1882phtre.proj.1315w

KG
11366
V.313

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1882phae..proj..1S15W

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1882phae.proj.1315W

Sept. 1, 1882.

Planetary nebula and 2 stars preceding 6' S.

Pos.

B 236.

					Magn	δ
Star	19	41	46.0	43.3	8.5	1
"		42	29.3			
Neb		43	53.7	44.1	13.	
		44	37.8			

Neb f star 2m 7.7 / 2 8.5 } mean 2m 8.1

A star 11 magn. f neb. 1s, 1'n.

Square set parallel to diurnal movement.

Star used above compared with others.

			h	m	s	Magn	δ
Star (a)	wire	A	19	47	15.0	8	7
(b)	"	A			34.3	9	1/2
c	"	A			55.0	8.5	1.3
(a)	"	B			59.2	44.2 / 43.4	
(b)	"	B		48	17.7	43.4	
c	"	B			38.4		
d	"	A		49	6.5	8.5	23
d	"	B			50.1	43.6	

Star d is the star compared with nebula above.

---

d	Wire	A	19h	50m	14.0	Star d compared again with nebula.
		B			57.6	43.6
Neb		A		52	22.6	Neb f star 2m 8.6 / 2 8.5
		B		53	6.1	43.5

Mean 2 8.6

Mean of four 2m 8.3

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1882phae.proj.4315W

Sept. 1, 1882.

Light of nebula compared with 2 stars near:

a 7 b

b same S with neb, 25^s p.
a 1′ S of neb, 20^s p.

∴ Neb. fol. star	d	2^m	4.3	+6′
" " "	b	0	25.	0
" " "	a	0	20.	+1
" " "	(a)	3	59.5	+22
" " "	(b)	3	50.6	+17
" " "	c	3	19.9	+16

A star of 11th mag. fol. Neb. 1 sec. 1′ north.

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1882phae.proj.1315w

Sept. 1, 1882

Sawyer's Variable

9h 6.2 23 P. obs.

107.4 101.2+ ∠

16.3 191.4

9 16.6 ∠ 286.4 95.0+ ∠

196.2+ ∠ 163,8+ ∠ .31+ ∠

81.90 ^

6.7

105.4 98.7+ ∠ P. obs.

17.8 188.7

9 18.1 ∠ 285.3 96.6+ ∠

195.3 ∠ 164.7+ ∠ .29+ ∠

82.35 ^

5.2 P. obs

110.2 105.0+ ∠

19.6 189.6

9 19.9 ∠ 286.8 97.2+ ∠

3 24.6 ∠ 202.2+ ∠ 167,8+ ∠ .42+ ∠

9 18.2 ∠ 78.95 ^

9.9 24 W. obs.

102.0 92.1+ ∠

21.9 189.5

9 22.2 ∠ 291.0 101.5+ ∠

193.6+ ∠ 166,4+ ∠ .26+ ∠

83.20 ^

2.3 W. obs

108.0 105.7+ ∠

24.0 190.6

9 24.3 ∠ 284.2 93.6+ ∠ 0.37 ∠

199.3+ ∠ 160.7+ ∠ .87+

80.35 ^

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1882phae.proj.1315W

Sept. 1, 1882

9h

9.0
104.7 95.7 +
26.0 189.7
9 26.3 287.7 98.0 +
3 12.8 193.7 + 166,3 + ,26 +
9 24.3 83.15 -

3.3 2s- P. obs
103.2 99.9 +
28.6 192.2
9 28.9 287.8 95.6 +
195.5 + 164,5 ,30 + 0.29
82.25 -

7.2 P. obs
105.1 97.9 +
30.3 186.4
9 30.6 286.4 100.0 +
197.9 + 162,1 + ,34 +
81.05 -

4.6 P. obs
106.7 102.1 +
32.2 190.6
9 32.8
3 92.0 285.3 94.7
9 30.7 196.8 + 163,2 + ,32 +
81.60 -

8.9 26 W. obs
103.9 95.0 +
34.5 185.8
9 34.8 290.3 104.5 +
199.6 + 160,5 + ,37 +
80.25 -

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1882phae.proj.1315w

Sept. 1, 1882

9h 4.2 W. obs

36.5 105.0 100.8 +

9 36.8 191.0

281.9 90.9 +

191.7 + 168,3 + .22 +

84.15 ^

7.2 W. obs

107.0 99.8 +

38.8 187.8

9 39.1 291.0 103.2 +

3)207 200.0 + 157,0 + .44 +

9 36.9 78.50 ^

6.7 27 P. obs

111.1 104.4 +

40.9 188.0

9 41.2 290.2 102.2 +

206.6 + 153,4 + .37 +

76.70 ^

1.6 P. obs

106.4 104.8 + moonlight; and objects faint.

45.0 186.5

9 45.3 285.9 100.4 +

205.2 + 154,8 + .48 +

77.40 ^

4.0 P obs

108.7 104.7 +

47.2 184.0

9 47.5 285.5 101.5 +

3)~~149~~

9 ~~446~~

9 ~~446~~

206.2 + 153,8 + .50 +

76.90 ^

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1882phae.proj.1315W

Sept. 1, 1882

9h 50m Dew rapidly collecting on object glass; stopped to remove it

28 - W. obs

9.5

103.7 94.2+ ∠

55.8 192.2

9 56.1 ∠ 285.7 94.5+ ∠

188.7+ ∠ 171.3+ ∠ 0.16 .47+ ∠

85.65 ^

46.7

94.4 reject; wrong images.

W. obs

10h 3.1

110.0 106.9+ ∠

4.5 190.2

10 4.8 ∠ 282.5 92.3+ ∠ 0.37

199.2+ ∠ 160.8+ ∠ .37+ ∠

80.40 ^

W. obs

9.8

103.6 93.8+ ∠

6.0 187.2

10 6.3 ∠ 290.8 103.6+ ∠

197.4+ ∠ 1626+ ∠ .33+ ∠

81.38 ^

3 7.2 ∠

10 ∠ 2.4 ∠

29 - C. obs

1.3

104.6 103.3+ ∠

8.2 191.4

10 8.5 ∠ 286.0 94.6+ ∠

197.9+ ∠ 162.1+ ∠ .34+ ∠

81.05 ^

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1882phae.proj.1315W

Sept. 1, 1882

10h 6.2 P. obs

100.8 94.6+<

8.9 185.9

10 9.2< 286.2 100.3+<

194.9+< 165,1<, 28+<

82.55^

4.0 P. obs

106.7 102.7+<

11.4 193.4

10 11.7< 283.1 89.7+<

3(29.4< 192.4+< 167,6<, 24+<

10 9.8<

83.88^

10.0 30 W. obs

104.9 94.9+<

13.5 186.5

10 13.8< 288.2 101.7+<

196.6+< 163,4<, 32+<

81.70^

3.9 W. obs

108.2 104.3+<

15.8 193.2

10 16.1< 280.5 87.3+<

191.6+< 168,4<, 22+<

84.20^

6.0 W. obs

104.2 98.2+<

17.5 187.5

10 17.8< 292.7 105.2+<

3(17.7< 203.4+< 186,6<, 45<

10 15.9<

78.30^

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1882phae.proj.1315w

Sept. 1, 1882

10h 4.6 31 P. obs.
111.0 106.4 +
20.1 189.2
10 20.4 284.7 95.5
201.9 158,1 ,42
79.05 ^

7.3 P. obs
103.6 96.3 +
21.2 190.2
10 21.5 285.5 95.3 +
191.6 168,4 ,22 +
84.20 ^

3.2 P. obs
110.4 107.2 +
22.8 190.5
10 23.1 287.4 96.9 +
3 (5.0)
10 21.7 204.1 155,9 ,46 +
77.95 ^

8.0 32 W. obs.
101.9 93.9 +
24.5 185.5
10 24.8 292.5 107.0 +
200.9 159,1 ,40 +
79.55 ^

1.9 W obs
112.0 110.1 +
26.4 192.5
10 26.7 281.3 88.8 +
198.9 161,1 ,36 +
80.55 ^

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1882phae.proj.1315w

Sept. 1, 1882

10h 8.2 W. obs

104.8 96.6 +

28.0 183.2

10 28.3 293.7 110.5 +

3 19.8

10 26.6

207.1 + 152.9 + .52 +

76.45 ^

1.2 83 P. obs

109.4 108.2 +

29.8 198.6

10 30.1 289.2 95.6 +

203.8 + 156.2 + .45 +

78.10 ^

2.6 P. obs

103.8 101.2 +

31.7 186.6

10 32.0 290.9 104.3 +

205.5 + 154.5 + .49 +

77.25 ^

6.1 P. obs

109.2 103.1 +

33.6 190.4

10 33.4 288.6 98.2 +

0.41

3 6.0

10 32.0

201.3 + 158.7 + .

79.35 ^

6.8 34 W. obs

106.1 99.3 +

36.1 182.2

10 36.4 293.8 110.8 +

149.9 + .58 +

74.95 ^

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1882phae.proj.1315W

Sept. 1, 1882

10.h

2.0
112.8 110.8 +
38.2
190.5
10 38.5 282.4 91.9 +
0.43
202.7 + 157,3 +, ~~43~~
7 8.65 ^

6.9
99.5 92.6 +
40.7
183.9
10 41.0 295.0 111.1 +
3 115.9
10 38.6
208.7 + 156,3 +, 45
7 8.15 ^

4.6
110.4 105.8 +
42.7
189.8
10 43.0 292.2 102.4 +
208.2 + 157,8 +, 54 +
7 5.90 ^

6.9
109.3 102.4 +
44.4
185.1
10 44.7 291.0 105.9 +
208.3 + 151.7 +, 54 +
7 5.85 ^

2.9
108.6 105.7 +
45.9
190.3
10 46.2 289.7 99.4 +
3 13.9
10 44.6
205.1 + 157 +, 48
7 5.85 ^

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1882phae.proj.1315w

Sept. 1, 1882

10h 5.2 36 M. obs

106.3 100.5 +

48.5 180.0

10 48.8 293.6 193.6 +

214.1 + 145.9 + .66

7 2.95 -

358.9 W. obs

114.7 115.8 +

50.2 189.0

10 50.5 284.2 95.2 +

211.7 + 149.0 + .59 +

7 4.50

4.2 W. obs

106.2 102.0 +

51.8 183.0

10 52.1 295.2 112.2 +

3 151.4

10 50.5

214.2 + 145.8 + .66 +

7 2.90

4.8 87 Robs

109.8 105.0 +

53.7 188.6

10 54.0 291.3 102.7 +

207.7 + 152.3 + .53 +

7 6.15

7.4 P. obs

109.5 102.1 +

55.5 184.2

10 55.8 289.2 105.0 +

207.1 + 152.9 + .52 +

7 6.45

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1882phae.proj.1315w

Sept. 1, 1882.

10h 5.8 P. obs

114.3 108.5+

57.3 190.9

10 57.6 284.8 93.9+

3 17.4 202.4+ 15 7.6+ .43+

10 55.8] 8.80

5.2

110.0 104.8+ 38 W. obs.

59.0 181.0

10 59.3 295.8 114.8+

219.6+ 140.4+ .77+

] 0.20

1.0

11h 1.0 110.7 109.7+ W. obs

11 1.3 184.0

288.5 104.5+

214.2+ 145.8+ .66+

] 2.90

6.0 W. obs

104.9 98.9+

2.6 186.1

11 2.9 294.3 108.2+

3 3.5 207.1+ 15 2.9+ .52+

11 1.2] 6.45

357.8 39 P. obs

110.0 112.2+

4.3 189.8

11 7.6 289.5 99.7+

214.9+ 148.1+ .61+

] 8.05

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1882phae.proj.1315w

Sept. 1, 1882

11h		5.8		P. obs
		106.6	100.8 +<	
	6.5	185.8		
11	6.8 <	291.7	105.9 +<	
			206.7 +< 153.3 +< .57 +<	
			76.65 ^	
		1.3		
		113.0	111.7 +<	P. obs
	7.9	186.2		
11	8.2 <	286.8	100.6 +<	
	3 | 19.6 <		212.3 +< 147.4 +< .62 +<	
11	6.5 <		73.85 ^	
		2.8		40 W obs
		110.0	107.2 +<	
	10.0	183.1		
11	10.3 <	294.0	110.9 +<	0.74 <
			218.1 +< 141.9 +< .74	
			70.95 ^	
		3.1		W. obs
		114.3	111.2 +<	
	11.5	185.2		
11	11.8 <	288.9	103.7 +<	
			214.9 +< 145.1 +< .67 +<	
			72.55 ^	
		6.1		W. obs
	13.4	106.3	100.2 +<	
11	13.7 <	180.6		
	3 | 5.8 <	298.0	117.4 +<	
11	11.9 <		217.6 +< 142.4 +< .73 +<	
			71.20 ^	

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1882phae.proj.1315w

Sept. 1, 1882

11h 357.5 41 Pole

110.0 112.4+

14.6 185.7

11 14.9 287.6 101.9+

214.3+ 145.7+ .66+

72.65

1.8 P. Obs

108.4 106.6+

17.5 184.3

11 17.8 292.8 108.5+ Brightness varying; cer-

215.1+ tainly owing to clouds.

144.9+ .68+

72.45

1.2 P. Obs

19.4 111.1 109.9+

11 14.7 188.2

3 22.4 287.1 98.9+

11 17.5 208.8+ 151.2+ .55

75.60

~~3.9~~

~~11 0.4~~ 106.5 Reg.

21.9 182.5

~~11 22.2~~

42 W. Obs.

B. + C. 1882.

11 32 24.6

33 24.6

33 44.0

+0 19.9

Bond 3944

11 ~~32~~ 44.5

~~00~~ 0.0

34 0.0

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1882phae.proj.1315W

Sept. 2, 1882

B 236

h 19 36 30
1 51 30
17 45

δ 16.5 } Configuration like that of Nebula but not nebula

19 37 10
2 4
17 33

δ 15.2 } Oe 17004

19 56 41 Oe 17003
1 48
19 58 29 Oe 17040

20 11 30
2 27
17 44 3.0

δ 16.1 Oe 17240-41 has a companion p 90° s 5" magn. 11

Nebula 11' s of Oe 17240-41 ∅
" 40s p — d —

Star d of Sept. 1 probably Oe 17184-5
Star a probably Oe 17146-7.

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1882phae.proj.1315w

Sept. 2 1882

				d	
Neb.	20	32	10	7	Nebula south of star; see p. 15
		32	54		
Oe 17240-1	20	32	53	21	
		33	36,5		

2 8,5
43.
2 51.5

20'

32
75
43

Oe 17184-5	17 37 31	16 31
Oe 17240-1	17 40 22	16 11
	2 51	20

Oe. 17184-5	1880	$17^h\ 39^m\ 13^s$	$-16^\circ\ 32'.3$
Oe. 17240-1	"	17 42 6	− 16 12.4
Nebula	"	17 41 21	− 16 26 by Oe. 17184-5
"	"	17 41 23	− 16 26 . Oe 17184-5
"	"	17 41 22	− 16 26 " mean.

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1882phae.proj.1315W

Sept. 4, 1882

P. obs.

Sweeps for Plan. neb. -5° to -10°
beginning $19^h\ 43^m$ by B.236, hour angle $1^h 25^m$.

19 44.15 8.9 5 magn.
ended at $20^h\ 6^m$
∴ Sweep from $18^h 18^m$ to 18 41

Hour angle 21 0 − 18 35 = 2 25
18 40
2 25
19

21 3 −9.1 6 magn.
Sweep from $21^h\ 0^m$ to $21^h\ 10^m$ ±
This last almost taken to fill a gap since
chronometer is about 3m fast. Hence entire
limit extends from $18^h\ 15^m$ to $18^h\ 40^m$ and -5° to -10°

Nebula found δ +5°.2
hour angle about 2^h west at about $21^h\ 25^m$
Hence α about $19^h\ 25^m$
Sky became very hazy

Estim mag. 13 12 or * 1's ?
Some equally bright stars following
now soon preceding near.

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1882phae.proj.1315W

Sept. 5, 1882.

Comet Wells. W. obs.

12 ν 9.ν +0.°7
18 24.
+ν 24

7 18 δ Serpentis. light cloud
Comet
12 ν 9.ν 18 ν ν
18 36
+ν 36 +0.7

Too cloudy to see comet.

Sawyer's variable

Chron.
BD C. 1182 321.0 W. obs.
74.7 113.7 +<
8 21.3 142.5
255.2 112.7 +<
226.4 +< 133.6 +< .90 +<
66.80 ^

322.6 W. obs.
77.0 114.4 +<
8 23.7 142.2
255.8 113.6 +<
228.0 +< 132.0 +< .94 +<
66.00 ^

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1882phae.proj.1315W

Sept. 5, 1882.

W. obs.

320.0
76.8 116.8+
8 25.8
140.8
253.8 113.0+ / 229.8+ 130.2+ .97+

P. obs.

Nebula found Sept 4 (A. 17).

2H +5° 4170	20	4	45.5	p neb	3m 24.5	6	9.3	A
+5° 4175		5	12.3	p neb	2 57.7	5	9.0	A
+5° 4177		5	18.2	p neb	2 51.8	11	7.0	A
+5° 4170		5	27.5		3 24.5	6	9.3	B
+5° 4175		5	54.3		2 57.7			B
+5° 4177		6	0.3		2 51.7			B
+5° 4184		6	35.0	p neb	1 35.0	11	8.5	A
+5° 4186		6	46.6	p neb	1 23.4	10	7.8	A
+5° 4184		7	15.8		1 36.2			B
+5° 4186		7	28.4		1 23.6			B
		8	10.0			6	neb	A
+5° 4200			40.3	f neb	0 30.3	7	9.5	A
+5° 4201			47.0	f neb	0 37.0	11	8.5	A
			52.0					B

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1882phae.proj.1315W

Sept. 5, 1882.

DM. +5° 4200 20 g 22.0 f neb 30.0 B
+5° 4201 29.0 " 37.0 B

Light of nebula estimated by two comparison stars.
Neb = a 4 b

Neb 11 47.5
11 magn. Star c 50.3 1' n of neb. f neb 2.8
Star b 12 12,3 (2.3?) 1.5 n " " ~~24.8~~ 14,8
Star a 6.0 (~~16.2~~ ?) 0.5 n " " ~~28.5~~ 18.5

Neb. 44m west at 20h 15m by
B 236; prob. 20h 10m
α 19 26

DM. +5° 4170	p neb (mean)	3m 24.s50	3m	24.s60	Gen. mean	3m 24.s55	0'
+5° 4175		2 57.70	2	57.70	"	2 57.70	−1'
+5° 4177		2 51.75	2	51.10	"	2 51.42	+5'
+5° 4184		1 35.60					
+5° 4186		1 23.50	1	23.35	"	1 23.42	+3'5

W XIX 595	1880 α	19h 25m 15.s21	δ	+5° 25' 55"	Neb 1880	28m 39.s6	26'
W ~~XIX~~ 606		19 25 41.8		5 25 0		28 39.5	26'
W XIX 608		19 25 47.7		5 30 51		28 39.1	26'
W XIX 650		19 27 16.4		5 29 3		28 39.8	26'

Nebula	19h	28m 39.s5	+5° 26'
Star c	19	28 42.3	+5 27
b	19	28 54.1	+5 27.5
a	19	28 58.1	+5 26.5

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1882phae.proj.1315W

Sept. 5, 1882.

Dll. +5° 4170	20	21	45.3	f neb	3m 24.s5	6	9.3	A
+5° 4175		22	12.2		2 57.6	5	8.0	A
+5° 4177			19.0		2 50.8	11	7.2	A
+5° 4170			27.3		3 24.7			B
+5° 4175			54.2		2 57.8			B
+5° 4177		23	0.6		2 51.4			B
Star			6.7				9.5	A
+5° 4186			46.7		1 23.1	9	7.5	A
+5° 4186		24	28.4		1 23.6		7.5	B
Neb		25	9.8			5	neb	A
Star c near neb			12.4	f neb	0 2.6		c	"
Star b			24.7		0 14.9		b	"
Star a			28.2		0 18.4		a	"
+5° 4200			40.0		0 30.2	7	9.0	"
+5° 4201			47.3		0 37.5	11	8.5	"
Neb			52.0				neb	B
Star c			55.0		0 3.0		c	
Star b		26	6.3		0 14.3		b	"
Star a			10.7		0 18.7		a	"
+5° 4200			22.0		0 30.0		9o	"
+5° 4201			30.0		0 38.0		85	"

Star c f neb 2.s8 , 1′ n.
b 14.6 , 1.′5 n.
a 18.4 , 0.′5 n.

