1885phae.proj.12215

KG
11366
v.319

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1885phat..proj..132S

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1885phae.proj.1321S

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1885phae.proj,1321S

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1885pnae.proj.13215

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1885phae.proj.1321S

Dec. 16, 1885

Gore's new star. S. obs.

There is a DM. star at about
5 46.5 +19°.7

This is DM. +19° 1126

Preceding this about 8' (of arc)
and 31' north is a bright object.
This is DM. +20° 1162

DM. +20° 1172 follows this 1m 27s,
9' south,

8 00. Used wide field glass
6 20 Nova 12th brighter H.P. 1081 - 6.1 - 1 = 6.0
" 3 faintest H.P. 1090 58 + 3 = 5.9

Spectrum easily located as soon as P. obs
makes spectroscope without moving eyepiece.

Nova is 6' east of DM 20° 1162 foll. 1m 25s

Bar micrometer

	6,4	3,5	6,1
	35,6	45,4	30,5
	83,2	92,8	78,0
16 40	101,0	126.4	95,8
	116,5		115,9
	129,1		128.8
	217,5	29,2	24.4
	42.0	15,5	20,1
	175,5	44,7	44,5
			271,7
			36,6
			175,1

212,3	219,2	206,8
42.0	48,9	36,6
170.3	170.3	170,2
29,2	41,9	24,4
45.9	33,6	50,8
75,1	75,5	75,2
357,1	354,3	356,5

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1885phae.proj.1321S

Dec. 16, 1885

Chron. B. 236.

0	44	4.0	DM. +20° 1162 (north half)
		22.6	— " —
	45	10.2	New star, (south half)
		27.9	DM +20° 1172? (south half)
		54.0	— " —
	46	6.8	New star

201.9	283.5
26.6	108.1
175.3	175.4

0	46	40.0	Same as above.
	47	8.1	The first and third
		55.9	transits at foot of p. 1
	48	13.5	are also in same order.
		30.0	The second transit omits
		42.6	DM. +20° 1172?

572.5				
571.8	175.5	48.6	28.1	1.648336
571.1	175.1	26.1	16.5	1.148447
571.0	175.3	44.7	44.6	2.796783
65	175.4		88.7	1.649733
571.62	13	626.37	313.18	2.797780
87.66	175.32	627.77	313.88	1.650311
		629.19	314.60	2.798778

197.0	278.5
26.6	108.1
170.4	170.4

170.3	18.6	28.1	75.1	1.875564
170.3	56.6	46.7	1057.1	1.148417
170.2	75.2	74.8	1062.7	3.024111
170.4	356.5	359.5	885.7 | 528.6	
170.4			75.2	1.876224
16	357.1			1.148417
170.32	354.3		1058.5	3.024649
85.16	356.5		529.2	
	356.5		75.5	1.877955
	359.5			1.148417
	339		1062.7	3.026472
	356.78		531.4	

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1885phae.proj.13215

Dec. 16, 1885.

Wedge Photometer S. [illegible]

7 10		D.M. +19° 1126	52.9	8.8	8.9	14.7		"b"
8.7	105.0							
8.6	[51.4]	New star	51.0	8.8			6.0	
7.8	93.9	Star fr. 1162 about 1m (D.M. +20° 1156)	47.5	7.9	6.6	14.5		"d"
		New star	52.0	8.6			8.9	
6.9	82.9	Star 9' south of 1126	41.9	7.0	—			
		New star	51.8	8.6			8.9	
3.8	45.9	Small star 4s foll. new star	21.2	3.5				
		New star	51.8	8.6			8.9	
5.7		D.M. +20° 1172?	34.5	8.7	8.9	14.6		"f"
		New star	49.9	8.3			6.2	
		Small star 4s foll. new star	24.7	4.1				
		New star	52.0	8.6			8.9	
		Star 9' south of 1126	41.0	6.8	—			
		New star	50.3	8.3			6.2	
		Star fr. 1162 about 1m (D.M. +20° 1156)	46.4	7.7	6.6	14.3		"d"
		New star	52.0	8.6			8.9	
		D.M. +19° 1126	52.1	8.6	8.9	14.5		
						14.5	6.0	

7 37 By estimate with finder

D.M. +19° 1126 2 new star

New star 2 Star fr. 1162 about 1m.

Stopwatch runs to 61s.0 while B. 236 runs 60s.0

Subtract 1s.0 from stopwatch readings.

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1885phae.proj.1321S

Dec. 16. 1885.

Transits of New Star and Fr. obs.
5th mag.

Pos. Zero,
129.4
4.5
Set at 174.4

2h	4	16.5	5th mag.
		51.7	"
	5	39.2	New Star.
	6	19.0	"
	7	10.4	
		4.6	
	8	33.4	
	9	13.0	
	10	13.7	
		49.1	
	11	36.4	
	12	16.0	
	13	11.9	
		47.1	
	14	34.6	
	15	14.2	

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1885phae.proj.1321S

Dec. 16. 1885.

2 16 11.8
K7.2
17 34.6
18 14.0

19 8.3
4K.0
20 31.K
21 11.1

~~Order 5~~ Order in all the sets same as in the first.

5th " my. in northern and new slit in southern half.

133.2
90.
43.2

	52.5	8.7	H.P. 10.81	6.1	14.8		52.7	8.7	1081	6.1	14.8	
	53.5	8.9	N.S.				51.8	8.6	N.S.			
	54.8	9.1	H.P. 1090	5.8	14.9		53.9	8.9	1090	5.8	14.7	
E. J.	51.5	8.5	N.S.	5.9	14.0		53.4	8.9	N.S.	5.9	14.8	
90	52.3	8.7	1081	6.1	14.8							14.9
	54.7	9.1	N.S.									14.8
	55.1	9.1	1090	5.8	14.9		6.0					
	53.0	8.8	N.S.	5.9	14.0		6.4		N.S.	53.0	8.8	
							5.8					
							6.1		H.P. 1081	52.5	8.8	
							6.3					
							6.0		" " 1090	54.6	9.1	
							6.1					

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1885phae.proj.1321S

Dec. 16. 14h.

9 15 Nova 0.5 H.P. 1041.
E.T. H.P. 1090. 2.5 Nova.

Result of observations for Place
DM. +20° 1172 follows DM. +20° 1162 87.66, south 571.62
New star follows DM. +20° 1162 (A.S.) 85.16, south 356.78
——— " ——— (C.C.W.) 84.97, south 356.05

Hence by Observations of A.S.
New star prec. DM. +20° 1172 2.50, north 214.84

DM. +20° 1172 occurs in Rümker page 46
Place for 1836 5h 46m 7.81 +20° 4' 46.3
25 90.97 27.8
1861 5 47 38.8 20 5 14.1
Prec. 1 year 3.536 1.13
50 years 177.8 56.5
Place for 1886 5 49 5.6 20 5 41.8
New star 5 49 3.1 20 9 16.6

10 35 Spectrum looked probably type III.

13 20 Nova 4 d c 2 Nova P. obs.

13 24 c 2.5 Nova. Yr. obs.

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1885phae.proj,1321S

Dec. 16. 1885.

Dis. Sup. II. P. obs.
Plat. Sat. Comp. with Sat. preceding.
Comp. with Sat. I.

13	K7	17.V	9.2
		30.V	9V.K
		K2.V	6.3
		VK.0	93.6
	42	6.0	2.6
		14.V	90.K
		30.V	12.K
		KK.V	9K.2
		VK.0	12.3
	49	6.0	90.3
		17.0	13.0
		30.V	22.6
		K3.0	13.6
		V3.0	90.6
	V0	V.0	12.2
		17.0	93.6
		K3.0	9.6
		VK.V	22.K
	V1	5.V	9.6
		13.0	91.3
		22.0	12.6
		3V.0	93.2
		K6.0	7.6
		V9.V	90.9
	V2	15.0	2.7

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1885phae.proj.1321S

Dec. 16. 1885.

10	22	26.5	93.5
		22.5	10.1
		25.0	93.6
	23	6.5	4.0
		17.5	92.4
		30.0	12.6
		44.0	96.3
		55.5	13.6
	24	7.0	92.5
		20.0	10.6
		34.0	99.2
		51.0	10.3
	25	4.0	95.2
		19.0	11.0
		31.0	96.4
		44.0	9.4
		53.0	95.3
	26	3.0	6.0
		15.5	93.4
		24.0	6.4
		41.5	96.2
		55.0	9.6
	27	10.5	94.3
		24.0	4.7
		35.0	97.3
		45.5	4.3
		55.0	91.2
	28	5.5	16.3

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1885phae.proj.1321S

Dec. 16. 1885.

13	V	16.0	92.0
		26.0	17.7
		36.V	46.4
		47.0	19.4
		V6.0	42.6
	V	9 4.0	26.4
		17.0	79.3
		32.V	22.4
		46.0	72.1
14	0	7.V	Suspected.

Limit of Vis.

14	0	3 V.	32.1
		47.0	41.6
		V9.0	34.2
	1	17.V	71.4

Jupiter seen through thin clouds which rendered the satellites faint.

14	10	Nova Orionis 2 fter than c	6 hrs.
14	10	Nova Orionis 2 brighter than d	4 hrs.
		" 3 fainter than c	4 hrs.

B. + C. 1142. B. 394.

14	12	42.7	14	16	0.0
	13	42.7		17	0.0

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1885phae.proj.1321S

Dec 17, 1885

5 40 Rho Orionis at transit the same brightness as last night but 2 more. Field Glass. Obs

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1885phae.proj.1321S

Dec 19. 1885.

5 47 Nova Cygni very faint = F. Sun nearly of
brightness of Nova. b 2 Nova. as before Obs

Nova Cygni W. obs.

V	44	+19.4	b
1	31		a
-4	13		

7 32 b 2.V Nova. in finder. W. obs.
Became cloudy.

8 50 Still cloudy. Closed dome. W.

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1885phae.proj.1321S

Dec. 20. 1885.

9 45. Nova Orionis Nova 3 c b 1 Nova although Nova is near meridian. F. ½ – Obs. as 5 40 Nova and b seen with difficulty a second of Nova but b 1 Nova. Obs

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1885phae.proj.1321S

Dec. 24. 1885

5 10 Nova Orionis Nova = c 1.5 Obs.

Also seen Dec 21st 22 at 11h 10m, and Dec 23 at 5 40 nearly same brightness as on Dec 20.

~~0 0~~

Barnard's Comet. W. Obs.

4 30 +6.9
2 31
---
2 0

4 30
2 42

-1 48

2 ~~r~~ 4
4 30

-1 36
12

24
10

-1 14

Came up cloudy.

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1885phae.proj.1321S

Dec. 24. 1885.

New star. Fr. obs.

5 46 + 1.9.8
3 40
— 2 6

	6.6	Nova	49.2	8.2	
14.6		1081	51.2	8.5	6.1
	6.5	Nova	50.1	8.3	
14.6		1090	52.5	8.7	8.9
	6.2	Nova	51.7	8.6	
14.9		1081	53.1	8.8	6.1
	6.7	Nova	49.0	8.1	
14.9		1090	54.0	9.0	8.9
	6.2	Nova	51.7	8.6	
15.1		1081	54.0	9.0	6.1
	6.1	Nova	52.2	8.7	
15.0		1090	55.1	9.1	8.9
14.8	6.4				

These readings all taken through ~~thin~~ moderately thin but varying cirrus clouds.

Nova	50.6	8.4
1090	52.9	9.0
1081	52.8	8.8

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1885phae.proj.1321S

Dec. 27, 1885.

7 45 Nova Orionis seen for an instant through clouds. Apparently nearly half a magnitude fainter than before. Sat. observ. uncertain.

A very curious red streamer like that of an aurora seen to east, doubtless caused by reflection from a fire in Charleston. Altitude about 20°
4° ± vertically 0.5 horiz.
color reddish, like flame below.
Similar streamers seen from electric lights in Boston but much broader.

8 40 Clear. c 2 Nova Pds . a + . d
Nova 1 e 40 . c
8 45 c 1 Nova . e

B & C 1182 B 394
13 25 10.1 13 29 0.0
26 10.1 30 0.0

14 2 21
8 12
14 10 33
3 50
14 6 43

13 48 Nova Orionis = e Nova 2 d

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1885phae.proj.1321S

Dec 27, 1885

Obs Distance of Satellite I S. chs Rose
Asst R. Cortlandt Sat. III

13	54	4.0	125.9		
		18.5	193.5		
		46.5	122.3		
	55	9.0	190.0	— 1	
		22.0	124.2		
		41.0	194.8	70.6	
		56.0	126.0	67.8	
				69.2	
	56	39.5	193.8	— 2	
		~~51.5~~	~~114.3~~	night	mean edge failed
	57	20.0	121.2		
		34.5	190.6	69.4	
		46.0	127.7	67.0	
				68.2	
	58	7.0	194.7	— 3	
		20.5	130.2		
		34.5	191.1	60.9	
		48.0	129.4	64.8	
				62.8	
		59.0	194.2	— 4	161.2
	59	8.5	129.0		
		21.0	196.8		
		34.5	123.7		
		49.0	195.3	— 5	
14	0	0.5	127.7		
		11.0	193.0		
		44.0	126.2		
		58.5	192.0	— 6	

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1885phae.proj.1321S

Dec 27. 1885.

14	1	19.0	130.5
		33.0	194.0
		42.5	130.2
		52.5	191.8 — 7
	2	5.5	130.3
		15.0	189.0
		25.0	130.0
		32.5	191.3 — 8
		42.0	127.9
		53.0	190.8
	3	4.5	132.5
		14.5	193.0
		24.0	130.1
		33.5	190.4
		44.0	133.8
		57.5	190.7 — 6
	4	0.0	132.2
		6.5	190.0
		16.5	132.2
		25.0	188.9
		34.0	128.0
		41.0	190.3
		48.5	129.6
		57.5	186.0
	5	6.5	132.8
		11.5	191.0
		17.5	135.0
		24.0	188.0

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1885phae.proj.1321S

Dec. 27, 1885

5	31.5	136.0
	39.0	187.2
	46.0	134.5
	53.0	186.0
6	00	136.0
	55	183.9
	12.0	139.2
	18.0	181.1
	24.0	143.1
	31.0	180.0
	37.0	145.0
	42.0	177.0
	57.0	146.9

mit dem Leitstern

dann mit

7	20.0	144.0
	28.0	177.1
	37.0	149.2
	46.0	180.3

B.B.C. 1182

14	15	9.1
	16	9.1

B 394

14	19	0.0
	20	9.0

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1885phae.proj.1321S

Dec. 24. 1884 V.

Brooks's New Comet. = 1884 V. Gr. obs.

20° 0 +V"±

0 0

~~+4~~ 0

Zero 5 49.1

~~Sidat 14.1~~

R = 4.4341 = 7.0 K

B = 4.4332 = 9.5 B

C = 4.4329 = 9.2 K

3' in diameter

nucleus 9.5 a little eccentric

preceding

whole light of comet about 9 mag.

Observ on next page

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1885phae.proj.1321S

Dec 28. 1885.

Comp with a

c south				a south			
0	44	10.7	0 44 55.7	0	45	42.0	0 45 54.3
	47	3.2	47 49.2		48	34.5	48 47.6
~~47~~	~~10.0~~		~~47 59.4~~				
~~50~~	~~50.5~~		~~51 37.6~~				
	51	59.9	52 47.2		53	30.3	53 43.8

Comp with C

	t_1 c south	t_2	t_0	t_1 C south	t_2	t_3
0	57 26.2	0 58 9.3	0 56 18.0	0 56 24.8	0 57 17.5	0 59 4.3
Standard Time →	59 45.5	1 0 29.7	58 37.9	58 44.5	59 37.6	59 43.5
1	1 52.8	2 39.3	1 0 45.6	1 0 52.0	1 1 45.4	1 51.0

Comp with b

c south				b south			
1	3	56.6	1 4 30.8	1	3	27.5	1 3 45.7
	5	16.8	5 52.0		4	47.0	5 9.0
6 Standard Time →	6	37.3	7 13.0		6	7.3	6 30.2

c north				b north			
1	9	16.2	1 9 36.2	1	8	32.9	1 9 6.5
	10	38.3	10 57.2		9	54.5	10 26.8
	11	57.2	12 15.4		11	13.0	11 44.8

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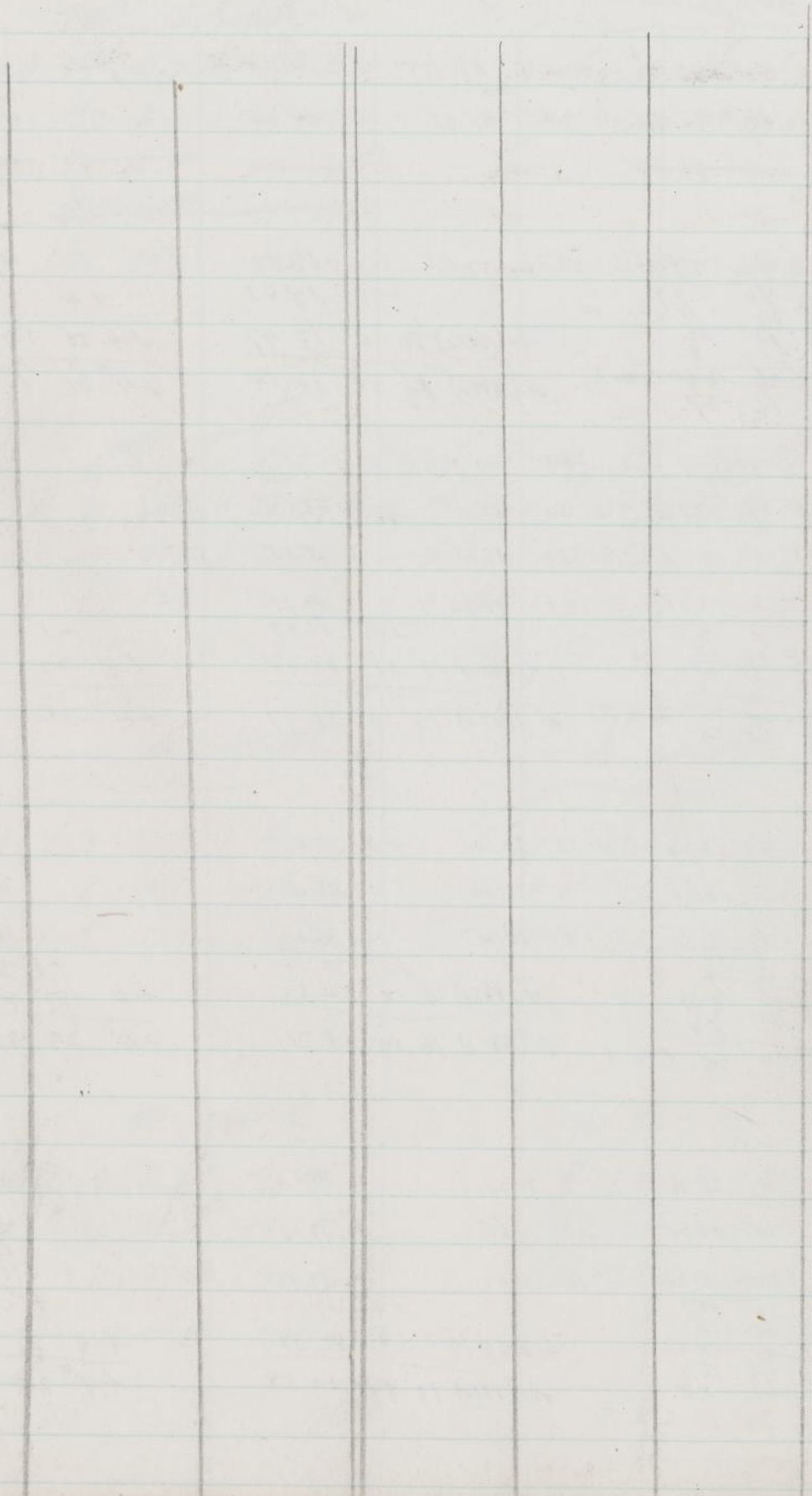
1885phae.proj.1321S

Dec. 22. 1885.

			×		$\alpha' - \alpha$						
	0 44	33.20	0 45	48.15	−1	14.95		45.0	12.3	32.7	
	46	26.20	48	41 05		14.85		46.0	13.1	32.9	
	~~46~~	~~28.80~~						~~46.2~~			
	~~51~~										
	52	23.55	53	37 05		13.50		47.3	13.5	33.9	
					−1	14.43		+4′ 8.″0		33.17	
24 23	0 ~~48~~	7.7								1.52075	
	18 29	15 −1								0.87506	
	6 ~~18~~ −1	52	(×(1885.0)	20 0	12	97		+4 26	53.2	4 29	9.99887
	~~6 26~~	~~37.7~~									2.39488
Dec 28	6 16	37. C.M.T.	∈(1885.0)	~~19~~ 58	58	58.54		+4° 31′	1.″2		2480
	0 57	47.75	0 56	51.15	+0	56.60		43.1	52.7	9.6	
	1 0	7.60	59	11.05		56.55		44.2	53.1	8.9	
	2	16.05	1	18.70		57.35		46.5	53.4	6.9	
					+0	56.83		−1′ 3.″3		8.47	
10.4	1 0	3.4								0.92785	
	18 29	15								0.87506	
	6 30	48.4	(×(1885.0)	19 58	25	94		+4 29	45.8	9.99862	
	~~6 29~~	~~44~~								1.80156	
Dec 28	6 28	29 C.M.T.	∈(1885.0)	19 59	22	77		+4 28	42.5	63.3	
	1 4	13.70	1 3	38.10	+0	35.60		34.2	21.2	13.0	
	5	34.40	4	58.00		36.40		35.2	22.0	13.2	
	6	55.15	6	18.75		36.40		35.7	22.9	12.8	
					+0	36.13		+1′ 37.″2		13.00	
16 42.2	1 5	34.4								1.11394	
	18 29	15								0.87506	
	6 36	19.4	(×(1885.0)	19 58	52	58		+4 27	48.1	9.99862	
	6 35	3.6								1.98762	
		4.8								97.2	
	6 33	59. C.M.T.	∈(1885.0)	19 59	28	71		+4′ 29″	25.3		
	1 9	26.20	1 8	49.70	0	36.50		20.0	33.6	13.6	
	10	47.75	10	10.65		37.10		18.9	32.3	13.4	
m 20.2	12	6.30	11	28.90		37.40		18.2	31.8	13.6	
					+0	37.00		+1′ 41.″1		1353	
	1 10	46.2								1.13138	
	18 29	15								0.87506	
	~~6 41~~	~~31.7~~	(×(1885.0)	19 58	52	58		+4 27	48.1	9.99862	
	6 40	16.7								2.00498	
		5.5	∈(1885.0)	19 59	29	58		+4° 29′	29.″2	101.1	
	6 39	11. C.M.T.									

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Dec 28, 1885

7 50 Nova 3 d c 1 Nova. 8 ds.

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Dec. 29, 1885

Comet Brooks C.obs.

Comparison star $\delta = 2^m 5^s.4$ 4/25

Comet, Comet, Star, Star.

Comet south, star north

1	10	43.0
		53.4
	11	46.1
	12	2.2
1	92	19.3
		33.4
	13	22.4
		38.9
1	13	53.1
	14	7.0
		56.7
	15	12.3

Comparison star $\delta = 2^m 5^s.44$ 24

Comet, Comet Star Star

Comet south star north outside

1	15	38.8
		55.1
	16	4.2
		14.2
1	16	34.0
		49.0
		58.0
	17	9.0

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Dec. 29, 1885

1 17 22.1
39.0
47.3
58.2

Comparison star f = 9m.4°.4385
Comet, comet, star, star, star, star.
Both north

1 19 44.0
20 23.0
24 10.3
17.6
25 9.8
17.1

1 25 52.1
26 29.0
30 15.3
25.0
31 15.0
24.6

1 31 47.6
32 21.2
36 6.2
19.4
37 6.6
18.9

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1885phae.proj.1321S

Dec 29. 1885

For 1327 B 236

Com 1 43 10.0 = 1 42 8.0
− 2 3.0 1 40 57
1 40 57.0 B 236 fast − 1 11.−

11 25 Gore's star near DM. +20° 1172
8. obs.

