KG
11366
v. 362

1999phae.proj..366W

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1999phae.proj..136ow

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1899phae.proj.1366w

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Oct. 14, 1899.

Cerasis Var. Cont from prev.

book. (110.)

XI

Left

Ledgered.

Plotted.

244.7

11 36 30 333.5 88.8*

60.8 91.9*

152.7 150.7*

179.3* −0.01*

242.4

11 42 05 333.3 90.9* −0.03*

62.8 92.0*

154.8 182.9* −0.05*

Right. 177.1*

157.4 Mean = +0.04*

45 30 242.0 84.6*

334.6 84.2*

62.4 172.8* +0.14*

154.7 +0.12*

42 30 243.1 88.4*

17 55 333.8 86.8*

11 43 16* 60.6 175.2* +0.09*

5 22*

16 42 54* Gr. M. Time.

4942.6964*

4942.5112

+0.1852*

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1899phae.proj.1366w

2

Oct. 14, 1899.

XII

	Right		
	156.4		
11 57 10	242.6	86.2	
	334.1	89.1	
	62.2	175.3	+ 0.09
	152.7		+ 0.09
59 45	243.0	90.3	
	334.7	84.6	
	59.3	174.9	+ 0.09
	Left.		
	60.8		Mean = - 0.10
12 03 25	158.0	97.2	
	238.0	99.6	
	337.6	196.8	
		163.2	- 0.32
	58.2		
12 06 00	157.4	99.2	- 0.30
2 46 20	240.0	99.7	
12 01 35	337.7	197.9	
5 22	57	165.1	- 0.25
17 01 13	Gr. M. Time.		
4942.7091	Ver. A. Pos. Ang 279.63		
4942.5112	Sprocket wheel reads a System 9.91		
0.1979	" " B " 10.5		
	" " C " 11.3		

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1899phae.proj.1366w

Oct. 14/1899.

B system the one most to be studied upon.
Troubled in east grouse by southern
scud~~s~~.

~~B sys~~

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1899phae.proj.1366w

Oct. 16, 1899 (Monday)

7 00 Cloudy

7 30 Cloudy.
Photo. Var. Dm. 3338 (Phot Var). W Obs.
19 20 +43.0
22 05
2 45

L & A. Plotted.
Ledgered.

35 3.8 <vanadis.

8 21 15	40.8	47.0+	
	176.9	44.1+	
	221.0	91.1+	- 1.88+
	352.9		- 1.82+
23 20	43.5	50.6+	
	177.0	46.2+	
	222.2	96.8+	- 1.76+
	R & B		
	266.3		Mean = - 1.80
26 50	310.9	44.6+	
	88.1	49.0+	
	1321	93.6+	- 1.82
	263.7		
29 50	313.1	49.4+	- 1.78+
21 15	84.9	47.8+	4944.55819+
25 19	182.7	97.2+	- 1.73
13 24 52.	G.M. Time.		

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1999phae.proj.1366w

Oct. 16 1899.

R. & B. II.

2648

8 3410 311.8 47.0*

83.1 50.7*

133.8 97.7* −1.71*

2644 −1.72*

3720 312.0 47.6*

83.9 49.7*

133.6 97.3* −1.73*

L.D.a.

1755

4055 223.2 47.7* Means = −1.734

3538 49.0*

42.8 96.7* −1.74*

1759

43 25 222.6 46.7* −1.76*

155 50 354.8 48.3*

8 38 58* 43.1 95.0 −1.78*

6 − 27

43 38 31 G.M. Time.

4944.5684*

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1899phae.proj.1366w

Oct. 16, 1899

III

L & A.

175.6

8 53 10 224.3 48.7*

355.8 49.2*

43.0 97.9* − 1.71*

175.5 −1.73*

56 05 222.8 47.3*

354.6 49.0*

43.6 96.3* −1.70*

R & B.

81.9 Mean = −1.70*

58 35 134.1 52.2*

163.5 49.8*

313.3 102.0* −1.61*

83.4 −1.66*

9 00 20 132.9 49.5*

228 10 264.3 48.2*

8 57 02 312.5 97.7* −1.71*

5 −27

13 56 35 Gr. M. Time.

4944.5 * 10+

1899phae.proj.1366w

Oct. 16, 1899.

IV.

R & B.

83.8

9 05 00	133.3	49.5*	
	263.3	49.4*	
	312.7	98.9*	− 1.68*
	83.1		−1.68*
06 40	132.9	49.8*	
	264.2	48.7*	
	312.9	98.5*	−1.69*
	L & A.		
	353.6		Mean = −1.70*
09 40	42.8	49.2*	
	175.0	47.4*	
	222.4	96.6*	−1.74*
	352.4		−1.71*
11 30	43.5	51.1*	
32 50	175.3	47.8*	
9 08 12*	223.1	98.9*	−1.68*
5 −27			

14 07 45* G.M. Time.

4944.5888*

1899phae.proj.1366w

Oct. 16, 1899

V

L & A.

		353.8		
9	17 00	43.1	49.3	
		173.6	48.8	
		222.4	98.1	-1.70
		353.6		-1.70
	19 05	44.4	50.8	
		175.5	47.3	
		222.8	98.1	-1.70

R & B

		263.6		Mean = -1.69
23	10	313.0	49.4	
		82.8	49.6	
		132.4	99.0	-1.68
		264.6		-1.68
	25 00	313.1	48.5	
	84 15	82.7	50.4	
9	21 04	133.1	98.9	-1.68
5	-27			
14	20 37	Gr. M. Time.		
4944.5976				

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1899phae.proj.1366w

Oct. 16, 1899

VI.

	R & B.		
	263.2		
9 32 40	313.3	50.1	
	82.0	51.7	
	1 35 3.7	101.8	− 1.61
	2634		− 1.64
35 15	313.3	49.9	
	83.2	50.0	
	396.2	99.9	− 166
	L. & a.		
	1753		Mean = −1.68
38 25	223.6	48.3	
	352.9	49.9	
	428	98.2	− 1.70
	1756		− 1.72
40			
38 25	222.3	46.7	
146 45	353.2	49.9	
9 36 41	43.1	96.6	− 1.74
5 −27			
1436 14	G. M. Time.		
4944.6084			

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1899phae.proj.1366w

Oct. 16, 1899.

VII

		L & a.			
		176.8			
9	48	35 22 2.3	45.5		
		352.4	51.3		
		43.7	96.8	-1.74	
		173.3		-1.72	
61	00	22 3.1	49.8		
		354.8	48.2		
		43.0	98.0	-1.71	
		R & B.			
		82.0		Mean = -1.69	
53	15	133.0	51.0		
		264.7	47.9		
		312.6	98.9	-1.66	
		83.9		-1.66	
55	35	133.2	49.3		
208	25	263.0	51.3		
9	52	06 31 4.3	100.6	-1.64	
5		-27			
14	51	39 Gr. M. Time.			
4944.		-6191			

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1899phae.proj.1366w

Oct. 16, 1899.

R & B. VIII.

82.2

10 02 00 132.8 50.6*
264.9 45.7*
313.6 99.3* -1.67*

847.0 -1.67*

05 00 133.3 49.3*
263.9 50.1*
317.0 99.4* -1.67*

L & A

354.2 Mean = -1.70*

08 35 42.1 47.9*
173.9 49.1*
223.0 97.0* -1.73*

353.9 -1.73*

11 10 40.9 50.0*
26 45 175.6 47.2*
10 06 41 222.5 97.2* -1.73*
5 -27
15 06 14 Moonlight very bright.
4944.6293* Pos angle Ver. a. = 214.°2
Sprocket wheel reads 7.5 a System
8.6 B System

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1899phae.proj.1366w

Oct. 16. 1899.

Comp. Stars for R. Ursa Min. W6k.

16	34	+72.8
24	24	
7	50	

Pos. Zero = 80.2
45.0
Setting = 125.2

0h 37m	22.0		a
37	43.5		l
38	9.5	+.7	a
39	19.0	-.3	l
43	21.0	-4	a
~~43~~	~~40.7~~		
43	41.8	-3	l
44	8.5		a
44.5	18.5		l

Star a in ~~southern~~ half of square.
Star l in northern half of square.
Both inside square.

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1899phae.proj.1366w

Oct. 16 1899.

R Ursa Min Comp Stars continued.

0	08m	29.5s	l
	09	42.8	m
~~1~~	~~00~~	~~42.9~~	~~m~~
1	00	59.0 -.5	l
	01	15.5	8.5 magn
	02	15.7	8.5 magn
	02	41.0 -.4	m

The above all in northern half of square.

1	03	45.0	l (Southern half)
	04	25.0	m (Northern half)
	05	25.0	m (Southern half)
	06	2.7	8.5 magn (N. half.)
	06	26.0	l (Southern half)
	06	50.5	m (N. half)
	07	45.0	m (S half)
	08	15.0 -.3	8.5 Magn (N. half)

Phot R. 0 Ceti W Ob.

2 12 -3.6

1 12

1 00

11 00

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1899phae.proj.1366w

Oct. 16, 1899.

	Left.	o Ceti.	
	214.7		
11 20.8	228.7	14.0*	Plotted.
	85.1	13.3*	
	48.4	27.3* − 4.61*	
			4*
			−4.64*
	215.6		
	228.6	13.0*	
	343.9	13.6*	
	48.5	26.6* − 4.67	
	Right.		
	125.3		Mean = −4.64*
	138.9	13.6*	
	305.3	13.7*	
	319.0	27.3* − 4.61	
			4*
			−4.64*
	125.9		
11 27.5	138.7	12.8*	
8.3	305.2	13.8*	
11 24.2*	319.0	26.6* − 4.67	
5 − .4			
16 20.8*	G.M.Time.		

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1899phae.proj.1366w

Dated here

Oct. 16, 1899

Same again.

Right.

	120.0		
11 29.1	139.4	14.4"	
	305.9	12.8"	
	318.7	27.2"	−4.62"
	120.0		−4.68"
	138.5	12.5"	
	305.5	13.1"	
	318.6	25.6"	−4.75"

Left.

Mean = −4.68"

	35.3		
	49.0	13.7"	
	215.9	12.6"	
	228.5	26.3"	−4.69"
	35.9		−4.68"
11 35.2	49.0	13.1"	
64.3"	215.2	13.3"	
11 32.2	228.5	26.4"	−4.68"

δ −4

Arnold & Dent

Bond 394

16 31.8" Gr. Mt. 11 42 27.2 11 42 00

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1899phae.proj.1366w

Oct. 19, 1899. (Thursday)

Comp. of Chron.

A & D.		Bond 394.		
6	45 33.6	6	45 00	
6	46 33.7	6	46 00	

Phot. T U Cephei. W Obs.

24 60 +A 1.1
21 05
3 45
8 15

Log. I

79.0 < variable.

7 16 15	140.5	61.5*	Ledgered.
	257.5	61.2*	
	318.7	122.7*	-1.13*
	79.2		-1.14*
7 17 25	140.2	61.0*	
	257.0	61.3*	
	318.3	122.3*	-1.14*
	R & B.		
	349.5		Means -1.21
19 43	47.6	58.1*	
	169.8	57.0*	
	226.8	115.1*	-1.30*
	348.8		
22 32	48.7	59.9*	-1.28
7 55 55	170.0	57.4*	
7 18 59	227.4	117.3	-1.25*

4947.5 128*
4946.1079*
+2.4049*

5 12 18 -34.5 Mean Time

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1899phae.proj.1366w

Oct. 19, 1899.

Phot. T. T Andromedae. W6b.

24 17 +26.4
21 46
2 37
9 23

Var Rather faint in moonlight.

Phot. R M. P. 4411 W. 6b.

27 31 +62.8
21 53
5 38
6 22

Ledgered

	Z & a.			
	194.2	Coordinates		
7544	248.0	53.8		
	16.0	52.2		
	68.2	106.0	-1.51	
	196.0		-1.55	
	247.1	51.1		
	16.9	51.5		
	68.4	102.6	-1.59	
	R & B.			
	1048			Mean = -1.49
	158.5	52.7		
	285.1	54.9		
	340.0	108.6	-1.45	
	105.6		-1.43	
801.8	160.4	54.8		
116.2	284.3	55.7		
58.1	340.0	110.5	-1.41	

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1899phae.proj.1366w

Oct. 19. 1899

(M. P. 441) Same Again.

	R	B	
	105.0		
8 035	159.5	54.5	
	284.6	55.5	
	340.1	110.0	−1.42
	105.0		−1.41
	158.8	53.8	
	283.6	57.0	
	340.6	110.8	−1.40
	L. D. a.		
	14.6		Means −1.42
	70.5	55.9	
	196.1	53.7	
	249.8	109.6	−1.43
	15.7		−1.44
8. 08.2	68.9	53.2	
11.7	194.0	55.9	
8 05.8	249.9	109.1	−1.44
5 −.6			
13 05.2	Gr. M. Time.		

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1899phae.proj.1366w

Oct. 19, 1899.

Phot. T. U Ceph. Continued W62

24 50 +81.1
22 15
2 32

L.D.a 9 28 II

7 23

8 21 22 147.2 74.9+ Ledgered
251.4 74.2
325.6 149.1 −0.59*

71.3 −0.59*

22 49 148.8 77.5
253.5 71.5
324.8 149.0 −0.59*

R.+R.

343.3 Mean = 0.60*

23 39 54.6 71.3*
160.6 74.2
234.8 145.5 −0.66*

343.3 −0.62*

27 06 55.0 74.7*
16 56 160.2 74.3
8 24 14 234.5 149.0 −0.59*
5 − 34

13 23 40* Gr. M. Time

4947.5581*
4945.4079
+2.4502*

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1899phae.proj.1366w

Oct. 19, 1899.

III

R + B.

	341.1		
8 32 26	55.6	74.5	
	158.8	79.0	
	238	153.5	-0.57
	338.5		-0.47
38 56	57.7	79.2	
	159.5	78.3	
	238	157.5	-0.43
	L & a		
	248		Means -0.36
36 24	330.4	81.6	
	66.7	85.0	
	151.7	166.6	-0.26
	2469		-0.126
37 30	328.8	81.9	
20 16	66.6	83.6	
8 35 04	150.2	165.5	-0.27
5	-34		
13 34 30	Gr. M. Time.		
4947.5656			
4945.1079			
+2.4577			

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1899phae.proj.1366w

Oct. 19, 1899.

IV

L & a

246.8

8 39 19 331.4 846 *

67.6 85.5 *

153.1 170.1 * − 0.19 *

246.9 − 0.19 *

40 52 330.9 84.0 *

67.2 85.8 *

152.0 169.8 * − 0.19 *

R & B.

156.8 Mean = − 0.20 *

43 22 242.2 85.4 *

336.8 83.6 *

60.4 169.0 − 0.21 *

156.5 − 020 *

45 30 242.2 85.7 *

169 23 336.9 84.1 *

8 42 21 * 61.0 169.8 − 0.19 *

5 − 24

13 41 47 * Gr. M. Time.

4947.5707 *

4945.1079

+ 2.4628 *

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1899phae.proj.1366w

Oct. 19. 1899.

V

R + B.

156.7

8 48 54 241.5 — 84.8*

3346 — 87.5*

62.1 — 172.3* — 0.14*

157.0 — 0.14*

50 37 243.4 — 86.4*

335.9 — 87.0

62.9 — 173.4* — 0.13*

L + a

63.4

52 44 155.6 — 92.2* — Mean = − 0.03*

2433 — 89.6*

332.9 — 181.8* + 0.03*

178.2

61.0 + 0.08

54 14 155.5 — 94.5*

206 29 241.8* — 93.2*

8 51 37 335.0 — 187.5* + 0.14

5 − 34 — 172.5

13 51 03 Gr. Mtn. -

4

49 47.5771*

49445.1079*

+2.4692*

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1899phae.proj.1366w

Oct. 19, 1899.

L & a.

VI.

62.8

8 58 25 158.0 95.2*

240.0 95.5*

330.6 190.7*

169.3* + 0.20*

61.1

9 00 15 159.0 97.9* + 0.23*

240.6 95.9*

336.5 193.8*

166.2* + 0.26*

R & B.

330.8

9 02 41 65.1 94.3*

152.0 93.9*

245.9 188.2*

171.8* + 0.16*

38a 2

03 57 66.6 96.3* + 0.20*

245 18 169.7 97.1*

9 1 20* 246.8 193.4*

6 -314 166.6* + 0.25*

14 00 46* Gr. M. Time.

4947.6839*

4945.1079

2.4760*

Mean = +0.22

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1899phae.proj.1366w

Oct. 19, 1899.

VII

R.A.B.

	330.8		
9 07 51	67.4	96.6	
	150.7	96.9	
	247.6	193.5	
		166.5	+0.25
	329.0		
09 42	67.9	98.9	+0.30
	148.8	99.6	
	248.4	198.5	
	L&A:	161.5	+0.35
	2348		
13 05	340.1	105.3	
	56.6	105.5	Mean = +0.46
	162.1	210.8	
		149.2	+0.59
	235.4		
15 38	341.8	106.4	+0.61
46 16	55.4	106.6	
9 11 34	162.0	213.8	
5 34		147.0	+0.63

14 11 00 Gr. M. Time.
4947.5910 Pos angle Ver a. = 193.9
4945.1079 Sprocket wheel a System g.
+2.4831 " " B " 10.6

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1899phae.proj.1366w

Oct. 19, 1899.

Phot T. DM 42° 3338. W 6h.

19 20 +43.0
23 30
4 10

I

L & a

1746 < van dia.

9 32 33 222.8 48.3"
351.5 52.7"
44.2 101.0" -1.63"

Plotted.
Ledgered

4 172.7 -1.63"
3 05 225.2 52.5"
355.4 48.5"
43.9 101.0" -1.63"

R & B.
83.4

Mean = -1.59"

355 132.2 48.8"
261.0 54.6"
315.6 103.4" -1.57"

82.2 -1.55"

37 38 139.9 53.7"
20
19 11 263.2 54.6"
9 3503 315.8 103.3" -1.53"
5 -34

14 34 29 Sid. Time.
4947.6072
4947.

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1899phae.proj.1366w

Oct. 19, 1899.

R & B

II

831

9 40 42 133.7 30.6*

262.8* 37.3*

314.1 101.9* −1.61*

82.1 −1.58*

42 22 134.1 32.0*

261.7 32.1*

313.8* 104.1* −1.56*

L & A.

353.5 mean = −1.62*

44 57 43.0 49.5*

173.9 48.9*

223.8 98.4* −1.70

−1.67

354.2

46 18 44.4 30.2*

14 19 174.3 30.3*

9 43 35* 224.6 100.6* −1.64

5 −34

14 43 01* Gr. M. Time.

4947.6 132*

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1999phae.proj.1366w

Oct. 19, 1899.

III

L & A.

