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v. 336

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July 14. 1896.

B July 14, 1896 ... Book A2.

... ubs

11 17

1.48 >

11 19

1.29 >
1.38 >

... d just'd images

12 2

24.0 62.3 > 1.36 >
112.3 >

320.9
22.5 61.6 >
328.0 50.8 > 1.36 >
18.8 112.4 1.36 >
1.36 >
mean = 1.37 >

12 3
12 0 >

A21
0.2

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1896phae.proj.1340

July 14. 1896.

β Lyrae continued from Book A2.

Wires

	328.4		
11 17	17.0	48.6 >	
	323.8	58.6 >	1.48 >
	22.4	107.2 >	
	324.3		
11 29	22.4	58.1 >	
	329.9	57.7 >	1.29 >
	27.0	115.8 >	1.38 >
	~~328.0~~ 327.4	adjusted images	
12 2	17.4		
	321.7	50.0 >	
	24.0	62.3 >	1.36 >
		112.3 >	
	320.9		
12 3	22.5	61.6 >	
12 0 >	328.0	50.8 >	1.36 >
	18.8	112.4	1.36 >
			mean = 1.37 >

A21
0.2

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1896phae.proj.1340

July 14. 1896.

Crawford.

clouds.

12 11

316.2		
25.0		
322.4	68.8 >	
23.1	60.8 >	1.00 >
	129.1 >	
322.2		
20.0	57.8 >	
323.1	61.9 >	1.20 >
25.0	119.7 >	1.10 >
320.2		
21.0	60.8 >	
317.0	63.8 >	1.09 >
20.4	124.6 >	
324.9		
19.4	54.9 >	
325.7	56.3 >	1.39 >
22.0	111.2 >	1.24 >
		Mean = 1.17 >

12 29

12 20 >

The above observations of Mr. Crawford (last group.) made through clouds and with difficulty.

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1896phae.proj.1340

July 15. 1896. (Thursday)

T Cephei:

21	5	+68.1
16	15	
-7	20	
7	10.	

Measurement of faint comp. stars for T Cephei: Phot: W: obs

8 0 Cloudy

8 30 Cloudy and worse

9 0 Cloudy and worse

p comp. with m.
Index to right.

9 24

50.1		
107.5	← m dis.	
54.7	57.4 >	
101.2	46.5 >	1.56 >
	103.9 >	

57.5
+00.0 101.4
51.6 43.9 >
107.1 55.5 > 1.67 >
99.4 > 1.62

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1896phae.proj.1340

July 15. 1896.

9 30 Cloudy.

Index to left.

144.7
192.0 47.3 >
136.2 62.0 >
198.2 109.3 >

1.43 >

Cloudy.

~~137.7~~
~~196.6~~
~~144.0~~

9 41 Cloudy.

Cloudy.

10 0 Too cloudy for any observation.

143.7 last set
10 24 192.6 re-taken
139.2
199.9

Cloudy.

48.9 >
60.7 > 1.43 >
109.6 > 1.43 >

Mean = 1.50 >

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1896phae.proj.1340

July 15. 1896.

10 40 Cloudy

10 55 Cloudy

R comp with m.
Index to left.

11 0 Cloudy

12 0 Cloudy

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1896phae.proj.1340

July 16. 1896. (Friday)

Meast. of Faint Comp. Stars for ζ Cephei (Phot. I) 5 hr. obs.

21 5 +64.1
15 r0
5 1 r
6 K r

β compared with m.
Index to left.

		143.2		
A	1	196.7	53.5 >	
		140.2	57.7 >	1.39 >
		197.9	111.2 >	
		139.9		
A	2 r	197.0	57.1 >	
		143.r	52.4 >	1.43 >
		19r.9	109.5 >	1.K1

Index to right.

		231.0		
A	30	286.9	55.9 >	
		232.3	50.7 >	
		282.0	106.6 >	1.50 >

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July 10. 1896.

	232.1		
A 2r	243.9	51.8 >	
9r	231.0	55.0 >	1.49 >
r 49	246.0	106.8 >	1.50
			mean 1.46

r compared with m.

	232.9	I index to ~~left and down~~ right	
8 50	283.0	50.1 >	
	237.7	40.8 >	1.89 >
	278.5	90.9 >	
	238.7		
	280.1	41.4 >	
	233.5	48.5 >	1.92 >
	282.0	89.9 >	1.90

I index to left.

	327.2		
	8.0	40.8 >	
	323.0	51.1 >	1.86 >
	14.1	91.9 >	
	322.2		
8 56	13.5	51.3 >	
	328.9	40.5 >	1.87 >
	9.4	91.8 >	1.86
			mean 1.86

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1896phae.proj.1340

July 16. 1896.

g comp with m 329.1 g index to left.
7.9 < m dis.

8 59

320.5	38.8 >	
18.2	57.7 >	
	96.5 >	1.74

320.7		
15.1	54.4 >	
328.7	41.3 >	
~~8 +~~ 10.0	95.7 >	1.76
		1.72

Index to right.

56.6		
103.0	46.4 >	
59.4	38.8 >	
98.2	85.2 >	2.0

9 11

58.7		
98.6	39.9 >	
54.8	50.8 >	
105.6	90.7 >	1.90
		1.96
	Mean	1.96

9 6

9 02.5

S comp with m.
Index ~~to right~~ above

9 16

65.0		
92.3	< m dis.	
65.3	27.3 >	
93.4	~~3~~ 28.1 >	
	~~5~~ 55.4 >	3.04 >

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1896phae.proj.1340

July 16. 1896.

61.4		
93.0	31.6 >	
64.3	27.1 >	2.91 >
91.4	58.7 >	2.92

Index ~~to diff~~. below.

152.3		
184.0	31.7 >	
149.9	35.6 >	
185.5	67.3 >	2.60 >

151.9		
190.2	38.3 >	
154.0	28.4 >	
182.4	66.7 >	2.62 >
		2.61
	mean	2.60

9 22
9 19.0

start comp with m.
Index below.

156.4		
182.0	< m dia.	
	25.6 >	
157.2	25.2 >	3.24 >
182.4	50.8 >	

9 25

156.3		
183.0	26.7 >	
156.0	25.4 >	
181.4	52.1 >	3.18 >
		3.21

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1896phae.proj.1340

July 16. 1896.

Index above.

248.3	21.6 >		
269.9	26.4 >	3.36 >	
244.9	48.0 >		
~~270.2~~ 271.3			
246.0			
271.3	25.3 >		
247.8	22.1 >	3.39 >	
269.9	47.4 >	3.34	
		mean 3.30	

9 12

57

9 24.5

Measurement of faint comp stars for R. Camelop. Phot I: W obs Comp arcs with C.

14	40	+8 4.1
17	47	
+3	7	west
~~8~~	~~53~~	

To comp with C
Index to left and above

251.1		
266.8	15.7 >	< C dis
252.9	13.2 >	
266.1	28.9 >	4.48 >

10 18

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1896phae.proj.1340

July 16, 1896.

252.3		
266.7	14.4 >	
281.9	14.1 >	4.52 >
266.0	28.5 >	4.52

Index to right and below.

341.6		
355.1	13.5 >	
342.5	13.6 >	4.64 >
356.1	27.1 >	

341.0		
355.5	14.5 >	
340.1	14.0 >	4.52 >
354.1	28.5	4.52

10 20
10 22

Mean 4.52

Mean comp with C.
Index to right

339.4		
360.0	20.6 >	
336.5	22.5 >	3.60 >
359.0	43.1 >	

10 20

336.6		
360.0	23.4 >	
339.2	19.0 >	3.64 >
358.2	42.4 >	3.62

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1896phae.proj.1340

July 16. 1896.

Index to left.

70.6		
86.9	16.3 >	
68.0	19.2 >	4.03 >
87.2	35.5 >	

68.0		
88.0	20.0 >	
69.2	18.7 >	
87.9	38.7 >	3.84 >
		3.94
		Mean 3.89

10 37

10 33.5

I comp with c.

Index to left and below

65.0	∠ c dis	
91.5	26.5 >	
69.2	19.2 >	
88.4	45.7 >	3.47 >

10 45

69.7		
89.4	19.7 >	
67.5	24.9 >	
92.4	44.6 >	3.53 >
		3.50

Index to right and above

153.4		
183.0	29.6 >	
158.2	21.7 >	3.22 >
179.9	51.3 >	

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1896phae.proj.1340

July 16. 1896.

10 50
10 47.5

157.2
180.0 22.8 >
153.5 27.9 >
181.4 50.7 > 3.24 >
3.23
Mean 3.36

R wrap with e
Index to right and above.
153.6 ← e dis.
10 53
183.9 30.3 >
157.0 24.7 >
181.7 55.0 > 3.06 >

157.6
180.9 ~~2~~ 3.3 > 3.16 >
155.8 29.2 > ~~2.77~~
185.0 ~~6~~ 2.5 > 5 3.11

Index to left and below.
245.0
271.7 26.7 >
243.0 32.2 > 2.90 >
275.2 58.9 >

241.7
10 57
278.3 37.0 >
10 55
244.0 27.8 > 2.68 >
271.8 64.8 > 2.79
Mean 2.97

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1896phae.proj.1340

July 16. 1896.

o comp with c.
Index to right.

339.5	< c dis		
356.1		16.6 >	
339.0		18.5 >	
357.5		35.1 >	4.06 >
339.8			
357.5		17.7 >	
341.4		14.3 >	
355.7		32.0 >	4.26 >
			F.16

Index to left.

70.0			
87.0		17.0 >	
70.1		15.2 >	4.25 >
85.2		32.2 >	
70.0			
83.9		13.9 >	
70.4		14.6 >	4.52 >
85.0		28.5 >	F.3A
		Mean	F.27

n comp with c.
Index to left.

248.8	< c dis.		
269.3		20.5 >	3.64 >
249.3		21.9 >	
271.2		42.4 >	

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July 16. 1896

249.4	21.2 >	
270.6	19.4 >	3.74 >
249.0	40.6 >	3.69
~~261.6~~	~~268.6~~ 268.4	

Index to right.

338.5		
357.9	19.4 >	
336.7	22.7 >	3.65 >
359.4	42.1 >	

337.0		
360.0	23.0 >	
337.5	20.9 >	3.56 >
358.4	43.9 >	3.60
		Mean 3.64

B Lyrae Phot. V.
(Phot. R. horizontally mounted)
W abs.

281.2			
~~334.6~~	334.1		
283.4		52.9 >	
328.8		45.4 >	1.70 >
		98.3	

283.5			
328.4		44.9 >	
276.9		60.6 >	1.52 >
337.5		105.5 >	

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July 16. 1896.

		277.0		
12	13	336.5	59.5 >	
		283.6	43.9 >	1.57 >
		327.5	103.4 >	

1.51

		283.6		
12	15	328.4	44.8 >	
12	12 >	275.0	63.6 >	1.45 >
	x(x6	338.6	108.4 >	
17	11.0		mean = 1.56 >	

Cram obs.

		274.4		
12	24	335.1		
		~~270.1~~ Rej. did not restore,		
		274.0	60.7 >	
		333.0	59.0 >	1.20 >
			119.7 >	

1.14

		272.0		
12	27	337.8	65.8 >	
		272.0	59.8 >	1.08 >
		334.8	125.1 >	

		274.8		
12	31	334.8	59.0 >	
		274.8	56.5 >	1.29 >
		335.0	115.5	

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July 16. 1896.

12	34
12	29 >

4(11 6
17 29

27.8
33.4
27.7
33.7

58.6 >
57.0 >
115.6 >

1.29 >

mean = 1.22 >

Wunsch ds

2	0	108.5 145.5 103.0 151.2	< B dis 37.0 > 48.2 > 85.2 >
2	8	106.7 147.9 103.5 147.5	41.2 > 44.0 > 85.2 >
2	12	107.7 152.2 100.7 143.0	44.5 > 42.3 > 86.8 >
2	22	96.2 153.0 96.0 153.2	56.8 > 57.2 > 114.0 >
2	10 >		

2.05 >

2.05 >

2.00 >

1.33 >

mean = 1.86 >

4(4 2
14 10.5

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1896phae.proj.1340

July 16. 1896.

		Gram. obs		
		100 . 3		
2	35	147 . 8	47.5 >	
		101 . 8	48.2 >	1.76 >
		150 . 0	95.7 >	
				(1.89)
		107 . 8		
2	41	148 . 8	41.0 >	
		103 . 8	45.0 >	2.02 >
		148 . 8	86.0 >	
		103 . 8		
2	44	147 . 9	44.1 >	
		103 . 2	42.6 >	2.00 >
		145 . 8	86.7 >	
				(2.10)
		108 . 2		
2	48	146 . 8	38.6 >	
2	42 >	104 . 3	41.6 >	2.19 >
	168	145 . 9	80.2 >	
	42		mean = ~~1.99~~ 2.00	

In session this and previous page observations were bothered continually by heavy fog and by dew collecting on optical parts of instrument.

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1896phae.proj.1340

July 17. 1896. (Saturday)

Measurement of faint comp. star for R. Camelop. Phot 5 : W. Obs

14	40	+84.1
16	13	
1	33	

mm comp. with c

Index to left and above.

68.9	< c dis.	
87.9	19.0 >	
69.0	17.4 >	3.98 >
86.4	36.4 >	

9 0

67.2		
86.5	19.3 >	
67.9	18.9 >	3.87 >
86.8	38.2 >	3.92

Index to right and below.

158.0		
177.7	19.7 >	
158.3	19.8 >	3.79 >
178.1	39.5 >	

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1896phae.proj.1340

July 17. 1896.

159.3		
177.2	17.9 >	
159.4	18.9 >	3.95 >
178.2	36.8 >	3.84
		mean 3.90

9 7

9 3.6

n comp. with c.
I index to right and below.

159.5 ~~+159.2~~ ∠ 2 dis.
177.8 ~~+178.5~~

9 40

	18.3 >	
158.9	20.0 >	3.86 >
178.9	38.3 >	

160.2		
178.5	18.3 >	
160.4	17.2 >	4.03 >
177.6	35.5 >	3.94

I index to left and above.

67.5		
88.7	21.2 >	
68.6	19.9 >	3.71 >
88.5	41.1 >	

9 30

9 25

67.1		
87.8	20.7 >	
69.2	18.8 >	3.79 >
88.0	39.5 >	3.95
		mean 3.84

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July 17. 1896.

O comp. with C

Index to left and above.

71.6 < C dis.

9 52

85.0 13 H >
67.4 16.5 >
83 9 29.9 >

4.41 >

71.2
86.0 14.8 >
69.7 15.3 >
85.0 30.1 >

4.40 >
K.K0

Index to right and below.

161.4 ~~161.5~~

177.4 16.0 >
158.4 21.0 >
179.4 37.0 >

3.94

162.5
177.2 14.7 >
163.4 14.1 >
177.5 28.8 >

4.49 >
K.22
Mean K.31

10 0

9 56

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1896phae.proj.1340

July 17. 1896.

K comp with c.

Index to right and above

335.4 — c — dis.

2.4 — 27.0 >

329.4 — 35.6 > — 2.76

5.0 — 62.6 >

331.0

3.6 — 32.6 >

332.9 — 33.8 > — 2.63 >

6.7 — 66.4 > — 2.70

Index to left and below.

61.9

93.1 — 31.2 >

62.4 — 27.9 > — 2.89 >

90.3 — 59.1 >

64.2

89.9 — 25.7 >

61.0 — 32.7 > — 2.92 >

93.7 — 58.4 > — 2.90

Mean 2.90

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1896phae.proj.1340

July 17. 1896.

p comp with c
Index to left and above.

	72.2	∠ c dis.	
11 25	83.5	11.3 >	4.90 >
	70.0	12.6 >	
	82.6	23.9 >	
	70.1		
	82.2	12.1 >	
	90.9	12.1 >	4.87 >
	83.0	24.2 >	K.AA

Index to right and below.

	160.0		
	173.5	13.5 >	4.63
	161.0	13.5 >	
	174.5	27.0 >	
	160.6		
11 41	176.0	15.4 >	4.53 >
	161.7	12.9 >	K.vA
11 25	174.6	28.3	Mean K.73

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1896phae.proj.1340.

July 17. 1896.

l comp. with c.

Index above

152.0 < c dia.

11 45

182.7	30.7 >	
156.9	21.4 >	3.18 >
178.3	52.1 >	

155.0

178.9	23.9 >	3.40 >
154.7	23.3 >	3.29
~~180.2~~ 178.0	47.2 >	

Index below.

245.6		
270.1	24.5 >	3.38 >
245.9	23.1 >	
269.0	47.6 >	

11 50

248.4		
270.5	22.1 >	3.44
245.9	24.2 >	3.41
270.1	46.3 >	

mean 3.35

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1896phae.proj.1340

July 17, 1896.

δ Persei:

Measurements of faint comp. stars.
Phot. W. obs

2 8 +57.2

20 8
6 8 0
6 4 0
0 comp with f

Index to left and above.

67.4
88.0 < f dis.
65.7 20.6 ✓
46.0 20.3 ✓
40.9 ✓ 3.72 ✓

67.0
87.5 20.5 ✓
67.7 20.3 ✓
88.0 40.8 ✓ 3.77 2 ✓
3.72 ✓

Index to right and below.

159.4
176.7 17.3 ✓
158.3 20.2 ✓
178.5 37.5 ✓ 3.91 ✓

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1896phae.proj.1340.

July 17, 1896.

	158.1		
12	177.7	19.6	
	157.6	19.7	3.21
12	199.3	39.3	3.26
			mean 3.99

n comp with f.
d index to right.

	156.4		
12	180.9	24.5	
	155.3	25.7	
	181.0	49.2	
		50.2	3.26

	157.3		
	180.0	22.7	
	154.7	27.2	
	181.9	49.9	3.24
			3.27

d index to left.

	247.2		
	272.9	25.7	
	245.8	25.1	
	270.9	50.8	3.24

	247.5		
12	270.8	23.3	
12	247.6	24.4	
	272.0	47.7	3.32
			3.31
			mean 3.29

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1896phae.proj.1340

July 17. 1896.

m comp with f.
Index to left and above

243.4
274.8 < f dis.
244.1
277.0

31.4 ✓
32.9 ✓
64.3 ✓ 2.70 ✓

242.0
275.6
243.2
271.8

33.6 ✓
28.6 ✓
62.2 ✓ 2.70 ✓
2.70

Index to right and below.

330.8
4.6
331.2
5.4

33.8 ✓
34.2 ✓
68.0 ✓ 2.67 ✓

329.4
5.4
333.9
5.6

36.0 ✓
31.7 ✓
67.7 ✓ 2.69 ✓
2.68
Mean 2.66

1 0
12 55

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1896phae.proj.1340.

July 17. 1896.

I comp. with 4 Ind. to right and below.

325. 1
10. 7
324. 1
11. 1

45.6 ✓
47.0
92.6 ✓ 1.AK ✓

327.9
10.9
326.6
11.8

43.0 ✓
45.2 ✓
88.2 ✓ 1.96 ✓
1.90 ✓

Index to left and above.

57.7
108.0
60.0
94.2

50.3 ✓
34.2 ✓
84.5 ✓ 2.06 ✓

61.2
93.5
58.2
98.0

32.3 ✓
39.8 ✓
72.1 ✓ 2.KK ✓
2.2 ✓
Mean 2.0A ✓

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1896phae.proj.1340

July 17. 1896.

R comp. with ⊥
Index to left and above.

50.5 < ⊥ dis.
102.9 52.4 ✓
55.6 45.4 ✓
101.0 98.8 ✓ 1.71 ✓

54.9
100.2 45.3 ✓
52.8 53.0 ✓
~~106.8~~ 105.8 98.3 ✓ 1.70 ✓
1.70 ✓

Index to right and below.

142.7
194.5 51.8 ✓
146.2 42.6 ✓
188.8 94.4 ✓ 1.80 ✓

146.4
189.8 43.4 ✓
144.4 47.9 ✓
192.3 91.3 ✓ 1.66 ✓
1.66 ✓
Mean 1.77

W. finds on examination that head piece on Plate V has moved laterally: the lid of Plaster of Paris in which it was too softened and the head dragged to one side and cut off part of one pencil.

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1896phae.proj.1340

July 21, 1896. (Tuesday)

Σ 2675 : κ Cephei : Phot H : W : obs

20 13 +77.3
16 13
4 0 com

Position angle = 110° : distance = 8″ ;
magn = 4.0 and 8.1.

