2 [^]	35 ^v
---	------	------	-------------------	-----------------

a(2)	42.6	42.2	84.8 [^]	73 ^v
------	------	------	-------------------	-----------------

f(2)	10.0	10.9	20.9 [^]	18 ^v
------	------	------	-------------------	-----------------

g	13.2	12.9	26.1 [^]	22 ^v
---	------	------	-------------------	-----------------

h	37.5	32.9	70.4 [^]	61 ^v
---	------	------	-------------------	-----------------

q	28.8	32.8	61.4 [^]	53 ^v
---	------	------	-------------------	-----------------

r	26.1	30.8	56.9 [^]	49 ^v
---	------	------	-------------------	-----------------

10 46

By estimate γ 1 ap free. a(2) about 35^s, 15' southq foll. a(2) about 70^s, 0'.5 north.r foll. q about 4^s, 6' north

Nov. 20, 1885.

6 18

Star in nebula of Andromeda. Obs.
h 3 s

s equal to nucleus of nebula; both visible,
but not distinctly; h distinctly visible.
For nomenclature see pages 136, 137.

Objects too faint for observation with
wedge; moonlight.

Comparison stars of δ Aquilae (121)

6 55

f	30.7	30.0	60.7 [^]	52 >
g	26.9	31.1	58.0 [^]	49 >
h	13.0	11.5	24.5 [^]	21 >
c	23.9	22.0	45.9 [^]	39 >
f	24.3	26.7	51.0 [^]	43 >
d	20.0	22.0	42.0 [^]	36 >
a	32.2	34.7	66.9 [^]	54 >
(8)	36.3	39.0	75.3 [^]	64 >
(9)	35.5	38.0	73.5 [^]	62 >
(10)	40.1	43.8	82.9 [^]	71 >

7 20

By estimate a 2 f; f 1 c.

Nov. 20, 1885.

Comparison stars of R Pegasi (140). V. d. S.

q 21

d	37.0	37.0	74.0 [^]	64 [^] >
a	413.5	42.4	85.9 [^]	75 [^] >
s	17.0	15.9	32.9 [^]	29 [^] >
f	19.4	17.1	36.5 [^]	32 [^] >
g	11.2	12.2	23.4 [^]	20 [^] >
e	11.4	10.2	21.6 [^]	19 [^] >
R	suspected			
l	12.2	11.7	23.9 [^]	21 [^] >
m	suspected			

c	25.2	28.7	58.9 [^]	47 [^] >
n	17.5	15.0	32.5 [^]	28 [^] >
k	32.5	29.3	61.8 [^]	54 [^] >
h	28.5	28.8	57.3 [^]	50 [^] >
b	39.0	33.2	72.2 [^]	63 [^] >

q 46

See page 153 for γ & d(2)

Nov. 20, 1883
Comparison stars of δ Regasi (141)

9 55	n	40.2	37.5	71.7 [^]	6.8 >
	k	32.4	34.2	66.6 [^]	5.8 >
	d	20.2	20.0	40.2 [^]	3.5 >
	p	43.1	42.5	85.6 [^]	7.5 >
	h	31.7	34.2	65.9 [^]	5.8 >
	g	27.0	28.6	55.6 [^]	4.9 >
	e	29.1	29.0	58.1 [^]	5.1 >
	a	19.4	19.5	38.9 [^]	3.4 >
	f	27.6	26.2	53.8 [^]	4.4 >
	j	30.9	33.9	64.8 [^]	5.7 >
	b	19.8	22.0	41.8 [^]	3.7 >
	m	32.2	34.5	66.7 [^]	5.8 >
	c	25.5	25.0	50.5 [^]	4.4 >
	x	10.0	10.2	20.2 [^]	1.8 >

y and z not seen in moonlight

For x, y, z, see page 154.

10 36

By estimate ϕ n 3 S; S 2 K

Nov. 27, 1885.

Mutens Andromids.

B. obs.

h
23 10.4 } 22.
23 25

7 30 10 meteors counted in $4^m 25^m$ Tr. obs.
besides two or three others thought
to have ^{been} seen. but quite faint
and with very short path.

Comp stars for Var. Tr. obs.
136 γ Pegasi.
22 \times +11.0
0 25

+2 21

Nov. 27. 1225.

8 3	C (A)	50.6	49.7	³ 100.8 ^{8.7} > W. obs.
	(9)	42.0	43.5	85.5 ¹ 74 >
	(7)	51.0	51.5	102.5 ¹ 89 >
	1 b	33.8	31.8	65.6 ¹ 54 >
	2 II	See below.		
	3 X	28.8	26.8	55.6 ¹ 48 >
	4 y	26.1	26.5	52.6 ¹ 46 >
	5 c	33.0	29.5	62.5 ¹ 54 >
	6 Z	27.7	28.1	55.8 ¹ 49 >

8 47 This precedes "5c" 12.5 p.m. 4' south
 Call this w. Then w 3 I
 I too faint for obs. in wedge.

8 27 10 meteors counted in 6 m or W.

9 1 11 meteors counted in 9 - 23 W.

Nov. 27. 9 Looked for some 20 minutes
 after ending work with lens. Phot. ^{last night} but saw
 no meteors. Moon up. Time at ending of
 watch, about 12 midnight. W.

Mr. Clayton says he looked for about
 10 minutes of 14 hours but saw none.
 Tel. rec'd this morning of great meteor

Nov. 27. 1885.

showers in Europe on the 27th, so that
Mr. Sawyer probably saw the beginning
of it on the night of the 26th, and we
the end of it on the night of the 27th
while the European observers probably saw
the central and largest shower. H.

Nov. 24. 1885.