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1882phae.proj.1315w

Sept. 7. 1882.

Comet Wells. Wr. obs.

13	3	+0.5
18	32	
+5	-29	

Comet not found.
Cloudy in west and all about horizon.

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1882phae.proj.1315w

Sept. 7, 1882

Sawyer's Variable

~~23.8~~ 102.2 1 P. obs

~~114.3~~ 210.4 108.2+ ∠

7h 29.4 287.2

7 29.7 ∠ 31.0 1038+ ∠

212.0+ ∠ 148.0+ ∠ ~~.62~~ .61+ ∠

74.00 ^

Zero changed

67.6

174.2 106.6+ ∠ P. obs.

31.8 250.4

7 32.1 ∠ 2.1 111.7+ ∠

218.3+ ∠ 141.7+ ∠ .74+ ∠

70.85 ^

70.1 P. obs

177.4 107.3+ ∠

33.0 251.8

7 33.3 ∠

355.4 103.6+ ∠

3 (95.7 ∠

7 31.9 ∠ 210.9+ ∠ 149.1+ ∠ .59+ ∠

74.55 ^

71.0 2 P. obs

170.4 99.4+ ∠

249.0

34.4 356.4 106.8+ ∠ 5

7 34.7 ∠ 206.2+ ∠ 143.8+ ∠ ~~.50~~+ ∠

76.90 ^

67.3 P. obs

180.9 113.6+ ∠

35.9 252.1

7 36.2 ∠ 6.0 107.9+ ∠ 0.80

221.5+ ∠ 138.5+ ∠ ~~.81~~+ ∠

64.25 ^

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1882phae.proj.1315w

Sept. 7, 1882

7h

71.8 P. obs.
175.3 103.5 +
37.4 37.7 <
7 246.4
3 (18.6 <
7 359.7 113.3 +
36.2 <
216.8 + < 143.2 + < .71 + <
7 1.60 ^

65.6 3 P. obs
173.8 108.2 +
39.8 40.1 <
7 256.2
353.7 97.5 +
205.7 + < 154.3 + < .49 + <
7 7.15 ^

68.8 P. obs
173.0 104.2 +
42.0 42.3 <
7 249.3
2.7 113.4 +
217.6 + < 142.4 + < .73 + <
7 1.20 ^

67.0 P. obs
173.2 106.2 +
43.5 43.8 <
7 252.9
3 (6.2 <
7 356.8 103.9 +
42.1 <
210.1 + < 149.9 + < .58 + <
7 4.95 ^

68.1 4 P. obs
172.4 104.3 +
45.4 45.7 <
7 251.2
359.0 107.8 +
212.1 + < 147.9 + < .61 <

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1882phae.proj.1315W

Sept. 7, 1882

7h 66.2 P. obs

178.9 112.5+<

46.7

7 47.0<

250.4

351.8 101.4+<

213.9+< 146.1+< .65+<

73.05-^

68.3 P. obs.

178.2 104.9+<

48.4

7 48.7<

249.4

1.2 111.8+<

3(21.4<

216.7+< 143.3+< .71+<

7 47.1<

71.65-^

69.0

174.7 105.7+< 3 W. obs

51.2

7 51.5<

246.9

358.2 111.3+<

217.0+< 143.0+< .71+<

71.50-^

66.0 W. obs.

177.0 111.0+<

53.0

7 53.3<

251.5

0.8 109.3+<

220.3+< 139.7+< .78+<

69.85-^

66.8 W. obs

174.8 108.0+<

55.5

7 55.8<

246.1

(10.6<

351.9 103.8+<

7 53.5<

211.8+< 148.2+< .61+<

74.10-^

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1882phae.proj.1315w

Sept. 7, 1882

7h

67.7
178.8 111.1+<
57.3
250.7
7 57.6<
1.2 110.5+<
221.6+< 138.4+< .81+<
69.20^

+2
65.6 P. obs
177.8 112.2+<
249.2
59.1
7 59.4< 354.7 105.5+<
~~95.5~~
~~217.7~~
2177+< 142.3+< .73+<
71.15^

71.3 P. obs
8h 0.4 172.5 101.2+<
8 0.2<
251.6
3(177.7< 359.7 108.1+<
7 59.2<
209.3+< 150.7+< .56+<
75.35^

68.0 7 W. obs
175.3 107.3+<
3.0
8 3.3< 251.1
357.5 106.4+<
~~86.4~~
~~193.7~~
213.7+< 146.3+< .65+<
73.15^

71.8 W. obs
175.0 103.2+<
4.7
8 5.0< 248.9
359.0 110.1+<
213.3+< 1467+ .64+<
73.35^

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1882phae.proj.1315W

Sept. 7, 1882

8h

67.2
177.1 109.9+
253.8
355.1 107.3+
211.2+ 148,8+ .60+
74.40^

W. obs

6.7
8 7.0
3 (10.3
8 5.1

8 P. obs

70.4
175.0 104.6
2.6

18.3
8 18.6

8 P. obs

65.0
178.6 113.6+
252.0
359.1 107.1+
220.7+ 139.3+ .79+
69.65^

20.1
8 20.4

P. obs

67.2
176.3 109.1+
248.8
3.4 114.6+
223.7+ 136.3+ .85+
68.15^

21.3
8 21.6

P. obs

64.1
179.2 115.1+
246.6
355.9 109.3+
224.4+ 135.6+ .86+
67.80^

22.7
8 23.0
3 5.0
8 21.7

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1882phae.proj.1315w

Sept 7, 1882

Sh

66.3 — 9 W. obs
174.2 — 107.9+<
247.2
359.3 — 112.1+<
220.0+< — 140.0+< .77+<
70.00 ^

66.7 — W. obs
180.1 — 113.4+<
257.2
357.2 — 106.0+<
219.4+< — 140.6+< .76+<
70.30 ^

68.4 — W. obs
175.3 — 106.9+<
249.3
358.9 — 109.6+<
216.5+< — 143.5+< .70+<
71.75 ^

64.0 — 10 P. obs
178.2 — 114.2+<
247.7
355.0 — 107.3+<
221.5+< — 138.5+< .81+<
69.25 ^

176.1 — P. obs
250.4 — 74.3
358

25.0 — 25.3 <
28.4 — 28.7 <
3 (21.3 <) — 27.1 <
30.2 — 30.5 <
31.3 — 31.6 <
27.0 — 27.3 <

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1882phae.proj.1315W

Sept 7, 1882

8h

71.3
179.4 108.1+
246.1
7.3 121.2+
229.3+ 180.7+ .96
65.35

P. obs.

32.8
8 33.1

63.4
179.1 115.7+
253.5
0.7 107.2+
222.9+ 137.1+ .83+
68.55

P. obs.

34.0
8 34.3
3 7.9
8 32.6

67.8
177.8 110.0+
248.2
357.2 109.0+
219.0+ 141.0+ .75+ .76+
70.50

H. Wolbe

36.2
8 36.5

66.2
177.9 111.7+
247.3
356.9 109.6+
221.3+ 138.7+ .80+
69.35

W. obs.

38.4
8 38.7

66.2
176.1 109.9+
245.8
1.8 116.0+
225.9+ 134.1+ .90+
67.05

W. obs.

40.1
8 40.4
3 11.5.6
8 38.5

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1882phae.proj.1315w

Sept. 7, 1882

64.8 12 P. obs
182.8 118.0+ <
42.2 254.2
8 42.5 < 359.1 104.9+<
222.9+< 137.1+< .83+<
68.55^

63.2 P. obs
179.4 116.2+<
43.4 246.8
8 43.7 < 3.6 116.8+<
233.0+< 127.0+< 1.04+<
63.50^

64.8 P. obs
181.3 116.5+<
44.8 250.3
8 45.1 < 356.4 106.1+<
3 (11.3 < 222.6+< 137.4+< .83+<
8 43.8 < 68.70^

67.1 13 W. obs
180.0 112.9+<
46.9 248.8
8 47.2 < 1.2 112.4+<
225.3+< 134.7+< .88+<
67.55^

64.9 W. obs
179.3 114.4+<
48.3 250.1
8 48.6 < 357.5 107.4+<
221.8+< 138.2+< .81+<
69.10^

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1882phae.proj.1315w

Sept. 7, 1882

W. obs

70.0
175.9 105.9+<
49.9 244.8
8 50.2< 1.2 116.4+<
222.3+< 137.7+< .82+<
68.85^
3 146.0<
8 48.7<

14 P obs

64.7
51.5 179.8 115.1+<
8 51.8< 250.6
111.6+<
2.2 ~~105.6~~
226.7+< 133.3+< .91+<
66.65^

P. obs

66.8
53.0 178.2 111.4+<
8 53.3< 246.6
4.6 118.0+<
229.4+< 130.6+< .97+<
65.30^

P. obs

63.7
178.0 114.3+<
57.4 256.0
8 57.7<
35 5.4 99.4+<
3 9.8<
213.7+< 146.3+< .65+<
73.15^
8 53.3<

15 W. obs

67.5
179.2 111.7+<
55.3 246.4
8 56.6<
2.5 116.1+<
227.8+< 133.2+< .93+<
66.10^

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1882phae.proj.1315w

566

Sept 7, 1882.

8h

64.9 W. obs

178.1 113.2+<

25-0.5

58.7

357.7 107.2+<

8 59.0 <

220.4+< 139.6+< .78+<

69.80^

67.2 W. obs

176.8 109.6+<

[9 01.8]< Interval of time removed.

247.2

3 176.4 <

8 58.8 <

2.9 115.7+<

225.3+< 134.9+< .88+<

67.35^

64.7 16 P obs

9h

178.4 113.7+<

2.4

250.3

9 2.7 < 0.5 110.2+<

223.9+< 136.1+< .86 .85+ 0.85 <

68.05^

64.2 P. obs

177.4 113.2+<

3.8

9 4.1 < 247.5

2.6 115.1+< 0.94 <

228.3+< 131.7+< .94+<

65.85^

67.7 P. obs

178.7 111.0+<

5.3

9 5.6 < 246.3

3 12.4 <

9 4.1 < 2.3 116.0+<

227.0+< 133.0+< .92+<

66.50^

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1882phae.proj.1315w

Sept. 7, 1882

9h

65.0 — 17 W. obs
179.8 — 114.8+<
6.9 — 247.2
9 7.2 < — 358.0 — 110.8+<
225.6+< 134,4+<, 89+<
67.20^

69.0 — W. obs
176.2 — 107.2+<
8.0 — 245.0
9 8.3 < — 4.5 — 119.5+<
226.7+< 133,3+<, 91+<
66.65^

64.8 — W. obs
178.9 — 114.1+<
10.0 — 249.1
~~8~~ 9 10.3 <
3 (25.8 <
9 8.6 < — 356.9 — 107.8+<
221.9+< 138,1+<, 81+<
69.05^

65.8 — 18 O. obs
178.4 — 112.6+<
11.7 — 248.8
9 12.0 < — 1.2 — 112.4+<
225.0+< 135,0+<, 88+<
67.50^

65.0 — O. obs
180.2 — 115.2+<
12.8 — 244.7
9 13.1 < — 357.1 — 112.4+<
227.6+< 132,4+<, 93+<
66.20^

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1882phae.proj.1315w

Sept. 7, 1882

9h

67.3 P. obs

173.0 105.7 +<

14.5-

9 14.8 <

248.3

3 (9.9 <

8.1 114.8 +<

9 13.3 <

220.5 +< 139.5 ± .78 +<

69.75 ^

64.9 19 W. obs

180.1 115.2 +<

16.3

9 16.6 <

250.0

358.0 108.0 +<

223.2 +< 136.8 +< .84 +<

68.40 ^

67.0 W. obs

178.2 111.2 +<

18.0

9 18.3 <

246.8

359.5 112.7 +< 0.85 .86< ~~.85~~

223.9 +< 136.1 +< ~~.85~~

68.05 ^

61.9 W. obs

19.6 179.2 117.3 +<

9 19.9 <

247.8

3 (24.8 <

355.8 108.0 +<

9 18.3 <

~~0.7~~

225.3 +< 134.7 ± .88 +<

67.35 ^

67.9 20 W. obs

180.3 112.4 +<

20.9

9 21.3 <

245.1

2.5-

117.4 +<

229.8 +< 130.2 +< ~~1.85~~ .97 +<

65.10 ^

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1882phae.proj.1315w

Sept. 7, 1882

gh 64.8 W. obs
179.6 114.8 +<
22.5 249.8
9 22.8 < 358.2 108.4 +<
223 2 +< 136,8 +< ,84 +<
68.40 ^

69.0 W. obs
178.8 109.8 +<
24.1 246.4
9 24.4 < 358.9 112.5 +<
3 (8.4 < 222.3 +< 137,7 +< ,84 +<
9 22.8 < 68.85 ^

65.4 21 P. obs
177.4 112.0 +<
31.4 247.7
9 31.7 < 357.8 110.1 +<
222.1 +< 137.9 +< ~~,84 +<~~ 0.82 4
68.95 ^

63.4 P. obs
175.8 112.4 +<
33.4 243.6
9 33.7 < 359.6 116.0 +<
228.4 +< 131.6 +< ,95 +<
69.80 ^

64.7 P. obs
176.7 112.0 +<
34.6 252.3
9 34.9 < 358.5 106.2 +<
3 (10.3 < 218.2 +< 141.8 +< ,74 +<
9 33.4 < 70.90 ^

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1882phae.proj.1315W

Sept 7, 1882

gl 64.7 22 Tr. obs
181.6 116.9+<
51.9
g 52.2< 248.8
356.8 108.0+<
224.9+< 135.1+< .87+<
67.55^

66.9 Tr. obs
~~red~~ 174.2 107.3+<
53.0
g 53.3< 244.8
358.2 113.4+<
220.7+< 139.3+< .79+<
69.65^

62.7 Tr. obs
181.0 118.3+<
55.0
g 55.3< 251.9
3 10.8< 358.1 106.2+< 0.87<
g 53.6< 224.5+< 135.5+< ~~.86~~ ~~.87~~+
67.75^

72.0 23 P. obs
178.9 106.9+<
56.5
g 56.8< 245.0
358.1 113.1+<
220.0+< 140+<.77+<
70.00^

64.6 P. obs
180.2 115.6+<
57.9
g 58.2< 249.4
358.6 109.2+<
224.8+< 135.2+< .87+<
67.60^

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1882phae.proj.1315w

Sept. 7, 1882

9h 67.2 P. obs.
59.8 177.1 109.9 +<
×10 0.1 < 242.8
3 175.1 < 2.3 119.5 +<
9 58.4 < 229.4 +< 130.6 +<, 97 +<
6 5: 30 ^

63.8 24 W. obs
10h 1.2 179.3 115.5 +<
10 1.5 < 252.2
356.0 103.8 +<
219.3 +< 140.7 +<, 76 +<
70.35 ^

70.0 W. obs
179.1 109.1 +<
3.0
10 3.3 < 243.8
8.8 120.0 +<
229.1 +< 130.9 +<, 96 +<
6 5: 45 ^

62.8 W. obs.
178.2 115.4 +<
4.8
10 5.1 <
3 9.9 <
10 3.3 < 1.9 110.8 +<
226.2 +< 133.8 +<, 90 +<
66.90 ^

69.8 25 P. obs
177.5 107.7 +<
6.9
10 2.2 < 240.6
359.8 119.2 +<
226.9 +< 133.1 +< 0.91 <
6 6: 55 ^

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1882phae.proj.1315w

7.2

Sept. 7, 1882

10h

63.2 P obs

185.8 122.6 +<

8.5

246.7

10 8.8 <

3.1 116.4 +<

239.0 +< 121.0 +< 1.17 +<

60.5 0 ^

70.3 P. obs.

178.0 107.7 +<

10.2

10 10.5 <

249.0

114.1 +<

3 (26.5 <

3.1

10 8.8 <

221.8 +< 138.2 +< .81 +<

69.10 ^

63.8 26 W. obs

180.5 116.7 +<

11.8

10 12.1 <

250.5

0.8 110.3 +<

227.0 +< 133.0 +< .92 +<

66.50 ^

68.9 W. obs

177.7 108.8 +<

13.1

246.0

10 13.4 <

0.8 114.8 +<

223.6 +< 136.4 +< .85 +<

68.20 ^

62.0 W. obs

183.5 121.5 +<

14.9

249.0

10 15.2 <

357.3 108.3 +<

3 (10.7 <

229.8 +< 130.2 +< .88 .97 +<

10 13.6 <

65.40 ^

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1882phae.proj.1315w

Sept. 7, 1882

10h

70.1

27 Perha.

172.6 102.5 +<

17.1

242.0

10 17.4 <

4.4 122.4 +<

224.9 +< 135,1 +< .187 +<

67.55 ^

64.3

P. obs

181.0 116.7 +<

18.7

249.7

10 19.0 <

0.94

1.3 111.6 +<

95

228.3 +< 131,7 +< .94 +

65.85 ^

66.5

P. obs

176.5 110.0 +<

20.2

245.3

10 20.5 <

3 (5 6.9 <

1.4 116.1 +<

10 19.0

226.1 +< 133,9 +< .90 +<

66.95 ^

63.7

28 W. obs

180.1 116.4 +<

21.8

250.8

10 22.1 <

353.2 102.4 +<

218.8 +< 141,2 +< .75 <+

70.60 ^

69.8

W. obs

177.9 108.1 +<

23.0

245.2

10 23.3 <

3.9 118.7 +<

226.8 +< 133,2 +< .91 +<

66.60 ^

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1882phae.proj.1315w

Sept. 7, 1882

10 L

63.0

179.0 116.0 +<

250.4

356.2 105.8 +<

221.8 +< 138.2 +< .81 +<

69.10 ^

24.5

10 24.8 <

3 10.2 <

10 23.4 <

67.2

170.1 102.9 +<

244.0

359.9 115.9 +<

218.8 +< 141.2 +< .75 +<

70.60 ^

26.4

10 26.7 <

65.0

182.2 117.2 +<

249.3

2.9 113.6 +<

230.8 +< 129.2 +< 1.00 +<

64.60 ^

27.9

10 28.2 <

65.9

176.2 110.3 +<

241.9

5.9 124.0 +<

234.3 +< 125.7 +< 1.07 +<

62.85 ^

30.0

10 30.3 <

3 85.2 <

10 28.4 <

64.5

180.0 115.4 +<

249.0

355.2 106.2 +<

221.6 +< 138.4 +< .81 +<

69.20 ^

31.9

10 32.2 <

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1882phae.proj.1315w

Sept. 7, 1882

10h

70.4
176.2
244.7
3.0

105.8 +<

118.3 +<

224.1 +< 135.9 +< .86 +<
67.95 ^

W. Obs

66.9
182.3
255.9
356.8

115.4 +<

100.9 +<

216.3 +< 143.7 +< .70 +<
71.85 ^

W. Obs

71.7
175.9
247.6
0.6

104.2 +<

113.0 +<

217.2 +< 142.8 +< .72 +<
71.40 ^

31 P. Obs

62.8
180.4
249.3
0.0

117.6 +<

110.7 +<

228.3 +< 131.7 +< .94 ~~.95~~ ~~.74~~ +
65.85 ^

P. Obs

69.0
179.2
246.7
3.3

110.3 +<

116.6 +<

226.9 +< 133.1 +< 0.91 ~~.92~~ +
66.55 ^

P. Obs

34.2
10 34.5 <
3 | 9.8 <
10 33.3 <

36.3
10 36.6 <

37.9
10 38.2 <

39.4
10 39.7 <
3 | 24.0 <
10 38.2 <

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1882phae.proj.1315W

Sept. 7, 1882

10h 65.0 32 Wires

178.8 113.8 +<

41.0

10 41.3 < 248.9

355.8 106.9 +<

220.7 + 139.3 +< .79 +<

69.65 ^

71.9

175.7 103.8 +< Wires

43.2

10 43.5 < 248.0

0.7 112.7 +<

216.5 + 143.5 +< .70 +<

71.75 ^

65.7

179.6 113.9 +< ~~The~~ Wires

44.9 249.8

10 45.2 < 355.6 105.8 +<

3 (10.0 <

10 43.3 < 219.7 + 140.3 +< .77 +<

70.15 ^

Measures rather difficult in last series on account of low altitude & haze.

B. + C. 1182. Bond 394.

10h	58	24.1	10h	~~59~~ 58	~~0.0~~ 44.5
	59	24.1	11	0	0.0
	59	44.5			
	+0	20.4			

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1882phae.proj.1315w

Sept. 12. 1882.