By estimate with finder
DM. +19° 1126 4 new stars
H. P. star fr. DM +19° 1126 1 new star
New star 2 star fr 1162 about 1m
See p. 3

Transits with wedge of same objects and in same order as on p. 3.

11 32 +19° 1126	53.9		8.9	7.9	14.8	106.8	8.9
	49.3	New star	8.2	6.7		[49.8]	8.3
+20 1156	49.9		8.3	6.6	14.9	100.7	8.4
	48.0	New star	8.0	6.9			
9' south of 1156	43.1		7.2	—		85.9	7.1
	48.2	New star	8.0	6.9			
4's. foll. Nova.	25.0		4.2	—		51.0	4.2
	50.8	New star	8.4	6.5		Mean mag Nova = 6.6	
+20 1172 (1')	36.0		6.0	8.9	14.9		6.0
	53.0	New star	8.8	6.1			
4's f Nova	26.0		4.3	—			
	50.3	New star	8.3	6.6			
9' south of 1126	42.8		7.1	7.1			
	47.0	New star	7.8				
+20 1156	56.8		8.4	6.6	15.0		
	52.0	New star	8.6	6.3			
12 5 +19 1126	52.9		8.8	7.9	14.7		

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1885phae.proj.1321S

Dec. 30. 1885.

Brooks Comet. Tr. Obs.

5

Zone 60.0

15 .0

g = 5m 5.°4440.

h = 5m 5. 4457

Obs on next page

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1885phae.proj.1321S

Dec 30, 1885.

Comp with h = 5.4457

	South			North		
	t_1	t_2	t_0	t_1	t_2	t_3
	0 44 30.6	0 44 53.5	0 46 21.5	0 46 34.7	0 47 20.5	0 47 34.3
	47 51.3	48 15.2	49 42.2	49 55.6	50 41.2	50 55.0
	51 59.5	52 25.1	53 50.5	54 4.5	54 49.2	55 4.0
Mean of times	= 0 48 19.2					

h north

"	0 56 24.0 ~~56 55~~	17.5		0 59 1.4	0 59 7.2	
	59 21.5	1 0 13.5		1 1 58.5	1 2 3.7	
	1 2 20.5	1 3 12.0		4 57.0	5 1.5	
	5 40.7	6 33.4		8 16.5	8 22.2	
	9 50.0	10 40.7		12 24.2	12 29.7	
	12 46.5	13 36.8		15 20.5	15 25.5	
Mean of times	1 4 49.0					

Comp with g = Dm 5.4440

g south

	1 19 33.6	1 17 45.1		1 16 24.4	1 16 34.3	
	19 9.0	19 21.2		18 0.0	18 9.7	
	20 45.0	20 57.6		19 36.4	19 45.4	
	22 22.0	22 36.5		21 14.0	21 22.5	
Mean of times	1 20 3.4 ✓					

Transits for Zero

g south

1 23 6.8	1 23 16.1		1 24 7.0	1 24 14.5		
24 26.0	24 34.1		25 25.3	25 33.0		
26 19.5	26 27.4		27 19.4	27 26.3		

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1885phae.proj.1321S

Dec. 30, 1885

	$\frac{t_1+t_2}{2}$	$\alpha'-\alpha$	$\frac{t_0+t_3}{2}$				
0 44 42.05	0 46 57.60	−2 15.55	0 46 57.9	+0.30	22.9	45.8	68.7
48 3.25	50 18.40	15.15	50 18.60	0.20	23.9	45.6	69.5
52 12.30	54 26.85	14.55	54 27.25	0.40	25.6	44.7	70.3
24 57 6 0 48 19.2		−2 15.08		+0.30	24.07	45.33	69.40

corr for β' + .07

0 58 50.75	0 59 4.30	−2 13.55		53.5	5.8	47.7
0 59 47.50	1 1 1.10	13.60		52.0	5.2	46.8
1 2 46.25	4 57.25	13.00		51.5	4.5	47.0
6 7.05	8 19.35	12.30		52.7	5.7	47.0
10 15.35	12 26.95	11.60		50.7	5.5	45.2
13 11.65	15 23.00	11.35		50.3	5.0	45.3
28 58.55 1 4 49.7		−2 12.57				46.50

corr for β' − .33

Mean Θ	Mean $*$	$(\Theta - *)$ $\alpha - \alpha$	$\Delta\Theta$	$\Delta *$	$\Delta\delta$ corr.
1 17 39.35	1 16 29.35	+1 10.00	11.5	9.9	21.4
19 15.10	18 4.85	10.25	12.2	9.7	21.9
20 51.30	19 40.90	10.40	12.6	9.0	21.6
22 29.25	21 18.25	11.00	14.5	8.5	23.0
	corr for β'	+1 10.41 − 0.27			21.97

$\frac{t_2+t_1}{2}$ $\frac{t_3+t_0}{2}$

23 41.55	40.65	−0.91
24 59.70	59.50	−0.20
26 53.40	52.90	−0.50
		−(−0.55)

21.93 = 1.3410 4
7.5 = 0.8756
cos.δ = 9.9802n
163.7 = 2.2142
866.0
7 23.3 = 12′ 2.″0

Mean + 0.42 ... 9.622.
8.227
7.850

$\frac{\text{Sun}}{g}$ $\phi \sin 1''$

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1885phae.proj.1321S

Dec. 30. 1885

236. 1327.

1 34 3,0 1 37 0,0

37 3,0 36 0,0 ✓

∴ B 236 cō = 1^{m} 5.98 G.T. part of true time.

Stars near nebula of Andromeda

Wedge photometer S. & B.

Decl. employed in reductions is that of the nebula G.C. 116 for 1886, corresponding to 1843
+40° 38,8 log cos δ 9.8801 + log p 0.177 9.2480 = 9.1281 Mer. Phot. Const. 14.9

10	15		a (Pickering)	55.9	56.0	DM. +40°167	7.47	7.51	7.52	15.0	7.4
7.5	~~15.1~~	111.9	b (")	53.7	52.3	DM. +40° 165	7.97	7.21	7.02	15.1	7.8
4.6		68.4	g (Parkhurst)	34.7	33.7	DM. +40° 159		4.66	4.53		10.3
5.9		87.4	f (")	43.4	44.0	DM. +40° 156		5.83	5.91		9.0
5.2		77.1	b (")	38.1	39.0	DM. +40° 154		5.12	5.24		9.7
7.2	~~14.5~~	106.3	d (")	55.0	51.3	DM. +40° 158	7.57	7.39	6.89	14.7	7.8
7.3	~~14.6~~	107.0	c (")	55.0	52.0	DM. +39° 167	7.57	7.39	6.98	14.8	7.7
6.4	~~12.8~~	94.0	e (")	47.2	46.8	DM. +39° 166	8.74	6.34	6.28	15.0	8.6
8.1		119.5	a (")	60.2	59.3	DM. +39° 158	7.02	8.08	7.96	15.0	6.9
4.6		68.2	x (")	33.5	34.7	DM. +40° 150		4.50	4.66		10.3
5.7	~~14.3~~	84.0	w (")	41.0	43.0	DM. +40° 149	9.12	5.51	5.78	14.8	9.3
2.0		29.6	h (Searle)	15.8	13.8	= g (Parkhurst)					
4.5		67.4	y (Parkhurst)	34.8	32.6	DM. +40° 144		2.12	1.85	took 40, p. 137	12.9
								4.67	4.38		10.4
5.1		76.3	z (")	37.9	38.4	DM. +40° 143		5.09	5.16		9.8
3.06	3.50	11.6	48.9	f 3.3 (")	22.8	26.1	prec. DM. +40° 154	6^{s}, 0.2 north. See p. 35				
2.32	2.52	12.5	36.1	n 2.4 (")	17.3	18.6	— " —	13, 1.2 South. — " —				
3.91	3.59	11.1	53.8	i 3.7 (")	29.1	26.7	— " —	17, 3.2 South. — " —				
3.02	2.95	11.9	44.5	m 3.0 (")	22.5	22.0	— " —	38, 1.0 north. — " —				
3.10	3.36	11.7	48.1	h 3.2 (")	23.1	25.0	— " —	57, 5.8 north. — " —				
4.06	4.00	10.9	60.0	k 4.0 (")	30.2	29.8	— " —	67, 3.5 north. — " —				
1.88	1.92	13.0	28.3	m 1.9 (")	14.0	14.3	— " —	90, 2.8 South. — " —				
11	18											

10^{s} preceding the new star, 0.2 south. See

New star and nucleus of nebula not visible

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1885phae.proj.1321S

Jan. 1. 1886.

Brooks Comet.

Gr. obs.

20 16 +6.7 (7.1 alter)

0 20

+4 4

4 17 7.2

0 26

20 9

Zero 8.7

45

53.7

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1885phae.proj.1321S

Diam 1

BB. VI

δ north | ζ = Dm. 6°.4493, sonA

1	1	48.5	1 2 7.5	0	59	16.2	0 59 38.5
	5	14.7	5 82.7	1	2	41.0	1 3 3.6
	8	31.0	8 47.0		5	55.7	6 18.8
	12	18.5	12 39.3		9	42.0	10 5.5
	15	42.7	15 56.2		13	4.0	13 28.7

x Star for zero (north)

1	7	5 ~~15.8~~ 25.5	1 8 8.3	1	8	51.3	1 9 8.5
		~~H 38.5~~	~~H 55.1~~				
1	15	~~13 28.7~~ 0.5	15 18.2	1	15	59.8	1 16 18.0

y north South

1	20	39.2	1 20 51.0	1	21	39.3	1 21 50.0
	25	23.0	25 36.5		26	23.5	26 35.0

6.4515

δ South | Z (South) = Dm ~~6.4515~~

1	19	20.7	1 20 12.5	1	23	15.3	1 23 24.7
	24	6.2	24 58.2		28	0.4	1 28 8.7

δ north | t_0 | t_1 South t_2 | t_3

1	29	~~59~~ 9.0	1 30 27.5	1	33	9.0	1 33 22.6	1 34	9.1	1 34 21.3
	34	41.2	35 7.3		37	49.2	38 1.4	38	50.0	39 8.3
	39	20.8	39 43.2		42	27.2	42 37.5	43	27.8	36.5

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1885phae.proj.1321S

α α

1	58.00	0 59	27.35	+2 30 65	19.0	22.3	41.3
5	23.70	2	52.30	31.40	18.0	22.6	40.6
8	39.00	6	7.25	31.75	16.0	23.1	39.1
12	25.90	9	53.75	32.15	14.8	23.5	38.3
15	49.45	13	16.25	33.10	13.2	24.7	38.2
				+2 31.81	+9 51.1		
				+ .24			39.50
				+2 32.05			1.57660
				+ .12	+1.3		9.99734
				13.34			0.87506
		20	12	+6.24	+6 12 3.9		2.46908
				+ 1.58	+ 17.8		294.5
				20 14 47.09	+6 22 14.1		885.6
							591.1

1	19 46 60	1	23 20.00	−3 33.40	51.8	9.4	42.4
	24 32.20		28 4.35	32.15	52.0	8.3	43.7
1	22 9.40			−3 32.77	Δδ = +5 20.9		43.05
18	45 −59.4			Corrⁿ +0.51			1.63397
6	36 9.0			−3 32.26			9.99737
6	35 4.0			+ .09	−0.1		0.87506
				20 18 21.04	+6 16 53.9		2.50640
				+1.58	+17.8		320.9
				20 14 50.45	+6 22 32.5		
45.15	+0.20	1	30 13.25	1 33 45.85	−3 32.65	28.5	46.5	25.0
24.75	+.95		34 54.25	38 25.70	31.45	26.1	48.6	74.7
285	+.80		39 32.00	43 2.65	30.65	22.4	50.3	72.7
14 39 50			34 53.20		−3 31.58	+5 33.0		74.13
34 53		6	48 52.8		Corrⁿ −0.18			1.87000
	+0.71	1	2.0		−3 31.76			9.99737
	9.851	6	47 46.8					0.87506
15 arc	1.173				Refr +.13	+2.7		2.74243
1/5	7.083							552.6
Hel 1"	8.077				X(1885.0) 20 18 21.04	+6 16 53.9		885.6
Hel 1" / 1 sand =	6.904				Refr +1.58	+17.8		5550
					20 14 50.99	+6 22 49.4		
Corr. T.					& dft			
Jan 1	6 42 41				20 14 50.77	+6 22 41.4		

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Jan. 1. 1886.

B. 236.

1	▽0	▽6.0
	▽1	▽6.0
	50	57.0
Corr B−6	— 0	57.0

Fl. 1327.

1	▽2	0.0
	▽3	0.0
1	50	57.0

Stars near nebula ♄ Andromedæ

Wedge photometer 5 obs.

					Mer. Int.				
q 38		a (Pickering)	56.0	53.0	7.47	See p. 30 for identifications and approximate places.			
7.3	109.0	b (")	56.7	52.2	7.97	7.52	7.12	14.8	7.8
7.3	108.9	g (Parkhurst)	41.0	35.3		7.61	7.01	15.3	7.8
5.1	76.3	f (")	44.3	43.0		5.51	4.71		10.0
5.8	87.3	b (")	42.5	43.8		5.95	5.78		9.2
5.8	86.3	d (")	58.1	57.1	7.57	5.71	5.88		9.3
7.8	115.2	c (")	55.0	55.0	7.57	7.80	7.67	15.4	7.4
7.5	110.0	e (")	43.7	41.7	8.74	7.39	7.39	15.0	7.7
5.8	85.4	a (")	61.8	58.5	7.02	5.87	5.60	14.5	9.4
8.2	120.3	x (")	34.5	31.7		8.30	7.84	15.1	7.0
4.5	66.2	w (")	42.8	45.8	9.12	4.63	4.26		10.7
6.0	88.6	DM. +40° 145	46.8	45.0	9.17	5.75	6.15	15.1	9.1
6.2	91.8	q. (Parkhurst)	13.7	16.0		6.28	6.04	15.3	8.9
2.0	29.7	y (")	32.5	37.8		1.84	2.15		13.1
4.7	70.3	z (")	37.2	37.9		4.40	5.08		10.4
5.0	75.1	j (")	26.1	28.6		5.00	5.09		10.1
3.7	54.7	n (")	17.7	23.1		3.50	3.84		11.4
2.7	40.8	i (")	29.0	31.9		2.38	3.10		12.4
4.1	60.9	m (")	29.0	31.5		3.90	4.28		11.0
4.1	60.5	h (")	30.0	28.0		3.90	4.23		11.0
3.9	58.0	k (")	32.7	34.1		4.03	3.76		11.2
4.5	66.8	l (")	19.6	21.1		4.39	4.58		10.6
2.7	40.7					2.63	2.83		12.4

10 41

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1885phae.proj.1321S

Jan. 1, 1886

Approximate places of Parkhurst's stars between b and the nebula.

p	precedes b	90.3	3′ south.	Hence b follows nebula 121.8 3.5 north. By D.M. 124.5 2.4 north. The exact nucleus of the nebula is not likely to have observed in this D.M.
p	follows nebula	31.5	0.5 north.	
k	follows p	22.5	6′ north.	Hence p precedes b 90.5, 2.5 south. This would make b follow nebula 122.0, 3.0 north, slightly more accordant with D.M. than above.
k	precedes b	68.0	3.5 north	
h	follows k	10.2	1.5 north.	Hence k precedes b 67.2, 3.5 north. Mean result 67.5, 3.5
h	precedes b	57.0	5′ north.	
m	follows h	20.0	5′ south.	Hence h precedes b 57.7, 6.5 north. Mean 57.4, 5.8
m	precedes b	37.7	1.5 north.	
i	follows m	20.9	4′ south.	Hence m precedes b 37.9, 0.5 north Mean 37.8, 1.0
i	precedes b	17.0	3.5 south	
n	follows i	2.8	2′ north.	Hence i precedes b 16.7, 3.0 South Mean 16.8, 3.2
n	precedes b	13.5	1′ south.	
j	follows n	7.0	1.5 north.	Hence n precedes b 13.2, 1.3 south Mean 13.4, 1.2
11 16	j	precedes b	6.2	0.2 north.

Nucleus of nebula thought to be perceptible, new star slightly suspected.

Stopwatch runs 61.7 while B.236 runs 60.0

11 30 Subtract 1.0 from stopwatch readings.

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1885phae.proj.1321S

Jan. 7. 1886.

Brooks' Comet. Sr. obs.

20 19 +6.2
0 14

+3 ✓✓

1 2✓
20 19

+✓ 6

Too cloudy to see ☌.

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1885phae.proj.1321S

Jan. v. 1886.

Brooks Comet Yr. obs.

20 31 +A.2
0 23
+3 v2
v
+3 v7

0 K1
20 J9
K 10

K 13 K.K
0 KK
20 31

over vr.

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1885phae.proj.1321S

Jan. 5. 1885.

113.1
45.

1584.1

1	13	30.6	E
	13	55[illegible]	E
	14	17.2	*
	14	35.0	*
	15	23.3	
	15	47.0	
	16	9.3	
	16	26.6	
	17	20.6	
	17	43.7	
	18	5.9	
	18	22.6	
	19	30.1	
	19	53.1	
	20	15.1	
	20	32.0	
	21	23.9	
	21	46.0	
	22	8.0	
	22	24.4	

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1885phae.proj.1321S

Jan. 5. 1885.

Order in all the sets.

= = * *

Both in Northern half.

Comp. Star = 2m + 2° 44' 7 2 (70)

Seeing rather poor. Record by myself so that obs. are probably not quite so good. B. 236 used.

B 236.			Fl. 1327		
1	41	40.0	1	43	0.0
	42	39.9		44	0.0

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1885phae.proj.1321S

Jan. 7, 1886.

5 55= By estimate with finder. S. obs.

Yow 6 star in Orion.

H.P. 1090 (= D M. +19° 1126) 6 new star

H.P. 1081 3 new star

New star 1 D M. +20° 1156

Transits with wedge of same objects and in same order as on p. 3. S. obs. G. rec.

+19 1126	54.7	9.1	5.9	15.0			108.5	9.0
	51.2	4.5			6.6		[51.0]	8.5
+20 1156	51.6	4.5	6.6	15.1			102.7	8.5
	50.8	4.6			6.7			
9's of 1126.	45.5	7.6	7.5	—			89.6	7.4
	51.5	4.5			6.6			
4's foll. chora.	27.2	4.5	10.6	—			57.9	4.8
	50.7	4.6			6.7			
+20 1172 (?)	38.8	6.4	4.9	15.3				6.4
	52.1	4.6			6.5			
4's f. chora.	30.7	5.1	10.0	—				
	50.4	4.4			6.7			
9's of 1126.	44.1	7.3	7.4	—				
	51.2	4.5			6.6			
+20 1156.	51.6	4.6	6.6	15.2				
	50.1	4.3			6.4			
6 +19 1126 35	52.8	4.9	5.9	14.4				
				15.1	6.6			

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1885phae.proj.1321S

Jan. 7, 1886.

Stars near nebula of Andromeda

Wedge Photometer

						Mer. Mag.	See J. 30 for identification and approximate places.			
9	41.0	a	(Pickering)	58.3	59.0	7.47	7.83	7.92	15.3	7.2
7.9	117.3	b	(")	56.2	56.7	7.47	7.55	7.62	15.6	7.5
5.1	76.0	g	(Parkhurst)	40.0	36.0		5.37	4.84		10.0
6.3	94.2	f	(")	48.3	45.9		6.49	6.16		8.8
5.8	86.8	p	(")	44.2	42.6		5.94	5.72		9.3
7.7	112.8	d	(")	57.0	55.8	7.57	7.66	7.49	15.2	7.5
7.4	109.2	c	(")	55.3	53.9	7.57	7.43	7.24	14.9	7.8
6.3	92.2	e	(")	44.2	48.0	8.74	5.94	6.49	15.0	8.9
8.2	121.3	a	(")	60.0	61.3	7.02	8.06	8.23	15.2	7.0
4.9	72.0	x	(")	36.9	35.1		4.96	4.71		10.3
5.8	85.3	w	(")	40.7	44.6	9.12	5.47	5.99	14.8	9.4
5.9	86.5	D.M. +40° 145		44.0	42.5	Mer. Mag. 9.17	5.91	5.71	15.0	9.3
2.1	30.9	q	(Parkhurst)	14.8	16.1		1.99	2.16		13.0
4.7	69.5	y	(")	33.9	35.6		4.55	4.78		10.4
4.9	73.0	z	(")	33.8	39.2		4.54	5.26		10.2
3.6	53.4	j	(")	25.3	28.1		3.40	3.77		11.5
2.8	41.3	n	(")	20.4	20.9		2.74	2.81		12.3
4.0	59.7	i	(")	28.3	31.4		3.80	4.22		11.1
3.7	55.9	m	(")	25.0	30.9		3.36	4.15		11.3
3.7	54.7	h	(")	25.0	29.7		3.36	3.99		11.4
4.6	69.3	k	(")	36.0	33.3		4.84	4.47		10.4
2.9	43.7	p	(")	20.7	23.0		2.78	3.09		12.2
10	36							Const.	15.1	

Seeing variable, stars sometimes large and nebulous. New star not seen, and nucleus of nebula not seen as a stellar object.

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Jan. 7, 1886

1 2 35 31 Cygni, about 5.1, slightly fainter than
η or ½ Cephei
½ Cygni faint but very, not far from 5.5
Variation telegraphed by Thurston and confirmed

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1885phae.proj.1321S

Jan 9, 1886.

7 50 Dome cannot be turned without danger of breaking cogs on account of snow and ice pr Beam Ran near Saturn.

Nova Cyg = d.

8 55 S. tried W. Equatorial but could not start the shutters.

9 20 Tried to turn dome (without having seen the above record) but as ~~it was~~ there was great danger of breaking the cogs and it was becoming generally cloudy again, abandoned the attempt.

H.

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1885phae.proj.1321S

Jan. 12. 1886.

B. + C. 1142.

#		
11	43	1.8
	~~44~~	
	45	1.8

B. 394.

~~11~~	~~47~~	~~0.0~~
11	48	0.0
~~49~~		~~0.0~~
50		0.0

12	2 v
11	v - 0
	3 v
11	4 v
12	20

Ap. time eclipse.

Dio. Sat. I. Polo. Increa.
Phot. H. Comp. with Sat. II.

12	10	24.0	43.0
		41.v	190.2
		vv.0	91.8
	11	37.0	190.7
	12	30.0	47.4
		43.v	197.v
		v7.0	46.6
	13	14.0	194.2
		35.0	49.3
		v9.0	191.6
	14	11.0	91.v
		24.0	196.2

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1885phae.proj.1321S

Jan. 12. 1886.

12	14	43.5	29.6
		54.5	191.3
	15	15.0	29.1
		24.5	196.3
		44.0	90.3
		59.0	194.7
	16	14.0	91.0
		25.5	193.6
		41.0	29.6
		51.5	194.2
	17	3.5	92.3
		17.0	190.2
		30.0	91.3
		41.0	129.6
		49.5	90.9
	18	0.0	126.9
		11.0	97.0
		22.0	129.9
		31.0	97.7
		42.5	123.3
	19	0.0	92.7
		4.5	124.4
		20.0	106.3
		37.0	177.5
		50.5	110.7
	20	11.5	Sun's.