7 15 Two meteors seen and three or four
~~7 7~~ others suspected in a watch of ten
 minutes.

Comp. Stars for 127 δ Delphinus.
 H. obs.

1 d'

2 a

3 b

4 c

5 s

6 g

7 m

8 d~

9 f

10 m~

11 J.

Rejected - Stars
 rather low.

Nov. 28. 1885.

10 S Arietis
Comp. Stars.

Tr. obs.

$$\begin{array}{r}
 1 \quad 55 \quad +12.8 \\
 0 \quad 30 \\
 \hline
 -1 \quad 25
 \end{array}$$

8 19

(7)	50.7	51.2	102.5 [^]	8.9 [^]
(A)	[42.2]	42.0	95.2 [^]	8.3 [^]
(6)	37.0	37.4	47.2 [^]	(1st value evidently wrong.)
1#4	24.5	25.7	74.4 [^]	6.5 [^]
20X	20.7	22.0	50.2 [^]	4.4 [^]
3Z	15.2	15.3	42.4 [^]	3.4 [^]
4B	31.2	29.5	31.1 [^]	2.7 [^]
5a	23.5	24.6	61.3 [^]	5.3 [^]
9p	31.0	32.7	48.1 [^]	4.2 [^]
			63.7 [^]	5.5 [^]

8 45

S 3 g [g is the star called y on chart] Tr.

8 50

3 meteors seen in a watch of 5 minutes Tr.

Nov 29, 1885

B 394 BLC 1182
 16 57 00 16 54 32.3
 58 00 55 32.3

17 33
 8

 17 41
 3

 17 38

Disappearance of
 Jupiter III,
 P. obs. I. rec.
 Photometer R.
 Compared with first satellite following

17 21 12 211.2 Compared with Sat. I.
 26 334.8
 58 224.4
 22 10 316.3
 33 225.0
 46 320.4
~~23 9 317.0~~
 23 27 225.1
 37 320.6
 43 223.4
 53 322.3
 24 3 219.8
 21 320.8
 36 225.3
 46 321.4
 55 217.7
 25 7 325.1
 21 218.2
 33 324.0
 46 218.4
 26 0 333.6

Nov. 27, 1885

17	26	24	216.6
		37	335.6
		55	224.0
27		6	319.4
		16	222.3
		28	319.8
		39	223.6
		48	322.4
28		2	223.4
		9	325.0
		20	220.3
		29	321.5
		39	219.9
		48	325.3
29		1	224.3
		9	326.6
		21	218.8
		31	325.6
		41	221.9
		51	326.9
30		4	218.2
		18	328.4
		32	215.6
		50	329.3
31		3	219.6
		14	323.0
		28	218.2
		49	327.6
32		58	218.4
		7	327.7

Nov. 29, 1885

17	32	15	221.0
		25	329.2
		35	217.5
		53	331.3
33	16		222.6
	56		313.6
34	11		233.3
	25		311.5
	41		231.6
	52		314.6
35	1		237.2
	9		313.4
	17		235.3
	25		314.1
	33		234.3
	41		310.6
	49		240.8
36	57		312.0
	15		235.6
	16		315.2
	26		232.4
	35		313.4
	42		233.2
37	50		311.4
	59		229.6
	10		315.6
	21		230.0
	33		315.4
	47		230.6
38	13		316.3

Nov. 29 1885

17	38	24	231,4
		45	341,2
	39	2	235,6
		14	313,8
		24	
		42	228,4
40	0		307,2
	8		243,8
	19		301,7
	27		248,3
	37		300,8
	45		249,0
	54		297,4
41	5		254,2
	12		295,6
	20		252,8
	30		295,6
	46		259,3
	55		288,1
42	9		267,1 (?) perhaps not seen

Limit of visibility			
17	43	27	263,8
		36	286,3
		50	262,4
44	3		288,3

Thin clouds at intervals

Nov. 29 1885

B 8 C 1182	B 394
17 50 31.7	17 53 0.0
51 31.7	54 0.0

Dec. 2, 1885

Nebula of Andromeda, I. obs.

6 5 s equal to nucleus of nebula; neither distinctly seen; is about a magnitude brighter.

See pages 161, 165; objects in the nebula cannot well be compared with L.

New Comet.

W. obs.

Disc. at Paris (1st obs.)

0 36 +20.8

$\begin{array}{r} 23 \quad 12 \\ -1 \quad 12 \end{array}$

Comp stars $a = 5m 20.87$ mag 5.5
 $b = \quad \quad 21.88$ 8.7

For you 57.2
 45.
~~102.2~~
 12.2

Comp x a double; fr comp a little free & south

Dec 2, 1855

179

Comet South

Star "a" south N. do.

	t_1			t_2				t_1			t_2			
Comp. with "a"	23	47	18.7	23	47	34.0	—	23	44	49.6	23	45	1.0	—
	50	22.5		50	37.5			47	53.2		48	5.2		
	54	7.0		54	22.2			51	38.1		57	49.5		
	57	9.3		57	24.2			54	40.6		54	52.2		

Comp. with "b"

Comet South

Star Star

23	58	15.0	23	58	35.4	23	58	43.5	23	59	5.7
59	42.5	0	0	3.0		0	0	11.2	0	0	34.0
0	6.2		1	26.3		1	35.0		1	57.2	
2	14.0		2	34.0		2	42.6		3	5.5	

Both good central condensation: no nucleus

Diameter $2\frac{1}{2}$

	B 236			Fr 1327		
0	8	25.0		0	10	0.0
0	9	25.0		0	11	0.0

Dec. 2, 1885

Wedge Photometer S. Johns
Comparison stars for γ Riscum (5)