Comet Wells. W. obs.

13	10	+0.0
14	38	
+1	28	

14	4
13	10
0	3

19	8
13	10
+1	58

18	51
13	10
5	41

19	17
13	10
6	.7

19	0
13	10
5	50

Comet not found.

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1882phae.proj.1315W

Sept. 12. 1882.

Examined class a Bond Zone.
Identified DM +0° 3936 = Bond 21 = Zone 8, 9
h 38 d Ann Ill. Tr

P. obs.

a	25	54.5	5	Bond
	26	36.3		Zones 8 & 9.
	26	4.8	5	Nos. 29 to 31
	26	47.2		In declination
	26	24.5	½	Zone 9 is right
	27	6.3		8 wrong for No 31.

Double ~~H 2~~. Σ 3044

23 46 +11.1

21 21.

−2 2 v

W. obs.

35.0 2 fol. & 1 pr. dis.
112.4 77.4° ^
10 7 290.3
210.4 79.9° ^ 2.4 v
157.3° ^

W. obs.

126.5
10 15 196.0 69.v° ^
302.0
20.8 78.8° ^
148.3° ^ 2.6 v

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1882phae.proj.1315w

Sept 12, 1882.

10 20 118.8 +4.5 W. obs.
203.3
302.3
17.1 74.4 / 159.3 4.4 2.4

28.9 +5.9 W. obs.
114.8
211.3
10 30 288.1 76.4 / 162.7 2.3

Σ 2220.
17 41 +27.4
22 19
+4 22
+4 36

22 21
17 41
+4 40

66.7 5.5 W. obs.
72.2
11 0 246.8
253.1 6.3 / 11.8 6.4 2.4

Other images.
151.0 11.9 W. obs.
11 8 162.9
337.9
343.8 5.9 / 17.8 4.5 7.5

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1882phae.proj.1315W

Sept. 12. 1882.

Same images.

	156.2	6.0	Wr obs.
	162.2		
11 11	336.1		
	342.1	6.0 / 12.0 ~~6.6~~ A.4 ✓	

Other images.

	68.8	6.2	Wr. obs.
	75.0		
11 15	246.9		
	253.2	6.3 / 12.5 ~~6.8~~ A.3 ✓	

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1882phae.proj.1315w

Sept. 14. 1882.

Barnard's Comet. W. obs.

7 17
1 0
6 17

+16.2

(Time 1h 47m)

1 18
7 17
-r r9

1 30 1 30
6 15 5 45
7 45 7 15

1 27
7 17
-r r0

6 10
7 17
0

0 10

6

0 10

at 2h 45m ~~6~~ is 7/10 for a to b
.07 (a-b) above the line

b.
a

for Clem at 6h 16m at -1 48 8h 4m

1h 55m
6 27.5
8 25
8 21

16°.2

1 55 1 55
6 29 5 31
8 24 7 26

1 37 1 56
2 10
6 36 5 24
8 32 7 20

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1882phae.proj.1315w

Sept 14, 1882

2h 4 22.3 9.75 a of ~~light~~ the fall
53.2
6 0.6 12 s
6 11.7 57
25 19.9 8.3

2h 8+3 58.4 Dec. 5 Tracks
9+4 53.2 9½
10 5 49.4 1.75
11 6 7.8 8
11 19 8
11 23 8.2
11 30.1 2.3
15 49 14

25 19 7.8
19 49.3
25 10.4 7 17 18.5 59.7
19 7.8
6 2.8

2 20 54.1 5 9.0
21 48.7 10 9.2
22 45.4 15 K
.1 49.3

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1882phae.proj.1315w

Sept 14, 1882

$\delta = \frac{2}{5} q + 7' n q$

$7^h\ 17^m\ 19^s$
$\quad\quad\quad\ 33$
$7^h\ 17^m\ 52^s$
$\quad\quad\quad\ 25$
$7^h\ 19^m$

$16^\circ\ 7'$ 1855

221.1
45
Sub 266.1

3.4
25
85s

$7^h\ 19^m\quad 16^\circ\ 4'$

Comet Comet Stars Stars
Comet is northern Star is southern half of figure

Comp. clear N.W. $+15^\circ$ 15-73. (9.0)

B 394			B I C.		
15^h	11	44.5 0.0	15^h	10	16.5
15	12	00	15^h	11	16 5

+28.0

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1882phae.proj.1315W

Sept 14. 1882

Disap of Jupiter I

$15^h 10^m 17^s$

23 41

15 33 58

$15^h 33^m.5$ = predicted time

Compared with Satel. III by Short R.

S. obs. R. me

15	21	13	106.5
		47	203.8
	22	12	109.1
		35	199.0
	23	8	111.2
		28	201.3
	24	1	110.9
		18	198.0
		29	109.5
		39	201.0
		51	114.2
	25	4	204.0
		18	111.7
		27	198.0
		38	111.3
		50	198.8
	26	2	112.3
		17	202.0
		28	114.1
		42	201.2

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1882phae.proj.1315w

Sept 14, 1882

27	0	113.2
	14	206.1
	25	114.1
	43	207.0
	58	110.5
28	8	203.0
	20	110.2
	29	202.9
	51	109.0
	59	207.3
29	4	108.0
	11	201.3
	18	115.7
	26	198.8
	32	114.5
	38	197.6
	45	109.5
	52	199.9
	59	126.0
30	11	207.3
	21	115.1
	31	201.9
	39	111.0
	47	199.5
	57	113.3
31	9	201.2
	19	113.8
	28	202.5
	34	120.0
	47	199.2

mural engr

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1882phae.proj.1315W

Lett 14

31	54	1185
32	1	199.8
	7	125.2
	14	196.0
	20	118.5
	27	203.0
	33	120.5
	40	197.4
	46	126.1
	53	191.7
	59	128.7
33	6	194.0
	12	127.2
	19	192.1
	26	136.0
	32	188.8
	38	140.0
	44	180.0
	49	142.2
	55	174.7
34	3	150.0
	9	

Lem

Lemit vieit

34	52	147.8
35	11	173.5
	29	148.0
	41	173.0

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1882phae.proj.1315w

Sept. 14, 1882

Comparison of time-pieces.

B & C. 1182	15	48	16.4	15	49	16.4
B 394	15	49	44.4 0	15	50	0

+ 28.1

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1882phae.proj.1315W

Sept. 15. 1882

Saweyeri Variable.

		191.6			P. obs.
		314.4	122.8 + <		
7h	32.9m	12.6	112.6 + <		
	15	125.2	235.4 + <	124.6 + <	1.09 + <
7	33.4 <	Ch. 1.		62.30 ^	
		13.8			P. obs.
		128.7	114.9 + <		
	34.0	187.8	127.3 + <		
7	34.5 <	315.1	242.2 + <	117.8 + <	1.24 < ~~1.24 +~~
				58.90 ^	
		12.1			P. obs.
		130.0	117.9 + <		
	35.3	196.5	113.2 + <		
7	35.8 <	309.7	231.1 + <	128.9 + <	1.00 + <
	3(13.7 <			64.45 ^	
7	34.6 <				
		10.2			W. obs.
		130.6	120.4 + <		
	36.9	191.8	119.9 + <		
7	37.4 <	311.7	240.3 + <	119.7 + <	1.20 + <
				59.85 ^	
		12.7			W. obs.
		128.7	116.0 + <		
	38.1	192.8	114.1 + <		
7	38.6 <	306.9	230.1 + <	129.9 + <	.98 + <
				64.95 ^	

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1882phae.proj.1315w

Sept. 15, 1882.

W. ob.

13.8
129.1 115.3+<
7 39.4 192.1 116.0+<
7 39.9< 305.1 1.00<
231.3+< 128.4+< 1.01+
64.35-^
3 (20.9<
7 38.6<

P. ob.

12.1
40.5 128.6 116.5+<
7 41.0< 192.3
115.4+<
307.7
231.9+< 128.1+< 1.02+<
64.05-^

P. ob

13.3 114.8+<
41.6 128.1
7 42.1< 191.7 119.8+<
311.5
234.6+< 125.4+< 1.08+<
62.70^

P. ob.

10.8 121.6+<
42.5 132.4
7 43.0< 198.6 111.4+<
3 (6.1< 310.0
233.0+< 127.0+< 1.04+<
63.50^
7 42.0<

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1882phae.proj.1315w

Sept. 15. 1892.

Nova Cygni.

21 22 42.3 4/2 06.2
19 40 +15.5
-1 42

4/14 27.
3 57. = 6'

21 13
19 15
1 12

30.0
13
17

21 37
20

21.4
454
240

Became cloudy.

Barnard's Comet. 11. 16.

7 19 +16 4
2 25
4 54

Comet found.

-4 49 +15.5
2 24
7 23

-4 45
2 40
7 22

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1882phae.proj.1315w

Sept. 15. 1882.

Pos. Zero 14h 5m.8
4h 5m.
19 0.8

Order = = **
Both in northern half of square.
Comp. star 2 m. + 1° 15' 8 3 (9.1)

9 4f
4 0
-5 4A

4 1h
9 4f
-5 33

4 2h
9 4f
-5 13

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1882phae.proj.1315w

Sept. 16, 1882

~~H a~~

Sel. 28m West Dec. +0.9

18 √4 +0.9
19 27
+33

Zone of Stars following η Ophiuchi

Pos. 0 = 339.4
90
249.4

& 30 δ Delphinis at normal lightness in Eq.

stars fol. η Serp.

Time (tip + talp)			Decl		Mag.
20h 23	√8.0		√		
24	6.8		6	0	8.8
	27.6	20.8	6		
25	0.0		4.5	1	2.0
	9.7	9.7	4.5		
	13.2		1		15.2
	19.2		9		21.2
	23.2	20.0	1		
	43.37		6		45.3
	√2.0	8.7	6		

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1882phae..proj..1315w

Sept 16, 1882

20^h	26^m	31.0	7.5		2	33.0
		42.8	11.8	7.5		
27		15.0		0.5	3	17.0
		24.8	9.8	0.5		
		42.0		9		44.0
28		0.5	18.5	9		
		33.7		5	4	35.7
		44.2	10.5	5		
		57.3		3		59.3
29		16.1		5.5	5	18.1
		27.4	30.1	3		
		50.6		2		52.6

Same again.

20^h	44	58.2		5		
		59.0		9		0.8
45		8.8		6		10.6
		20.2		9	21.2	
		27.7		6	18.9	
46		0.6		4.6	1	2.4
		12.3			11.7	
		15.3		2.1		17.1
		21.8			6.5	
		43.2		6.1		45.0
47		31.3		7.6	2	33.1
		44.4		7.6	13.1	
48		15.0		0.5	3	16.8
		22.2		0.5	7.2	
		42.2		9.2		44.0
49		3.6		9.3	21.4	5.4

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1882phae.proj.1315w

Sept. 16, 1882.

20^h 49^m	$34^s.1$		$\sqrt{.1}$	35.9	
	$\sqrt{2.4}$	18.3	$\sqrt{.1}$		
	$\sqrt{8.6}$		3.4	0.4	
$\sqrt{.0}$	17.0		$\sqrt{.3}$	18.8	14
	27.9	27.3	3.6		
	$\sqrt{0.2}$		1.9	52.0	13
	$\sqrt{9.9}$	29.7	1.9		

Stars following δ Aquilae
Many 13th & 14th stars omitted

21^h 2^m	3.3	$\sqrt{}$		
	14.8	~~14.8~~	4.2	
	23.8		3.0	14
	37.2		4.0	
	$\sqrt{3.1}$		3.0	13
	$\sqrt{0.2}$		3.0	13
	$\sqrt{6.2}$		1.7	13
3	10.0		0.9	
	21.3		3.0	13
	29.3		1.0	
4	1.2		0.9	13
	$\sqrt{.2}$		1.9	13
	13.4		4.9	13
	22.0		4.9	
	32.2		4.9	
	40.0		2.8	
	$\sqrt{0.2}$		4.2	
$\sqrt{}$	$\sqrt{6.2}$		2.8	
	3.2		3.4	

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1882phae.proj.1315w

Sept 16, 1882

5	10.2	4.0
	15.0	3.7
	23.0	4.0
	25.0	4.2
	43.2	4.0
	48.2	4.2
	52.0	2.8
	0.9	2.8
6	5.6	2.9
	6.3	3.5
	32.2	3.5
	38.2	3.4
	44.0	3.0
	46.2	4.5
	50.2	4.1
	52	3.9
7	6.0	4.9
		4.5
	15.0	4.0
	18.0	4.5
	30.2	3.0
	35.3	4.8
8	0.9	4.5
	20.2	4.5
	58.4	4.8

8 58.4 4.8

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1882phae.proj.1315W

Sept. 16, 1882.

Pos 0 = 159.1
90
249.1

VI λ 104

21h 33.9 √ 36.0 2.1 7.6 7.6
35.4 37.5 2.1 4.8 4.2
54.0 √ 56.9 1.9 9.0 8.9
58.0 4.8 20.5
√6 0.2 4.0 7.3
10.2 12.0 1.8 7.2 7.2
9.8 17.0 9.0
32.8 7.0
39.8 1.5
47.5 49.7 2.2 7.2 7.3
50.7 56.1 1 5.8 16.3
57 9.2 7 19.5
4 2.0

43.4 45.2 1.8 4.7 4.5
46.2 49.0 2.8 4.8 4.3
57.0 58 53 4.7 9.2
5.3 4.5
3.9 5.2 1.4 4.5 4.1
24.0 4.5 18.7
46.8 49.0 2.2 9.0 8.7
52.1 56.0 3.9 3.0
59 6.2 9.0 17.2
13.5 3.0 17.5
32.2 4.9

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1882phae_proj_1315w

Sept 16, 1882

21h	59	44.2	4.9
		56.0	5.1
22	0	7.2	5.1 11.2
		22.0	9.5
		37.2	8.7
		49.2	9.7
		52.0	8.7
	1	1.0	4.7
		15.0	9.6
		39.0	9.7 24.0
		40.2	4.7
		54.2	9.0
	2	5.3	4.7 25.1
		12.2	2.8
		21.8	4.1
		24.8	5.0
		34.2	5.0 22.0
		39.6	4.0 17.8
		46.7	9.5
		55.0	5.0 26.2
	3	2.7	9.5 16.0
		8.8	2.8
		11.8	9.5
		34.9	2.5 26.1
		37.5	9.0 25.7
	4	0.0	3.0
		7.2	1.7
		15.2	0.2
		22.1	2.2
		29.2	1.7 20.0
		32.7	9.2 17.0

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1882phae.proj.1315w

Sept 16, 1882

22^h	4^m	ν6.6	6.0	
	ν	19.2	1.0	
		35.3	6.3	
		40.ν	1.0	21.3
		46.2	6.ν	
		ν1.ν	3.0	
		ν9.2	6.ν	13.0
	6	6.2	7.2	
		9.2	3.2	
		26.2	7.2	20.0
		40.0	3.0	
		49.6	1.0	
		ν2.0	2.0	
		ν7.0	3.0	
	7	4.ν	ν.1	
		8.2	1.0	
		14.8	9.2	
		20.4	ν.ν	
		27.7	ν.0	
		32.2	9.0	
		39.0	6.ν	
		46.2	6.0	
		ν9.8	6ν	20.8
	8	7.2	6.0	21.0
		12.4	9.7	
		15.0	6.1	
		31.2	9.2	18.8
		24.ν	6.1	19.ν
		44.ν	0.ν	
		ν1.ν	7.9	

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1882phae.proj.1315w

Sept 16, 1882

9	1.2	0.8	16.7
	14.0	1.6	
	17.2	9.0	25.7
	35.5	7.5	
	40.0	2.0	26.0
10	6.8	8.8	
	16.8	7.0	41.3
	31.7	9.0	24.9
	37.2	3.0	
	57.8	3.0	20.6
11	7.1	9.5	
	16.7	3.5	
	24.7	9.0	17.6
	34.0	3.0	17.3
12	27.5	5.8	
	48.5	5.8	21.0
13	21.2	7.8	
	24.8	4.0	
	34.0	5.9	
	40.2	4.0	15.4
	49.2	6.0	
	55.0	5.1	
14	9.0	5.9	
	18.2	6.0	
	40.2	6.2	
	43.0	1.3	
15	2.2	6.0	22.0
	11.2	5.6	
	14.5	1.2	
	18.2	1.0	
	21.0	1.2	

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1882phae.proj.1315w

Sept, 16 1882

15	41.8	6.8	
16	4.2	6.2	22.4
	18.8	4.7	
	26.2	7.6	
	44.2	8.0	18.0
	48.0	4.6	29.2
	52.2	6.0	
17	2.3	6.0	
	9.0	8.0	
	13.0	2.0	
	30.2	6.0	27.9
	36.2	2.0	23.2
	45.5	4.9	
18	7.0	4.9	21.2
	30.0	2.3	
	40.2	3.4	
	47.0	2.3	14.0
19	4.0	3.4	20.8
	16.0	8.0	
	23.0	3.2	
	35.7	8.0	19.7
	39.5	3.2	16.5
	46.5	7.4	
	58.5	9.5	
20	6.0	7.4	19.5
	15.4	9.5	16.9
	38.8	8.0	
	50.2	9.5	
	56.5	16.2	

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1882phae.proj.1315w

Sept 16, 1882

22h	21m	6s.8	2.8	
		9.2	8.0	20.4
		20.2	4.5	30.0
		24.5	6.0	28.0
		26.0	3.0	19.2
		32.8	8.3	
		46.8	6.0	
		58.5	8.3	
	22	3.5	5.8	
		7.0	6.0	
		18.5	5.8	
	23	13.5	7.8	
		21.0	7.2	
		32.0	7.8	18.5
		40.2	4.5	
		45.5	7.2	24.5
		1.2	2.0	
		2.3	9.3	
		4.2	4.5	24.0
		21.0	9.0	
		33.5	2.3	32.3
		55.0	9.0	34.0
		30.0	7.6	
		39.2	7.6	
		43.5	8.2	
		48.2	2.0	
	2	3.2	8.3	29.7
		19.0	20	30.8

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1882phae.proj.1315w

Sept 6, 1882.

Search Planet Neb.

Telescope 20" W Chron. 5m fasts

−12°.5 to −17°.5 Began at 23h 05m

23 07 143 3d Nebs.

12 16 4 2d Nebs

36 142 4 2d Nebs

Ended at 23h 45m Nothing found.

A search made in Perseus also failed to detect any objects of interest

Disappearance of Jupiter's IV Satellite R. A. Obs.

Bond. 39 h.			B. & C. 11 h 2.		
13	32	44.5 0.0	13	31	14.0
	33	0.0		32	14.2
		+30.5			
		+30.3			

13 34 15 Sat I Ⓑ bisected, at reappearance from occultation.

Sat. II compared with sat. III.

13	36	47.0	21.0
		57.0	00.5
	37	17.5	26.9
		35.0	91.0

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1882phae.proj.1315w

Sept. 16. 1882.

13	37	50.5	16.5
	38	5.5	97.2
		~~16.0~~	
		44.0	19.0
	39	2.0	98.3
		21.0	18.0
		31.5	99.2
		43.0	13.0
		56.5	105.0
	40	11.0	12.0
		21.0	96.8
		39.0	12.2
		47.5	99.0
		57.0	16.8
	41	7.0	97.8
		17.5	18.3
		27.5	104.8
		38.0	10.8
		49.0	102.4
	42	1.5	10.3
		12.0	99.0
		23.0	14.5
		33.5	94.0
		42.0	17.0
		50.5	93.8
		57.0	12.8
	43	6.0	96.0
		11.0	17.0
		21.0	91.0

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Sept. 16. 1882.

43	28.0	23.0
	34.5	92.2
	42.0	21.5
	49.0	101.2
	58.0	15.0
44	6.0	103.3
	17.0	12.5
	29.0	102.0
	40.5	17.7
	51.0	105.0
45	0.5	15.1
	12.0	104.0
	23.0	14.5
	35.5	103.0

Lat. I wholly out at reappearance from occultation.

45	58.0	18.4
46	6.0	96.4
	17.0	14.0
	24.5	88.5
	37.0	10.5
	45.0	86.4
	54.0	15.4
47	2.0	101.2
	9.5	14.7
	24.0	98.4
	32.5	18.1
	42.5	98.7
	54.5	15.0

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1002phae.proj.1015w

Sept. 16. 1882.