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1885phae.proj.1321S

Jan. 12. 1886.

Limit of Vis.

12	20	41.0	113.4
		~~3.0~~	174.3
	21	4.0	11~~5~~.4
		16.0	140.4

~~Temperature~~ Seeing very bad on account of low temperature. Images large and continually varying.

B. + C. 1142.

12	34	1.~~5~~
	3~~5~~	1.~~5~~

B. 394.

~~12 3 0.0~~

12	39	0.0
	40	0.0

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1885phae.proj.1321S

Jan. 13. 1886.

S. V. 43. Wh. 66.

3 K2 −0.2
3 27
−1.5

3 4+

1 Star in position but rather faint – Diff 9.5 or 10.

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1885phae.proj.1321S

Jan. 14. 1886.

~~+0° 5 47~~ Tr. obs.

+0 6 44

3 44 +0.9

3 23

-2 5

3 5 3

4 29

---

3 6

-6 +1.1

3 47

---

3 5 3

Region identified.

The above star was not seen in zones 234 and 372 (Syr. Phot.) An examination of the region shows that it is due to an error in the D in. place of this star which is 1 min. wrong! The R.A. should read $3^h\ 5^m\ 4\overset{s}{.}3$ instead of $3^h\ 5\ 3^m\ 4\overset{s}{.}3$

Stop watch makes it fol. the 47 immediately preceding 1 5.7 sec. and the D in. makes it follow 1 m. 13.2 s. Dec. all right by both.

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1885phae.proj.1321S

Jan. 14, 1886

S. obs.

9 20 DM. +54° 48 identified. It is T Cassiopeiae; at present 4 fainter than DM. +54° 49 and 2 brighter than DM. +55° 55.

See record for Feb. 7, 1885 (book 38, p. 208)

Gore's star in Orion S. obs.

9 50 DM. +20° 1156 2 new star } in finder
New star 1 DM. +20° 1171 }

Wedge photometer

[0	1.3	DM. +19° 1126	53.7	6.9	53.0	6.8	6.9	14.8	14.7
8.9	106.7								
7.1	[46.1]	New star	45.0	7.5	46.9	7.8		7.3	7.0
8.1	97.3	DM. +20° 1156	45.3	7.5	52.0	8.6	6.6	14.1	15.2
		New star	44.6	7.4	46.4	7.7		7.4	7.1
7.0	84.5	DM. +20° 1171	39.7	6.6	44.8	7.4	—	(8.2)	(7.4)
		New star	45.7	7.6	47.9	8.0		7.2	6.8
6.1	80.3	DM. +20° 1168	37.4	6.2	42.9	7.1	—	(8.6)	(7.7)
		New star	~~37.8~~ 43.1	7.2	48.8	8.1		7.6	6.7
6.5	78.1	Star 9's south of DM. 1126	37.8	6.3	40.3	6.7	—	(6.5)	(8.1)
		New star	45.1	7.5	47.8	7.9		7.3	6.9
4.2	51.1	Star foll. new star 4s	25.8	4.3	25.3	4.2	—	(10.5)	(10.6)
		New star	46.4	7.7	43.7	7.3		7.1	7.5
6.3	75.5	DM. +20° 1172	37.0	6.1	38.5	6.4	8.9	15.0	15.3
		New star	48.1	8.0	46.0	7.6		6.8	7.2
2.3	27.3	Star half way from DM. +20° 1172 to new star	13.3	2.2	14.0	2.3	—	(12.6)	(12.5)
									14.8

10 55 Observations in second column in reverse order. DM. +19° 1126 too nearly escapes disappearance to make the observations satisfactory with the wedge.

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1885phae.proj.1321S

Jan. 15, 1886.

S. Obs.

Star IV 23 of mer. photometric list, α $6^h\ 23^m$ δ $+43°$. Place wanted more accurately for observation with meridian photometer.

6 30 Region examined. DM. +43° 1555 α(1855) $6^h\ 22^m\ 43^s.7$, δ(1855) $+43°\ 15'.2$, DM. magn. 8.4, is suspected from its color to be the star required.

Other stars near are DM. +43° 1558 and 1562; DM. places and magn. as follows:

1558	$6^h\ 23^m\ 30^s.0$	$+43°\ 12'.6$	8.6
1562	6 24 13.3	+43 10.5	7.5

The bluish color of 1562 makes it rather unlikely to be the required star. No spectroscope found in dome.

7 15 Spectroscope found; focus adjusted by means of a bright star and region reexamined. Spectrum of DM. +43° 1555 too faint to decide its character. There is however more suspicion of irregularity about it than about the other stars named above or any others in the neighborhood

6 ~ 3
3 ∢ 3
~ ∢ 0

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Jan. 15. 1886.

The preceding star examined by Fr. At first bands suspected but cannot be sure that it is other than the unsteadiness of the atmosphere. Other stars in the vicinity looked at but nothing marked found. Upon careful reexamination cannot be sure as to bands in spectrum of above star. although there ~~is~~ seems to be some irregularity in its spectrum, but cannot be sure that it is more marked than in the neighboring stars, partly from its faintness. Fr.

Comp. Stars for Var.

10 S Arietis Fr. obs.

1	5 5	+12.4
4	4	
+2	9	
4	12	
1	5 5	
+2	17	

over.

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1885phae.proj.1321S

Jan. 15. 1886

(7) 47.3 8.2
(2) 40.0 6.9
(6) Stopped by increasing cloud.
5a
4S
3Z
2X
1g

S. obs.

Star of type III in meridian
Photometer lists at place
α 7h 29m δ +45°

10 0 Region identified on Dll. chart
Spectroscope focus obtained by α Geminis.
No stars in the region bright enough to give a distinct spectrum. The spectrum in which the suspicion of bands was strongest was that of Dll. +45° 1459
Dll. place & magn. 7h 27m 18s.4, +45° 24'.1, 7.5

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1885phae.proj.1321S

Jan. 15, 1886.

Dll. +24° 2360

In the place of this star there is a pair, as described by the meridian photometer. On the other hand Dll. +25° 2378, which should precede 3ˢ, 10′ north, is missing. Its declination is probably in error by 10′.

		B. 236	S	
8	4	31.8	5.0	Dll. +24° 2345
	11	18.5	5.1 6.0	The pair of stars.

---

6 46.7

6ᵐ 47ˢ.6 is the interval by the Dll. between Dll. +24° 2345 and Dll. +24° 2360, the last being 1′.1 north of the other. As both places are from catalogues, the northern of the pair of stars should be considered as Dll. +24° 2360, and the other considered as Dll. +25° 2378, with an error of 11′ in declination, unless further observation shows decided proper motion in one or both.

In the magnitude of Dll. +25° 2378 we should probably read 8.5 for 9.5.

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1885phae.proj.1321S

Jan. 17, 1886

B & C. 1182

13 7 42.8
8 42.8

B 394

13 13 0.0
14 0.0

13 31 6
8 12

13 39 18
5 17

13 34 1

Disappearance of Jupiter II. P. obs. 1. sec. Photometer H. Compared with satellite I.

13 21 36 275.3
50 359.7
22 1 281.6
16 2.3
27 281.6
43 2.8
58 282.7
23 12 0.7
25 283.1
38 356.4
52 286.3
24 4 4.6
18 282.6
29 1.8
41 279.8
52 1.7

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1885phae.proj.1321S

Jan. 17, 1886

13	25.3	284.9
	12	359.3
	24	282.7
	33	358.9
	45	282.4
26	4	358.7
	15	282.9
	24	2.7
	34	284.4
	43	1.3
	53	285.8
27	4	356.8
	17	283.4
	28	4.8
	38	281.3
	48	1.7
28	0	281.5
	10	358.4
	22	284.3
	32	2.3
	43	282.8
	54	356.6
29	5	282.9
	15	358.0
	26	284.3
	39	359.0
	52	285.3
30	0	356.9

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1885phae.proj.1321S

Jan. 17, 1886.

13 30	14	284.5
	24	356.4
	33	279.8
	44	359.3
	55	283.3
31	6	356.5
	14	281.7
	22	358.3
	28	284.2
	35	356.1
	41	283.8
	48	359.1
	55	283.3
32	3	355.6
	10	284.5
	20	358.4
	28	278.3
	36	356.3
	43	283.3
	49	354.2
	56	288.8
33	2	355.6
	9	290.9
	18	351.2
	28	291.8
	43	349.9
	54	293.4
34	2	349.9
	13	296.4
	20	344.4

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1885phae.proj,1321S

Jan. 17, 1886

13	34	29	298,7
		42	342,3
		52	302,2
		58	337,4
	35	6	302,5
		14	334,3
		21	308,4
		29	331,5
		41	312,8
		55	------ reject this, as it was caused by ghost.

Limit of visibility.

13	36	35	313,9
		47	331,2
		58	310,4
	37	8	329,0

B & C 1182

13	42	42.1
	43	42.1

B 394

13	48	0.0
	49	0.0

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Jan. 14, 1886.

B.D.C. 1182 — B 394

13	49	31.4	13	55	0.0
	50	31.4		56	0.0

14 9 38
8 12
14 17 50
5 29
14 12 21 Disappearance of Jupiter I.

Photometer H. Sh. W. rec.
Compared with Satellite II.

14	0	44.0	141.0
		52.0	264.1
	1	14.0	140.0
		31.0	244.0
		44.5	142.0
		57.0	244.0
	2	10.0	141.9
		24.0	242.2
		37.0	144.5
		49.0	243.4
	3	1.5	145.3
		14.5	244.0
		27.5	142.3
		41.0	245.0
		54.0	144.5
	4	5.0	243.0

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1885phae.proj.1321S

Jan. 19. 1886.

14	4	17.0	143.7
		21.V	243.0
		43.V	14V.0
		V3.0	240.V
	V	9.0	14V.V
		24.0	243.1
		37.V	146.V
		42.0	24X.2
	6	4.V	141.V
		14.0	242.4
		30.0	143.0
		43.0	241.0
	7	4V.0	137.0
		V9.0	243.7
	4	12.V	143.7
		27.0	272.7
		40.0	190.8
		47.0	279.7
		V7.V	143.2
	9	7.V	277.0
		14.0	145.0
		22.0	279.4
		31.0	14X.2
		39.V	279.0
		47.0	146.0
		V4.V	277.V

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1885phae.proj.1321S

Jan. 19. 1886.

14	10	3.0	124.7
		11.0	208.2
		23.0	182.3
		33.0	274.5
		42.0	191.2
		44.5	274.6
		56.0	190.3
	11	7.0	274.4
		12.5	191.5
		21.0	272.6
		24.5	192.0
		35.0	274.7
		41.0	196.6
		47.5	269.0
		54.0	199.6
	12	1.0	264.2
		4.5	204.7
		17.5	262.6
		~~29.0~~	
		35.0	212.2
		42.0	255.4
		47.5	217.3
		54.0	251.0
	13	1.0	214.7
		4.5	239.3

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1885phae.proj.1321S

Jan. 19. 1886,
~~14~~ not seen later,
Limit of Vis.

1V	13	33,0	223,1
		KV,V	2KK,4
		VV,0	220,3
	1K	K,0	2K7V

B. + C. 1142, B. 394,

1V	19	31.0	1K	2V	0,0
	20	30.8		26	0,0

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1885phae.proj.1321S

Jan. 23 1886.

Revision of Vol. IV. Sobs.

7 30 No. ~~750~~ 750 ~~has~~ has the approximate α of 751 and δ of 749, as entered in the catalogue. There are really two stars in the region; these are Dfl. +0° 1678 and 1679, but the δ of 1678 as given in the Dfl. should be increased about 5'.

Comp. Stars for χ^{26} R Leporis Nov. 86

-14.6

4 ⩽7
4 1⩽
— 42

h	⩽3.2	⩽4.2	107.4	~~9.2~~	9.1
c	⩽1.0	⩽1.4	102.7	~~8.8~~	8.7
R	41.0	43.2	84.2	~~7.2~~	7.0
e	41.5	42.0	83.5	~~7.1~~	6.9
a	⩽1.4	⩽1.2	102.9	~~8.7~~	8.6
f	43.0	42.⩽	85.5	~~7.9~~	7.1
d	47.9	⩽0.1	98.0	~~8.2~~	8.2
g	⩽1.0	⩽1.0	102.0	~~8.7~~	8.5

Subtract 0.9 for water error from all readings.

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1885phae.proj.1321S

Jan. 23. 1886.

V 1A e 2.5 R in finder W. obs.

R is an exceedingly red star.
Examined with spectroscope.
Spectrum thought to be banded but air unsteady in all the observations so that W. cannot say with certainty as to this. Spectrum flickering.

Revision of Vol VI, S obs.

No.	s	Time from B. 236. s	s	s			
748	7.0	10.1	7.3	4.2	17.9	17.7	17.8
749	24.8	25.0	25.0	22.0			
751	30.5	33.8	30.8	27.5	23.7	23.5	23.3
752	62.8	66.0	63.2	66.0	55.9	55.9	55.8
Im. 754	69.0	72.0	69.1	66.0	61.9	61.8	61.8
753	77.4	80.3	77.5	74.3	70.2	70.2	70.1
755		132.1	129.5	126.3	122.0	122.2	122.1
756		139.0	136.2	133.2			
		128.9	128.9	129.0			

17.8	104.3	111.1		
23.5	98.6	105.4		
55.9	66.2	73.0		
61.8	60.3	67.1		
70.2	51.9	58.7		
122.1				
128.9				

No.	Time from B. 236.					
752	10.3	5.0	6.7			17.1
753	24.5	19.5	21.2	14.2	14.5 14.5	14.4 2.7
754	27.4	22.1	23.8	17.1	17.1 17.1	

10 0

	d by 748	d by 755	d by 756	Mean.	Corr. to cal.
	6h 45m 57.9	6h 45m 58.3	6h 45m 58.2	6h 45m 58.1	−0.2 DM.
749	46 3.6	46 4.0	46 3.9	46 3.8	−2.0 DM. a.o Band
751	46 36.0	46 36.4	46 36.3	46 36.2	+0.1 Band
752					
Im. 754	46 41.9	46 42.3	46 42.2	46 42.1	
753	46 50.3	46 50.7	46 50.6	46 50.5	+0.2 DM.
754	46 53.0	46 53.4	46 53.4	46 53.3	−0.2 DM.

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Jan. 23, 1886.

	S	Cat S.	Red. to cat.		Pred. to cat.		Corr. to cat.
748	8.3	6.9 (7.62 M.)			8.1		+1.2 (+0.5 D M.)
749	8.4	3.8 DM, 8.6 Bond			8.2		+4.4 DM. −0.4 Bond
751	5.3	4.8 DM.			5.1		+0.3
752	5.0	4.4			4.8		+0.4
pr. 754	8.1	~~0.8~~					
~~753~~	1.8	0.8 DM,			1.6		+0.8
754	8.0	7.6			7.8		+0.2
755	8.5	8.6	+0.1		8.3		
756	7.7	7.3	−0.4	−0.2	7.5		

Wedge

748	30.3	29.7	5.4	5.3	9.2	14.6	14.5	
749	20.0	21.0	3.5	3.7				11.0
751	28.0	26.6	5.0	5.1				9.6
752	38.1	38.0	6.7	6.7	8.1	14.8	14.8	
pr. 754	17.2	18.7	3.0	3.3				11.4
753	34.0	34.5	6.0	6.1				8.6
754	24.2	22.8	4.3	4.0				10.4
755	32.0	31.3	5.7	5.5	9.0	14.7	14.5	
756	27.1	26.9	4.8	4.8	9.5	14.3	14.3	
							14.6	

773 Observation of Series 709 confirmed. There is also a faint pair of stars prec. 774 12ˢ, 0'.5 — south.

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M.)

Bmd

Jan. 23, 1886.

	Time by stopwatch		δ	Wedge				
799	5.0	57.0	5,0 +1,4	34.5	37.0	6.1	6.5	8.0
800	25.0 20.0	76.8 19.8	8,0 +1,9	21.9	19.7	3.9	3.5	9.8
801	32.2 27.2	84.0 27.0	7.9	18.6	16.1	3.3	2.8	
802	42.8 37.8	94.3 37.3	1.5	21.0	20.0	3.7	3.5	
803	47.1 42.1	99.0 42.0	8,0	17.0	18.2	3.0	3.2	
f. 803	52.6 47.6	104.0 47.0	8,0	18.0	17.6	3.2	3.1	
	57.0 52.0	108.4 57.4	9.3	27.9	28.9	4.9	5.1	

14,1	14,4	14,2
14,5	15,0	
13,7	13,7	
13,3	14,8	
13.9	14.5	

	Time by stopwatch		δ	Wedge				
806	5,0 11,1	40,8 11,2	5,0 −0,8	16,0	19,3	2,8	3,4	11,6
807	16,1	52,0	1,0	22,1	21,2	3,9	3,8	
11 51 808	40,8 24,7	76,9 24,9	2,7 −0,8	30,2	36,0	5,3	6,4	8,4

	α by 799	α by 800	Mean.	Corr. to cat.	Red. δ	Corr. to cat.	Magn.
f 801	7h 6m 8s,1	7h 6m 7s,9	7h 6m 8s,0	−0s,3	9,5	+6,8	11,2
801	18,6	18,3	18,4	[+10,1]	3,1	[+0,4]	10,6
802	23,0	22,9	23,0	+2,8 Dill.	9,6	+0,4	11,1
803	28,3	28,1	28,2	+0,2	9,6	−0,3	11,0
f 803	32,7	32,5	32,6	.....	10,9	.....	9,2
	α by 806	α by 808					
807	7h 7m 43s,5	7h 7m 43s,0	7h 7m 43s,2	0,0	0,2	−0,1	10,4

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1885phae.proj.1321S

Jan. 26, 1886 S. obs.

6 30 Pleiades too high for observation at present. Region of Gore's star in Orion also inconveniently high.

Nebula in Andromeda.

Parkhurst's star k certainly brighter than h. Estimate in large telescope

R 3 h

Transits with wedge.

R	30.0	32.6	29.8
h	23.5	22.9	22.8
	6.5	9.7	7.0
	~~1.1~~ 0.9	~~1.7~~ 1.3	~~1.2~~ 0.9

Mean diff. magn. 1.0

Comp. Stars for 26 R Leporis.

Gr. obs.

4 ν 7 −14.6

4 1~~8~~

−47

3ν7.0
9.0
267.0

b	ν3.2	ν4.ν	107.7	9.3 >
c	ν1.3	ν0.7	102.0	8.8 >
R	40.2	38.ν	78.7	6.7 >
e	40.ν	42.0	82.ν	7.0 >
a	48.ν	49.ν	98.0	8.3 >
f	39.7	39.7	79.4	6.7 >
d	44.9	44.9	89.8	7.6 >
g	45.ν	48.1	92.6	8.0 >

ν 4 (S. S.) e 3 R

W. obs.

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1885phae.proj.1321S

Jan. 26. 1886.

Looked at spectrum of R Leporis again. Spectrum thought to be banded, but a good deal of nebulosity in the air and seeing rather poor. W.

9 to 10 15 S. experimented with Pritchard photometer. Focus adjusted on α Tauri. Afterwards examined η Tauri and small stars near it. It proves impracticable to keep the eye in such a position as to retain steadiness for making measurements with the instrument, even for a few seconds. This may perhaps be remedied by some attachment which will enable the position of the head to be determined by the sense of feeling.

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1885phae.proj.1321S

Feb. 1. 1886.

Comp. Hays for 33 R Leonogerotis,
Hedges Photometer. Hr. obs.

6 33 +9.1
Clouds in this region,
abandoned.

20 Y Tauri. Hr. obs.
Comp. Hays.

4 20 +18.9
4 4r
+2r

(6)	41.3	42.4	83.7	7.0
(r)	38.6	41.0	79.6	6.7
y	17.8	19.3	37.1	3.1
II	—	—		
a	26.0	24.0	50.0 ~~40~~	4.2
x	47.1	48.4	95.5	8.0

Y thought to be seen but very faint. Too faint for medges. Observations probably somewhat affected by thin clouds. Mag. of Y not estimated on account of this.

Subtract 0.9 from all readings, for stop watch error.

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1885phae.proj.1321S

Feb. 1 1886

Pritchard photometer S. obs.

9 to 9 45 Experiments with instrument. Best results when clock is running and telescope partly clamped so as to allow a star to be replaced in the field when necessary, with the wedge nearly vertical, handle of pinion to the right.

10 0 24 Pleiadum found in photometer. Haze too variable for actual observations, finally becoming too thick to continue experiments. Movable pointer needed in field of finder ~~either~~ for this photometer ~~or for photography~~.

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1885phae.proj.1321S

Feb. 2, 1886

Pritchard Photometer. S. obs. { Diaphragm 1/2 Power Eyestop 1/4

24 Pleiadum

9 15	51.2	−.5	
	52.3	+.6	
	52.9	+1.2	
	48.1	−3.6	
9 28	54.0	+2.3	
	258.5	51.7	1.6

9 31 21 Pleiadum

38.9	+2.2	
36.9	+0.2	
36.8	+0.1	
35.9	−0.8	
35.0	−1.7	
183.5	36.7	1.0

16 Pleiadum

9 44	13.8	−2.6
	17.0	+0.6
	17.2	+0.8
	16.0	−0.4
9 55	18.0	+1.6
	82.0	16.4	1.2

33 Pleiadum

10 5	38.5	+0.6
	40.1	+2.2
	33.9	−4.0
	35.9	−2.0
10 13	41.2	+3.3
	189.6	37.9	2.4

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Feb. 2, 1886

35 Pleiadum

10 19	29.1	+2.0	
	25.7	−1.4	
	23.9	−3.2	
	28.1	+1.0	
10 25	28.9	+1.8	
	135.7	27.1	1.9

1.6
1.0
1.2
2.4
1.9
8.1
1.6

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1885phae.proj.1321S

Feb. 4. 1886.

B. + C. 1142.			B. 394.		
11	44	20.0	11	vv	0.0
	49	20.0		v6	0.0

Dis. Aug. I. Phot. Rr. P. obs.

12 13 Sky too hazy for observation. Sat. not seen when photometer was attached.

12 19 Sky still too cloudy for obs.

12 25 Sky about the same at time of disappearance.

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1885phae.proj.1321S

Feb. 5, 1886

Pritchard photometer. Diaphragm ½. Power 1. Eyestop ¼. 5 obs.

Stars near nebula of Andromeda

6 44 a (Pickering) 49.7
41.8
6 56 46.1

The clock will not run, even without the telescope, which makes it difficult to obtain trustworthy observations.

~~Loro 13.3~~

Experiments with Pritchard Photometer, 4 obs.

24 Pleiadum 5 obs, without clock

8 55 51,0 +2.5
48.3 −0.2
47.0 −1.5
48.7 +0.2
9 10 47.5 48.5 −1.0
42 5 1.1

21 Pleiadum

9 19 36.1
26.6 haze increasing

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1885phae.proj.1321S

Feb 5, 1886

Haze less again

21 Pleiadum

10 5	38.0		+2.0
	35.0		−1.0
	38.0		+2.0
	35.4		−1.0
10 13	337	36.0	−2.3
	301		7.7

16 Pleiadum

More haze, which may have affected last observation of previous set.

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1885phae.proj.1321s

Feb. 9, 1886.

Photographic apparatus on East Equatorial.

Star ~~used~~ to be ~~a~~ Tauri

Reading ~~of~~ Dec. 16, 1885 —

clock does ~~not~~ ~~and~~

plate hol ~~to~~ May 6, 1886 ~~to~~ fit

7 c the box.

H. Circ. ec. ℓ Tauri

Dec. " pieces.

H. Circ Tauri is

Dec. " ht of lag

.

ℓ Orionis.

11 ⩽⩽ +6.9 in finder.