9 16

c	21.9	23.6	44.9 [^]	3.9 ^v
a(1)	22.1	22.2	44.3 [^]	3.8 ^v
j	24.1	19.7	43.8 [^]	3.8 ^v
f(1)	26.5	29.0	55.5 [^]	4.8 ^v
d	20.6	18.5	39.1 [^]	3.4 ^v
c(1)	26.4	25.6	52.0 [^]	4.5 ^v
b	22.9	24.8	47.7 [^]	4.1 ^v
h	27.0	27.8	54.8 [^]	4.7 ^v
i	18.8	21.8	40.6 [^]	3.5 ^v
k	29.4	32.1	61.5 [^]	5.3 ^v
m	probably same as d			
c(2)	30.0	28.1	58.1 [^]	5.0 ^v
a(2)	43.0	41.0	84.0 [^]	7.2 ^v
f(2)	17.6	20.9	38.5 [^]	3.3 ^v
g	19.5	18.9	38.4 [^]	3.3 ^v
g	15.9	16.5	32.4 [^]	2.8 ^v
y	11.9	10.7	22.6 [^]	1.9 ^v

10 11

By estimate a 1st; γ 2nd

+ precedes γ 25^s near same δ
 γ follows x 16^s, south 2'

The object taken for k is on the chart at
 $\alpha^h 23^m 0^s$, $+14^\circ 9'$; the object taken for k on
 page 164 is 'that called i on this page.

Dec. 2. 1845.

New Comet.
(disc. at Paris.) 2^d obs. W. obs.Zero 47.2
Setting 2.2

Same stars as in beginning of evening

North

α x South

Comp with
"α"

4	30	35.5	4	30	49.9
	33	42.2		33	56.9
	36	18.1		36	32.2
	39	9.5		39	23.5

4	28	32.9	4	28	47.6
	31	40.0		31	55.0
	34	16.0		34	31.0
	37	7.2		37	22.5

Comp. with
"β"

South

4	40	10.0	4	40	27.0
	41	49.0		42	5.5
	43	36.1		43	52.5
	45	30.2		45	47.2

β North

4	41	4.5	4	41	28.7
	42	43.6		43	7.4
	44	31.0		44	54.5
	46	25.7		46	49.4

B. 236.

✓	26	22.6
	27	22.6

Fr.	1327.
5	28 0.0
	29 0.0

Dec 3. 1925.

New count

W. obs.

 $a = \text{sm. } 20.87$ (med last night) $b = \text{" } 20.84 = 8.1$ Sun 46.9
45.9
Set 1.9

north

"a" south

Comp with a

0	52	57.5	0	53	31.2
	54	9.5		54	43.5
	55	19.2		55	53.2
	56	14.0		56	45.2
	57	18.7		57	50.4
	58	10.7		58	4
	59	1.0		59	32.7

0	53	9.5	0	53	17.0
	54	22.0		54	28.9
	55	32.0		55	39.0
	56	23.4		56	32.9
	57	29.2		57	39.0
	58	21.0		58	30.9
	59	12.0		59	21.1

south

north

Comp with "b"

3	4		
2	44.2	3	16.2
4	57.0	5	28.7
6	54.9	7	26.5
9			
10	25.0	10	59.5
12	25.5	12	57.4

15	12		
1	38.7	2	2.8
3	51.6	4	15.3
5	49.6	6	13.4
7	56.2	8	19.5
9	20.8	9	44.0
11	21.3	11	44.4

B. 236.

F. 1327.

1	18	20
	19	20

1	20	0.0
	21	0.0

Dec 3, 1885

Zero 46.9
set 1.92^d obsn; ~~1st~~ same compⁿ stars W. obs.

	a north				a south			
	1		3		2		4	
Comp with "a"	4	22 31.0	4	22 53.0	4	22 51.5	4	23 12.4
		23 30.7		23 53.0		23 51.5		24 12.2
		24 31.9		24 54.5		24 53.0		25 13.9
		25 37.7		26 0.5		25 58.5		26 19.4
		26 38.7		27 1.0		26 59.5		27 20.5

	b south			
	1		4	
Comp. with "b"	4	28 58.7	4	29 17.0
		30 31.5		30 54.1
		32 2.8		32 21.6
		34 8.2		34 27.5
		35 50.7		36 10.2

	x north			
	1		2	
	4	28 1.5	4	28 35.8
		29 35.2		30 7.4
		31 6.5		31 40.7
		33 12.0		33 46.4
		34 55.0		35 29.0

B. 236.
4 44 18.5
45 14.5

F. 1327.
4 46 0.0
47 0.0

Dec 5, 1885
Paris Comet

Comp with $a = 5m 20^{\circ} 74$

S. C. C. obs.

S. C. C.	✓	6 17	47.0	
	✓	18	42.9	
M. C. C.	X	19	12.1	} 12.05 ✓
	X		24.4	
	X	20	15.0	} 20.50 ✓
	X		26.0	

✓	6 23	4.7	
✓	23	57.2	
X	24	31.2	} 34.05 ✓
X	24	38.5	
X	25	34.0	} 37.90 ✓
X	25	41.8	

Dec 5. 1945,

Paris & con

Bomp with $\delta = 20.66$

South	X	6	28	29.5
North	=			40.5

	X			47.
	=		29	0

	X	6	30	14.5
	=			24
	X			32
	=			44

	6	33	44
			55.5
			2.
			14.

Dec 5, 1885.

Comp with Paris & Am
 with $a = \text{dm } 20.74$

a 8 6 37 15.6
 Smith 54.0 ?