10 44	3.0	99.0
	12.0	20.3
	21.0	44.5
	30.0	30.0
	34.0	45.0
	44.0	31.0
	49.5	46.5
	55.5	30.4
49	1.0	75.7
	7.0	32.0
	12.5	76.4
	18.0	37.0
	24.0	40.3
	30.0	37.0
	37.0	76.2
	43.0	29.0
	49.0	73.1
	54.5	34.5
50	0.0	76.2
	6.5	42.0
	12.0	72.6
	17.0	42.2
	25.5	74.3
	29.5	44.0
	35.0	67.0
	44.0	46.2
	49.5	Sean.

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1882phae.proj.1315W

Sept. 16. 1882.
Limit of Vis.

13	▽1	22.0	▽1.8	
		33.0	66.0	14.2
		41.0	48.3	17.7
		49.0	66.0	31.9
				15.95

Bond 394.

13	▽6	0.0
	▽7	0.0

B. + C. 1182.

13	▽▽	14.0
	▽6	14.2

Barnard's Comet.

7	23	+ 14.3
1	47	
−▽	36	

Pos. Zero 1▽2.8
4▽.
197.8

Order ∈ ∈ * *
Comet in northern and star in southern half of square.

Comps. star D M. + 14° 1691 (9.0)

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1882phae.proj.1315w

Sept [illegible]

050*136

Frau[illegible] 1566 and 1563 order 1566 half of

1566 1563. 3 in worktenw

SEARCHING REPORT

Heading (Check **one** box only)

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

Other headings searched and Comments:

Edition Report

Latest Widener edition

Year

Call number

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

} editions in Widener

- ☐ Earlier
- ☐ Later

} editions in K

Author number (unless shown above)

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1882phae.proj.1315w

Sept. 16. 1882

Transits between α M. + 15° 1566 and 1563.

Order 1566, 1566, 1563, 1563, 1566 in southern and 1563 in northern half of region.

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1882phae.proj.1315W

September 17. 1882

Small Clock nebula

Telescope $2^h 20^m$ E. +125 G +17.5

Chron. 5^m fast. Began at $20^h 25^m$

20^h	24^m	0^s	down
	25^m	0^s	up
	25^m	45^s	down
	26	43	up
	27	15	down
	27	54	up
	28	33	down
	30	8	down
	31	9	up
	31	46	down
	32	33	up
	33	26	down
	34	25	up
	35	5	down
	35	54	up
	36	41	down
	37	49	up
	38	46	down
	39	47	up
	40	51	down
	41	36	up
	42	22	down
	43	21	up
	43	40	2nd " magnitude star 14.1
	46	14	down
	47	6	up

P. obs.

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1882phae.proj.1315w

Sept. 17. 1882

20^h	48^m	2^s	down	R the
	49	9	up	
	50	23	down	
	51	21	up	
	52	10	down	
	53	6	up	
	~~49~~ 53	55	down	
	54	39	up	
	55	26	down	
	56	12	up	
	57	6	down	
	58	4	up	
	58	57	down	
	59	46	up	
21	0	30	down	
	3	1	down	
	2	52	up	
	3	36	down.	
	4	15	up.	
	4	56	down	

ended at 21^h 7m

22^h40^m < 23^h20^m +12.5 < +17.5

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1882phae.proj.1315W

Sept. 17, 1882

P. Obs

21h 45m 0s Telescope 2h 30m West. Sweep from +5 to +10

Began at 21½h 47m 25s

21 42
2 30
19 12

21½h	48m	17s	up
	48	50	down
	49	26	up
	49	54	down
	50	23	up
	50	48	down
	51	31	up
	52	2	down
	54	35	up
	55	40	up
	56	15	down
	56	45	up
	57	24	down
	57	47	planetary nebula nw. at 9.8 = N.G.C. 6803
	58	42	up
21½h	0	20	up
	0	35	planetary nebula at 5.4 = NGC 6807
	1	34	down
	1	59	up
	2	30	6th mag at 5.7
	3	0	down
	3	54	up
	4	36	down
	5	3	up
	5	46	down
	6	14	up

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1882phae.proj.1315w

Sept 17, 1882

P. Obs.

$2^{2}4^{h}$ 6^{m} 54^{s} down
7 39 up
8 10 down

$\begin{array}{r} 22\ 3 \\ 2\ 30 \\ \hline 19\ 33 \end{array}$

Nova not in field of ∂ h. +9° 4132 and [illegible]

$19^{h}24^{m}48^{s}.8$ $+9°\ 45'.4$

$25^{m}.8^{s}$
$50^{m}.0^{s}$
$1^{m}\ 14^{s}.1$

Tenth mag. preceding nebula
1^{s}
and is $1^{m}.5$ north.

12 mag. preceding
2^{s}
and is 1^{m} south.

11th mag. follows
15^{s}
and is 2^{m} north and equals a.

12 mag. preceding
14^{s}
is 0.5^{m} north, and equals b.

Nebula equals a 0.3 b.

$\frac{74.1}{24.7}$

$19^{h}\ 24^{m}\ 48^{s}.8$	$9°\ 45'.4$	∂_{2} +9° 4132		
19 24 24.1	9° 45'.6	Nova	1855	287"
+ 7.9	+ 3.1		1880	7.9
19 25 36.0	9 +48.7	Nova	1880	7.84
				25.
				184.

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1882phae.proj.1315W

Sept. 17. 1882.

Barnards Comet. Gr. Mn.

7 27 +13.6
0 43
-6 44

0 ~2 Cloudy.
7 27
-6 3~

1 16
7 27
-6 11

1 40
7 27
-~ 47 Cloudy.

1 ~~
7 27
-~ 32

2 38
7 27
4 49

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1882phae.proj.1315w

Sept. 17. 1882.

~~Star Star~~

order ∈ ∈ ** 4 27
Both in 7 25
-2 02

Cloudy again.

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1882phae.proj.1315W

Sept. 18. 1882.

5h 30m P. M.

Just rec'd telegram of comet near sun (west) Looked below sun but sky very thick. Impossible to see comet. W. obs.

7h 25m Evening work.

δ Aquilae.

19 20 +2°.9
19 27
+ 7

Sawyer's Variables.

W. obs.

103.0
8 40 213.9 110.9+<
41 281.9
42.8 120.9+<
231.8+< 128.2+< 1.02+<
41.0< 64.10^

W. obs.

104.5
8 44.5 220.9 116.4+<
45.0< 285.8
38.0 112.2+<
228.6+< 131.4+< .95±
65.70^

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1882phae.proj.1315w

Sept. 18. 1882.

Sawyer's Variable.

W. obs.

	10 ∨.8			
	21 8.∨	112.7 + <		
8 47.3	28 4.7			
8 47.8 <	38.8	114.1 + <		
3 (13.8 <		226.8 + <	133.2 + <	.91 + <
8 44.6 <			66.60 ^	

W. obs.

	39.3			
∨3.1	101.7	115.2 + <		
8 ∨3.6 <	216.9	114.6 + <		0.97 <
	284.7			
		229.8 + <	130.2 + <	~~.88~~ .97 + <
			65.10 ^	

W. obs.

	10 ∨.0			
	214.∨	109.5 + <		
∨6.0	283.2	114.8 + <		
8 ∨6.5 <	38.0	224.3 + <	135.7 + <	.86 + <
			67.85 ^	

W. obs.

	101.0			
	220.7	119.7 + <		
∨8.7	281.9			
8 ∨8.7 <	36.2	114.3 + <		
3 (18.8 <		234.0 + <	126.0 + <	1.06 + <
8 ∨6.3 <			63.00 ^	

Sw above means sky hazy and stars fainter than usual. – not suitable for the best determinations.

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1882phae.proj.1315w

Sept. 18. 1882.

~~35.0~~

104.80

B & C 214.3 109.5 +<

9 16.9 287.2

113.6 +<

34.8

9 17.4 < 223.1 +< 136.9 +< .84 +<

68.45 ^

105.6

184 218.1 112.5 +<

9 18.9 < 286.0 109.2 +<

352 221.7 +< 138.3 +< .81 +<

69.15 ^

101.7

21.5 218.6 116.9 +<

9 22.0 < 283.8

108.5 +<

32.3 225.4 +< 134.6 +< ~~.84~~ .88 +<

67.30 ^

3 58.3 <

~~+6.1~~

9 19.4 <

109.4

25.0 215.3 105.9 +<

9 25.5 < 281.0 117.2 +<

38.2 223.1 +< 136.9 +< .84 +<

68.45 ^

105.3

26.9 220.4 115.1 +<

9 27.4 < 283.3

41.2 117.9 +<

233.0 +< 127.0 +< 1.04 +<

63.50 ^

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1882phae.proj.1315w

Sept. 18. 1882

106.6
29.2 21 55.6 109.2+<
27.6
9 29.7< 40.1 120.5+<
229.7+< 130.3+< .97+<
3 (22.6<
9 27.52

Search.

Telescope 2h 15m W. +10° +15°

B 236

Began at 21 40 B 236 5m faint.
21 57 10°.4 B Aquilae
(22) 14.5 9.1 IV Lyrae
22 21 Ended.

22h 27.49 Dec 9
28 55 23
29 25.5 28 8
45 21 IV

+18°
+9 0 45 60
+9 43 60
+9° 43 67
+9° 43 69

21 35
2 15
19 20

Telescope 2.31 W

22 23 22 14.5
2 31 2 15
19 52 19 59
19 54

Aq. 19 53 Dec 9°.1
" " 19h 54m.2 9° 8' D. in Chard.
19 54m.60 9° 7' 8.7 by Cal. = 9° 43 69

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1882phae.proj.1315w

Sept. 18. 1882.

Barnard's Comet. W. obs.

7 26.5 +13.°0
2 9

-5 17.5

Pos. Zero. 273.3
4 5.

318.3

14 52.0

Order * * ∈ ∈
Bolt in southern half of square.
Comp. star D M. +12° 15 8 8 (9.3)

Dis. of Jupiter's III. Phot H. P. obs.
Sat. III compared with sat. II.

B. + C. 1182.
1 5 48 13.0
49 13.1
44.5
+31.4

Bond 394.
1 5 48 44.5
40 0.0
49 44.5
0.0
+31.5
+31.4

16 16 3
+2 3 41
---
16 39 44
-3 2
---
16 39 1 2

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1882phae.proj.1315w

Sept. 18. 1882.

16	17	21.5	45.0	1
		39.5	195.3	
		56.5	42.5	
	18	12.0	195.6	
	20	30.5	41.3	2
		43.0	189.6	
		56.5	45.4	
	21	4.5	193.2	
		25.0	41.4	3
		35.5	184.9	
		47.0	44.2	
	22	1.0	190.5	
		27.5	77.1	4
		42.0	191.2	
		52.5	42.2	
	23	7.0	193.4	
		19.0	43.6	5
		31.0	191.4	
		45.5	44.1	
		57.5	195.3	
	24	9.0	43.1	6
		22.0	192.4	
		37.5	44.0	
	25	0.0	190.5	
	26	29.5	41.6	
		43.5	192.0	
	27	3.0	79.2	
		13.5	191.4	

Moved image in field.

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1882phae.proj.1315w

Sept. 18. 1882.

16	27	44.0	43.9
		49.0	190.8
	28	14.0	84.6
		27.5	190.6
		41.0	43.2
		47.0	191.0
	29	19.0	87.8
		31.5	191.6
	30	24.0	44.4
		35.0	191.3
		46.5	47.1
		47.0	191.4
	31	10.5	46.3
		22.0	189.2
		33.5	43.3
		44.5	193.2
		54.0	84.0
	32	4.5	186.4
		19.5	47.4
		30.0	189.6
		39.5	47.5
		50.5	191.0
	33	4.5	44.1
		14.0	189.0
		26.0	89.4
		38.0	186.0

Images moved back.

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1882phae.proj.1315w

Sept. 14. 1882.

16	33	54.0	49.6
		7.0	141.7
	34	16.5	98.3
		24.0	145.2
		34.0	91.6
		53.5	104.3
	35	1.0	92.4
		10.0	140.4
		20.5	92.4
		30.0	141.2
		39.5	47.1
	36	1.5	160.7
		4.5	96.5
		17.5	177.7
		26.5	98.8
		34.5	177.6
		47.5	95.3
		59.0	179.4
	37	10.5	97.4
		21.5	175.6
		32.5	96.4
		46.5	174.6
		54.5	100.6
	38	4.0	176.6
		12.5	100.4
		20.0	174.3
		29.0	103.2

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1882phae.proj.1315w

Sept. 14. 1882.

16	7h	36.5	171.3
		45.0	102.4
		47.5	166.8
	39	4.5	103.7
		12.5	164.2
		22.1	100.7
		31.0	168.8
		42.0	106.2
		49.0	167.5
		56.5	110.3
	40	3.5	163.2
		12.0	104.4
		20.0	165.7
		24.5	110.2
		35.0	164.0
		46.0	114.0
		55.5	154.3
	41	3.5	115.3
		10.0	157.2
		15.5	116.2
		26.0	155.3
		34.0	116.9
		40.0	152.4
		47.0	121.3
		54.5	151.4
	42	4.0	121.8
		15.5	150.2

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1882phae.proj.1315w

Sept. 14. 1882.

16 42 20.0 122.8
41.5 145.6
52.5 Rain

Limit of Vis.

44 59.5 124.6.
45 ~~46~~ 9.0 147.8
20.0 24.4
31.0 145.0

B. + C. 1182.

16 54 13.1
55 13.2

Bond 394

16 55 44.5 0.0
56 0.0
+31.4
+31.3

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1882phae.proj.1315W

Sept. 19. 1882.

Cruls Comet. W. Obs.

13	22.5	Line
1	5 5	Circle.
11	24.0	

$-0^{s}.05 = \Delta\alpha$.

13	24.0	
2	0	

4 5 9 10 14 15

$-0.05 = \Delta\alpha$.

B 238		H.a.	Dec.	Δα
13	45	bright.	9.0	
13	48	18 bad 2	20 5.6	2 25 0.7
	5-4	25 bar.	14.9	8.5
	58	25 bar.	20.95	8.9
14	1	8 bar.	24.9	8.2
	4	18 bar.	29.46	8.5
	285	94	961	8.6
14	57	18.8	19.22	

19 div = 40^{s}

$768 = 12^{m}\ 48^{s}.8$

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1882phae.proj.1315w

19
~~20~~
Sept ~~19~~ 7 1882

2 05

B 236 H.Q. Dec.

The above settings were made by attaching a needle to Declin circle and bringing it opposite a line on circle. Declin. of comet was then read by a lens & field. Time of transit obs. by W. sec. P. W then read from same circle.

B 236	H.Q.	Dec.	
14 24 27.5	40 28.9	8.0	Object doubtful

B 236

17h 18.6	4.5		S limb of Sun
17 19.9	6.0		
17 21 48.8	2 8.8		pre. limb of Sun
23 57.6			foll limb of Sun
24 20.7	2 8.5		pre limb of Sun
26 19.2			foll limb of Sun
26 54.4			h. " " "
29 02.5	2 8.1		f. " " "
30.1	5.3		
31.8	5.6		
33.2	6.7		
17 26.72 133.6	28.1	5.6	

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1882phae.proj.1315W

Sept. 19. 1882

K 17h 3m 40.2 +0 6 20.5
B 17 7 22.89 +0 +6 43.2
11 6 20.7

Eq Rs Com fm ⊙ 0° +4.9 H.A. 5h 20m
K −0° 1.1 3h 10m
B +0 2.1 2h 40m

Conclusion at B 236 14h 57m 19.5s Comet had
a hour angle of 2h 20m 19.2s dec. at Dec. n° + 5.6
2h 32m 48.8s

Av. 17h 26.72m Sun's S. limb had Dec n° ±1° + 5.6

Boud 236.
18 3 29.7
4 29.9

Boud 394.
6 4 0.0
0.0

Data reported
Dec. ⊙ Center at B 236, 17h 26.72m = 0° 54' 31"
Semidiam ⊙ = 15' 54.4
RA & Dec. of Dh +0° 3657 = 0 38 32
" " " 0° 3644 +3
0 41 32

∴ 236 is 4m 40.7s fast.

38.5
5.6
32.9 1° 10.5
52
+ 49

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1882phae.proj.1315w

Sept. 19, 1882.

D h +0° 3657 B

t = 19h 44m.6 Dec. = + 10'.0

~~45.6~~	~~14.4~~ Rej.
47.6	9.4
49.0	9.4
49.8	9.2
50.6	10.1
48.32	9.6

t = 19h 51m.4 a.R. = 2h 20m 29.7 div.

52.3	09	40	0.6 09
53.0	07		1.8 12
53.6	06		2.6 08
54.0	04		2.6 00
52.86		2h 40m.0	~~7~~ 7.3 1.5

Last reading of a.R. examined later and found to be 3'.1

								Dec.
6	28.8	11.5	10.2		21.5	0 59.5	23.4	12.9
	50.3	15.7	13.6		45.8	1 22.9	39.2	16.2
	36.1	6.2	1.5	93	12.3	2 2.1	15.9	5.0
D h +0 3644	48.4	13.0	9.2	8.5	2	18.0		11.6

Conform with D h +0° 3644

t = 20h 12m.8 Dec. = + 8'.7 K.

15.7	6.8
16.1	6.6
14.9	7.4

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1882phae.proj.1315w

Sept. 19, 1882.

$t = 20^h$	16^m	40^s	$aR = 3^h$	0^m	12.6 div.
	17	12			13.4 "
	18	24			15.2 "
	19	1			16.2 "
		31			16.9
	18	10			14.86

$= 3^h\ 11^m\ 15^s$ about.

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1882phae.proj.1315w

Sept. 19. 1882.

Cruls Comet. W. obs.

~~6 √6~~

11 24
7 30
−3 √8

3 3√
6/21√
36
15
11 √0 39

23 2"0
60
1380
6/1400
233" = 4'

+1° 1'

7 43
11 2√
−3 4√

11 √0.6
−3√.√
11 1√.1

+1° 1'
−1° 3
−2'

11 √0.1
4 8
−3 7

−0° 2'

+0 √3
−1 30
−0 37

11 1√
4 24
−2 √18

11 1√
4 17
−2 √8

9 14
+2 46

11 1√
8 37
−2 38

11 1√
8 4√
−2 33

9 2 4√
2 46
11 49
3√
11 14

9 14 9 2 4√

9 7 4√

1882phae.proj.1315W

Sept. 20, 1882.

11 14 | 11 14
9 ~ | 9 16
9 | + ~~#~~
-2 | -1 ~8

11 14 | 10 74
9 20 | 9 20
| ~4

B236 Ha.

10 16 11 | 10 56.5 | -0,35

App RA = 11h 44.5 -0,35 -0°21'

11 14 | 10 74
10 21 | 10 21
| ~3

Kam. 10h 11m C.M.T. Comm. 11 44.5 -0° 21'
10 13 C.M.T. " "

B236 10h 16m C.S.T. 10h 11m
~~49~~
11 5
1 3.5
11 19.5

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1882phae.proj.1215w

Sept 20. 1882.

10 v-6.v

1 3.v

10 11

R.A. 11 14.v Dec - 0° 21'

11 14

11 0

- 14

---

t = 11h 10m 30s.2 ~~dec. 14.8~~

H.C. = 11h 40m 16.2 div. dec. = 11.8

Coarse H.C. reads 0.4v

---

t = 11h 12m 48s.0

Scale div. = 11.8

H.C. = 11h 40m 19.85 div

~~t6~~

t = 11h 14m 39s.4

12.1 div

H C = 11h 40m 22.5 div

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1882phae.proj.1315w

Sept. 20, 1882.

$t = 11^h\ 17^m\ 38^s.2$

$H.C. = 11^h\ 40^m\ 27^s.0$

$18^h\ 27^m\ 44^s\ \ 11.8 = dec.$

$H.a. = 12^h\ 0\ 12.2$

	R236		H.a	Dec.
	11	27 44	12^h 0 12.2	11.8
	30	19.0	0 16.05	11.6
	32	42.4	19.8	19.5

$t = 11^h\ 34^m\ 10^s.3\ \ 0^h\ 16^m\ \ -0^s.5$

1	1	8.0	5	9	0.0
1	2	8.0	3	0	0.0
1	3	8.2		1	0.0
	4	8.3		2	0.0

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1882phae.proj.1315w

Sept. 26. 1882.

Cruls Comet.

10 ⌜2 −4.⌜ W. obs.