	352.7		
9 50 20	44.9	52.2	
	173.9	49.1	
	223.0	102.3	− 1.60
	353.3		− 1.62
9 52 37	43.9	50.6	
	173.4	50.1	
	223.5	100.7	− 1.64

R & B

Mean = − 1.61

	262.6		
9 55 05	314.0	51.4	
	83.7	51.3	
	135.0	102.7	− 1.59
	263.4		− 1.60
9 56 43	313.5	50.1	
14 45	82.7	52.4	
9 53 41	135.1	102.5	− 1.60

5 34

14 53 07 Sid. Time.

49476202

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1899phae.proj.1366w

Oct. 19, 1899.

IV

R+B.

	263.1		
10 01 03	313.3	52.2	
	83.6	50.2	
	1338	102.4	-1.60
	263.4		-1.60
02 45	313.9	50.5	
	83.0	51.4	
	134.4	101.9	-1.61

Mean = -1.60

L+A

	173.5		
04 48	224.6	51.1	
	352.8	51.8	
	44.6	102.9	-1.59
	174.4		-1.60
07 05	228.9	48.5	
15 41	352.3	53.6	
10 03 55	45.9	102.1	-1.61

5 -34 Clouds.

15 03 21 G.M. Time.

4947.6274

4947.

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1999phae.proj.1366w

Oct. 9, 1899.

V

Saragone.
L & A.
Little clearer.

	174.6		
10 49 53	222.3	47.7	
	355.3	47.6	
	42.9	95.3	−1.77
	175.2		
51 28	227.3	46.1	−1.79
	354.7	47.9	
	42.6	94.0	−1.81
	R & B		
	85.0		Mean = −1.78
54 26	132.1	47.1	
	265.4	47.6	
	313.0	94.7	−1.79
	84.7		−1.72
56 20	138.2	48.5	
21229	265.0	47.5	
10 53 07	312.5	96.0	−1.76
5 −34			

15 52 33 Sid. Mn Time.
49 47.6615
47.6264
+0.0351

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1899phae.proj.1366w

Oct. 19, 1899.

VI

R+B

83.88

10 59 00 132.8 49.0*

264.6 48.6*

313.2 97.6* -1.72*

83.6 -1.72*

11 00 38 132.1 48.5*

264.8 48.6*

313.4 97.1* -1.73*

L+a

305.3

03 20 42.3 47.0* Mean z -1.84*

177.1 43.2*

220.3 90.2* -1.91*

358.1 -1.96*

05 03 40.6 42.5*

248 01 175.9 44.5*

11 02 00* 220.4 87.0* -2.00*

5 -04

16 01 26* G.M.T. mean

4947.6677*

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1899phae.proj.1366w

Oct 19, 1899.

VII

L. Aa.

3544

|| 0806 43.1 45.7*
178.0 41.5*
219.5 90.2* -1.91*

3558 -1.94*

|| 07 40.2 44.4*
177.6 43.3*
220.9 87.7* -1.97*
R. A. B.

2664 Mean = -1.92*

|| 13 55 312.4 46.6*
84.7 45.6*
130.3 91.6* -1.97*

2661 -1.91*

|| 1705 310.5 44.4*
51 06 86.1 44.1*
11 12 46 130.2 88.5 -1.90*
5 - 84

16 12 12 Gr. M. Time.
4947.6751*

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1899phae.proj.1366w

Oct. 19. 1899.

VIII

	R.A.	Dec.	
	264		
11 21 51	310.0	43.6	
	85.8	44.5	
	130.3	88.1	-1.96
	265.6		-1.97
24 24	310.8	45.2	
	86.9	42.5	
	129.4	87.7	-1.95

L.A.Q.

	179.1	Clouds	
29 10	218.8	42.7	
	357.7	41.0	
	38.7	89.7	-2.20
	Clouds		
	179.0		-2.40
31 15	224.2	45.2	
	357.6	41.8	
(37.0)	39.4	87.0	-2.00

10 26 50

11 26 42 Last setting delayed by clouds.

5 -34 Troubled somewhat by clouds in this group;

16 26 08 especially towards the last. ½ wt.

4947.6848

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1899phae.proj.1366w

Oct. 19. 1899.

Lo a

1794

1135 21°.4 39'.4

35'.

Clouds thick.

R.A B

For Ang Ver a = 214°.3

Sprocket wheel reads a System 7.5

" " " B system 8.6

1200 Stopped by clouds

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1899phae.proj.1366w

Oct. 20, 1899. (Friday)

Comp & chron.

Ar.	Dec.	Bond 394.
7 04	34.5	7 04 00
7 05	34.5	7 05 00

Phot. P. χ Cygni N Obs

19 45 +32.6
21 40

L & A.

181.1 <comp star dis. / 05

7 54 217.9 36.8'
357.6 40.0'
37.6 76.8' +2.29"

Ledgered.
Plotted

180.0 +2.28"
219.9 36.9'
357.5 40.7'
38.2 77.6' +2.27"

R & B

82.0
127.9 39.9'
269.3 39.6'
308.9 79.5' +2.20"

Mean = +2.24"

87.2 +2.18"
7 04.2 127.9 40.7'
11 8.7 268.0 40.3'
7 59.4 308.3 81.0' +2.17
5 -.6
12 58.8

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1899phae.proj.1366w

Oct. 20, 1899.

Same Again

	R + B.		
	87.6		
8 06.8	128.9	41.3	
	268.4	40.2	
	308.6	81.5	+ 2.10
	87.8		+ 2.18
	128.4	40.6	
	269.0	39.1	
	308.4	79.7	+ 2.20
	L + a.		
	358.6		Mean = + 2.32
	39.2	40.6	
	179.6	38.7	
	218.3	79.3	+ 2.22
	359.1		+ 2.25
8 14.4	38.2	39.1	
21.2	179.6	36.2	
8 10.6	217.8	77.3	+ 2.28
5 -.6			
10 10.0 Mean T.			

Pos. Angle Ver A. = 203.2°

Bucket wheel reads A System A 5

" " B " 9.7

1899phae.proj.1366w

Oct. 20, 1899.

Phot R. *O* Ceti W 6h

26 12 −3.6

22 39

3 35

8 20

	R.A.		
	305.8		Ledgered
8h 36.6	319.6	13.8*	Plotted
	125.5	14.4	
	139.9	28.2*	− 4.54*
	305.2		− 4.54*
	319.4	14.2*	
	125.7	13.8*	
	139.5	28.0*	− 4.55*
	L & B.		
	216.3		Mean = − 4.59*
	229.2	12.9*	
	35.5	13.6*	
	49.1	26.5*	− 4.67*
	215.3		− 4.64*
8 43.8	229.3	14.0*	
80.4	343.0	13.3*	
8 40.2*	493	27.3*	− 4.61*
5 − 6			
13 39.6*			

Gr. M. Trans

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1899phae.proj.1366w

Oct. 20, 1899.

Same Again.

	L & B	
	215.4	
8 46.0	229.2	13.8'
	35.3	13.8'
	49.1	27.6' - 4.59'
	215.1	- 4.58'
	229.4	14.3'
	35.6	13.5'
	49.1	27.8' - 4.63'

Right & above Mean = - 4.58'

	125.8	
	139.33	13.5'
	305.2	14.1'
	319.3	27.6' - 4.59'
	125.3	- 4.59'
8 54.2	139.3	14.0'
100.2	305.7	13.5'
8 50.1'	319.32	27.5' - 4.59'
5 -6		
13 49.5'	Gr. M time.	

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1899phae.proj.1366W

Oct. 20, 1899.

Phot 7. W Delphini. W 62

20 37 +17.8
23 41
2 40

I

L & A.

167.7 < comp stars dia. Ledgered.

9 15 42 229.8 62.1'
346.6 64.4'
51.0 126.5' + 1.05'

169.0 +0.88'

17 54 229.0 70.0'
347.0 73.5'
49.1 143.5' + 0.70'

R & B

73.2 Mean = +0.87

21 19 141.2 68.0'
255.3 66.6'
321.9 134.6' + 0.88

72.1 +0.86'

24 25 142.2 70.1'
79 20 255.2 67.1' 4948.5967'
9 19 50 322.3 137.2' + 0.83 4948.9387' +V
5 -34 4.6580'
14 19 16 Dr M. Lewis

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1899phae.proj.1366w

Oct. 20, 1899.

II

R&B

	74.8		
9 26 39	141.4	66.6″	
	255.4	66.4″	0.92
	321.8	133.0″	+ 0.99
	76.7		+ 0.95″
29 06	141.6	64.9″	
	256.3	65.2″	
	321.5	130.1″	+ 0.98

L&A.

Mean = +1.08″

	348.0		
32 02	47.2	59.2″	
	168.3	60.6″	
	228.9	119.8″	+ 1.20″
	348.6		+ 1.22″
34 13	48.9	60.3″	
122 00	169.4	57.7″	
9 30 30	227.51	118.0″	+ 1.24″
5	34		

14 29 56 Gr. M. Time.

4948.6041″

4943.9387

4.6654

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1899phae.proj.1366w

Oct. 20, 1899.

III

L Ra

349.7

9 37 20 46.4 56.7*

169.6 57.9*

227.5 114.6* +1.31*

40 349.2 +1.32*

Ø 32 47.5 57.3*

170.4 56.8*

227.2 114.1* +1.32*

R Ra

259.4 Mean = +1.24*

43 10 319.5 60.1*

78.5 60.2*

138.7 120.3* +1.19*

257.9 +1.16*

45 49 319.1 61.2*

166 57 77.6 60.9*

9 41 43 138.45 122.1* +1.14*

5 -34

14 41 09 Gr. M. Time.

49 48.6119*

49 48.9387*

+4.6732*

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1899phae.proj.1366w

Oct. 20, 1899

IV

R & B

2598

9 49 25 318.1 53.3*

79.3 59.3*

138.6 117.6* +1.25*

258.6 +1.25*

53 27 317.8 59.2*

80.2 58.2*

138.4 117.4* +1.25*

L O a.

172.1 Mean = +1.36*

57 23 22 06 54.5*

301.9 53.4*

45.3 107.9* +1.47*

172.1 +1.48*

10 00 08 22 58 53.7*

220 23 30 1.8 53.7*

9 55 06 45.5 107.4* +1.48*

5 -34

1454 92* 88 M. Time.

1498.6217*

1498.9387

+4.6825*

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1899phae.proj.1366w

Oct. 20, 1899.

V

		L & a.		
		173.0		
10	03 38	224.2	57.2	
		353.3	57.5	
		44.8	102.7	+ 1.59
		173.2		+ 1.60
05	50	224.0	50.8	
		352.6	50.6	
		43.2	101.4	+ 1.62
		R. & B.		
		80.2		Mean = + 1.54
08	57	137.2	57.0	
		266.9	57.8	
		314.7	108.8	+ 1.45
		82.4		+ 1.48
12	53	135.5	53.1	
31	18	262.0	53.0	
10	07 50	315.0	106.1	+ 1.51
5	-34	Preceding	Ver. a.	345.5
15	07 16	Sirius	Procket Wheel. road	10.5 a System
4948.6301				11.7 b System
4943.9387				
4.6914				

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1899phae.proj.1366w

Oct. 20, 1899

Phot. ☓. . γ Cygni. V 662.

20 40 33.4
24 46
4 00

above.
93.3 Van dia
10 46 05 122.5 29.2
27 46 22.7
302.3 16.9 -2.98

95.0 24.1 -(3.01)
45 43 123.1
274.8 29.2
302.0 17.3 -3.04

Below.
4.7
49 20 30.3 24.6 -3.31
187.0 23.6
210.6 19.2

-(3.29)

5.6
10 57 00 31.1 21.5
19 54 08 186.6 24.6 -3.27
10 48 32 211.2 50.1
5 -34
15 47 58 Gr. M. Time.

4948.6583
4945.8963
+2.7620

-Mean = -3.15

1899phae.proj.1366w

Oct. 20, 1899.

II

Below

5.3
10 52 42 39.1
24.9
186.2 24.8'
210.2 24.0'
48.8' −8.33

5.7 −3.30'
54 35 31.9 26.2'
187.0 23.5'
210.5 49.7' −3.28
Above
2748 Mean = −3.11'
57 10 3038 29.0'
93.2 30.4'
123.6 59.4 −2.88

2740 −2.92'
58 50 302.6 28.6
23 17 94.3 28.5
10 55 49 228 57.1 −2.97
5 −34

15 55 15 Gr. M. Time.
4948.6633
4945.8963
+2.7670

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1899phae.proj.1366w

Oct 20, 1899

III

	Above			
	274.3			
N 00 43	302.2	27.9		
	948	28.8		
	123.6	56.7	−2.99	
				−3.03
	274.3			
0210	302.1	27.8		
	95.6	27.0		
	122.4	54.8	−3.07	
	Below			
	186.5			Mean = −3.12
0425	211.8	25.3		
	5.7	26.7		
	32.4	52.0	−3.18	
				−3.21
	186.0			
0617	212.0	26.0		
13 00	5.7	24.8		
11 03 24	30.5	50.8	−3.24	
5	−34			
16 02 50	G.M. Time.			
4948.6687				
4945.8963				
+2.7724				

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1899phae.proj.1366w

Oct. 20, 1899.

IV

	Below		
	186.3		
11 05 26	211.1	24.8*	
	5.6	26.1*	
	31.7	50.9*	− 3.24*
	186.0		− 3.26*
10 21	214.7	25.7*	
	6.1	24.1*	
	30.2	49.8*	− 3.28*
	Above		
	95.0		
12 47	122.2	27.2*	Mean = − 3.15*
	27.3	29.3*	
	302.6	56.5*	− 3.00*
	95.1		− 3.04*
14 41	122.2	27.1*	
46 15*	27.6	27.4*	
11 11 34*	302.0	54.5*	− 3.08*
5 34			

16 11 00* Gr M Time.

4948.6743*

4945.8963

+2.7780*

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1899phae.proj.1366w

Oct. 20, 1899

V

Above

	947	27.V*	
11 17 30	122.2		
	2747	24.6*	
	303.3	V6.1*	− 3.01*
	949	27.4*	−3.04*
19 00	122.3		
	2748	27.2*	
	302.0	V4.6*	− 3.07

Below.

	48	26.4*	Mean = −3.12*
20 55	30.2		
	1855	24.2*	
	210.3	V2.2*	− 3.22*
	4.2	26.2*	−3.20*
22 35	32.0		
8 00 00	180.2	2V.2*	
11 20 00*	21.0	V2.0*	− 3.18*

5 −34 Pos Ang Reads Vera. 340.2

16 19 26 Gr M.T. I bracket 6 V A system.

4946.6802* " 7.7 B "

4940.8963*

+2.7839* Comp. Star for 9 Cygni used to night is 2 hr. + 33° 40.6' (9.4)

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1899phae.proj.1366w

Oct 21, 1899 (Saturday)

Comps & chronometers.

Arnold & Dent		Bond 394
5 46	35.2	5 46 00
5 47	35.2	5 47 00

Phot. T. U Coronae W 6h.

15 8 + 33.9

20 12

5 10

L-O a.

171.3 [vards]

6 11 30 225.3 54.0 I.

350.0 51.0 Ledgered,

41.0 105.0 -1.54 Plotted

171.1 -1.48

13 35 226.1 55.0

350.4 55.3

45.7 110.3 -1.41

R & B.

78.5 Mean = -1.40

17 28 137.8 59.5

260.1 56.8

316.8 116.3 -1.27

81.4 -1.33

1923 136.2 54.8 4949.4686

21 56 60 284.0 56.2 4949.2614

6 15 29 31 6.2 111.0 -1.39 +0.2072

5 -35

11 14 54 G.M.T.

1899phae.proj.1366w

Oct. 21, 1899.

II

RAB.

261.2

6 22 45 31.59 — 53.47

80.0 — 53.50

105.0 — 109.7 — -1.42

-1.43

26 22

24 30 31.58 — 53.6

80.6 — 53.56

136.2 — 109.2 — -1.44

171.9

Mean = -1.47

27 35 22 50 — 53.3

85.1 — 53.3

40.4 — 106.6 — -1.50

172.0 — -1.51

29 35 22 53.3 — 53.3

24 25 35 2.2 — 53.22

6 26 06 44.84 — 105.5 — -1.52

11 25 21 G.M. Time.

4949.4760

4949.2614

+0.2146

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1899phae.proj.1366w

Oct. 21, 1899.

III

R & B.

173.5

6 33 00 224.0 60.5'

350.9 60.4'

45.4 105.6 -1.52"

-1.54"

172.1

35 30 22 5.0 62.9'

352.9 57.5'

44.4 1044" -1.56"

Mean = -1.50"

L & A

82.1

38 30 137.1 55.0'

261.0 55.1'

316.1 110.1" -1.42"

-1.46"

806.9

40 50 134.0 55.1'

147 50 263.4 52.4'

6 36 58 315.8 107.5" -1.48"

5 30"

11 36 23 G.M.T.

4949.4836"

4949.2614"

+ 0.2222"

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1899phae.proj.1366w

Oct 21, 1899.

IV

R.A.B.

81.2

6 45 30	134.9	63.7'	
	268.3	61.9	
	315.2	105.6	-1.52'
	82.1		-1.52'
51	134.5	624'	
	2624	62.7'	
	315.1	105.1	-1.53'

L.O.R.

	3538		Mean = -1.61'
5 44 00	424	48.6'	
	174.1	49.7'	
	2993.8	98.3	-1.70'
	3538.5		-1.76
5 53 35	438.	50.3'	
6 45	17 41.1	47.9'	
6 51 26	22210	98.2'	-1.70'
5 -35			

11 50 G.M.T. Time.

4949.4986'

4949.2614.

+0.2372'

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1899phae.proj.1366w

Oct. 21, 1899.

V

LQA.

3543

γ 00 50 41.9 47.6*
1747.1 49.4*
2232.5 97.0* − 1.73*

3535 −1.73*

0320 42.5 49.0*
1740 47.9*
2219 96.9* − 1.73*

RQB. Mean = −1.66*

2639.4

06 35 3141 50.7*
820 32.2*
1342 102.9* − 1.59*

2639 −1.60*

09 45 3141.6 50.7*
20 30 82.7 51.6*
γ 05 08 134.3 102.3* − 1.60*
δ −35

12 04 33* L. M. Taino

4949.5032*
4949.2614
+0.2418*

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1899phae.proj.1366w

Oct. 21, 1899

VI

	R	D	
	263.5		
7 15 50	313.2	49.7'	
	82.3	52.6'	
	134.9	102.3'	− 1.60'
	263.2		−1.69'
18 05	315.1	51.9'	
	82.8	51.1'	
	133.9	103.0'	− 1.58'
	L.A.		
	170.9		Mean = −1.70'
20 55	222.8	45.9'	
	354.6	47.8'	
	42.4	93.7'	− 1.82'
	175.9		−1.80'
23 30	222.6	46.7'	
78 20	353.5	48.9'	
7 19 35'	42.4	95.6'	− 1.77
5	−35'		

12 19 00' G.M.T. Time

4949.5132'

4949.2614

+0.2518'

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1899phae.proj.1366w

Oct. 21, 1899.