J nadir to right and below.

118.7 < brighter dis.
139.8 21.1 >
119.2
139.2 20.0 > 3.71 >
41.1 >

119.4
138.7 19.3 >
120.3
140.3 20.0 > 3.81 >
39.3 >

J nadir to left and above.

28.0
49.8 21.8 >
30.2
48.4 18.2 > 3.77 >
40.0 >

26.9
47.2 20.3 >
28.1
49.6 21.5 > 3.67 >
41.8

Mean z = 3.74

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1896phae.proj.1340

July 21. 1896.

Measurement of Iapetus with Phot I: Wolb

~~+4~~ 44 −13.5

~~16~~ 44

~~Pl~~ 0

Index above.

114.7 < comp stars dia

8 5 122.9

113.2 8.2 >

123.6 10.4 > 5.45 >

18.6 >

114.3

8 8 123.3 9.0 >

113.4 9.1 >

122.5 18.1 > 5.51 >

v. KA

Index below.

202.8

9 5 214.0 11.2 >

~~203.4~~ 202.4 10.6 > 5.10 >

213.0 21.8 >

204.0

9 8 213.2 9.2 >

203.1 10.9 > 5.28 >

14 ~~0.8~~ 7 yr. Mean Time. 214.0 20.1 > v. 19

mean. v. 34

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1896phae.proj.1340.

July 21. 1896.

Same again: Index below.

		203.0		
9	9	215.2	12.2 >	
		204.3	8.7 >	5.19 >
		213.0	20.9 >	
		~~208.8~~	205.2	
9	12	213.5	8.3 >	
		202.4	10.3 >	5.45 >
		213.7	18.6 >	✓.32

Index above.

		113.5		
9	15	122.7	9.2 >	
		112.3	11.4 >	5.23 >
		123.7	20.6 >	
		112.7		
9	17	123.7	11.0 >	
	53.0	114.1	8.1 >	5.39 >
14	13.2	122.2	19.1 >	✓.31
			Mean	✓.32

comp. stars = −13°: 3986 (6.0)

Observation rather difficult on account of bright moonlight & haze

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1896phae.proj.1340

July 21. 1896.

9 30 Experiments with Phot V on west building.

W. and Cam experiments on equalization of images.

R Draconis : Wobs

16 26 +67.4
18 6
1 40

10 4 0 3 var : var 2 p Wobs.
estimate = 10.8

T Urs. Maj. W.obs.

12 33 +60.4
18 23
14 10

9 1 var : var 3 S . Wobs.
10 Estimate = 12.2
observation difficult on account of haze + moon-

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1896phae.proj.1340.

July 21. 1896.

higher: observation somewhat uncertain.

Star r as near as can be determined in difficult atmospheric conditions seems a little brighter than star g: hence comp. was made between stars g and s.

Chas. T. also makes star r slightly brighter than star g.

R. Carrisp. W. obs.

23	52	+49.7
18	42	
-5	10	
6	50	

10 24 r ~~4~~ 3 var: var 2 s W: obs

estimate = 11.8

S Carrisp. W obs

1	10	+72.1
18	55	
-6	15	
5	45	

10 50 l 1.5 var: var 4.5 n W. obs

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1896phae.proj.1340

July 21, 1896.

estimate = 10.6

star may be higher than when regarded as comp. than: it is ~~a little~~ about 3 grades brighter than k and still brighter than l; ~~Phot~~ recent observations with Phot. T. make m about 0.8 magn. brighter than m, which is about as it is to-night; so that comps. had to be made between l and m.

β Lyrae : Phot V. Wolf

	~~181.9~~			
	182.5	< β dur.		
11	10	252.4		
		187.5	69.9 >	0.97 >
		248.0	60.5 >	
			130.4 >	
		185.5		
11	13	243.3	57.8 >	
		184.0	68.9 >	1.05 >
		252.9	126.7 >	1.01 >

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July 21. 1896.

		181.8		
"	15	252.2	70.4 >	
		188.3	58.1 >	1.01 >
		246.4	128.5 >	
		186.1		
"	12	246.6	60.5 >	
10	14 >	182.9	70.3 >	0.96 >
16	14 6 0	253.2	130.8	0.98 >
				mean = 1.00 >
		174.5	Arms ds.	
11	26	260.4	86.3 >	
"		175.0	83.0 >	0.20 >
		254.0	169.3 >	
		173.7		
11	31	257.6	83.9 >	
"		177.9	76.1 >	
		254.0	160.0 >	0.38 >
				0.29 >
		173.3		
11	37	259.0	85.7 >	
"		175.7	87.8 >	0.13 >
		263.6	173.0 >	

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July 21, 1896.

11 11 41	173.0			
	258.0	85.0 >		
	171.9	89.0 >	0.11 >	
11 32 >	260.9	174.0 >	0.12 >	
A135			mean = 0.20 >	
16 33 45				

W much abs.

	185.8	< B dis.		
12 2	260.2		74.4 >	
	189.7		57.2 >	0.95 >
	~~246.8~~	246.9	131.6 >	
	181.1			
12 7	255.1		74.0 >	
	181.4		63.9 >	0.82 >
	245.3		137.9 >	0.88 >
	183.0			
12 12	253.5		70.5 >	
	176.0		71.8 >	0.73 >
	247.8		142.3 >	
	177.2			
12 10	251.7		74.5 >	
12 9	186.6		60.2 >	0.88 >
A31	246.8		134.7	0.80 >
17 7 45 <				mean = 0.84 >

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1896phae.proj.1340

July 21. 1896.

R R Cygni : West Equatorial : Chamabs.

Along to haze, fog, and very heavy dew collecting on objective glass but little could be done : owing to the fact that no scale of magn. or distances was given with photographic chart, it could not be conveniently used : so Vol 5 D.M was used. and corresponding lithographic chart. From vol 13-14, 1893-5. Astronomical Journal, p 103; position was found and region looked up on chart and then identified with absolute certainty with telescope: from comparisons of position in 1855 in above Journal with D.M stars on chart, a star was seen which was thought to be var: it is followed by D.M. + 44°; 3573 closely and is preceded by D.M + 44°; 3569 and was perhaps about 3' or 4' south of D.M + 44° ; 3573 : it is apparently not given on D.M. chart nor in D.M. vol: star suspected to be var is red and from comps. of D.M stars adjacent observer thinks 12 0 magn. is approx 9.2 or 9.3

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1896phae.proj.1340

July 23. 1896. (Thursday)

Σ 2840: 147 Ephem B : Phot R : Wobs.

21	48	+55.2
16	18	
−5	30	
6	30	

Position angle = 200° : distance = 20"
magn = 5.8 and 7.0
Index right and above.

	183.8	← mean dia	
8 1	250.7		
	183.0	66.9 ✓	
	248.7	65.7 ✓	0.92 ✓
		132.6 ✓	
	180.2		
8 9	249.6	69.4 ✓	
	180.2	70.8 ✓	0.77 ✓
	251.0	140.2	0.84 ✓

Index to left and below.

	271.0		
4 4	343.0	72.0 ✓	
	270.2	71.2 ✓	0.71 ✓
	341.4	143.2 ✓	

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1896phae.proj.1340

July 23. 1896.

	270.2			
8 6	343.5	73.3 ✓		
	270.1	70.9 ✓	0.69 ✓	
	341.0	144.2 ✓	0.70 ✓	
			Mean = 0.77 ✓	

Same again.
Index left & below. Cross do.

	272.9			
8 10	343.1	70.2 ✓		
	273.2	67.6 ✓	0.82 ✓	
	340.8	137.8 ✓		

	271.8			
8 13	343.0	71.2 ✓		
	269.0	76.2 ✓	0.69 ✓	
	~~340.0~~	147.4 ✓	0.72 ✓	
	342.2			

Index right & above.

	270.9			
8 19	343.8	72.9 ✓		
	270.0	72.0 ✓	0.68 ✓	
	342.0	144.9 ✓		

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1896phae.proj.1340

July 23, 1896.

273.0			
3 41.5	68.5 ✓		
270.5	71.4 ✓	0.78 ✓	
34 5.0	139.9 ✓	0.73 ✓	
		Mean = 0.72 ✓	

Seventh magn. star near previous double
W obs

Index below.

355.0	∠ right hand image dist.
81.0	46.0
353.0	47.2
80.2	
353.3	46.7
79.8	
353.8	47.8
81.6	
356.6	44.6
81.2	
353.3	42.9
82.2	

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1896phae.proj.1340

July 23. 1896.

Reject. Images too far apart.

Index below
356.7 ∠ right hand image dots
80.9
Index above
350.0 ∠ left " " "
81.6

Images readjusted.

353.2 ∠ left " "
83.3 90.1 ✓
Index below 83.5 ✓ 0.12 ✓
355.2 ∠ right " " 173.6 ✓
78.7

355.4 ∠ ~~right~~ left
79.0 83.6 ✓
Index above 94.1 ✓ 0.04 ✓
349.5 177.7 ✓ 0.08 ✓
∠ left "
83.6

350.0 ∠ left " "
82.4 92.4 ✓
Index below 83.8 ✓ 0.08 ✓
354.6 ∠ right " 175.7 ✓ "
77.9

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1896phae.proj.1340

July 23. 1896.

356.1
79.4 < right hand image dis.
Index above
350.0
82.9 < left

83.3 ✓
92.9 ✓
176.2 ✓ 0.07 ✓
Mean = 0.08 ✓

Same again. Coarse obs.
Index above.
354.2 < left. rim dis.
79.1
Index below.
352.0 < right dis.
2.0

84.9 ✓
92.0 ✓
176.9 ✓
0.06 ✓

349.8 < right dis.
4.5
Index above.
345.3 < left dis.
0.3

94.7 ✓
85.3 ✓
180.0 ✓ 0.0
0.00 ✓
0.03 ✓

~~3~~ Index above.
352.1 < left dis.
79.2 < Index below.
351.9 < right dis.
2.0

87.1 ✓
90.1 ✓
177.2 ✓
0.05 ✓

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1896phae.proj.1340

July 23. 1896.

Index below.

9 13	3 ⩕ 4.0	86.5 ✓
	A 0.⩕ < right dis.	89.1 ✓
	Index above.	175.6 ✓
	3 ⩕ 3.2	0.08 ✓
	A 2.3 < left dis.	0.06 ✓
		mean = 0.04 ✓

9 30 Cloudy somewhat.

Σ 2863 : ζ Cephei : Phot 34 : Wolb

22	0	+64.0
18	0	
-4	0	
8	0	

Position angle = 280° : Distance = 8"
magn. = 4.5 and 6.6 below.
Index to right and ~~above~~ below.

	199.5	< brighter dis.
9 38	239.4	39.9
	14.7	49.9
	64.6	89.8 — 1.92
	13.0	
	63.8	50.8 — 1.88
	199.2	42.1
	241.4	92.9 — 1.84

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1896phae.proj.1340

July 23. 1896.

Index to left and above.

108.5		
150.3	41.8	
102.8	50.8	
153.6	92.6	− 1.84

104.4		
152.6	48.2	− 1.88
104.8	41.4	
149.2	89.6	− 1.92

Mean = − 1.88

9 45

Observations thro gun-stuck domes.

Σ 2822 : η Cygni : W. obs.

21	38	+28.2
18	15	
−3	23	
8	37	

10 0 Too cloudy to see companion.

10 15 Cloudy and growing worse.

10 20 Too thickly clouded for anything farther.

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1896phae.proj.1340

July 25. 1896. (Saturday.)

Willis Nav: Plut 5: W. obs.

20	31	+17.7
16	38	
13	53	
8	7	

Index to right and above.

8 17 15

179.9	< comp. mean dis.	
236.4		
178.7	56.5 <	
237.2	58.5 <	
	115.0 <	1.30 <

8 19 16

180.3		
236.9	[illegible].6 <	
179.9	59.0 <	
238.9	115.6 <	1.29 <
		1.30 <

I Index to left and below. 1

8 21 55

270.7	57.5 <	
328.2		
268.8	58.6 <	
327.4	116.1 <	1.28 <

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1896phae.proj.1340

July 25. 1896.

	266.0	60.7 <	
8 23 40	326.7		
4 | 8 2 6 <	268.0	√A.K <	
8 20 31.5 <	326.4	119.1 <	1.21 <
−25			1.2K <
8 20 7 >			1.27 < = mean.

~~8 26 28~~	269.2	√7.0 <	
8 26 28	326.2		
	267.7	√9.7 <	
	327.4	116.7 <	1.27 <

	267.9	√9.6 <	
8 28 9	327.5		
	270.3	√7.7 <	
	328.0	117.3 <	1.2√ <
			1.26 <

II Index to night and above.

	355.6	63.A <	
8 30 58	59.4		
	357.9	√A.√ <	
	56.4	122.3 <	1.1K <

	359.4	62.0 <	
8 32 15	61.4		
4 | 11 7 5~~8~~0 <	354.4	6K.2 <	
8 29 ~~25~~ 28 <	58.6	126.2 <	1.06 <
8 29 3 >			1.10 <
			1.1A < mean.

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1896phae.proj.1340.

July 25. 1896.

Found that Phot was not pushed
way in: pushed it in and refocused.

Bond #394. Arnold + Dent # 958

8h 38m 0s.0 8h 38m 24s.5

175.4
241.2 6V.8<

8 43 2

172.5
241.0 62V<
~~126.3~~ 124.3< 1.01<

178.9 V9.1<
238.0

44 41

176.9 63.3<
240.2 122K< 1.1K<
1.0A<

II Index to left and below.

265.2 6K.8<
330.0 62.2<
266.0 127.0<
~~330.4~~ 328.2 1.0K<

8 47 ~~47~~ 20

267.1 62.V<
329.6

8 48 45

4(23 49< 26
8 4V- V-7 2< -25
8 4V- 32

266.9 61.0<
327.9 123.V< 1.2< 1.0A< 1.0 K beam.

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July 25. 1896.

		268.9			
			V9.4<		
8	51	7	327.7		
		265.2	6V.2<		
		331.0	12V.2<	1.0K<	
		265.6	6V.V<		
8	52	58	331.1		
		265.7	63.3<		
		329.0	12A.2<	1.00<	
				1.0K<	

IV Index to right and above

		176.2			
			6V.7<		
8	55	44	241.9		
		179.2	V4.2<		
		238.0	12K.V<	1.10<	
		179.4			
			V4.3<		
8	57	51	237.7		
		176.7	61.2<		
		238.5	120.1<	1.19<	
				1.1K<	
				1.09<	Mean.

4(17 V0<

8 V4 27.V<
-2V

8 V4 03 >

		173.6			
#9	0	29	238.6	6V.0<	
				62.V<	
		175.9	127.V<	1.03<	
		238.4			

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1896phae.proj.1340

July 25. 1896.

178.9 (1.06) >
9 2 0 238.7 59.8 <
65.0 <
175.7 124.8 < 1.09 <
240.7

I Index to left and below

262.7
9 4 12 332.9 70.2 <
69.2 <
264.0 139.4 < 0.79 <
333.2

260.1 (0.72) >
9 5 50 324.0 73.9 <
72.5 <
4 | 12 20 < 262.2 146.4 < 0.60 <
9 3 6.2 < 3347 M = 0.89 >
+20
9 2 41 >

261.5
9 7 38 334.9 73.4 <
74.4 <
260.7 147.8 < 0.62 <
335.1

262.1 (0.63) >
9 9 17 334.9 72.8 <
74.0 <
260.1 146.8 < 0.64 <
334.1

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1896phae.proj.1340

July 25, 1896.

VI Index to right and above.

9 11 47

173.0
240.3 67.3 <
176.9 60.4 < 1.03 <
231.3 127.7 <

(0.98) >

9 13 19

176.9
242.0 65.1 <
174.3 67.8 < 0.92 <
242.1 132.9 <

4(42 1 <

9 10 30.2 < M = 0.80 >
-25
9 10 5 >

---

9 15 18

174.9
242.0 67.1 <
176.9 64.4 < 0.95 <
241.3 131.5 <

9 17 3

176.0 (0.94) >
240.2 64.2 <
174.4 67.5 < 0.94 <
241.9 131.7 <

VII Index to left and below.

9 19 28

264.2
332.3 68.0 <
265.7 66.3 < 0.89 <
332.0 134.3 <

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1896phae.proj.1340

July 25. 1896.

263.5
332.9 69.4 <
261.6 73.4 <
335.0 142.8 <

(0.80) >
0.72 <
M = 0.87 >

9 41 7
4 | 72 56 <
9 18 14 <
−25
9 17 49 >

263.3
333.7 70.4 <
262.6 68.9 <
321.5 139.3 <

0.79 <

9 23 5

261.5
334.8 73.3 <
262.0 71.4 <
333.4 144.7 <

(0.74) >
0.68 <

9 24 50

VIII Index to right and above.

172.2
243.9 71.7 <
177.9 64.1 <
242.0 135.8 <

0.86 <

9 27 33

176.0
242.0 66.0 <
172.4 74.2 0 <
244.4 138.0 <

(0.84) >
0.81 <
M = 0.79 >

9 29 16
4 | 24 44 <
9 26 11 <
−25
9 25 46 >

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1896phae.proj.1340

July 25. 1896.

173.0

9 32 8 — 243.9 — 70.9 <

175.9 — 67.1 <

243.0 — 138.0 <

0.81 <

(0.84) >

177.0

9 33 50 — 241.5 — 64.5 <

173,0 — 71.0 <

244.0 — 135.5 <

0.87 <

IX Index to left and below.

262.1

9 36 20 — 336.0 — 73.9 <

260.8 — 72.8 <

333.6 — 146.7 <

0.64 <

(0.62) >

261.0

9 37 59 — 334.2 — 73.2 <

4 (20 20 < — 261.9 — 75.0 <

9 35 05 < — 336.9 — 148.2 <

25

9 34 40 >

9m = 0.73 >

260.5

44 58 — 334.5 — 74.0 <

261.3 — 72.9 <

334.2 — 146.9 <

0.64 <

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1896phae.proj.1340.

44 50

July 25, 1896.

261.5
395.5 74.0<
260.5 74.6<
335.1 148.6<

0.62 >
0.60 <

9 46 58

X Index to right and above.

174.0
243.5 69.5<
172.4 72.3<
244.7 141.8<

0.74 <

9 49 7

174.0
243.0 69.0<
172.6 72.1<
244.7 141.1<

(0.74) >
0.75 <

9 50 50
4(191 46<
#9 47 -6.2
-25-
9 47 31 >

M = 0.68 >

170.7
246.9 76.2<
172.9 70.6<
243.5 146.8<

0.64 <

9 56 22

174.5
242.1 67.6<
172.2 71.2<
243.4 138.8<

(0.72) >
0.80 <

9 58 20

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July 25. 1896.

XI Index to left and below.

259.2
336.2 77.0 <
260.0 77.3 <
337.3 154.3 < 0.49 <

257.0 (0.44) >
336.1 79.1 <
257.8 80.4 <
338.2 159.5 < 0.39 <

M = 0.58 >

257.7
336.0 78.3 <
258.6 78.4 < 0.44 <
337.0 156.7 <

256.7 (0.40) >
337.5 80.8 <
259.7 80.3 < 0.36 <
340.0 161.1 <

XII Index to right and above.

347.0
67.2 80.2 <
350.0 74.7 < 0.48 <
647 154.9 <

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	349.0		(0.49) =
10 9 50	64.9	75.9 <	
4(20 33 <	348.2	77.9 <	0.50 <
10 6 23.2 <	66.1	153.8 <	M = 0.44 >
−20			
10 5 58 >			
	347.2		
10 12 0	66.7	79.5 <	
	347.5	77.5 <	0.44 <
	65.0	157.0 <	
	350.9		(0.50) >
0 14 2	64.0	73.1 <	
	350.2	77.8 <	0.56 <
	68.0	150.9 <	

XIII

Index to left and below.

	74.2		
10 16 46	165.5	91.3 <	
	76.7	79.9 <	0.17 <
	156.6	171.2 <	
	80.4		(0.22) >
10 18 23	158.1	77.7 <	
4(21 11 <	75.7	88.2 <	0.27 <
10 15 17.8 <	~~162.2~~	165.9 <	
−20		163.9	M = 0.36 >
10 14 ~~43~~ 53 >			
~~−20~~			
~~10 54 18~~			

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July 25. 1896.