+⩽.⩽ −2.0

11 ⩽0.⩽ −1.1 ~~in~~ spec. ret.

over.

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1885phae.proj.1321S

Feb. 9, 1886.

Photographic apparatus on East Equatorial.

Star supposed to be δ Tauri

Reading of pinion 59

Clock does not run well and plate holders do not appear to fit the box.

7 c

H. Circ. $13^h\ 3^m$ } when spec. of δ Tauri
Dec. " $+7.^\circ 8$ } is in eyepiece.

H. Circ. $12^h\ 57.^m 5$ } when δ Tauri is
Dec. " $+18.^\circ 8$ } in centre of large finder.

δ Orionis.

11	45	+6.9	in finder.
	+5.5	−8.0	
11	50.5	−1.1	~~in~~ spec. ret.

over.

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1885phae.proj.1321S

Feb. 9. 1886.

H. Circ. 11 5.5 } ζ Orionis in
Dec. " +6.9 } finder.

H. Circ. 12h 0m } ζ Spectrum in
Dec. " −1.6 } telescope

Cor. for spectrum +1.5
−4.5

This is certainly ζ Orionis but perhaps the other was not ζ Lacsi as the corrections do not quite agree.

8	45	Focus reading	37.8	1st exposure	5m
	50	" "	27.5	2d "	5m
	57	" "	17.5	3d "	5m
9	ff	" "	7.5	4th "	10m

Plate 2. Star assumed to be Procyon.

10	3	Focus reading	50.0 1st exposure
	9		40.0 2
	12		30.0 3
	15		20.0 4
	20		ended

Spectrum not in field after exposure.

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1885phae.proj.1321S

Feb. 9, 1886.

Another plate on same star Pl 3

10 25	Focus	50.0	1 1/2 exp.
30		40.0	2
33		30.0	3
36		20.0	4
40		Ended	

Spectrum not in field after exposure

B. + C. 1182. B. 394.

11	41	∫7.0	11	42	0.0
	42	∫7.0		43	0.0

Resp. III. Phot. R. Phot.

Comp. Line Ecl. = 12h 11m 15s

Thick fog came up shortly before

12 10 time of this appearance ~~not~~ so that Jupiter appears at this time as 3d mag.

12 16 14 Seen

Jupiter continued so faint that sat. III and comps. sat on opposite side of Jupiter could not be seen simultaneously.

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1885phae.proj.1321S

Feb. 15, 1886

B 236			B 394.		
8	42	59.0	10	45	20.0
			11	1	0.

Emersion of W VII 685 S. obs.
First seen 8 59 20, but
then well separated from limb.
Frequent clouds.

B 236.			B 394.		
9	10	43.5	11	13	0.0
27	44.5		27	40.0	
	4.54				
27	40.0				
16	21				
	2.7				
16	18.3				

Time of observation by B 394 $11^h\ 1^m\ 38^s.3$
Clock slow 0.6
11 1 38.9

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1885phae.proj.1321S

Feb. 16, 1886

Photographic apparatus on East Equatorial.

Hour circle	Watch	Decl. circle	
9 00	20.0	6.1	Spectrum of Moon.
8 56	21.0	14.9	Moon in finder.
		8.8	

Set for spectrum 5^m preceding setting for star in finder, and 8'.8 further south.

Set on 2 prisms. W. obs.
Focus on telescope.
Inserted photographic plate. Pl 4
Focus at 27. Exposure 5 min.
Set " 25. " " "
" " 23.

Took off plate and put on eyepiece very carefully - spectrum not in field. It probably goes out when photographic slide is raised as there is some friction in the operation. Put on weight.

Set at 23. Exposure 5 min.

Took off plate and replaced eyepiece. Spectrum in the field all right in declination but drifting slowly to ~~following~~ preceding in R. A. - in other words, clock going slightly too fast. The other night it seemed to be all right in R. A. and the trouble

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Feb. 16. 1886.

was in Dec. A little more weight than at first used to right is wanted on the eye-end for dec. adjustment, and a slight slowing of the clock in R.A.

Let again at 21. Ex. 10 min.

" " 27. " 5 "

Spec. out of field.

Let again at 27. Ex. 5 min.

Spectrum found in field all right in Dec, and in about same position in R.A. — best yet.

New Plates × Pl 5

9	12	2 Cam. Min.	27.3
9	21		25.0
9	26		23.0
9	31		Ended

Spectrum at first towards left hand (preceding) side of field. Not in field at end. Soon came in on taking off the clock; which therefore runs too fast. Probably spectrum was on plates most or all of this time.

Another Plate ×× Pl 6

9	40	2 Cam. Min.	40.0
9	45		30.0
9	53		20.0
9	58		Ended

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Feb. 16, 1886

Spectrum not in field at end.
Telescope apparently moved a little in declination during exposure.
Pl 7 Photo XXX (Plate holder found in dome)
α Leonis Decl. circle 3°.5 (11.9 for star in finder).

10	14		25.0
	23		20,0
	30		15.0
	33		Ended

Spectrum in field at end.

B. & C. 1102.

12	√1	17.4	
	~~√2~~		
	√3	17.4	

B. 394.

12	√2	0.0
	~~√3~~	~~0.0~~
	√4	0.0

Dis Sat. III. Phot. H. P. obs. Comp. with sat. between it and planet. = Sat. I.

13	K	16,0	~~277.6~~
		26.0	1.4
		3√.0	279.9
		K3.0	2.3
		√1.0	27△△
	√	1.0	2.3
		10.0	2△2.1
		20.0	1.4

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Feb. 16. 1886.

13		24.V	283.4	—
		26.V	24.3	
		43.V	243.1	tw
		V2.0	0.6	
		V9.0	244.6	tw
	6	6.0	3V7.9	—
		14.0	240.4	4
		27.0	3V4.0	tw
		34.V	242.6	tw
		44.0	3V4.3	—
		V0.V	242.2	5
		V9.0	2V9.4	tw
	7	7.0	24V.0	tw
		20.0	1.6	—
		24.0	242.3	6
		47.0	0.2	tw
		V9.0	241.3	tw
	4	4.0	3V9.6	—
		16.V	240.6	4
		30.0	3V9.1	tw
		37.V	274.7	tw
		47.V	0.3	—
		V6.V	240.V	8
	9	7.0	3V4.4	tw
		16.0	240.0	tw
		26.0	0.0	—
		3V.0	242.6	9
		44.0	3V4.3	tw
				10

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1885phae..proj..1321S

Feb. 16. 1886.

10-9	3.5		241.4		0
10	4.0		2.0	10	
	10.5		244.5		+
	24.5		3.5 4.0		
	30.5		241.3		+
	40 0		3.5 4.6	11	—
11	10.0		241.1		+
	14.5		0.6		+
	27.0		274.4		—
	34.0		3.8	12	
	5 2.0		274.6		+
12	1.5		5.4		
	12.0		262.6		—
	26.0		366.5	13	90.2
	36.0		276.8		
	5 2.0		4.0		89.6
13	7.0		97.6		—
	16.0		5.6	14	
	24.5		93.4		+
	31.5		4.4		+
	34.5		93.6		—
	45.5		3.6		
	52.5		44.3	15	+
14	1.0		9.4		+
	10.5		92.3		—
	14.0		12.5		
	25.5		49.7	16	+
	33.0		9.2		+

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Feb. 16. 1886.

13	1K	41,0	49,7	—
		K9,0	10,2	17
		V6,0	44,7	tt
	1V	10,0	15,6	tt
		19,0	42,6	—
		26,0	17,2	18
		JJ,0	46,3	tt
		K2,0	16,4	tt
		V1,0	44,K	—
		V4,0	15,4	19
16		V,0	44,4	tt
		12,V	20,6	tt
		20,0	40,9	—
		26,V	23,6	20
		JK,0	41,V	tt
		K2,0	22,K	tt
		K7,V	29,6	—
		VK,0	23,J	tt
17		2,0	74,J	tt
		9,V	23,4	tt
		17,0	76,3	
		26,0	24,3	
		JKV	73,K	
		K3,0	32,6	
		V1,0	70,6	
		V7,0	34,4	
18		V,V	64,4	

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Feb. 16. 1886.

13	14	12,5	34,6
		25,0	64,5
		32,5	34,3
		40,0	64,2
		44,5	39,4
		55,0	63,4
	19	4,0	41,3
		16,0	60,5
		27,5	42,4
		37,0	59,6
		56,0	Surf.

Limit of Vis.

13	20	24,0	42,2
		34,0	61,6
		50,0	42,3
	21	1,5	60,2

B. + C. 1142.

15	52	17,0	
	53	17,0	

B. 394.

15	53	0,0
	54	0,0

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Feb. 16. 1886.
+ Occultation.
Refs. Zyl. III. Plot. H. S. 66.
Comp. with Cat. I.

Limit of $\sqrt{\ }$.

16	4	14.$\sqrt{\ }$	121.0
		41.0	1$\sqrt{\ }$6.$\sqrt{\ }$
	$\sqrt{\ }$	13.0	119.6
		24.$\sqrt{\ }$	1$\sqrt{\ }$4.4
16	10	23.$\sqrt{\ }$	Zero.
		31.$\sqrt{\ }$	126.4
		44.$\sqrt{\ }$	1$\sqrt{\ }$4.4
		$\sqrt{\ }$6.$\sqrt{\ }$	119.4
	11	11.0	1$\sqrt{\ }$9.0
		26.0	127.4
		39.0	1$\sqrt{\ }$9.0
		$\sqrt{\ }$0.0	121.$\sqrt{\ }$
		59.$\sqrt{\ }$	161.2
	12	9.0	121.0
		14.0	161.4
		27.0	122.0
		37.0	16$\sqrt{\ }$.0
		46.0	117.0
		$\sqrt{\ }$4.$\sqrt{\ }$	164.2
	13	4.0	120.0
		14.0	162.7

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1885phae.proj.1321S

Feb. 16. 1886.

16 13 49	16	13 26.0	120.3
63		45.0	164.0
16 14 92		54.0	119.4
		14 4.0	163.0
16 14 34		19.0	120.2
43		29.0	163.9
16 15 17		40.0	121.6
		50.0	163.5
16 15 19		15 1.5	104.0
63		13.5	169.7
16 16 02		24.5	116.2
		34.0	164.3
		51.0	116.2
16 16 11		16 3.5	167.4
63		15.5	112.9
16 16 54		31.5	172.0
		41.5	114.4
16 58		51.0	167.0
63		17 4.5	114.6
17 41		14.0	177.1
17 46		30.0	109.0
63		40.0	169.0
		51.0	109.4
18 29		14 3.0	172.4
		15.5	110.0
		27.0	172.3

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1885phae.proj.1321S

Feb. 16. 1886.

16 18 32	16	14 30.5	109.4
43		49.0	167.0
16 19 15		19 0.0	111.5
		13.0	169.0
19 19		25.0	111.4
43		34.0	170.7
20 02		49.5	110.7
20 07		20 0.0	167.1
43		11.5	113.4
20 50		25.0	167.2
		39.0	115.3
20 57		50.0	164
43		21 2.0	114.4
21 40		15.5	165.6
		30.0	110.1
21 50		21m 49.4 44.5	161.3
43		56.5	112.2
22 33		22 4.0	159.4
		26.5	125.0
22 44		27m 44.2 39.5	161.9
43		50.0	123.0
23 27		23 2.0	159.7
		14.5	126.4
23 42		28m 41.5 31.5	154.3
43		44.0	126.2
24 25		24 5.0	156.4
		30.0	Cirrus
		50.0	
		25 3.6	"

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1885phae.proj.1321S

Feb. 16. 1886.

B. & C. 1102.			B. 394.		
16	32	16.6	16	33	0.0
	33	16.7		34	0.0

The preceding eclipse immediately followed by occultation of some sort which probably explains peculiarity in last letters.

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1885phae.proj.13215

Feb. 17, 1886.

Photographic apparatus on East Equat.

β Orionis No. 8.

7 7 | 12 | 1 | 20.0
| | 1 | 0.0
20 | 0 | 80.0
25 | Index

Spectrum in sight at end; it had moved towards the preceding side, (clock running a little slow).

β Orionis No. 9

7 30 | 1 | 20.0
Ran to 7h 36m – took out plate – spectrum still in field.

7 40 Set at 1 0.0 Ran to 7h 47m
Took out plate. Spectrum unaltered in dec. but losing a little. Spec. in field.

7 47 Set at 0 40.0 Ran to 7h 49m
Took out plate. Spectrum in field.

7 49 Set at 0 60.0 Ran 10 minutes.
Took off plate. Spectrum still in field.

ε Orionis. Plate 10. Sr.

Put in new plates.

8 20 Set at 1 0.0
Ran 10 minutes. Spectrum still in field.

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1885phae.proj,1321S

Feb. 17. 1886.

α Can. Maj. Plate 11.

8 51 Set at 1 0.0 ✓
Adjusted clock by inserting pin which struck flame at 27mm.
moved it to 35 mm.
This makes clock too fast
Changed to 30 mm.

α Can Maj. Plate 12
Edge of this plate intentionally fogged.

9 34 ~~Set~~ Set at 1 67 Ran 5 minutes.

~~9 40 Set at 1 0.0~~

9 45 Set at 0 40.0 Plate 13.
Ran 5 min.

α Orionis.
Set at 0 40.0 Plate 14.
10 6 Fogged one edge intentionally.
Ran 5 minutes.

α Tauri Plate 15
10 20 0 ~~80.0~~ 60.0
10 30 Ended.

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1885phae.proj.1321S

Feb. 18, 1886.

Photographic apparatus on East Equatorial.

At the reading called O 60.0 yesterday the face of the photographic plate nearest the object glass is 18.2 cm. from the face of the position circle.

6 52 Plate 16. d Tauri. Focus O 60.0 Shutter & Plate holder not entirely drawn out.

7 19 Cloud.

Gradually covering entire cloud.

B.D.C. 1182			B 394		
12	46	10.4	12	47	00
	47	10.6		44	00
	48	10.6		49	00

13 24 * Seeing superb. Never known to be better by P. or W. The markings on Jupiter and all the minute details of its belts magnificently defined. - also the polar regions of them. Sky covered with moderately thin cirrus clouds. and air still. This record properly belongs at the bottom of p. 95 but made here for want of room there. However, the seeing was about the same during all of first eclipse. W.

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1885phae.proj.1321S

Feb. 14. 1886.

Dis. Jup. II. Phot. N. Pole.
Comp. with pat. prev. = I.

13	2	47.0	100.4
		V6.0	126.1
	9	V.V	99.9
	9 0A	14.V	14V.2
		24.V	99.3
	9 41.0	3V.0	121.2
		4V.V	103.4
		V9.0	126.0
	10	9.0	102.3
		19.0	123.4
		32.0	102.7
		49.0	124.4
	12	1.0	103.2
		23.0	123.3
		33.0	104.1
		41.V	124.2
		V1.0	104.2
	13	2.0	121.0
	13 7.2	13.0	101.4
		23.0	124.6
		33.0	100.6
	13 47.2	43.0	124.2
		V2.0	103.6
	14	1.0	122.3

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1885phae.proj.1321S

Feb. 14. 1886.

13	14	14.0	102.2
		18.0	141.1
		34.0	104.6
		42.0	142.5
		50.5	102.6
		59.0	143.3
	15	19.0	100.1
		24.5	179.4
		35.0	103.6
		42.0	145.3
		50.0	104.3
		59.0	143.4
	16	4.0	103.6
		16.0	179.4
		27.0	106.9
		36.0	141.4
		42.0	109.4
		42.0	179.0
		53.5	104.3
	17	2.5	179.6
		9.5	104.4
		16.0	175.6
		22.0	109.0
		24.0	175.6
		33.5	113.4
		39.0	174.4

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Feb. 14. 1886.

13	17	45.0	114.0
		51.0	175.3
		52.5	112.7
	18	4.5	173.9
		11.0	115.3
		17.0	164.7
		24.0	119.4
		31.0	167.3
		40.0	114.2
		45.0	167.5
		52.0	125.2
		54.0	160.6
	19	2.5	126.2
		10.0	160.6
		17.0	124.1
		24.0	157.2
		32.0	150.0
		41.5	145.4
		49.0	135.4

Limit of Vis.

	20	29	135.3
		34	151.2
		44	135.7
	21	2	144.2

* See page 92 for wet record.
Looked for Sats of Mars,
Not seen.

1885phae.proj.1321S

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Feb. 18. 1886.

B. + C. 1142.

15	49	9.8	
	50	9.7	

B. 394.

15	50	0.0	
	51	0.0	

Photometer R

Dis. Disp. I. Comp. with III. S. obs.

16	7	v 3.0	d 3.0
	d	26.0	176.1
		v d.0	d 0.d
	9	22.v	17v.1
		37.0	dd.3
		v 2.0	172.2
	10	1.0	d9.v
		12.0	17v.7
		22.0	d9.3
		31.v	173.3
		46.0	d4.9
		v9.0	174.0
	11	11.v	dd.1
		22.0	171.2
		32.0	dv.1
		43.0	17v.v
		v4.v	dv.v
	12	4.v	172.3
		15.0	d4.v
		25.0	173.v

21 9
15 29 9.8

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1885phae.proj.1321S

Feb. 12. 1886.

16	12	33,0	90,4
		41,0	170,0 6
		49,5	44,1
	13	0,0	169,0
		4,5	76,0
		21,0	17K,3 7
		30,5	46,9
		40,0	17K,5
		42,0	46,1
	14	0,0	170,7 8
		9,0	44,1
		14,5	170,0
		25,5	92,0
		34,5	175,5 9
		43,0	46,4
		51,5	172,0
	15	3,0	49,3
		13,0	173,0 10
		22,0	44,4
		31,5	170,4
		40,5	49,1
		51,0	173,1
	16	1,5	49,0
		10,5	166,2
		20,5	45,0
		24,5	167,0
		35,5	90,4
		42,0	166,2

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1885phae.proj.1321S

Feb. 1 to 14 + 6.

16	16	44.0	47.5
		56.0	166.3
	17	3.5	95.0
		11.0	162.4
		14.0	102.0
		27.0	159.5
		32.5	104.5
		34.5	159.0
		43.5	101.0
		49.5	154.0
		56.5	109.4
	18	2.5	152.0
		4.5	115.0
		16.5	147.2

Not seen later.

Limit of vis.

14		53.0	119.1
19		2.5	149.4
		11.0	117.3
		20.0	149.0

B. + C. 11 + 2.

16	25	9.4
	26	9.6

B. 394.

16	26	0.0
	27	0.0

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1885phae.proj.1321S

Oct 20, 1886

Disappearance of Satellite I. P. Obs. Sidereal

10 45 0 G.M.T.

Photometer H. Compared with satellite III.

10 39	10	191.4
	22	270.6
	30	195.8
	38	274.7
	44	191.8
	52	273.2
40	0	191.2
	6	269.6
	13	196.8
	22	273.2
	29	193.7
	38	271.3
	45	194.6
	53	271.4
41	0	198.6
	9	270.3
	20	208.4
	30	270.6
	42	197.5
	51	269.8
42	7	197.3
	18	271.8
	28	198.8
	37	275.6
	47	195.6
	57	274.7

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1885phae.proj.1321S

Feb. 20, 1886

10	43	8	197.3
		16	271.6
		24	198.8
		34	267.3
		44	196.7
		54	272.3
~~44~~			not seen; seeing bad.
44		31	206.8
		44	261.6
		52	212.7
		58	261.4
45		11	211.3
		20	259.8
		25	209.8
		32	256.8
		40	214.3
		49	257.3
		56	218.1
46		3	252.7

Not seen later

Seeing excessively bad part of the time; thin clouds at intervals

Limit of visibility.

10	46	50	214.4
		59	251.8
	47	11	220.3
		21	250.7

Wind high; cold increasing.

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1885phae.proj.1321S

Feb. 20, 1886

B § C 1182			B 394		
10	58	4.8	10	59	0.0
	59	4.8	11	0	0.0

10 38 37
8 12

10 46 49
55

10 45 54 time by chron.

B § C 1182			B 394		
11	8	4.8	11	9	0.0
	9	4.8		10	0.0

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1885phae.proj.1321S

Feb. 27, 1886.

Photographic apparatus on East Equatorial.

Plate 17. A.

6 27 β Orionis. Focus 60.0
6 57 Ended.

Plate 18. B.

7 8 α Tauri. Focus 60.0
7 34 Ended.

Plate 19 C

~~7 54~~
6 1 ζ Orionis Focus 70.0
8 31 Ended.

~~8 43~~ Plate 20 D ~~Focus 70.0~~
8 43 ε Orionis Focus 70.0
9 13 Ended.

Plate 21 A

9 22 α Orionis Focus 70.0
52 Ended

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1885phae..proj..1321S

Feb 22. 1886.

Mars 22. B.

α Antigae S

Sidist clock + 10ʰ 4ᵐ H.A. 3ʰ 28ᵐ

10 6 Foens 70

47 Ended.

B.f.C. 1182 B 394

11 5 55.3 11 7 0.0

6 55.2 8 0.0

Disappearance of Jupiter III.

Photometer R P. obs. W. rec.

Compared with Sat. III.

11	1ʰ	3,0	71.2	
		15,0	131,4	
		24,0	74.3	
		34,0	129.6	
		41.0	77.2	
		49.0	129.3	2
		56,5	76,4	
	19	4,0	126,3	
		12,0	77.2	
		21,0	126,4	3
		30,5	76,4	
		39,0	124,3	
		47,0	74,7	
		54,5	126,7	H
	20	2,5	74.6	

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1885phae.proj.1321S

Feb. 22. 1886.

11	20	12,0	12V.7	
		22,0	73.3	
		30.V	124.3	5
		41.0	76.4	
		49.0	127.4	
		V4.0	76.3	
21		9.0	127.0	6
		17.0	77.7	
		26.0	124.3	
		3V.0	74.6	
		42.V	126.V	4
		V1.0	76.6	
22		1.0	123.6	
		1V.0	79.0	
		24.0	126.7	8
		31.V	74.3	
		39.V	124.6	
		49.0	75.9	
		V7.0	124.4	9
23		V.V	77.3	
		14.0	123.7	
		2V.V	76.6	
		3V.0	123.1	
		42.V	80.3	10
		V0.0	122.4	
		V4.V	82.4	
24		V.V	123.4	

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1885phae.proj,1321S

Feb. 22, 1886.

11	24	17,0	41,6
		25,0	123,5
		32,0	79,6
		40,5	123,7
		44,0	40,4
		55,0	123,4
	25	10,0	79,6
		17,5	121,1
		27,0	40,6
		35,0	122,1
		44,0	79,4
		51,5	120,5
	26	1,5	41,9
		11,0	119,6
		19,5	43,7
		27,0	119,3
		35,5	40,4
		44,0	121,1
		53,0	42,6
	27	2,0	114,4
		10,0	42,4
		19,0	119,3
		26,0	43,3
		35,5	114,4
		44,0	44,0
		53,0	116,2
	24	2,5	42,4
		9,5	119,9

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1885phae.proj.1321S

Feb. 22. 1886.

11	2h	21,0	h3,7
		31,5	116,3
		h7,0	h6,h
	29	0,5	11h,3
		10,5	h6,0
		2h,5	117,6
		3h,0	h6,5
		hh,0	116,2
		52,0	h6,h
		59,5	11h,1
	30	9,0	h8,5
		19,0	11h,3
		29,5	h6,h
		h0,0	11h,h
		h7,0	h7,h
		56,0	11h,2
	31	5,0	h4,3
		14,0	113,7
		29,0	h9,h
		36,0	113,0
		hh,0	h4,h
		53,0	11h,h
	32	2,0	90,7
		9,5	111,h
	16,2	19,0	90,h
		3h,5	112,3
		h3,0	91,3
		51,5	112,2

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1885phae.proj.1321S

Feb. 22, 1886.