VII

L.D.R.

176.3

7 29 15 222.7 46.4"
354.6 48.2"
428 94.6" − 1.79"

176.4 −1.82"
31 00 22 48.0 45.4"
354.9 47.2"
42.9 92.6" − 1.84"

R.D.B. Mean = −1.78"

84.1
34 10 133.2 49.1"
264.6 47.9"
312.5 97.0" − 1.73"

84.3 −1.74"
8 6 55 132.6 48.3"
131 25 264.5 48.4"
7 32 51 312.9 96.7" − 1.74"
5 −35

12 32 16 Gr. M. Time
4949.5224"
4949.2614
+0.2610"

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1899phae.proj.1366w

Oct. 21, 1899

VHH

R & B

83.9

7 41 05 132.9 49.0"

263.6 48.8"

312.4 97.8" -1.71"

83.9 -1.72"

44 25 132.9 49.0"

264.5 48.2"

312.7 97.2" -1.73"

L & A

305.4 Mean = -1.79"

48 25 42.8 47.4"

176.1 44.8"

220.9 92.2" -1.86"

350.1 -1.86"

41 25 40.9 44.8"

185 10 174.6 46.8"

746 18" 221.4 91.6" -1.87"

5" -85"

1245 48" Sid. Mean Time.

4949.5317"

4949.2614

+0.2703"

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1899phae.proj.1366w

Oct 21, 1899.

Leo IX

3549

7 56 40 42.1 47.2*
176.6 43.4*
220.0 90.6* -1.90*

355.5 -1.89*

59 50 41.1 45.6*
176.0 45.6*
221.6 91.2* -1.88*

R&B Mean = -1.86*

26455

8 03 20 ~~315.6~~ 311.6 47.1*
~~84~~.2 47.8*
~~132~~.0 94.9* -1.79*
26523

06 30 311.1 45.9* -1.83*
~~8~~ ~~459~~ 45.6*
246 20 13 1.5 91.5* -1.87*

~~81~~ 01 35*
~~35~~ -35

13 01 00* Gr. Merid. Time.

4949.5424*
4949.2614

+0.2810*

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1899phae.proj.1366w

Oct 21, 1899

X

RHB.

265.7

8 10 25 310.3 446"
85.1 46.1"
1322 90.7" −1.90"

264.8 −1.87"

14 05 311.4 46.6"
85.6 46.0"
139.6 92.6" −1.84"

LQA.

175.7 Mean = −1.92"

17 60 220.8 45.1"
3559 44.4"
40.3 89.5" −1.93"

177.5 −1.97"

1900 219.9 42.4"
20 30 35.6 44.1"
8 15 08 40.7 86.5" −2.01"
5 −35
13 14 33 Gr. M. Time

~~49~~

8 20 — Star getting low, faint, and difficult espec-
4949.5078 ially in last two groups.
4949.2614
+0.2464

Prodet Visual. A System A.7
" " B " 9.6
(Per A) reads for Pos Ang. 188.8

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1899phae.proj.1366w

Oct. 23, 1899. (Monday)

Comp & chron.

Arnold & Dent. Bond 394.

γ 40 40 γ 40 00

Cloudy early part of evening
Clearer now

Pivot ✕ Cerakis Var W 62.

20 08 +46.3

23 00

2 52

Left.

264.0 ⟨Comp-star dis.

8 49 20 310.4 46.4* Ledgered.

85.0 47.6* Plotted.

132.6 94.0* +1.81*

264.3 (+1.78*)

51 22 310.3 46.0*

83.1 50.2*

133.3 96.2* +1.75*

Right.

Mean = +1.96*

177.1

5 44 41 218.9 41.8*

359.9 39.9*

37.8 81.7* +2.14*

179.6 (+2.14)

57 00 219.42 39.6*

21 22 23 256.6 42.0* +2.15*

8 53 06* 38.56 81.6*

- 40

13 52 26* γ M*

4951 5781*

4947.0842*

+4.4939*

4.5721

9.0780*

1899phae.proj.1366w

Oct. 23, 1899

II

Right

177.6

9 01 33 218.2 40.6'

359.5 38.0'

37.5 78.6' +2.24'

178.7 +2.26'

03 24 218.1 39.4'

358.8 37.5'

36.3 76.9' +2.29'

Below. Mean = +2.19'

87.9

08 05 130.5 42.6'

267.9 41.2'

309.1 83.8' + 2.08'

87.5 +2.12'

12 33 128.2 40.7'

27 35 268.2 40.3'

9 06 54 308.5 81.0' + 2.17'

5 40

14 06 14 Gr. Mo time.

4951.5876 +V 4.5729'

4947.0843

+4.5034 4.5034'

-00.695

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1899phae.proj.1366w

Feb 23, 1899.

III

Left.

89.2

9 20 35 128.8 39.6*

268.2 40.5*

308.7 80.1* +2.19*

87.8 +2.18*

24 13 128.0 40.2*

267.2 40.6*

307.8 80.8* +2.17*

Right

358.7 Mean = +2.27*

28 53 35.5 36.8*

180.3 37.2*

217.5 74.0* +2.38*

359.3 +2.36*

32 40 36.0 36.7*

180.0 37.1*

106 21

9 26 35 218.1 74.8* +2.35*

5 −40

14 25 55* Gr. M. Time.

4951.6013*

4947.0242

+4.5171*

4.5729

−0.0558*

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1899phae.proj.1366w

Oct. 23, 1899.

IV

Right.

	359.6		
9 37 40	35.6	36.0	
	180.0	37.0	
	217.0	73.0	+2.41
			(+2.40)
	359.5		
41 25	35.5	36.0	
	180.8	37.4	
	217.2	73.4	+2.40
	Below.		
	269.9		Mean = +2.32
45 30	308.2	38.3	
	48.3	40.5	
	128.8	78.8	+2.23
			(+2.25)
	268.3		
49 25	307.2	38.9	
17.4 00	90.0	38.5	
9 43 31	128.5	77.4	+2.27
5 -40			
14425			
4951.6131			
4947.0442			
+4.5289			
45729			
-0.0440			

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1899phae.proj.1366w

Oct. 23, 1899.

V

		Left.		
		268.9		
9	56 00	307.6	38.7	
		89.1	40.4	
		129.5	79.1	+2.22
		269.6		+2.25
10	01 05	307.0	37.4	
		88.6	39.6	
		128.2	77.0	+2.28
		Right.		
		180.1		Mean = +2.32
10	08 20	216.3	36.2	
		359.0	37.3	
		363	73.5	+2.39
		180.1		(+2.40)
10	12. 35	215.7	35.6	
25,8	00	359.4	37.1	
10	04 30	365	72.7	+2.42
5	40			
15	03 50	Gr. M. Time.		
4951.6277			+4.5729	
4947.0842			+4.5435	
+4.5435			-0.0294	

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1899phae.proj.1366w

Oct. 23/1899

II.

Right

180.0

0019 45 216.5 36.5*

359.2 37.0*

36.2 73.5 + 2.39*

179.2 +2.40*

2355 216.3 37.1*

359.9 36.2*

36.1 73.3* + 2.40*

Left

88.9 Mean = +2.31*

2845 128.2 39.3*

268.0 40.1*

308.1 79.4* + 2.21*

87.8 +2.22*

33 35 128.3 41.0*

106 00 269.9 37.9*

10 26 30 308.8 78.9 + 2.23*

5 40

15 25 50 G.M.T.

4951.6430*

4947.0842

+4.5588*

4.5729

−0.0141*

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1899phae.proj.1366w

Dec. 23, 1899.

VII

Left.

	88.1		
10 44 45	128.3	40.2	
	269.0	37.5	
	306.5	77.7	+ 2.26
	88.8		
48 50	128.6	39.8	+ 2.24
	268.4	39.6	
	308.0	79.1	+ 2.22
	Right.		
	359.4		Mean = + 2.32
53 45	36.3	36.9	
	180.2	35.8	
	216.0	72.7	+ 2.42
	359.6		+ 2.41
57 30	36.7	37.1	
204 0.0	180.7	36.3	
10 51 12	217.0	73.4	+ 2.40
5 - 40			
15 50 32	Gr. M. Time.		
4951.6600			
4951.6572			
+0.0028			

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1899phae.proj.1366w

Oct. 23, 1899.

VIII.

Right.

~~5~~ 0. 2

11 0650 Clouds.

36.0

180.3

216.5

Clouds. Stars gone

359.6

1500 3 . Clouds.

1 .

21 .

Left.

Stopped by clouds: reject last

11 30 partials groups.

Pos ang. Ver 97.0

Spuckelwheel A System 98

" " B " 106

" " C " 11.4

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1899phae.proj.1366w

Oct 25, 1899. (Wednesday)

Arnold & Dent.		Bond 394	
6 59	46.0	6 59	00
7 00	46.0	7 00	00

7 00 Cloudy.

Present time a little clearer.

Phot. T. X Cygni N Obs.

19 45 +32.6

22 05

2 20

7 05 Cloudy.

See next page for means of above.

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1899phae.proj.1366w

Oct. 25, 1899
χ Cygni.

L & A.

Ledgered

Plotted.

	359.9		
8h 14.9	97.3	37.4	< comp. star dia.
	179.1	37.3	
	216.4	74.7	+ 2.36
	359.5		+ 2.36
	37.8	38.3	
	180.5	36.7	
	217.2	75.0	+ 2.35

R & B.

Mean = + 2.36

	270.1		
	307.3	37.2	
	89.0	37.2	
	126.2	74.4	2.36
	270.1		+ 2.36
8 31.8	307.3	37.2	
	89.4	37.7	
8 29.6	127.1	74.9	2.35
5 - 8			
13 22.8			

G. M. Pinn

4953.

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1899phae.proj.1366w

Oct. 25, 1899.

Sky pretty throughly covered with a rather dense murky somewhat cloudiness, and making var and comps. star very faint. Observations made with considerable difficulty but much care exercised in making settings. So that group is thought to be pretty good. Clouds now growing denser so that it is impossible to take another group.

Pos. Angle = 21.°0 Ver A.
Sprocket wheel reads 98 A system
" " " 9.7 B system

0 ceto.

Phot. R.	26	12	-3.6	N6k.
	23	26		
	2	46		

9 00 00 Clouds thick omicron invisible

9 10 Impossible to do any thing farther.

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1899phae.proj.1366w

Oct. 26, 1899. (Thursday.)

Arnold & Dent			Bond 39 Gr		
6	59	48.0	6	59	00
7	00	48.2	7	00	00

Location & faint Comp. Stars for R Camelop. W 66

14	25	+44.6
22	08	
7	43	

Impossible to do anything with star R to night.

Location & faint comp stars for S Bootis W 62

14	16	+54.6
22	26	
8	10	

Haze to thick for locating faint comp. Star

Phot. T. DM 42° 3338. W 65

19	20	+43.0
22	40	
3	20	

See next page for Meas. of Phot. Var.

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1899phae.proj.1366w

Oct 26, 1899.

DM +42° 3338

L & a.

I

359.1 Lvardis.

Plotted.

Ledgered.

8 17 20 37.8 38.7

1825 34.1

216.6 72.8 +2.42

358.8 −2.43

19 55 36.2 37.4

182.7 34.7

216.4 72.11 −2.44

RHB

269.0 Mean = −2.39

2040 307.7 38.7

90.6 35.8

126.4 74.5 +2.36

2700 −2.36

2525 307.8 37.8

8620 89.4 37.4

8 21 35 126.8 75.2 +2.34

5 −48

13 20 47 Gr M Time.

4954.5562

4954.4181

+0.1381

1899phae.proj.1366w

Oct. 26, 1899.

R & B.

II

	z 68.9			
8 z 9 10	308.2	39.3		
	89.76	38.4		
	128.0	77.7	-2.26	
				-2.27
	z 69.9			
32 30	307.2	37.3		
	88.2	39.7		
	127.9	77.0	-2.28	

Mean = -2.34

L & B.

	181.0		
3610	216.5	35.5	
	359.5	38.6	
	38.1	74.1	-2.37
			-2.40
	181.3		
3925	216.8	35.5	
137.25	359.7	37.3	
8 34 21	37.0	72.8	-2.42
5 -48			

13 33 33 Gr. M. Time

49 54.5650

49 54.4181

+0.1469

1899phae.proj.1366w

Oct. 26, 1899.

III

L Aa

181.2

8 45 15 217.6 364*

358.5 38.7*

37.2 75.1* -2.34*

180.8 -2.36*

47 40 216.6 358*

359.2 38.5*

37.7 74.3* -2.37*

R A B.

~~359.2~~

8 18.8 Mean = -2.29*

51 10 127.1 38.3*

267.6 41.2*

308.8 79.3* -2.21*

8 18.3 -2.22

58 25 128.7 40.4*

197 30 268.6 38.9*

8 49 22* 307.5 79.3* -2.22*

.5 -48

13 48 34* G.M. Time

4954.5754*

4954.4181

+0.1573*

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1899phae.proj.1366w

Oct 26, 1899.

IV.

R D B

88.0

8 57 45 | 28.6 40.6 *
269.5 393 *
308.8 79.9 * -2.20*

87.0 -2.18*

59 25 | 127.8 40.8 *
268.2 40.2 *
308.4 81.0 * -2.17*

L D A

358.6 Mean = -2.22*

9 03 10 38.4 39.8 *
180.1 38.9 *
219.0 78.7 * -2.23*

358.1 -2.26

05 35 38.0 39.9 *
180.7 37.1 *
217.8 77.0 * -2.28*

245 55

9 01 29*

5 -48

1400 41* Gr. M. Time.

49 54.0838*

4954.4181

+0.1657*

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1899phae.proj.1366w

Oct. 26, 1899.

L.O.A. V.

359.3

9 12 40 38.1 38.8'
180.0 38.6'
218.6 77.4' -2.27"

359.0 -2.26"

15 53 38.7 39.7'
198 38.3'
218.1 78.0' -2.25"

R.R.B. Mean = -2.22"

269.7

19 42 308.1 38.4'
88.3 40.3'
128.6 78.7' -2.23"

268.5 -2.18"

21 40 309.4 40.9'
69 55 89.8 40.8'
9 17 29 128.6 81.7' +2.14"
5 48

14 16 41 Gr. M. Time.
54.5949
4954.4181
+0.1768

1899phae.proj.1366w

Oct. 26, 1899

VI

R Ori

α 6.7

9 39 25 | 30.1 43.4
267.3 42.6
309.9 86.0 −2.02

87.3 +2.08

41 25 129.4 42.1
268.3 40.2
308.5 82.3 +2.13

L & A.

357.5 Mean +2.113

44 40 39.0 41.5
210.4 38.0
218.4 79.5 +2.21

357.0 +2.18

47 30 39.2 42.2
173.00 179.9 39.3
9 43 13 219.2 81.5 +2.15

6 − 48. Mean Time

1442 27 Pos. Ang. Ver. A. 214.1

Sprocket Wheel reads A System 7.5

4904.6128 " " B " 8.6

4904.4181

+0.1947

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1899phae.proj.1366w

Oct. 26, 1899.

Location of faint comp. stars for S Cygni. W Obs.

2.0 81 +57.0

24 33

4 25

				var
0	54	7.5		~~var~~
	54	13.2		9.1
	55	2.5		9.1 var
	55	6.0	+1.0	~~var~~
				var
0	55	47.5		~~var~~
	55	54.5		9.1
	56	43.5		9.1 var
	56	47.0		~~var~~
				var
0	57	31.0		~~var~~
	57	37.0	-.5	9.1
	58	26.0		9.1 var
	58	30.0	+.5	~~var~~
				var
1	02	37.5		~~var~~
	02	42.5		9.1
	03	32.0		9.1 var
	03	36.0		~~var~~

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1899phae.proj.1366w

Oct 26, 1899.

1	08	51.0		var
	~~09~~ 08	56.7	9.1	
	09	46.0	9.1	
	09	49.0		var
1	12	11.0		var
	12	18.5	9.1	
	13	7.5	9.1	
	13	11.5		var

Both in Northern half inside square.

1	14	44.0		
	14	55.0	9.1	
	15	20.7	9.1	Reject.
	15	36.7		

Reject all below.

1	16	29.5 +.8		
	16	37.0	9.1	
	17	2.7	9.1	
	17	20.0		
1	24	46.0		
	24	51.5	9.1	
	25	17.0	9.1	
	25	34.0 +1.0		

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1899phae.proj.1366w

Oct. 26, 1899.

1 26 50.0 m
26 57.5 9.1
27 23.0 9.1
27 27 3 48 m

1 30 33.6 m
30 9.1
31 41.0
31

Reject.

1 33 12.7

1 34 10.5 m
34 25.5 9.1

O Ceti.

Phot R. 2 12 - 36 W 6k.

1 42
0 30.

see next page.

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1899phae.proj.1366w

Oct. 26, 1899.

o Ceti.

	R ~~Sec~~.		
	125.2		Plotted.
11 18.2	140.0	14.8	Ledgered.
	303.8	15.4	
	319.2	30.2	− 4.39
	124.3		− 4.42
	140.0	15.7	
	305.0	13.6	
	318.6	29.3	− 4.45
	Left.		
	35.0		Mean = − 4.46
	49.0	14.0	
	2 140	15.2	
	229.2	29.2	− 4.46
	34.2		− 4.49
11 25.6	48.9	14.7	
43.8	2 14.8	13.7	
11 21.9	228.5	28.4	− 4.52
5 − 8			

16 21.1 Gr. M. Time.

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1899phae.proj.1366w

Oct 26 1899

Same Again

Left

	304		
11 27 3	48.9	135	
	214.4	149	
	229.3	28.4	−4.52
	34.2		−4.48
	49.0	14.8	
	214.4	14.7	
	229.1	29.5	−4.44

Right

Mean = −4.46

	305.2		
	319.3	14.1	
	124.0	15.2	
	139.2	29.3	−4.45
	304.2		−4.45
11 34.7	319.2	15.0	
6 20	125.0	14.3	−4.45
11 31.0	139.3	29.3	
5 −8			
16 30.2	Summing		

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1899phae.proj.1366w

Oct 30, 1899 (Monday)

Comparison of Chron.

Arnold & Dent.			Bond 394		
7	02	00.5	7	02	00.0
7	03	00.6	7	03	00.0

Circumpolar Variables. W Obs.

S Bootis

14 16 +54.6
22 06
7 50 Sky very murky; impossible to find region even of S Bootis.

R Draconis W Obs.