	79.4		
10 20 50	157.9	78.5 <	
	92.2	90.8 <	0.20 <
	163.0	169.3 <	
	75.6		(0.20) >
10 22 47	163.6	88.0 <	
	79.3	81.3 <	0.20 <
	160.6	169.3 <	

XIV Index to night and above.

	173.1		
10 25 2	244.0	70.9 <	
	170.0	77.8 <	0.60 <
	247.8	148.7 <	
	168.7		(0.64) >
10 26 43	245.0	76.3 <	
4 (10 22 <	172.4	68.5 <	0.68 <
10 23 5 0.5 <	240.9	144.8 <	M = 0.42 >
10 23 25 >			

	173.3		
10 31 40	241.0	67.7 <	
	170.6	76.2 <	0.70 <
	246.8	143.9 <	

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31 40

July 25. 1896.

171.3

10 33 28 248.4 77.1 < 0.70 >

174.2 66.9 <

144.0 < 0.69 <

247.7

XV. Index to left and below.

254.0

10 35 51 339.8 85.8 <

260.1 76.9 < 0.33 <

162.7 <

237.0

258.8 (0.31) >

10 37 32 336.2 77.4 <

253.4 82.8 < 0.29 <

164.9 <

340.9 M = 0.50 >

4 1.8 31 <

10 34 37.8 < 151

-20

10 34 13 >

250.2

10 38 35 339.3 88.5 <

261.8 73.7 < 0.34 <

162.2 <

335.5

259.3 (0.29) >

10 41 25 337.8 78.5 <

252.0 89.0 < 0.24 <

167.5 <

341.0

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July 25. 1896.

XVI Index to right and above.

~~25~~

170.7

D 43 45

248.2 77.0 <

173.5 72.0 <

245.5 149.0 < 0.5-8 <

173.5 (0.0-6) >

10 45 5

243.0 69.5 <

4(168 5-0 < 168.0 82.9 < 0.5-3 <

10 42 12.5 < 150.9 1-52.4 <

-2.5

10 41 ~~47~~ 47 > M = 0.42 >

~~48~~

166.7

D - 48 17

248.2 81.5 <

175.9 71.0 < 0.5-3 <

246.9* 1-52.5 <

(0.5-0) >

174.0

10 49 53

245.5 71.5 <

83.2 <

166.8 1-54.7 < 0.48 >

~~241.4~~ 250.0

XVII Index to left and below

253.3

10 52 23

343.3 90.0 <

254.0 81.0 < 0.17 <

338.0 171.0 <

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July 25. 1896.

	257.7		(0.20) >
10 54 0	337.1	79.4 <	
4 (264 33 <	254.0	89.0 <	0.22 <
10 57 08.2 <	343.0	168.4 <	
−20			M = 0.35 >
10 56 48. >			

	250.9		
10 58 19	342.0	91.1 <	
	255.6	81.4 <	
	337.0	172.5 <	0.14 <

	257.1		(0.16) >
11 0 20	339.0	81.9 <	
	253.9	88.0 <	0.19 <
	341.9	169.9 <	

XVIII

Undex to night and above

	344.9		
11 2 36	68.6	83.7 <	
	349.6	79.6 <	0.32 <
	69.2	163.3 <	

	349.3		(0.36) >
11 4 12	64.9	75.6 <	
4 (57 25	345.7	84.1 <	0.39 <
11 01 24.2 <	69.8	159.7 <	
−20			M = 0.26 >
11 0 56 >			

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1896phae.proj.1340

July 25, 1896.

345.2

11 8 37

70.7 85.5 <
349.0 78.0 <
67.0 163.5 <

0.31 <

347.0

(0.30) >

11 10 42

67.2 79.3 <
346.0 84.7 <
70.7 154.0 <

0.30 <

XIX

Index to left and below.

11 13 15

72.9
163.4 90.5 <
95.5 86.4 <
161.9 176.9 <

0.06 <

76.5

(0.06) >

11 14 50

163.0 86.5 <
73.3 90.7 <
164.0 177.2 <

0.05 <

11 11 47 <
- 21
11 11 26 >

204

MM = 0.18 >

70.7

11 22 40

163.5 92.8 <
76.2 86.8 <
163.0 179.6 <

0.01 <

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22 40

July 25. 1896.

		77.2		(0.04) >
11	4	15	162.2	85.0 <
			72.1	91.9 < 0.06 <
			164.0	176.9 <

XX Index to right and above.

			167.0	
11	28	25	250.7	83.7 <
			172.1	74.7 < 0.41 <
			246.8	158.4 <

			172.2	(0.42) >
11	30	0	248.1	75.9 <
			168.7	82.0 < 0.42 <
			250.7	157.9 <
4	10	20 <		
11	26	20 <		M = 0.23 >
11	25	55 >		

			165.0	
11	31	35	250.9	85.9 <
			171.7	75.3 < 0.36 <
			247.0	161.2 <

			171.2	(0.40) >
11	33	51	247.2	76.0 <
			167.0	81.0 < 0.44 <
			248.0	157.0 <

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July 25, 1896.

XXI Index to left and below.

		251.2		
11	35	343.3	92.1 <	
		256.9	79.3 <	0.16 <
		336.2	171.4 <	
				(0.18) >
		255.2		
11	37 42	338.9	83.7 <	
	4(18 13 < 133	256.0	85.6 <	0.20 <
11	34 33.2 <	341.6	169.3 <	777 = 0.29 >
11	34 08 7			
		252.3		
11	38 20	342.6	90.3 <	
		257.2	79.3 <	0.20 <
		336.5	169.6 <	
				(0.10) >
		253.9		
11	41 0	338.0	84.1 <	
		251.6	90.4 <	0.10 <
		342.0	174.5 <	

XXII Index to right and above.

		345.0		
11	43 18	70.5	75.5 <	
		~~350.4~~	344.8 82.1 <	
		66.9	157.6 <	0.43 <

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July 25. 1896.

	344.0		(0.30) >
	~~67.5~~	69.0	85.0 <
	345.0		86.2 < 0.17
	71.2		171.2 <
			M = 0.22 >

	342.1		
	71.9	89.8 <	
	345.9	82.0 <	0.16 <
	67.9	171.8 <	
			(0.20) >
	346.1		
	70.6	84.5 <	
	346.2	82.3 <	0.20 <
	68.5	166.8 <	

XXIII

Index no left and below.

	72.8		
	166.2	93.4 <	
	75.1	88.3 <	
	163.4	181.7 <	−0.03
		178.3 <	
			(−0.01) >
	75.6		
	162.6	87.0 <	
	72.5	92.3 <	0.01
	164.8	179.3 <	
			M = 0.10 >

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July 25, 1896.

	75.2			
11 58 16	164.8	89.6 <		
	78.4	84.0 <		0.12 <
	162.4	173.6 <		
	76.3			(0.06) >
11 59 47	164.7	88.4 <		
	72.2	92.2 <		
	164.4	180.6 <		−0.01 <
		179.4 <		

XXIV

Index to right and above.

~~+ 59 47~~	167.5			
12 1 30	248.2	80.7 <		
	172.0	76.1 <		0.44 <
	248.1	156.8 <		
	170.7			(0.42) >
12 2 49	246.2	75.5 <		
	167.9	82.9 <		0.41 <
	250.8	158.4 <		
				M = 0.24 >

K (2 22 <

12 0 35 <

12 0 10 7

~~Index to left and below.~~

	166.6			
12 4 29	247.7	81.1 <		
	171.5	79.7 <		0.37 <
	251.2	160.8 <		

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1896phae.proj.1340

4 29 July 25. 1896.

169.4
12 5 32 246.0 76.6 <
109.2 80.7 < (0.40) >
249.9 157.3 < 0.43 <

XXI

Index to left and below.

254.2
12 1 57 344.1 89.9 <
254.1 88.1 < 0.04 <
342.2 178.0 <

251.9
12 9 33 341.8 89.9 < (0.04) >
254.1 88.6 <
342.7 178.5 < 0.03 <

M = 0.22 >

12 6 52.8 <
12 6 28 >

Bond #394 Arnold + Dunn #958

$12^h\ 15^m\ 0.0^s = 12^h\ 15^m\ 24.6^s$
15 00.
— 24.6

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1896phae.proj.1340

July 2 V. 149 $.

β Lyrae Pht. V. Cramer's.

(Pht. C. V.)

	109.8	Pht. Comp. * = V Lyrae.
12 32	14V.2	3V.4<
	104.8	
	142.2	3 9.4< / 7 4.8< 2.3V >
	110.2	3 3.8<
12 3K	14K.0	
	109.3	
	14K.3	3V.0< / 6 8.8< 2.VV > / 2.KV >
	110.8	3 K.K<
12 37	14V.2	
	109.3	
	147.9	3 0.6< / ~~7 7.0~~ 7 3.0< 2.K1 >
	104.1	3 9.7<
12 40	147.8	
4 (143 <	110.0	3 7.3<
12 35 45<	147.3	7 7.0< 2.2 8 > / 2.3 4 >
12 30 20		Mean = 2.40 >

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1896phae.proj.1340

July 25. 1896.

β Lyrae. Plat. V. (Ft. C. S.) Cram ch.

		111.2	Comp. *	
12	K3	1K2.0	30.4<	
		111.9		
		142.8	30.9<	
			61.7<	2.48>
		112.0	31.0<	
12	K6	143.0		
		113.0	30.9<	
		143.9	61.9<	2.79>
				2.40>
		112.6	30.7<	
12	K2	1K3.3		
		112.2	29.9<	
		141.1	V9.6<	2.47>
		113.0	29.2<	
12	V0	1K2.2		
		112.2	29.6<	
		141.8	V4.8<	2.91>
				2.49>
12 46	40<			Mean = 2.48>

β Lyrae Plat. V. (Ft. C. S.) Cr. ch.

		108.5		
12	53	146.0	37.V<	
		109.0	36.8<	
		147.8	76.3<	2.31>

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July 25. 1896.

	109.0				
1255	147.8	39.2 <			
	108.8				
	145.6	36.2 <			
		76.6 <	2.30	>	
			2.30	>	
	110.5	37.9 <			
1257	146.4				
	107.3	38.5 <			
	145.8	76.8 <	2.36	>	
	109.0	39.2 <			
12.59	148.8				
12 57 00 <	109.3	37.2 <			
	146.1	76.6 <	2.29	>	
			2.32	>	
			2.31	mean.	>

~~Lac~~

β Lyrae (Brt. C. S.) W. Hs.

101.8 Brt. Comp. Star = ν Lyrae.

13 02	151.3	49.5 <			
+ 02	105.3				
	149.6	44.3 <			
		93.8 <	1.81	>	
	105.3	43.8 <			
13 03	149.1				
	100.3				
	150.4	50.1 <			
		93.9 <	1.81	>	
			1.81	>	

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July 2 V. 1896.

13.05

101.9 *
151.2 49.3 <
104.6 46.4 <
151.0 9 V.7 < 1.76 >

13 07

104.9 K V.3 <
150.2
101.8 V-0.0 <
153.2 151.8 9 V.3 < 1.77 >
1.76 >
Mean = 1.7 R >

13 4 10 <

β Lyrae (Brt. C.V.) Weimicks obs.

109.A Brt. comp. * = V Lyrae.
13 10 144.3 3 K.V <
114.7 27.2 <
141.9 6 1.7 < 2.20 >

110.V
13 1V 142.9 32.4 <
111.4
14V.A 3 K.0 < 66.4 < 2.63 >
2.72 >

111.0 32.3 <
13 17 143.3
112.2 36.A <
149.0 6 9.1 < 2.V K >

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July 2V. 1896.

~~13 19~~
13 19
13 V5 >
21
15-215

111.9 32.3 <
1K4.2
110.1 36.9 <
147.0 69.2 < 2V3 >
~~2.VK~~ >
2.63 = mean Greenwich obs.

b Lyrae (Fit. C. V.)

13 27

111.2 29.3 <
140.V
113.8 32.3 <
146.1 61.6 < 2.80 >

~~13 29~~

11K.2 } Reject.
13A.9 } Images lost.

13 40

110.2 26.7 <
137.V
110.2 24.6 <
13V.K V1.3 < 3.22 >
3.01 >

13 46

~~4 14 2~~
~~13 35 30~~

112.8 27.K <
140.2
113.V 23.6 <
137.1 V1.0 < 3.23 >

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July 27. 1896.

111.2
139.2
~~140.2~~ 114.1
146.1

27.4 <
32.0 <
59.4 < 2.42 >
306 >
Mean = 3.04 >

13 49
13 40 >

4(16 2
40 30
13

1896phae.proj.1340

July 24. 1896.

Cloudy.

"

Some clearer. Will try for
χ Cygni. H. Ob.

19	41	+33.4
17	39	
-2	2	
9	5 f	

Clouds.

Var too faint for Photometric R.

9 hr 35 f F1 Var, Var 2 g

Est 12.8

Est in notation of book 9 series I diagram on last page.

Clouds again

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1896phae.proj.1340

July 28 1896
Some what cloudy but will try for

Faint comparison stars for S Persei with photometer F.

26		
2	8	+57.2°
18	32	
-7	36	
4	24	
26	8	
18	38	
8	30	

Clouds again

Region somewhat low so that with moonlight & clouds faint comparison stars cannot be measured at present in fact some of faint comparison stars cannot be seen with ordinary eye piece

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1996phae.proj.1340

July 28. 1896.

β Lyrae : Phot. N : W. obs.
Index to right and above : ν Lyrae = comp. stm.

17.5 < β dis.
10 25 67.4 49.9 >
15.0. ν A. ν >
73.5 10A. K > 1.Kν >

13.9 ν 7.2 >
10 27 71.1
15.4 ν K. 3 >
69.7 111.ν > 1.3A >
1.K2 >

Index to left and below

106.3 ν 1.6 >
10 32 157.9
104.2 ν 6.6 >
160.8 10 4.2 1.K6 >

103.7 ~~7.0~~ 60.0 >
10 34 163.7
10 30 108.0 ν 0.ν >
11 8 152.5 110.ν 1.K1 >
29 30 1.KK >
1.K3 > mean.

1896phae.proj.1340

July 28. 1896.

β Lyrae : Phot. V : Coarse obs.
Index below.

111.6 ~~1V6.V~~ ν Lyrae = comp star.

10 43 1V6.V 44.9 >
110.1 45.8 >
1V5.9 90.7 > 1.90 >

109.7 45.5 >
10 48 1V5.2
112.1 42.7 >
1V4.8 88.2 > 1.96 >
1.93 >
Index above.

189.1 61.8 >
10 V7 2V0.9
187.6 70.7 >
2V8.3 132.V > 0.93 >

188.0 68.V >
2V6.V
11 1
10 52 > 186.1 66.9 >
2V3.0 135.F > 0.87 >
0.90 >
1.93 >
2)2.83 >
1.42 >

11 5 to hands

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1896phae.proj.1340

July 28.1896.

β Lyrae : Phot V : W : obs.

Index above : δ Lyrae = comp. star.

		22.5	< B dis		
11	22	63.2			
			40.7 >		
		21.4	45.1 >		
		66.5	85.8 >	2.03 >	
		18.7			
			44.2 >		
11	23	62.9			
			40.4 >		
		22.0	84.6 >	2.06 >	
		62.4		2.04 >	

Index below

		112.0			
11	29	153.4			
			41.4 >		
		109.8	46.8 >		
		156.6	88.2 >	1.96 >	
		102.9			
			47.8		
		156.7	40.4		
11	29	112.7	87.2	1.97 >	
11	~~26~~ 25 >	153.5		1.96 >	
				2.04 >	
				mean = 2.00 >	

+21
25

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July 28. 1896.

β Lyrae: Phot. V: Gram obs.
Comps. with δ Lyrae, Index below.

11 3 ν

117.ν 31.0 >
14δ.ν
117.0
14δ.δ 31.δ >
62.δ > 2.76 >

11 37

11ν.0 3ν.9 >
1ν0.9
114.9 3ν.6 >
1ν0.ν 71.ν > 2.46 >
+36 1.22 >
Index above. 196.0 ν3.0 > 2.6δ 2.61 >

11 41

249.0
194.0
247.ν ν3.ν >
106.ν > 1.ν0 >

11 44

194.0
248.ν 24δ.ν ν0.ν >

11 39

196.2
2ν0.δ ν4.6 >
104.1 > 1.ν3 >
1.ν2 >
2.61 >
413 >
2.06 = Mean.

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1896phae.proj.1340

July 28. 1896.

S Persei again: Phot ⊼ : W. obs

26

2 8 +57.2

20 35

51 33

6 27

Index to left and above.
Star b comp. with f.

~~dist~~

187.3
229.6 < f dis. 42.3 >
188.9 37.5 > 2.20 >
226.4 79.8 >

12 10

188.6
225.6 37.0 >
186.0 42.6 >
228.6 79.6 > 2.21 >
2.20 >

Index to right and below.

278.0
318.5 40.5 >
279.0 40.8 > 2.16 >
319.8 81.3 >

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1896phae.proj.1340

July 28. 1896.

277.9
319.0 41.1 >
275.2 44.7 > 2.03 >
319.9 85.8 > 2.10 >
mean = 2.15 >

12 16
12 13

Star moving with ∫.
Index to right and below

281.5
313.0 < ∫ dis.
281.2 31.5 >
315.3 34.1 > 2.66 >
65.6 >

12 19

278.9
315.5 36.6 >
279.4 33.4 > 2.51 >
312.8 70.0 > 2.58 >

Index to left and above

9.7
44.0 34.3
13.7 28.4 2.76 >
42.1 62.7

13.2
~~40.9~~ 43.5 30.3 2.81 >
12.2 31.1 2.78 >
43.3 61.4 2.68 = mean

12 ~~24~~ 22
12 22

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1896phae.proj.1340

July 28. 1896.

Stars k comp. with ζ.
I index to left and above.

R 26

2.2	∠ ζ dis.		
52.9	50.7	>	
6.8	43.0	>	1.82 >
49.8	93.7	>	
4.1			
52.4	48.3	>	1.65 >
0.5	52.0	>	1.74 >
~~5.7~~	52.5 100.3	>	

I index to ~~left~~ right and below.

93.7			
148.0	54.3	>	
93.7	50.2	>	1.55 >
143.9	104.5	>	
92.3			
143.1	50.8	>	1.52 >
91.0	54.8	>	1.54 >
145.8	105.6	>	

mean = 1.647

12 31

12 28

Stars n and o cannot be taken tonight on account of moonlight and poor atmospheric conditions.

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1896phae.proj.1340

July 28. 1896.

T. Herculis : Cam: obs.

18	5	+31.0
21	45	
3	40	

Var is 5 grades brighter than D. M. +30°: 3136 = (9.4) : var is 4 grades brighter than D. M. +30°: 3139 = (9.5) : absolute estimate = 9.0 magn.

1 21

above confirmed by W. obs

T. Delphini. Cam: obs.

20	41	+16.0
22	5	
1	24	

As D. M. chart was missing, region could not be identified.

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1892phae.proj.1340

July 28.1896.

β Lyrae : Phot N : Cramb's.

Images above. : comp stars = 4 and 8 Lyrae

Cram Obs.

	195.6			
1.36	248.0	~~+52.4~~	52.4 >	
	194.1		57.5 >	1.42 >
	251.6		109.9 >	
	197.2			
1 33	247.2		50.0 >	
	198.3		49.9 >	1.66 >
	248.2		99.9 >	1.54 >
	Images blurs			
	299.2			
1. 40	328.8		29.6 >	
	295 3		325 >	2.78 >
	327.8		621 >	
	297.9			
1 48	331.1			
	297.0	adjusted images		
1 38 >=	329.4		33.2 >	
13 38 >			32.4 >	2.66 >
15 1			65.6 >	2.72 >
13 37 45				1.54 >
				4.26 >
			Mean =	2.13 >

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1896phae.proj.1340

July 28. 1896.

~~Warwick Obs.~~

β Lyrae : Phot V : Warwick : Obs.

comp. star = 4 anon stars = β Lyrae

Index below!

		~~296.5~~	293.5	< β Lyr.	
1	56	332.1		< images adjusted	
		295.2	38.6 >		
		328.3	33.1 >		2.45 >
			71.7 >		
		298.0			
2	4	327.9	29.9 >		
		297.4	31.9 >		2.79 >
		329.3	61.8 >		2.62 >

Index above.