11	33	59.5	89.9
	34	2.5	111.0
		17.0	92.3
		24.5	111.4
		41.0	92.4
		56.0	112.4
		59.0	93.2
	34	2.5	109.6
		12.5	93.4
		24.5	104.6
		44.0	92.4
		55.0	104.3
	35	6.5	94.5
		17.0	109.2
not seen certainly		34.5	96.1
		55.5	not seen.
seen	36	43.0	changed eyepiece
			to micrometer No. 2.
	37	34.0	suspected.

seeing good,

Limit of V's.

39	30	93.4
	42.5	104.6
40	0.0	96.7
	16.0	109.3

At end of obs. dome beg's to interfere and cuts off about 3 inches of aperture.

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1885phae.proj.1321S

Feb. 22. 1886.

B + C. 1142.			B. 394		
11	44	∨4.2	11	46	0.0
	45	∨4.3		47	0.0

Clouds gradually formed so that sky was completely covered and Jupiter invisible at time of readjustment.

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1885phae.proj.1321S

Feb. 23. 1886.

α Cassiop.

0 34 / +55.9

56.6
+.7
57.9

~~7 58~~ α Cassiop. ~~Focus 0.50~~
7 58 Plate 23 A. Focus 0.50

Plate 24 B

γ Cassiopeiae

Setting in δ 52.0 for spectrum, 60.7 for star
α 6m further west for spectrum than for star
Focus ~~60~~ 60

8 47 Ended
9 17

Plate 25 C

9 33 α Persei Focus 50

Spectrum about 5m east of α Persei which may be mistaken for that star. Correction in α for proper spectrum same as for γ Cass. above.

10 3 Ended. Clock running feebly at end.

Plate 26 D

10 21 β Tauri Focus 60

10 51 Ended

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1885phae.proj.1321S

Feb. 23, 1886.

B & C 1182 — B 3994

16	44	~~50.1 5+2~~	16	46	0,0
	45	50.8 5+2		47	0,0
	46	50,8		48	0,0

1m 9.2 slow

Disappearance of Jupiter III.
Photometer H. Compared with satellite I.

	S. obs.	S. rec.		
16	~~52~~ 55	94.2		
	52 20	191.6		
	48	190,0	rejct	
	54 7 8	102,5	rejct	
	55	96,8		143,5
	55 20	191,6	+	—
	43	92.1		
	56 13 21	1932	IV	
	34	93,2	+	
				142.9
	53	193,1	+	—
	57 46	93,4		
	58 8 16	196,8	+ 3	
	26	95,4		
				145.1
	43	194,8	+	—
	~~59~~			
	59 36	97,3	II	
	47	196,3	+	
17	0 7 57	95,4		
				145.8
	24	194,0	+	—
	43	92,4		
	56	199,0	+ 5	

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1885phae.proj.1321S

Feb. 20 1886

17	1	33	17	93,4		144.2
		53		192,2	+	
	2	18		97,4		
		34	43	190,3	+	6
		52		93,9		143.6
	3	7		192,7		
		26		95,9		
		41	49	190,5		
		58		95.0		143.0
	21	15		190.6		
		28		92,5		
		43		192,7		
		58	58	93,9		
						144.1
	5	44		197,5		
	6	5		95,3		
		18	27	194,0		
		34		97,4		143.9
		51		189,0		
	7	9		97.0		
		25		191,5		10
		42	34	99,5		144.2
		59		189,0		
	8	16		96,2		
		34	43	189,3		11
		54		97,3		142.5
	9	9		184,4		
		26		100,0		
		45	53	182,1		
	10	1		101,2		14.25
		19		186,8		

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1885phae.proj.1321S

Feb. 23 1886

17	10	43	106,0	
	11	3 17	181,8	13
		31	107,8	144.4
		50	182,0	
	12	8	104,0	
		24	184,0	
		40 31	110 4	14 143.6
		53	175.9	
13		17	110,9	
		29	173,5	
		44	115,4	
		59	172,0	
14		18	117,9	
		35	166,2	
		49	125,1	
15		5	161,4	
		21	128,4	
		36	154,1	
		57	129,6	
16		5	155,0	

Not seen later

Limit of visibility

17	17	1	127,9	
		27 37	162,8	
		48	133.1	
	18	13	160,0	

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1885phae.proj.1321S

Feb. 23, 1886.

B	Bb	1182			B	394
17	28	50,6		17	30	0,0
/	29	50,5		/	31	0,0

+ ^{m} 1^{m} $9\frac{2}{5}$ slow

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1885phae.proj.1321S

Feb. 24 1886

Plate 27 A Focus 50

γ Cassiopeiae

7h 19 Ended. 14

β Cassiop. Plate 2 & B.

Focus 60.

8 25 Ended. 50

α Aurigae. Plate 29. C.

Focus 60. 46.4

9 3 .7

9 47 Ended. 377

ι Can Min. Plate 30 D.

Focus ~~60~~ 50.

9 55

10 55 Ended.

~~Star drifted out of field on~~ γ Cassiop. on account of bad running of clock. ~~In a hurry. Bad grammar.~~ Later. More composed.

Clock running badly during last part of exposure on γ Cassiop. (above). Star out of field at end of exposure.

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Feb. 27, 1886

Plate 31 C

6 55 α Tauri Focus 50

Dome obstructed by snow so that it cannot readily be turned; α Tauri in view at present; Plates C and D to be used first this evening.

7 23 Ended. Shutter interfers.

~~β Orionis. Plate 32 D.~~

7 59 β Orionis. Plate 32. D.
Focus 50.

8 42 Ended.

Plate 33 A.

8 53 α Orionis Focus 60

9 10 Ended Dome interfers.

Plate 34 B

9 25 α Leporum Focus 50

10 2 Ended; clock running feebly; spectrum not in field on examination with eyepiece. Star faint to naked eye, owing to haze.

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1885phae.proj.1321S

Mar. 4. 1886.

M. T. 7 1v = 6 2v V. T.

33 R Monoc. Comp. Stars.
Hedges Photometer W. obs.

6 4v
6 33 +9.2
+12

42 6 v2 > v6
1v 22
27 19

454
360.
40v.4
90.
31v.4

Each star observed twice before observation of the next, instead of in the usual direct and reverse order. V

5.0 > ~~5.7~~	5.0 ^	d	24.7	24.3	as observations were
3.5 > ~~24.3~~	40.7 ^	c	21.0	19.7	delayed by exam-
4.8 >	54.6 ^	R	26.8	27.8	ination of nebula
3.8 >	43.7 ^	b	23.5	20.2	attached to R Mon,
3.7 >	42.5 ^	b	21.5	21.0	to see if it was
3.7 >	42.6 ^	a	21.5	21.1	a comet.
7.6 >	85.5 ^	(7)	43.3	42.6	
7.2 >	82.6 ^	(8)	40.9	41.7	
7.5 >	85.1 ^	(9)	43.0	42.4	

90

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1885phae.proj.1321S

March 4, 1886.

		R Cam, Min.	(38)	S. obs.	
9 24	f	40.1	46.6	86.7^	7.5^
	g	29.4	37.5	66.9^	5.8^
	h	32.9	34.0	66.9^	5.8^
	R	36.8	35.0	71.8^	6.2^
	e	38.6	41.6	80.4^	7.0^
	d	35.2	36.1	71.3^	6.2^
	c	32.9	34.6	67.5^	5.9^
	a	30.0	35.7	65.7^	5.7^
	b	43.0	48.0	91.0^	7.9^
	g	40.8	47.0	87.8^	7.6^
	k	44.9	48.7	93.6^	8.1^
(m)	Star follows 15s 2' north,	25.9	27.2	53.1^	4.6^
(n)	Star follows 8s 3.5 south	24.1	25.0	49.1^	4.3^
(p)	Star precedes 4s 5' south,	21.7	22.5	44.2^	3.8^
(q)	Star precedes 10s 2.5 south,	14.8	15.9	30.7^	2.7^
(r)	Star prec. R 10s, same S	14.8	14.0	28.8^	2.5^

10 22 R = e by estimate

Observations in usual order. There were clouds in various parts of the sky, and hence it may be suspected that clouds may have affected some of the observations, but no clouds were seen through the opening of the dome, although often looked for.

The additional stars may not be needed. The minimum magn. of R was read from the wrong line in the catalogue.

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1885phae.proj.1321S

March 4, 1886

Sclam. Main. (39). S. Ds.

10 44	f	41.6	45.1	86.7		7.5
	e	41.5	44.4	85.9		7.4
	g	43.0	49.0	92.0		7.8
	c	35.3	36.7	72.0	6.2	
	h	31.3	31.8	63.1	5.4	
	x	22.0	29.8	51.8	4.5	
	k	28.0	31.0	59.0	5.1	
	y	20.0	20.2	40.2	3.5	
	b	26.2	29.9	56.1	4.8	
	m	37.7	38.9	76.6	6.6	
	n	37.0	38.7	75.7	6.5	
	v	34.0	33.3	67.3	5.8	
	(z)	16.0	17.5	33.5	2.9	
	(w)	11.3	14.1	25.4	2.2	

11 34 By estimate h 2 f f 1 k

(z) foll. k 2s, 3' South (z' on ~~last~~ 1st)

{ (w) foll. k 12s, 1'.5 South
{ (w) about same d with y.

g & d omitted as unnecessary and distant.

Stopwatch runs 61s while B&C. 1182 runs 60s.
Subtract 1s from stopwatch readings.

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1885phae..proj..1321S

March 6, 1886

ι Orionis (28) 7.5 mag.

Region identified.

7 5

8 49	b	39.1	39.1	78.2	6.9
	m	27.1	27.1	54.2	4.8
	a	45.2	43.0	88.2	7.8
	l	30.6	30.2	60.8	5.4
	c	41.0	39.7	80.7	7.1
	x (tinkles)	22.6	25.2	47.8	4.2
	s	23.5	26.0	49.5	4.4
	y	21.2	18.9	40.1	3.5
	z	15.5	16.6	32.1	2.8
	g	28.8	29.5	58.3	5.1
	h	32.3	33.5	65.8	5.8
	k	30.0	31.9	61.9	5.4
	n	27.0	28.9	55.9	4.9
	f	28.6	29.9	58.5	5.1
	e	37.0	36.0	73.0	6.4
	d	39.2	39.5	78.7	6.9
	(p)	15.9	15.2	31.1	2.7
	(q)	12.1	10.9	23.0	2.0

(p) prec. g 10^s, 1′ south

(q) prec. g 1^s, 0′.5 north

9 37 By estimate h 2 s s2 x

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1885phae.proj.1321S

March 6, 1886.

δ Aurigae (27 a) S. obs.

10 5

a	40.8	41.1	81.9	6.1
b	34.9	33.8	68.7	5.0
g	17.8	18.0	35.0	2.6
f	19.9	19.0	38.9	2.8
g	19.2	19.2	38.4	2.8
h	15.8	14.1	29.9	2.2
k	13.1	12.7	25.8	1.9
c	32.1	30.3	62.4	4.6
d	28.1	32.5	60.6	4.4
e	23.7	27.1	50.8	3.7
(11)	57.8	59.1	116.9	8.7
(12)	50.1	51.4	101.5	7.5
(13)	57.6	55.1	112.7	8.3

10 44 By estimate d 2 f f 1 e.

No star fainter than k can be well observed in the wedge.

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1885phae.proj.1321S

Mar. 6. 1886.

B. & C. 1142.

14 ν 10.1
6 10.1

B. 394.

14 7 0.0
4 0.0

Dis dup. I. Comp. with Lat. IV.
Plat. R. S. obs.

14 30.ν
4.0
22ν
14 6.2
14 24.7

14 17 41.0
ν2.0
14 2.0
22.0
42.0
νν.ν
19 4.0
13.ν
25.0
35.0
44.0
20 2.0
15.0
26.ν

261.1
3ν0.0
29.ν
345.0
259.9
346.0
260.0
3ν2.1
29.3
3ν0.ν
ν.
29.1
343.2
261.4

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1885phae.proj.1321S

Mar. 6. 1886.

14	20	36,5	351,0
		50,0	261,3
	21	0,5	344,8
		10,0	261,9
		27,0	343,8
		39,0	262,0
		49,5	344,6
	22	0,0	262,1
		10,0	343,4
		20,5	255,4
		33,0	334,3
		49,5	261,1
	23	0,5	347,0
		20,0	263,4
		30,5	347,9
		41,5	261,0
		52,0	347,7
	24	3,0	261,1
		15,0	340,2
		29,5	262,0
		40,0	346,0
		44,5	262,1
	25	5,6	343,2
		16,0	261,9
		31,0	343,2
		40,0	259,0
		49,5	345,4

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1885phae.proj.1321S

Mar. 6. 1886.

14	26	1,5	269.5
		10.0	3K1.3
		19.5	265.4
		24.5	3K5.0
		36.5	267.3
		KK.0	346.0
		51.5	267.1
		59.5	3K7.K
	27	4.5	261.2
		17.5	2K9.2
		30.0	260.K
		K0.0	352.K
		51.5	265.2
	24	0.5	3KK.0
		9.0	260.4
		12.5	3K4.1
		29.0	267.7
		K0.0	345.4
		50.5	26K.0
		59.5	347.0
	29	12.0	260.0
		22.5	345.0
		32.0	270.4
		K2.0	3K0.5
		K9.0	272.0
		56.0	339.4

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1885phae.proj.1321S

Mar. 6. 1886.

1K	10	10,2	26±2
		10,0	10?±
		14,0	27±±
		24,5	10±,0
		12,0	27±,2
		14,5	10±,±
		±6,0	24±,0
		5±,0	10±,0
	11	2,0	27,±
		11,0	26,5
		11,0	24,3

Not seen later.

Lun. Vas.

1K	12	2,5	24±,0
		12,5	12±,0
		25,5	24±,0
		16,5	12±,0

Images bad owing to great distance of Sat. IV from Jupiter, which required great separation of images.

B. + C. 1124.			B. 394.		
1K	39	10.0	1K	41	0.0
	40	9.±		42	0.0

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1885phae.proj.1321S

Mar. 9. 1886.

Comp. Stars for R Orionis (24) Yr. No.

Wedge Photometer.

7h 0m S.T. = 7h 30m Sid. T.

4 47 +7.5

7 7

+2 20

7 11

4 47

+2 2 4

C(13)	5 0.4	5 1.3	102.1 ^ 9.0 >
(14)	34.0	36.4	70.8 ^ 6.2 >
(15)	36.6	34.2	74.8 ^ 6.6 >
e	24.0	27.2	55.2 ^ 4.9 >
f & d	24.4 / 32.0	29.6 / 36.0	58.0 ^ 5.1 > / 74.0 ^ 6.5 >
b	19.3	21.5	40.8 ^ 3.6 >
c	29.1	30.1	59.2 ^ 5.2 >
g	37	35.1	68.8 ^ 6.1 >
a	25.1	25.2	50.3 ^ 4.4 >
[illegible]	18.2	20.1	38.3 ^ 3.4 >
[illegible]	24.5	27.0	51.5 ^ 4.5 >
h	33.3	33.7	67.0 ^ 5.9 >
X	stars about in position of X faintly seen		
k	26.0	24.0	54.0 ^ 4.8 >

2d interval – too ft. to measure with wedge, est 14.3 mag. – some moon.

8 4K R 3 c

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1885phae.proj.1321S

March 9, 1886

Region of R Gemin. (37) 1..0 Hs.

Place of a star seeming to be

2 X Chandler's x

53^s foll. & northern of pair of stars 2' south

37^s pree. f, 7.5 south

By the chart x should be in about this right ascension, but about 5' further South.

About 4^s & 12^s foll. the star here taken for x and 3'.5 south of it are two faint stars, magn. about 13.5. The star here taken for x is about magn. 10.5, certainly not near magn. 9.

This 3 stars forming a little triangle of stars in the place of the "suspected variable 167" are all faint. The foll. of the 3 is the brightest, near magn. 13.

This is the star supposed to be the suspected variable; see book R 105 (paper label 31) page 193.

10 10	(1 a?)		56.0 (hardly disappears)	9.1	
Possibly 1567.	Star taken for x		30.0	4.9 >	
(2 a)	Star 4^s foll. 3'.5 south		14.2	2.3 >	
3 a.	"	a	40.8	6.7 >	
4 y (not the y of list)		y	31.0	5.1 >	Not a blue star.
Possibly 1599. (29)	"Susp. var. 167" 3 foll. of 3		15.8	2.6 >	
√ f		f	40.0	6.5 >	
6 m		m	19.0	3.1 >	
7 z		z (called x in list)	28.8	4.7 >	
8 o	o (assumed to be this star, 1' south of m, a little pr.)		12.5	2.0 >	

Perhaps o is meant for a star employed Feb. 1, 1883; half way from that here called o to the first of those here called R; see book R 105 (paper label 31), page 38: but Mr Chandler says it is a star a little brighter and further south than this.

In list, o seems to have been supposed to be the old R, apparently meant to be erased.

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1885phae.proj.13215

March 9, 1886

9 m	m	18.5	3.0 >	
10 b	b	34.3	5.6 >	
(31) "y y"	~~R?~~	14.6	2.3 > (Sup. 109)	This region is full of "suspected variables" and misplaced or lost DM. stars. What it needs is a good chart on a sufficient scale.
This is	R ~~x~~	13.0	2.1 >	
12 w	w. of R (star north)	11.3	1.8 >	
13 c	c	32.6	5.3 >	
14 e	e	30.2	4.9 >	
15 d	d	31.1	5.1 >	
	k	21.0	3.4 >	
16 K	a star foll. b 31s 3' north; no brighter star near it as shown on chart.			b = DM. +22° 1576 and DM. +22° 1579 should follow 18s.7, 2'.5 north, as shown on chart.
17 l	l	16.8	2.7 >	
18 h	h	22.1	3.6 >	
19 i	i	18.1	~~14.5~~ ~~32.6~~	3.0 > ~~2.6~~
20 p	p	26.9	~~25.0~~ ~~51.9~~	4.4 > ~~4.0~~

See book R 105 (paper label 31) page 148, for observation of March 11, 1883, in which the comparison star K is used. If the DM. star near it was then on the chart and not in the sky, it is strange that no remark was made on it.

11 0 Sky decidedly hazy; clouds near region under observation. Reject the second observations of p and i.

The first of the two stars called R: above is the southern, the second the northern, of two objects near the place of R; the second is probably R; it is in about the same S as m. See book R 104 (paper label 30), page 194. The northern star is R.

It is doubtful when the clouds began to affect the observations; the estimates preceding the work with the wedge are trustworthy, and so probably are all observations on page 126.

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1885phae.proj.1321S

Mar. 10. 1886.

Comp. Stars for 24 R Orionis Wolf.

6 49 ν. = 7 1ν Eu. ν.

4 47 +7.ν
6 ν9
+2 12

13	ν0.ν	ν1.2	101.7 ^	8.9 >
14	3ν.0	34.2	69.2 ^	6.1 >
1ν	41.6	40.1	81.7 ^	7.2 >
f	31.2	32.4	63.6 ^	5.6 >
e	27.0	29.3	56.3 ^	5.0 >
d	37.7	37.4	75.1 ^	6.6 >
b	23.0	2ν.2	48.2 ^	4.2 >
c	34.6	3ν.1	69.7 ^	6.1 >
g	33.3	34.9	68.2 ^	6.0 >
a	30.4	31.0	61.4 ^	5.4 >
y	1ν.1	14.9	30.0 ^	2.6 >
R	33.8	31.ν	65.3 ^	5.7 >
h	39.7	38.0	77.7 ^	6.8 >
x	not certainly seen.			
k	29.2	28.0	57.2 ^	5.0 >

f 32 R 3 a
Some motion.

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1885phae.proj.1321S

March 10, 1886.

Region of R Geminorum (37) S. obs.

8 52	(1 w²)	56.0	57.0	(hardly disappears). 113.0^ 9.3 < >	
2x	Star taken for x; see p. 126	32.0	31.2	63.2^ 5.1 >	— Possibly 1 ~ 6?
(2d)	Star 4^s f, 3'.5 S see p. 126	20.3	21.0	41.3^ 3.3 >	
(30)	Faint w star 3^s.5 pr., 4'.5 s	12.8	14.8	27.6^ 2.2 >	
(3a)	a	43.1	44.7	87.8^ 7.2 >	
4y	y	35.3	33.6	68.9^ 5.6 >	
(29)	Susp. var. 16 foll * in △	18.5	21.5	40.0^ 3.2 >	
5f	f	45.0	43.5	88.5^ 7.2 >	
6m	m	25.1	25.0	50.1^ 4.1 >	
7z	z (called z in list)	35.0	33.5	68.5^ 5.5 >	
8 o	o; star foll. m 12^s, 2' south	18.1	19.6	37.7^ 3.1 >	
(32)	xx; star foll. m 8^s.5, 0'.5 south	9.7	9.6	19.3^ 1.6 >	
9n	n	22.7	22.9	45.6^ 3.7 >	
10b	b	43.9	41.2	85.1^ 7.0 >	
(31)	yy; star 0^s.5 pr. R, 1'.0 south	13.3	18.8	32.1^ 2.6 >	(This is op. (R²) p. 127)
	R	19.1	21.0	40.1^ 3.3 >	
12w	w; star 1^s foll R, 3' north	15.0	15.0	30.0^ 2.4 >	
13c	c	41.9	36.8	78.7^ 6.4 >	
14e	e	37.1	37.5	74.6^ 6.0 >	
15d	d	38.0	35.5	73.5^ 6.0 >	
16K	K (see p. 127)	26.0	29.0	55.0^ 4.5 >	
17l	l	22.3	24.8	47.1^ 3.9 >	

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1885phae.proj.1321S

March 10, 1886.

18h	h	27.8	32.0	59.8 ^ 48 4.8 >
19c	i	28.0	24.1	52.1 ^ 4.2 >
20p	p	35.0	31.5	66.5 ^ 5.4 >
f	mf	39.1	37.9	77.0 ^ 6.2 >
	sf	34.0	35.0	69.0 ^ 5.6 >

The last two combined are probably Sawyer's f.

Sawyer's and Oudemans' t, q, g, a, b, c, 7 to 8 magn. are not needed for this wedge.

10 32 By estimate o 1 R; R 2 w.
y 2 x; x 1 z
Susp. var. 16 y appears as usual.
The explanation of the second star entered on the chart near K is probably that K is put in from Oudemans and the other star from the DM., the two being really identical. See page 127. In Chandler's observations of R Geminorum, K was not used, so that the ambiguity of the chart did not appear.
The DM. places hereabouts are liable to large errors, probably on account of the number of stars to be observed. The same consideration may easily account for the omission of x in the DM.: but x is certainly decidedly fainter than e, while the two were thought equal by Chandler Feb. 2, 1884; see page 127.
10 44

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1885phae.proj.1321S

March 11, 1886

Revision of Bl. VI. Obs.

637 has stars about 2^s following, 2′ north and 2′.5 south; also 1 ~~637~~ 635 foll. less than 1^s, 3′.5 north.

~~635 637~~ 637 foll. 635 ~~24.0~~ 23,9 / 24,0 / 24,0 hence α 1^m 17^s.8

637 south of 635 2′.6 Cat. 2.5

637 pr. 638 45^s.3 / 44.7 } 7′.4 south Cat. 7.0

hence α 45^s.0 / 1^m 17^s.1

17.8 / 17.1 / 17.4

Wedge

635	637	638
29.6	18,6	23.4
36,8	18.6	21.0
31.2	18.7	22,2
9.1	12.5 / 2,2 Mayn. 637	11,3 / 11,2 / 11.2 — 3.5 / 0.6 — 10.6

22

Became thick, Closed down.