16 26 +67.4
22 26
6 00

Reject.

8 00 Star ♀ thought to be seen but faint and difficult owing to clouds. ~~A star~~ Variable not certainly seen. ~~A star~~ Probably variable at least fainter than star ♀

R Camelop. W Obs.

14 40 +84.1
22 45
8 40 8 05 M thought to be seen: ♀ not seen. var not certainly seen. a star two grades fainter than ♀ probably seen. Sky very hazy.

Reject. certainly.

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1899phae.proj.1366w

Oct. 30, 1899.

S Cygni. W Ob.

20 10 + 56.1 20 8 5.7.0

23 43 23 36

3 33 3 27

9 15 Star f seen: ~~slow q~~ var thought to be seen at intervals and about equal to star q.

Phot R. o Ceti. W 6 b2.

2 12 -3.6

0 12

2 00

10 00

see next page for measurements.

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1899phae.proj.1366w

Oct. 30, 1899.

o Ceti.

Cloud 250.

Ledgered
Plotted.

	212.2		
9 50.5	230.1	17.9	
	34.8 7	15.1	
	49,8	33.0	-4.19
	214.4		-4.28
	229.4	15.0	
	34.5	15.3	
	49.8	30.3	-4.38
	Right,		
	1235		Mean = -4.32
	139.6	16.1	
	304.6	14.8	
	318.4	30.9	-4.34
	123.8		-4.36
8 1003.0	139.3	15.5	
	304.4	14.8	
956.8	319.2	30.3	-4.38
5.0			
1456.8			

W. P.

Observations made with some difficulty on account of some haziness.
Observations thought to be good.

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1899phae.proj.1366w

Oct 30, 1899.

T. Cassiop W 66.

0 18 +55.9

1 03

0 45

10 20 Clouds ~~too~~ thick

S Cassiop W 66.

1 10 +72.1

1 10 +

0 00

Reject

Star r seen, star s seen; star t thought to be ~~seen~~ var. and if ~~region~~ is certainly identified as it is thought to be, the comp. would be.

10 ~~45~~

10 46 ~~s~~ r var, var ~~4 t~~

Phot T. DM 3338. W 66.

19 20 +43.6

25 35

6 15

Clouds ~~too~~ thick

Phot T. χ Cygni. W 66.

19 45 +32.6

25 45

6 00

Clouds too thick.

10 55 Impossible to continue further.

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1899phae.proj.1366w

Nov. 2, 1899 Thursday

Arnold & Dent
6 35 10.0

Bond 3,4
6 35 00.0

Location of faint companions for
ζ Ursa Maj. N 6 b.

12 37 +62.0
21 50
9 13

Region too low, seeing too poor for 6 b.

ζ Bootis N 6 R

14 16 +54.6
22 16
8 00

22 29 30.0
30 00.0

31 21.8 +.3
31 40.0

32 09.0 var.
~~32 25.5~~
32 30.6 +5" a
33 0.5 var
33 25.2 a

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Nov. 2, 1899.

~~35~~

~~22 34 39.5~~

~~22 34 31.0~~

~~34 47.0~~

22 35 12.1 var

35 30.7 s

36 040+3 var

36 31.9 s.

22 39 25.5 -.3 var

39 51.8 s

40 05.0 var

~~340~~

40 37.1 s

all in southern half inside square

22 ~~49~~ ~~43~~

5 0' 3.5 n

5 1 5.7 +.5 n

5 1 38.5 n

5 1 59.5 n

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Nov. 2, 1899.

22	53	12.5	n
	53	16.0	n
	54	17.0	n
	54	35.5	n

~~22 55 3.5 n~~
~~53 5.7 -4 n~~
~~5 0.1~~
~~5~~

22	56	46.0	n
	56	49.7	n
	57	50.0	n
	58	11.5 +.2	n

Both in southern half inside square

8 10 W 3 var, var 2 ~~4~~ 5
Obs. a little uncertain, obs made through
Clouds, region low.

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1899phae.proj.1366w

Nov. 2, 1899.

P Cygni. NNOb.

20 8 +56.9

23 23

3 15

8 35 Clouds.

~~8 48 38. 12.0 0 4 var, var 1.5 Lp~~

~~23 48 48.0~~

~~23. 48 43.7~~

~~48 57.9~~

23	49	16.8	m
	49	24.8 + 3	var
	50	08.0	var
	50	16 181.0	m

23	51	25.0	m
	51	31.0	var
	52	15.5	var
	52	24.8	m

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Nov. 2, 1899

23	5 ~~4~~	35.0	m
	~~54~~	40.0	var
	55-	29.7	var
	55-	31.5	m

Both in northern half inside square.

9.05 ~~R~~ k2 var, var 49.

Pos Zero 2643
45.0
219.3

R Camelop. NR 06.

14	40	+84.1
~~24~~	15	
9	35	

0	37	35.5-	var
	~~37~~	~~5 5 5~~	
	38	12.0	r
	~~39~~ 40	11.0 -15	var.
	42	32.3	r

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1899phae.proj.1366w

Nov 2, 1899.

R Camel. (cont.)

0	48	16.5	+2.0	2 var
	48	~~4~~ 15		2
	~~#~~50	47.0		var
	~~53~~	~~2 5~~		
	53	26.5		2

Both in northern half, inside square.

Phot R. o Cete nr Obs.

2	12	-3.6
1	32	
	~~20~~	
0	40	
11	20	

See next page for meas.

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Nov. 2, 1899.

o Ceti

Right.
12 4 8
10 40,6 Clouds
1,42.5
2

Stopped by clouds.

Loc. of 60 stars for S Cygni.

20 51 × 56,9
25 58
5 50

~~Left~~.

11 05 Sky all cloudy in this region no stars visible.

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1899phae.proj.1366w

Nov. 3, 1899. (Friday)

7 00 Cloudy.

7 30 Cloudy.

8 00 Cloudy.

8 30 Still cloudy, with no prospect of clearing.

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1899phae.proj.1366w

Nov. 4, 1899 Saturday

Arnold & Dent
6 0 1 14.5
Phot. N.

Bond 394
6 0 1 0 0
β Lyrae W Obs.
18 45 +3 3 2
22 20
3 35

Lo Above
57.3 Var dis
80.7 23.4
230.6 25.8
261.4 49.2 − 3.31

I
Ledgered.
Plotted.

7 18.0

56.0 − 3.32
80.6 24.6
237.0 23.9
260.9 48.5 − 3.34
Reg Below
326.5 Mean = − 3.24
352.3 25.8
140.0 27.4
172.4 53.2 − 3.43

325.3 − 3.16
7 24.4 352.1 26.8
1461 25.0
7 21.2 171.1 51.8 − 3.19
5 − .2 4963.515
1221.0 Gr. M.T. 4963.486
4963.515 + 0.079

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1899phae.proj.1366w

Nov. 4, 1899.

II

Right & Below

~~R & B.~~

	326.3		
7 35.9	351.8	26.5	
	145.0	27.6	
	172.6	54.1	-3.10
			-3.08
	325.5		
	352.7	27.2	
	145.3	27.5	
	172.8	54.7	-3.07

Left & above. Mean = -3.13

	236.1		
	260.5	24.4	
	55.1	27.5	-3.19
	82.6	54.9	~~-3.20~~
			-3.18
	235.1		
7 42.7	263.0	27.9	
78.6	56.8	24.5	
7 39.3	81.3	52.4	-3.17
5 .2			
12 39.1	Gr M Time		
4963.527			
4963.436			
+0.091			

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1899phae.proj.1366w

Nov. 4, 1899

III

Left & above

2368

7 51.7 2603 23.5'

54.7 28.0'

82.7 51.5 -3.21'

2355.0 -3.20'

2629 27.9'

56.2 24.1'

80.3 52.0' -3.18'

Right & Below

1468

#1718 23.0' Mean = -3.14'

3289 29.5'

3530 54.0' -3.08'

1437 -3.08'

800.1 1734 29.7'

111.8' 3261 25.0'

7555.9' 3511 54.7' -3.07'

5 - Σ

1265.7' - Gr M'

4963.539

4963.436

+0.103'

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1899phae.proj.1366w

Nov. 4, 1899

IV

Right & Below

	146.0		
8 05.7	171.6	25.6	
	324.1	30.4	
	354.5	56.0	− 3.02
	143.6		−3.00
	174.0	30.4	
	326.9	26.2	
	352.0	56.6	−2.99

Left & Above.

Mean = −3.06

	54.9		
	81.6	26.7	
	235.3	26.6	
	261.9	53.3	−3.13
	53.9		−3.12
8 14.1	82.5	28.6	
19.8	236.1	25.3	
8 09.9	261.4	53.9	−3.12
5 − 2	0.9		
1309.7			

Gr. Mt. Time

4963.549

4962.436

+0.113

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Nov. 4, 1899.

V

above
Left & ~~Below~~.

56.1

δ 20.2 δ 0.2 24.1 +
23 4.6 28.5 +
263.1 52.6 + - 3.16 x

55.8 - 3.16 x
δ 3.1 27.3 +
236.5 25.3 +
261.8 52.6 + - 3.16 +

Right & Below. Means = - 3.08

325.5 -
351.9 26.4 -
143.5 30.7 +
174.2 57.1 + = 2.97 +

3242 - 3.00 +
δ 30.8 354.2 30.0 +
51.0 + 146.2 25.8 +
δ 25.5 + 172.0 55.8 + - 3.02 +
5 - 2

13 25.3 + G.M. Time
49 63.559
4963.486
+0.123

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1899phae.proj.1366w

Nov. 4, 1899.

VI.

Right & Below

326.5

8 37.4 302.0 25.5

14 3.4 30.6

17 4.0 56.1 -3.01

323.6 -3.02

30 3.8 30.2

14 6.9 25.4

17 1.3 55.6 -3.03

Left & Above.

236.7 Mean = -3.02

261.1 24.4

542 29.8

840 54.2 -3.09

2345 -3.12

8 50.8 2631 28.6

58.2 57.1 240

8 44.1 81.1 52.6 -3.16

5 - 2

13 43.9 Gr. M. Time.

4963.572 Eyepiece taken out and focal adjt

4963.436 prism adjusted after this group.

+0.136

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1899phae.proj.1366w

Nov. 4, 1899.

VII

Left & Above.

~~203.3~~

~~903.7~~ ~~274.1~~ ~~20.8~~

70.1

906.2 99.0 28.9

~~252.7~~ ~~22.7~~

~~270.4~~ ~~57.6~~ -3.20

72.8

~~96.4~~ ~~23.6~~ -3.19

~~250.2~~ ~~28.4~~

~~278.6~~ ~~52.0~~

Right & Below. -3.18

3409

~~89.5~~ 28.6 Mean = -3.15

1628 ~~25.0~~

187.8 ~~53.6~~ -3.11

342.6

915.5 7.8 ~~26.2~~ -3.11

21.7 161.2 ~~28.7~~

910.8 ~~189.9~~ ~~53.9~~ -3.11

.2

1410.6 Gain Plates

4963.591

4963.436

+0.155

1899phae.proj.1366w

Nov. 4, 1899.

VIII

Right & Below

340.4

9 18.7 10.2 29.8*

161.6 25.9*

187.5 55.7* -3.03*

341.4 -3.02*

84.0 26.6*

160.2 29.8*

190.0 56.4* -3.00*

Mean -3.10*

Left & Above.

~~341.~~

72.2

97.1 24.9

252.2 25.9*

278.1 50.8* -3.24*

70.4 -3.18

9 26.6 99.5 29.1*

45.3* 253.2 24*

9 22.6 277.6 53.5* -3.12*

5 -2 4962.599*

14 22.4* Gr. M. Time. 4962.436

4963.599 +0.163*

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1999phae.proj.1366w

Nov. 4, 1899

~~VIII~~
IX.

Left & Above

72.0

9 34.4 97.3 25.2'
251.1 26.8'
277.9 52.1' -3.18'

70.81 -3.16'
97.8 27.0'
251.81 25.7'
277.5 52.7' -3.15'

Right & Below

342.81 Mean = -3.12'
x 7.6 25.6'
2601 28.7'
188.8 54.2' -3.09'

340.4 -3.08
9 41.2 x 8.7 28.3'
75.6' 2601.7 25.8'
9 378' 187.8 54.4' -3.08'
5 -2

14 37.6' Gr. M. Time.
4960.610'
4963.436
+0.174'

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Nov. 4, 1899.

X

Right & Below

341.8

10 01.4 9.4 27.6*

109.2 31.4*

190.6 59.0* -2.90*

339.8 -2.94*

9.9 30.1*

160.9 26.6*

187.5 56.7* -2.99*

Clouds.

Left & above. Mean = -3.02

251.6 Clouds.

277.9 26.3*

71.4 27.0*

98.4 53.3* -3.13*

Clouds. -3.10

-3.14

10 20.2 278.4 27.6*

21.6* 77.0 26.8* .8

10 10.8* 97.8 54.4 -3.09

5 2

15 10.6* Gr. M. Irving

4963.633*

4963.436

+0.197*

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1899phae.proj.1366w

Nov. 4, 1899.

XI.

Left & above

252.0

10 29.8 279.2 27.2
70.8 27.4
98.2 54.6 -3.07

-3.10

251.6 26.6
278.2 26.4
71.4 53.0 -3.14
97.8

Right & Below Mean = -3.04

161.2
189.1 26.9
340.2 29.4
9.6 56.3 = 3.00

160.5 -2.98

10 37.8 189.3 28.8
67.6 340.5 28.4
10 338 98.9 57.2 -2.97
5 -2
15 336 Gr. M. Time.
4963.649
4963.436
+0.213

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1899phae.proj.1366w

Nov. 4, 1899.

XII

Right & Below

344.5

10 42.3	8.8	27.3*	
	160.6	29.0*	
	189.6	56.3*	-3.00*
	340.6		-2.97*
	10.2	29.6*	
	161.2	28.3*	
	189.5	57.9*	-2.94*

Left & above.

Mean = -3.00*

	251.4		
	278.2	26.8*	
	703	28.3*	
	98.6	55.1*	-3.05*
	251.1		-3.04*
10 52.7	279.4	28.3*	
9.50*	71.1	27.7*	
10 47.5*	98.8	56.0*	-3.02*
5 -2			
15 47.3*			

4963.6058*

4963.436

+0.222*

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1899phae.proj.1366w

Nov 4, 1899

XIII

Left of above

251.1

1058.4 278.0 26.9*

69.9 28.7*

98.6 55.6* -3.03*

250.8

~~278.1~~ -3.04*

278.8 28.0*

70.9 27.5*

98.3 55.5* -3.04

Right & Below.

160.4

189.0 28.6* mean -2.98*

340.3 30.5*

10.8 59.1* -2.89*

160.4 -2.92*

11 06.4 189.0 28.6*

1248 341.0 28.9*

11 02.4 9.9 57.5* -2.96

5 - 2

16 02.2 Gr. m Time

4963.668*

4963.436

+0.232*

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1899phae.proj.1366w

Nov-4 1899.

χ Cassiop Nr 62

0 12 +55.9.
2 12
2 00

11 27 0 2 var, var 2 p. Eos 11.9

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1899phae.proj.1366w

Nov. 6 1899. (Monday)

Arnold & Dent
7 ab 17.5

Bond 39 K
7 07 00

Comp. stars for Cir. Var. T. Ursa Maj.
12 33 +60.4
22 37
10 04

NW 6s.

Star "y" not seen with low power and only occasionally suspected with high power: not certainly seen with either power. Region low.

R Camelop.

NW 6s

14 40 +84.1
22 55
8 15

~~23 23 41.5 +3.2~~
~~23 54.7~~

23 26 00.0
~~00~~ 10.7
26 10.7

23 27 27.5
10.0
27 37.5

23 28 41.5
10.2
28 51.7

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1899phae.proj.1366w

Nov. 6, 1899.

23	~~7~~ 30	23.2		
	30	32.5	9.3	
23	31	37.5		
	31	48.2	10.7	
~~23~~	~~7~~			
23	33	31.0		
	33	40.5	9.5	
23	34	~~8~~ 44.0		
	34	56.0	12.0	
~~36~~		1.30		
~~36~~		~~28.5~~	~~15.2~~	

Star "r" is 2.1.4 N of "q".

~~Mean of~~ above seven differences to be used and star "r" follows star "q" by above amount.

Phot. Cerasko's Var. N 62

208 +463

2346

338

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1899phae.proj.1366w

Nov 6 1899.
Cerasko's Var.

Left.

	248.8	comp star dia.		I
8 44 20	349.2	90.4		
	6,7.0	93.8		Ledgered.
	140.8	184.2		Plotted.
		1768	-0.08	
	247.9			
48 20	339.4	91.5	-0.10	
	68.2	95.1		
	163.3	1866		
	Right.	1734	-0.13	
	158.5			
6t 15	248.6	90.1	Mean = -0.03	
	349.6	875		
	67.1	177.6	+0.05	
	160.3		+0.04	
53 45	2 5 0.0	89.7		
197 40	340.5	88.1		
8 49 25	68.76	177.8	+0.[illegible]	
5	+18			
1349 43	Gr M. Time			
4965.5762				
4965.3760				
0.20 02				

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1899phae.proj.1366w

Nov. 6, 1899

II

Right.

	159.0		
8 59 00	248.6	89.6	
	340.0	86.8	
	66.8	176.4	-0.07
	161.4		-0.06
9 02 40	250.5	89.1	
	339.7	88.0	
	67.7	177.1	-0.05

Left.

	67.4		Mean = -0.13
9 05 20	162.3	94.9	
	247.1	93.0	
	340.1	187.9	
		172.1	-0.15.
	67.0.		
9 07 50	161.1.	94.1	-0.16
	247.0,	94.8	
25.4 50			
9 03 42	341.3	188.9	
+18		174.8	-0.16
9 04 00			
5			
14 04 00	Gr. M. Time		
4965.5861			
4965.3760			
+0.2101			

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1899phae.proj.1366w

Nov. 6, 1899.

III

	Left			
	67.1			
9 11 20	162.7	95.6		
	246.3	92.5		
	338.8	188.1		
		171.9	−0.15	
	66.7			
14 00	162.5	95.8	−0.16	
	246.5	93.3		
	339.8	189.1		
	Right	170.9	−0.17	
	338.4			
17 30	70.3	91.9	Mean = −0.12	
	158.0	91.3		
	249.3	183.2		
		176.8	−0.06	
	338.3			
19 30	69.9	91.6	−0.07	
22 20	158.0	92.8		
9 15 30	250.8	184.4		
5 48		175.6	−0.08	
14 15 53	Gr. M. T.			
49655943				
49653760				
+0.2183				

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1899phae.proj.1366w

Nov 6, 1899

IV

Right

	338.6			
9 22 05	69.6	91.0		
	157.9	92.6		
	250.5	183.6		
		176.4	-0.07	
	337.9			
23 50	69.4	91.5	-0.08	
	157.7	92.8		
	250.5	184.3		
	Left.	175.7	-0.08	
	245.2			
27 45	340.8	95.6	95.6	Mean = -0.19
	65.3	94.5	97.1	
	162.4	190.1	192.7	
		189.9	167.3	-0.24
	244.3			
29 50	343.8	99.5		-0.30
23 30	65.5	98.8		
9 25 52	164.3	198.3		
5 # +18		161.7	-0.35	

14 26 10 Gr. M. Time.