		199.0	283.0		
	32	~~244.9~~			
2	#	242.3	342.0	< images adjusted	
		~~204.5~~	275.0		
		194.1		43.3 >	
		249.0	341.5		1.70 >
				54.9 >	
				98.2 >	
	37	198.6	280.0		
	9	250.0	340.6	< images adjusted	
2				51.4 >	1.81 >
14	17 >	199.5	2	42.5 >	
	17 >	242.0	3	93.9 >	

2–46 4 64/17

Clouds thicken so observer cannot see stars. Clouds. Thunder storm to the north lightning flashes observer eyes.

	1.76 >
For reasons for retaking last two of above sets, see p. 86 of this vol.	2.62 >
	4.38 >
	Mean = 2.19 >

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1896phae.proj.1340

July 28. 1896.

β Lyrae : Phot N : Cramb. obs.

comp. stars = highest stars = ν Lyrae.

Index

184.8

2.5P 259.0 < β dis

191.8

254.8

2 – 5P Stopped by clouds.

Index

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1896phae.proj.1340

July 28. 1896.

Remarks concerning retaking of last two sets on β Lyrae : Wilmuch : obs. on p 84 of this vol.

The last two sets were rejected and retaken because it was found after last sitting was taken that after reversal of Phot images were separated too far apart by obs. and that wrong pair of images was equalized.

E R Cram.

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1896phae.proj.1340

July 29. 1896. (Wednesday)

Σ 2863 : 88 Cephei : W: obs

22	0	+6 4.0
17	16	
14	44	
7	16	

8 28 Abandoned to try Iapetus.

8 35 all cloudy in that region so will try above double again

Σ 2863 : 88 Cephei : Phot W: obs

22	0	+6 4.0
17	25	
14	85	
7	25	

Index to left and above.

8 45 14.2 < brighter as
62.8
19.5
58.5

8 50 10 lords thick.

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1896phae.proj.1340

July 29. 1896.

20.4 clouds thick
~~58.4~~ 59.1
13.9 to clouds
63.9

Index to right and below.
103.8

Reject above settings as they were taken in a very fragmentary way thro' clouds
Stopped completely by clouds
Thickly cloudy: no chance for further work.

9 55

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1896phae.proj.1340

July 30, 1896. (Thursday).

Iapetus : Phot T. W:obs.

14 40 -13.5
16 50
2 10

Same comp. star used as on previous date of obs. of Iapetus.

Index to left and above.

112.7 ← comp star
123.1
113.0 10.4 >
122.8 9.3 > 5.32
19.7 >

8 31

113.1
122.5 9.4 >
112.9 10.8 > 5.27
123.7 20.12 5.30

8 33

Index to right and below.

202.5
213.8 11.3 >
204.6 9.9 > 5.50
211.5 18.2

8 36

204.2
211.5 7.3 >
202.6 10.7 > 5.52
213.8 18.0 5.51

Mean = 5.403

8 38

13 345 2.00

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1896phae.proj.1340

July 30. 1896.

Same again.

	202.8	10.3	>	
8 40	213.1	8.0	>	5.48
	~~202.9~~	204.0	18.3	
	212.0			

	204.1	7.9	>	
8 42	212.0	10.7	>	5.45
	~~202.6~~	203.6	18.6	5.46
	~~212.6~~	214.3		

Index to left and above.

	293.6			
8 47	302.5	8.9	>	
	294.8	7.2	>	5.76
	302.0	16.1		

	~~294.8~~	294.3		
8 50	302.2			
	293.5	7.9	>	5.70
13. 44F 92 DNT.	302.2	8.7	>	5.73
		16.6	Mean =	5.60
			Final mean =	5.50

Same again

	~~293.0~~		
9 0	~~302.9~~	.9	
	~~294.9~~		
	~~302.0~~		

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1896phae.proj.1340

July 30. 1896.

		295.0			
		303.0	8.0	>	
9	2	293.3	9.7	>	5.56
		303.0	17.7	>	
		293.4			
9	4	302.6	9.2	>	
		295.1	7.5	>	5.68
		302.6	16.7	>	5.62

Index to right and below.

		203.9			
		212.1	8.2	>	
9	7	203.1	9.3	>	5.59
		212.2	17.4		
		204.9			
		212.6	10.7	>	
9	11	204.6	7.5	>	5.58
		212.1	18.2		5.54
14	5.2	Index.			5.58

Same again

		204.8			
		212.0	7.2	>	
9	9	203.8	9.7	>	5.66
		213.5	16.9		

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1896phae.proj.1340

July 30. 1896.

	203.2			
9 10	212.6	9.4	>	5.59
	204.4	8.0	>	5.62
	~~210.0~~	17.4		
		212.4		

Index to left and above.

	293.1			
9 14	302.3	9.2	>	
	293.3	9.3	>	5.46
	302.6	18.5		

	294.3			
9 (15)	303.0	8.7	>	
	292.9	9.7	>	5.47
	302.6	18.4		5.46
			mean =	5.54
			Final mean =	5.55
			Mean of Final mean =	5.53

40

14 12

9 random. W obs.

0	14	+ 26.1
18	25	
54	49	
	11	

Region too low and cloudy.
Region of δ Persei too low and cloudy also

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1896phae_proj.1340

July 30. 1896.

Comp star: Phot N: W. ha.
Index to left and below.

		290.3			
		336.2	Comp star dis		
9	+11	287.8		+59 >	
		336.0		+48.7 >	1.79 >
				94.6 >	
		288.7			
		334.8		+46.1 >	
9	+7	291.6		+42.4 >	1.95 >
		334.0		88.5 >	1.87 >

Index to right and above

		18.8			
		65.8		+47.0 >	
9	+9	17.8		+49.7 >	1.74 >
		67.5		96.7 >	
		17.9			
		67.0		+49.1 >	1.77 >
9	+1	19.0		+46.2 >	1.76 >
9	+8 >	65.2		95.3 >	Mean = 1.82 >

x (172

14 48 0

Comp star = V Lyrae.

Observer was forced to hurry some in setting as clouds were coming somewhat rapidly: consequently some of last settings were taken a little out of cross of field and images did not reverse exactly.

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1896phae.proj.1340

July 30. 1896.

W.P. 441 W. obs.

0 31 +62-8

Region too low and cloudy now

β Lyrae. Comp. star ν Lyrae. Cross hs.
Phot. V. on West Balcony.

12.0 ~~73.7~~ Index right + above.
73.7 61.7 >
12.9 61.3 >
74.2 123.0 > 1.13 >

10 9

Assumed
12.9 57.0 >
69.9
14.5 57 >
70.2 112.7 > 1.36 >
12.4 >

10 10

Index left + below.
110.5 43.3 >
153.8
114.9 37.7 >
152.6 81.0 > 2.17 >

10 17

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1896phae.proj.1340

July 30. 1896.

10	12	113.2	3 A.A >	
10	13 (?)	1V2.0		
	4 (54	112.4	40.0 >	
10	18 30 "	1V2.4	7 A.A	2.23 >
				220 >
				1.2K >
				3.4K >
				1.72 mean.

∇ Androm. W. obs.

0	14	+26.1
19	14	
1	0	
17	0	

moon too near and atmospheric conditions too bad to measure ∇ androm.

M. P. +41 : Phot R : W. obs.

2	21	+62.8
19	31	
-8	0	
+4	0	

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1896phae.proj.1340.

July 30. 1896.

Index to left.

193.8
254.9
197.0
249.3

< van dis. 61.1 >
52.3 > -1.34>
113.4 >

to lands.
to lands.
to lands.
to lands.

197.0
250.2
193.2
253.0

53.2 >
59.8 > -1.35>
113.0 > -1.34>

Index to right.

289.0
339.4
282.0
343.7

50.4 >
61.7 > -1.37 >
112.1 >

282.4
344.4
285.9
339.0

62.0 >
51.1 > -1.35>
113.1 > -1.36>
mean = 1.35>

11 13
4(44 29
11.7 15

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1896phae.proj.1340

July 30. 1896.

β Lyrae : comp. star = β Lyrae : Phot. Wedge

Index above

		26.0		
11	24	59.8	< β Lyrae dis	
		22.0	33.8 >	
		61.6	39.6 >	2.40 >
			73.4 >	
		22.7		
11	26	60.8	38.1 >	
		25.3	33.8 >	2.44 >
		59.1	71.9 >	2.42 >

Index below

		113.4		
11	29	151.0	37.6 >	
		112.5	37.7 >	2.34 >
		150.2	75.3 >	
		115.1		
11	30	150.4	35.3 >	
		115.0	35.2 >	2.49 >
		150.2	70.5 >	2.42 >
11	27 >			Mean = 2.42 >

+109

14 27 15

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1896phae.proj.1340

July 30. 1896.

Cram. obs.

	117.4			
11 38	145.8	28.4 >		
	115.6	33.0 >	2.81 >	
	148.6	61.4 >		
	115.0			
11 39	148.6	33.6 >		
	118.3	28.5 >	2.78 >	
	146.8	62.1 >	2.80 >	
Index above.				
	201.0			
11 44	248.6	47.6 >		
	201.2	41.6 >	1.94 >	
	242.8	89.2 >		
	201.1			
11 47	243.2	42.1 >	2.05 >	
~~11 44~~	201.0	43.0 >	2.00 >	
11 41 >	244.0	85.1 >	Mean = 2.40 >	

X 16 5

16 41 15

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1896phae.proj.1340

July 30. 1896.

S Persei: Phot I: W. obs.

r	p	+57,2
20	40	
15	28	
6	32	

Star n comp. with f

J index to left.

10.4	< f dis.	
46.8	36.4 >	
10.6	36.4 >	2.42 >
47.0	72.8 >	

12 13

12.2		
43.4	31.2 >	
13.7	32.3 >	2.73 >
46.0	63.5 >	2.58 >

J index to right.

95.0		
136.4	41.4 >	
101.0	33.4 >	2.35 >
134.4	74.8 >	

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1896phae.proj.1340

July 30, 1896.

	103.5			
12 13	134.2	30.8 >		
	97.4	43.9 >	2.36 >	
	141.3	74.7 >	2.36 >	
		mean =	2.47 >	

Star 0 comp with f

100.4			
12 16	132.0	< f dis.	
	102.2	31.6 >	
	135.8	33.6 >	2.67 >
		65.2 >	

	104.6		
12	134.2	29.6 >	
	101.0	36.2 >	2.65 >
	137.2	65.8 >	2.66 >

Index to left.

	190.5		
	219.4	28.9 >	
	192.4	30.7 >	2.87 >
	223.1	59.6 >	

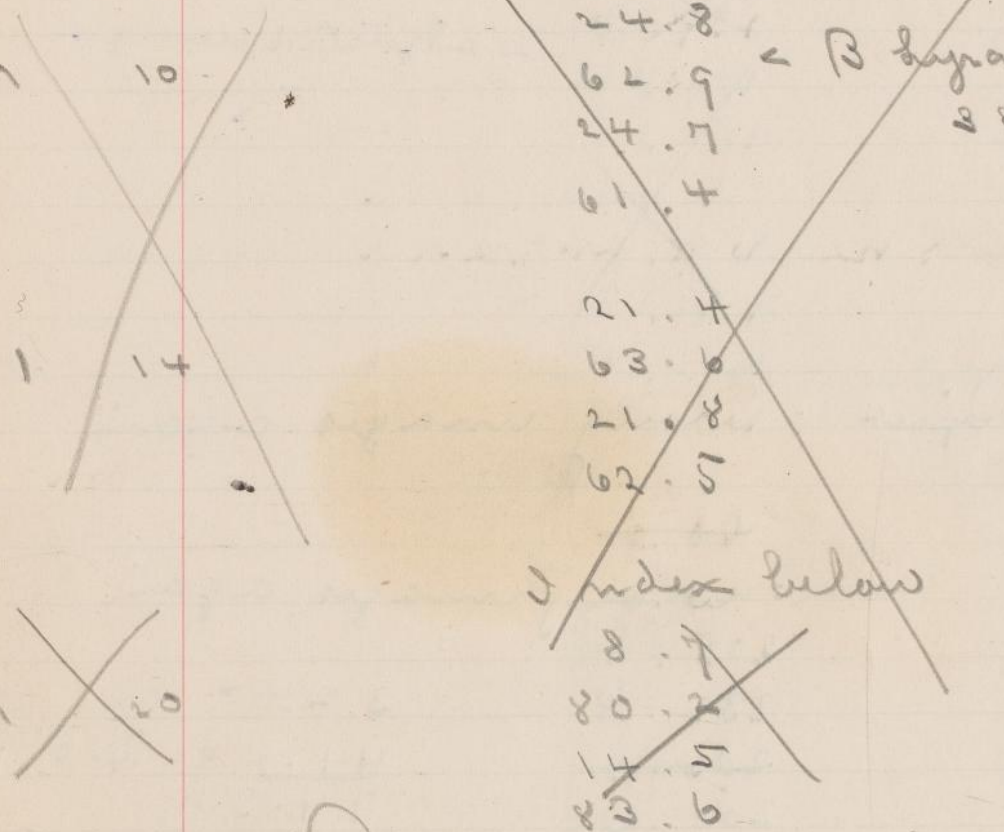
	194.2			
12 21	219.9	25.7 >		
	194.2	26.8 >	3.16 >	
	221.0	52.5 >	3.02 >	
		mean =	2.84 >	

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1896phae.proj.1340

July 30, 1896.

β Lyrae: Phot V: comp. star = 8 Lyrae: Wilnich obs.



Index above

24.8
62.9
24.7
61.4

< β Lyrae dis.
28.1

21.4
63.6
21.8
62.5

Index below

8.7
80.2
14.5
83.6

Reject: wrong images used.

Index below.

113.7
153.5
118.6
150.0

39.8 >
31.4 >
41.2 >

2.47 >

119.3
148.2
113.8
150.2

29.9 >
36.5 >
65.4 >

2.66 >
~~2.58~~
2.56 >

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1896phae.proj.1340.

July 30. 1896.

Index above

103. 5

~~139~~ 8 < adjusted images

Reject : wrong images again

~~60.0~~

: wrong images again

205. 4

237. 8 → 32.4 →

~~206.1~~ → 41.9 → 2.37 →

200. 3 → 74.3 →

242. 2

202. 0

243. 7 → 41.7 →

203. 6 → 39.9 → 2.15 →

243. 4 → 81.6 → ~~2.26~~ 2.16 →

Mean = ~~2.37~~ 2.41 →

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1896phae.proj.1340

July 30, 1896.

Grand obs
Index above.

		198.3	46.1 >	
2	14	244.4	48.4 >	1.80 >
		197.7	94.5 >	
		246.1		

		198.6		
2	17	246.0 < adjusted image		
		199.8	47.4 >	1.86 >
		244.3	44.5 >	1.83 >
			91.9 >	

Index below

		~~302.6~~ 302.0		
		~~286.2~~	27.1 >	
2	25	331.1	28.2 >	3.04 >
		303.8	55.3 >	
		332.0		

~~2~~	~~2~~	309.8	30.0 >	2.86 >
2	29	333.4	29.9 >	2.95 >
2	21 >	304.1	59.9 >	1.83 >
14	21 >	334.0		4.78 >
			Mean	= 2.39 >

4 | 85 7

19 21 14

Last settings of group made with some difficulty on account of haze + cloud.

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1896phae.proj.1340

July 30. 1896.

Winnch obs
Index below.

38 294.1
34 324.4

2 40 Stopped by haze and clouds

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1896phaeproj.1340

July 31, 1896. (Friday).

Iapetus: Phot. T. Wilds.

14	40	-13.5
16	55	
2	15	

opaque

comp. star in 1st. two of following ~~is~~ is the same as last night = -13° : 3986 (6.0 mags)

Index to left and above.

168.0 < comp star dist.

8	19	177.0		
		167.8	9.0 >	
		~~176.9~~	177.5 9.7 >	
			18.7	5.44 >

		167.5		
8	24	177.6	10.1 >	
		168.0	9.1 >	5.38 >
		177.1	19.2 >	5.41 >

Index to right and below.

		258.5		
		268.5	10.0 >	
8	29	~~257.4~~	258.0 9.0 >	5.40 >
		267.0	19.0	

		257.5		
8	30	267.0	9.5 >	
		259.2	7.8 >	5.61 >
8	25 >	~~268.9~~	~~6.9~~	
		267.0	17.3 >	5.50 >
			mean	5.46 >

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1896phae.proj.1340

July 31. 1896.

Same again

259.5

8 31 266.8 7.3 > 5.67 >
258.0 9.5 >
267.5 16.8 >

258.4 9.1 > 5.54 >
8 33 267.5 8.7 > 5.60 >
258.5 17.8 >
267.2

Index to left and above

168.0

8 35 177.2 9.2 > 5.33 >
167.6 10.4 >
178.0 19.6 >

167.1

8 36 177.7 10.6 > 5.33 >
8 34 > 168.1 9.0 > 5.33 >
177.1 19.6 > Mean = 5.46 >

Final mean = Mean of means = 5.46 >

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1896phae.proj.1340

July 31.1896.

Same again. groups
6 comp. star in 2 following ~~stars~~ = −12°: 4141
(8.0 mags)

Index to left.

		198.2		
8	58	226.6	28.4 >	
		196.1	30.9 >	
		227.0	59.3 >	2.29 >
		197.9		
8	54	227.4	29.5 >	
		197.5	27.9 >	
		225.4	57.4 >	2.96 >
				2.9 >

Index to right.

		283.8		
8	57	319.0	35.2 >	
		287.0	29.0 >	
		316.0	64.2 >	2.71 >
		288.0		
8	59	316.9	28.9 >	
		285.4	24.0 >	
		319.4	62.9 >	2.7v >
				273 >
8	56 >			Mean 2.42 >

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1896phae.proj.1340

July 31. 1896.

Same again.

Index to right.

9 1	283.0		
	319.5	36.5 >	
	289.0	27.7 >	
	316.7	64.2 >	2.71 >
9 2	288.0		
	316.5	28.5 >	
	285.4	34.8 >	
	320.2	63.3 >	2.76 >
			(2.72) >

Index to left.

9 5	196.4		
	228.1	31.7 >	
	197.8	27.9 >	
	225.7	59.6 >	2.67 >
	~~199.8~~	197.9	
9 6	225.0		
	196.3	27.1 >	
	229.4	~~31.1~~	2.93 >
		~~29.1~~	~~3.01~~
		~~56.2~~	
		58.2	~~2.94~~
			(2.90) >
		Mean	~~2.93~~
			2.81 >

Final value = mean of means = 2.82 >

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1896phae.proj.1340

July 31. 1896.

Same again.

Comp. star is the same as used in the 1st. two sets this evening, which is the same as that used last night. = -13° : 3986 (6.0 mag.)

Index to left and above.

		298.0		
			8.8 >	
9	18	306.8		
			10.3 >	5.39 >
		297.2		
			19.1 >	
		307.5		

~~305.7~~ 296.9

		307.9	11.0 >	
9	17			5.28 >
		297.8	9.1 >	
			20.1 >	5.34 >
		306.9		

Index to right and below.

~~207.6~~ 207.7

		216.0		
			8.3 >	
9	19	208.2		
			8.9 >	5.62 >
		217.1		
			17.2 >	

		207.2		
			9.8 >	5.50 >
9	20	217.0		
			8.4 >	5.56 >
9	18 >	208.8		
			(8.2 >	
		216.2	mean =	5.45 >

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1896phae.proj.1340

July 31, 1896.

Same again.
I index to right and below.

		207.5		
9	23	~~216.5~~	216.0	
		207.7	8.5 >	
		217.5	9.8 >	5.48 >
			18.3 >	
		207.7		
9	25	217.6	9.9 >	
		207.5	8.3 >	5.50 >
		~~216.4~~	215.8	18.2 > 5.49 >

I index to left and above.

		298.0		
9	26	306.3		
		297.0	8.3 >	
		307.4	10.4 >	5.44 >
			18.7 >	
		297.4		
9	28	307.4	10.0 >	5.47 >
		298.2	8.4 >	5.46 >
9	26 >	~~306.9~~	306.6	Mean = 5.48 >

Final mean = mean of means = 5.46 >

mean of Final means = final value = 5.46 >

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1896phae.proj.1340

July 31. 1896.

5 androm. Phot. T: Wilds.

24
0 14 +26.1

18 47
-5 27
6 33

Clock broke down: stopped to fix it.

Index to left and above.

182.3 < comp stars dus.
242.2
184.0 59.9 >
240.5 56.5 > 1.27 >
116.4 >

10 35

185.4
239.2 53.8 >
184.6
241.2 56.7 > 1.41 >
110.5 > 1.34 >

10 37

Index to right and below.