$\left. \begin{array}{l} \text{Smith} \\ \times \end{array} \right\} \begin{array}{l} 38 \quad 34.2 \\ \times \quad 44.0 \end{array} \left. \vphantom{\begin{array}{l} \text{Smith} \\ \times \end{array}} \right\} \begin{array}{l} 39.10 \\ 42.55 \end{array} \checkmark$
 $\left. \begin{array}{l} \times \\ \times \end{array} \right\} \begin{array}{l} 39 \quad 38.3 \\ \times \quad 46.8 \end{array} \left. \vphantom{\begin{array}{l} \times \\ \times \end{array}} \right\} \begin{array}{l} 42.55 \\ 47.10 \end{array} \checkmark$

\checkmark 6 40 41.0
 \parallel 41 20.0
 \times 42 0.2
 \times 8.5
 \times 43 4.2
 \times 11.3

Dec 5. 1845.

Barnard's

8 cc hrs

start at $\alpha = \text{Sun } 5.636$ $\beta = \quad \quad \quad 4.687$ $\gamma = \quad \quad \quad 4.690$

North α 7 6 51.6
 South α 7 29.0
 South β 9 28.2
 South γ 10 5.8

α 7 14 57.5
~~14 28.5~~
 North α 15 31.7
 South β 17 33.6
 North γ 53.5 } ~~59.5~~
 North α 18 55.2 }
 β 12.0
 γ 18 53.2 } ~~59.5~~
 α 19 5.2 }

Dec 5/85

Burnards & cont

d	7	20	28.0	
=		21	2.9	
b		23	5.0	
c			25.0	} 31.06
c			37.0	
b			43.5	
c		24	24.2	} 30.20 27.2
c			30.2	

d	7	27	27.8	
=		28	1.3	
b		30	4.2	
c			24.0	} 30.25
c			36.5	
b			42.9	
c		31	23.2	} 29.80
c			36.4	

Dec 5/85

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Red. B. 6 102.Barnard's χ^2 test

North	a	7	33	21.0
	a			30.5
South	a		34	22.0
	a			34.0

a	7	35	44.0
a			53.1
a		36	44.2
a			57.2

a	7	38	26.2
a			35.1
a		39	26.6
a			38.8

a	7	40	21.2
a			29.8
a		41	19.8
a			32.8

Dec 5/85

done for positioning

slit north 7 44 19.3
 30.2
 45 18.5
 29.5

 46 21.3
 32.0
 47 20.2
 31.2

Reading of Position Circle 1.9

Small; 11 mag; round faint
 nucleus a little eccentric, placed
 near preceding end.
 coma $1\frac{1}{2}$ diameter

B236	Fr 1327
8 2 5.5	8 4 0
<hr/>	
B236	B394
8 3 30.2	14 47 0

Dec 5, 1885

Note: all obs tonight made
with difficulty; observer searching
for himself; not easy as
both comets were faint;
and wind blowing violently
rendered chron. beats inaudible
at times.

S.C.C.

Dec 6 / 885- (Red. B. 6, P. 110)

W. W. W. W.

Paris comet

Comp with star d = Dm 20. 47

Also same as last night - setting 1.9

afterwards dic.
that this was not
the right star

E. Smith				Star north			
t_1	t_2	t_3	t_4	t_1	t_2	t_3	t_4
0 18 33.5	0 18 59.3	0 16 34.5	0 16 42.7	0 17 37.5	0 17 48.8		
21 11.2	21 37.0	19 12.8	19 21.2	20 15.5	20 24.5		
24 25.5	24 48.5	22 24.7	22 35.2	23 27.6	23 38.5		
27 6.5	27 30.2	25 6.7	25 17.0	26 9.2	26 20.4		

Comp. with $b = Dm 20. 66$ (used last night)

E. Smith

 $b \times$ Smith

0 28 57	0 29 19.0
31 8.2	31 31.7
33 24.5	33 48.0
36 2.2	36 26.3

0 30 24.4	0 30 48.0
32 36.8	33 0.5
34 53.2	35 16.8
37 32.1	37 55.7

7th 19th Hand Time

Dec 6, 1885

193

Reduction of obs. on opp page

$\frac{t_1 + t_2}{2}$	$\frac{t_1 + t_2}{2}$	$L - L$	$\frac{t_1 + t_2}{2}$	$\frac{t_1 + t_2}{2}$
-----------------------	-----------------------	---------	-----------------------	-----------------------

0 18 46.40	0 17 10.10	+1 36.30	25.8	54.8
21 24.10	19 48.35	35.75	25.8	54.3
24 37.00	23 1.40	35.60	23.0	52.4
27 18.35	25 43.10	35.25	23.7	52.2
0 23 1.46		+1 35.72	24.58	53.43

12 5.85
3 1.67
2 2.90

+ 9.00
0 23 10.5
17 2 31.2
7 20 39.3
- 1 12.1
7 19 27

$L - L + 1$ 35.72
2 20 22 43.99
+ 3.45
- 0 24 23.16

$L - L + 3$ 22.15
+ 20 55 50.6
+ 24.8
+ 20 52 53.3

1.46015
.87506
9.97040
2.30561
202.15

Using star

0 29 7.35	0 30 36.20	-1 28.85	23.3	23.6
31 19.95	32 48.65	28.70	23.5	23.7
33 36.25	35 5.00	28.75	23.5	23.6
36 14.35	37 43.90	29.65	24.1	23.6
0 32 34.4		-1 28.99	23.60	23.62

10 17.80
2 34.4

+ 9.0
0 32 43.4
17 2 31.0
27 30 12.4
- 1 10.8
7 28 59.