4 ⌜7

−⌜ ⌜ ⌜

Let a = Hydræ

Zero = ~~44.5~~ Let at 134.5

a = 139.5 " " 289.5

Tail of comet back with naked eye about clouds very light

		Aph H.A.		Dec		
a Hydr	5h	16m 43s	7	56 7 40 21.9	−8.4	47' 49"
		~~26 24~~				
		26 24		7 40 28.8		46 50

Angle of tail with horizon 47° P 52 W

					(Sirius + K Ori.		
5	32	41	6	6	20	27.0	−5.1	26	28
	34	18		6	20	29.2	5.15	26	28
							−5.0	21	23
					24	26			
				6	40	2.3		26.	28
				Set at 30' a by mch			10'.2		10,4
	39	28		6	40	6.95			
	41	23		6	40	9.9	10.6		11.2

27.0 15' 15"
29.2 19' 15
32.3 19.6 196
36.9 19.4 194
39.4 17' 17'
15.3
33.06

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1882phae.proj.1315W

Sept 26, 1882

Sirius. Prob.
R. A. = 11h 12m app. | Dec. -17.0
Dec. at 10 on scale.
Read of Dec. Circle 12 and 12.

Read. of scale 6.4

Time	6h	1m	4.4, V
H. Circle.	11	0	24.3

Read of scale 6.0

Time	6	3	38.0
H. Circle	11	0	27.2

Read. of scale 6.0

Time	6	V	2.V
H. Circle	11	0	29.4

Sirius W. obs

						2 clin	1
6h	6m	57s	~~6.0~~	11h	20m	1.85	6.6
	8	56		11	20m	4.85	6.6
	9	56		11	20	6.8	6.4
6	8	36		11h	20m	d 4.V 0	6.V
				11	23m	0V	

Estim dec. of outer y field ii previous nearly 110
Dec. in all cases read downwards

On Const. ℓ a Hydra W called interval between wires 2' instead of 4'

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1882phae.proj.1315w

Sept 26, 1882

Results of measures of 99 & 100

App RA $10^h 50^m$ Dec $-5.^\circ 1$

α Hydræ at B 236 $5^h 21^m 33^s$ HA $7^h 58^m 55^s$ Dec. 49.5

App 7 56 -8.4

ℰ at B 236 $5^h 36^m 50^s$ HA $6^h 42^m 2^s$ Dec 17'

at B. 236 $-5.^\circ 1$

α Can Maj. $6^h 8^m 36^s$ $111^h 23^m 0^s$ Dec. 6.5

Bond 236.			Bond 394.		
7	36	33.5	19	7	0.0
	37	33.6		8	0.0

Diameter of nucleus estimated at 0.5 and of ~~envelope at~~ coma proper at 1.2 ~~to~~

Coma seen in large telescope branching into tail. Tail hastily seen in large telescope several minutes of arc from head in line of axis, and several minutes broad. ~~W. obs.~~

Tail traced with naked eye for a distance corresponding to ~~to~~ between $\frac{1}{2}$ and $\frac{3}{4}$ of that from Sirius to Rigel. Tail curved upwards. W. obs.

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1882phae.proj.1315w

Sept. 27, 1882.

Cruls Comet.

10 4 47 2√ −√.4

4 2√

−6 2 2

10 2 −√.0

4 2√

−√ 37

Cloudy

Cloudy.

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1882phae.proj.1315w

Sept. 30. 1882.

Cruls Comet. W. obs.

10 41 −7.0

Comp. Star is Weisse $10^h\ 76\ 4 = $ Lamont $-3°\ 4 - 9°\ 9\ 7$ = Galandi 20461.

10 1

6 3

4 12

10 10 19 10 24

6 6 6 8

4 13 4 16

Comet seen and obs. obtained. W.

Order = = × ×

Comet in southern and star in northern half of square.

Comet very bright and Both head and tail of comet very bright. Tail curving upwards and somewhat fan shaped. Nucleus elongated, in direct line with axis of tail. — nucleus about twice as long as broad. Very fine rift through tail of comet starting immediately from head of comet. Comet in telescope appears very similar to Coggia's of 1874. W.

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1882phae.proj.1315w

Oct. 1. 1882.
Cruls Comet. W. obs.
10 29 −7.4
√ √
−√ 34

Tail extends fully ¾ of distance corresponding to that from Sirius to Rigel.
Tail curved upwards. Nucleus bright to naked eye.

Order * * ≡ ≡
Both in southern half of square.
Comp. star W. B. 10^h ~~5743~~. 620.

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1882phae.proj.1315w

Oct. 2. 1882.
Cruls Comet. Yr. obs.

10 37

Comet seen for a few moments and then disappeared in clouds. which lasted until daylight.

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1882phae.proj.1315w

Oct 3, 1882

2 40
21 5
2 45

Bond 236 set 7 minutes back.

2 40
22 3
4 37

22 7.5
6 23

Telescope set at 4h 30m east -
P. obs-
22h 7.5m began sweeping.

Sweep for planetary Neb. +12.5 to +17.5
R.A. 2h 40m to 3h 20m

22h 12m 15.5s up
13 35.0 up
15 6.0 up

Set forward 5 minutes Hour angle =
4h 25m east - to fill gap

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1882phae.proj.1315w

Oct. 3, 1882.

22h	22m	53.0	up.	
	25	15.0	up.	
	26	25.0	up	
	27	32.0	up.	
	28	58.0	up.	
	30	34.0	up	
	32	18.0	up	
	33	40.0	up	
	35	29.0	up	
	36	52.0	up	
	37	30.0	3d mag.	18.6
	38	47.0	up	
	40	27.0	4th mag.	19.8
	41	15.0	up	
	42	45.0	up	
	43	45.0	up	
	45	0.0	up	
	46	25.0	up	
	47	46.0	up	
	49	12.0	up	
	50	37.0	up	
	52	6.0	up	
	53	16.0	up.	
	54	31.0	up	
	55	47.0	up – ended –	

No object of interest found —

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1882phae.proj.1315w

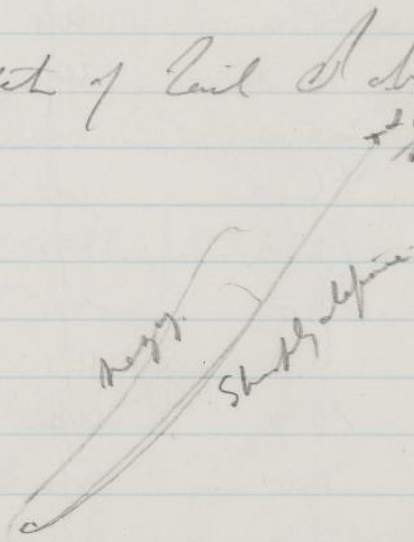
Oct. 3. 1882.

Cruls Comet. W. obs.

Zero at 24 5 2
Set at 20 1 2

Star Star Comet Comet bet = bisection
bet of segment
Nucleus elongated = slender q tail ≥ 15" by 45"
a bright star fol. comet 4 9ᵛ and 17' to N.
north.
A fainter star precedes brighter star 1ᵐ 2 5ᵛ
and is 7' south. A faint star precedes
bright star 3 9ᵛ same dec.

Sketch of Tail

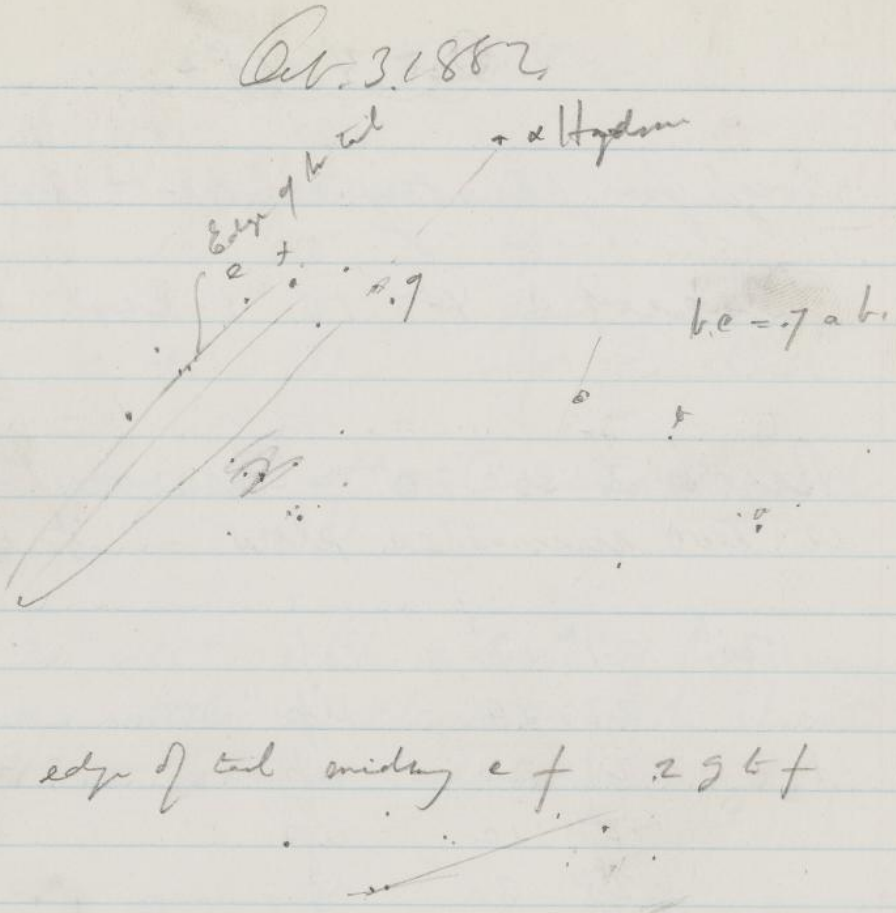


Tail extends 7 pos motions of Hydra
Dark line down south

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1882phae.proj.1315w

Oct. 3. 1882.



edge of tail crossing e + 2 5 b +

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1882phae.proj.1315w

Oct. 4, 1882.

Sweep for planetary nebulae +12.5 to +17.5 P. obs.

Telescope 4h 15m East of pier.

Began at 20h 20m Chronometer (Bond 236) is two minutes slow - 0h 40m 4 1h 20s

20h	21m 17s	up
	23 54	up
	25 20	up
	27 10	up
	28 30	up
	29 54	up
	32 57	up
	34 28	up
	36 18	up
	38 16	up
	41 45	up
	42 50	6th mags. (double) 20.2
	45 24	up
	47 5	up
	48 30	up
	49 53	up
	51 21	up
	53 9	up
	54 19	up
	55 35	up
	57 7	up

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1882phae.proj.1315w

Oct. 4, 1882.

20^h	18^m	38^s	up
21	0	18	up
	1	38	up
	3	0	up
	4	31	~~up~~ Ended

No object of interest found.

$21^h\ 15^m\ 16^s.6$ = time of beginning of second rattle on chronograph sheet.
Third rattle later

~~24~~	11	
21	44	+0.9
	~~33~~	
− 2	27	

Became cloudy.

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1882phae.proj.1315w

Oct 7, 1882.

Red star Color 2. Type 3.
Decl. 8.3 H.A. $3^h 12$ east

$20^h \quad 29$
$23 \quad 41$

$t = 20^h\ 29^m$

$20^h\ 29$
$3\ 12$
$\alpha R = 23^h\ 41$

2d est. Decl. 8.2 H.A. $3^h\ 8^m$ east.

$t = 20^h\ 36^m$
$3\ 8$
$23\ 44$

~~Decl~~

The above = DM. -5127

DM. Pos. 1855 = A.R. = $23^h\ 43^m\ 57^s.7$ $+8°\ 30'.3$

$2^m\ 31^s.3$ = transit of Dm. -0.89
$5^m\ -0.6$ = " " 1st Neb
$6^m\ 1.2$ = " " 2d "

Region identified but Nebulae not seen with certainty on account of haze.

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1882phae.proj.1315w

Oct 7, 1882.

Small Nebula not Monochromatic but recognized as having a spectra

The above refer to Nos. v025, v026, v027 and v028 G. C.

Revision of Zones in Vol. VI.

S. obs. C. rec.

21^h 50 $15.^s0$ = time of beginning of second rattle on Chronograph sheet.

Transits — Stop Watch

0^m	$0.^s0$
	13.7
	38.4
	58.8
1	34.1
	45.5

DM +0° 4551 A.R. 20^h 29^m 32^s = Zones 143 & 144 No. 8 (annals Vol VI.)

7/8 5/ 7/8 5/ 7/8

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1882phae.proj.1315w

Oct 7, 1882.

Zone 143 & 144
First two stars have one tap for transit

7.7
7.6
3.8
7 6
3 8
9.0
8.7
7.3
0.0
8.7 8?
3.7
3 7
5.3
3.6
5 3
0.4
3 6
.3
8.2
3.5
8 2 = 82?

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1882phae.proj.1315w

Oct. 7, 1882.

35
9.9
~~99~~ 99
2.0
28
28
20
7.5
75
1.0
7.4
0.0
74
10
0
5.0
50
2.2
8.6
22
5.1
86
51
2.5
25
1.7
2.5
17
25
08

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1882phae.proj.1315w

Oct 7, 1882

5.1
5.1
3.2
1.3
7.6
13
76
9.8
9.8
98
9.9
99
2.6
8.9
26
89
7.8
78
7.5
9.8
75
9.8
98
98
2.5
25
3.8
2.6
26
38
7.8
38

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1882phae.proj.1315w

Oct 7. 1882

8.3
83
2.5
9.7
2.4
97
2.5
2.4
2.4
24
6.2
62
5.1
5.1
0.3
3
7.5
7.5
9.9
99
1.0
10

11th Mag Dec 7.4
7.4
7.5
7.5

8.5 Mag Dec 8.2
82

Recorder lost his place early in the zone (unless the telescope moved) The last stars perhaps lost from chronograph tape are out.

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1882phae.proj.1315w

Oct. 7. 1882.

~~3h 3~~
3d

Eclipse of Jupiter I. P. obs.

Plat H. Compar. with sat next preceding. = II.

15	33	40.0	26 4.7
	34	55.0	360.0
		17.0	27 2.4
		24.5	36 2.2
		49.0	27 1.4
	35	0.0	360.2
		11.5	27 5.6
		22.0	36 2.6
		35.5	27 4.7
	36	4.0	360.3
		17.0	27 5.3
		27.0	360.0
		49.0	26 7.7
	37	7.0	356.5
		17.5	26 4.2
		30.5	35 6.6
		44.0	27 1.4
		56.5	35 5.6
	38	5.0	266.1
		15.0	35 5.2
		24.5	27 1.1
		33.5	35 4.2

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1882phae.proj.1315w

Oct. 7. 1882.

38	42,0	26f.f
	v3,0	3vv,2
39	6,0	272,3
	19.v	3v-4,3
	33.v	273,7
	43,0	3v4,2
	v4,0	276,6
40	7,v	3v4,6
	12,0	273,7
	20.v	3v-6.6
	31,0	279,3
	41,v	3v-2,4
	v1,v	221,f
41	1,0	343,4
	17,v	2fv,7
	25,0	341,6
	36,0	292,7
	46.v	33f,f
	vv,0	29f,3
42	10,0	Last seen about 2

recs. preceding last tip.

Limit of Vis.

43 v	303,f
1v	332,f
27	307,f
39	330,9

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1882phae.proj.1315w

Oct. 7. 1882.

B. + C. 1182.

13	50	3.0
	51	2.9

Bond 394.

13	51	44.5 / 0.0
	52	0.0

+ 41.5
+ 41.6

Came up foggy so that Cruls Comet could not be observed. W.

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1882phae.proj.1315w

Oct 8, 1882

$7^h\ 4^m\ 2.5^s$ B & C = $7^h\ \frac{4^m}{5}\ 44.15^s$ B 3, 4

5 23 ; 0 6 0 .

+42.3 = Correction for Chron.

447

Add 0.7m & time a unit of each of B & C.

Observations of Sawyer's Variable with Photom. R on Weak Balcony.

7h 21.0 / R. obs

123.5 102.5 +<

30m 45s 200.1

30.8<

7 31.5< 301.1 $\frac{101.0^{+<}}{203.5^{+<}}$ 156.5+< .45+<

78.25^

15.5

123.0 107.5+<

31m 45s 203.4

31.8<

7 32.5< 299.5 $\frac{96.1^{+<}}{203.6^{+<}}$ 156.4+< .45+<

78.20^

24.0

120.1 96.1+<

32 40 199.0

32.7<

7 33.4< 302.0 $\frac{103.0^{+<}}{199.1^{+<}}$ 160.9+< .36+<

80.45^

3 (7.4<

32.5<

21.2 2 R. obs

121.0 99.8+<

36 10 200.0

36.2<

7 36.9< 303.2 $\frac{103.2^{+<}}{203.0^{+<}}$ 154.0+< .44+<

78.50^

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1882phae.proj.1315W

Oct. 8, 1882

7h 26.0 P. obs.

122.4 96.4+<

37m 5s 197.5

37.1<

7 37.8< 305.7 108.2+< / 204.8+< 155.4+< .47+<

77.70^

20.5

123.5 103.0+<

38m 10s 200.9 0.43<

38.2<

7 38.9< 300.6 99.7+< / 202.7+< 157.3+< ~~.45+~~

78.65^

3 (2.36<

7 37.9< 25.7 3 P. obs

118.3 92.6+<

43 0 199.5 0.37<

7 43.7< 306.1 106.6+< / 199.2+< 160.8+< ~~.37+~~

80.40^

18.3

127.0 108.7+<

44 55 200.1

44.9<

7 45.6< 302.4 102.3+< / 211.0+< 149.0+< .59+<

74.50^

20.4

123.9 103.5+<

45 57 201.1

45.8<

7 46.5< 301.1 100.0+< / 203.5+< 156.5+< .45+<

78.25^

3 (15.8<

7 45.3<

17.5

125.2 107.7+<

4 P. obs

5 0 20 200.3< 201.3 100.7+< / 208.4+< 151.6+< .54+<

7 51.0< 312 0 75.80^

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1882phae.proj.1315w

Oct. 8, 1882

7h

302.0

16.5 ~~745~~

116.5 100.0+

198.0 ~~815~~ ~~1560~~ ~~2040~~ 103.3+ 0.44

203.3+ 156.7+ .45+

301.3 7 8.35-^

~~51 20~~

51 .32

51.5<

52.2<

7

13.2

~~52 45~~

124.1 110.9+

52 27<

52.4<

203.0

7 53.1< 301.0 98.0+

2089+ 151.1+ .55+

7 5.55-^

3 (6.3<

7 52.1<

16.5

123.9 107.4+

8° 0 0 193.2

8 0.7< 300.1 106.9+

214.3+ 145.7+ .66+

7 2.85-^

17.5-

124.0 106.5-+

1 0 201.1

8 1.7< 298.7 97.6+

204.1+ 155.9+ .46+

77.95^

24.7

119.6 94.9+

1 59 197.3

8 2.7< 303.4 106.1+

2010+ 159.0+ .40+

7 9.50^

3 (5.1<

8 1.7<

5- P. obs.

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1882phae.proj.1315W

Oct. 8, 1882

13.3 — C P obs

127.5⁻ 114.2⁺<

3 12 — 3.2<

200.9

8 3.7< 300.1 — 99.2⁺< / 213.4⁺< — 146.6⁺< .64⁺<

73.30^

18.9

128.1 109.2⁺<

4 45⁻ — 4.8<

200.1

8 5.5< 307.2 — 107.1⁺< / 216.3⁺< — 143.7⁺< .70⁺<

71.85⁻^

12.5⁻

123.3 110.8⁺<

5⁻ 40 — 5.7<

200.2

8 6.4< 300.3 — 100.1⁺< / 210.9⁺< — 149.1⁺< .59⁺<

74.55⁻^

3 (15.8< / 5.3<)

8

24.0 — 7 P obs

120.9 96.9⁺<

6 30 — 6.5<

199.9

8 7.2< 305.0 — 105.1⁺< / 202.0⁺< — 158.0⁺< .42⁺<

79.00^

17.6

126.0 108.4⁺<

7 5⁻0 — 7.8<

197.5⁻

8 8.5< 297.0 — 99.5⁻⁺< / 207.9⁺< — 152.1⁺< ~~.60⁺<~~

76.05⁻^

0.5⁻3<

5 1

21.0

(8 8.4)<

121.5⁻ 100.5⁻⁺<

8 4.0 — 8.7<

198.0

8 8.4< 303.6 — 110.6⁺< / 211.1⁺< — 148.9⁺< .60⁺<

3 (25.1 / 8.4)

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1882phae.proj.1315w

Oct. 8 1882

8h 19.7 8 10 obs.