270.0
337.0 67.0 >
272.0 60.0 > 1.04 >
332.0 127.0 >

10 39

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July 31. 1896.

		271.0			
10	40	332.9	61.9 >		
		268.5	66.6 >	1.01 >	
10	38 >	335.1	128.5 >	1.02 >	
				Mean = 1.18 >	

Comp star = D.M. +26° :40 (7.5 magn)
in both groups
Same again

		270.0		
		334.0	64.0 >	
10	45	272.1	59.5 >	1.12 >
		331.6	123.5 >	

		~~273.7~~	272.7	60.2 >	
		332.9			
10	46	~~268.4~~	270.1	65.4 >	1.07 >
		335.5		125.6 >	1.10 >

Index to left and above.

		182.5			
		244.8	62.3 >		
10	48	182.2	59.3 >	1.16 >	
		241.5	121.6 >		

		185.0			
10	49	242.1	57.1 >	1.21 >	
		180.7	62.3 >	1.18 >	
10	47	243.0	119.4 >	Mean = 1.14 >	

final value = mean of means = 1.16 >

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1896phae.proj.1340

July 31. 1896.

β Lyrae : Phot-N on west balcony : W: obs.

comp star = 8 Lyrae.

Index below.

		114.2	< β dis.		
10	58	148.7			
		114.1		34.5 >	
		151.2		37.1 >	
				71.6 >	2.4v >
		114.0			
11	0	152.4		38.4 >	
		116.3		33.7 >	
		150.0		72.1 >	2.44 >
		Index above.			2.44 >
		203.0			
11	9	241.0		38.0 >	
		204.9		36.6 >	
		241.5		74.6 >	2.36 >
		203.5			
11	5	239.1		35.6 >	
11	2 >	203.1		36.9 >	
	46	240.0		72.5 >	2.43 >
16	1 30				2.40 >
					mean 2.42 >

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1896phae.proj.1340.

July 31. 1896.

Same: Cram obs

Index above.

196A

Stopped observation on β Lyrae to begin on δ Persei faint comparison stars on account of clouds coming up.

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1896phae.proj.1340

July 31. 1896.

S Persei : Phot T. W: obs.

2	8	+57.2
20	5	
16	3	
5	57	

Stars in comp. with
Index to left and above.

199.0 < ☩ dis.
224.9
199.9
225.5

25.9 >
25.6
51.5

3.21 >

201.1
224.5
223.7

197.0

23.4 >
26.7 > 3.27 >
50.1 > 3.24 >

Index to right and below.

290.0
315.1
289.6
315.8

25.1 > 3.22 >
26.2 >
51.3 >

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1896phae.proj.1340.

July 31. 1896.

		288.7		
11	26	315.2	26.5 >	
		292.8	22.4 >	3.32 >
11	20	315.2	48.9 >	3.27 >
			Mean = 3.26 >	

Star O comp. with f.
Index to right and below.

		291.2	< f dis.	
11	21	314.0		
		290.7	22.8 >	
		315.0	24.3 >	3.40 >
			47.1 >	
		289.6		
		313.2	23.6 >	
		292.8	20.8 >	3.54 >
		313.1	44.4 >	3.47 >

Index to left and above.

		201.5		
		223.0	21.5 >	
		202.0	20.9 >	3.64 >
		222.9	42.4 >	
		202.9		
11	18	222.2	19.3 >	3.78 >
11	20	201.1	20.5 >	3.71 >
		221.6	39.8	3.59 >

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1896phae.proj.1340

July 31. 1896.

β Lyrae. Phot. V. Greenwich obs.
Comp. Star α Lyrae.

Index above.

~~237.2~~ 26.0
~~27~~ V2.0 32.0 >
~~11 K2~~
~~11 K2~~ Rej. wires not in centre ~~+7.V~~ 23.2
63.0 39.2 >
71.2 > 2KV >

11 V3
20.0
62.0 K2.0 >
24.2
61.0 36.2 >
72.2 > 2.2V >
2.3V >

Index below.

11 V9
121.9
1KV.2 23.9 >
109.2
1V2.1 K2.9 > 2.61 >
76 6.2 > ~~2.29~~

11V.1
1V0.9 3V.2 >
117.7
1K2.V 30.2 >
66.6 > 2.62 >
~~2.62 >~~
Mean ~~2.50~~
mean = 2.48 >

12 1
11 55 >
+21
16 52 45

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1896phae.proj.1340.

July 31. 1896.

T Delphini Cram obs

Looked for T Delphini with west Equatorial: region found and identified: magn. of T. Delphini = 9.6 or 9.7
Cram obs

Confirmed by W.

β Lyrae: Phot N: Cram obs

~~13 34 45~~

11 s.4
s0.4
19.8
148.2

Index below

13 45 58

23.1 < β Lyrae dis.
s5.3
24.3 32.2 >
s3.2 28.9 > 2.82 >
61.1 >

13 48 27

25.3
s4.4 29.1 >
25.0 29.9 > 2.90 >
s4.9 59.0 > 2.86 >

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1896phae.proj.1340

July 31, 1896.

Index Above

13 54 25

108.0		
150.0	42.0 >	
~~+19.4~~	36.3 >	2.25 >
110.0	78.3 >	
1463		

13 59 03
13 51 58

13 52 >

4(20) 53 → 180 53 → 233

18 51 58.2

109.5		
151.0	41.5 >	
108.8	43.2 >	2.06 >
152.0	84.7 >	2.16 >
	means =	2.51 >

Same again. Cram: obs

14 10

108.4		
147.0	42.5 >	
107.4	39.6 >	2.13 >
147.0	82.1 >	

14 11

1099		
149.0	39.1 >	
110.0	40.0 >	2.22 >
150.0	79.1 >	~~2.20~~
		2.18 >

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1896phae.proj.1340.

July 31. 1896.

Index below.

1K 1V

2V.V
VV.3
2K.1
V1.K

29.8 >
27.3 > 2.97 >
57.1 >

1K 1A / 1A 1A >

2V.V
V3.V
2K.2
VK.2

28.0 >
30.0 > 2.94 >
58.0 > 2.96 >
2.18 >
5.14 >
mean = 2.52 >

19 13 30

Same again. Davidson obs.

Index below

~~26.5~~
61.1 < images adjusted.
~~24.2~~

2 38 among images equalized.

2 50 Clouds.

3 0 Cloudy still

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July 31. 1896.

~~Index obs~~

3 15 Too cloudy for any further work

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1896phae.proj.1340.

Posted to here.

Aug. 1. 1896. (Saturday.)

ν Boötis. Cram obs

14	50	+18.1
17	25	
2	35	

8 0 Somewhat cloudy.

8 25 Hunted for D.M. chart for above region but failed to find it: later saw that it was among the missing ones.

8 40 Looked at region obtained by finding hour angle above: $14^h\ 50^m$. $+18°.1$ being approx. setting for variable.

9 0 Tried to find region by D.M. vol. above but failed to identify as there was neither a photographic chart nor a lithographic chart to be used.

9 0 Closing up cloudy.

9 15 Was about to set on β Lyrae but too cloudy: not even a Lyrae visible.

9 35 Somewhat clear: will try β Lyrae now

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1896phae.proj.1340

Aug. 1. 1896.

β Lyrae. Phot. N. Cram. obs.

9 45 Phot. adjusted: clouds thick & comp. Var = β Lyrae

10 0 Too cloudy for any further work.

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1896phae..proj..1340.

Aug 3, 1896. (Monday)

As β Lyrae is near minimum to-night, will try a series on it before getting κ. Boötis:

8 0 Very hazy:

8 5 So hazy and so strong twilight that comp. star is hardly visible for β Lyrae.

8 15 Still hazy and images still too faint in twilight.

β Lyrae. Phot N. Gran. obs.

Index to right.

66.8
8 . 32 122.6 < β Lyrae dis.
63.3 55.4 >
123.8 60.5 > 1.28 >
115.9 >

60.8
8 42 127.3 < adjusted images
66.8
123.4 66.5 >
56.6 > 1.13 >
123.1 > 1.20 >

Index to left.

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1896phae.proj.1340

Aug 3. 1896.

8	52	163.9	4 60.0 >	2.09 >
		203.9	43.7 >	
		162.9	83.7 >	
		206.6		

8	59	163.3	208.2	
		~~212.6~~	< adjusted images	
8	46 >	160.0	44.9 >	1.91 >
	4(185	205.1	45.1 >	2.00 >
13	46 ~~10~~ 180		90.0 >	1.60 = mean

Observations very difficult on account of haze: settings made slowly because observer had to read his own circle and record as well.

altho' very hazy, will try

α Boötis

Cram obs.

14	50	+18.1
19	25	
5	35	

9 15 Set on bright star near region of variable but failed to find it: suspected index of declination circle was wrong. so set on Polaris and found index something less than 7° and

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Aug 3. 1896.

of place.

9 30 Set again on region and positively identified it: owing to haze faintest star visible according to D.M. vol. was about 9.5: could probably have seen a 9.6: as var. was not seen or even suspected must have been fainter than 9.6.

10 0 Gave up attempt for var.

λ Scorpii: cram: obs.

15	58	-20.3
19	40	
3	42	

10 30 Haze too thick to see any of brightest stars of region.

Haze too thick for any of the photographic var: as the remaining two are of southern declination so will try again

(3 hyae. Photos: cram: obs.

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Aug 3. 1896.

Index above.

247.0 < B dis:

303.5 56.5 >

244.3 59.6 > 1.28 >

303.9 116.1 >

242.5

306.0 63.5 >

242.5 59.7 > 1.12 >

242.2 123.2 > 1.20 >

Index below

339.8

24.2 44.4 >

341.8 41.2 > 2.03 >

23.0 85.6 >

342.8

24.0 41.2 > 2.05 >

340.0 44.0 > 2.04 >

24.0 85.2 > 1.62 = mean

Same again: Weinrich obs

Dupl Ch.

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Aug 3.1896.

~~8.0~~ 17.5

63.1 : 45.6 1.80

19.5 48.9

~~66.9~~ reject: out of centre. 94.5

68.4

Rej

19.0

~~10.2~~ 69.7

~~55.0~~ 50.7 1.59

~~69.7~~ 52.0 1.40

64.0 102.7

Index above

~~48~~ Reject: some mistake in reversing mirror

106.4 55.7 ~~1.55~~

162.1 48.5

110.1 104.2

158.6

106.9

~~59~~ 163.9 ~~57.0~~

85.0 ~~37~~.0

122.0 ~~37~~.0 2.16

85.8 44.1

129.9 81.1

~~82.0~~

59.5 50.7 1.69

110.2 48.1 1.92

58.9 98.8 1.81

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Aug. 3, 1896.

The whole of previous group with Mr. Weinrich: Obs. must be rejected as I found after the group had been taken, that obs. had been making comp. star dis. some of the time and β Lyrae some of the time. It is to be replaced by the following group in which I am certain that β Lyrae dis. all the time.

E Pickering.

Same again. Weinrich. obs:

Index above.

		56.5	< β Lyrae dis.	
12	47	112.6	56.1 >	
		59.0	56.2 >	1.36 >
		115.2	112.3 >	
		56.0		
12	53	112.0	56.0 >	
		57.0	59.2 >	1.30 >
		116.2	115.2 >	1.33 >

Index below.

		336.3		
		17.9	41.6 >	
12	59	333.0	44.8 >	2.01 >
		17.8	86.4 >	

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1896phae.proj.1340.

Aug 3. 1896.

332 .9	47.2 >		1.61 >
20 .1	54.8 >		1.81 >
326 .2	102.0 >		1.33 >
21 .0			3.14 >
		mean =	1.57 >

Same again Chan obs

Index tilted

333.0 ∠B dis.		
15.2	42.2 >	
333.4	41.8 >	2.08 >
15.2	84.0 >	

332.2		
15.4	43.2 >	
330.3	45.3 >	1.95 >
15.6	88.5 >	2.02 >

Index above.

56.2		
113.2	57.0 >	
52.6	62.7 >	1.20 >
115.3	119.7 >	

54.0		
116.4	62.4 >	
55.0	59.8 >	1.14 >
114.8	122.2 >	1.17 >
		2.02 >
		3.19 >
	mean =	1.60 > ~~1.5~~

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1896phae.proj.1340

Aug 3. 1896.

Same again Weniich obs

Index above

63.7
113.3 49.6 >
54.4 > 1.56 >
60.7
115.1 104.0 >

56.6
116.2 59.6 >
64.6 39.9 > 1.67 >
104.5 99.5 > 1.62 >

Index below

~~17.4~~
150.8
201.2 51.0 >
148.2 51.6 > 1.59 >
199.8 102.6 >

147.8
201.0 53.2 >
151.0 50.2 > 1.57 >
201.2 103.4 > 1.58 >

mean = 1.60 >

1 24

1 28

1 34

1 36

1 30 >

13 30 >

4(122

13 30 30

1 45

Stopped by haze.

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1896phae.proj.1340

Aug 4. 1896. (Tuesday)

As β Lyrae is but about 1 day from minimum will try it first.

β Lyrae. Phot N. Cram. obs.

Index to left and below

58 .2 < β Lyrae dia

9 0 109 .0 < images adjusted.

61 .9 50 .8 >

112 .9 51 .0 > 1.61 >

101 .8 >

60 .0

9 10 ~~112.2~~ 111.2

~~60.2~~ wire : failed to reverse

< images adjusted.

60 .6 51 .2 > 1.64 >

110 .2 49 .6 > 1.62 >

100 .8 >

Index to right and above.

154 .5

9 26 194 .9 40 .4 >

158 .9 34 .7 > 2.34 >

193 .6 75 .1 >

159 .5

9 23 195 .0 < images adjusted

9 17 > 155 .2

4 69 192 .4 35 .5 > 2.42 >

14 17 15 37 .2 > 2.38 >

72 .7 > 2.40 = mean >

Observations slow as obs. had to read his own circle and record.

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1896phae.proj.1340

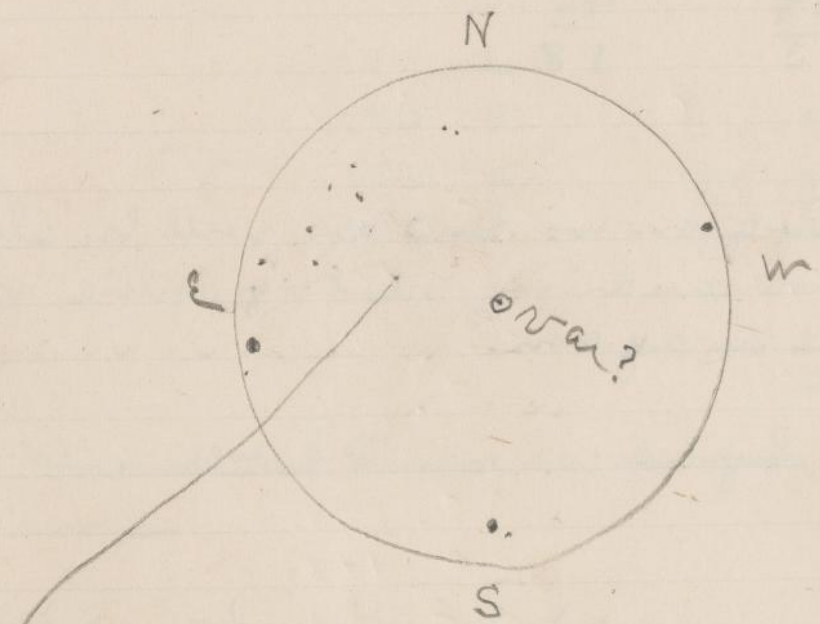
Aug. 4. 1896.

Bothered and delayed at first a great deal by a semi-circular band of light across field with images.

U Boötis

Diam: obs.

14 52 +18.0
+1 5



→ D.M. +18° 12959 (9.5 magn)

Diam. circle above = field of West Eq = 1° approx.

Above is rough diagram of field in which varis suspected in position given.

10 20

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Aug. 4, 1896.

I fit is the var. then var is faint, almost at limit of visibility.
Estimate = 12.7 or 12.8 : Cram obs
Star observed above is not ν Boötis : see p138 of this book.

Extracam.

S Ophiuchi. Cram: obs.

16 28 −16.9
19 46
3 18

Region two hours as will be also that of two remaining photographic vars: so will try again

10 40

β Lyrae : Phot. N. Cram: obs.

Index to right and below.

240.4 < β dir.
11 9 288.7
236.2 48.3 >
292.3 56.1 > 1.55 >
104.4 >

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Aug 4. 1896.

		236.6			
11	20	293.4	56.8	>	
		242.4	46.5	>	1.58 >
		288.9	103.3	>	1.56 >

Index to left and above

		156.4			
11	28	192.5	36.1	>	
		155.5	36.8	>	2.41 >
		192.3	72.9	>	

		157.2			
11	38	193.5	36.3	>	
11	23 >	156.2	38.7	>	2.35 >
	< 193	194.9	75.0	>	2.38 >
16	23 15				1.56 >
					3.94 >
				mean	= 1.97 >

Observations shown as obs. has to read and record

Same again. Same obs
Index to left and above.

		159.0	< B dis'		
11	58	193.6			
		157.3	34.6	>	2.46 >
		194.0	36.7	>	
			71.3	>	

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Aug. 4, 1896.

157.8			
192.2	34.4 >		
157.2	32.8 >	2.60 >	
190.0	67.2 >	2.53 >	

Index to right and below

240.0		
286.8	46.8 >	
240.9	53.1 >	1.66 >
294.0	99.9 >	

238.4		
293.0	54.6 >	1.67
243.7	44.8 >	1.66
288.5	99.4	2.10 = mean.

< adjusted images

Observations very difficult in approaching haze: also as obs. still has to read and record: images faint.

12 30 Haze thicker

12 35 As comp. star is but barely visible, cannot go on.

12 45 Haze too thick for farther work.

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1896phae.proj.1340

aug. 7, 1896. (Friday)

7 45 Cloudy.

8 0 Cloudy.

8 30 Still cloudy.

9 0 A little clearer.

9 10 Will try β Lyrae. Phot. V: Cram: obs.

9 115 Too cloudy to see comp. star well enough so will

υ Boötis. Cram: obs.

Star observed as υ Boötis on Aug 4 – see p. 132 of this book – was not var. as obs. has now phot. plate, can probably identify by that.

14 52 +18.0

9 20 found sid. chron. – Wm Bond #256 – stopped wound and set it.

14 52 +18.0

18 48

3 56

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1896phae.proj.1340

Aug. 7. 1896.

By aid of photo. plate saw and
9 45 checked var. with absolute certainty.
estimate = 12.7 Cram obs

T Librae

15	4	-19.3
19	44	
4	40	

10 10 Region too low

As region of 2 remaining photo. var. is also too low, will try

β Lyrae: Phot. N: Cram obs.

comp star = 8 Lyrae
Index to right and below.

246.5		
283.5	37.0 >	
243.8	44.4 >	2.15 >
288.2	81.4 >	

10 53

244.1		
290.0	45.9 >	
245.8	39.6 >	2.04 >
285.4	85.5 >	2.10 >

11 2

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1896phae.proj.1340

Aug 7, 1896.

Index to left and above.

		340.4		
11	8	11.8	31.4 >	
		338.9	33.3 >	2.69 >
		12.2	64.7 >	
		341.0		
11	13	9.4	28.4 >	2.84 >
11	4 >	338.0	32.2 >	2.76 >
	~~4~~ (16	10.2	60.6 >	2.10 >
16	7 0			4.86 >
				mean = 2.43 >

Observations slow and somewhat difficult as obs. had to read his own circle and record.

Same again

Index to left and above

		339.3		
11	20	9.8	20.5 >	
		341.1	30.9 >	2.81 >
		12.0	61.4 >	
		340.6		
11	32	9.8	29.2 >	2.93 >
		339.7	28.9 >	2.87 >
		8.6	58.1 >	

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1896phae.proj.1340.

25
33

Aug 7, 1896.

Index to right and below.

		~~286.7~~ 244.2		
11	36	286.7	42.5 >	
		244.5	44.5 >	2.00 >
		289.0	87.0 >	
		242.0		
11	40	291.0	49.0 >	
11	34 >	246.1	38.3 >	1.99 >
		284.4	87.3 >	2.00 >
				2.87 >
				Mean = 2.44 >

as before obs. read his own circle and recorded.