- 1 28.99
0 28 29.35
+ 3.45
0 27 3.81

+ 20 44 17.8
+ 24.8
+ 20 53 56.1

47.22
1.67413
0.87506
(20 hrs) 2.97071
2.51990
33.05
885.60
570.55

Dec 6 1875

Burnard

W obs

Same zero, Setting 1° 9'

Star a = α 5. 636 (last night) $e = \alpha$ 4. 679 669Comp. with
 e

north

 t_1 t_2

1 2 12.8 1 2 30.0

2 6 24.5 6 41.6

11 21.6 11 39.0

15 7.0 15 23.5

south outside
 t_1 t_2 (my notation)

0 59 7.5 0 59 17.2

1 3 19.7 1 3 29.5

8 17.4 8 27.0

12 2.3 12 11.9

7:50 →
Star TimeComp. with
 a

south

 t_1 t_2

1 17 56.6 1 18 22.4

22 5.2 22 30.5

23 37.5 24 3.5

25 6.5 25 32.2

26 43.5 27 9.0

north

 t_1 t_2

1 18 39.8 1 19 7.2

22 48.2 23 15.5

24 21.2 24 48.5

25 50.5 26 17.5

27 27.4 27 54.5

8:18 ±
Star Time

Dec 6 / 1885

195

Rem of obs on opp. page

95 40.0
8 55

1 2 21.40	0 59 12.35	+3 9.05	+172 - 9.7
6 33.05	3 24.60	8.45	17.1 9.8
11 30.30	8 22.20	8.10	17.4 9.6
15 15.25	12 7.10	8.15	16.5 9.6
1 8 55.0	+3 8.44	17.05	9.65
+ 9		7.40	+ 7.35
1 9 4.0		0.86923	0.86629
17 2 31.0		0.27406	0.27506
8 5 35.0		9.99844	9.99844
1 19.7		1.74275	1.73979
		8.456	8.456
		5.30	5.30
		830.3	830.3
C. M. T.	8 5 15.3	4 11 40.96	+ 4 44 27.3
	X (1885.0)	4 14 49.40	+ 4 58 18.0

~~1 18 9.50~~

1 18 9.50	1 18 53.50	- 0 44.00	25.8 27.4
22 17.85	23 1.85	44.00	25.3 27.3
23 50.35	24 34.85	44.50	25.0 27.3
25 19.50	26 4.00	44.50	25.4 27.0
26 56.25	27 40.95	44.70	25.5 27.1
1 23 18.7	- 0 44.34		25.60 27.22

16 22.45

1 23 27.7	2 36	4 15 31.51	13 27 11.0
17 2 31.0	X (1885.0)		8 51.5
8 29 25.4	33 52.1		36 0.0
	34 52.7	4 14 47.17	374 580.40.5

Dec 6 / 1955

Paris

Comp. with star $d = \text{Dm } 20.47$
 (those on p. 192 were taken
 with wrong star)

north

 t_1 t_2

2	27	37.0	2	28	16.6
	32	37.2		33	16.5
	38	5.6		38	45.4
	43	8.9		43	48.2

d north

 t_1 t_2

2	23	42.4	2	24	2.3
	28	43.0		29	3.0
	34	12.2		34	31.5
	39	16.4		39	35.7

Dec. 6. 1885.

197

Reduction of obs. on previous page.

2 2 x

2 27 56.80	2 23 52.35 +4 445	39.6 19.9
32 56.85	28 53.00 3.85	39.3 20.0
38 25.50	34 21.55 3.65	39.8 19.3
43 28.55	39 26.05 2.50	39.3 19.3

142 47.70

2 35 41.9	+4 3.61	39.50 19.62
+9		

2 35 51.0
17 2 31.1
9 33 20.0
-1 24.0

19.88
1.298 42
0.875 06
20 54.8
7970 40
2.143 88
129.3

+4 3.61	-2 19.3
---------	---------

0 22 43.99 +20 55 50.6
+3.45 +24.8
0 26 51.05 +20 53 56.1

C.M.T.

1885.0
9 31 46.0

Dec. 6, 1895.

13^h 30^m Looked again for Barnard's Comet
~~but~~ but already quite cloudy so
that no obs could be taken. W.
No stars visible in this region. H.

Dec. 7, 1885

Nebula of Andromeda, I. obs.
See p. 178 for last observation.

6 23 s barely suspected; nucleus thought to be seen as a stellar object at least 0.5 magn. brighter than s; h perhaps 0.7 magn. brighter than the nucleus. but the brightness of the nebula itself makes all estimates of the nucleus uncertain.

s thought to be decidedly fainter than it was on Dec. 2.

Region near zenith; no moonlight.

6 415 There is a star about 6^s following the nucleus, $4'$ south of it, a magnitude or more brighter than h. About $1.5'$ from this star in the direction of h is a faint star which must be 0.2 or 0.3 magn. brighter than s, although if s were seen upon the same background with this star, the estimate would no doubt be different. This comparison star is as faint an object as can be thought with some confidence to be visible; it is not continuously seen.

Dec 7. 1885

Barnard's

W. obs

Camp star D. m. 5: 636

Set at 1.9

south

Dm. 5-636 north

t_1'	t_2'	t_0	t_1	t_2	t_3
1 16 49.3	1 14 32.3	1 14 46.8	1 14 53.8	1 15 45.5	1 15 53.2
16 25.8	17 9.3	19 24.2	19 30.7	20 23.0	20 30.3
21 12.0	21 56.0	24 11.4	24 17.8	25 10.2	25 17.0
25 39.8	26 23.2	28 38.6	28 45.5	29 37.6	29 45.0
30 6.5	30 50.4	33 6.2	33 12.5	34 4.9	34 12.2