127.0 107.3+<

9 51 200.4 0.53<

9.8< 100.6+<

8 10.5< 301.0 207.9+< 152.1+< .52+

76.05^

21.6

124.7 103.1+<

10 45 193.5

10.8<

8 11.5< 300.9 107.4+< 0.58<

210.5+< 149.5+< .69+

74.75^

14.7

126.2 111.5+<

11 50 198.2

11.8<

8 12.5< 302.6 104.4+<

215.9+< 144.1+< .69+<

72.05^

3 (4.5)<

8 11.5<

21.0 9 10 obs.

122.5 101.5+<

12 43 196.0

12.7<

8 13.4< 302.9 106.9+<

208.4+< 151.6+< .54+<

75.80^

15.5

123.5 108.0+<

13 52 201.4

13.9<

8 14.6< 297.5 96.1+<

204.1+< 155.9+< .46+<

77.95^

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1882phae.proj.1315W

Oct. 8 1882

24.2
121.0 96.8+<
14 50 200.8
14.8<
8 15.5< 303.0 102.2+<
199.0+< 161.8+< .36+<
3 13.5 <
8 14.5<
80.50 ^

15.4 10 P Ha
124.4 109.0+<
15 52 203.0
15.9<
8 16.6< 296.4 93.4+<
202.4+< 157.6+< .43+<
78.80 ^

21.0
121.2 100.2+<
16 55 199.1
16.9<
8 17.6< 303.3 104.2+<
204.4+< 1556+< .47+<
77.80 ^

27.0
123.0 96.0+<
19 17 199.2
19.3<
8 20.0< 301.0 101.8+<
197.8+< 162.2+< .34+<
3 54.2 <
8 18.1<
81.10 ^

24.8 11 P Ha
121.2 96.4+<
20 20 196.5
20.3<
8 21.0< 303.1 106.6+<
203.0+< 157.0+< .44+<
78.50 ^

18.9
123.9 110.0+<
21 25 198.1
21.6<
8 22.3< 307.5 109.5+< 0.76 <
219.5+< 140.5+< .76+<
80.50 ^

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1882phae.proj.1315w

Oct. 8, 1882

8h 18.4
123.9 105,5+<

22 45 194.9
22.8<
8 23.5< 305.2 110,3+< / 215,8+< 144,2+< ,69+<
72.10^
3(6.8<
8 22.3<

16.9
126.3 109,4+<

12 Pyxis

23 46 204.2
23.8<
8 24.5< 298.8 94,6+< / 204,0+< 156,0+< ,46+<
78.00^

19.6
122.2 102,6+<

25 59 195.2
26.0<
8 25.7< 303.3 108,1+< / 210,7+< 149,3+< ,69+<
74.65^

19.9
128.9 109,0+<

26 0 197.9
8 26.7< 304.2 106,3+< / 215,3+< 144,7+< ,68+<
72.35^
3(16.9<
8 25.6<

19.2
122.1 102,9+<

13 Puppis

27 1 198.9
8 27.7< 297.7 98,8+< / 201,7+< 158,3+< ,41+<
79.15^

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1882phae.proj.1315W

27.7

Oct. 8, 1882

8h

13.6

131.9 118.3+<

2h 18 203.0

8 29.0< 301.0 98.0+<

216.3+< 143.7+< .70+<

71.85^

21.7

123.0 101.3+<

29.32 195.1

29.5-<

8 30.2< 308.4 113.3+<

214.6+< 145.4+< .67+<

72.70^

3 86.9<

8 ~~28.~~ 29.0<

13.0

128.7 115.7+<

3h 10 198.2

8 31.9< 301.8 103.6+<

219.3+< 140.7+< .76+<

70.35^

19.1

124.3 105.2+<

32 20 194.9

8 33.0< 303.6 108.7+<

213.9+< 146.1+< .65+<

73.05^

15.2

129.5 114.4+<

33 30 200.4

33.5<

8 34.2< 305.2 104.8+<

219.2+< 140.8+< .76+<

70.40^

3 9.1<

8 33.0<

14 P. 52

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1882phae.proj.1315w

Oct. 8, 1882

8h 19.0 15 P. Mk.

121.9 102.9+<

8 44 46 192.0

34.8<

8 35.5< 304.0 $\frac{112.0+<}{214.9+<}$ 145.1+< .67+<

72.55^

18.0

128.6 110.6+<

35 55 198.0

35.9<

8 36.6< 302.3 $\frac{104.3+<}{214.9+<}$ 145.1+< .67+<

72.55^

19.2

121.6 102.4+<

37 0 195.2

8 37.7< 303.8 $\frac{108.6+<}{211.0+<}$ 149.0+< ~~.80~~ .59+<

74.50^

3(19.8< 8 36.6<

15.2 16 P. Mk.

119.1 103.9+<

38 0 199.4 0.55<

8 38.7< 304.0 $\frac{104.6+<}{208.5-<}$ 147.5-< ~~.68~~ +

75.75^

16.0

39 15 122.0 106.0+<

8 39.9< 195.9

307.0 $\frac{111.1+<}{217.1+<}$ 142.9+< .72+<

71.45^

3(11.9)< 19.5

(8 39.9)< 125.4 105.9+<

40 22 197.0

40.4<

8 41.1< 304.3 $\frac{107.3+<}{213.2+<}$ 146.8+< .64+<

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1882phae.proj.1315w

Cat. 8, 1882

8h 17.1 17 obs.

124.0 106.9 +<

41 48 197.5

41.8 <

8 42.5 < 302.2 104.7 +<

211.6 +< 148.4 +< .61 +<

74.20 ^

16.3

124.1 107.8 +<

43 45 198.8

43.8 <

8 44.5 < 306.2 107.4 +<

215.2 +< 144.8 +< .68 +<

72.40 ^

19.1

122.8 103.7 +<

44 5- 197.2

8 44.8 < 307.5- 110.3 +<

214.0 +< 146.0 +< .65 +<.

73.00 ^

3 (11.8 <

8 43.9 <

14.6 18 obs.

124.9 110.3 +<

45- 46 196.5-

45.8 <

8 46.5 < 304.5- 108.0 +<

218.3 +< 141.4 +< .74 +<

70.85 ^

17.2

124.5 107.3 +<

46 50 196.0

46.8 <

8 47.5 < 309.9 113.9 +<

221.2 +< 138.8 +< .80 +<

69.40 ^

3 (23.3 <

(8 47.8) <

17.2

192.0 114.8 +<

48 3 5- 200.1

48.6 <

8 48.9 < 304.0 103.9 +<

218.7 +< 141.3 +< .75 +<

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1882phae.proj.1315w

Feb. 8, 1882

8h 13.4 19 pairs

126.0 112.6+<

50 50 195.1
50.8<

8 51.5< 307.8 112.7+< / 22 5.3+< 134.4+< .88+<
67.35^

12.3

131.0 114.4+<

52 5 200.0

8 52.8< 304.1 104.1+< / 221.8+< 138.2+< .81+<
69.10^

19.1

122.9 103.8+<

53 15 191.8 0.76<

8 53.9< 307.5 115.4+< / 219.5+< 140.5+< .76+<
70.25^

3 (8.2<)

8 52.7<

18.5 20 pairs

117.4 98.8+<

55 10 200.1

8 58.9< 302.0 101.9+< / 200.4+< 159.3+< .40+<
79.65^

17.1

121.2 104.1+<

59 27 202.4
59.4<

#9 0.1< 306.1 103.4+< / 207.8+< 152.2+< .53+<
76.10^

11.0

(9 3 (1.2< / 0.4)< 126.0 115.0+<

9h 1 30 199.0 101.0+< / 216.0+< 144.0+< .69+<
1.5<

9 3.3< 300.0 72.50^

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1882phae.proj.1315w

Oct. 8, 1882

9 h

20.2

122.9 102.7+<

6 45 197.7

6.8<

9 7.5< 310.9 113.2+< / 210.9+< 144.1+<, 69+<

72.05^

18.1

128.5 110.4+<

7 50 201.0

7.8<

9 8.5< 301.0 100.0+< / 210.4+< 149.6+<, 58+<

74.80^

20.0

127.2 107.2+<

9 10 194.5

9 9.9< 307.6 113.1+< / 220.3+< 139.4+<, 48+<

69.85^

3 (25.9<

9 8.6<

21 P. Obs.

22 P. Obs.

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1882phae.proj.1315W

Oct. 8, 1882.

Sweep for Planetary Nebula +12.5° to +17.5°
Telescope 2h 25m Mesh.

23h	3m	45s	n/p	8 the
	4	21	down	
	5	20	n/p	
	6	10	down	
	6	45	n/p	
	7	25	down	
	8	14	n/p	
	9	2	down	
	10	31	down	
	11	12	n/p	
	11	51	down	
	12	23	n/p	
	13	30	down	
	14	11	n/p	
	15	35	n/p	
	16	31	down	
	17	22	n/p	
	18	22	down	
	18	59	n/p	
	19	30	down	
	20	35	n/p	
	21	34	down	
	22	20	n/p	
	23	18	down	
	24	35	n/p	
	25	37	down.	

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1882phae.proj.1315W

Oct. 8, 1882

23h	26	34	up
	27	45	down
	28	25	up
	29	17	down
	30	16	up
	31	27	down
	~~30~~	~~16~~	~~up~~
	32	30	down
	33	35	up
	34	20	down
	35	20	up
	37	20	up
	39	18	up
	41	10	up
	42	5	down
	42	50	up
	43	25	down
	44	7	up
	45	5	down
	45	55	up

0, 6h

ended here

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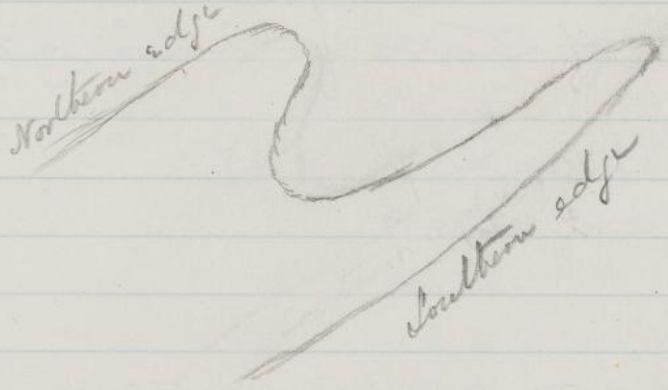
1882phae.proj.1315W

Oct. 8. 1882.

Comet Cruls. W. obs.

Sea horizon came in very suddenly and overspread whole heavens while getting ready to observe comet.

Sketch of end of tail as seen on way to observatory.



Strong indentation in end of tail. Tail extends to a greater distance from head on southern edge than on northern, but apparently no such long wisp or streamer as in Donati's comet of 1858.

Southern edge of tail sharper and better defined than northern. Projection of tail on southern edge rather sharp and pointed.

Light of tail white and silvery. Tail also somewhat broader and larger in appearance, and edges rather more diffuse than before, probably owing to ~~absence of~~ comparative absence of moonlight.

W. obs.

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1882phae.proj.1315w

October 9, 1882.

2 15 2.6
20 28

~~2 2 4 3~~

18 13

Transits of Stars following η Serpentis
P. obs.

Pos. 0 = 2°9
Set at 272.9

20	37	ν4.ν	ν.0	
		ν6.2	9.4	
	38	2.6	ν.8	
		14.3	9.4 -	
		~~2~~3.2	ν.7 -	
		ν7.0	4.6	
	39	ν.8	9.6 -	
		9.2	1.3	
		40.0	6.2	14th Mag.
	40	28.0	7.9	12th "
	41	11.2	0.2	
		38.2	ν.3	
		ν6.2	ν.2 ~	
	42	30.6	ν.0	
		ν3.4	3.2	

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1882phae.proj.1315W

Oct. 9. 1882.

20	43m	20,8	3.2 -	
		47.8	1.8	15th Mag.

Same again

20h	44m	30.0s	5.0	
		31.8	9.4	
		39.4	5.8	
		51.6	9.4 -	
		55.7	5.8 -	
	45	32.4	4.6	
		41.8	4.6 -	
		45.0	1.7	13th Mag.
	46	16.0	6.0	14th "
	47	3.8	7.5	12th "
		47.1	0.2	
		55.7	0.2 -	
	48	14.2	9.1	
		30.0	9.1 -	
	49	5.6	5.0	
		18.2	5.0 -	
		28.6	3.2	
		47.7	5.1	13th Mag
		55.2	3.0 -	
	50	22.2	1.8	13th Mag

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1882phae.proj.1315w

Oct. 9, 1882.

Sweeping for Planetary Neb. P. obs.
0° to 5° north

Telescope set at 1h 58m West

20h	57.3m	began.	
	58.5	up	
21	0.0	up	
	2.7	up	
	4.0	up	
	5.3	up	
	6.3	up	
	7.7	up	
	8.9	up	
	10.7	up.	
	11.0	Plan. Neb.	1.6
	12.1	up	
	13.3	~~4th Mag~~	~~3.1~~
	13.9	4th Mag	3.1
	15.1	up	
	16.6	up	
	18.4	up	
	19.7	up	
	20.9	up	
	22.3	up	
	23.0	Plan. Neb.	5.5
	25.3	up	

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1882phae.proj.1315W

Oct 9, 1882

21^h	$26^m.7$	up
	28.2	up
	29.5	up
	~~31.2~~	~~Stopped to talk~~
	31.5	up
	32.4	up
	34.3	up
	35.7	up
	36.8	up
	38.0	Ended

Jones 143 & 144 (Annals Vol 6)

21^h 44 47.0 = time of beginning of third rattle on Chronograph sheet

Pen gave out

47.0
28
75

22^h 13 4.6 = time of beginning of second rattle on Chronograph sheet.

16^m 59^s started

1.0
8.0
10
8.2
8.0
75

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1882phae.proj.1315w

Oct. 9. 1882.

~~8.2~~

19 h 9 started

8.0
1.0
7.8
10
80
4.3
10.0

23m h9s started

8.0
1.0
10
8.0
80
4.3
10.0
100
8.9
0.0
89
00
107
70
3.5
6.0
35
4.0
10

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1882phae.proj.1315w

Oct 9, 1882

60
40
10
9.0
3.7
1.5
80
35
15
4.8
2.1
48
2.5
2.5
25
25
1.5
1.5
2.5
15
15
25
7.5
1.0
0.5
75
10
5
5.1
51

27

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1882phae.proj.1315W

Oct 9, 1882

9.0
27
5.6
90
56
1.8
18
2.8
28
2.3
2.8
23
2.0
28
20
5.2
3.7
52
37
6.0
2.3
60
8.0
23
9.9
99
~~0.0~~
4.1
2.0
41
7.0

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1882phae.proj.1315w

Oct 9 1882

3.4
2.8
3.4
2.8
7.5
7.9
7.5
7.8
7.6
2.6
9.9
2.0
9.9
9.9
9.9
7.2 dbl
7.2
2.4
2.4
3.2
2.6
3.2
7.8
7.8
2.6
7.6
3.8
2.7
8.0
2.7
8.2
2.8

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1882phae.proj.1315w

Oct 9, 1882

9.6
83
96 < Four rattles
25
9.9
24
25
9.9
99
[24]
7.0
99
2.0
6.0
20
1.5
60
15
9.8
4.0
7.5
98
62
83
83
10.0
8.5
25
100
85

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1882phae.proj.1315w

Oct 9 1882

4.5
2.5
4.5
7.3
7.3 < Thrown off by mistake in catal

7.5
4.6
6.3
9.0
1.0
4.2
1.5
5.0
9.0
3.8
0.5

7.0
0.5
5.5
7.3
3.0
3.0
9.0
6.0 }
8.0 }
9.0
6.0
6.8
6.8
6.8

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1882phae.proj.1315w

Oct 9, 1882.

6.1
4.5.
60
45
7.4
7.3 }
8.0 }
2.8
2.8
80
60 }
70 }
9.9
99
4.8
6.3
63
48

Rattle before 23h 1m by B. 236 < clouds

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1882phae.proj.1315w

Oct. 9. 1882.

Phot. R. S. obs.
Occ. Jupiter I Phot. R.
Clouds interfere.

Barnard's Comet. W. obs.
δ 21 +15.0

δ	ν
+3	16

Abandoned to observe Cruls Comet.

Cruls Comet. W. obs.

5h 44m 28s.2 8th Mag Dec +0.7 = Comp. star
527 faint 9.5 " −2.3
45 28.4 9th Mag +2.5
35.0 8th " +12.0
56.3 Comet +5.2
05.4 8th Mag −0.5
09.0 9th " −2.6
42.3 9.2 " +2.6

Pos. 0 = 26.0
45
71.0

Order * * ∈ ∽
Both in northern half of square.
Resist hint not observable by notes.

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1882phae.proj.1315w

Oct 9. 1882

Barnard's Comet. W. obs.

8 21.

7 20 +15,0

1 1

8 23

6 32

1 51

Daylight too strong.

Disturbance in nucleus of Cruls comet seems to have practically subsided.

Nucleus about 40" long in direction of axis of tail by 10" broad.

End of tail strongly indented as on Oct. 8.

General shape of and about the same.

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1882phae.proj.1315w

Oct 10, 1882

Sweep for Planet Zone +5 c +10

Clear 2h 20m N.

Began at 20 BS Ended at 21h 1m

RA 18h 10 & 18 40

Zone 143 & 144 Annals Vol VI

22h 20m 25.s2 = time of first rattle on chronograph sheet (beginning)

1.0
8.0
8.2
10
80
4.5
82
45
10.0
9.5
7.6
0.7
75
2.2
67
5
67
22
4.4
30
78

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1882phae.proj.1315w

Oct 10 1882

44
6.8
4.5
2.0
67
44
2.5
20
25
4.3
2.4
24
30
2.4
3.5
24
35
8.0
80
7.5
75
3.0
8.2
2.8
30
80
6.7
5.5
55
3.4

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1882phae.proj.1315W

Oct 10, 1882.

9.9
24
67
99
64
32
32
2.5
3.0
25
2.4
3.0
24
5.8
4.9[3]
58
43
9.5
9.3
7.0
93
93
2.4
6.0
8.5
24
60
50
85
0.8
48

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1882phae.proj.1315w

Oct 10, 1882

2.4
5
48
24
3.5
10.0
7.5
35
8.3
75
83
7.7
3.8
10.0
37
7.6 dbl
76
27
4.3
27
2.6
33
9.0
90 }
27 }
7.6
4.5
2.8
80
35
67

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1882phae.proj.1315w

Oct 10, 1882.

9.0
4.0
7.6
6.5
8.0
7.6
3.8
10.0
2.6
~~3~~7
2.6
3.0
7.5
2.5 }
7.5 }
2.3
2.3
0.5
7.7
7.8
7.8
4.0
7.3 }
2.4 }
9.5
2.3
9.5
7.2
5.5
2.4
~~5.2~~

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1882phae.proj.1315w

Oct 10, 1882

5.5
7.0
7.5
7.5
0.2
3.0
2
3.0
7.7
4.5
0.5
7.7
4.5
0.5
0.0
5.5
9.9
5.5
0
4.8
5.8
9.9
5.0
0.8
6.0
8
6.8
7.6
6.7

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1882phae.proj.1315w

Oct. 10, 1882.

7.6
7.7
7.5
5.8
7.7
7.5
5.8
7.4
7.7
7.7
5.0
7.6
5 0.0
7.4 }
8.3 }
7.5
7.0 }
8.0 }
10.0
5.2
10.3
5 2
5.0
3.0 }
5.2 }
5 0
3.0 }
5 2 }
7.0
2.8
7.0

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1882phae.proj.1315w

Oct. 10, 1882.

28
8.0
2.3 dbl
23
0.1
0.1
1 prec.
1 fol.
0.2
2
4.2 }
9.5 }
6.0
42 }
95 }
2.0
3.5
60
9.0
7.5
20 }
30 }
2.5 }
3.0 }
30
8.0
75
25
7.4
55
80

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1882phae.proj.1315w

Oct. 10, 1882

7 ✓
4.3
6 0
0.5
✓
3 0
4.0
4 0
4.0
8.3
8 3
4 0
< Three Rattles.
9.0
2.3
2 3
~~9 0~~
9 0
10.1
4.0 dbl
4 0
8.2
2.4
7.6
6.8
2 5 }
8 0 }
6 0
7 0
2.0
6 0

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1882phae.proj.1315W

Oct. 10, 1882.