10 40 Moon under thick cloud at time of occultation predicted by E. S. Woodside.

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1885phae.proj.1321S

Mar. 15. 1886.

Comp. Stars for 3d R Cam. Merid. Wedge Photometer. Mr. obs.

6 55 +9.2

7 30

+35

f	42.2	42.6	84.8	74
h	32.9	33.5	66.4	58
b	30.4	32.2	63.0	55
R	30.0	~~36.0~~	34.9	64.9 / 56 Mer. one thought to be wrong.
e	36.0	37.5	73.5	64
d	35.8	35.0	70.8	62
c	31.9	33.3	65.2	57
a	27.0	28.4	55.8	49
l	45.3	48.0	93.3	81
g	38.8	40.7	79.5	69
k	48.4	46.5	95.3	83

f b c 2 R

East. T.

Chronometer is 2 min. slow so that the above obs. of R. was at 2h 2m East. T.

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1885phae.proj.1321S

March 15, 1886.
Pritchard photometer.

24 Pleiadum
9 10 34.0
Reject; wedge not properly placed.
Top of rack set at 15
48.1
47.6
44.1
43.0
47.6 46.1
310.4

21 Pleiadum
9 32 34.5
35.0
35.5
35.2
9 40 34.2 34.9
24.4

16 Pleiadum
9 53 19.8
16.6
12.2
Reject in getting into thick haze near horizon.

24 Pleiadum (to try effect of haze)
38.8

Power 1; eyestop 1/4; diaphragm 1/2

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1885phae.proj.1321S

March 15 1885

B & C 1182 B 394

10 10 38.4 10 13 0.0
11 38.4 14 0.0

∴ B-C 2m 21.6s

Dec. II Sdrs. Pne.
Shut R. Cond with III.

~~10 21 57.5~~
10 23 26.0 219.0 } Reject these
45.0 55.8 } observations, as
24 28.5 217.0 } the Nicol was
41.0 31.5 } loose. It
dropped off ~~just~~ as the observations were
beginning and could not be replaced securely.

Dec. I. Sdrs. Pne. 525
Shut R Cond with III.

10 42 19.5 143.5
36.0 219.9
52.0 42 142.0
43 2.0 211.4
15.5 141.9
25.0 212.0
46.0 36 143.1
55.5 207.3
44 7.0 146.0
18.5 211.0
28.0 22 143.0
36.0 212.2
43.5 144.0
53.5 209.1
59.0
45 55 24 144.0
135 207.0

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1885phae.proj.1321S

March 15 1886.

10	45	20.0		144.9	
		29.0		214.8	
		39.5	36	143.1	
		53.5		213.0	
	46	1.5		145.5	
		8.5		209.8	
		17.0	13	144.8	
		24.0		207.1	6
		37.0		140.7	
		47.5	54	215.3	
	47	0.5	~~54~~	142.0	
		12.5		209.0	
		27.5		142.2	
		36.0		214.1	
		47.5	42	143.8	
		58.0		209.9	
	48	9.0		140.0	
		17.5		210.3	
		27.0	22	141.0	176.1
		33.5		213.3	
		42.5		146.9	
		50.0		214.8	
		59.5	56	140.0	179.9
	49	8.0		218.0	
		18.5		142.8	
		31.0		212.2	
		38.5	34	142.4	176.8
		48.5		209.9	
		56.0		142.3	
	50	3.5		207.0	

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1885phae.proj.1321S

March 15, 1886.

50	11.5	143.9
	20.0	207.2
	32.0	145.0
	40.0	215.2
	57.5	210.8
51	6.0	145.2
	13.0	204.5
	19.0	146.0
	24.5	200.0
	31.0	148.8
	36.5	199.3
	43.0	150.0
	51.0	200.0
	57.5	149.7
52	4.0	199.1
	10.0	157.8
	18.5	200.8
	26.0	154.1
	34.5	196.0
	41.5	152.9
	49.5	191.3
	56.5	156.1
53	5.0	191.2
	~~15.0~~	1st decr.
	28.5	Evaporated.

Limit of vis.

54	12.0	159.8
	22.5	193.1
	34.5	158.0
	48.0	189.8

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1885phae.proj.1321S

March 15, 1886

B 8 6 11h m

11	2	37.3		11	5	0.0
	3	37.3			6	0.0

$2^m\ 22.^s3$ R.

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1885phae.proj.13215

Mar. 17. 1886.

Comp. Stars for 39 S. Can. Nov.
Zöllner Photometer. Fr. obs.

7 21 +4.2
7 30
+9

f	44.0	44.8	88.8^	7.8^
a	44.5	39.7	84.2^	7.4^
g	49.2	46.2	95.4^	8.3^
e	38.5	38.4	76.9^	6.8^
h	33.0	35.0	68.0^	6.0^
x	19.7	21.1	40.8^	3.5^
k	32.1	31.0	63.1^	5.5^
y	19.1	18.7	37.8^	3.3^
s	26.7	28.0	54.7^	4.8^
w	44.1	41.2	85.3^	7.4^
v	38.3	37.7	76.0^	6.7^
q	46.9	45.3	92.2^	8.0^
b	35.5	34.5	70.0^	6.2^
d	41.2	40.1	81.3^	7.1^

Star 22^s p. s, 4' south, called z' (z' on chart) not the same as (z) on p. 118
s 2.5 z'

8 45 z 28.7 26.0 54.7^ 4.8^
These observations made between Attn
second observations of x and h

8 55 Last observation of f at this time.

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1885phae.proj.1321S

March 17, 1886

(z) and (w) from page 118.

(z) 14.0 15.2

8 58 (w) not seen; moonlight

Pritchard Photometer S. obs.

Power 1; eyestop 1/4; diaphragm 1/2

24 Pleiadum, without clock; observations intentionally made rather hurriedly.

9 20 52.2
48.9
45.1
53.7

9 26 51.5 49.4 49.9

21 Pleiadum, as before.

9 30 37.1
38.7
39.2
41.7

9 37 40.2 39.9 39.4

21 Pleiadum, with clock; much delay in recovering star after first setting; flagstaff perhaps interferes?

9 41 37.1
38.1
35.7
33.6

9 53 39.1 38.0 36.6

24 Pleiadum, with clock; flagstaff perhaps interferes.

9 56 45.1
44.6
50.2
41.0

10 0 44.8 45.9 45.2

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1885phae.proj.1321S

March 17, 1886.

Photographic camera on East Equatorial. Divided circle Mean
Photograph taken with exposure of
250s. Telescope driven by clock
Second photograph taken with screen
10 50 interposed to cut off direct light of Moon

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1885phae.proj.1321S

March 18, 1886.

Wedge photometer S. obs.
Region of new star in Orion (see p. 49)

10 5										
8.0	DM. +19° 1126	96.9	47.0	49.9	7.2	8.3	8.9	13.7	14.2	
5.0 [30.3]	New star	61.6	31.4	30.2	8.2	8.0				8.7 8.9
7.4	DM. +20° 1156	88.8	44.8	44.0	7.4	7.3	6.6	14.0	13.9	
	New star	59.8	29.5	30.3	8.9	8.0				9.0 8.9
6.3	DM. +20° 1171	45.7	36.8	38.9	6.1	6.8	7.8	7.4		
	New star	59.3	28.2	31.1	8.9	8.2				9.2 8.7
5.9	DM. +20° 1168	40.1	35.8	34.9	8.9	8.6	8.0	8.1		
	New star	61.9	29.8	32.1	8.9	8.3				9.0 8.6
5.7	Star 9' south of DM. +20° 1126	69.1	32.0	37.1	8.3	6.2	8.6	7.7		
	New star	63.2	32.1	31.1	8.3	8.2				8.6 8.7
1.9	Star 5 fell, new star 4	S 23.2	11.0	12.2	1.8	2.0	12.1	11.9		
	New star	58.0	30.7	27.3	8.1	8.8				8.8 9.4
5.0	DM. +20° 1172	59.8	29.8	30.0	8.9	8.1	8.9	13.8 / 13.9	13.9	8.9
10 40	Observations in second column in reverse order. Star half way from new star to DM. +20° 1172 not visible in wedge; moonlight.									

Observations	Diff.	
3.2	2.2	Stopwatch started at disappearance
4.9	1.7	of DM. +20° 1172 and stopped at
6.0	1.1	disappearance of new star.
7.0	1.0	Interval too short for good
10 47 8.1	1.1	observation.
	1.4	

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1885phae.proj.1321S

March 22 1886.

B Bb 1182			B. 394		
15	37	16.5	15	40	0.0
	38	16.5		41	0.0

S. obs.

15 48 Too cloudy for observation of reappearance of Jupiter II.

Growing clearer between 15^h and $15^h 30^m$, when it was sufficiently clear to adjust Photometer II for observation. Afterwards more cloudy.

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1885phae.proj.1321S

Mar. 24 1886.

Comp. Stars for 3 & R Can. Mai.
Toldy & Photometer. Fr. As.

7	2	+9.5
7	5 5	
	+5 3	

7	2	
8	0	
	+5 8	

f	47.5	47.0	94.5 ^	8.2 ^
h	38.7	40.2	78.9 ^	6.9 ^
b	34.1	38.1	76.2 ^	6.6 ^
R	40.1	40.0	80.1 ^	7.0 ^
e	46.7	46.5	93.2 ^	8.1 ^
d	43.0	42.0	85.0 ^	7.4 ^
c	42.5	42.2	84.7 ^	7.4 ^
a	39.7	40.8	80.5 ^	7.0 ^
l	49.3	49.7	99.0 ^	8.6 ^
g	49.0	50.9	99.9 ^	8.7 ^
k	57.4	51.5	103.9 ^	9.0 ^

8 37

R = h in finder, by estimate
R 1.5 h in large telescope, — " — .

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1885phae.proj.1321S

March 24. 1886.

B.A.C. 1182 — B 394

9 20 8.1 ⊕ 9 23 9.0

Reappearance of Jupiter I. S. obs. Princ.

Obst. 2 Sat I Cap IV.

9 26 18 not seen

45 disappeared

26 53 seen

27 1.5 seen

7.0 323.8

24.5 47.1

38.0 329.0

47.0 45.4

56.5 327.1

28 7.0 56.0

27.0 332.0

40.0 42.5

52.0 330.2

29 0.0 53.8

11.5 330.9

30.0 47.0

46.0 313.0

30 4.0 54.7 1

21.5 322.0 IV seen only at intervals and not known to Jupiter

46.0 54.2

31 6.0 311.5

33.5 42.0 1

32 18.0 322.0

33.0 56.2

33 50.0 318.2

34 7.0 52.3 2

25.0 320.0

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1885phae.proj.13215

March 24, 1886.

9	34	38.0	46.3	
		~~49.0~~	328.2	
	35	10.0	53.1	— 3
		24.0	326.7	~~— 3~~
		42.0	44.0	
	36	1.5	327.2	
		17.0	53.6	— 4
		34.0	320.2	~~— 4~~
		53.5	52.2	
	37	7.5	~~7~~ 327.2	
		28.5	47.0	— 5
		45.5	328.0	
	38	3.0	51.1	
		16.5	319.7	
		31.0	54.0	— 6

Limit Visibility

39	22.0	339.0	
	41.5	42.7	
~~39~~	58.5	335.0	
40	13.0	39.0	

Satellite IV, the only one available for comparison, at a considerable distance from Jupiter, making the images bad. Image of Satellite I often lost in the undulations of the limb of the planet, and comparisons doubtful and difficult.

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1885phae.proj.13215

March 24, 1886,

B § C. 1182 B. 394

g	51	7.1	g	54	0.0
	52	7.1		55	0.0

Wedge Photometer. S. obs.

Region of ν Geminorum (386)

10 36

a	44.0	40.0	84.0	72 >
f	36.3	32.4	68.7	59 >
f	28.9	30.3	59.2	51 >
m	19.0	17.3	36.3	31 >
e	35.9	36.0	71.9	62 >
m	20.8	21.5	42.3	36 >
d	37.3	37.0	74.3	64 >
z	12.7	13.7	26.4	23 >
g	11.1	12.8	23.9	21 >
νg	30.2	30.1	60.3	52 >
*	18.8	18.8	37.6	32 >
g	16.6	16.6	33.2	29 >
νg	30.3	31.5	61.8	53 >
ff	27.1	27.8	54.9	47 >
c	41.0	40.2	81.2	70 >
g	27.7	30.2	57.9	50 >
h	31.8	35.0	66.8	57 >
b	44.2	44.9	89.1	77 >

11 18 By estimate e 1 V ; V 2 f

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1885phae.proj.13215

Mar. 24. 1886.

B. + C. 11 d 2.

11 27 7.0
28 6.8

B. 394.

11 30 0.0
31 0.0

Reap. Sup. III. Phot. H. P. 06.
Comp. with Sat. I.

11 V1 4.0
11.V
26.V
39.V
44V
49V
V5.0
V2 0.0
6.0
10.0
15.V
22.0
27.V
33V
41.0
46.0
V6.0
V3 2.0
4V
13.V
20.0

Sup.
311.V
337.2
3004
3424
302.0
343.1
30V4
34.4
30K.2
34V4
301.0
346.3
297.V
344.1
303.0
344.0
296.9
347.9
303.1
346.0

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1885phae.proj.1321S

Mar. 24. 1886.

11	27.0
	34.5
	41.0
	47.0
	54.5
5K	9.0
	16.5
	24.0
	30.0
	35.5
	43.0
	50.0
	56.5
55	2.5
	10.5
	17.0
	24.0
	29.0
	35.5
	41.0
	47.0
	54.0
56	3.0
	10.5
	16.0
	22.5
	29.0
	35.5
	41.0

	29.34
	34.79
	29.41.3
	50.7
	28.5
	35.47
	29.02
	35.4
	29.18
	35.50
	29.50
	35.60
	28.50
	35.52
	29.52
	35.23
	28.90
	35.40
	29.01
	35.72
	29.08
	35.76
	28.42
	35.50
	28.91
	35.42
	28.67
	35.95
	29.12

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1885phae.proj.1321S

Mar. 24. 1886.

11	6	7,0
		4,0
	7	0,
		6
		12
		19,0
		25,0
		32,0
		34,0
		44,
		54,0
		66,
	4	0,0
		10
		19,0
		26,0
		32,0
		39,0
		46,0
		54,0
	9	1,0
		7,0
		14,0
		22,0
		42,0
		52,0
	0	2,
		9,0
		16,0

3	6,4
24	2,9
3	3,2
24	0
3	3,3
24	4,0
3	9,0
24	0,1
	1,2
24	3,0
	3,0
24	0,9
3	9,9
24	7,0
	29
24	0,0
	0,
24	2,9
	0,2
24	0,4
	0,
24	2,4
	1,2
27	4,2
	1,7
27	9,4
	4,
24	0,4
	2,1

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1885phae.proj.1321S

Mar. 24. 1886.

12	0	23,0	277,0
		21,0	27
	1	4,0	276
		11,5	2,1
		14,0	280,5
		25,0	6,0
		21,5	274,2
		29,0	6,0
		46,0	280,1
	2	14,0	4
		26,5	274,5
		26,0	6,2
		43,0	280,7
		49,5	12,2
		55,5	281,0
	3	2,0	4,1
		9,0	279,7
		17,5	6,2
		24,0	276,6
		32,0	6,0
		39,0	279,9
		46,0	7,9
		53,5	280,5
	4	1,0	6,5
		9,0	279
		17,0	6,1
		24,0	279
		32,0	5,2

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1895phae.proj.13215

Mar. 24. 1896.

12 4	30	282.2
	V 0.0	2.7 —
V	0.V	281.7 —
	7.V	4.1 —
	13.V	280.1
	20.0	V 0
	26.V —	280.9 —
	33.0	4.9 —
6	1V.0	280.0
	26.0	9.6

Limit of Vés.

6	43.0	310.0
7	32.0	334.2
	47.0	306.4
	V 3.0	334.3

B. + C. 1142.

12	13	6.2	
	14	6.0	

B. 394.

12	16	0.0
	17	0.0

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1885phae.proj.13215

April 1, 1886.

Evening hazy with streaks of cloud frequently passing

9 to 10 Wedge photometer. S. obs. Waited for opportunity to observe, as sky seemed to be clearing.

New star foll. χ' Orionis (see p. 141)

(10 13	DM. +19° 1126	51.0	51.1	5.5	5.5	5.9	14.4	14.4		
8.5 102.1	New star	27.9	27.2	4.6	4.5				9.9	10.0
[30.4] 5.0 55.1	DM. +20° 1156	48.0	47.4	8.0	7.9	6.6	14.6	14.5		
7.9 95.4	New star	33.4	28.8	5.5	4.8				9.0	9.7
62.2	DM. +20° 1171	41.6	40.1	6.9	6.7	7.6	7.8			
6.8 81.7	New star	34.0	29.1	5.6	4.8				8.9	9.7
63.1	DM. +20° 1168	40.0	38.0	6.6	6.3	7.9	8.2			
6.5 78.0	New star	30.2	32.8	5.0	5.4				9.5	9.1
63.0	Star 9' south of DM. +19° 1126	38.8	35.8	6.4	5.9	8.1	8.6			
6.2 74.6	New star	32.1	27.9	5.3	4.6				9.2	9.9
60.0	Star foll. new star 4^s	22.8	22.2	3.8	3.7	10.7	10.8			
3.7 45.0	New star	30.0	31.0	5.0	5.1				9.5	9.4
61.0	DM. +20° 1172	33.5	33.6	5.6	5.6	8.9	14.5	14.5		
5.9 67.1							14.5	9.5		

Star half way from new star to DM. +20° 1172 not seen in wedge; region low.

Difference of extinction, new star & DM. +20° 1172

10 47

4.0 rejected.

	Diff.	
5.0	4.0	Unsatisfactory from scintillations of the stars, and because new star reappears by indirect vision when the eye is directed to DM. +20° 1172, which is last to disappear
8.7	3.7	
13.0	4.3	
17.7	4.7	
23.0	5.3	
	4.4	

$\frac{2.5}{1.9}\ \Delta\alpha$

Diff. of extinction by this method

−3.9 on March 18. By this method new star disappears 5.8 sooner tonight than it does on March 18, making it about 1 magn. fainter.

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1885phae.proj.13215

Apr. 2. 1886.

B. + C. 1182.

7 13 40.7
14 40.8

B. 394.

7 17 0.0
18 0.0

Reap. Sup. II. Plat. H. N. obs.
Comp. with Sat. I.

Limit of Vis.

7 36 53.0 216.7
37 9.V 2V0.3
26.0 21V.0
41.0 2KK.3

39 21.0 susp.
34.0 seen.
34.0 219.3
KV.V 2VC.0
V2.0 212.7
V4.0 2V0.8
40 4.0 210.0
10.0 2VV.J
15.V 20V.0
21.0 2V7.V
29.5 206.J
JV.V- 26V.1
42.0 20J.7
49.0 26K.7

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1885phae.proj.1321S

Apr. 2. 1886.

7	K0	V6,V	197,7
	K1	J,V	260,4
		9,0	194,3
		16,0	267,4
		2K,0	197,6
		J2,0	264,0
		JA,V	196,1
		K6,0	264,2
		VJ,0	194,1
	K2	0 V	271,V
		A,V	197,0
		16,0	27K,VK
		2K,0	192,0
		J1,V	271,4
		J9,0	190,0
		KV-,V	273,7
		VK,V	192,V
	K3	2,V	273,0
		1V-,V	191,V
		2K,0	275,K
		JK,0	189,3
		KK,0	276,4
		VV,0	184,0
	KK	9,0	27V,9
		14,0	190,1
		27,V	277,K
		J9,0	189,V
		V6,0	276,9

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1995phae.proj.13215

Apr. 2. 1926.

7	K4	9.V	190.K	
		19.0	273.0	
		30.0	127.2	V
		K3.0	25K.3	-
		VV.V	126.1	
	K6	10.0	276.9	
		21.0	129.6	6
		3K.0	27K.9	-
		KK.0	12K.K	
		V6.V	273.1	
	K7	7.V	124.9	7
		12.V	27V.0	-
		24.0	127.0	
		41.0	277.4	4
		V4.V	103.0	
	K4	12.V	271.4	-

B. + C. 1182.

7		
7	52	40.3
	53	40.3

B. 39K.

7	V4	0.0
7	56	0.0
	57	0.0

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1885phae.proj.1321S

Apr. 2. 1886.

α^h 0- M. T. = $\odot^h$ 2- M. T.

Comp. Clark for R. Inouye. W. obs.,
Fredg. Photometer.

6	33	+9.1
9	6	
+2	33	

	11
+2	34
6	00
9	14
+2	48

6	30
9	29
2	59

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1995phae.proj.13216

Apr. 2. 1896.

33 R. Monoc. W. obs.

d	23.6	26.0	49.6	4.3
c	18.9	19.6	38.5	3.3
R	23.7	26.0	49.7	4.3
f	17.0	16.2	33.2	2.9
b	21.0	22.1	43.1	3.7
a	20.2	20.1	40.3	3.5
(7)	40.8	40.2	81.0	7.1
(A)	36.5	38.2	74.7	6.5
(9)	36.0	38.8	74.8	6.6

Region A Solar Min (39) W. obs.

9 47	l	42.4	42.2	84.6	7.4
	e	42.8	43.9	86.7	7.6
	g	44.1	42.0	86.1	7.5
	C	33.5	32.0	65.5	5.8
	h	30.3	27.6	57.9	5.1
	x	20.9	19.9	40.8	3.5
	k	28.2	23.4	51.6	4.5
	y	20.0	16.1	36.1	3.1
	B	20.0	18.3	38.3	3.4
	m	37.8	35.5	73.3	6.4
	n	38.3	36.9	75.2	6.6
	b	37.0	30.1	67.1	5.9
(15 z')	(z)	14.8	16.0	30.8	2.7
(16 w)	(w)	12.4	11.7	24.1	2.1

10 37 By estimate, x 1 8; 8 2 y

For (z) and (w) see page 118.8

Northwestern sky somewhat cloudy; clouds not known to have affected above observations.

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1885phae.proj.1321S

Apr. 3. 1886.

$7^h\ 30^m$ M.T. = $8^h\ 37^m$ S.T.

Comp. Stars for RV V Cancri. Gr. 15. Wedge Photometer.

a	1V		+16.2
a	K2		
		+73	
d	35.2	37.5	72.7 ^ 6.1 >
e	40.0	40.4	80.4 ^ 6.8 >
h	34.9	34.9	69.8 ^ 5.9 >
k	27.0	29.1	56.1 ^ 4.7 >
V	41.7	41.0	82.7 ^ 6.9 >
m	38.7	38.2	76.9 ^ 6.5 >
x	25.0	24.1	49.1 ^ 4.1 >
a	48.2	46.5	94.7 ^ 8.0 >
g	27.0	29.1	56.1 ^ 4.7 >
c	41.2	40.3	81.5 ^ 6.8 >
b	42.1	43.7	85.8 ^ 7.2 >
n	32.7	32.7	65.4 ^ 5.5 >
f	50.3	49.7	100.0 ^ 8.4 >
(14) a.	47.0	48.7	95.7 ^ 8.0 >
(15) b	48.0	48.2	96.2 ^ 8.1 >

8 40

Two observations of each star in succession; stars not repeated in reverse order as usual. (15) b observed before (14) a.

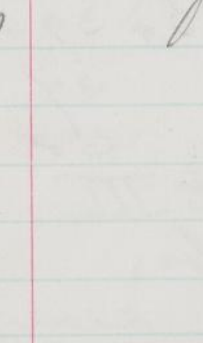
Stars not repeated in reverse order, as usual, for want of time.

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April 3, 1886.

Region of U Geminorum (43)

g 20



U and two small stars
f both visible. U is 2'
south of a perhaps 1° foll.
The small star is about 1' south
of U, about 2° following.
a is 4' north of b.