12 0 Obs. uses his eyes.

Same again.

Index to right and below.

		244.7		
12	14	283.9	39.2 >	
		242.3	46.7 >	2.03 >
		289.0	85.9 >	
		240.9		
12	25	290.0	49.1 >	
		245.9	38.4 >	1.98 >
		284.3	87.5 >	2.00 >

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Aug. 7, 1896.

Index to left: and above.

		158.9			
12	31	187.3	28.4 >		
		157.4	35.4 >	2.72 >	
		192.8	63.8 >		
		157.4			
12	39	189.6	32.2 >	2.74 >	
12	27 >	158.4	31.0 >	2.73 >	
	4(10.9	189.4	63.2 >	2.00 >	
17	27 10		mean	= 2.36 >	

12 45 obs. rests sys.

Same again

Index to left: and above

		158.5			
12	58	192.1	33.6 >		
		159.4	31.2 >	2.68 >	
		190.6	64.8 >		
		160.4			
1	10	190.4	30.0 >	2.86 >	
		159.2	30.1 >	2.77 >	
		189.3	60.1 >		

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1896phae.proj.1340

Aug 7. 1896.

Index to right and below.

~~103.3~~ 65.7

1	15	103.3	37.6 >	
		67.9	40.2 >	2.26 >
		108.1	77.8 >	
		65.7		
1	25	107.0	42.0 >	
		65.9	38.2 >	2.19 >
1	12 >	104.1	80.2 >	2.22 >
13	12 >			2.77 >
	(48			4.99 >
18	12	0		mean = 2.50 >

1 38 Stopped to see if Mr. Davidson could record for obs.

1 50 Found that he could not record, so

Same again

Index to right

		64.6		
2	3	106.4	41.8 >	
		64.1	45.0 >	2.00 >
		109.1	86.8 >	

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1896phae.proj.1340

Aug. 7. 1896.

62.9
2 13 106. 109.7
65.2
105.9

46.8 >
40.7 > 1.98 >
87.5 > 1.99 >

Index to left.

338.8
2 20 9.4 30.6 >
341.9 29.2 > 2.87 >
11.1 59.8 >

341.4
2 26 11.0 29.6 >
2 16 > 338.7 30.3 > 2.86 >
14 16 > 9.0 59.9 > 2.86 >
1.99 >
4 (62 4.85 >
19 10 30 mean = 2.42 >

2 30 Obs. rests his eyes

Same again.
Index to left

338.5
2 41 8.9 30.4 >
339.3 30.9 > 2.81 >
10.2 61.3 >

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1896phae.proj.1340.

Aug. 7. 1896.

	340.2		
48	10.4	30.2 >	2.81 >
	339.5	31.2 >	
	10.7	61.4 >	2.81 >

Index to right.

64.9		
107.7	42.8 >	
65.3	43.8 >	2.01 >
109.1	86.6 >	

64.4		
108.3	43.9 >	2.01 >
64.4	42.7 >	2.01 >
107.1	86.6 >	2.81 >
		4.82 >
	mean	= 2.41 >

1	1
2	51 >
14	51 >

4(20 UT

19 UT 15-

Obliged to stop because observer's eyes were tired from continual reading of the circle and recording himself as well as from observing.

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1896phae.proj.1340

Aug. 8. 1896. (Saturday.)

β Lyrae: Phot. N: cram: obs.

Index below.

~~9~~	~~47~~	~~89.2~~	Reject: images do not reverse over each other.	
		103.7		
		58.4		
9	55	109.9	51.5 >	1.99 >
		67.8	35.6 >	
		103.4	87.1 >	
		65.3		
10	2	106.3	41.0 >	
		63.3	46.7 >	1.98 >
		110.0	87.7 >	1.98 >

Index above: bothered some in reversal.

	157.5		
10	18	192.2	34.7 >
		159.1	30.0 > 2.69 >
		189.1	64.7 >

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1896phae.proj.1340

Aug. 8. 1896.

	157.5		
10 25	192.6	35.1 >	2.56 >
10 10 >	159.6	33.2 >	2.62 >
4(40	192.8	68.3 >	1.98 >
15 10 0			4.60 >
			mean = 2.30 >

Same again
Index to left and above

	155.2		
		36.2 >	
10 42	191.4		2.64 >
	160.7	29.9 >	
		66.1 >	
	190.6		
	160.0		
10 46	192.0	32.0 >	2.85 >
	161.2	28.3 >	2.74 >
		60.3 >	
	189.5		

Index to right and below

	60.2		
		51.2 >	
10 52	111.4		1.84 >
	65.6	41.7 >	
		92.9 >	
	~~172.~~ 1073		

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1896phae.proj.1340

Aug 8, 1896.

63.5	29.7 >	1.94 >	
103.2	49.4 >	1.89 >	
62.0	89.1 >	2.74 >	
111.4		4.63 >	
		mean = 2.32 >	

11 0
10 50 >

(20 0

10 50 0

1896phae.proj.1340

Aug. 9, 1896. (Sunday)

β Lyrae: Phot N; Cram obs.

Index left and below

160.2

2 30 197.1 Clouds

157.4

192.2

159.0

, to clouds

.

.

3 0 Stopped by clouds

Above was an attempt to get β Lyrae near secondary minimum.

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1896phae.proj.1340

Aug. 10. 1896. (Monday.)

γ Librae : West. Eq. Cram: obs.

15	+	19.2
18	0	
2	56	

8 0 Impossible to see region account of clouds from thunder storm to south-west, so will try

ζ Scorpii West. Eq. Cram: obs.

15	57	−19.4
18	20	
2	23	

8 30 Clouds and haze from south-west make it impossible to see region, so will try now

δ Ophiuchi : West Eq. Cram: obs.

16	2 ~~4~~ 3	− 16.~~0~~ 3
18	~~2~~ 3 8	
2	~~2~~ 15	

9 0 Too cloudy.

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1896phae.proj.1340

Aug. 10. 1896.

β Lyrae:

Photometer V:

Index below. Cram. Obs.

		155.2	Clouds coming up in the west	
9h	15m	192.3	37.1 >	
			34.1 >	2.47 >
		157.8	71.2 >	
		191.6	Comparison star disappears in haze	
		158.3		
9	20	193.2	34.9 >	2.40 >
			38.4 >	2.44 >
		155.0	73.3 >	
		193.4		

Index above. Photoreversed

		244.2	Clouds very thick in the west & south	
9	26	289.2	< adjusted images	
		240.8		
		290.5	45.0 >	
			49.7 >	1.79 >
			94.7 >	
		238.4		
9	29	290.0		
			51.6 >	
9	24 >	240.2	50.1 >	1.61 >
			101.7 >	1.70 >
		290.3		2.44 >
				4.14 >
14	22 30		Same again.	mean = 2.07 >

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1906phac.proj.1340

Aug. 10. 1896.

β Lyrae 242.0 Index above Cram Ce

289.5

9 35 243.2 47.5 >

~~290.2~~ 290.2 47.0 > ~~2.36~~

94.5 > 1.80 >

241.1

9 39 287.5 46.4 >

242.0 45.8 > 1.86 >

289.8 92.2 > 1.83 >

Index below

~~152.2~~ 158.8

9 43 195.0 ~~34~~ 36.2 >

160.8 31.2 > ~~2.66~~ 2.59 >

192.0 67.4 >

158.0

9 48 193.7 34.7 >

9 41 > 154.0 38.5 > 2.40 >

192.5 73.2 > ~~2.53~~ 2.50 >

4(160 1.83 >

14 41 10 ~~4.21~~ 4.33 >

~~2.18~~

mean = 2.16 >

Ote taken on gratehaste on acount of clouds.

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1896phae.proj.1340.

Aug 10th 1896

β Lyrae 156.2 Index below: Cram Obs.

10 04 194.4 & Clears now.

158.4 38.2 >

193.2 34.8 > 2.41 >

73.0 >

158.8

10 08 191.2 32.4 > 2.53 >

157.8 37.0 > 2.47 >

194.8 69.4 >

Index above

60.0

111.2 Clouds over β Lyrae 51.2 >

10 15 63.1 Clouds again 44.2 > 1.77 >

95.4 >

107.3 Clouds again black & heavy

62.1 Clouds again

10 24 108.3 46.2 > 1.81 >

47.6 > 1.79 >

10 13 > 61.0 93.8 > 2.47 >

4.26 >

108 .26 Clouds again black & heavy

mean = 2.13 >

10 12 40 Stopped by clouds.

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1896phae.proj.1340

Aug. 10. 1896.

10 30 Little clearer

10 35 Clouds again.

Same Again Wernicke obs

Index above

~~109.2~~ 60.0

10h 38m.0 109.2 492 >

62.7 45.1 >

107.8 94.3 > 1.80 >

~~45~~

67.7

7h 10 42.2 108.2 43.5 >

57.8 52.6 > 1.75 >

110.4 96.1 > 1.78 >

Index below

42.7

~~10 48.0~~ 126.2 83.5 0.46

72.2

49.0 155.7

121.2 Clouds.

52.0

~~10 56.1~~ 123.2 71.2 0.77

64.5 69.0 0.62

123.5 140.2

Reject two previous sets as wrong images were equalized

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1896phae.proj.1340

Aug. 10. 1896.

		147.4			
	5.7	199.2	51.8 >		
11	6.4	149.6	45.4 >	1.73 >	
		193.0	97.2 >		
		150.9	Clouds		
11	12.2	208.6		57.7 >	1.54 >
		153.0	Clouds	46.9 >	1.64 >
	4(218.1	200.2		104.6 >	1.78 >
10	54.52				3.42 >
				mean =	1.71 >

These two sets to replace the last two on previous page.

Above observations made with difficulty through clouds.

11 20 Cloudy.

11* 40 Cloudy.

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1896phae..proj.1340

Aug. 11. 1896. (Tuesday)

As observer hastried for the 3 photo. var. no less than 3 times with West. Eq. and found region too low or hazy to identify; will try them to-night with East Eq.

T Librae:	East Eq:	Grain: obs.
15	4	-19.3
18	30	
3	26	

on D. M. lithographic chart in position approx. 15h. 2.5m. and -19°.4 is a star marked var, which position corresponds almost exactly to 1855 position in Chandler's list in astronomical Journ. vol. 13-4 to T. Librae: this star was then assumed to be T Librae.

Region identified with absolute certainty, and var. seen: it is about 4 grades brighter than the star on the D. M. lithographic chart which next follows it and is a trifle south. according to scale of magn. given on D. M. chart this star is about 10 magn: hence absolute estimate for var. = 9.6 Grands

8 40

Some considerable time necessary for observation

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1896phae.proj.1340

Aug. 11, 1896.

as obs. had to move dome, set circles, etc, himself.

9 15 Clock weights slipped off when winding, owing to fraying of rope.

9 30 Meem time Dunn, Arnold + Dent #958 found run down and stopped, so wound again and set.

Z Scorpii: East Eq: Cram: obs.

16	23	−16.3
19	30	
3	7	

10 10 Region too low for certain identification so will stay it together with Ophiuchi the first thing to-morrow night.

β Lyrae: Phot N: Cram: obs.

comp. star = δ Lyrae as on previous nights

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1896phae.proj.1340

Aug. 11. 1896.

Index below.

		156.9	< Bryaccidis	
10	31.3	193.2	36.3 >	
		160.2	29.4 >	2.65 >
		189.6	65.7 >	
		159.3		
10	36.6	189.7	30.4 >	
		158.9	32.7 >	2.74 >
		191.6	63.1 >	2.70 >

Index above.

		62.0		
10	42.9	109.9	47.9 >	
		64.8	43.0 >	1.89 >
		107.8	90.9 >	
		62.4		
10	50.9	108.0	< adjusted images.	
10	40.4 >	62.4	45.6 >	1.90 >
		107.8	44.9 >	1.90 >
			90.5 >	2.70 >
				4.60 >
			mean	= 2.30 >

Observations somewhat slow as obs. has to read his own circle and record himself.

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1896phae.proj.1340

Aug. 11. 1896.

Same again. Cram: obs

Index above.

60.6 < Blyrae dis.

11	8.9	109.1 < images	48.5 >	
		61.8 adjusted.	46.7 >	1.78 >
		108.5	95.2 >	

64.8

11	14.1	107.2	42.4 >	
		61.7	45.3 >	1.98 >
		107.0	87.7 >	1.88 >

Index below.

156.5

11	20.0	194.5	38.0 >	
		159.0	33.0 >	2.47 >
		192.0	71.0 >	

159.8

11	24.6	191.4	31.6 >	
11	16.9 >	158.8	33.7 >	2.67 >
		192.5	65.3 >	2.57 >
				1.88 >
				4.45 >
			mean	= 2.22 >

11 35 Obs. rests Lui eyes.

observations close for same reason as before.

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1896phae.proj.1340

Aug. 11. 1896

Index below. Chamb

156.0 < Polyxenis.

11	40.7	191.2	35.2 >	
		160.2	31.3 >	2.62 >
		191.5	66.5 >	

161.0

11	46.0	190.2	29.2 >	2.76 >
		158.4	33.5 >	2.69 >
		191.9	62.7 >	

Index above

240.3

11	53.0	287.1	< images adjusted	
		243.0	46.8 >	1.96 >
		284.4	41.4 >	
			88.2 >	

243.9

11	58.9	284.0		
11	49.6 >	243.1	40.1 >	
		288.0	44.9 >	2.05 >
			85.0 >	2.00 >
				2.69 >
				4.69 >
			mean	= 2.34 >

12 10 Obs. rests his eyes.

Observations still done as obs. records himself.

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1896phae.proj.1340

Aug. 11. 1896.

Same again. Gram: obs.

Index below.

243.9 < B lyrae dis.

12	17.6	286.5	42.6 >	
		245.5	40.6 >	2.10 >
		286.1	83.2 >	
		244.6		
12	21.7	289.1	42.5 >	
		245.2	38.9 >	2.15 >
		284.1	81.4 >	2.12 >

Index below.

		157.8 ~~191.4~~		
12	26.0	191.4 .	33.6 >	2.77 >
		161.1 .	~~38.8~~ 38.8 >	~~2.113~~
		189.9 .	~~72.4~~ 72.4 >	
		160.0 .		
12	30.0	190.3 .	30.3 >	2.78 >
12	23.8 >	159.2 .	31.9 >	~~2.160~~ 2.78 >
		191.1 .	62.2 >	2.12 >
				~~2.772~~
			4.90	
			mean = 2.45 >	~~2.96~~

Obs. has recorder now.

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1896phae.proj.1340

Aug. 11, 1896.

Same again. Wesmichaels

Index below.

		154.2	B bysac dis.	
12	46.0	192.9	38.7 >	
		155.1	37.8 >	2.30 >
		192.9	76.5 >	
		157.6		
12	51.1	196.8	39.2 >	
		155.5	36.3 >	2.33 >
		191.8	75.5 >	2.32 >

Index above.

		~~282.3~~	249.0	
12	57.9	282.3		
		242.0	33.3 >	2.43 >
		280.9	38.9 >	
			72.2 >	
		243.8		
13	4.5	283.8	40.0 >	2.17 >
12	54.9 >	245.2	41.0 >	2.30 >
		286.2	81.0	mean = 2.31 >

87

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1896phae.proj.1340

Aug 11 1896

Same again
Index above. Cram Obs

		243.2	< β Lyrae dis.	
13	11.1	289.0	43.8 >	
		245.2	40.8 >	2.06 >
		286.0	84.6 >	
		245.3		
13	13.2	286.2	40.9 >	2.10 >
		244.8	42.2 >	2.08 >
		287.0	83.1 >	
		Index below.		
		158.2		
13	19.3	194.2	36.0 >	2.47 >
		157.2	35.0 >	
		192.2	71.0 >	
		157.3		
13	19.4	192.4	35.1 >	2.52 >
13	15.2 >	157.8	34.4 >	2.50 >
		192.2	69.5 >	2.08 >
				4.58 >
			mean	= 2.29 >

Obs. has recorder now

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1896phae.proj.1340

Aug. 11. 1896.

Same again: crem. vib
Index below.

		159.6	(3 ligne dis	
13	39.8	190.3	30.7 >	
		161.4	30.0 >	2.84 >
		191.4	60.7 >	
		160.9		
13	~~44.8~~	190.7	< mag is adjusted	2.73 >
		159.2	29.8 >	
		193.0	33.8 >	~~2.80~~
			63.6 >	2.78 >

Index above.

		64.1		
13	51.0	108.0	43.9 >	1.98 >
		64.7	43.5 >	
		108.2	87.4 >	
		63.3		
13	56.8	105.6	42.3 >	2.00 >
13	48.1 >	64.5	44.6 >	1.99 >
		109.1	86.9 >	2.~~00~~
				4.~~00~~
			mean	= 2.~~00~~ >

14 0 Obs. rests eyes.

Obs. reads and records himself now.

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1896phae.proj.1340

Aug. 11. 1896.

Same again. Gram: obs
Index above.

67.3 < 5 Lyrae dis.

14	12.9	109.7	42.4 >	1.97 >
		63.9	45.4 >	
		109.2	87.8 >	

64.1

14	17.8	109.0	44.9 >	2.06 >
		66.3	39.7 >	2.02 >
		106.0	84.6 >	

Index below.

339.4

14	22.2	11.1	21.7 >	2.78 >
		340.9	30.4 >	
		11.3	62.1 >	

341.0

14	25.4	12.6	31.6 >	2.66 >
14.	19.6 >	338.5	33.9 >	2.72 >
		12.4	65.5 >	2.02 >
				4.74 >
			mean	= 2.37 >

Observations made with some difficulty on account of faintness of comp. stars in haze.

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1896phae.proj.1340

Aug. 11. 1896.

Same again. Cramps obs.

Index below.

339.8 < β Lyrae dis.

14	39.9	11.6	31.8 >
		339.9	31.6 > 2.73 >
		11.5	63.4 >

340.3

14	45.5	12.0	31.7 > 2.73 >
		338.6	32.0 > 2.73 >
		10.6	63.7 >

Index

244.4

14	49.4	287.3	< images adjusted.
		244.0	42.9 >
		290.8	46.8 > 1.92 >
			89.7 >

244.0

14	53.9	289.0	< images adjusted.
14	47.2 >	244.2	45.0 >
		286.9	42.7 > 1.98 >
			87.7 > 1.95 >
			2.73 >
			4.68 >
			mean = 2.34 >

Observations made with extreme difficulty because of faintness of comp. star in haze.

2 0 Stopped by faintness of images.

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1896phae.proj.1340

Aug. 12. 1896. (Wednesday)

Although it was planned to take Z Scorpii and S Ophiuchi to-night yet it is too hazy in south and south-west, so will try

β Lyrae: Phot N: Cram: obs.
Comp. stars = β Lyrae as before.
Index to right

	64.2	< β Lyrae dis.		
8	36.5	105.0		
		66.6	40.8 >	2.15 >
		107.8	40.7 >	
			81.5 >	
		62.9		
8	41.8	106.5	43.6 >	2.09 >
		66.1	40.1 >	2.19 >
		106.2	83.7 >	

Index to left.

	157.8		
8	47.5	191.2	33.4 >	2.79 >
		161.8	28.4 >	
		190.2	61.8 >	
		161.8		
8	53.2	190.2	< images adjusted.	
8	44.8 >	160.8		2.95 >
		190.0	28.4 >	2.87 >
			29.2 >	2.12 >
			57.6 >	4.99
				Mean = 2.50 >

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1896phae.proj.1340

dP8 Aug. 12. 1896.

Seeing poor and blurry.

Observations at the last hastened because of approaching cloud.

Obs. reads circle and records himself.

Same Again: Cram. obs.

Index to left and below

		159.5			
9	13.4	191.8	< images adjusted.		
		160.2	32.3 >		
		190.7	30.5 >	2.76 >	
			62.8 >		
		162.0			
9	18.0	191.6	29.6 >		
		159.6	31.8 >	2.81 >	
		191.4	61.4 >	2.78 >	

Index to right and above.

		64.7		
9	24.4	109.2	44.6 >	2.05 >
		65.1	40.4 >	
		105.5	85.0 >	

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1896phae.proj.1340

Aug. 12. 1896.

9	24.8	66.1			
		105.8	← images adjusted		
9	22.6 >	64.2			
		105.6	29.2 >	2.18 >	
			41.4 >	2.12 >	
			80.6 >	2.78 >	
				4.90 >	
				mean = 2.45 >	

Obs. rests eyes.