4965.6015

4965.3760

+0.2255

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1899phae.proj.1366w

Nov. 6, 1899.

V

Left

245.0

9 34 05 343.2 98.2
65.2 97.8
163.0 196.0
164.0 -0.30

245.3

36 50 342.1 96.8 +0.32
63.4 100.8
164.52 197.6
1624 +0.33

Right.

~~#~~ 155.9 Mean = -0.27

41 35 250.9 95.0
336.1 95.3
71.4 190.3
169.7 -0.20

155.3

44 45 253.6 98.3 -0.22
157 1533 6.8 93.8
9 39 19 70.4 192.1
5 +18 167.9 -0.23

14 89 37 Gr. M. Time,
4965.6108
4965.8760
+0.23487

1899phae.proj.1366w

6

Nov. 4, 1899.

VI.

Right

		156.9		
9	55 10	251.2	94.3	
		336.2	94.8	
		71.0	189.1	
			170.9	−0.17
		157.0		
9	58 05	252.2	95.2	−.17
		336.8	93.7	
		705	188.9	
			171.1	−0.17

Below.

		64.2		Mean = −0.28
10	01 25	165.5	101.3	
		249.5	97.7	
		343.2	199.0	
			161.0	−0.36
		640		
10	03 40	165.0	101.0	−0.38
	238 20	244.3	99.7	
9	59 35	344.0	200.7	
	5 18		159.3	−0.39

9 14 59 53 Gr. M Time

4965.6249

4965.3760

+0.24819

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1899phae.proj.1366w

Nov. 6 1899.

VII

	Left			
	64.0			
10 05 50	164.5	100.5		
	244.6	99.9		
	344.5	200.4		
		159.6	−0.39	
	63.4			
08 00	162.2	100.8	−0.38	
	244.8	98.6		
	343.4	199.4		
		160.6	−0.37	
	Right.			
	336.0		Mean = −0.31	
11 30	70.1	95.1		
	157.1	97.8		
	254.1	192.1		
		167.9	−0.23	
3	335.5			
10 25	71.6	96.1	−0.24	
38 45	156.0	96.6		
10 09 41	252.6	192.7	−0.24	
5 18		167.3		
15 09 59	Sum T.			

~~Pos. Angle Reads.~~

Sprocket wheel reads. A system 10.7

" " " B system 11.3

20
~~10 40~~

4966.6319

4966.3760

+0.2559

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1899phae.proj.1366w

Nov. 6, 1899.

Loc. of ~~β~~ comparison star for R Cass.

23 51 +49.7 W 62.

2 5 41

1 50

Location of β in R. A. by transits + Dec. by estimates on Rg. bar.

1	53	37.5	
1	53	42.0	4.5
		0	
1	54	01.5	
1	54	5.5	4.5
1	54	30	
	54	34	4.0
1	55	11.0	
	55	15.2	4.2
1	56	17.0	4.0
	56	21.0	
1	56	56.7	
	57	01.5	4.8
1	57	23	
	57	27	4.0

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1899phae.proj.1366w

Nov. 6, 1899.

1	5 58	23.5	4.5
	58	28.0	

~~59~~ ~~4.5~~
~~59~~ ~~7.0~~

1	59	58 3	4.0
2	00	02.5	

2	00	28.0	4.0
	00	32.0	

2	01	~~26~~.0	4.0
	01	30.0	

~~0~~ ~~2~~ ~~13.7~~
~~0~~ ~~16.5~~

2	03	45.0	4.0
	03	49.0	

2	04	23.0	4.0
	04	27.0	

1052 Star "B" precedes the var. by above amount and is 1.3 S of it.

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1899phae.proj.1366w

Nov. 6, 1899.

Location of ~~ft~~ standard for ~~Gamma~~ Cygni.

1 10 +72.1

2 10

1 00

20 8 +57.0

26 11

6 3

Pos. Zero. 23.9.8

45.0

Setting 28 4.8

2	21	40.0	12.5 magn
	21	55.0	m
	22	01.0	13.2 magn
	22	56.5	12.5 magn
	23	9.5	m
	23	13.5	13.2 magn.

2 2 34.0

2 42.0

2 47.5

2

2

2

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1899phae.proj.1366w

Nov 6, 1899.

2	24	5.5	12.5
	24	12.5	m
	24	18.0	13.2
	25	14.5	12.5
	25	27.7	m
	25	32.0	13.2
2	26	02.0	12.5
	26	09.0	m
	26	15.5	13.2
	27	11.7	12.5
	27	24.2	m
	27	28.9	13.2
2	28	02.5	12.5
	28	09.5	m
	28	15.0	13.2
	29	12.0	12.5
	29	23.0	m
	29	27.9	13.2

all in southern half, inside square.

Phot. R. δ Cetæ NW6e.

2 12 − 3.6
2 32

0 20

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1899phae.proj.1366w

Nov. 6, 1899.

O Ceti.

	Right		
	126.3		Ledgered
11 27.6	145.6	19.3	Plotted
	308.3	18.7	
	327.0	38.0	- 3.88
	128.3		- 3.90
	145.2	18.9	
	308.1	18.7	
	326.8	37.6	- 3.91
	~~Left~~		
	38.1		Mean = - 3.96
	56.5	18.4	
	218.7	17.5	
	236.2	35.9	- 4.01
	38.2		- 4.00
11 32.8	56.3	18.1	
60.4	218.0	17.9	
11 30.7	235.9	36.0	- 4.00
5 +3			
16 30.5	Gr. Mt.		

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1899phae.proj.1366w

Nov. 6, 1899.

Same again.

Left

	37.2		
11 34.6	56.2	19.0	
	218.5	18.3	
	236.8	37.3	-3.92
	38.1		-3.92
	56.9	18.8	
	218.2	18.4	
	236.6	37.2	-3.93

Right

Mean = -3.95

	307.8		
	326.3	18.5	
	128.2	17.9	
	146.1	36.4	-3.98
	308.5		-3.98
11 39.6	326.3	17.8	
14.2	128.0	18.6	
11 37.1	146.6	36.4	-3.98
5 43			

16 37.4 Gr. M.T.

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1899phae.proj.1366w

Nov. 7, 1899. (Tuesday)

Comp. of Chron.

Arnold & Dent	Bond 394
δ 28 00	δ 28 00
δ 29 00	δ 29 00

Loc. of ∫ comp. stars for ∫ Ursae Maj. W 66.

12 23 +60.4
21 03
8 30

58

2.0

Star "f" precedes the var. 1 sec ~~f~~ and is 2.4 S of it.

~~∫ B~~ ∫ Ursae Maj. W 66

Region too low. Stars too faint.

∫ Bootis W 66.
14 16 +54.6
21 26
7 10

21 30 46.5
31

1999phae.proj.1366w

Nov. 7, 1899.

S Bootis (continued)

21 31 47.0

32 08.0 +.5 21.5

32 51.0

33 17.0 26.0

~~33 44.5~~

~~34 [illegible]~~

~~35 [illegible]~~

~~35 26.5~~

36 19.2

36 41.0 25.8

37 10.7

37 36.0 25.3

25.0

Star "s" fol. var by about amount and is 1.4 North of it

Phot ☆ U Coronae N 66.

15 10 + 33.9

21 49

6 39

See next page

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1899phae.proj.1366w

Nov. 7, 1899.

U Coronae

I

L & A.

49.0 Lvar dis.

Plotted

Ledgered

6 ~~38~~ 50 18 9 8

2 7 0 6

356.8

L & A.

~~30 38 5~~ Lvar dis.

41 45 50.5 52.0

178.2 51.1

229.3 103.1 -1.58

357.1 -1.59

42 10 50.2 53.1

178.9 49.3

228.2 102.4 -1.60

R & B.

267.6 Mean = -1.52

44 50 321.3 53.7

87.5 54.9

142.4 108.6 -1.45

268.3 -1.44

47 05 ~~B~~ 21.1 52.8

85.9 56.7

142.6 109.5 -1.43

6 15 50.

H 43 58

5 0 00

11 43 58 G.M.T.

4966.4889

4963.0698

3.41 91

3.4523

3.4191

-0.0332

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1899phae.proj.1366w

Nov 7, 1899

R & B II

268.5
6 4945 322.6 541
87.2 552
142.4 1093 -1.43

268.4 -142
51 46 321.4 530
85.3 577
143.0 1107 -1.40

L & A.

177.6 Mean = -1.45
54 25 230.7 531
35.0 547
51.7 1078 -1.47

179.0 -148
57 10 230.4 51.4
213 00 357.5 557
6 53 15 53.2 107.1 -149
5

11 53 15 Syn Mt Diane.
4966.4952
4963.0698
+3.4254
3.4523
-0.0269

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1899phae.proj.1366w

Nov. 7, 1899.

III

	L & a		
	177.8		
7 00 00	230.7	52.9	
	357.0	54.5	
	51.5	107.4	-1.48
			-1.46
	177.6		
03 20	232.6	55.0	
	357.5	53.4	
	50.9	108.4	-1.40
	R & B.		
	84.0		
08 10	142.9	58.9	
	201.4	57.8	
	323.2	116.7	-1.27
			-1.28
	85.8		
11 30	142.6	56.8	
23 00	265.3	58.7	
7 05 45	324.0	115.5	-1.29
5 00			
12 05 45	Gr. Mean		Mean = -1.37
4966.5041			
4963.0698			
+3.4343			
3.4523			
-0.0180			

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1899phae.proj.1366w

Nov. 7, 1899.

IV

	R+B		
	8*4.0		
7 15 35	145.3	61.3*	
	266.8	57.8	
	324.6	1191*	-1.21*
	8*4.9		-1.20*
18 35	143.4	58.5*	
	263.8	61.8*	
	325.6	1203*	-1.19
	L+R.		
	3555		
22 25	534	57.9*	
	1760	562	
	233.2	1141*	-1.32*
	3543		-1.26*
24 50	53.6	59.3*	
75 20	74.5	599	
7 18 51	234.4	1192*	-1.21
5 +00			Mean = -1.23

1218 Sh. M.T. For Angle for reads .188.2
4966.5131* Sprocket Wheel reads @ system 8.7
4963.0698 " " " R " 9.5
+3.4433* " " " C " 10.2
2.4523
-0.0090*

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1899phae.proj.1366w

Nov. 7, 1899.

Phot T. Nova Sagittarii. W 6h.

18 51 + 13.0

23 08

4 17

Region too low.

Phot. T. χ Cygni W 6h.

19 45 +32.6

23 10

3 25

Abandoned for the present.

R Ursae Min. W 6h.

16 33 +72.9

23 23

6 50

A star about .5 magn ft. than comp
star "l" ~~follows~~ precedes it by 2m 1sec
and is 4'.8 S of it.

χ Cygni. Phot T.

19 45 + 32.6 W 6h

24 20

4 35

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1899phae.proj.1366w

Nov. 7, 1899

χ Cygni.

L & a.

9.5 < comp. star dia.

Plotted.
Ledgered

9 34.0	38.1	28.6	
	190.9	27.5	
	218.4	56.1	+3.01
			+3.00
	9.5		
	38.0	28.5	
	190.7	28.2	
	218.9	56.7	+2.99
	R & B		
	278.8		
	308.8	30.0	
	98.1	30.6	
	128.7	60.6	+2.84
			+2.88
	280.2		
9 39.7	308.5	28.3	
13.7	98.4	30.4	
9 36.8	128.8	58.7	+2.91
5			

14 36.8 G.M.T. mine

Mean = −2.94

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1899phae.proj.1366w

Nov. 7, 1899

Same Again

	R & B.		
	~~279.8~~		
9 41.7	309.0	29.2°	
	98.4	30.2°	
	128.6	59.4°	+2.88°
			+2.89°
	279.9		
	308.8	28.9°	
	98.9	30.0°	
	128.79	58.9°	+2.90°
	L & a		
	190.6		Mean = +2.92°
	218.5	27.9°	
	9.6	29.2°	
	38.8	57.1°	+2.97°
			+2.96°
	190.0		
9 48.9	218.6	28.6°	
10.6	9 8	29.4°	
9 45.3°	39.2	58.0°	+2.94°

14 46.3 Summit.
10 07

Pos. Angle reads for a. 202.5°
Sprocket wheel reads A 8.5
" " " B 9.7

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1899phae.proj.1366w

Nov. 7, 1899.

Phot ☓ Ny Cygni WGtz.

20 40 +33 44
25 27
4 47

9.5 in cap used Tonight. I

L & A. Ledgered

272.5 < radii.

10 27 40	316.9	43.4		
	93.6	40.8		
	134.4	84.2	-2.07	
	272.8		-2.06	
29 25	315.5	42.7		
	136.0	42.2		
	R & B.	84.9	-2.05	
	184.9		Mean = -2.47	
32 15	225	39.6		
	6.0	37.6		
	43.6	76.2	-2.31	
	185.3		-2.28	
95 15	223.6	38.3		
124 35	3.8	40.2		
10 31 09	44.10	78.5	-2.24	
5				
15 31 09	Gr. M. Time.			

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1899phae.proj.1366w

Nov. 7, 1899.

II

R Ψ B

185.2

10 37 30 224.2 39.0*

4.1 40.4*

44.5 79.4* -2.21*

184.7 -2.21*

39 10 225.0 40.3*

4.1 39.1*

42.2 79.4* -2.21*

Mean = -2.14*

L. Dra.

93.8

41 35 135.6 41.8*

274.0 41.5*

315.5 83.3* -2.10*

93.4 -2.06*

43 55 136.0 42.6*

162 10 273.0 42.0*

10 40 32 31 0.0 85.6 -2.03*

5

10 40 32 Gr. M. Time.

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1899phae.proj.1366w

Nov 7 1899

III.

L a a

93.A

046 00	186.4	42.6	
	273.0	42.0	
	315.0	84.6	-2.06
	94.1		-2.08
48 30	135.8	41.7	
	273.3	41.7	
	315.0	83.4	-2.10

R-A B.

Mean = -2.14

4.3

50 40	44.7	40.2	
	185.4	39.8	
	225.2	80.0	-2.19
	4.5		-2.20
5 2 30	43.6	39.1	
19 3 40	184.8	40.6	
10 49 25	225.4	79.7	-2.20

10 49 25 Gr. M. time.

Pos angle reads Ver a 1.9

11 00 Sprocket Wheel reads A system 9.6

" " " B " 10.7

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1899phae.proj.1366w

Nov. 7, 1899.

Location of faint comp stars for
γ Cassiop Nobs.

0 18 +55.9
2 18
2 00

"p" precedes "f" 2.6 secs. and is 2'.8 N of it.

11 20 ~~There is no star in the position of "p".~~

"p" follows f 2.4 secs. and is
11 25 1'.4 North of it Magn of p" 13.3

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1899phae.proj.1366w

Nov. 8. 1899. (Wednesday.)

Comp. of Chronometers.

Arnold and Dent.	Bond 394
6 56 00.2	6 56 00.0
6 57 00.2	6 57 00.0

Phot. T. DM. +3338 NW 62.

19 20 +43.0

22 45

3 25

I

Ledgered
Plotted.

	L+R			
	182.6			
7 31 55	228.0	45.4		
	0.6	41.5		
	42.1	86.9	-2.00	
	182.8		-1.90	
28 40	230.0	472		
	0.0	47.3		
	47.3	945	-1.80	
	R.+B.			
	91.7			Mean = -1.84
36 35	139.0	47.3		
	269.9	47.6		
	307.5	949	-1.79	
	89.8		-1.79	
38 30	137.9	481		4967.52444
20 40	271.0	46.7		4967.43956
7 30 10	317.7	948	-1.79	0.08488
5				
12 35 10				

G. M. Time

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1899phae.proj.1366w

Nov. 8, 1899.

II

R. + B.

92.5

7 4320 138.2 45.7

271.7 45.7

317.4 91.4 -1.89

90.6 -1.88

4500 138.5 47.9

272.8 43.9

316.7 91.8 -1.87

L. + R. Mean = -1.96

0.9

4720 46.3 45.4

183.9 42.6

226.5 88.0 -1.97

2.9 -2.03

4920 44.6 41.7

~~60~~ 182.4 42.0

2500 226.4 83.7 -2.09

7 46 15

5

12 46 15 Gr. M. Time.

4967.5320

4967.4356

+0.0964

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1899phae.proj.1366w

Nov. 8, 1899.

L & a. III

3.8

~~7 0 8 0~~ 4 4.1 ~~40.3~~

18 Clouds

2 Stars faint: gone

3 Sky clearer

187.6

8 10 00 4 224.0 36.4

18 4.3 39.1

2 43.4 75.5 − 2.33

3

~~R & B.~~

184.2 − 2.30

16 55 224.4 40.2

5.1 37.2

42.3 77.4 − 2.27

R & B.

94.4 Mean = − 2.28

19 30 133.7 39.3

274.7 40.0

314.7 79.3 − 2.22

94.3 − 2.25

21 50 133.9 39.6 4967.5544

7 33 15 275.5 37.7 4967.4356

8 18 19 313.2 77.3 − 2.28 +0.1188

5

13 18 19 + Mt. Last setting a little uncertain on account of Louds. Stars coming somewhat (over)

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1899phae.proj.1366W

Nov. 8, 1899.

during nearly whole of group sky pretty clear
stars now wholly gone

R & B

Z 178 10

8 38 10 31.9 33.9

96.6

13. Clouds.
Stopped by clouds.

8 40.0 Z.

Pos. Angle Ver. A. 95°.7
Sprocket wheel reads a System 7.3
" " " B " 8.6

Phot. T.	λ	Tenor.	W Obs.
	3	55	+ 12.2
	0	05	
	3	50	
	8	10	

8 55 All Cloudy no stars visible

Impossible to get any thing further.
9 35 Cannot get "λ" on Caesiope.

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1899phae.proj.1366w

Nov. 9, 1899. (Thursday)

Arnold & Dent	Bond 394
6 25⁻ 04.0	6 25 00
6 26 04.0	6 26 00

Location of provisional star "x" on Cassiop. W 66

25 10 +72.'
22 05⁻
3 5⁻
81 55⁻

Pos. Zero. 135.5⁻
45.0
Setting. 180.5

22	21	32.7		star 6
	22	39.0		star 6
	23	15.2	-.2	star "x"
	24	39.7		star "x"
	25	31.1	-.2	star 6
	26	37.5	-.3	star 6 "
	27	12.5	-.2	star "x"
	28	37.0	+.3	star "x"

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1899phae.proj.1366w

Nov. 9, 1899.