9.2
20
10.0
60
90
4.8
10.2
48
10.2
10.3
7.7
9.0
77
90
10.5
7.0
5.8
7.5
70
58
75
1.2
7.6
12
76
5.5
5 5
25
9.8
6.0
25

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1882phae.proj.1315w

Oct 10 1882

9.0
6.0
2.2
10.5
20
9.0
10.0
9.0
2.7
7.3
6.0
7.4
25
75
60
77
10.0
2.6
25
7.3
73
2.3
2.6
23
2.0
2.0
26
20 fol.
20 prec.
10.0
2.6

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1882phae.proj.1315w

Oct 10, 1882.

5.7
2.6
6.3
4.0
6.3
8.3
7.5
10.1
2.8
7.5
9.0
4.5
3.0
4.5
5.8
2.3
0.5
0.5
6.0
2.3
9.5
8.5
7.4
9.3
3.1
8.0
9.0
3.0
6.2 dbl.
6.2
8.9

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1882phae.proj.1315w

Oct. 10, 1882.

7.8
9
7.6
10.0 dbl
4.0
40
0.8
8
8.1
81

3 rattles preceding $23^h\ 46^m$ by B. 236
Very red star south preceding Jupiter (probably banded) same field.

Barnard's Comet.

W. obs.

W. obs.

+16.5

7.5+
4.5
12.0+

19.1

A 9.5 precedes comp. star 18s 2½ north
A 9.5 " " " 6s 7' "
Comp. star 7.5 mag.
Aw 8.5 fol. comp. star 19 14' "
A 9.0 " " " 26 12' "
A double (9.5 combined) fol. comp star 3.5 11' "
Comet 1st 3 min bl. comp. star and 4' south Cause: cloudy.

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1882phae.proj.1315w

Oct. 10. 14+2.

Cruls Comet. Gr. obs.

Cloudy.

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1882phae.proj.1315w

Oct 12 1882

15h 15m

Comet Barnard

Clouds. P. obs.

Var. in Puppis. 2 grades brighter than star 30s/pr. 2' n.

			δ	
5	11	35.4	8'	Star used in above comparison
		48.0	7.5	
	12	2.6	5	var.

			δ	
5	13	42.8	5	var.
	14	6.0	9	

Var. 0.2 magn. brighter than this last star

16 0 Another estimate. Var. equal to star preceding it.

Comet Barnard 8h 30m −20°

16 25 Comet Cruls

Stars	5	49	45.3	δ10
		50	29.0	
Comet		52	7.0	δ8
		52	49.2	

7½ magn.

6 magn. pr. 5s, 14's.

Nucleus of comet much elongated, of irregular brightness.

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1882phae.proj.1315W

Oct. 12, 1882.

Zero 118.2
45
Setting 163.2

Star 6 magn. preceded 25^s by a 7½ magn. star.

6 mag. is Gr. 320 but comp. star actually used is S.D −12° 3161 (7.5 mag.) = the 7½ mag. below.

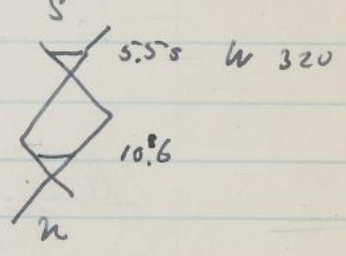
5	55	52.2			7½ magn. in southern corner
~~W 10^h 320~~	56	18.5	21.2	8 mags	6 magn. outside of square to the south
		24.0			
	~~(57)~~	26.8	31.1	10.6	7½ magn. comp. star. } north half of square
		37.4	21.2		" " }
	58	35.5	52.3	33.5	Comet in northern half of square
	59	9.0			
				22.9	

Nucleus difficult to observe on account of elongation; centre of gravity uncertain.

5	59	39.0	{ ~~Comet~~ 7½ magn. comp. star, north half
		49.4	
6	1	44.3	Comet 1st bar

Clouds.

Position of comet only estimated; clouds



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1882phae.proj.1315w

Oct. 12, 1882

6 9 48.3
clouds

16 55

6 21 12.4
21 28.4
clouds.

} through clouds, 7½ magn. comp. star

6 27 56.2 5.1 17.8
28 14.0 17.7
30 0.7 22.8 43.9
44.8 26.1

} 7½ magn. cl. mp. star northern half of square

} Count, northern half of square

6 31 6.7 15.6 17.9
24.6 18.4
33 11.6 34.0 44.8
56.4 26.9

} As above.

6 35 53.3 2.8
36 12.4
37 57.2
clouds

47 15

6 44 20.6 30.4 19.7
40.3
46 22.7 17.2 49.7
47 12.4 47.6 30.0

Barely seen; clouds.

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1882phae.proj.1315W

Oct. 12, 1882

6	49	12.1	16.1	8.1	Comp. star 7th mag. northern half of square
		20.2			
	51	13.8	32.9	16.8 38.2	Comet, northern half of square
		52.0		201	

Extent of head of comet in right ascension

4^s

4.0

$4^s.0$

N. Obs.

Two well defined nuclei; observed centre of gravity slightly preceding both nuclei.

Est. pos. angle major axis of nuclei ~~105°~~ 75°!

Setting 130.4
Zero 121.2 9.2
90.
Position angle by setting 80.8

B 236 7 1327

10 32.5 9 30.0 1 2.5
12 2.5 11 0.0

① Comp. Stars not in W.

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Oct 12, 1882.

Results of observations of previous days.

Time	~~Diff RG~~	Δ R.A. ~~Diff Dec~~	Δ Dec.	
5 58	52.3 ~~21.2~~	2m 21.2	22.9	
6 30	22.8 ~~17.7~~	17.7	26.1	
33	34.0 ~~18.4~~	18.4	26.9	
46	47.6	17.2	30.0	
51	32.9	16.8	30.1	
218	189.6	91.3	136.0	Comet South. foll. Star
6h 32m	139.2	2m 18.26	27.20 = 204".0 × cos δ	

~~= Write 10h 243~~

Comet south foll. W. 10h 320

B236 5h 54m 52.5s ΔRA 2m 31.1 Δ Dec = Diff Ry − $\frac{280}{2}$

1882phae.proj.1315w

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1882phae.proj.1315w

Oct, 14, 1882.

15 20 Zero of position : P. obs.
B.236 69^s fast of F.1327 about 15^h 31^m mean time.

Zero 108°.6 δ −12°.6 h 2^h 8^m east.
Micrometer removed to adjust focus.

15 30 120°.0
120.4.
120.4
} δ −12°.6 h 1^h 54^m east.

15 55 120.4 δ −12°.9 h 3^h 12^m east.
Clouds in southeast prevent observations of any of the comets.
Location of tail; Comet Cruls.
Reading of index 4^h from O

16 25 2 Hydrae 12 38 −13°.6

16 35 Nucleus of Comet Cruls beginning to be seen over clouds.

Bright star p comet 3^m ±, 3's.
Micrometer set at 165°.4

	B.236			P. obs.
6	12	18.8	34.5 31.4	Star, northern half of square
		50.2		
	16	51.0	26.7	Comet, northern half
	17	11.3	61.2 20.3	
			11.1	

P.

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1882phae.proj.1315w

Oct. 14 1882

W 10^h 218

6 17	42.2	}	Another star, also in
1/8	15.4	}	northern half
	25.0		Star in northern corner of square
	35.0		Former comparison star

W 10^h 236

19	7.6	} 54.3	32.6	
23	5.4	} 22.6		Comet, much better seen
	28.3	} 16.9		
			22.7	
			9.7	

$-13°.6$ $3^h 54^m$ east

6 19

10 13

6 24	21.4	} 38.4		Comparison star
	55.3	}	24.9	33.9
28	51.4	} 63.3		
29	15.2	}	Comet	23.8
				10.1

Structure of head resembling that seen Oct. 12,
Point observed preceding of the two nuclei, near middle of head,
Following nucleus somewhat brighter,
0.7 of distance from preceding to following end of head.
Star 7 magn. follows comparison star
1^m 5' n.

6' 30	57.5	} 72.4		Comparison star
31	30.4	}		35.9
34	0.0		14.9	Star, 8 magn., 3' n of
				n corner of square
35	24.0	} 37.5		Comet 27.0
	51.0	}		8.9

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1882phae.proj.1315W

Oct. 14, 1882.

6 36 29.6 } Comparison star
56.6 } 44.6 24.8 30.0
40 57.3 } 69.4 Comet 24.1
41 21.4 } 24.9

6 41 48.0 } 63.2 30.4
42 18.4 } 24.7 24.9
46 15.4 } 27.9 55
40.3 }

μ Hydrae
10 20 −16.7 3h 28m east
6 50
3 30

Star 6 magn. 19m μ Hyd
Hydrae, 0°.5 south,
U. A. Hydrae, 195

Diameter of finder assumed to be 40'. Readings increase to the north.
δ −13°.6 by circle.

h 12h 45m Comparison star δ 20 in finder
t 6 58 RA 10h 14
h 12 41 Comet δ 21 " "
t 6 58.5 10 17.5
h 12 37 Star, 6 magn. δ 31 " "
t 6 54 10 22

5 46
5 43
5 38

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1882phae.proj.1315w

Oct. 14, 1882.

~~ω~~ δ − 13°.6

12 h 4.0 } 6 magn. stars 28 in finder
W 10 418 7 2 } U. M. Hydra 225? 10 02
12 44 } Comet 16 " "
7 2 10 18
12 49 } Comp. star 15 " "
7 3 10 14

5 38
5 42
5 46

Comp stars same 225 Hydra 8m 13's
and 6 219 Hydrae?

9 21
7 6
2 15

α Hydrae

h 13 47 . − 8.7 δ by circle
t 7 7.5
6 40

R.A. = 9 20.5 Dec. − 8.7
Sun = 9 21 − 8.1

10 4 λ Hydrae
7 11
2 53

h ~~ω~~ 13 11 − 12.3 δ by circle.
t 7 14
5 57

R.A. 10 03 − 12.3
Sun 10 4 − 11.7

5 42
7 14
13 "

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1882phae.proj.1315W

Oct. 14, 1882.

B 236 — 7, 1327

7 | 27 9.4 — 7 | 26 0
28 9.4 — 27 0

Comet – Star.

			ΔR.A.	ΔDec.			Comp.	
6	17 1.2	6.3	4 26.7	11.1	78.7	9.8	75"	+3"
	23 16.9	5.8	22.6	9.7	67.9	-32	69	-1
	29 3.3	6.6	24.9	10.1	70.7	8.4	63	+8
	35 37.5	4.5	24.9	8.9	62.3	21.0	56	+6
	41 9.4	5.3	24.8	5.9	41.3	2.8	51	-10
	46 27.9		24.7	5.5	38.5		46	-8
	191 96.2		46	51.2	358.4			±6"
					5			

3
32m 6.0

Results. Comet – north foll. star.

Ad. B236 $6^h 32^m 6.0^s$ ΔR.A. $4^m 24.7^s$ ΔDec. 8.53^s = 62".3 ~~60" 59".7~~

Comparison star is W. $10^h 236^m$ = Lamont 694.

In comparing with Observ. of Oct 12 about 0.4s should be added to that measure on account of difference of Ad. of Head observed. Oct 18, 1882

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1882phae.proj.1315w

Oct. 15, 1882

B 236 7 1327
5 16 12.2 5 15 0
18 12.2 17 0

Barnard's Comet. W. obs.
8 42 −25.4
5 57
−2 45

Cloudy.

Continued cloudy till daylight.

Oct. 16. 1882.
In all the ~~5~~ observations of Cruls Comet taken by myself previous to this date the point of transit determined has been at a distance about ⅔ the length of the nucleus towards tail. W.

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1882phae.proj.1315W

O A. 19. 1882.

Cloudy in vicinity of Cruls Comet.
Swept a little for new comet, W. obs.
~~Cle~~
Clear again. Cruls Comet. W. obs.
Pos. Zero. 210.2
4 v.
Set at 2 v v. 2

~~1st 4d~~

Order 8.8, 9.0, 8.v, 9.0, 8.8, 8.v
Comet. Comet.

Stars of third set fol. by several rattles

In fourth set 1st *, 3d ** 3d * Comet. Comet.

Stars and comet in all the sets in southern half of square.
Four complete sets.
General nucleus of comet has two small included nuclei, the preceding and brighter of which was taken in transit and corresponds to the about the point which I ~~took~~ invariably selected. before the small nuclei appeared. W. obs.

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1882phae.proj.1315w

Oct. 20. 1882.

Swept for Schmidts' Comet and Barnards cometary masses in vicinity of Coulds Comet. Rather cloudy. W. obs.

Coulds Comet. W. obs.
Pos. Zero 296.2
4 V.
341.2

order * * ≡ ≡
Both in northern half of square.

Comps. star 7.5 to 8 mag
a ~~8~~ somewhat brighter star precedes & is equally bright & ✓ square and is 3' ± north.
A star somewhat fainter than either precedes this last mentioned brightest star a few seconds and is ✓ ½' south of it.

Swept again for new comet. Seeing rather bad most of the time. Swept mainly to southwest of Coulds comet. Cloudiness increasing towards morning. No comet seen. W.

Observed condensation of light in nucleus in taking transits. W.

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1882phae.proj.1315w

Oct. 20, 1882.

6^h to 17^h S. swept near λ Hydrae with telescope of Mr. Chandler in west dome.

Found object $4^\circ.5$ n of λ Hydrae, $5^m.5$ p λ Hydrae by circles of telescope.

λ Hydrae by Heis $150^\circ\ 53'\ -11^\circ\ 38'$

$10^h\ 3^m.5\ -11^\circ.6$

Precession to 1860 .2

$10\ 3.7\ -11^\circ.6$

$-\ 5.5\ +4.5$

Place of object for 1860 $9\ 58.2\ -7.1$

Agrees with G. C. 2008; appearance of object also agrees with description.

Also swept southwest (sp) of great comet; nothing found, but sky very hazy; few stars could be seen.

Region cloudy before 16^h and growing bright after 17^h, with increasing clouds and haze.

23^h Found that the supposed comet near λ Hydrae was reported by Mr. Barnard, and that he had afterwards concluded that it was a known nebula.

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1882phae.proj.1315w

Oct. 21. 1882.

~~Or~~

Opened dome to look for comets but came up cloudy before anything could be done.

W.

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1882phae.proj.1315w

Oct. 24, 1882

R.C. Jupiter III Sys. comp with Nav Sol. Phot R

Obs. Nav.

12	4	
	11 36	1880
	12 2	2888
	12 34	1767
	12 56	2782 —
	13 24	1712
	48	2771
	14 11	1766
	33	2854 —
	15 02	1743
	25	2786
	49	1762
	16 08	2817 —
	35	1752
	54	2819
	17 23	1764
	46	2773 —
	18 05	1765
	26	2872 @K.
	19 0	1753
	24	2901 —
	20 0	1742
	33	2853
	58	1753
	21 18	2903 —
	54	1742
	22 23	2914

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1882phae.proj.1315w

Oct 24 1882

22	48	176.6	
	11	285.8	
23	55	177.1	
24	18	285.0	
	41	179.4	
25	1	281.0	
	24	175.3	
	47	284.7	
26	04	186.2	
	31	270.0	
	52	183.2	
27	10	272.6	for reformulation
	40	187.7	
28	01	275.9	
	21	183.1	
	41	274.1	
	00	184.4	
	21	277.0	
	40	186.4	
30	01	274.9	
	27	184.9	
	49	266.2	
	8	192.4	
31	33	269.0	
	52	192.6	
32	12	282.7	
		Low wire.	
34	48	209.6	
		264.9	
36		191.2	
	8	291.7	

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1882phae.proj.1315W

Oct 24, 88.

B d C.		B 3974	
12 41	0.0	41	0.0
42	0.8		0.0

2 39.5 Egress of Sat. I

Reappearance of Sat. III

	Limit vis.	P. Obs. S. rec.	
14 43	45	42.1	Preceding satellite Sat. II.
	59	60.0	
44	1/4	44.1	
	28	60.3	

Set at ~~45.0~~ 43.0

14	49	36	Susp.
		40	seen
		50	42.1
	50	0	62.0
		9	40.6
		17	65.8
		25	41.3
		35	64.6
		44	37.7
		52	69.4
		54	36.8
	51	9	71.8
		18	36.4
		27	70.3
		36	32.4
		44	74.2

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1882phae..proj.1315W

Oct. 24, 1882.

57	53	31.8
52	1	75.7
	10	29.3
	20	77.4
	31	27.3
	41	77.4 ← clock stopped
53	10	31.6
	21	77.8
	32	30.7
	43	78.4
	55	28.3
54	10	82.6
	25	27.4
	38	84.7
	54	26.6
55	6	87.4
	19	22.6
	31	86.3
	46	22.1
56	3	89.6
	19	18.8
	33	99.6
	56	16.4
57	9	96.7
	28	22.2
	41	97.4
	59	20.0
58	11	96.4
	24	25.3
	40	98.2

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1882phae.proj.1315w

Oct, 24, 1882

14	58	54	14.8
	59	11	100.1
		26	11.2
		41	101.3
		58	15.8
15	0	13	99.5
		27	16.8
		45	101.2
	1	5	13.4
		24	103.2
	2	18	10.0
		42	101.4
		59	9.4
	3	16	105.4
		35	13.6
		47	102.2
	4	11	13.3
		16	104.3
		31	12.2
		53	99.4
	5	9	15.1
		24	103.3
		41	8.3
		54	91.6
	6	19	16.4
		39	99.4
		54	14.4
	7	9	103.6

Sat. III now near Jupiter.

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1882phae.proj.1315w

Oct. 24, 1882.

15 12 0 } B 36. 1882 15 12 0 } B 394
12 30 12 30

5 29 43.5 } B 236 5 28 0 } 7, 1327
5 30 43.5 29 0

6h 6m 03 a Dec 19.5
14 b 17'
47 a
7 00 b Rattle 6h 8m 05s - 20s
10 29 c = Cap Sca. 8'.5
11 11.5 c
— ∝
12 ∝ ∝ 7'

Zero 134.8
134.9
45
Det at 179.85

Three rattles at 6h 23m 0 to 6 23 15

5 obs Star Star Comet Comet all = Shift of 1 foot

Ended at 6 32 10

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1882phae.proj.1315W

Oct 24, 1882

Second bet. long nebula two short.
Began at 6h 36m
Star Scan Comb Comb all in 2n Half of Sq
Ended at 6 46

109.4	154.1	Position angle of nucleus
108.7	153.4	= about 100°
107.0	151.7	
108°.4 = P.a.		

Yes at 134.3 poor bilateral at 134.7
Envelope of nucleus Double nebula at 50 20±

Set at 179.7
Short long short at 53m 30s
All in after ~~Sq~~ Half of Square

Ended at 7h 2m 20s

Comet at both in Northern half of Sq
Short Short long. at 7h 7m
Ended at 13 20
Held long short 7m 16m 0-5 10-15 20-25

Swept for Schmidt's Comet

Nucleus estimated as about equal to ⅓ Hyperion
or ⅓ Uranus Disc

5 30

The point of the nucleus assumed as in the previous observations was near the center of faint nucleus.
or about 0.6 of the length of the nucleus from its preceding end.

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1882phae.proj.1315w

Oct 24. 1882

Results of previous days.

Reading Chron. thwts R 84, 10-18. 59th round assumed to be omitted instead 0th round. Hence all readings should be increased by one round. ∴ 1327 $2^{h}12^{s}.1$ chron hence all readings increased by $2^{h}13^{s}.1$

Custom thwts = Cal.

	C. Sid Time		Δ R.A.			
6	28	29.63 (13)	48.00 (49)	$8^{s}.84$ =	2′ 6″.6 (14)	5 cals
	41	27.80 (17)	47.51 (91)	9.82	2 20.8 (18)	6 "
	58	54.92 (12)	46.60 (111)	11.08	2 38.9 (10)	5 "
7	11	35.28	45.49	11.73	2 48.2	5 "
16	50	6.9	6-x = +46.90		− 2 28.6	21 cals.
14	15	53.3				
~~Chron~~ 16	38	11.6				
	2	43.5				
Chron 16	35	28.1				
4	44	31.				
21	19	59.	Gr. Eq. T.			

Comp. Star used above is B.A. Gulteren Lowes
10 K 29 − 10 K 30 (Mean used)
(This is same as SD −16° 29 29 (7.7 M.))

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1882phae.proj.1315W

Oct 25 1882.