Estimate; a 6 U ; U 2 small stars f. (Call small stars g)
e 1 d ; d = g

Comparison stars afterwards partly identified, but the indications of their positions are not sufficiently exact where there are so many stars near each other. Haze increasing, preventing further examinations of this region.

Region of U Leonis (52 c)

U not seen; haze too thick for observations of comparison stars
C 0 40 with wedge; stars x and b visible.

Haze prevents further observations.

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1885phae.proj.1321S

Apr. 9. 1886.

B. + C. 1142.

7 37 7.0
3 6.

B. 394.

7 37 0.0
3 0.0

Resp. Jup. I. Comp. with III.
Plot. R. Sobo.

7 46 3r.0
41.r

Seen,
34 4.0

Instrument readjusted.

44	20.0	r0.7
	33.0	94.9
	r3.r	44.0
49	6.0	94.0
	2r.0	39.1
	34.0	9 4.r
r0	0.r	40.3
	24.r	92.2
	44.r	46.0
r1	10.r ±	9 2.1
	31.r	43.1
	45.r	92.2
r2	10.r	43.0
	29.0	44.0
r3	30.0	41.6
	44.r	97.0
r4	3.0	34.9
	12.r	97.7
	29.0	42.3
	34.0	90.2

47.9
64.8
1127
56.3

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1885phae.proj.1321S

Apr. 9. 1886.

7	V4	V1.0	3VV	64.8
	VV	10.0	100.3	4
		21.0	30.0	–
		36.0	96.0	58.0 63.0 60.5
		V2.0	37.0	
	~~V6~~	17.V	Vy'	
		39.0	100.0	V –
		V9.V	37.2	56.3
	V7	12.0	93.V	59.8 58.0
		23.0	40.3	
		V2.0	100.1	6 –
	V2	3.V	37.0	
		14.V	94.0	
		33.0	40.V	7
		49.0	96.9	
	V9	4.0	40.2	–
		22.0	93.7	
		41.V	40.9	8
8	0	1.V	9V.0	

Telescope in use by Mr. Clark until a few minutes before reappearance, and photometer requiring reconstruction, so that the first observation was made with the adjustment imperfect, and as it appeared on trial, impracticable for further observation. Probably all the other settings made after conclusion of eclipse.

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1885phae.proj.1321S

Apr. 9. 1886.

B. + C. 1142. B. 394.

α	α	6.2	α	α	0.0
	9	6.3		9	0.0

α 16 m.T. = 9 43 S.T.

Comp. Stars for 40 T. Can. Mini, Gr. obs.

7	24	+13.0
9	49	
+2	25	

Turned on region and adjusted Pholometer. but not sufficient time to measure stars before Iher. Plot. Lore.

Declination circle some degrees in error; adjusted index.

T Can. Mini (40) S. obs.

9 25

c	24.2	~~21~~	4.2^ >
d	28.1	~~24~~	4.9^ >
b	28.6	~~25~~	4.9 >
T	10.9	~~09~~	
+	12.1	~~10~~	1.9 >
y	13.6	~~11~~	2.1 >
h	15.2	~~12~~	2.4 >
a	23.1	~~13~~	2.6 >
e	30.1	~~20~~	4.0 >
		~~26~~	5.2 >

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1885phae.proj.1321S

April 9, 1886.

(10)		37.5	39.8	77.3	67 >
(11)		37.6	39.9	77.5	67 >
(12)		37.9	37.2	75.1	65 >
(13)	Stanfield b 5.5, 1 south,	19.8	19.9	39.7	35 >

10 0 Stopped for eclipse.

B.C. 1182

10 4 5,8
5 5,8

B. 394

10 4 0,0
5 0,0

Reappearance of Jupiter II,
Photometer A. Compared with satellite I.

P. obs.	S. read circle.	W. rec.
10 19	13	Suspected
	16	seen
	25,0	41,5
	31,5	67,0
	37,0	37,0
	42,0	66,0
	49,0	36,3
	55,5	70,2
	54,0	32,1
20	3,0	69,9
	4,5	30,2
	13,0	74,0
	14,5	30,3
	25,0	75,9

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1885phae.proj.1321S

Apr. 9. 1886.

20	30,0	27,4
	37,0	79,0
	42,0	19,3
	46,0	74,9
	√1,0	22,2
	√√,√	41,7
21	0,√	21,6
	6,0	41,9
	12,√	16,7
	14,0	23,4
	24,0	17,0
	24,√	26,7
	33,0	14,2
	41,√	46,1
	47,√	12,3
	√4,0	44,√
22	2,0	11,7
	4,0	24,7
	13,0	10,√
	19,0	90,2
	26,0	11,1
	33,0	92,0
	34,0	9,1
	44,0	90,1
	44,0	11,6
	√√,0	92,2
23	1,√	12,8
	9,0	92,1

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1885phae.proj.1321S

Apr. 9. 1886.

10h 23	15.0	9.7	
	24.0	90.9	
	47.0	12.7	
	52.0	92.0	—
	57.5	4.2	
24	4.0	89.0	
	10.0	9.7	
	14.5	92.7	—
	21.0	7.4	
	26.5	91.4	
	34.0	7.1	
	41.0	92.0	—
	44.0	10.0	
	55.0	91.9	
25	1.0	6.5	6
	7.5	91.3	—
	14.0	9.0	
	20.0	90.9	
	27.0	10.0	7
	33.5	92.5	—
	41.0	12.1	
	47.0	47.4	75.7 / 87 / 1584 / 79.2 A
	54.5	10.5	
26	2.0	93.2	—
~~26~~	~~40~~	~~4~~	Reject

Limit of Vis.

26	20.0	30.0
	27.0	66.0
	33.5	37.9
	40.0	63.6

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1885phae.proj.1321S

April 9, 1886

B & C. 11802 — B 3914

10 32 5.4 — 10 32 0.0

33 5.4 — 33 0.0

Wedge photometer replaced and adjusted.

R Coronæ (61) — S. obs.

11 0

g	37.3	3.1
fe	30.0	2.5
Rond	20.0	1.7
a	34.1	2.9
b	28.7	2.4

11 15 Became cloudy.

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1885phae.proj.1321S

Apr. 10. 1886.

9^h 51 S.T. = 7^h 20 m. T.

Comp. Stars for 47 V Cancri. Fr. obs.
Wedge Photometer.

a 12 +17.5

9 1
+43

9 9
a 12
+51

d	36.0	37.3	73.3 ^ 6.2 >
e	40.2	39.3	80.1 ^ 6.7 >
h	31.5	38.1	69.6 ^ 5.8 >
k	22.7	26.0	48.7 ^ 4.1 >
V	39.9	45.4	85.3 ^ 7.2 >
m	33.5	37.1	70.6 ^ 5.9 >
X	20.0	23.7	43.7 ^ 3.7 >
a	38.2	45.9	84.1 ^ 7.1 >
g	23.2	25.6	48.8 ^ 4.1 >
c	38.3	46.0	84.3 ^ 7.1 >
b	42.2	47.1	89.3 ^ 7.5 >
w	30.1	33.4	63.5 ^ 5.3 >
t	~~44.7~~	49.2	44.1 (97.3 ^ 8.2 >) " variable, seen to be too F.
14 a	43.9	43.2	87.1 ^ 7.4 >
15 b	43.5	43.5	87.0 ^ 7.3 >

8 44 Ended.

By estimate a 3.5 V.

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1885phae.proj.1321S

April 10, 1886.

Region of δ Geminorum (41) δ obs.

9 12

e	42.0	38.4	80.4	6.5
n	37.4	39.5	76.9	6.2
b	47.9	46.2	94.1	7.6

f not visible in or near place

m	19.2	20.3	39.5	3.2

z & l not visible; that given here is probably δ, and x is really that l of older observers.

c	41.3	40.0	81.3	6.6

y suspected; seen, but not in wedge

x	12.9	14.9	27.8	2.3
d	35.2	39.0	74.2	6.0
g	30.0	33.0	63.0	5.1
h	14.2	15.8	30.0	2.4
i	17.0	19.0	36.0	2.9
k	19.0	20.0	39.0	3.2
a	46.9	46.2	93.1	7.5

10 10 Ended; δ thought to be barely visible, prec. x

(p)	24.0	24.0	48.0	3.9
(q)	20.0	21.0	41.0	3.3

(p) follows d 49ˢ, 0.2 south.
(q) follows d 37ˢ, 1.5 south.

These stars added for supplying deficiency of magnitudes between g and k.

The stars here called p and q are different from those used with those designations as comparison stars in previous years.

10 30 Region of U Geminorum looked at; U not visible; b not seen.

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1885phae.proj.1321S

April 10 1886.

Region A R' Cowi (61)

10 52 g 37.5 32.1 69.6 ^ 5.8 >
e 32.4 28.8 61.2 ^ 5.1 >
d 21.8 22.0 43.8 ^ 3.7 >
Object suspected foll. d 3.5, 1' south, which may be R.
a 37.7 40.2 77.9 ^ 6.5 >
b 39.0 40.2 79.2 ^ 6.7 >
n 28.3 25.9 54.2 ^ 4.6 >
m 21.2 20.1 41.3 ^ 3.5 >
f 30.0 29.9 59.9 ^ 5.0 >
c 43.8 45.9 89.7 ^ 7.5 >
k 47.1 46.9 94.0 ^ 7.9 >
(p) 13.6 14.0 27.6 ^ 2.3 >
(q) 20.3 21.5 41.8 ^ 3.5 >

11 33 (12/) (p) follows n 2^s 3'.5 north.
(39/) (q) follows n 5^s.5, 2'.5 north.

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1885phae.proj.1321S

April 14, 1886

B & C. 1182			B. 394		
10	4	37.0	10	5	0.0
	5	37.0		6	0.0

Photographic experiments with East Equatorial. West Equatorial. S. obs. Power 50. Aperture 6¼ in.

Immersion of 37 Sextantis, predicted by C. L. Woodside for 10h 22m.7 Eastern Time. In letter of April 15, 1886, Mr. Woodside states that this was an error in copying for 10h 32m.7.

Immersion 10 31 53.0 by B & C. 1182

B & C. 1182			B 394		
10	38	36.2	10	39	0.0
	39	36.1		46	0.0

Hence

10 31 53.0
23.7

Immersion 10 32 16.7 by B 394.
Mr. Edmands says clock slow 0.5
Immersion 10 32 17.2 by Eastern Time.
Mr. Woodside's Observation at East Boston 10 31 20
Watch slow 56
10 32 18

B. + C. 1182.			B. 394.		
~~+4~~			~~+4~~	~~5~~ 7	~~0.0~~
14	5 7	35.5	14	5 8	0.0
	5 8	35.6		5 9	0.0
					+0.5
B & C. 1182 24.4 slow			14	5 9	0.5

Reap. Jup. I. Comp. with Jup. III. Phot. M. Obs.

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1885phae..proj.132.1S

Apr. 14. 1886.
Lieu. of Vis.

15	7	44.6		41.1	
		54.5		72.9	318
		20.5	8.5	24.9	466 → 8.4
		30.0		71.5	526 39.2
	9	47.5		Lieu	
	10	3.5		42.2	
		17.5		74.3	
		29.5		22.9	
		34.0		75.0	
		47.0		22.4	
		54.5		74.4	
	11	2.0		24.5	
		4.5		79.0	
		15.0		21.4	
		21.0		81.0	
		32.0		25.6	
		39.0		79.2	
		46.0		26.4	
		52.5		45.4	
	12	0.0		24.2	
		4.0		47.5	
		14.0		28.8	
		29.0		49.5	
		34.0		23.4	
		50.0		93.2	

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1885phae.proj.1321S

Apr. 14. 1886.

×	1	13	3.0		24.4
			13.0		49.5
			24.0	20.2	19.2 59.6
			37.0		101.1
			45.0		22.9
			54.0		95.1
×		14	7.0	1.2	25.4 58.9
		13	15.0		92.4
			25.0		21.4
			41.0		96.9
			54.0	46.4	26.2 60.2
×		15	5.5		96.4
		14	24.5		24.2
			34.0		101.0
			46.0	40	23.4 60.3
			56.0		92.3
×		16	4.5		26.7
		15	22.0		99.5
			37.0	30	24.1 62.1
			51.0		94.2
×		17	6.5		24.9
		16	19.5		93.1
			33.5	26	25.1 58.0
			45.0		89.1
×		18	0.0		24.9
		17	15.0		92.4
			24.0	21	29.9
			41.0		94.0 62.3
			59.0		25.9
×		19	10.5		92.2

× Minutes wrong.

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1885phae.proj.19215

Apr. 14. 1886.

15	19	27.0	18.6	27.0	60.4
		40.0		94.3	
		57.0		24.2	
	20	10.0	7.8	96.2	
		24.0		24.3	69.2
		40.0		91.4	
		54.0		24.9	
	21	12.0		97.0	
		32.0	3.3	26.0	60.2
	22	12.5		97.0	

B. + C. 1182.

15	28	37.2		
	29	37.2		
			5.3	
			24.8 slow	

B. 394.

15	29	0.0
	30	0.0
		.5
15	30	0.5

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1885phae.proj.1321S

Apr. 17. 1886.

9^h 21m S. T. = 7^h 22m M. T.

Comp. Stars for 49 J Cancri. Fr. obs. Gradg Photometer.

8	42	+19.4
9	34	
	+8	278.3
	+6	90
		188.3

9	8	42
	+1	1 0

g	49.8	47.8	97.0 ^ 81 >
h	40.8	39.2	80.0 ^ 66 >
d	35.1	36.8	71.6 ^ 59 >
c	34.9	35.3	70.2 ^ 58 >
a	27.7	27.8	55.5 ^ 46 >
e	33.9	34.1	68.0 ^ 56 >
j	35.1	37.8	72.6 ^ 60 >
f	37.2	38.3	75.5 ^ 63 >
b	33.2	32.0	65.2 ^ 54 >

Star on chart at 8 44 38 +19.3 is somewhat out of place – should precede its charted place by some 40 secs. ±
Troubled in identifying, for this reason.

8 50 f 3 J

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1885phae.proj.13215

April 17, 1886.

New star foll. χ' Orionis. S. obs. See p. 152.

9	17		DM. +19° 1126	48.3	47.5	8.0	7.9	8.9	13.9 13.8	
8.0	95.8									
[24.1]4.0	46.5		New star	23.9	22.6	4.0	3.8			9.8 10.0
7.2	86.7		DM. +20° 1156	43.1	43.6	7.2	7.2	6.6	13.8 13.8	
	48.2		New star	23.3	24.9	3.9	4.1			9.9 9.7
6.3	76.5		DM. +20° 1171	38.5	38.0	6.4	6.3	7.4	7.5	
	46.8		New star	22.6	24.2	3.8	4.0			10.0 9.8
6.1	72.9		DM. +20° 1168	37.0	35.9	6.1	6.0	7.7	7.8	
	50.2		New star	26.2	24.0	4.3	4.0			9.5 9.8
5.1	68.7		Stars ℓ south of DM. +19° 1126	32.7	36.0	5.5	6.0	8.4	7.8	
	48.5		New star	24.7	23.8	4.1	4.0			9.7 9.8
2.9	35.3		Stars foll. new star 4s	18.6	16.7	3.1	2.8	10.7	11.0	
	49.2		New star	26.6	22.6	4.4	3.8			9.4 10.0
5.0	59.9		DM. +20° 1172	30.2	29.7	5.0	4.9	8.9	13.9 13.8 / 13.8	9.8

Small star halfway from DM. +20° 1172 suspected, not certainly seen; moonlight, and region low.

Diff. of extinction, new star and DM. +20° 1172.

Times.	Diff.
8.2	7.2
14.0	5.8
19.9	5.9
26.4	6.5
32.6	6.2
316	6.3

(New star disappears first, (but reappears by indirect vision as on April 1; see p. 152).

9 5-3

By estimate, DM. +20° 1172 1 new star
New star 6 stars foll. 4s.

10 13 Region of ℓ Geminorum as usual; faint stars not visible.

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1885phae.proj.1321S

April 17, 1886.

Region of X Virginis (58):

10 34

d	17.4	16.2	33.6 [3] [1] 2.9 > ~~2.7~~
c	14.7	14.2	28.9 [1] 2.5 >
~~b~~	~~29.6~~		
b	12.1	11.3	23.4 [1] 2.0 >
X	13.1	14.0	27.1 [1] 2.4 >
a	12.3	11.0	23.3 [1] 2.0 >
e	21.8	22.7	44.5 [1] 3.9 >
(8)	32.1	32.6	64.7 [1] 5.6 >
(9)	37.9	38.9	76.8 [1] 6.7 >
(10)	too bright		
(13)	Star on chart at $11^h 56^m$, $10° 4'$	38.9	35.3 74.2 [1] 6.5 >

Z Leon, but not in wedge.

11 21 By estimate d 2 X; X 1 c

11 25 Stopwatch runs to $60^s.9$ while B.D. 6 1182 runs $60^s.0$

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$9^h\ 40^m$ S.T. = $7^h\ 16^m$ M.T.

Comp. Class for 56 Leonis H. obs.
Wedge Photometer.

Too cloudy in this region. Abandoned.

Comp. Class for 49 Cancri. H. obs.

+	42	+19.4
	10	10
	+1	29

g	49.4	47.8	97.6 ^ ~~8.6~~	8.1 >
h	40.3	42.5	82.8 ^ ~~7.3~~	6.9 >
d	40.4	39.8	80.2 ^ ~~7.1~~	6.7 >
c	40.5	37.2	77.7 ^ ~~6.8~~	6.4 >
a	29.1	29.7	58.8 ^ ~~5.2~~	4.9 >
e	38.0	39.5	77.5 ^ ~~6.8~~	6.4 >
7	40.0	38.4	78.4 ^ ~~6.9~~	6.5 >
f	41.7 ~~46.5~~	41.8	83.5 ^ ~~7.3~~	6.9 >
b	34.3 ~~30~~	37.0	71.3 ^ ~~6.3~~	5.9 >

8 50 Ended.

S. read stopwatch for second observations of b & f; then W. read stopwatch for third reading of these and second reading of others, in order to make results more uniform.

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April 23, 1886.

U Geminorum (43) Sols.

9 0 U and small star between it and b thought to be visible but not distinctly.

(1 c)	Star	foll. D M +22° 1800	32ˢ, 1′ South	13.2	11.6	24.8	2.0
(2 s) ~~d~~	"	foll. last	32ˢ, 0′ South	24.0	22.2	46.2	3.8
(26)	"	prec. last	4ˢ, 2′ South	12.0	11.0	23.0	1.9
(3 r)		r_2'		22.0	17.0	39.0	3.2
					19.7 22.7	42.4	3.5
(4 q)		q_2'		27.5	21.0	48.5	4.0
					25.6 26.0	51.6	4.2
(5 c)		c_2'		15.3	11.1	26.4	2.2
(7 x)		x as on chart with respect to c		12.0	10.9	22.9	1.9
(6 t)		t as in list with respect to c		22.0	20.0	42.0	3.4
	Star	a[illegible] ~~north of t~~ too faint for wedge		~~21.0~~	21.0 18.2	39.2	3.2
(10 f)		f		19.5	16.0	35.5	2.9
(15 e)		e		15.0	13.8	28.8	2.4
(16 d)		d		18.7	14.0	32.7	2.7
(14 b)		b		11.2	not seen in wedge		1.8
(13 g)		g		19.8	~~14.0~~ 17.1	36.9	3.0
		g_2	not seen				
(12 p)		p		35.1	34.5	69.6	5.7
(17 m)		m		28.2	24.9	53.1	4.4
(18 o)		o		27.0	26.8	53.8	4.4
(19 n)		n		23.7	26.2	49.9	4.1
(20 k)		k		21.0	23.3	44.3	3.6
(21 l)		l		18.8	19.8	38.6	3.2
(22 h)		h		12.2	12.8	25.0	2.0

10 55 Ended; much haze during observations, perhaps variable. Chart imperfect, and list apparently needs some corrections. Stars i and s may be among the first three stars observed. In the second series of

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a star 7' north of that supposed to be t in the first series was twice observed. It is probable that this is the star called Bopson's e on the chart, and that the star here called t is that called Schm. a' on the chart. In the second series of observations, stars called r' and q' were also twice observed. They follow those called r and q about 35^s, 4' south, and have approximately the same relative position as r and q.

The second observation of q was rejected and a third taken after removing a counterpoise which seemed to be affecting the steadiness of the telescope in right ascension as the region became lower.

The last star on the list, called k as well as that preceding it, seems to be the small star near b and U.

B. & C. 11 ± 2.			B. 394.		
11	ν	46.0	11	7	0.0
6		45.9		δ	0.0

Re ps. Jap. F. Phot. R. Comp. with Lat. following. = Sat, III. Pts.

Obs. on next page.

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Limit of Vis.

11	29	2K	329.2
		30	3K2.9
		~~36~~	
		K9	324.1
		5K.5	3K3.9
11	31	K7.5	
		52.5	325.5
		59.0	3K5.0
	32	K.0	323.0
		10.5	3K6.7
		15.5	320.K
		20.5	3K7.0
		26.0	321.0
		30.5	351.4
		35.0	31K.4
		K2.0	352.2
		K9.5	31K.0
		5K.5	328.5
		59.0	315.~~5~~
	33	5.6	355.2
		13.5	31K7
		19.5	359.6
		24.5	332.0
		30.0	1.1
		3K.0	312.2

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Apr. 23. 1886.

11	33	39,5	2,1
		46,5	310,7
	34	2,5	2,6
		7,0	307,0
		13,5	7,0
		17,5	304,0
		21,5	2,0
		24,5	310,0
		47,0	303,0
	35	10,0	9,5
		15,0	306,0
		20,0	2,7
		24,0	306,1
		29,0	7,5
		33,5	303,0
		39,0	6,0
		44,0	302,4
		50,5	13,0
		57,0	310,7
	36	3,5	10,2
		9,0	305,6
		14,0	15,5
		21,0	305,6
		32,0	11,1
		45,5	307,6
	37	3,5	4,2
		4,0	304,4
		14,5	4,0
		19,0	305,9

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Apr. 23. 1886.

11	37	25.0	9.3	
		34.0	307.0	w 6
		39.0	6.0	—
		44.0	307.0	
		49.0	2.9	16
		54.5	307.2	
	38	0.0	6.2	w —
		5.0	302.1	
		10.0	3.3	47
		32.0	310.0	
		34.5	4.1	s —
		44.5	310.5	
		50.0	5.7	9
		55.0	3044	
	39	0.5	4.0	4 —

Setting difficult on account of difference in shape of images.

	B. + C. 1152.		B. 394.	
11	44	45.4	11 46	0.0
	45	45.4	47	0.0

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April 26, 1886.

Experiments with slit spectroscope.
Photographic of α Bootis
9 30 to 9 57.

Second plate
10 36 to 10 54
Focus ¼ inch inside of visual focus
Image probably not on slit for
some minutes towards end of exposure

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1885phae.proj.1321S

Apr. 29. 1886.

B. + C. 1142. B. 394.

7	20	22.1	7	22	0.0
	21	22.1		23	0.0

Resp. Sup. III. Comps. with Sat. I.
Phot. M. ~~Com~~ S. obs.
Limit of Vis.

7	37	49	233.0
	38	4	2VV.3
		1V.V	232.1
		26.0	2V0.4
	39	41.0	~~27~~ Leon.
		44.0	2V0.2
		V4.0	2V2.0
	40	1.0	227.4
		10.0	2V6.1
		17.0	22V.0
		24.0	2V7.2
		30.V	226.4
		37.0	2V3.9
		43.0	214.2
		49.0	2V4.3
		V6.0	21V.7
	41	3.0	263.4
		10.0	213.9
		14.5	260.2
		44.0	213.9

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1885phae.proj,1321S

Apr. 29. 1886.