Same again:. Cram: obs.

		64.8	
10	0.8	105.4	
		64.8	
		clouds.	
10	15	cloudy.	
10	30	cloudy.	

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1896phae.proj.1340

Aug. 16. 1896 (Sunday)

As B Lyrae is near minimum to-night will try to get observations.

7 0 cloudy

8 0 cloudy
B Lyrae. Phot N: comp. obs.

9 32.5

244.8	< B dis.	
289.4		
clouds	< images adjusted	
243.0	44.6	
287.0	44.0	1.95
clouds	88.6	

clouds
247.5
clouds

10 0 Abandoned on account of clouds

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1896phae.proj.1340

Aug. 17, 1896. (Monday)

Will try first Z Scorpii

abandoned; will try S Ophiuchi as it is more easily identified in moon-light.

S Ophiuchi Cram. obs

16	23	-16.3
18	32	
2	9	

Region identified with absolute certainty by adjacent stars by means of D.M. chart; star certainly seen and identified.

It is 2 or 3 grades fainter than stars on D.M. chart in position approx. R.A. 16h. 25m. and Dec -16°.7; according to scale of magn. at bottom of chart, this star is 10 magn. hence absolute estimate = 10.3 magn. Cram, obs

As observer can more certainly identify Z Scorpii with photo. plate, will try it to-morrow.

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1996phao.proj.1240

Aug. 17, 1896.

β Lyrae Phot. N: Clouds.

comp star = same as before = δ Lyrae.

Index to left and above.

		158.3			
9	42.8	194.2	< β Lyrae dis.		
		157.8	35.9 >		
		191.7	33.9 >	2.51 >	
			69.8 >		
		156.9			
9	46.0	194.2	37.3 >		
		156.1	35.9 >	2.40 >	
		192.0	73.2 >	2.46 >	

Index to right and below

~~#9~~	50.0	~~clouds~~			
		~~62.4~~	64.3		
~~P0~~	~~17.9~~ time 10.27.3	~~119.5~~	108.0	43.7 >	
		57.0		53.2	1.73 >
		110.2		96.9 >	
		60.0			
10	30.6	110.8		50.8 >	
10	6.7 >	61.0		48.5 >	1.67 >
		109.5		99.3 >	1.70 >
					2.46 >
				mean =	4.16 >
					2.08 >

Last settings in 1st half of group taken in great hurry on account of approaching clouds.

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1896phae.proj.1340

Aug. 17, 1896.

Bayeux. Phot. N. Cramidon.

Index to right and below.

		60.6		
10	4h9	109.7	+9.1 >	
		59.4	52.1 >	1.63 >
		111.1	101.2 >	
		58.1		
10	51.4	112.2	54.1 >	
		61.2	45.8 >	1.66 >
		107.0	99.9 >	1.64 >

Index to left and above

		335.9		
10	53.3	12.9	37.0 >	
		336.5	35.4 >	2.43 >
		11.9	72.4 >	
		335.4		
10	55.4	14.6	39.2 >	
10.	52.2 >	338.3	25.1 >	2.37 >
		13.4	74.3 >	2.40 >
				1.64 >
				4 04 >
				mean = 2.02 >

Seeing better in the last group above

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1896phae.proj.1340

Aug. 17. 1896.

11 10 to Lundy

Index Left & above.

337.5

11 31.8 12.0 34.5 >

334.0 42.8 > 2.28 >

16.8 77.3 >

334.5

11 34.7 18.9 44.4 > Adjusted Images.

338.5 34.3 > 2.23 >

12.8 78.7 > 2.26 >

Index Right & Below.

244.6

11 40.4 ~~[illegible]~~ 45.5 > 1.98 >

Clouds. 41.9 >

11 47.7 290.1 87.4 >

Clouds

244.6

286.5

1.96 >

241.7 1.97 >

~~287.5~~ 2.26 >

12 0.0 284.1 42.4 > 4.23 >

242.5 45.9 > 2.12 >

11 43.67 288.4 88.3 >

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1896phae.proj.1340.

Aug. 17. 1896.

Last of previous set hurried this some clouds

12	15	Cloudy
12	20	Cloudy
1	0	cloudy
1	45	Clearer

β Lyrae: Phot. V: Cram. obs.

Index to right.

		242 .4	
2	6.4	287 .9	< β dio
		242 .7	45.5 > 1.86 >
		289 .1	46.4 >
			91.9 >
		241 .5	
2	12.8	291 .0	49.5 >
		244 .2	41.9 > 1.88 >
		286 .1	91.4 > 1.87 >

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1896phae.proj.1340

Aug 17, 1896.

Index to left.

		~~240.4~~	155.6		
2	18.2	192.0		36.4 >	
		157.0		35.0 >	2.46 >
		192.0		71.4 >	
		157.5			
2	23.1	193.7		36.2 >	2.44 >
2	15.2 >	156.8		35.7 >	2.45 >
		192.5		71.9 >	1.87 >
					4.32 >
				mean	= 2.16 >

Seeing excellent in above set.

Same again

Index to left.

		159.1			
2	35.7	192.0		32.9 >	
		156.9		37.9 >	2.48 >
		194.8		70.8	
		156.6			
2	40.2	194.3		37.7 >	
		158.4		34.6 >	2.43 >
		193.0		72.3 >	2.46 >

Index to right

		63.6			
2	51.8	106.9		43.3 >	1.81 >
		60.0		50.6 >	
		110.6		93.9 >	

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1896phae.proj.1340.

Aug. 17, 1896.

		60.1		
3	4.5	112.5	52.4 >	1.70 >
2	48.0 >	63.0	46.10 >	1.81 >
		109.0	98.14 >	1.76. >
				2.46 >
				4.22 >
				mean = 2.11 >

In these set observations were very difficult indeed on account of faintness of images due to low altitude and rising clouds.

1896phae.proj.1340

Aug. 18. 1896. (Tuesday)

7	0	cloudy
8	0	cloudy
8	30	clearn somewhat
9	0	cloudy
10	0	clearn, so will try β Lyrae

β Lyrae: Phot. N: Cram: obs.

Comp stars as before = δ Lyrae.

Index to right and below.

~~31.2~~

67.0
103.2 < images adjusted
60.3 Rejct: images not
10.2 central

60.7 < B dis

10	44.6	112.2	
		62.8	51.5 > 1.82 >
		104.9	42.1 >
			93.6 >
		65.7	
10	54.2	102.7	37.0 > 2.00 >
		61.0	50.0 > 1.91 >
		111.0	87.0 >

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1896phae.proj.1340.

Aug. 18. 1896.

Index to left and above

		158.1		
11	6.1	191.4	33.3 >	2.78 >
		159.7	28.9 >	
		188.6	62.2 >	
		159.1		
11	10.8	189.0	29.9 >	2.87 >
10	58.7 >	160.3	29.8 >	2.82 >
		190.1	59.7 >	1.91 >
				4.73 >
			mean =	2.36 >

Observations slow and very difficult on account of bright moonlight and faintness of comps. trans also because obs. reads his own circle as well as records.

Same Again. Cram ds

Index to left and above.

		161.2	∠ B dis.	
11	27.3	188.7	27.5 >	2.79 >
		157.5	34.4 >	
		191.9	61.9 >	
		157.8		
11	34.1	190.1	32.3 >	2.87 >
		160.1	27.4 >	2.83 >
		187.5	59.7 >	

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1896phae.proj.1340.

Aug. 18. 1896.

Index to right and below.

		244.2		
		clouds		
11	52.4	282.3	38.1 >	
		241.9	46.1 >	2.07 >
		288.0	84.2 >	
		clouds		
		243.5		
12	19.6	286.8	43.3 >	2.18 >
11	48.4 >	245.7	37.3 >	2.12 >
		283.0	80.6 >	2.83 >
				4.95 >
			mean =	2.48 >

Observations very difficult on account of moonlight and heavy dew continually settling on prism.

Same Again: Clouds

Index to right and below.

		~~274.0~~	272.5	
12	49.8 ~~40.6~~	317.9	45.4 >	
		274.9	40.8 >	2.02 >
		315.7	86.2 >	
		273.4		
12	55.0	315.4	42.0 >	
		270.9	47.0 >	1.94 >
		317.9	89.0 >	1.98 >

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1896phae.proj.1340

Aug. 18. 1896.

Index to left and above.

		206.5		
1	5.2	240.8	34.3 >	2.78 >
		209.1	27.9 >	
		237.0	62.2 >	
		207.7		
1	10.2	237.0	< images adjusted	
12	00.0 >	209.0	29.3 >	
13	000	238.2	29.2 >	2.92 >
			58.5 >	2.85 >
				1.98 >
				4.83 >
				mean = 2.42 >

Observations very difficult as before.

Same again Cram: obs.

Index to left ~~and above~~.

		205.4		
1	33.4	238.5	33.1 >	2.78 >
		208.2	29.0 >	
		237.2	62.1 >	
		208.2		
1	38.2	236.9	28.7 >	
		207.0	31.2 >	2.86 >
		238.2	59.9 >	2.82 >

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1896phae.proj.1340.

Aug. 18. 1896.

Index to right and Eastern.

		290.1		
1	47.1	335.1	45.0 >	
		294.6	35.4 >	2.18 >
		330.0	80.4 >	
		294.0		
1	53.2	330.4	36.4 >	
13	43.0 >	289.5	47.5 >	2.08 >
		337.0	83.9 >	2.13 >
				2.82 >
				4.95 >
			mean =	2.48 >

Seeing better and observation easier as moon has been below horizon for some time now.

Same again: Cam: obs

Index to right.

		287.7		
2	25.4	336.8	49.1 >	1.98 >
		293.0	38.5 >	
		331.5	87.6 >	
		293.2	moved photometer:	
2	35.3	331.0	< flag staffs interfere.	
		288.2	37.8 >	
		336.9	48.7 >	2.01 >
			86.5 >	2.00 >

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Aug. 18. 1896.

Index to left.

		207.9		
2	50.2	238.5	30.6 >	
		206.5	29.8 >	2.84 >
		236.3	60.4 >	
		207.9		
2	56.5	238.0	30.1 >	2.87 >
14	41.8 >	209.0	29.5 >	2.86 >
		238.5	59.6 >	2.00 >
				4.86 >
			mean =	2.43 >

Observations again difficult on account of constant flickering of images, due probably to excessive moist air.

S Oeti West. Eq. Cram: obs.

0	12	−9.7
1	40	
1	28	

Region identified positively and var. seen: var. is about 3 grades brighter than stars on Dm chart in position approx. R. a. 0 h. 16.5 m and Dec. −10.3 : magn. of this star from scale of magn. on chart is 9.10 :

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Aug. 18. 1896.

from this comp. var is then approx 8.7 or 8.8 magn: but it is also 5 grades or even more fainter than the more southern comp. of double in position approx R.A. $0^h\ 15^m.5$ and Dec $-10°.1$: this comp. by scale of magn. is 8.9 : from this comp. var is then approx 9.5 or 9.6 : owing to daylight this may cannot be accounted for, to add our abs. estimate to-morrow night: see p 194 of this book.

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1896phae.proj.1340.

Aug. 19, 1896. (Wednesday)

As β Lyrae is near maximum to-night will try it first.

β Lyrae. Phot. N: Cramb's comparison as before = 8 Lyrae

Index to left.

		223.3	< β dis.	
8	8.3	250.8	27.5 >	
		223.4	27.7 >	3.05 >
		251.1	55.2 >	
		223.2		
8	11.8	249.9	26.7 >	
		222.8	28.7 >	3.04 >
		251.5	55.4 >	3.04 >

Index to right.

		303.2		
8	20.1	352.0	48.8 >	
		307.0	40.9 >	1.92 >
		347.9	89.7 >	
		305.0		
8	25.4	347.4	42.4 >	
8	16.4 >	304.5	44.4 >	2.00 >
		348.9	86.8 >	1.96 >
				3.04 >
				5.00 >
			mean =	2.50 >

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1896phae.proj.1340

Aug. 19, 1896.

As Z Scorpii will soon be getting by, will try it now

Z Scorpii	Wash. Eq:	Cam. obs.
15	58	−21.5
19	10	
3	12	

at 8^h 40^m got photo. plate from Mr. Colson of above region: by means of it, found van. fan lithographic D.M. chart approx R.A. = 15^h $57^m.5$ and Dec −21°.3

With wash eq. identified region and found van: it is about 5 grades or 4 grades perhaps better fainter than star on D.M. chart as approx R.A. 15^h $57^m.6$ and Dec −21.2 which according to D.M. scale of magn is approx 9.0 9 5 magn: hence estimate = 9.4 or 9.5: cam obs

At 9^h 20^m returned plate to Mr. Colson.

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Aug. 19, 1896.

β Lyrae : Phot. N : Crum obs.

comp star = 8 Lyrae

Index to right and to down.

9	37.3	119.5	< β dis
		171.8	52.3
		127.9	37.2
		165.1	89.5

REJECT

		130.6	
9	46.2	162.6	32.0
		121.9	50.3
		172.2	82.3

Index to left and above.

		10.8	
9	55.6	75.4	64.6
		13.0	58.2
		71.2	122.8

		11.8	
9	59.2	68.9	57.1
		13.0	62.2
		75.2	119.3

Bothered some by moonlight : but much more by spectrum of extraordinary image.

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1896phae.proj.1340

Aug. 19, 1896.

Reject previous group as it was found that circle was incorrectly read.

Same Again: Chamberlain

Index to right and below.

		43.5		
10	23.2	73.0	< images adjusted	
		42.5	29.5 >	
		72.6	30.1 >	2.87 >
			59.6 >	
		43.2		
10	26.7	70.4	27.2 >	
		41.0	30.0 >	2.97 >
		71.0	57.2 >	2.92 >

Index left and above.

		301.2		
	37.3			
10	~~36.0~~	~~352.0~~	351.5	
		307.9	50.3 >	
		342.6	33.7 >	2.08 >
			84.0 >	
		309.6		
			36.3 >	
10	41.6	343.9	46.3 >	2.12 >
10	32.2 >	303.7	82.6 >	2.10 >
		~~349.6~~	350.0	2.92 >
				5.02 >
				mean = 2.51 >

Bothered by differences in images.

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1896phae.proj.1340

Aug. 19, 1896.

Same again : Cram : obs.

Index to left and above.

		301.8	< B dis.	
11	00.0	351.6	49.8 >	2.04 >
		309.2	35.6 >	
		344.8	85.4 >	
		310.1		
11	4.1	344.9	34.8 >	
		301.6	50.5 >	2.04 >
		352.1	85.3 >	2.04 >

Index to right and below

		222.1		
11	11.6	252.1	30.0 >	
		225.8	21.8 >	3.19 >
		247.6	51.8 >	
		224.7		
11	15.0	248.5	23.8 >	2.15 >
11	7.7 >	223.0	29.0 >	3.17 >
		252.0	52.8 >	2.04 >
				5.21 >
			mean =	2.60 >

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1896phae.proj.1340

Aug. 19, 1896.

R. R. Cygni: West Eq: Cram: obs.

20	36	+44.8
21	45	
1	9	

11 35 B other'd good deal at first in finding region. either by moving of Dec. circle index or else by wrong sidereal time.

11 55 Found region and var. at last with absolute certainty.

12 <20 var is about 2 grades brighter than D.M. +44° 3573 which is 9.1

12 35 absolute estimate = 8.9 Cram: obs.

B Lyrae. Phot. N: Cram: obs.

Index to left

221.6	< B des.	
253.5	31.9	2.98
225.2	24.9	
250.1	56.8	

12 59.1

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Aug. 19, 1896.

		225.0		
1	2.7	249.8	24.8 >	3.09 >
		223.3	29.5 >	3.04 >
		252.8	54.3 >	

Index to right.

		306.3		
1	10.3	348.5	42.2 >	
		309.2	36.7 >	2.23 >
		345.9	78.9 >	

		309.1		
1	14.9	347.8	38.7 >	2.07 >
1	16.8 >	303.9	45.5 >	2.15 >
		349.4	84.2 >	3.04 >
				5.19 >
			mean =	2.60 >

Same again.

Index to right.

		303.8	< B dis.	
1	51.3	350.0	46.2 >	2.05 >
		305.2	38.9 >	
		344.1	85.1 >	

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1896phae.proj.1340

Aug. 19, 1896.

		306.0		
1	55.6	344.5	38.5 >	2.12 >
		305.2	44.0 >	2.08 >
		349.2	82.5 >	

I index to left.

		40.5		
2	2.0	71.1	30.6 >	2.80 >
		41.6	31.0 >	
		72.6	61.6 >	

		43.2		
2	4.9	71.9	28.7 >	
1	58.4 >	41.1	31.3 >	2.86 >
		72.4	60.0 >	2.83 >
				2.08 >
				4.91 >
			mean	= 2.46 >

Bothered by flickering of images.
Will try lights 3 degrees above.

8 Piscis Austr: Wrst. Eq: Comm: obs.

1 35 Impossible to observe this var. as observer has no southern chart for −28°

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1896phae.proj.1340

Aug. 19. 1896.

Same again: Grammabs.

Index to left.

		43.2	< B dub.	
2	24.0	72.4		
		42.0	29.2 >	2.90 >
		71.8	29.8 >	
			59.0 >	
		42.6		
2	28.0	71.6	29.0 >	2.90 >
		42.5	30.0 >	2.90 >
		72.5	59.0 >	

Index to right.

		305.9		
2	33.0	350.8	44.9 >	
		306.9	38.7 >	2.09 >
		345.6	83.6 >	
		307.0		
2	35.9	347.2	40.2 >	
2	30.2 >	306.0	43.9 >	2.08 >
		349.9	84.1 >	2.08 >
				2.90 >
				4.98 >
				mean = 2.49 >

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1896phae.proj.1340

Aug. 19. 1896.

Same again

Index to right

		305.8	< B dis.	
2	49.8	349.0	43.2 >	2.11 >
		307.2	39.6 >	
		346.8	82.8 >	
		306.1		
2	53.2	346.4	40.3 >	
		306.0	42.4 >	2.12 >
		348.4	82.7 >	2.12 >

Index to left.

		44.2		
2	59.7	72.8	28.6 >	2.91 >
		41.3	30.0 >	
		71.3	58.6 >	
		42.0		
		72.7	30.7 >	
2	2.5	42.2	29.4 >	2.86 >
2	56.3 >	71.6	60.1 >	2.88 >
				2.12 >
				5.00 >
			mean =	2.50 >

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1896phae.proj.1340

Aug. 19. 1896.

3 Ceti : West. Eq. Cram: obs.

0	12	-9.6
1	32	
1	20	

1 20 Region and star identified

star is 2 grades brighter than star on D.M. lithographic chart in approx R.A = $0^h\ 16^m.5$ and Dec = $-10°.3$ also is 1 grade or 1.5 grades brighter than star in approx R.A = $0^h\ 16^m.9$ and Dec = $-9°.95$: also is very nearly equal to star in approx R.A. = $0^h\ 18^m.6$ and Dec = -10.4

3 20

estimate 9.0 or 9.1 Cram: obs.

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1896phae.proj.1340

Aug 20. 1896. (Thursday)

As storm threatens in the west, will take A Spica immediately.

B Spicae : Phot. N. Cramobs

comp seen = P Spicae

Index to left.

		43.2	< B dis	
7	56.1	72.0		
		40.9	28.8 >	2.83 >
		72.9	32.0 >	
			60.8 >	
		41.2		
4	59.3	72.2	31.0 >	2.84 >
		41.8	29.5 >	2.84 >
		71.3	60.5 >	

Index to right and obvs.

		125.1		
8	28.8	169.9	44.8 >	2.06 >
		127.0	40.0 >	
		167.0	84.8 >	
				2.00 >
			44.1 >	2.03 >
		126.9	42.6 >	2.84 >
8	22.6	171.0	86.7 > < images adjusted	4.87 >
8 >	14.2 >	127.4		mean = 2.44 >
		170.0		

Must before morning, proceed to go to brick block for chart for S Piscis Austrini.

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1896phae.proj,1340

Aug. 20, 1896.

Same again: Gram; db.

Index to right and above.