22 34
20 28

$t = 22^h\ 30^m\ 9^s.3$ = time of beginning of second rattle on Chronograph

7.5
0.5
7.5

Moonlight; faint stars not well seen, and disappearances difficult to observe. Position obtained by adjustment for transit line, and change of 90° by position circle. The transit line is evidently not straight.

7.5
0.5
7.7
9.9
9.9
8.3
6.8
0.0
8.3
7.6
0
2.0
2.0
2.4
5.0

The second star of Vol. VI now certainly precedes the first unless the crookedness of the transit line, which is of course slight, produces the effect. It is in the direction of precession, but is rather too large for that explanation.

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1882phae.proj.1315w

Oct 25 1882

2.6
√0
0.1
26
1

7.8
2.4
78
24
9 23^h 25.9

0.8
2.4
24
8

7.6
76
6 23^h 27.5

7.6.
0.3
76
3

√.2
√2
√.0
√0
1.8
8.7
18
87
√.1
√1

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1882phae.proj.1315W

Oct. 25, 1882.

2.5
2.5

1.7
1.7
1.0
1.0
a 23h 32m.9
1.7
1.7
7.5
7.5
10.1
1.0
0.3
10
3
101
2.3
2.3
7.6
7.6
7.5
2.5
2.5
8.8
7.5
8.8
8.8
8.8
b 23h 38m.2
7.3

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1882phae.proj.1315w

Oct 25, 1882.

7.3
2.3
23
2.3
23
7.5
3.3
75
2.3
23
33
8.0
80
9.0
90
a $20^h\ 41^m.5$
2.5
9.8
25
98
2.0
20
6.1
61
5.2
52
10.1
0.5
5
b $23^h\ 44^m.1$

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1882phae.proj.1315w

Oct. 25, 1882

B J G 1182 — B B 94

15 30 58 — 15 31 0

31 58 — 32 0

Disappearancy of Jupiter II; compared with Jupiter I. Photometer R. S. obs. S. rec.

15	56	33		98.4
	59	1		176.2
		39		102.5
16	0	11		174.7
		43		97.9
	1	11		175.5
		42		102.1
	2	11		176.8
		41		101.0
	3	6		177.1
		31		98.0
		52		174.3
	4	14		100.6
		44		175.8
	5	8		161.0
		29		175.2
		51		105.1
	6	13		182.2
	7	2		108.2
		38		168.8
	8	10		109.0
		35		167.1
	9	6		114.7
		29		158.1

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1882phae.proj.1315w

Oct. 25, 1882

16 10 5 130,3

Not seen later

Limit of visibility, Jupiter I.

16 11 49 129.4

12 45 153,4

13 35 130.3

14 20 152,0

B & C. 1182

16 24 58

25 58

B 394

16 25 0 #4.5

26 0

-13.5

Observations difficult owing to altitude of Jupiter.

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1882phae.proj.1315w

Oct 26. 1882

D Leporis Mk H Sdo

Nice comp. 0.4 brighter...

93.6 br. pne. dis

8 55 182.9 89.3 ^1

279.5 90.3 ^1

359.8 ——— ~~0.2~~ 2.2 ✓

169.6 ^1

3.6 86.8 ^1 Sdo.

90.6

9 00 182.9 88.1 ^1

271.0 ———

174.9 ^1 ~~0.1~~ 2.1 ✓

9 5 191.6 71.8 ^1 Pdo.

263.4

6.8 83.8 ^1 — pr & bro. dis.

90.6 ———

155.6 ^1 ~~0.1~~ 2. ✓

9 10 101.8

181.3 79.5 ^1 — pr dis. Pdo.

276.4

359.6 83.2 ^1

162.7 ^1 ~~0.3~~ 2.3 ✓

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1882phae.proj.1315w

Oct. 26 1882

Double at 2 53 58 +10 16 8.2 8.5 20″ 200°
Companions nearly equal. P. obs.
Ξ 338.

9 25

7.9
96.6 82.1 ^ — northern dis.
188.8

272.4 83.6 ^
165.7 ^ ~~2.5~~ ~~0.3~~ 2.3 ✓

183.4
277.0 93.6 ^ — southern dis.
0.8 P. obs.

9 30 96.2 ^ Northern 0.2 brighter by estimate.
97.0
189.6 ^ ~~0.4~~ 2.2 ✓
170.2

277.0 89.3 ^ northern dis. S. obs.
9 38 ~~9 38~~ 6.3
102.0 80.5 ^
182.5
169.8 ^ ~~0.2~~ 2.2 ✓

183.9 93.3 ^ S. obs.
9 44 277.2
6.4 87.6 ^ northern dis
94.0
180.9 ^ ~~0.0~~ 2.0 ✓

Northern slightly brighter. estim 0.2 S.

Poor mer, object dim

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1882phae.proj.1315w

Oct 26. 1882.

51 Camelop. 7 32 4 +65 29 7.1 7.1 15".5 5°.

10 02 Objects exactly equal Scls

No perceptible difference. P. Sr.

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1882phae.proj.1315w

Oct. 28, 1882.

a =	23^h	$23^m.3$
b =		23.6
7.5		0.5
0.5		8.0
√		√
7.6		27
7.5		a $23^h 30^m.1$
		1.0
3.3		2.5
9.9		2.5
7.8		10
6.1		2.5
~~2.5~~		2.5
~~6.0~~		7.6
		7.6
		0.6
2.5		7.5
6.0		7.5
60		6
2.5		√.5
√.5		√.5
3.0		√.0
√.5		√.0
0.5		1.0
3.0		8.3
√		1.0
8.0		√.2
2.7		8.3

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1882phae.proj.1315W

Oct 28, 1882.

√2		7.6
2.√		7.5
25		2.4
b	$23^h\ 35^m.√$	24
1.8		8.8
18		7.√
0.6		8.9
6		8.8
√.0		89
√0		7.0 dbl
√.8		7.0
√8		2.3
1.0		23
7.6		2.7
10		27
76		2.4
9.9		24
99		7.√
10.0		2.8
4.0		7.√
1.0		2.4
√0 }		24
10 }		28
100		8.2
b	$23^h\ 39^m.7$	82
2.5		8.9
25		89
7.8		a $23^h\ 4√^m$
7.6		2.4
78		9.3

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1882phae.proj.1315w

Oct 28, 1882.

93	73
24	2.7
23	7.3
2.3	27
23	73
6.0	4.8
60	8.0
5.2	48
0.8	3.0
52	5.0
a 23h 47m.8	80
9.2	30
2.2	50
7.3	0.0
73	0
9.9	b 23h 54m.7
7.9	5.2
79	6.3
99	52
1.0	10.0
10	63
9.5	100
95	7.4
9.9	74
99	10.0
10.0	4.8
100	48
7.3	100
10.1	a 23h 56m.2
10.2	5.3

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1882phae.proj.1315W

Oct. 28, 1882.

√.9
√9
√3
√.6
√6
4.3
43
6.8
√.8 }
7.6 }
60
10.1
√5 }
70 }
101
9.2
10.2
4.5
9.9
44
99
4.3
43
2.0 }
4.5 }
20 }
45 }
7.5
75
0.7 dbl

7
a = 0h 2.4
b = 2.6

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1882phae.proj.1315w

Oct. 28, 1882.

Looked for θ Serpentis. Found a star in the region much like it, but closer and with a greater difference between components. 0 15 45 5 28 +3.8

18 47 +3.8

t = 0h 26m 25s.0
26 51.0 = 26.0

Stars going behind Steple.
27 51.0
30.2 = 25.2

28 1.1
25.4 = 24.3

It has another following about 25s same δ, DM. +3° 3825 & 3827; the first being Σ2413.

α Aquilae
0h 51m 20s.0 +9.0
19 47
19 44

U.A. α Aquilae 19 44 41 +8 32
θ Serp. 18 50 0 +4 2
4 30

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1882phae.proj.1315W

Oct 30, 1882

B + C 1182			B. 394		
3	15	45.2	15	16	44.5 .00
	16	45.2		17	00
					- 0.7

Disappearance of Jupiter I Compared with Satel. fol. Jupiter = II. P. obs. Cu. rec Comparisons by Phot. R.

3h	40m	10s	104.0
		25	199.3
		36	111.4
		49	200.8
	41	4	106.7
		25	192.8
		39	111.3
		55	202.7
	42	11	109.4
		31	193.8
		57	111.8
	43	12	200.4
		31	111.9
		44	199.6
		59	107.8
	44	14	202.4
		45	115.4
		56	203.4
	45	6	107.9

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1882phae.proj.1315w

Oct 30, 1882

3	45	22	200.4
		32	109.8
		44	200.4
		~~46~~	~~104.6~~
	47	17	116.4
		27	194.3
		37	112.8
		47	192.8
		58	112.3
	48	9	198.4
		23	109.0
		32	198.2
		44	111.3
		55	194.8
	49	6	111.6
		15	195.9
		24	116.6
		33	190.2
		44	119.8
		51	190.5
	50	2	118.6
		12	183.8
		20	122.6
		27	181.8
		36	124.8
		47	180.8
		56	128.6
	51	4	178.2
		12	127.8

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1882phae.proj.1315w

Oct. 30, 1882

3h	√1m	19s	176.2
		29	136.8
		36	171.8
		44	140.5
		√1	166.7

Limit of Visibility.

3h	√2	31	144.2
		41	166.1
		√2	141.6
	√3	1	167.2

Comet (Encke?) 1882
Comet 1st Star is S. 2d Star in N half of field

Pos. 0 = 288.2
4√
Set at 243.2

7h 3m 43s.2 = Diff = 16.4 { Comet in southern half of field
√9.6 =

7h 7 14.0 = 1st Star in Northern half
8 0,√ = 2 " 46.5 " " "
~~0√~~ 3 "

8 9.2 2 Diff = " 2.1 " Other half of eg.
11.3 1

1882phae.proj.1315w

Oct 30, 1882

2d Set

7h 8m 37.1 Comet dif = 16.2
√3.3

12 8.0 1st
dif = 46.2
12h √-4.2 2d

13 3.2 2d dif = 2.2
√.4 1st

3d Set

13 25.7
40.2 14.5

16 √√.3 1st 46.1
17 41.4 2d

17 √1.2 2d
√3.7 1st dif = 2.√

4th set

18 23.0 dif = 13.3
36.3

21 √2.6 1st
22 38.9 2d dif = 46.3

22 49.0 dif = 2.3
√1.3

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1882phae.proj.1315w

Oct 30, 1882

5th Set

23m 18.0 dif = 12.3

30.3

26m 47.4 1st

27 33.7 2 dif = 46.3

43.8 2 dif = 2.4

46.2 1st

Pos Ang of Nucleus about 100°

221.6

219.1

220.4

Pos. 0 = 198.3

Structure of nucleus as before but less distinctly marked.

B & C 1182

√	3	45.0
	4	45.0

B 394

17	4	00
	√	00

B 236

7h	47m	√6.0
	48	√6.1
	49	√6.1

B 394

17	10	00
	11	00
	12	00

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1882phae.proj.1315w

De 10374 De 10381

Results of Previous Observation

Time	ℓ − ℓ (south) Mean	Diff.	1st Star (northern) Mean	Diff.	2d Star (northern) Mean	Diff.
~~7 3 51.4~~						
	7 3 51.4	16.4	7 7 42.65	57.3	7 8 46.85	8.7
	8 45.2	16.2	12 36.70	57.4	12 58.70	9.0
	13 32.95	14.5	17 24.50	58.4	17 46.30	9.8
	18 29.65	13.3	22 21.95	58.7	22 43.95	10.1
	23 24.15	12.3	27 16.80	58.8	27 38.75	10.1
B. 236	7 13 26.67	14.54	7 17 28.52	58.12	7 17 50.51	9.54
Red. to M. T.	9 21 55.1	1.16256		1.76432		0.97455
C. M. T.	16 35 31.8					
$\delta = 19° 14' 19.3$		9.97482	− 19 13.7	9.97507	− 19 8.0	9.97532
$\frac{\delta}{2}$		0.87506		0.87506		0.87506
		2.01244		2.61445		1.82993
		− 102.9		+ 411.6		+ 67.6
Dist. fr. Centre		− 5′ 40.0		+ 0′ 33.3		+ 6′ 17.3

		1st Star			2d Star		
ℓ − X	Δα	− 3m 51.85	− 6′ 13.3		− 4m 13.84	− 11 57.3	
Corresp. Pos.	1882.0	10h 1 24.61	− 19 13 44.6		10h 1 46.63	− 19 8 1.3	
C. M. T.		h m s	° ′ ″		h m s	° ′ ″	
16h 35m 31.8s	(1882.0)	9 57 32.76	− 19 19 57.9		9 57 32.79	− 19 19 58.6	
	Red. to appt. Place	+ 2.72	− 9.4		+ 2.72	− 9.4	
~~Apparent Place~~		9 57 35.48	− 19 20 7.3		9 57 35.51	− 19 20 8.0	

Appt. Place Comet (not corr for refraction
Refraction insensible)

C. M. T.			
16h 35m 32s	9h 57m 35.49	− 19° 20′ 8.″7	
−12 12	Aberr. Time Longitude		
+ 4 44 31	Parallax	− 0.s21	+ 4.″9
21h 7m 51s	Red. to (1882.0)	− 3.17	+ 21.5
= Oct. 30.88845 Greenwich M. T.	9 57	32.11	− 19 19 42.3 Observed
Elliptic elements give	9 57	33.23	− 19 19 25.2
O − C		− 1.s12	− 17.″1

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1882phae.proj.1315w

Oct 30.

Corr for refraction

α 9 56

θ 7 13

$t = \begin{cases} -2\ 44.6 \\ = -41^\circ\ 10' \end{cases}$

$\delta = -19^\circ\ 14'$

cot q	0.0398	sin N	9 8037
cos t	9 8767	tan t	n 9.9417
tan N	9 9165		n 9.7454
N	39 31		
$\delta + N$	20 17	sec(δ+N)	9 5399
		tan ζ sin q	0 2055
tan ζ	0.4978	tan ζ cos q	0.4323
$\tan^2 \zeta$	0 9956	tan q	9.7732
ζ	72° 22'.2	q	30 407
sin 2q	9.9433	sin q	9.7077
cos 2q	9.6806	cos q	~~9.9345~~
		tan ζ	9.4154
log K	6.4284		
+ $K \tan^2 \zeta$	7.4240		
sec δ	0.0250		
sin 2q	9 9433		
$-\frac{1}{2}$ q	n 2.6485		
	n 6.4692		
	−0.0003		

Refraction discussible

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1882phae.proj.1315w

Oct 31, 1882.

B. + C. 1182		B 394	
3 56	42.6	15 57	00
57	42.6	58	00

Dis. of Jupiter III
Photometer H. S. obs. Curve.
Compared with Sat. II.
Settings through clouds, uncertain.

4h	27	51	269 v
	28	8	360.0
		v6	286 v
	29	24	360.0 —
		37.5	269.0
	30	6	354.0
		27	277.0
		42	354.0 ———
		v7	273.2
	31	7	356 v
		19	280 v
		v0	354.0 m
	32	4	287.0
		19	351.0
		32	285 v v
		49	349 v m
	33	2	284 2
		19	341.2 < clouds

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1882phae.proj.1315w

Oct. 31, 1882.

B+C 1182

4 K 48 42.6

49 42.6

B 39K

16 h 49 44.5

v=0 0.0

+1.9

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1882phae.proj.1315w

Nov. 1, 1882.

B. & C. 1182 — B 394

9 v0 41.0 — 9 v1.0 (44.5)

v1 41.0 — 9 v2 0 (+3.5)

Disappearance of Jupiter I

Photometer R. Sobs. Reads. Curec.

Compared with Jupiter III.

Frequent clouds sometimes making an evident change in the relative light of different satellites.

10h	9m	39	88.2
		v-2	192.8 < cloudy
	to	12	90.9
		22	190.3 —
		31	99.3
		42	190.4
		v8	99.3
	12	34	186.3 —
	13	v	90.8
		16	192.2
		26	97.0
		32	188.3 —
		39	104.4
		45	185.1 < clouds
	14	15	95.8
		22	192.6 —
		38	92.2
	15	v1	194.6
		v9	99.4
	16	19	192.2 —

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1882phae.proj.1315w

Nov. 1, 1882.

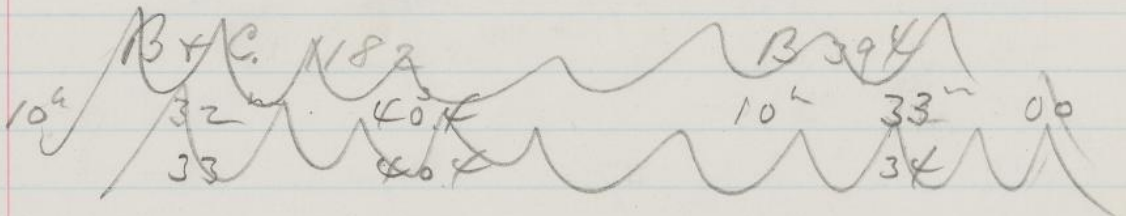
16	24	104 2
	30	193 6
34	37	99.8
	43	194.3
	48	98.2
	56	193.6
17	9	104.8
	~~14~~	~~178.4~~
	25	189.1
	32	102.7
	40	187.3
	46	108.6
	52	185.6
	56	105.3
18	3	183.8
	9	113.0
	15	184.2
	19	107.0
	25	187.4
	31	109.5
	36	187.4
	43	106.3
	49	184.4
	55	110.2
19	1	183.2
	20	110.1
	26	174.8
	31	120.9
	36	177.9

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1882phae.proj.1315w

Nov. 1, 1882.

19	42	115.4
	48	172.9
	55	128.1
20	2	166.8
	7	Susp
20	45	118.4 Limit of vis. Cloudy
~~22~~	~~3~~	~~113~~
22	53	177.6
23	6	120.5
	35	165.6



B.+C. 1182

10	36	40.7
	37	40.7

B 394

10	37	44.5 00
	38	00

+ 3.8

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1882phae.proj.1315w

Nov. 2, 1882.

Dist of Decl. lines by transits of an Equatorial Star.

23^h	27^m	59.0	dis.
	26	0.3	rev.
			21.5
	26	21.8	
		20.2	
			21.8
	26	45.0	4) 21.7
		46.1	5.4
	27	6.0	
		7.3	
			21.7
	27	29.0	
		30.2	
			21.8
	27.	52.0	
		53.2	
0^h	6	28.7	
	7	5.4	
		26.0	

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1882phae.proj.1315w

Nov. 2, 1882.

$0^h\ 40^m$ = 1 minute before first star

7.5	b $0^h\ 46.^m3$	2.5	7.6
1.0	2.8	25	2.5
7.8	4.0	5.2	0.0
10	40	52	25
70	8.5	7.0	80
78	30	2.5	0
9.5	85	70	7.4 dbl
7.3	8.6	25	74
2.0	2.3	8.0	3.0
95	2.2	80	30
73	86	10.0	4.5
20	23	100	39
4.6	22	0.8	45
2.8	5.2	10.2	39
28	52	8	7.8
46	0.2	4.8	4.7
5.2	2.5	2.4	78
4.5	25	42	47
2.3	5.4	28	8.8
52	54	a 0^h 55.7	9.5
45	2.2	3.5	88
23	22	9.8	95
9.6	3.0	35	b 1^h 1.9
4.7	30	7.3	4.9
2.3	2.4	90	10.0
95	3.2	70	2.6
47	24	5.0	49
23	32	5.0	26

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1882phot.proj.1315W

Nov 2, 1882

4.8	4.5	7.5	9.8
4.5	7.8	7.0 }	0.3
6.0	0.0	8.5 }	
4.5 }	5.2	7.5	Ended 1h 19.8
4.8 }	9.8	7.0	
5.8	5.2	8.5	
2.4	8	10.0	
5.8 .	4.8	100	
2.5	3.5	5.0	
0.1	5.1	10.0	
7.6	5.0	5.0	
1	10.2	0.2	
7.6	5.5	4.9	
10.0	2.0	2	
100	20	5.0	
10.2	5.5	2.7	
9.5	9.5	5.0 }	
10.2	4.5	2.7 }	
9.5	4.5	3.5	
5.1	5.5	3.5	
5.1	7.5	8.0	
a 1h 6.7	5.1	8.0	
10.2	5.1	2.5 dbl	
0.6	6.0	0.0	
6	7.0	2.5	
7.6	6.0	0	
10.3	7.0	0.2	
10.4	6.5	0.3	
7.6	6.5	2	
4.5	5.0	3	
7.8	5.0	9.8	

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