41	55.0	267.7
42	2.0	215.5
	4.5	267.5
	15.5	211.1
	27.0	270.0
	35.0	217.4
	51.5	275.2
	54.5	212.5
43	6.0	279.6
	15.0	206.3
	39.5	272.7
	50.5	211.0
	56.5	277.0
44	5.5	200.2
	15.0	279.7
	20.5	194.4
	31.5	241.2
	40.5	197.7
	49.0	242.7
45	2.0	202.2
	9.0	241.5
	14.0	200.7
	26.0	246.6
	35.5	196.2
	44.0	246.2
	55.0	197.9
46	4.0	244.9
	19.5	193.5
	29.5	290.7

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Apr. 29. 1886.

7	46	39.0	195.2
		50.0	291.2
	47	0.0	197.4
		17.5	291.0
		31.0	195.2
		45.5	293.2
		53.0	194.0
	48	1.5	293.5
		12.0	195.2
		21.5	292.5
		31.5	191.9
		40.0	293.0
		47.5	190.4
	49	4.0	292.7
		14.0	193.4
		26.0	293.7
		42.0	186.9
		59.5	292.9
	50	10.5	189.4
		23.5	297.2
		39.5	193.9
	51	0.0	296.4
		10.0	189.5
		29.0	291.4
		41.0	190.4
	52	5.5	295.5
		19.0	190.0
		29.5	291.1

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1885phae.proj,1321S

Apr. 29. 1886.

7	~~2~~	~~5~~,0	147.9	
	~~3~~	17.0	296.9	~
		32.0	147.7	
		~~46~~	29~~7~~.0	–
		~~7~~9,~~7~~	149.0	
	~~4~~	2~~7~~,~~7~~	292.3	
		39.0	142.0	6
		~~7~~2,~~7~~	297.1	–
	~~5~~	~~7~~,0	149.0	
		16.0	299.0	
		24,~~7~~	142.0	7
		~~7~~4,0	290,~~7~~	–
	~~6~~	7.0	191.1	
		29.0 very low brt.	302.1	
		~~7~~9.0	292~~7~~	8
	7	1~~4~~,0	149~~7~~	
		2~~7~~,0	29~~4~~8	–
		~~4~~7,~~7~~	149.0	
	~~8~~	11.0	29~~4~~.1	
		22.0	190.3	9
		~~4~~0,0	246.9	–

Seeing mostly pretty good during variations of Sat. – very bad towards end of obs.

B. + C. 118a.			B. 394.		
8	4	21.8	8	6	0.0
	5	21.9		7	0.0

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Apr. 29. 1886.

$11^h\ 0^m$ S. T. = $4^h\ 12^m$ G. T.

~~Brook~~ Search for Brooks New Comet. Fr. obs.

0	23	+62.1
11	4	
+10	45	

0	26	+62.3
12	13	
11	47	

δ of a star 61.°5

9	42	mean time (Eastern)
2	48	
12	30	sid. time $11^h\ 48^m$ hour angle
11	48	
0	42	

N Clouded over

Cloudy below pole about all the evening. at times growing thinner and then thicker so that nothing could be successfully done as to finding comet. Finally became clearer and then found comet. It is about 2½ of arc in diameter

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with no perceptible central condensation and at time of guiding, its edge about touched one of two moderately close stars.

~~About~~ Comet at about 12h 27m S. T was as in figure with its edge almost exactly touching +61° 162 (9.1)

At about 12h 39m S. T. the position of comet was about as follows.



so that comet was distant from +61° 162 about ~~1/2~~ 1/3 of the distance from +61° 162 to 164.

Before transits could be taken however a heavy fog set in so that nothing could be seen.

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Apr. 30. 1886.

Brooks New Comet. Gr. obs.

= 1886. V.

10 10½ S. T. = 7h 14m 6s.7

0 44 +60.0

10 2

+9 14

8 12

7 14

57

11 5

10 15

49

Pos. Tero. 207.4

57.

264.4

11 57 57.4 = } rejected

57 57.5 = }

*

10.9 rej.

Comparison star B.M. +60° 129 Magn. 9.0

12 1 33.0 comet, south

2 15.2 comet "

3 37.0 star, south

4 40.0 star, "

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1895phae.proj.19215

April 30, 1886.

12	5	13.1	same order as above
	6	0.6	
	7	20.0	
	8	19.2	
12	8	55.1	rej.
12	10	1.7	
	10	38.5	
	11	58.2	
	13	3.3	
12	13	31.9	} rej.
	14	47.0	
12	15	21.2	
	16	18.0	
	17	37.0	
	18	22.6	

Another star.

	19	25.0	star } rej.
		50.9	comet
			comet
			star

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April 30, 1886.

First comparison star; order as at first

12	21	7.6
	21	58.9
	23	16.9
	24	5.6

The other star, DM +60° 123, magn. 9.0

12	25	57,0	~~Comet~~ star, north
	26	21,3	~~Comet~~ star, north
	26	44.9	comet, north
	27	46.4	star, north

12	28	4,3	same as last
	28	28,0	
	28	53,3	
	29	55.6	

Comet about 2′ in diameter, slight central condensation magn. about 10.

B 236 7, 1327

12	~~36~~	~~15,2~~	12	36	0.0
12	38	14.7		38	0,0
	39	14.7		39	0.0

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1885phae..proj..1321S

April 30, 1886.

Region of R Coronæ (61) S. Sh.

Wedge photometer.

10 33

g	35.9	37.1	73.0 ^ 6.1 >
e	28.5	26.8	55.3 ^ 4.6 >
d	18.4	19.8	38.2 ^ 3.2 >
R	not seen		
a	38.1	38.9	77.0 ^ 6.5 >
b	37.5	39.1	76.6 ^ 6.4 >
n	24.0	25.6	49.6 ^ 4.2 >
m	18.6	20.1	38.7 ^ 3.3 >
f	26.0	32.2	58.2 ^ 4.9 >
c	44.9	44.7	89.6 ^ 7.5 >
k	45.4	46.1	91.5 ^ 7.7 >
(12 p)	(p)	10.7	12.1	22.8 ^ 1.9 >
(13 g)	(q)	21.0	19.3	40.3 ^ 3.4 >

For (p) and (q) see page 169.

11 13

Ended

B. + C. 11 h 2.

11 42 16.0

~~43~~

44 15.7

B. 394.

11 44 0.0

~~45~~ 0.0

46 0.0

B. + C. 11 h 2.

13 44 14.0

45 14.0

B. 394.

13 46 0.0

47 0.0

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Dis. Lat. IV. Comps. with Lat. III. Phot. R.

			S. of D.
11	49	54.0	264.2
	50	12.0	296.2
		27.0	264.4
		37.0	297.2
		55.0	265.2
	51	4.5	297.4
		24.0	265.4
		35.5	301.4
		45.5	266.0
		57.0	297.5
	52	9.0	264.2
		21.0	297.1
		34.0	266.4
		54.0	294.2
	53	4.0	266.4
		23.0	296.0
		43.5	264.3
	54	3.0	263.2
		25.5	264.4
		34.0	295.0
		57.5	267.3
	55	16.5	294.2
		32.0	267.3
		42.0	291.2
		54.0	264.2

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11	6	10.0	292.5
		21.0	267.9
		32.0	290.7
		41.5	265.6
		5.0	244.0
	7	7.0	264.4
		20.5	290.0
		30.0	270.6
		43.0	244.9
		4.5	272.5
	8	5.5	293.0
		20.0	264.0
		31.5	249.0
		42.0	270.7
		51.0	249.6
	9	5.0	269.7
		20.0	290.2
		46.5	267.6
12	0	4.0	Lecu.
		26.5	293.0
		47.0	264.7
	1	3.5	244.0
		32.0	Lecu.

Lun. of Vis.

12	3	26.0	264.9
		47.5	249.7
	4	5.0	270.4
		20.0	291.4

Troubled by clouds during observations.

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12	24	14	Susp.
Recap. Sup. IV			
Limit of Vis.			
12	32	42.0	27 4.4
		✓4.0	29 0.0
	33	4.✓	27 4.2
		14.0	24 9.2
1✓	44	30.0	Susp.
		43.0	seen
		✓2.✓	27 2.0
	49	16.0	24 7.4
		31.0	27 2.0
		40.✓	24 7.7
		✓0.0	27 2.4
	✓0	13.✓	24 9.6
		22.0	27 2.1
		32.0	24 4.✓
		✓1.0	27 1.0
	✓1	0.0	29 0.4
		9.0	27 2.7
		14.✓	24 9.4
		27.0	26 4.0
		34.✓	24 9.0
		49.✓	26 4.4
		✓7.✓	29 0.4
	✓2	41.0	27 1.2
		12.✓	24 9.7

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1885phae.proj.13215

Apr. 30, 1886.

12	21,5	264.2
	32,5	292.4
	44,0	264.7
13	5,0	292.7
	19,0	266.4
	31,0	291.7
	42,5	264.5
	52,5	294.1
14	7,0	269.1
	17,5	290.6
	31,0	269.5
	42,5	291.1
	54,0	269.5
15	20,0	293.6
	30,5	269.4
	40,0	292.4
	54,0	267.2
16	3,5	291.9
	15,0	264.0
	27,5	293.9
	39,5	267.9
	50,0	293.4
17	2,5	263.9
	16,0	296.0
	30,0	266.4
	39,0	295.1
	49,5	267.2
18	0,5	294.9

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1885phae.proj.1321S

Apr. 30, 1886.

12	44	15.5	264.4
		24.0	297.0
		36.0	263.3
		46.5	297.2
		57.0	265.1
	59	4.0	297.0
		17.5	263.9
		31.0	296.2
		43.5	259.3
		54.0	294.2
13	0	12.0	263.1
		24.0	295.7
		34.5	263.0
		45.5	297.9
		57.5	261.4
	1	4.0	299.4
		19.0	261.2
		24.5	299.4
		37.5	263.9
		43.5	299.9
	2	0.0	259.0
		4.5	300.3
		14.0	261.1
		25.5	299.5
		34.5	263.5
		44.0	300.0
	3	26.0	254.0
		42.0	302.7

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1885phae.proj.13215

Apr. 30. 1886. →

13	30	4	2 6
		0	30 0
		17 0	2 6
		29 0	30 3
		42 0	2 6
		2 0	30 3 0
		2 0	2 9 0
		12 0	30 2 1
		23 0	2 6
		39	30 3
		1 0	2
	6	7 0	30 6 6
		17 0	2
		2	30 3 2
		43 0	2 6 0
		7 0	30 3
	7	6	2
		20	30 2
		32	2 1
		42	30 2 9
		4 0	2 2
	8	11	30 9
		2 0	2 7 0
		34 0	30 3
		44 0	2 1 1
	9	7 0	30 7
		23	2 4 0
		34 0	30 6 2

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1885phae.proj.1321S

Apr. 30, 1886,

13	10	3,0	255,0
		14,0	307,5 1
		29,0	247,5
		53,5	306,7
	11	11,0	251,2
		24,0	312,1
		42,0	251,3 2
		54,0	309,3
	12	10,0	251,0
		26,0	309,0
		46,0	245,0 3
		59,0	302,2
	13	13,0	249,0
		25,0	306,4
		37,5	244,5 4
		44,5	304,5
	14	0,0	247,3
		12,0	304,5 5
		27,0	247,1
		39,0	309,4
		51,0	243,5
	15	13,0	310,2
		31,0	247,4 6
		47,0	304,4
	16	19,0	250,1
		31,0	316,1 7
		50,0	250,0
	17	2,5	310,5

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1885phae.proj.13215

Apr. 30. 1886.

13	17	15,5	242,1	
		25,5	311,4	4
		37,5	256,0	
		52,0	317,0	
	18	5,0	243,9	
		14,0	314,3	
		34,0	244,4	9
		47,0	313,0	
	19	1,0	245,2	
		13,5	312,9	10
		27,5	244,1	
		39,5	311,5	
	20	44,0	245,5	
		59,0	310,3	
	21	4,5	243,2	11
		21,0	311,0	
		34,0	247,4	
		44,0	307,7	
		59,5	242,0	12
	22	10,5	311,5	

Greatly troubled by clouds during eclipse, and especially so in the earlier observations.

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1885phae.proj.1321S

Apr. 30. 1886.
Reap. Jap. I. Comp. with
Sat. III. Pol. R. S. 85.
Limit of visibility; observation interrupted by reappearance of I.
1 3 2 43,0 260,7

	2 6,0	Seen.
26	5,0	2 5 3,3
	10,5	30 37
	17,0	244,0
	23,0	301,4
	30,5	248,9
	34,0	307,6
	45,0	243,3
	51,5	309,0
	54,5	244,4
27	125	310,0
	21,0	240,4
	24,5	313,4
	36,0	235,3
	43,5	315,4
	51,0	222,0
	57,0	317,4
28	6,0	227,0
	15,0	320,2
	22,0	236,3
	46,0	321,5
	57,0	234,0
29	5,5	316,2

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1885phae.proj.1321S

Apr. 30. 1886.

13	29	20.0	222.2	
		30.5	317.0	
		46.0	234.9	
		51.5	319.5	1
	30	2.0	229.9	
		13.0	314.0	
		24.0	241.2	2
		36.5	322.0	
		42.0	234.9	
	31	2.0	320.2	3
		12.0	237.1	
		20.5	317.2	
		29.0	224.2	
		37.0	316.6	
	32	9.0	229.6	4
		21.0	321.0	
		32.5	234.0	
		46.0	317.9	
	33	0.0	233.3	5
		14.5	319.5	
		25.5	232.9	
		42.0	~~227.4~~ 317.1	
	34	2.5	233.7	
		13.0	320.0	6
		24.0	232.5	
		40.5	321.1	
		52.0	234.2	7
	35	4.0	326.6	

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1885phae.proj.1321S

Apr. 30. 1886.

13	35	16.0	22 12
		31.5	19.0 d
		43.0	25.0
		53.0	17.9 —

Limit of Vis.

36		10.5	26 0.2
		20.5	29 0.0
		29.0	29 9.0
		42.0	29 2.6

For chronometer comparison see p. 193.

Satellite IV last seen at disappearance 12 1 32
Chronometer slow of B 394 1 44
Approximate Eastern Time 12 3 16
" Washington time 11 55 4

Satellite IV first seen certainly at reappearance 12 48 43
Chronometer slow of B 394 1 45
Approximate Eastern Time 12 50 28
" Washington time 12 42 16

Middle of eclipse by observation, Washington time, 12 18 40

By almanac, disappearance, Washington time, 12 14 16
reappearance, 12 26 11
middle of eclipse 12 20 14

By Naut. Alm., Greenwich time of dis. 17 20 16; re. 17 37 8
" middle 17 28 42
" observed middle 17 26 52

Duration of eclipse by observation 47m 12s
almanac 11 55
Naut. Alm. 16 52

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1995phae.proj.1321S

~~Apr~~ May 1. 1906.

Comet Brooks Gr. 6to.

Pos Zero 237.0

Ev.

1920

Comparison star γ Cassiopeiae.

11	8	14.3	star south
		37.2	" "
	41	7.4	Comet, north
	42	26.6	" "
	43	18.2	
		44.4	
	46	14.2	
	47	24.6	
	~~44~~	29.2	} This set thought not to be quite so good as the others.
		44.1	
	∇1	20.0	
	∇2	44.6	
	∇4	12.4	
		39.4	
	57	9.0	
	58	29.2	
11	58	58.3	
	59	23.8	
12	1	54.4	
	3	16.7	

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1885phae.proj.1321S

May 1, 1886.

12	4	4.2
		30.6
	7	3.6
	8	24.5

12	8	53.2
	9	20.1
	11	53.2
	13	19.5

Order in all the sets the same.
Comet faint and obs. difficult from
low altitude and clouds.
Slight central condensation — Diameter
of comet about 1'±

B, 236.

~~B. & C. 1862~~

13	v5	38.0
	v6	38.2

B, 394.

11	1	0.0
	2	0.0

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1885phae..proj..1321S

May 1. 1886.

Brooks's last Comet. Yr. obs.

23 +21

17 10

~~+~~ √ √ 0

17 3 √

−√ 2 √

23 10 +24 √

Comet found.

18	13	46.0	star,	north
		√ √ .3	"	"
	16	15.2	comet	"
	17	7.9	"	"
	17	4 √ .1		
		√ 4.2		
	20	17.1		
	21	6.2		
	21	3 √ .0		
		4 √ .0		
	24	8.2		
		√ √ . √		

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1885phae.proj.1321S

May 1. 1886.

	~~2.1~~	
18	27	2.1
		12.2
	29	34.√
	30	21.2
	31	32.√
		43.√
	34	11.√
		√1.√
	~~35~~	~~40.√~~
	36	23.0
		42.0
	39	4.√
		44.2

Order in all the sets * X = =
Both in northern half of square.
Comp. star 2 M. + 24° 47 2√ (9.3)

B. 236.

18	√3	7.√
	√4	7.√

F. 1327.

18	√3	0.0
	√4	0.0

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1885phae.proj.1321S

May 2, 1886

B § C 1182 — B 394

7 20 10,3 — 7 22 0,0
21 10,3 — 23 0,0

7 47 42
8 12

7 55 54
1 50

7 54 4

Reappearance of Jupiter I. Obs. Schur.
Photometer R. Compared with satellite III.

7 53 36,0

52,6 Susp.
55,0 seen.
7 58,0 137,3
54 8,0 157,6
15,0 131,8
21 161,4
28 127,8
35 168,7
42 123,6
48 171,3
54 124,0
55 2 178,5
11 122,4
19 173,1
27 121,4
37 184,2
46 118,1
53 178,4

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1885phae.proj.1321S

May 2 1886.

7	56	4	114,3
		13	185,2
		25	109,6
		36	191,4
		43	110,4
		50	195,2
		59	108,1
	57	8	188,6
		15	110,0 ←
		22	193,1
		34	108,8
		43	191,9
		50	108,0 —
		57	193,1
	58	7	107,7
		23	190,6 —
		51	112,1
	59	0	187,3
		9	108,6
		17	191,7 —
		27	109,4
		35	188,3
		51	108,0
8	0	0	187,9 —
		9	110,2
		15	188,2
		25	108,6
		31	185,2 —

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1885phae..proj..132lS

May 2 1886

8	0	44	108.4
		52	186.0
	1	1	111.6
		8	184.1
		20	110.2
		29	185.2
		39	113.6
		49	179.3
		58	107.8
	2	9	189.2
		21	109.7
		29	187.6

Limit of visibility

8	2	42	135.2
		51	158.6
		59	158.3
	3	17	133.8

B396 1182

8	6	9.8
	7	9.8

B394

8	8	0.0
	9	0.0

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1885phae.proj.1321S

May 4. 1886.

Recap. Sup. II. Phot. R. Phot.
Comps. with first Sat. fol. = I.

7 27 24 Cusp.
Cloudy. The above ~~sat~~ not confirmed.

7	24	46.V	mean.
		V7.V	106.1
	29	37.0	19V.6
		V0.V	101.2
	30	2.V	196.3
		33.V	99.3
		V2.0	210.V
	31	7.0	100.2
		32.0	20V.4
		V2.V	96.0
	32	11.V	196.4
		43.0	94.4
	33	11.V	114.4V 213.2
	34	1V.V	130.4 89.4
		40.0	24V.2 220.2
			122.6
	3V	22.0	102.6
		4V.0	100.3 202.9
	36	24.0	103.4 100.0 2
	37	7.0	204 102.0 203.4

Haze so thick that satellites are scarcely visible. All readings near limit of visibility.

B. & C. 1182.

7	42	6.V	
	43	6.4	

B. 394.

7	44	0.0
	4V	0.0

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1885phae..proj.1321S

Greay 6. 1886.

7 20 E.T. = 10 36 V.T.

Brooks' First Comet. Fr. obs.

1	2	4	+V 7.3
10	V	6	
+9	3	2	

M.T.	8	14½	V 7.4
H.A.	10	4½	

10 4.1
4 V.
149.1

8	25	11.0	comet south
		35.7	comet
	27	46.8	star north
	28	1.0	star

~~8 28 43.6~~

8	29	29.8
	~~30~~	55.6
	32	5.7
		18.0

8	32	34.0
		58.0
	35	9.0
		20.4

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1885phae.proj.1321S

May 6, 1886

', Comps.
Star is Dm.
+v7° 349. (6.0)

			Mayo	S
8	35	45.2	9.2	−12
	36	9.0	8.9	−4
		36.8	⊗	0

B. + C. 1142 used in above transits on comet.

	B. + C. 1142.		B. 394.	
8	39	v7.6	42	0.0
	40	v7.6	43	0.0

Dis. Sup. III. Comps. with Sat I.

	Plat. M.		S. obs.
46	20.0		103.9
	39.v		190.2
	v3.0		106.6
47	2.0		19v.0
	11.v		106.0
	20.v		194.0
	39.v		102.0
	42.v		192.0
	v6.v		102.7
42	v.0		196.9
	14.0		100.2
	26.v		192.5
	34.0		101.3
	47.0		197.3
	vv.v		100.3
49	4.0		197.0

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1885phae.proj.1321S

May 6. 1886.

8	49	13.5	104.2
		24.0	194.6 5
		36.0	106.0
		47.5	194.1
		57.0	102.6
	50	4.5	195.0 6
		17.0	104.0
		27.5	197.9 — 0
		34.5	103.5
		44.5	194.0 7
	51	1.0	106.6
		14.0	194.7
		25.0	110.4
		34.5	192.3 8
		47.5	107.2
		57.5	192.0
	52	3.0	102.5
		10.5	189.4 9
		14.5	105.1
		26.0	189.3
		33.0	106.2
		40.5	195.7 10
		44.0	106.2
		55.0	190.7
	53	4.5	105.4
		12.0	190.5 11
		20.5	102.0
		30.0	190.4

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1885phae.proj.1321S

May 6. 1886.

2	13	45.0	111.0
		13.5	126.5
	15	2.0	102.7
		9.0	122.0
		16.0	111.2
		22.0	190.3
		29.5	110.7
		37.0	127.0
		43.5	102.5
		51.5	125.1
	15	1.5	113.7
		9.5	124.2
		19.5	115.1
		30.0	123.2
		38.5	115.5
		45.0	129.2
		52.5	115.5
		59.5	123.3
	16	2.0	115.2
		15.5	121.5
		22.5	115.5
		29.5	124.7
		35.5	112.1
		42.0	179.0
		46.5	116.0
		55.0	177.5
	17	3.0	122.2
		9.5	173.2

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1885phae.proj.1321S

May 6. 1886.

4	57	17.7	117.4
		24.0	177.4
		32.0	122.4
		34.7	174.9
		47.7	124.0
		51.7	172.7
		54.0	127.9
	58	4.0	173.1
		10.7	126.0
		16.0	176.0
		23.0	130.2
		24.7	164.0
		34.0	131.4
		40.0	166.1
		51.0	130.2
		57.0	170.0
	59	4.0	133.0
		10.7	163.2
		17.7	137.3
		24.7	163.0
		31.7	136.0
		37.0	164.7

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1885phae.proj.1321S

May 6. 1886.

8	59	44.5	136.0
		52.0	160.2
		59.0	139.5
9	0	7.0	Rede.

Limit of Vis.

9	0	23.5	134.2
		33.0	163.8
		44.0	136.7
		54.0	161.0

B. + C. 1182.				B. 394.		
9	3	57.5	——	9	6	0.0
	4				7	0.0
	5	57.5	——		8	0.0

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1885phae..proj..132..1S

13
14 39.8
16
17

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1885phae.proj.1321S

1 2 16 17
Rec'd. 19 V- 91

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