Paris

Camp star Dm 20.47

Dm 20.47 north

north

t_1	t_2	t_0	t_1'	t_2'	t_3'
1 45 8.2	1 45 16.2		1 46 46.2	1 47 27.2	
48 11.4	48 19.8		49 49.2	50 30.2	
52 44.7	53 0.5		54 22.8	55 11.2	
55 53.5	56 9.0		57 31.2	58 19.5	
58 40.8	58 56.5		2 0 18.0	2 1 6.8	

Dec

Rev of obs on opp page

2-2

ΔE

1	17	10.80	1	15	19.65	-3	8.85	43.0	51.7
	16	47.55		19	56.85		9.30	43.5	52.3
	21	34.00		24	44.00		10.00	44.0	52.4
	26	1.50		29	11.55		10.05	43.4	52.1
	30	28.45		33	38.70		10.25	43.9	52.4
				<u>-3</u>				43.56	52.18
								-2'	50.4

1	21	24.5
		+14.0
1	21	38.4
17	8	22.0
		<u>11.4</u>
8	15	11.4
1		21.1
8	12	50.

X(18850)	4	15	31.51	+5	6	51.5 ⁺
⊗ (1885.0)	4	12	21.82	+5	4	40.9
			+4.11			+1.6
⊗ Ap. Pl. = 4	12	25.93	+5	X	2.7	

95.74
1.78109
0.87506
2.79830
2.85445
71.52
885.6
170.4

1074230
21 24.
C. M. S.

Dec 10 1885

B 236

7 54 36.5

TH 1327

7 57 0.0

Cor

1 57 0

7 55 3.

fine sid J. 7 55 3

B 236 (long) + 26.5

Comet Barnard

W obs

Comp - stars a = 5m 5.595 = 1313 Y1

b = " 5.599 = W, 4, 35

c = 45 Jauri = Glasgow 592

South

Comp with
a

8	20	33.6	8	21	3.3
	23	17.9		23	48.5
	25	50.4		26	22.2
	28	36.0		29	7.0
	31	8.8		31	39.8

a₂ north

8	18	54.0	8	19	19.2
	21	39.2		22	4.5
	24	12.0		24	37.3
	26	58.2		27	22.6
	29	30.9		29	55.2

Comp with
c

north

8	35	35.3	8	36	5.0
	37	26.0		37	44.3
	39	4.0		39	22.5
	40	45.1		41	3.2
	42	51.5			
	42	57.9		44	12.0
	43	53.7			
	46	25.5		46	39.5

c south

8	36	44.0	8	37	5.0
	38	23.5		38	44.8
	40	1.8		40	23.1
	41	43.2		42	5.1
	44	51.4		45	13.8
	47	20.0		47	45.8

Dec. 10, 1885

Rev of obs

8 20 48.45	8 19 5.50 + 1 41.85	29.7 25.2
23 33.20	21 51.85 41.35	30.6 25.3
26 6.30	24 24.65 41.65	31.8 25.3
28 51.50	27 10.40 41.10	31.0 24.4
31 24.30	29 43.05 41.25	31.0 24.3

8 26 8.7	+26.5
8 26 35.2	
17 18 17.1	
15 8 18.1	
15 5 21.8	
15 5 49	

c m J.

+1 41.44	30.82 24.90	55.72
$\times a(1885.0)$ 4 2 34.03	- 7 49.6	1.74601
$\checkmark (1885.0)$ 4 4 15.47	+ 5 31 4.2	0.87506
$\approx \text{app.} = 4 4 19.60$	+ 5 23 14.6	9.97803
	+ 5 22 16.2	4.81910
		46.01
		88.6
		469.6

8 35 55.15	8 36 54.50 - 1 4.15	19.2 21.0
37 35.15	38 34.15 59.00	18.3 21.3
39 13.25	40 12.45 0 59.20	18.5 21.3
40 54.15	41 54.20 60.05	18.1 21.8
44 2.55	45 2.60 59.75	18.3 22.4
46 32.50	47 32.90 60.40	14.0 25.8

8 40 42.20	+26.5
8 41 8.7	
17 18 17.1	
15 22 56.6	
15 20 31.2	
15 20 20	

c m J.

- 0 59.62	17.82 22.7	40.69
$\times c(1885.0)$ 4 5 12.71	+ 9 46.2	1.60304
$\checkmark (1885.0)$ 4 4 13.09	+ 5 13 21.2	0.87506
$\approx \text{app.} = 4 4 17.22$	+ 5 23 7.4	9.97804
	+ 5 23 9.6	2.47624
		299.4
		88.6
		586.2

Dec 6¹⁰
 Barnard's ~~of~~ cont

~~2~~ north
 3

~~48 48.5~~
 8 50 33.0 8 50 45.5
 51 34.5 51 47.0
 52 37.3 52 49.8
 53 54.8 54 6.9
~~55 11.3 55~~
 55 42.4 55 57.2

2 north
 4

~~35.2~~
~~49 47.0~~
 8 50 31.5 8 51 20.0
 51 33.0 52 22.0
 52 36.0 53 24.3
~~53 53.3~~
~~55 10.0 55~~
 55 41.0 56 32.4

~~1~~ south
 3

8 58 51.0 8 59 54.3
 59 57.0 9 0 40.9
 9 1 0.2 1 43.5
 2 0.5 2 45.2
 3 36.4 4 22.0

2 south
 4

8 59 27.0 8 59 55.2
 9 0 33.3 0 41.1
 1 35.9 1 43.9
 2 36.5 2 44.9
 4 12.5 4 22.1

Dec. 10. 1885.