S Cass. (continued)

22	29	14.2	star b
	30	21.7	star b
	30	55.5	star "x"
	32	21.5	star "x"
	33	17.7	star b
	34	25.7	star b
	34	59.0 -.3	star "x"
	36	26.7 -.4	star "x"

All in northern half inside square.

Star "x" compared with comp. star c. (Phot. 7.) merely for certainty of identn of star "x" above which was used as an intermediate star between comp star c and comp stars q, s, & w, in order to obtain magns of the three last mentioned b stars as comp star c was comp them with directly (see book 7. No. 5. P 8)

	9.0	< c dis.	
7 24.0	38.8	29.8	
	190.0	30.1	
	220.1	59.9	+2.86
	8.5		+2.88
	39.8	31.3	
	191.2	27.8	
	219.0	59.1	+2.89
	Below		
	278.9		
	310.0	31.1	
	190.0	30.0	
	130.0	61.1	+2.82

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1899phae.proj.1366w

Nov. 9, 1899.

	279.0		+2.82
7 30.0	308.8	29.8	
	99.7	31.6	
	131.3	61.4	+2.81

Mean = +2.83

Phot 7. π Tauri. W 6h.

7

20 8⁻5⁻ +12.2

23 3⁻

5 20

7 40

3 5⁻5⁻

0 0⁻

3 5⁻0

8 10

See next page for mear.

7 wich caps used on following measurements.

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1899phae.proj.1366w

Nov 9, 1899.

χ Tauri

I

	above		
	110.7		
8 ~~48~~. 05	117.7	7.0	
	290.6	7.2	
	297.8	14.2	-6.04
	~~110.4~~		
~~51 25~~	~~117.9~~	~~7.5~~	-6.11
	290.9		
53 05	297.5	6.6	
	111.3	6.7	
	118.0		
	Below	13.3	-6.18
	201.7		Mean = -6.10
56 35	208.1	6.4	
	20.8	7.2	
	28.0	13.6	-6.13
	201.1		-6.10
59 00	208.1	7.0	
216 45	215.0	7.0	
8 54 11	28.0	14.0	-6.07
5 -04			
13 54 07	Gr. M. Time.		
4968.5793			
49			

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1899phae.proj.1366w

Nov. 9. 1899.

II

Below

	201.4		
9 04 15	208.0	6.6	
	20.9	7.3	
	28.2	13.9	− 6.08
	201.1		− 6.08
07 35	207.7	6.6	
	20.1	7.3	
	27.4	13.9	− 6.08

Above

Mean = − 6.00

	110.0		
11 25	117.6	7.6	
	290.5	7.6	
	298.1	15.2	− 5.89
	110.3		− 5.92
14 20	117.7	7.4	
37 35	291.1	7.3	
9 09 24	298.4	14.7	− 5.96
5 − 04			

14 09 20 Greenwich.

4968.5898

496

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1899phae.proj.1366w

Nov. 9 & 99.

III

	Above			
	111.1			
9 20 20	118.3	7.2		
	290.5	7.4		
	297.9	14.6	-5.98	
	110.6		-5.94	
22 25	118.2	7.6		
	290.5	7.5		
	297.1	15.2	-5.89	

Mean = -5.99

	Below			
	20.9			
26 50	27.4	6.5		
	201.2	7.6		
	208.8	14.1	-6.05	
	20.3		-6.04	
29 55	27.9	7.6		
19 30	201.6	6.6		
9 24 52	208.2	14.2	-6.04	
5	-04			
14 24 48	G.M.T.			
4968.6006				
49				

Pos. Angle reads Ner a. 52.6°
Sprocket wheel reads a system 4.3
" " B system 5.6

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1899phae.proj.1366w

Nov. 9, 1899.

Phot. 7. New Phot. Var. 3338 N 06 2.

19 - 20 +43.0

25 - 05

5 45

L & A.

1800

I

Leagued.
Plotted.

9 48 45 227.9 47.9

359.7 49.3

49.0 97.2 -1.73

1810.2 -1.72

50 50 228.9 48.7

0.3 48.8

49.1 97.5 -1.72

R & B.

88.6 Mean = -1.66

5 4 10 140.4 57.8

268.3 52.9

321.2 104.7 -1.54

88.7 -1.59

56 20 139.3 50.6

21 0 5 268.9 49.9

9 52 31 318.8 100.5 -1.64

5 -04

14 5 22.7 Gr. M. Time.

4968.6197

4968.5675

+0.0522

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1899phae.proj.1366w

Nov. 9, 1899

II

R. A. B.

	87.9		
10 02 55	139.5	51.6	
	268.8	50.6	
	319.4	102.2	-1.60
	88.4		-1.60
05 40	140.0	51.6	
	269.3	50.2	
	319.5	101.8	-1.61
	L. D. A.		
	1.0		Mean = -1.67
09 05	48.8	47.8	
	179.4	49.2	
	228.6	97.0	-1.73
	0.7		-1.74
11 13	49.2	48.5	
28 55	18 0.9	47.3	
10 5 7	228.2	95.8	-1.76

10 5 7 - 4

10 5 7 Sid. Time.

4968.6300

4968.5675

+0.0625

1899phae.proj.136w

Nov. 9, 1899.

III

L-O a.

359.8.

10 17 20	48.3	48.5		
	181.3	46.7		
	228.0	95.2	-1.78	
	0.4		-1.76	
21 05	49.7	49.3		
	188.8	47.1		
	238.9	96.4	-1.73	

R & B.

Mean = -1.72

	267.8			
24 10	319.7	51.9		
	886	50.3		
	139.1	102.4	-1.60	
	269.7		-1.68	
20 40	318.3	48.6		
89 20	91.4	47.2		
10 22 20	139.6	95.8	-1.76	

5 -04

15 22 16" Sid. Mn. Time.

4968.6405

4968.5675

+.0730

1899phae.proj.1366w

Nov. 9, 1899.

II

R. A. R.

270 H

10 37 40 318.7 48.3

90.0 49.3

139.3 97.6 -1.72

270.1 -1.72

40 10 317.6 47.3

89.0 49.5

138.5 97.0 -1.73

R. A.

Mean = -1.85

189.8

43 05 226.5 43.7

90.5 44.7

47.2 88.4 -1.96

183.0 -1.98

45 55 226.2 43.2

3.4 43.9

166 50.

10 41 42 47.3 87.1 -2.00

5 -04

10 41 38 Gr. M. Time.

4968.6539

4968.5675

+0.0864

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1999phae.proj.1366w

Nov. 9 1899

V

L Aq a.

	439			
10 49 50	226.8	424		
	2.2	447		
	46.9	87.1	-1.99	
	183.2		-2.01	
52 25	225.9	427		
	3.6	429		
	45.9	85.6	-2.03	

R. Mb.

Mean = -1.97

	91.1			
54 40	137.7	46.6		
	27.3	43.6		
	315.9	90.2	-1.91	
	92.2		-1.93	
58 05	137.2	45.0		
	~~100~~ 272.5	43.6		
215 00	316.1	88.6	-1.95	

10 53 40
5 -04
10 53 41 Greenwich

4968.6623
4968.5675
+0.0948

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1899phae.proj.1366w

Nov. 9. 1899.

VI

R & B.

92.2

11 04 20	135.8	43.6	
	271.5	44.0	
	315.5	87.6	-1.98
			-2.01

92.8

07 50	136.4	43.6	
	273.4	41.9	
	315.3	85.5	-2.04

L & A. Mean = -2.12

9.5

11 15	44.1	40.6	
	185.3	39.5	
	224.8	80.1	-2.19
			-2.22

4.0

	135.5	42.5	39.5
	37 20	185.7	39.9
11 09	20	224.2	78.4 -2.24

5 -04

16 09 16 Gr. M. Time.

4968.6730

4968.5675

0.1055

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1899phae.proj.1366w

Nov. 9, 1899.

Leo.

4. Region getting too low to follow farther.

Pos. Avg. reads 14.2 Ver. A.
Sprocket wheel. reads A system 75
" " B " 8.6

11

11 25

~~R.A.~~

1899phae.proj.1366w

Nov. 10. 1899. (Friday)

7 0 Cloudy.

7 30 "

8 0 "

8 30 " but slightly clearer.

9 0 Cloudy.

9 30 "

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1899phae.proj.1366w

Nov. 13, 1899 (Monday)

Comp. & chron

Arnold & Dent : Bond 394

6 07 14.2 6 07 00.0

Phot T. ℓ Cephei. W Obs.

24 50 +81.1

23 05

1 .15

10 45

7 35 Clouds.

8 15 Cloudy no stars visible in ~~this~~ region

Too cloudy; stars could not be obtained.

Phot T. DM 0338 W Obs

19 20 +43.0

24 26

5 00

9 05 Cloudy. Too cloudy became somewhat clearer about the time when radiation would end so nothing could be obtained.

Phot T. χ Cygni W Obs.

19 45 32.6 19 45 +32.6

25 03 24 45 19 51 +34.8

5 18 6 00 26 05

Cloudy 19 43 +32.3 5 14

25 00

5 17

(over)

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1899phae.proj.1366w

Nov. 13, 1899.

χ Cygni.

9 35 Clouds
9 40 Cloudy stars invisible

Ledgered

L & R.

Plotted.

192.3 comp standis.

9 51.6	218.9	26.6 v	
	8.7	26.9	
	35.6	v 3 v	+3.12 v

Clouds.

	192.0		+3.14 v
	217.8	25.8	
	11 8	25.0	
	36 8	v 0.8	+3.24 v

R & B.

	~~36.8~~		
	101.0	25.5	
	126.5		
	280.7	25.4	
	309.1	v 3.9	+3.11 v

	100.3		+3.04 v
10 12.6	129.0	28.7	
~~12 54 2~~	279.1	28.4	
10 02.2	307.5	v 7.1	+2.97 v
5 -.2			Mean +3.11 v
15 02.0	G. M. Time.		

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1899phae.proj.1366w

Nov. 13, 1899.

Same Again.

R D V B.

100.7
10 15.7 128.5 27.8
279.3 28.5
307.8 V 6.3 +3.00 V

100.5
127.5 27.0 +3.03 V
281.4 28.0
309.0 V 7.0 +3.06 V

L O A.

10.9
36.7 26.8
191.8
218.5 27.2
V 3.0 +3.14 V

+3.14 V

10.7
10 24.9 38.2 27.5
426 191.9 28.3
10 20321 7.2 V 2.8 +3.16 V.
5 - 2
15 20.1 Grmx

Mean +3.08 V

Pos. angle Nor'd. 203.°3
10 30 Sprocket wheel System A 8.5
" " B " 9.7

Troubled by Clouds throughout observations.
Variable and rough. star faint, and varying in brightness relatively.

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1899phae.proj.1366w

Nov. 13, 1899

Phot. R. O Ceti W66.

2 12 - 0.6
2 12
0 00

R.A.

Ledgered
Plotted

10 41.7

36.4			
56.7	20.3		
217.1	19.8		
236.9	40.1	- 3.76	
37.1	20.1		- 3.74
57.2			
217.4	19.6		
237.0	39.7	- 3.79	
R & B			
307.7	19.4		
327.1			
127.9	19.9		
147.8	39.3	- 3.81	
			- 3.81
307.6	19.2		
10 46.9 326.8			
8.0 127.8	20.0		
10 44.0 147.8	39.2	- 3.81	
5 -2			
15 43.8 Gr. McTime			Mean - 3.80

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1899phae.proj.1366w

Nov. 15, 1899

Same again.

R & B.

	307.2		
1048.2	326.8	19.6	
	127.3	20.6	
	147.9	40.2	-3.77
	307.21	20.2	-3.77
	327.5		
	127.3	19.3	
	146.6	39.7	-3.79

L & B.

	217.2		
	2366	19.4	
	37.4		
	57.8	19.4	
		38.8	-3.84
	218.0		
	237.0	19.0	-3.83
1052.2	37.2	20.0	
1000.4		39.0	-3.82
1050.2	57.2		
5 -2			
1550.0			

Mean -3.80

Dr. M. Time.

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1899phae.proj.1366w

Nov. 13, 1899.

Arnold and Dent used an observations of meteors on east balcony

Arnold & Dent	Bond 974.
18 20 13.0	18 20 00.0

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1899phae.proj.1366w

Nov. 16, 1899. (Thursday)

Comp. of Iron.

Arnold & Dents — Bond 394

7 04 20.5 — 7 04 00.0

Phot. P. — ν Cygni — W 62

20 40 — +03.4

23 20

2 40

Abandoned for the present.

Phot R. — o Ceti — W 62

26 12 -3.6 — 26 12 -3.6

23 34 — 23 22

2 38 — 2 50

9 22 — 9 10

Clouds

See next page for measurements of Omicron.

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1899phae.proj.1366w

Nov. 16, 1899

o Ceti.

R ~~0~~.

	125.3	var dis.	Plotted.
7 23.6	146.5	21.2	
	305.9	21.6	Ledgered.
	326.5	42.8	-3.62
	124.2		-3.63
	145.6	21.4	
	304.5	21.6	
	325.5	42.4	-3.64

L ~~0~~.

34.7		
56.6	21.9	
215.6	20.1	
235.7	42.0	-3.66
		-3.66
35.2		
8 00.6 56.5	21.3	
~~42~~ 215.6	20.7	
7 42.1 236.3	42.0	-3.66
5 -3		
12 41.8 Sum.		Mean = -3.64

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1899phae.proj.1366w

Nov 16/1899.

Same Again.

Left ~~Botom~~

	344		
8 03.5	56.5	22.1	
	215.6	21.0	
	236.6	43.1	-3.60

	~~346~~ 16	~~35.3~~	
	~~346~~ 1	55.3 ~~56.0~~	Clouds thicker.
	215.8	21.	
	236	~~23~~	

-3.61

Right

	~~345~~		
	56.3	21.8	
	215.2	20.9	
	236.1	42.7	-3.62

Right.

	305.4		
~~8 22.2~~	326.3	20.9	
	125.4	21.2	
	146.6	42.1	-3.65

	305.2		-3.65
8 24 4	326.2	21.0	
27.9	125.9	21.2	
8 13.8	146.86	42.2	-3.65
5 -3			
1 313.6			

Mean = -3.63

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1899phae.proj.1366w

Nov 16 1899

Phot T. γ Cygni - N 6 b.

20 40 + 33 4

24 35

3 55

Clouds

Sky practicaly all cloudy
No chance for anything farther.

arnold & Dent			Bond 39 4		
18	05	21.0	18	05	00
18	06	21.0	18	06	00

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1899phae.proj.1366w

Nov. 17, 1899. (Friday)

Arnold & Dent

7 00 22.8
7 01 22.8

Bond 394

7 00 00
7 01 00

Phot R. ι Cetι. M 66.

26 12 - 3.6
23 35
2 37
9 28

R & Clare

Plotted.

30 56
7 53.1 326.6 Stars quite faint in moonlight & light cloud
123.6 21.0
147 5 21.9
429 - 3.61

Ledgerd.

30 5,8
327.4 21.6 - 3.60
126.12 21.8
147 8.0 434 - 3.59

L & B Below

Mean = - 3.59

216.3
237 8 21.6
34.3 22.3
56.6 43.8 - 3.57
215.3 - 3.58
237.3 22.0
36.2 21.3
57.5 43.3 - 3.59

A 59-3
12.4
7 56.2
5 - 4
12 55.8 Good time

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1899phae.proj.1366w

Nov 17, 1899.

Same Again.

Left & Below

	z16.3		
8 01.5	z37.8	z1.5	
	35.1	z2.8	
	57.9	4.3	-3.54
	z15.5		-3.52
	z37.9	z2.4	
	35.5	z2.5	
	58.0	4.9	-3.51

Right & Above

Mean = -3.51

	125.8		
	148.2	22.4	
	304.9	22.9	
	327.8	45.3	-3.49
	125.0		-3.50
8 09.0	148.0	23.0	
10.5	305.8	22.0	
8 5.2	327.8	45.0	-3.51
5 -.4			

13 48 Gr Mtnr.

In above observations of Q var & comp stars both somewhat difficult on account of light cloud & bright moonlight. Moon at the full.

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1899phae.proj.1366w

Nov. 17, 1899.

Rho W. B Lyrae 0066.

Full aperture used

18 46 +33.2

24 2.6

6 40

Left

2388

Plotted

Ledgered

8 36.0 2676 28.8'

61.1 25.4'

86.5 54.2' -3.09'

2420 -3.06'

2676 24.6'

881 31.0'

89.1 55.6' -3.03'

Right

148.7

179.9 31.8'

330.00 27.0'

358.9 58.8' -2.91'

140.5 -2.92'

8 47.2 177.6 27.1'

83.2 328.0 31.1'

8 41.6 359.1 58.2' -2.93'

2 5 -4

13 41.2 Sr Intens.

4976.570

4976.302

+0.268

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1899phae.proj.1366W

Nov. 17, 1899.

II

Right

148.3

8 56.2 179.9 31.6'

330.8 27.2'

358.0 58.8' -2.91'

150.7 -2.90'

178.6 27.9'

328.5 31.3'

359.8 59.2' -2.89'

Left

Below

Mean = -2.98'

59.1

89.7 30.6'

241.7 24.8'

266.5 55.4' -3.04'

~~67.2~~ -3.06'

~~9 09.3~~ ~~86.1~~ 25.6'

241.5 29.3'

9 11.4 267.1 54.9' -3.07'

59.2

127.6'

9 03.8 88.5

5 -4

14 03.4' G. M. Time.

4976.085'

4976.352'

+0.267

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1899phae.proj.1366w

Nov. 17, 1899

III

Left
~~Below~~
239.8

9 18.8	267.3	27.5	
	61.1	25.7	
	86.8	53.2	-3.13
	0.7		
	247.8		-3.03
	267.4	26.7	
	57.9	31.6	
	89.5	58.3	-2.93

Right

Mean = -2.98

	149.0		
	179.6	30.6	
	330.8	26.9	
	357.7	57.5	-2.96
			-2.94
	150.6		
9 27.0	178.2	27.6	
40.8	328.7	30.8	
9 22.9	359.0	58.4	-2.92
5 -.4			

14 22.5 G.M. Time

4976.599

4976.352

+0.247

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1899phae.proj.1366w

Nov 17, 1899.