		124.0		
9	2.3	172.9	48.9 >	
		123.5	46.5 >	1.77 >
		170.0	95.4 >	
		125.8		
9	5.4	168.5	42.7 >	1.96 >
		123.8	45.6 >	1.86 >
		169.4	88.3 >	

Index to left and below

		221.8		
9	10.7	250.2	28.4 >	2.83 >
		221.0	32.5 >	
		253.5	60.9 >	
		223.1		
9	12.4	251.8	28.7 >	2.92 >
		223.1	29.8 >	2.88 >
9	7.7 >	252.9	58.5 >	1.86 >
				4.74 >
			mean =	2.37 >

Harassed considerably because of approaching clouds, so will take 4 more sets to be included all in one group

As sets were evidently separated by some considerable time, will break up into 2 groups

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1896phae.proj.1210

Aug. 20. 1896.

		224.8		
9	39.2	251.1	26.3	
		220.1	32.0	2.93
		252.5	58.3	
		222.0		
9	40.6	252.6	30.6	
		224.6	27.2	2.94
		251.8	57.8	2.94

Index to right and above

		306.5		
9	43.2	347.3	40.8	
		303.0	47.0	1.97
		350.0	87.8	
		303.0		
9	46.8	249.1	46.1	1.95
9	42.4	308.0	42.5	1.96
		350.1	82.6	2.94
				4.90
			mean	= 2.45

Somewhat cloudy.

10 0 Abandoned as obs is not fully well.

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1896phae.proj.1340

(Friday) August 21. 1896.

B Lyrae: Phot. N: Cram: obs.

Index to right.

		301.8		
7	51.7	353.2 < B dis.	51.4 >	1.78 >
		305.9	43.6 >	
		349.5	95.0 >	
		305.0		
7	55.9	349.3 < Images adjusted.		
		304.6	44.3 >	1.86 >
		352.3	47.7 >	1.82 >
		Index to left.	92.0 >	
		40.9		
8	03.9	72.5	31.6 >	
		41.1	32.6 >	2.71 >
		73.7	64.2 >	
		37.8		
8	06.3	72.6	34.6 >	
7	59.4 >	42.1	31.2 >	2.65 >
		73.3	65.8 >	2.68 >
				1.82 >
				4.50 >
			mean =	2.25 >

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1896phae.proj.1340

Aug. 21, 1896.

Same again: Cram: obs.

Index to lift.

41.5

8 21.7 72.1

39.7

74.0

Cloudy.

8 30 Cloudy.

9 30 Cloudy.

10 0 Cloudy.

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1896phae.proj.1340.

Aug. 22. 1896. (Saturday)

Secondary min. of β Lyrae to-night.

7 30 clouds

β Lyrae: Phot N: Cram obs

comp star = 8 Lyrae

Index to left.

39.1 < B dis.

8 4.7 ~~2.9~~ ~~73.2~~ 75.2

clouds	36.1	2.41
38.5	36.9	
75.4	73.0	
		2.43
38.8	37.3 / 35.0	2.42
17.0 76.1	72.3 < index adjusted	
39.6		
74.6		

Index to right.

clouds.

2 30 clouds.

8 50 cloudy.

9 0 cloudy.

10 0 cloudy.

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1896phae.proj.1340

Aug. 22. 1896.

14	35	a little clearer.		
		Index to right.		
		123 0		
17.	49.0	172 3	49.3	
		122 8	46.1	1.77
		168.9	95.4	
		122.2		
14	52.8	169 9	47.7	
		120 5	51.3	1.68
		171.8	99.0	1.72
		Index to left.		
		Clouds.		
15	0	Clouds.		
15	30	Cloudy.		

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1896phae.proj.1340.

Aug. 23. 1896. (Sunday)

7	0	Cloudy
8	0	Cloudy
9	0	Cloudy

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1896phae.proj.1340

Aug. 24, 1896. (Monday)

B Lyrae : Phot. N : Cam: obs.

Index

7 30 Cloudy

8 30 Cloudy

Index

9 30 Cloudy : no chance for work

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1896phae.proj.1340

Aug 25. 1896. (Tuesday)

β Lyrae: Photo: Cramb.

Index to left.

		41.0	< Bdis.	
7	46.6	72.5	31.5 >	
		42.0	29.4 >	2.83 >
		71.4	60.9 >	
		41.5		
7	50.3	72.3	< images adjusted	
		41.4	30.8 >	2.76 > 9
		73.3	31.9 >	2.80 >
			62.7 >	

Index to right.

		125.0		
8	3.3	169.2	< images adjusted.	
		128.0	44.2 >	
		165.5	37.5 >	2.14 >
			81.7 >	9
		128.9		
8	8.4	167.8	38.9 >	2.17 >
7	57.2 >	128.0	42.0 >	2.16 >
		170.0	80.9 >	2.80 >
				4.96 > 9
			mean =	2.48 >

Seeing good in first half: bothered by spectrum of images in second half.

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1896phae.proj.1340

Aug. 25, 1896.

Will see Mr. Colson to find if any photo. vars are to be taken: if not, will try last of list given to me

T Sagittae: West Eq: Cramds

19
19

9 o Obs. bothered somewhat in finding star suspected to be var. on account of moonlight. so will try again later.

β Lyrae Cramds

1 wire to right and above

	308.6	< β dis.		
9	11.4	347.6	39.0 >	2.03 >
		305.2	46.3 >	
		351.5	85.7 >	
		306.1		
9	21.2	348.0	41.9 >	
		309.2	36.2 >	~~2.03~~ 2.25 >
		345.5	78.1 >	2.14 >

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1896phae.proj.1340

Aug. 25. 1896.

Index to left and below.

		223.0		
9	27.9	250.5	27.5 >	
		222.7	29.3 >	2.98 >
		252.0	56.8 >	
		221.9		
		252.3	30.4 >	
9	31.5	223.9	26.3 >	2.99 >
	4/9 20	250.2	56.7 >	2.98 >
14	23.0			2.14 >
				5.12 >
		224.5		2.56 >
9	44.3	250.9	26.4 >	
		219.5	33.7 >	2.86 >
		253.2	60.1 >	
		220.0		
9	50.6	255.0	35.0 >	
		224.6	27.9 >	2.75 >
		252.5	62.9 >	2.80 >

Index to right and above

		128.0		
9	58.2	167.0	39.0 >	
		128.2	38.8 >	2.26 >
		167.0	77.8 >	

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1896phae.proj.1340

aug. 25. 1896.

		126.7		2.22 >
10	2.0	167.4	40.7 >	2.24 >
9	38.4 >	128.2	38.3 >	2.80 >
		166.5	79.0 >	5.04 >
				2.52 >
				2.56 >
			mean =	2.54 >

Observations most extremely difficult because of dampness and very heavy fog causing moisture to settle on prism which had to be wiped off continually: for this reason group of double length was taken.

10 15 Fog thick

10 20 Fog too thick to observe at all.

11 0 Fog worse

12 0 Positively no stars visible.

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1896phae.proj.1340

Aug. 26. 1896. (Wednesday)

7 0 Cloudy.

8 0 Cloudy.

9 0 Somewhat clearer.
Bright: Short: Grainish
Index above
~~232.8~~ 231.0
269.2 < B disappeared
9 12.5 230.0 < images adjusted.
272.2 38.2 > 2.18 >
42.2 >
80.4 >

231.0
9 22.4 275.4 < images adjusted.
229.9 44.4 >
Clouds 40.3 > 2.06 >
270.2 84.7 > 2.12 >

Index below.
143.0
9 34.3 175.0 2.89 >
145.9 32.0 >
173.0 27.1 >
59.1 >

145.8 29.2 > 2.87 >
30.6 > 2.88 >
9 41.4 175.0 < images adjusted. 59.8 > 2.12 >
9 27.6 > 144.6 5.00 >
175.2 Mean = 2.50 >

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1896phae.proj.1340

Aug. 26, 1896.

Somewhat bright moonlight and thin clouds over region making observations slow and somewhat difficult.

Same again: Same obs.

Index below.

		143.7	< 3 divs.		
10	00.7	175.9	32.2 >		
		146.7	27.9 >	2.86 >	
		174.6	60.1 >		
		145.7			
10	07.6	174.9	29.2 >	2.76 >	
		142.9	33.4 >	2.81 >	
		176.3	62.6 >		

Index above.

	18.4	228.0	45.0 >	2.16 >	
10	~~23.4~~	273.0	36.3 >		
		~~232.8~~ 232.2	81.3 >		
		268.5			
		231.6		2.27 >	
10	23.9	270.1	38.5 >	2.22 >	
		230.7	39.0 >	2.81 >	
10	12.6 >	269.7	77.5 >	5.03 >	
			mean	= 2.52 >	

Observations slow because of faintness of images.

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1896phae.proj.1340

Aug. 26. 1896.

Same again:

				Gram: wts.
		Index above		
		231.2		
10	49.6	271.0	39.8 >	2.28 >
		232.0	37.3 >	
		269.3	77.1 >	
		233.0		
10	55.1	270.8	37.8 >	2.28 >
		231.8	39.3 >	2.28 >
		271.1	77.1 >	
		Index below		
		142.9		
11	0.8	176.2	33.3 >	
		144.7	30.6 >	2.72 >
		175.3	63.9 >	
		146.9		
11	5.3	175.4	28.5 >	2.91 >
10	57.7 >	144.8	30.1 >	2.82 >
		174.9	58.6 >	2.28 >
				5.10 >
			mean	= 2.55 >

observations very difficult on account of heavy fog and moonlight: dew fogs prism so that it has to be wiped after every other setting.

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1896phae.proj.1340

Aug. 26, 1896.

clouds

Same again : Cram: obs.

Index below.

325.1 < B dis.

11 32.5 354.1 29.0

328.1 26.0

854.1 55.0

clouds

327.1

clouds

354.6 27.5

11 38.8 325.4 29.7

355.1 57.2

Index above

230.3

clouds 38.9

11 45.8 269.2

clouds

1896phae.proj.1340

Aug. 27. 1896. (Thursday)

7 0 Cloudy

7 30 Cloudy

B Lyrae: Phot N: Cram: obs 8

Index to right and above.

230.6 < B dis.
8 05.1 273.5 < images adjusted.
232.5
270.4 42.9 >
37.9 > 2.17 >
80.8 >

230.9
clouds 39.3 >
42.2 > 2.15 >
81.5 >
8 14.3 270.2 < images adjusted.
230.5 2.16 >
272.7

Index to left and below.

323.7
8 24.1 357.8 34.1 2.62 >
324.1 32.4
356.5 66.5 >

325.0
8 29.0 350.2 31.2 2.71 >
8 18.1 > 324.7 32.8 2.66 >
357.5 64.0 > 2.16 >
4.82 >
mean = 2.41 >

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Aug. 27. 1896.

Same again. Crowds
Index to left and below.

		324.7		
	36.0	355.0	< B dis.	
8	~~41.4~~		30.3 >	
		324.0	33.0 >	2.74 >
		357.0	63.3 >	
		clouds.		
		324.6		
8	41.1	356.2	31.6 >	2.84 >
		clouds.	29.0 >	2.79 >
8	5+	Some what clearer.	60.6	
9	00.5	326.5		
		355.5		
		Index to the right & above		
		49.6		
		Clouds		
9	00.8	90.0	40.4 >	2.20 >
		50.0	39.4 >	
		89.4	79.8 >	
		49.8		
9		89.9	40.1 >	2.19 >
10	10.0	51.6	40.1 >	2.20
8	54.0 >	91.7	80.2 >	2.79 >
				4.99 >
				mean = 2.50 >

Observations made in very great haste on account of approaching clouds: many of settings

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1896phae.proj.1340

Aug. 27, 1896.

made through clouds.

9	30	Cloudy
10	30	Cloudy
11	30	Cloudy
11	40	Clearing

β Lyrae : Phot. N : Cramer obs.

Index to right and above.

		47.0	< β dis.	
12	05.4	92.3	45.3 >	
		48.7	43.6 >	1.94 >
		92.3	88.9 >	
		50.5		
12	13.2	91.0	40.5 >	
		48.8	43.7 >	2.07 >
		92.5	84.2 >	2.00 >

Index to left and below.

		325.0		
12	18.8	356.0	31.0 >	
		324.2	31.1 >	2.78 >
		355.3	62.1 >	

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Aug. 27. 1896.

		325.6		
12	22.3	355.5	29.9 >	2.66 >
12	14.9 >	322.8	35.5 >	2.72 >
		358.3	65.4 >	2.00 >
				4.72 >
			mean	= 2.36 >

Observation somewhat difficult because of flickering of image.

Same again: Cram. obs.

Index to left and below

		324.4 < (3 dis.		
12	39.0	356.4	32.0 >	
		326.6	28.9 >	2.83 >
		355.5	60.9 >	
		326.2		
12	43.1	355.5	29.3 >	2.92 >
		324.9	29.1 >	2.88 >
		354.0	58.4 >	

Index to right and above

		51.0		
12	49.7	89.9	38.9 >	2.17 >
		50.7	41.9 >	
		92.6	80.8 >	

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1896phae.proj.1340

Aug. 27, 1896.

		49.0		
12	57.0	88.8	39.8 >	
		51.2	38.3 >	2.25 >
	4(18.5.8	89.5	78.1 >	2.21 >
17	46.45			2.88 >
				5.09 >
				2.54 >
		49.1		
12	12.2	92.2	43.1 >	
		49.5	43.3 >	2.01 >
		92.8	86.4 >	
		48.9		
13	17.2	92.9	44.0 >	
		49.5	43.2 >	1.99 >
		92.7	87.2 >	2.00 >

Index to left and below

		323.2		
13	23.2	356.5	33.3 >	
		326.3	30.0 >	2.74 >
		356.3	63.3 >	
		326.0		
13	26.2	356.0	30.0 >	
13	3.0 >	326.0	31.0 >	2.82 >
		357.0	61.0 >	2.78 >
				2.00 >
				4.78 >
				2.39 >
				2.54 >
				4.93 >
			mean =	2.46 >

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Aug. 27, 1896.

as observations were very difficult because of flickering of images, groups of double length were taken.

Same again: Cram obs

Index to left and below.

		326.0	< B dis.	
13	44.7	355.7		
		325.2	29.7 >	2.77 >
		357.9	32.7 >	
			62.4 >	
		322.6		
13	49.3	355.5	32.9 >	2.65 >
		324.2	33.0 >	2.71 >
		357.2	65.9 >	

Index to right and above.

		51.3		
13	56.8	92.4	41.1 >	
		48.5	43.0 >	2.08 >
		91.5	84.1 >	
		50.6		1.98 >
14	03.8	93.8	43.2 >	2.03 >
13	53.6 >	48.7	44.5 >	2.71 >
		93.2	87.7 >	4.74 >
				mean = 2.37 >

Observation, because of faintness of images, difficult.

1896phae.proj.1340

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1896phae.proj.1340

Aug. 27, 1896.

Same again. Cram: also
Index to right and above

		48 .5		
		93 .3	< B dis.	
14	19.0		44.8 >	1.94 >
		48 .6	44.2 >	
		92 .8	89.0 >	
		48 .5		
14	23.7	92 .0	43.5 >	1.93 >
		47 .7	45.8 >	1.94 >
		93 .5	89.3 >	

Index to left and below.

		144 .7		
14	4.8	177 .2	32.5 >	2.73 >
		144 .5	31.2 >	
		175 .7	63.7 >	
		142 .1		
14	32.1	176 .5	34.4 >	2.60 >
14	25.6 >	144 .4	32.8 >	2.66 >
		177 .2	67.2 >	1.94 >
				4.60 >
			mean =	2.30 >

Observation difficult on account of faintness of images.

Stopped by faintness of images.

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1896phae.proj.1340

Aug. 28. 1896. (Friday)

7 15 Somewhat cloudy

β Lyrae: Phot N: Cramer obs.

Index to left and below.

322.0 < β dis.

8 01.5 358.8 36.8 > 2.36 >

321.7 37.9 >

359.6 74.7 >

321.5

8 05.7 358.6 < images adjusted.

Clouds 37.1 >

320.6 37.0 > 2.37 >

357.6 74.1 > 2.36 >

Index to right and above.

Clouds.

226.1

8 26.0 272.2 46.1 > 1.75 >

225.1 50.2 >

275.3 96.3 >

227.7

8 45.0 275.6 47.9 > 1.83 >

8 19.6 > 228.2 45.3 > 1.79 >

273.6 93.2 > 2.36 >

4.15 >

mean = 2.08 >

In first half when uninterrupted by clouds, seeing was excellent.

9 0 Cloudy.

9 40 Cloudy.

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1896phae.proj.1340

Aug. 28. 1896.

Same again: Cyan: obs.
Index to right and above.

		227.7	← B dis.	
9	48.6	274.3		
			46.6 >	
		226.3	48.5 >	1.78 >
		274.8	95.1 >	
		226.1		
		blends		
10	01.5	274.0	47.9 >	
		blends	45.6 >	1.82 >
		228.5	93.5 >	1.80 >
		274.1		

Index to left and below.

		142.2		
10	21.0	178.0	35.8 >	2.32 >
		140.1	39.9 >	
		180.0	75.7 >	
		142.5		
10	26.0	180.0	37.5 >	2.43 >
10	09.3 >	143.4	34.8 >	2.38 >
		178.2	72.3 >	1.80 >
				4.18 >
			mean =	2.09 >

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1896phae.proj.1340

Aug. 28. 1896.

Same again: Cram: abs.

Index below

		141.4 < B ds		
10	48.8	179.1		
			37.7 >	2.28 >
		141.1	39.3 >	
		180.4	77.0 >	
		140.6		
10	52.5	181.0	40.4 >	
		143.3	35.7 >	2.31 >
		179.0	76.1 >	2.30 >

Index above.

		48.6		
10	56.9	95.5	46.9 >	
		47.0	47.7 >	1.79 >
		94.7	94.6 >	
		45.7		
11	03.5	92.8	47.1 >	
10	55.4 >	47.0	47.7 >	1.79 >
		94.7	94.8 >	1.79 >
				2.30 >
				4.09 >
			mean =	2.047

Seeing pretty good all the time.

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Aug. 28. 1896.

Same again: Grammels.

I make about

		44.0		
		96.8	< B dis.	
11	20.7		52.8 >	
		45.4		1.63 >
			48.1 >	
		93.5		
			100.9 >	
		45.5		
11	26.2	93.8	48.3 >	
		44.1	50.9 >	1.68 >
				1.66 >
		95.0	99.2 >	

I make below

		140.0		
11	31.6	179.3	39.3 >	
		138.5	41.3 >	2.18 >
		179.8	80.6 >	
		140.4		
11	36.4	178.7	38.3 >	
				2.26 >
11	28.7 >	140.6	39.5 >	2.22 >
		180.1	77.8 >	1.66 >
				3.88 >
				mean = 1.94 >

Heavy fog coming from east, making images a little faint; but observations continued good.

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Aug. 28. 1896.

Same again: Cram: obs.

Index below

142.4 < B dis.

11 53.6 177.7 353 > 2.31 >

139.3 40.8 >

180.1 76.1 >

141.2

11 59.1 179.8 38.6 > 2.31 >

141.2 37.6 > ~~2.32~~

178.8 76.2 > ~~2.32~~

2.31 >

Index above.

226.4 51.6 >

12 08.6 278.0 48.5 > 1.65 >

226.0 100.1 >

~~273.9~~ 274.5

228.8

12 24.0 273.4 44.6 > 1.84 >

12 06.3 > 226.6 48.1 > 1.74 >

274.7 92.7 > 2.31 >

4.05 >

~~2.06~~

mean = 2.02 >

Observations slow and very difficult at the last because of moonlight, haze and faintness of B Lyrae, it being near minimum; if possible obs. will try once more for

Same again . . . Cram obs

Index above

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Aug. 28. 1896.

		224.0	< B dis.	
12	40.2	276.9	52.9 >	1.61 >
		226.7	49.2 >	
		275.9	102.1 >	
		227.6		
12	46.2	273.5	45.9 >	
		226.9	50.1 >	1.76 >
		277.0	96.0 >	1.68 >

Index below.

		323.0		
12	51.9	361.2	38.3 >	
		321.2	38.4 >	2.29 >
		359.6	76.7 >	
		321.1		
12	55.8	356.5	35.4 >	2.42 >
12	48.5	321.6	37.4 >	2.36 >
		359.0	72.8 >	1.68 >
				4.04 >
				mean = 2.02 >

Observations most extremely difficult because of moon light, haze, and faintness of images.

Practically stopped by faintness of images due to haze

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2 30- Clear

Triad for β Lyrae but comp. star absolutely invisible.

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1896phae.proj.1510

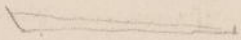
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1896phae.proj.1349

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