8	50	39.25	8	50	55.75	#0	16.75	X	12.5	48.5
51		40.75	51		57.50		16.75		12.5	49.0
52		43.55	53		0.15		16.60		12.5	48.3
54		0.85	54		17.30		16.45		12.1	48.0

55 49.80

56 6.70

16.90

14.8

51.4

8 52 58.84

#0 16.60

12.88

49.04

8 53 25.3

+ 4 30.0

17 18 12.1

2 (1885.0) 4 4 29.31

+ 5 18 48.1

15 35 8.2

2 (1885.0) 4 4 12.67

+ 5 23 18.1

- 2 33.2

+ 4.13

+ 5 23 20.3

15 32 35.

4 4 16.80

270.00

C.W.L. =

8 59 22.65

8 59 41.10 - 0 18.45

63.3

28.2

9 0 18.95

9 0 37.20

43.9

7.8

1 21.85

1 39.90

X 45.3

8.0

2 22.85

2 40.70

44.7

8.4

3 59.20

4 17.30

45.6

9.6

9 1 29.1

- 0 18.14

44.16

12.40

8 1 55.6

2 (1885.0) 4 4 29.31

+ 4 24.0

35.76

17 18 12.1

2 (1885.0) 4 4 11.17

+ 5 18 48.1

1.58851

15 43 38.5

+ 4.13

+ 5 23 12.1

4.87506

2 34.6

+ 2.2

9.99810

15 41 4

Ap. 2 = 4 K 15.30

+ 5 23 18.3

2.42187

C.W.L. =

B. 236.

F. 1327.

9 15 35.2

9 12 0.0

17 35.2

20 0.0

Dec. 11. 1885.

Paris Comet.

W. obs.

South
23 2 31.5 | 23 7 49.3
6 54.7 | 7 12.7

BBVI
Dm. 20.39 South
23 5 55.2 | 23 6 32.5
10 18.4 | 10 56.8

North
23 12 34.7 | 23 13 10.4 | 23 16 19.4 | 23 16 34.5
~~17 28.0~~ | ~~17 59.25~~
19 56.0 | 20 30.5 | 23 40.5 | 23 54.4

Barnard's

South
2 3 3
23 41 31.0 | 23 44 46.5
46 18.4 | 46 35.7
47 25.2 | 47 42.7

BBVI. 5.595 South

1 4
23 44 9.5 | 23 44 58.5
45 57.0 | 46 46.0
47 4.2 | 47 52.8

North
23 48 36.8 | 23 49 20.5
23 49 38.0 | 50 22.2
50 39.0 | 51 22.6

BBVI. 5.595 North

2 3
23 48 47.0 | 23 48 59.3
49 48.2 | 50 0.5
50 49.5 | 51 1.9

Dec. 11. 1845. 1327.00
 23 13.236 31.2 0 0.0
 31.7 1 0.0

2-2

23 2 40.40 20 6 13.85 - 3 33.45
 7 3.70 10 37.60 33.90
 23 4 52.05 - 3 33.688
 + 31.2
 23 5 23.2
 17 22 13.6
 5 43 58.2
 5 42 13.4

x(1885.0) 0 20 1.65
 (1885.0) 0 16 27.98
 0 16 27.97

17.8 37.3
 18.0 38.4
 17.90 37.85
 - 2.199 - 19.95
 + 20 48 57.0 1.39974
 20 46 37.1 0.87506
 9.97075
 2.14575
 1399

~~12 52.55~~

12 52.55

16 26.95 - 3 34.40

~~35.7~~

35.7 15.1

20 13.25
 23 16 32.9
 + 31.2
 23 17 4.1
 17 22 13.6
 5 54 58.5
 58.1
 5 53 52.4
 42 13.4
 5 48 2.9
 4 44 31
 10 32 34
 4 44 37
 15 17 5

Gr. M. 2

23 49.45 34.20
 - 3 34.30
 x(1885.0) 0 20 1.65
 (1885.0) 0 16 27.35
 27.97
 0 16 27.66
 + 3.30
 Ap. pl. = 0 16 30.96

34.5 13.9
 35.10 14.50
 - 2 24.4 - 20.60
 + 20 48 57.0 1.31387
 + 20 46 32.6 0.87506
 37.1 9.97075
 2.15968
 144.4
 + 20 46 34.8
 + 25.2
 + 20 47 0.6

23 44 39.75 23 44 34.00 + 0 5.75
 46 27.05 46 21.50 5.55
 47 33.95 47 28.50 5.45
 23 46 13.58 + 0 5.58
 23 46 44.8 x(1885.0) 4 2 34.03
 17 22 13.6 4 2 39.61
 6 24 31.2 + 5.13
 6 23 28 Ap. pl. = 4 2 43.74

17.5 49.0
 17.3 49.0
 17.5 48.6
 17.43 48.87 31.44
 + 3 54.7 1.49748
 + 5 31 42 0.87506
 + 5 27 9.5 9.97075
 + 5 27 16.7 2.37054
 23.472

C. m. T.

23 48 58.65 48 53.15 + 0 5.50
 50 0.10 49 54.35 5.75
 51 0.80 50 55.70 5.10
 23 50 0 + 0 5.45
 23 50 31.2 x(1885.0) 4 2 34.03
 17 22 13.6 4 2 39.48
 6 24 31.2

437 12.3
 442 12.3
 436 12.4
 43.83 12.33 31.50
 + 3 55.2 1.49831
 + 5 31 42 0.87506
 + 5 27 9.0 9.97075
 23.7139
 235.17

Dec. 11, 1885

B 1182.

B 394.

15 28 52.5

15 32 0.0

29 52.5

33 0.0

Dis of I, Phot. H. S. obs.
Comp. with Sat. II.