Right IV

149.0
9 30.2 179.0 30.0
330.6 26.4
357.0 56.4 - 3.00

150.6 - 3.00
177.3 26.7
328.9 29.4
358.3 56.1 - 3.01

Left.
60.1 Mean = - 3.01
87.8 27.7
239.0 28.3
268.3 56.0 - 3.02

60.4 - 3.02
9 42.8 87.5 27.1
78.0 239.2 28.9
9 39.0 268.1 56.0 - 3.02
δ -4
14 38.6 S. M. Time.
4976.610
4976.352
+0.258

1899phae.proj.1366w

Nov. 17, 1899.

V

Left

58.6

9 48.7 88.3 29.7

240.0 27.2

267.2 56.9 -2.98

-2.98

60.3

87.6 27.3

238.3 29.5

267.8 56.8 -2.98

Mean = -2.96

Right.

328.5

358.6 30.1

150.6 29.9

178.3 57.8 = 2.94

-2.94

330.2

9 590 359.7 27.5

107.7 149.0 30.1

9 53.4 179.1 57.6 -2.95

5 -4

1453.4 Gr Mt Time

4976.620

4976.352

+0.268

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1899phae.proj.1366w

Nov. 17. 1899

VI

Right

329.6

10 15.1 359.2 29.56

150.0 28.5

178.5 58.1 − 2.93

330.2 − 2.90

358.4 28.2

148.0 31.2

179.2 59.4 − 2.88

Left.

238.0 mean = − 2.92

269.4 31.4

59.9 27.3

87.2 58.7 − 2.91

240.2 − 2.94

10 25.9 268.3 28.1

41.0 59.2 28.8

10 20.5 88.0 56.9 − 2.98

5 − 4

15 20.1 Gr. Mn Time.

4976.639

4976.952

+ 0.287

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1899phae.proj.1366w

Nov. 17, 1899.

VII

Left
240.0
10 27.3 268.7 28.7
60.2 28.1
88.3 56.8 - 2.98

238.5 - 2.92
268.3 29.8
58.5 29.8
88.3 59.6 - 2.87

Right
Mean = 2.92
149.5
178.7 29.2
328.7 29.5
358.2 58.7 - 2.91

149.6
10 33.0 178.8 (29.2)
60.3 3
10 30.2 35
5 4
13 29.8 Gr. M.T.
10 35

Obz. stopped by low altitude and some cloud

4976.646
4976.352
+0.294

Arnold Dent 18 05 20.5

Bond 394 18 05 00.0

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1899phae.proj.1366w

Nov. 20, 1899 (Monday)

Comp & Chron.

A.D. 958 — Bond 3974

7 00 00.5 — 7 00 00.0

Phot. T. — χ Cygni. — W 62.

19 45 +32.6

23 38

3 43

Clouds thick everywhere.

19 45 +32.6

23 48

4 03

Ledgered
Plotted.

L & A			
12.9			
7 420	35.3	22.4	
	194.1	21.8	
	215.9	44.2	+3.38
Clouds			
Stars gone.			
	12.9		+3.38
	34.5	21.6	
	194.3	21.4	
	215.7	43.0	+3.61
R & B.			
	282.8		
	306.8	24.0	
	102.2	24.6	
	126.8	48.6	+3.33
	282.4		+3.34
7 568	306.5	24.1	
7 49.4	102.2	24.0	
7 494	126.3	48.1	+3.36

Mean = +3.46

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1999phae.proj.1366w

Nov. 20, 1899

Same Again

	R	Q		
	282.3			
8 00.5	306.6	24.3'		
	103.2	23.2'		
	126.4	47.5'	+ 3.39'	
	282.46		+ 3.36'	
	306.X	24.2'		
	102.0	24.2'		
	126.2	48.4'	+ 3.34'	
	P. & A.			
	193.9		Mean = + 3.41'	
	216.2	22.3'		
	12.3	23.8'		
	36.1	46.1'	+ 3.45'	
	193.2		+ 3.46'	
8 07.2	216.4	20.4'		
07.7	12.5	22.6'		
8038'	34.1	46.0'	+ 3.46'	
5 0				
13 038'	Sun Time.			

Spark Wheel — a system 8.5
" = B " 9.7
Pa Angle Vera = 203.°3

Troubled a little by rather thin passing clouds

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1899phae.proj.1366w

Nov. 20, 1899

Phot. R. o Ceti. W.D.Hs.

26 12 -3.6

24 42

1 30

10 30

Right

8 19.5 Var dia.

8 36.0 102.81 21.3"

260.3 23.6"

283.9 44.9" -3.51

81.0 -3.49

103.8 22.8"

261.0 23.0"

284.0 45.8" -3.47

Left

349.9

14.9 25.0"

171.8 22.7"

194.5 47.7" -3.38

350.8 -3.40

8 47.4 14.1 23.3"

48.4 170.8 23.3"

8 39.2 194.1 46.6" -3.43

5

13 39.2 G.M.T.

Ledgered
Plotted

Means -3.44

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1999phae.proj.1366w

Nov 20, 1899.

Same Again

Left

	350.9		
8 45.6	15~~4~~.2	23.3'	
	171.1	22.9'	
	194.0	46.2'	-3.46"
	349.3		-3.42
	14.1	24.8'	
	170.7	22.7'	
	193.4	47.5'	-3.39

Right Mean = -3.44

	260.6		
	28~~4.0~~	23.4'	
	81.0'	22.9'	
	104.0	46.3'	-3.44
	261.4 Clouds		-3.46
8 51.6	283.7	22.3'	
97.2	80.9	23.0'	
8 48.6	103.9	45.3'	-3.49
5			
13 48.6'	Gun. Time.		

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1899phae.proj.1366w

Nov 20, 1899

Phot. T. W Delphini. W 66.

20 33 +17.9

25 13

4 40 I

Left & Above

341.8 ∠ comp. star dis

Ledgered.

Plotted.

9 07 10 67.8 86.0°

164.8 82.9°

247.7 168.9° +0.21°

342.1

9 08 50 67.5 85.4° +0.20°

163.0 84.2°

247.2 169.6° +0.20°

Right & Below

251.4

Mean = +0.14

9 10 50 337.9 86.5°

69.9 90.1°

160.0 176.6° +0.06

249.8 +0.08

9 12 55 337.6 87.8°

39 45 71.2 86.8°

9 09 56 158.0 174.6° +0.10

5

14 09 56 G. M. Time

4979.5902

4977.5839*

2.0063*

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1999phae.proj.1366w

Nov. 20/1899

II

Right & Below

250.8

9 15 15 33 7.7 86.9°
69.0 91.4°
160.4 178.3° +0.03

249.4 0.00
16 30 340.2 90.2°
69.6 91.0°
160.6 178.2°
Left & Above -0.03
163.7
19 13 247.3 83.6° mean = +0.10
341.2 86.4°
67.6 170.0° +0.19

16 2.0 +0.20
21 30 24 0.8 84.8°
73 30 34 2.4 83.8°
18 22 60.2 168.6° +0.22
9
5

14 18 22 Sr. M. Time.
4979.5961°
4977.5839°
2.0122°

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1899phae.proj.1366w

Nov. 20, 1899.

III

Left & Above

		163.6		
9	24 00	245.7	82.1"	
		341.2	85.8	
		67.0	167.9"	+ 0.23"
		161.3		+ 0.20"
	25 30	248.7	87.4"	
		342.4	94.2"	
		66.6	171.6"	+ 0.16"

Right & Below — Mean = + 0.08"

		67.0		
	27 40	159.4	92.4"	
		247.7	93.3"	
		341.0	85.7"	
			174.3"	− 0.11"
		67.6		
	29 50	160.6	93.0"	− 0.04
	27 00	251.0	85.7"	
9	26 45"	338.7	172.7"	+ 0.02"

14 26 45" Sid. M.T.
4979.6020"
4977.6839"
2.0181"

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1899phae.proj.1366w

Nov. 20, 1899.

IV

Right to Below

69.9

9 32 10 159.3 89 4'

249.5 90.1'

339.6 179.5' + 0.01

69.9 + 0.03

34 15 160.1 90.2'

249.7 87.3'

337.0 177.5' + 0.05

Left to Above Mean = + 0.04

342.2

36 35 69.3 87.1'

160.81 87.0'

247.81 174.1' + 0.11

340.0 + 0.12

39 00 66.6 86.6'

2200 161.9 86.7'

9 35 30 248.6 173.3' + 0.13

5

14 35 30' Sid. Time

4979.6040

4977.5839

2.0201'

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1899phae.proj.1366w

Nov. 20, 1899

IV

Left of Above

342.3

9 42 20 60.0 83.7"
159.9 88.1"
247.0 171.8" +0.16"

341.0 +0.16"

44 00 68.6 87.6"
161.5 84.8"
246.3 172.4" +0.16"

Mean = +.07"

Right of Below

250.6

46 40 337.81 87.2"
69.0 91.7"
160.7 178.9" +0.02

248.4 −0.02

49 45 339.5 91.1"
69.1 91.5"
9 45 41 160.6 182.6" −0.005
177.4

For Angle Der A 345°5
Mach Wheel Sys. 10.5
" " B " 11.7

14 45 41 Sid. M.T.
4979.6105"
4977.6839
+2.0312

Region getting low & getting somewhat difficult

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1899phae.proj.1366w

Nov. 20, 1899

Phot. 7. χ Tauri. W 6h.

3	58	3	53 + 12.1
2	28	2	13
1	25	1	40
10	35	10	20

R4a

21.4

10 35 40 25.2 3.8

202.8 4.1

206.9 7.9 - 7.31

21.0 - 704

37 25 25.7 4.7

202.3 5.4

207.7 10.1 - 6.78

L 4.3

Above readings merely experimental not to be used

ζ Cassiop. W 6h

0	14	+72.1
3	04	
1	50	

11 05 q 1.5 & var, var 1.5 ± 2 6h 8. 12.0

In large Telescope.

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1899phae.proj.1366w

Nov. 21, 1899. (Tuesday)

Comp of chron.

Arnold & Dent 958		Bond 394	
6 30	01.0	6 30	00.0

Phot. T. DM 42° 3338 M.Obs.

6 56 30	Meteor seen by L.C.I.G.	20	+43.0	
	2 mag Her. White.	23	10	
	Tyrrell & Sears.	3	50	
	L+A.			
	358.6			I
7 00 00	47.5	48.9*		Ledgered
	178.0	53.3*		Plotted
	231.3	102.2*	-1.60*	
	357.6		-1.57*	
01 50	50.5	52.9*		
	178.3	51.7*		
	230.0	104.6*	-1.54*	
	R.+R.			
	269.4		Mean = -1.56*	
04 30	320.5	51.1*		
	86.9	53.0*		
	139.9	104.1*	-1.56*	
	266.0		-1.54*	
06 40	321.0	55.5*		4980.5024*
13 30	89.3	50.7*		4980.0106+
7 03 22	140.0	106.2*	-1.51*	+0.4918
5 01				68
12 03 21*	Gr. Mn Time.			18

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1899phae.proj.1366w

Nov. 21, 1899.

II

	R+B	
	267.7	
7 09 20	319.0	51.3*
	88.3	51.8*
	140.1	103.1* − 15.8*
	267.3	−1.60*
12 05	319.5	52.2*
	89.9	49.0*
	138.9	101.2* −1.63*
	L.O.Q.	
	181.0	
14 35	230.2	49.2* Mean = −1.65
	359.2	50.0*
	49.2	99.2* −1.68*
	180.2	−1.70*
16 20	229.5	49.3*
	359.4	48.6*
52 20	48.0	97.9* −1.71*

7 13 05*
5 01
12 13 04* Greenwich time.
4980.5091*
4980.0106*
+0.4985*

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1899phae.proj.1366W

Nov. 21, 1899

III

L & A

		182.1		
7	21 30	230.0	47.9*	
		359.2	49.4*	
		48.6	97.3*	−1.72*
		181.0		−1.74*
23	30	230.2	49.2*	
		0.6	46.6*	
		47.2	95.8*	−1.76*

R & R.

Mean = −1.66*

		88.3		
25	45	140.6	52.3*	
		268.1	52.3*	
		320.4	104.6*	−1.54*
		87.9		−1.59*
28	15	139.8	51.9*	
19	00	269.8	48.6*	
7	24 45*	318.4	100.5*	−1.64*
5	−1			

12 24 44*
4980.5172*
4980.0106*
+0.5066*

Slightly troubled by Haze. in above groups.

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1899phae.proj.1366w

Nov. 21, 1899.

IV

R.A.

Clouds: stars gone.

~~9h 17~~ 92.0

7 52 55 72. Stars gone.

2 . 91.8

8 10 30 3 . 137.A 46.0°

270.9 46.2°

4 . 317.1 92.2° −1.86°

1 . 91.5

12 10 2 . 135.5 44.0° −1.89°

4 . 271.1 46.6°

316.7 89.6° −1.92°

L.O.Q.

3.7 Mean = −1.98°

14 35 ~~24~~46 40.9°

183.6 41.9°

225.5 82.8° −2.11°

3.0 −2.07°

16 25 47.0 44.0°

~~13 40~~ 183.9 41.6°

8 13 25 225.5 85.6° −2.03°

5 −01

13 13 24 Gm.T. Slight trouble by clouds in above 4980.5510° group but clearer than since last Venus 4980.0106° group

+0.5404°

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1899phae.proj.1366w

Nov 21, 1899.

L & Q

49

8 19 45 43.9 390"
183.8 41.0"
224.8 810.0" - 2.19"

40 - 2.16"

21 45 45.5 41.5"
185.6 40.2"
225.8 81.7" - 2.14"

R & B

Means - 2.11"

2730

2400 315.3 42.3"
92.5 42.8"
1353 851" - 2.05"

2736 - 2.06"

26 15 315.3 41.7"
~~11~~ 45 92.9 42.3"
9.1 185.2 840" - 2.08"
8 5 22 56 -01

13 22 55 Gr. M. Time

4980.5575"
4980.0106"
0.5469"

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1899phae.proj.1366w

Nov. 21 1899

VI

R & B

2738

8 30 20 315.2 41.4"

92.8 42.3"

135.1 83.7" -2.09"

2740 < 2.10"

3240 315.1 41.1"

93.5 41.6"

135.1 82.7" -2.12"

Log:

186.2 Mean = -2.18"

35-10 223.6 37.4"

43 39.2"

435 76.6" -2.30"

184.3 -2.26"

36 50 224.8 40.5"

1500.3.19 38.8

8 33 45 42.17 79.3 -2.22"

5 -61

1 3 33 44 Gr. M. Time

4980.5651"

4980.0106

+0.5545

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1899phae.proj.1366W

Nov 21, 1899

VII

LQA.

1873

8 41 15 223.2 35.9+
4.4 38.5+
42.9 74.4 -2.36+

186.0 -2.36+

43 30 223.2 37.2+
5 5 37.1+
42.6 74.3 -2.37+
R+B -
44.1 Mean = -2.30

46 40 133.6 39.5+
274.5 39.5+
314.0 79.0+ -2.22+

93.9 -2.24+

48 55 132.4 38.5+
2020 274.7 39.3+
8 45 05 314.0 77.8+ -2.26+
5 01

13 45 04 Sum

4980.5730+
4980.0106
+0.5624

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1899phae.proj.1366w

Nov. 21, 1899.

VIII

R A B.

95.1

8 07 45 133.4 38.3*

275.2 38.0*

313.2 76.3* -2.31*

-2.29*

942

07 10 131.9 37.7*

274.4 39.8*

314.2 77.5* -2.27*

Lea.

6.6 Mean = -2.28

09 05 41.7 35.1*

189.1 35.5*

222.6 70.6* -2.49*

-2.46*

6.2

742.0 35.8*

9 04 50 186.4 36.8*

236 40 22 38.9 72.3* -2.43*

8 59 10*

5 -01

13 59 09 Gr. M. Time.

4980.5827*

4980.5768*

+0.0059*

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1899phae.proj.1366w

Nov. 21, 1899.

IX

L + a.

6.2

9 10 25 42.2 360°
18 7.1 350°
22 2.1 71.0 -2.47

6.8 -2.49

12 30 42.1 353°
18 9.2 346°
22 1.8 69.9 -2.51

R + B. Mean = -2.42

F 27 5.8
16 00 313.2 37.4
9 5.8 36.8
13 2.6 74.2 -2.37

27 6.2 -2.30

18 10 312.9 36.7
17 00 9 4.2 38.7
9 14 26 133.1 75.4 -2.33
5 -01 132.9

14 14 20 Gr. M.T.
4980.5933
4980.5768
+0.0165

Pos. Angle = 343 Ver a.
Sprocket Wheel a system 7.3
" " -B system 8.6

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1899phae.proj.1366w

Nov. 21, 1899

Phot. P. SS Cygni No 62.

-1 34 +42.7
23 54
4 20

Clouds
10 00 Cloudy

Ledgered.

Lea.
2738 Lcomp stars
10 12.6 clouds 423*
316.1 398
clouds 821* +2.13*
94.4
134.3
~~Clouds~~
~~2729~~
Clouds +2.08*
92.4
135.1 427*
274.4 426*
317.0 853* +2.04*
~~R~~ Clouds Mean = +2.16*
~~41.3~~
3.8
41.3 Clouds 375*
1855 395*
2250 770* +2.28*
5.0
~~434~~
10 ~~36.2~~ 438 388* +2.24*
1858
56.0 41.2*
10 28.0 2270 800* +2.19*
5
10 28.0 Gamma Tauri

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1899phae.proj.1366w

Nov. 21, 1899

Same again.

R & B.

4.6

9 10 47.0 42.8 38.2'

18 45 40.0'

22 45 78.2' + 2.25'

4.8 + 2.22'

43.0 38.2'

18 2.9 41.8'

22 47 8 00' + 2.19'

Mean = + 209'

L & Q

27 23

31 7.4 45.1'

9 3.0 45.0'

38.0 90.1 + 1.91'

27 2.2 + 1.96'

10 53.3 31 5.8 43.6

10 03 9 3.4 42.4

10 50.2 13 5.2 86.0 + 202'

5

10 50.2 Gr. M Time.

4980.

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1899phae.proj.1366w

Nov. 21, 1899.

III

Lodi.

272.8

10 58.2 316.3 Claude

Two previous groups on 8 S Cygni were made through cloud and with much difficulty. Stars

11 30 varying somewhat relatively. Nothing more can be obtained as it is now thickly cloudy and steadily growing worse.

RAB.

Pos Angle Vega 235°.8

The above pos ang is very nearly exact, for var. & comp. stars were ~~pretty~~ close together at last setting before clouds came. Coming of clouds prevented farther observations and also setting of stars at coincidence. Pyrker Wheel accidently moved ~~so that~~ before reading of same was ~~not~~ taken.

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1899phae.proj.1366w

Nov. 22, 1899 (Wednesday)

Cloudy first part of evening

9 30 Clearer now

Phot. T. SS Cygni. Mag 6.

21 34 +42.7
25 58
4 24

10 00 Cloudy 21 34 42.7
26 40
5 06

10 30 Cloudy 21 34
27 04
5 30

10 50 All thick no chance for S Cygni

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1999phae.proj.1366w

Nov. 24, 1899 (Friday)

Plot IV. Eraskis Var. W 66.

20 8 +46.3

22 38

230

I

L & A.

Ledgered.

Plotted.

68.3 Comp stardis

6-20 30 163.0 94.7*

249.7 87.0*

336.7 181.7*

178.3* −0.03*

67.2

22 05 159.6 92.4* −0.02*

249.2 230.8 87.8*

338.6 180.2*

R & B. 179.8* −0.00*

162.9

27 20 244.7 81.8* Mean = +0.11*

341.0 87.7*

68.7 169.5* +0.20*

161.8 +0.24*

29 10 246.3 83.5*

19 05 343.1 87.3*

6 24 46 64.4 170.8* +0.29*

5 −10

11 24 36 Geo. M. Turner.

4983.4754* 4.5729*

4979.0946* 4.3808*

4.3808* 0.1921*

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1899phae.proj.1366w

Nov 24, 1899

II

	R & B	
	341.5	
6 35 10	67.0	83.5
	160.2	86.1
	246.3	171.6 +0.16
	343.0	+0.22
37 00	66.76	83.6
	164.3	81.0
	245.3	164.6 +0.29
	L & a.	
	252.4	Mean = +0.20
39 10	337.0	84.6
	72.6	84.0
	156.6	168.6 +0.22
	254.1	+0.18
41 00	336.7	82.6
152 20	69.6	89.3
6 38 05	158.9	171.9 +0.15
5 −10		

11 37 55 Greenwich

4983.4846

4979.0946

4.3900

4.5729

−0.1829

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1899phae.proj.1366w

Nov 24, 1899

~~14~~

R D Q.

253.43

6 51 50	335.1	81.8	
	72.6	83.7	
	156.3	165.5	+0.27
	251.16		+0.24
63 30	335.7	84.1	
	71.7	84.6	
	156.3	168.7	+0.21
	R & B.		
	163.6		Mean = +0.32
56 53	246.0	81.4	
	345.4	78.0	
	63.4	159.4	+0.39
	163.10		+0.40
59 20	244.4	81.4	
21 35	345.3	77.6	
6 55 24	62.9	159.0	+0.40
5	-10		

11 55 14 Gr. M. Time.

4983.4966

4979.0946

4.4020

4.3729

0.1709

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1899phae.proj.1366w

Nov. 24/1899

IV

R & B

162.6

8 07 30 2438 812"

3453 78.2"

63.5 159.4" +0.39"

164.1 +0.38"

04 15 244.2 801"

3438 79.7"

63.5 159.8" +0.38"

L & Q. mean = 0.38"

71.8

07 35 155.4 836"

205.0 777"

332.7 161.3" +0.36"

73.0 +0.38"

11 10 153.8 808"

25 30 205.9 784"

7 06 22 334.3 159.2" +0.40"

5 -10

12 06 12 G.M.T. min.

4983.5043"

4979.0946"

4.4097"

4.3979

0.0118"

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1899phae.proj.1366w

Nov. 24, 1899.

V

L. & a.

255.2

J2100 332.1 76.9"
74.2 78.3"
152.5 155.2" +0.47"

+0.48"

255.2

23 30 332.5 77.3"
75.9 77.3
153.2 154.6" +0.49"

R. A. B.

167.7 Mean = +0.61"

27 40 240.8 73.1"
348.3 70.1"
58.4 143.2" +0.71"

168.3 +0.74"

30 25 240.4 72.1"
11.2 35 349.9 67.9"
7 28 09" 57.8 140.0" +0.77"
5 -10

1227 59 Sr. M. Time

4983.5194" 4.5729"
4979.0946" 4.4248"
4.4248" -0.1481"

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1899phae.proj.1366w

Nov. 24, 1899

VI

R & B.

		168.8			
7	45 30	239.2	70.4		
		350.6	65.8		
		55.4	136.2	+ 0.85	
		172.6		+ 0.88	
	47 20	237.4	64.8		
		349.8	68.0		
		57.8	132.8	+ 0.92	

L & A.

		760			
	50 15	151.2	74.5		Mean = + 0.816
		261.4	65.6		
		327.0	140.1	+ 0.77	
		80.3		+ 0.83	
	53 45	147.2	66.9		
	19 50	259.9	67.6		
7	49 12	327.5	134.5	+ 0.89	

5 − 10

12 49 02 G. M. Time.

4983.5340

4979.0946

4.4394

4.5729

−0.1335

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1899phae.proj.1366w

Nov. 24, 1899

VII

Left.

79.4

7 57 40 147.8 68.4 ×

261.5 66.3 ×

327.8 134.7 + 0.88

81.0 + 0.89

8 00 15 147.8 66.8 ×

260.5 67.1 ×

327.6 133.9 + 0.90

Right

3501

Mean = + 0.98

03 30 3570 66.9 ×

193.9 61.7 ×

235.6 128.6 + 1.01

+ 1.06

05 40 3012.2

53.4 61.2 ×

247 05 173.1 63.2 ×

8 01 46 × 29.63 124.4 × + 1.10

5 −10

13 01 96 × Gr. M. Time

4983.5428 ×

4979.0946 ×

4.4482 ×

4.5729 × ×

−0.1247

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Nov 24, 1899

VIII

Right

		173.3		
8	13 40	345.0	61.7	
		3548	58.8	
		53.6	120.5	+1.18
		176.6		+1.22
	15 30	2342	55.6	
		352.0	61.8	
		59.8	117.4	+1.20

Left

Mean = +1.22

		83.0		
	14 25	1448	61.8	
		2655	58.2	
		323.7	120.0	+1.19
		84.0		+1.22
	21 55	142.8	58.8	
	70 30	2655	58.7	
8	17 38	324.2	117.5	+1.20
5	-10			

13 17 28 Gr M Time

4982.5538	4.5729
4979.0946	4.4592
4.4592	-0.1137

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Nov. 24/1899

~~IX~~

Left

83.1

8 29 10 143.0 59.9 x

2677 59.2 x

3242 119.1 x + 1.30 x

8413 + 1.28 x

32 00 142.5 58.2 x

2658 58.4 x

3242 116.6 x + 1.27 x

Right.

3561 Mean = + 1.28 x

3430 51,5 55.4 x

178.0 52.1 x

230.1 107.5 x + 1.48 x

3581 + 1.47 x

37 10 51.1 53.0 x

1832 50 177.0 55.0 x

8 33 12 292.0 108.0 x + 1.46

5 -10

1833 02 x G.M. Time

4983.5646 x 4.5729 x

4979.0946 4.4700

4.4700 x -0.1029 x

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Nov. 24, 1899.

X

Right.

	307.3		
8 46 10	509	53.6	
	181.5	46.9	
	228.4	100.5	+ 1.64
	1,1		+ 1.72
49 20	46.9	45.8	
	179.8	48.7	
	227.8	94.5	+ 1.80

Left.

Mean = + 1.72

	270.1		
53 42	320.0	49.9	
	87.8	49.1	
	136.9	99.0	+ 1.68
	270.8		+ 1.71
56 10	318.3	47.5	
205 30	87.3	49.3	
8 51 22	136.6	96.8	+ 1.74

5 − 10

1 3 51 12 G.M. Time.

4983.3772	4.5729
4979.0946	4.4826
4.4826	− 0.0903

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Nov. 24, 1899.

XI

Left

2699

9 01 00 3 18.4 48.6
90.5 47.0
137.5 95.5 +1.77

2711.4 +1.80

03 10 3169 45.5
88 8 48.2
137.0 95.7 +1.82

Right

1821.6 Mean = +1.91

05 55 2217.2 44.6
82.4 42.6
45.0 87.2 +1.99

183.0 +2.02

08 30 2248 41.8
18 30 2 10 43.2
9 04 39 4012 85.0 +2.05
5 -10

14 04 29 Gr. Mn. Time.
4983.3864
4979.0946

4.4918
4.3729
-0.0811

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Nov. 24, 1899

XII

R.A.

1838

9 27 00	22 4.3	40.5
	58	37.6
	43.4	78.1 + 2.26
	1866	+ 2.28
30 00	22 2.0	35.4
	22	41.1
	49.3	76.5 + 2.30
	L & B.	
	93.3	Mean = + 2.29
32 35	36.8	43.0
	273.7	39.1
	31 28	82.1 + 2.13
	95.2	+ 2.22
34 35	132.4	37.2
	275.0	39.0
12 4 10	314.10	76.2 + 2.31
9 31 02		
5 -10		

14 30 52 Gr. M. Time.

4983.6048

4979.0946

+ 4.5102

4.5729

0.0627

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1899phae.proj.1366w

Nov 24, 1899

XIII

L & B

94.4

39 35 | 135.2 | 40.8 ×

2751 | 38.7 ×

3138 | 79.5 × | +2.21 ×

95.9 | +2.24 ×

42 25 | 132.8 | 36.9 ×

2738 | 40.8 ×

3146 | 77.7 × | +2.26 ×

R & A

Mean = +2.31 ×

1865

46 40 | 222.2 | 35.7 ×

4.7 | 37.4 ×

42.1 | 73.1 × | +2.41 ×

184.8 | +2.38

5020 | 224.7 | 39.9 ×

17900 | 65 | 34.8 ×

9 44 43 | 41.3 | 74.7 | +2.36

3 — −10

14434 × G. M. Time

4983.6143 ×

4979.0946

+4.5197 ×

4.5229

−0.0032 ×

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1899phae.proj.1366w

Nov. 24, 1899

XIV

R Aq.

1898

9 56 45 222.4 36.6*

221 41.5*

43.6 78.1* + 2.25*

185.4 + 2.30*

10 01 00 224.0 38.6*

5.4 36.9*

46.3 75.5* + 2.36*

L.D.B

94.5 Mean = + 2.26

03 40 133.1 38.6*

274.8 39.0*

313.8 77.6* + 2.27*

93.8 + 2.22*

06 05 135.0 41.2*

247 30 274.0 39.7*

10 1 52 313.7 80.9* + 2.17*

5 10

15 01 42 G.M. Time.

4983.6262*

4979.0946

4.5316*

4.5729

-0.0413*

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1899phae.proj.1366w

Nov. 24, 1899.

XV

L M B

95.1

18 15 133.2 38.1
2745 38.8
3143 76.9 +2.29

93.4

21 00 134.7 41.3 +2.24
275.4 38.8
3142 80.1 +2.19

Mean = +2.27

5.4

24 00 43.3 37.5
184.4 39.1
228.5 76.6 +2.30

4.4 +2.30

26 20 43.4 39.0
809 3518.5 37.7
1022 2422.2 76.7 +2.29

5 -10

10 22 14 G.M.T. nine.

49836404
4979.0946
+4.5408
4.5729
-0.0271

1899phae.proj.1366w

Nov. 24, 1899.

XVI

R + Q.

4.6

10 32 40 42.4 37.8*

18 48 38.7*

22 3.5 76.5* + 2.30*

4.3 + 2.29*

36 00 43.5 39.2*

18 5.7 38.1*

22 2.8 77.3* + 2.28*

L + B. Mean = + 2.26*

39 40 27 6.2

31 4.4 38.2*

93.2 40.4*

133.6 78.6* + 2.24*

27 41.5 + 2.24*

41 45 31 4.8 40.3*

95.2 38.0*

10 37 31* 133.2 78.3* + 2.25*

5 − 10

15 37 21* Gr. M. Time.

+ 9833.6510*

4979.0946

+ 4.5564*

4.5729

− 0.0165*

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1899phae.proj.1366w

Nov. 24, 1899

~~XVII~~

~~Lot 8~~

Roz. Angle Vir a = 79.6
Sprocket Wheel A System 10.7
" " B System 11.3

Arnold & Dent
10 52 30

Bond 394
10 52 00

~~R.A.~~

Note Bond 394 is 20 sec. slow
∴ Chron used on 6h tonight is
10 secs fast.

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1899phae.proj.1366w

Nov. 25, 1899 - (Saturday)

Comp. & Chron.

Arnold & Dent
6 15 12.7

Bond 394
6 15 00

Phot. ♂ DM 3338 N 6k.

19 20 +43.0
22 58
3 38

Plotted.
Ledgered.

Lda.
1780

6 30 55	229.8	57.8*	
	359.3	50.6*	
	49.9	102.4*	-1.60*
	178.2		-1.61*
34 00	229.8	51.6*	
	359.0	49.8*	
	48.8	101.4*	-1.62*
	R.A.R.		
	88.4		
			Mean = -1.59*
39 30	142.5	54.1*	
	268.4	50.1*	
	318.5	104.2*	-1.53*
	89.0		-1.57*
39 45	139.8	50.8*	
22 10	268.0	57.9*	
6 35 32	319.9	102.7*	-1.59*
5 -13			
11 35 19	Gr. M. Time.		

49844.4828 / 49844.4828
83.9838
0.4990 — 49844.4148
0.0680

P = (3660)

(3660 Pr)

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1899phae.proj.1366w

Nov. 25, 1899.

II

R Ori

88.9

6 49 10 140.8 51.9*

268.9 52.1*

321.0 104.0* −1.56*

88.3 −1.58*

50 35 140.0 52.3*

270.0 50.0*

320.0 102.3* −1.60*

Lick

38.4 Mean = 1.67*

53 26 47.3 48.9*

181.4 47.5*

228.9 96.4* −1.75*

0.4 −1.76*

55 15 47.1 46.7*

208 25 180.7 48.5*

6 52 06 229.2 95.2* −1.78*

5 −3

11 31 53* Greenwich Time.

4984.4943* (4984.4943)

4984.4408 (4983.9838)

0.0795* 0.5105

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Nov 25, 1899

III

L & a.

0.5

7 00 00 46.7 46.2
181.9 46.0
227.9 92.2 -1.86

0.3 -1.85

02 20 46.7 46.4
181.6 46.4
228.0 92.8 -1.84

R & B.

268.7 Mean = -1.77

04 20 318.5 49.8
89.1 50.4
139.5 100.2 -1.65

270.2 -1.69

06 20 318.8 48.6
90.1 48.6
12 00
7 03 00 138.7 97.2 -1.73
5 +3

12 02 47 Gr. Mn. Time.

4984.5020
4984.4148
0.0872

+9844.5020
4983.9832
+0.5188

1899phae.proj.1366w

Nov. 25, 1899.

IV

	R.A.	B.	
	270.0		
7 10 20	318.4	48.4	
	89.4	49.6	
	139.0	98.0	−1.71
	269.6		−1.72
12 15	318.1	48.5	
	89.7	48.4	
	138.1	96.9	−1.73
	L.A.		mean = −1.85
	182.6		
15 25	226.6	44.0	
	1.9	43.9	
	45.8	87.9	−1.97
	182.9		−1.98
8 50	226.1	43.2	
16 50	1.8	44.2	
14 12	46.0	87.4	−1.98
5 13			

12 13 39. G.M. Time.

4984.5097 4984.5097

4984.4948 4983.9868

0.0949 0.5229

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Nov. 25, 1899

IV

L & A.

1820

7 24 45 22 5.3 43.3"
1.5 43.9"
45.4 87.2" -1.99"

18 3.6 -2.02"

26 10 22 5.5 41.9"
2.8 43.0"
45.8 84.9" -2.05"

R & B. Mean = -2.01"

92.1

28 20 13 5.4 43.3"
27.7 43.6"
31 6.3 86.9" -2.00"

92.3 -2.00"

30 40 13 5.7 43.4"
109 33 27 2.7 43.4"
7 27 29 31 6.1 86.8" -2.00"
5 43

2 27 16 G.C.M. Time.

4984.5190"
4984.4148
0.1042

4984.5190"
4983.9838
+0.5352

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1899phae.proj_1366w

Nov. 25, 1899.

VI

R & B.

93.6

7 35 20 | 34.8 | 41.2 x

272.5 | 43.9 x

315.8 | 85.1 x | -2.06 x

92.0 | -2.06 x

37 10 | 135.5 | 85 x

273.3 | 41.6 x

314.9 | 85.1 x | -2.05 x

L & A. | Means = -2.14 x

4.4

40 45 | 43.6 | 39.2 x

184.2 | 40.2 x

228.4 | 79.4 x | -2.21 x

4.4 | -2.22 x

A 300 | 43.9 | 39.5 x

156 15 | 184.8 | 39.3 x

739 04 | 224 | 78.8 x x | -2.23 x

5 -13

1238 51 Sun Tina.

4984.5270 x

4984.4148

0.1122

(4984.5270
4984.9838
0.6432)

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Nov. 25, 1899.

VII

L+q.

4.1

7 ~~48 25~~ 42.9 38.8 x

50 10 185.45 37.9 x

223.44 76.7 x -2.29 x

~~37.~~

5.5 -2.30 x

51 50 43.3 37.8 x

185.1 36.7 x

223.8 76.5 x -2.30 x

R+B. mean -2.26

2741

53 45 314.1 40.0 x

94.7 39.3 x

134.10 79.3 x -2.22 x

2742 -2.22 x

56 5 313.8 39.6 x

12 00 94.7 39.3 x

7 59 00 134.0 78.9 x -2.23 x

6 -13

12 52 47 Sidereal Time.

4984.5367 x

4984.4148

+0.1219

4984.5367

4983.9838

+0.5529

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Nov. 25, 1899

VIII

R & B.

274.0

8 01 35 313.2 39.2'

94.0 40.6'

134.6 79.8' -2.20'

275.2 -2.24'

04 45 313.4 38.2'

94.04 38.6'

133.0 76.8' -2.29'

L & a.

1859

Mean = -2.28

08 50 223.3 37.4'

46.6 38.7'

43.3 76.1' -2.31'

1848 -2.33'

10 05 23.0 38.2'

25 10 05.6 36.7'

8 06 19 42.0 74.9' -2.35'

5 -13

13 06 06 Gr. M. Time

4984.5459-9'

4984.4448

0.1011

(4984.5459
4983.9838
+0.5611)

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Nov. 25, 1899

IX

L & a

185.9

8 20 20 222.0 36.1"
49 37.7"
42.4 73.8" -2.38"

185.9 -2.38"

22 10 22 15 36.6"
5.0 37.3"
42 15 74.1" -2.37"

R & B.

95.4 Mean = -2.32"

24 35 134.4 39.0"
27 50 38.5"
312.5 77.5" -2.27"

94.3 -2.26"

26 40 134.5 40.2"
13 40 274.9 38.0"
8 23 26 312.9 78.2" -2.25"
5 -13

13 23 13 G.M.T.

4984.6577"
4984.4148
+0.1429"

(4984.6577
4984.6504
+0.0073)

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Nov. 25 1899.

R Angle Var a = 34°
L 30 L Sprocket wheel. A system 7.5
" " B " 8.6

See next book 112

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