15 42 24.5

24.0

20 45 52.5

37.0

126.5

51.0

72.0

43

5.0

179.5

21.0

79.0

32.0

179.2

43.0

88.0

57.0

128.2

KK

10.5

27.2

22.5

123.5

40.0

92.5

50.0

125.0

45

2.0

95.0

12.5

124.1

24.0

93.0

35.0

129.0

46.0

94.5

46

4.0

127.7

31.0

91.5

47.0

127.0

Dec. 11. 1845.

15	46	57.5	93.2
	47	6.0	124.9
		16.5	29.1
		<u>27.0</u>	124.5
		37.0	93.4
		44.5	120.2
		52.0	90.5
		59.0	126.0
	48	<u>2.0</u>	91.5
		17.5	120.5
		25.5	91.2
		<u>33.0</u>	124.2
		42.5	92.5
		51.5	120.2
	49	0.5	92.2
		<u>7.5</u>	178.5
		16.5	96.5
		23.5	120.0
		30.0	91.5
		<u>36.5</u>	120.2
		43.5	96.9
		51.0	124.5
		59.0	96.2
	50	<u>2.0</u>	179.2
		14.0	29.0
		26.0	126.2
		35.0	93.1
		<u>46.0</u>	124.4

Dec. 11. 1865.

20	54	4.	15-	5-0	5-6.0	98.6
	13		51	5-0		120.3
	22			14.0		92.2
	33			24.5		120.4
	41			33.0		97.9
	50			41.5		120.8
	52			49.5		100.0
55	6.			57.5		120.1
	13		52	5.0		99.0
	20			12.5		173.2
	29			21.5		100.2
				27.5		179.5
				30.0		104.2
				40.0		174.0
				45.5		104.4
				51.5		172.3
				57.5		117.3
			53	5.0		174.4
				13.0		111.2
				20.0		159.8
				27.5		116.1
				35.0		156.8
				44.0		124.8

Not seen later.

Dec. 11, 1885.

Limit of Vis.

15	54	15.0	122.5
		25.5	151.6
		35.0	112.6
		44.0	153.1

B. + C. 1142.

16	1	52.1
	2	52.2

Bond 394

16	5	0.0
	6	0.0

Dec. 12. 1885.

~~Comet Paris.~~

W. obs.

~~$$\begin{array}{r}
 0 \quad 7.5 \\
 1 \quad 3 \\
 \hline
 +0 \quad \sqrt{6}
 \end{array}
 \quad +20 \quad 43$$~~

Comet Barnard.

W. obs.

$$\begin{array}{r}
 3 \quad \sqrt{7} \\
 \hline
 \sqrt{2}
 \end{array}
 \quad +5.6$$
~~$$\begin{array}{r}
 \sqrt{2} \\
 \hline
 \sqrt{2}
 \end{array}$$~~

$$-2 \quad \sqrt{2}$$

$$\begin{array}{r}
 \sqrt{0} \\
 \sqrt{0} \\
 \sqrt{0}
 \end{array}$$

$$\begin{array}{r}
 \text{Pos. Zero } 172.6 \\
 45. \\
 \hline
 217.6
 \end{array}$$

Order in all the sets E E X X
 Comet in northern and star in southern
 half.

Comp. Star 2 M. $+5^{\circ} 549$ (A.V)

Dec. 12, 1885

1 42 43.5 \odot
 43 1.4 \odot
 29.2 *
 37.3 *

44 10.4
 2.4

45 56.4
 4.4

~~45 41.2~~

46 29.6

47 47.4
 16.0
 23.6

48 23.6
 41.0

49 9.3
 17.3

~~50 35.0
 53.5
 21.4~~

Dec. 12, 1885

$$\begin{array}{r} 1 \quad \sqrt{2} \quad 17.0 \\ 36.2 \end{array}$$

$$\begin{array}{r} \sqrt{3} \quad 4.4 \\ 12.4 \end{array}$$

$$\begin{array}{r} \sqrt{4} \quad 7.4 \\ 25.3 \\ \sqrt{5.0} \end{array}$$

$$\begin{array}{r} \sqrt{5} \quad 1.9 \end{array}$$

Transits on above comet probably not quite as good as usual, from having to record for myself.

Comet ~~Barnard~~, Paris. W. D.

$$\begin{array}{r} 0 \quad 9 \quad + 20.7 \\ 2 \quad 10 \\ \hline + 2 \quad 1 \end{array}$$

$$\begin{array}{r} 2h \quad 29 \quad | \quad 35.3 \\ 30 \end{array}$$

For transits see next page.
Recorded for self in first of following sets. Mr. Leake recording afterwards.

Dec. 12, 1885

2	30	40.4	*
	31	27.3	*
	33	25.6	⊖
	33	54.0	⊖

~~36 5.4~~

2	44	45.4	
	45	33.0	
	47	28.8 + 0.5	⊖
	48	1.1	

Star	}	all southern half
Star		
Comet		
Comet		

2	48	19.7	
	49	7.1	
	51	3.0 + 0.5	
		35.6	

Nucleus rather poorly defined

2	51	57.0
	52	45.3
	54	40.2
	55	13.0

{	Comp. star
	D.M. + 20° 19 9.5 mag.
{	Total nebulosity
	about 3' in diameter.

B. 236.	
4	27 23.2
	28 22.8
	29 22.8

Fr. 1327.	
4	30 0.0
	31 0.0
	32 0.0

∴ B. 236 is 2° 37.2' slow of Fr. 1327

Dec. 12, 1885

Region of α Ceti (12)

S. obs.

Fainter comparison stars identified.
 v is brighter than c , although the magnitudes
 in the list are 11.0 and 10.0. There is a star
 nearly n.p. to about 10' distant, which is
 about equal to c . Doubtful if any more
 comparison stars are required.

Irregular haze increasing makes
 it useless to serve the region with the
 wedges.

10 15

1855phn-proj..5008