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KG
11366
v. 330

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June 15, 1893.

Search for
Comet Suspected on photographic
plate by John A. Lewis.

18	17	+ 23.7
13	35	
-4	42	
+12	00	
+7	18	

Measts of Bright Double stars Phot R. A. obs.

Σ2264 =

No 175 A =95 Herculis.

17	56	+21.6
13	58	
-3	58	
+12	00	
+8	2	

Air rather unsteady images, a little poor.

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1893phae.proj.1334.

2

June 15, 1893.

Index to right & above. A.

8.17

190.2 (northern + pole image dis.)
273.0 82.8 ✓ 1
186.0
276.1 90.1 ✓ 1 −0.13
172.9 ✓ 1 ~~+2.1 ✓ 1~~

Index to left & below. B.

281.0
8.6 87.6 ✓ 1
272.3 +0.06
8.0 95.7 ✓ 1
183.8 ✓ 1 ~~+1.9 ✓ 1~~
275.0 176.7
5.7 90.7 ✓ 1
279.0
8.2 89.2 ✓ 1 .000
179.9 ✓ 1 ~~+2.0 ✓ 1~~

Index to right & above. A.

11.5
101.0 89.5 ✓ 1
12.0
96.8 84.8 ✓ 1 −0.11
174.3 ✓ 1 ~~+2.1 ✓ 1~~

11.2
94.1 82.9 ✓ 1
9.5
101.4 91.9 ✓ 1 −0.10
174.8 ✓ 1 ~~+2.1 ✓ 1~~

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1893phae.proj.1334.

June 15, 1893.

Index to left + below.	B.	
105.0		
182.3	77.3 ✓1	
100.6		
188.7	88.1 ✓1	−0.28
	165.4 ✓1	+2.3 ✓1

8:35.

Images a little unsteady & blurry at times

No 168 δ Herculis

17	10	+ 25.0
44	30	
− 2	40	
+12	00	
+9	20	

Oct.

Altitude too high.

Search for comet suspected on photographic plate by John A Lewis.

18	17	+ 23.7
14	37	
−3	40	
+12	60	
+8	20	

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1893phae.proj.1334.

June 15, 1893.

18	13	+24.4
14	55	
−3	18	
12	00	
8	42	

~~Region~~ Swept thoroughly for comet while it was clear, differenced from star & examined exact theoretical region, no comet found.

Now thickly foggy.

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1893phae.proj.1334.

June 19, 1893.

Phot. measts. of Bright double stars.
Phot. R. W. obs.

No 192 β Lyrae.

18	45
13	55
−4	50
12	00
+7	10

+33.2.

Index below × to right (?)

8:12.

235.0 ⟨ ftr. dis.
35.0 160.0 ✓ ✓
239.7
34.2 154.5 ✓ ✓
314.5 ✓ ✓ −1.5 ✓ ✓

Index above × to left.

325.0
126.9 −161.9 ✓ ✓
330.3
125.8 155.5 ✓ ✓
317.4 ✓ ✓ − 1.6 ✓ ✓

330.1
124.0 153.9 ✓ ✓
324.5
125.1 160.6 ✓ ✓
314.5 ✓ ✓ −1.5 ✓ ✓

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1893phae.proj.1334.

June 19, 1893.

Index below & to right.

56.8.		
215.0	158.2 ✓ 1	
56.4		
217.2	160.8 ✓ 1	
	319.0 ✓ 2	-1.7 ✓ 1
57.0		
216.0	159.0 ✓ 1	
57.6		
214.5	156.9 ✓ 1	
	315.9 ✓ 2	-1.6 ✓ 1

Index above & to left.

148.8		
304.1	155.3 ✓ 1	
149.2		
304.1	154.9 ✓ 1	
	310.2 ✓ 2	-1.3 ✓ 1

8.23

No 196 o Draconis.

18.	49.	+59.2
14	37	
-4	12	
12	00	
+7	48	

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1893phae.proj.1334.

June 19, 1893.

8133

Index to left.

235.5		
36.2	160.7 ✓	
236.0		
35.0	159.0 ✓	
	319.7 ✓	~~1.8~~ ✓
	~~40.3~~	3.75

Index to right.

328.3		
124.0	155.7 ✓	
326.9		
125.0	158.1 ✓	
	313.8 ✓	~~5.4~~ ✓
326.0	~~46.2~~	−3.45
124.5	158.5 ✓	
327.5		
124.0	156.5 ✓	
	315.0 ✓	~~−1.5~~ ✓
	~~45.0~~	3.51

Index to left.

57.8		
215.0	157.2 ✓	
58.3		
216.1	157.8 ✓	
	315.0 ✓	~~−1.5~~ ✓
58.0	~~45.0~~	3.51
215.0	157.0 ✓	
59.0		
214.0	155.0 ✓	
	312.0 ✓	~~1.4~~ ✓
	~~48.0~~	3.36

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1893phae.proj.1334.

June 19, 1893.

Index to right.

327.5
123.4 155.9 ✓1
327.3
8:45 123.5 156.2 ✓1
312.1 ✓1 ~~-1.4~~ ✓1
47.9 3.37

No 198 η Lyrae,

19	10	+39.0
15	2	
-4	8	
1n	0	
+7	52	

Index below.

8:57 56.1
216.0 159.9 ✓1
53.0
218.0 165.0 ✓1
324.9 ✓1 ~~-2.1~~ ✓1
35.1 4.06

Index above.

145.6
307.2 161.6 ✓1
147.0
308.5 161.5 ✓1
323.1 ✓1 ~~-1.9~~ ✓1
26.9 3.95

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1893phae.proj.1334.

June 19, 1893

Index above.

145.7
308.4 162.7 ✓
145.0
308.5 163.5 ✓
326.2 ✓ ~~2.1~~ ✓
Index below 33.4 4.13

235.0
37.7 162.7 ✓
233.5
40.0 166.5 ✓
329.2 ✓ ~~2.3~~ ✓
233.9 30.4 4.35
39.5 165.6 ✓
234.7
36.7 162.0 ✓
327.6 ✓ ~~2.2~~ ✓
Index above 32.4 4.23

323.1
129.0 165.9 ✓
324.4
9:08 127.2 162.8 ✓
328.7 ✓ ~~2.3~~ ✓
313 4.31

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1893phae.proj.1334.

June 19, 1893.

L. M. Wedge Zone Wash.

Series 122. + 9°

11	38	+ 10.0
15	30.	
+ 3	52	

9;30	2543	4.00		
		3.99		
		3.80	11.79	5.10
	2547	2.82		
		3.00		
		3.20	9.02	3.91
	2562	3.36		
		3.18		
		3.32	9.86	4.27
	2562	Clouds.		
		3.10		
		3.30		
		3.27	9.67	4.19
	2566	2.89		
		3.08		
		3.18	9.15	3.96

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1893phae.proj.1334.

June 19, 1893

2568	2.90		
	2.88		
	2.90	8.68	3.76
2579	3.39		
	3.69		
	3.60	10.68	4.62
2580	2.10		
	2.22		
	2.29	6.61	2.86
2589	2.35		
	2.40		
	2.30	7.05	3.05
2593	2.80		
	2.99		
	3.10	8.89	3.85
2601	2.68		
	2.99		
	3.10	8.77	3.80
2602	2.70		
	2.82		
	2.81	8.33	3.61

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1893phae.proj.1334.

June 19, 1893

2606	3,61		
	3,49		
	3,41	10.51	4.55
2611	~~3,69~~ seem to be wrong.		
	4,10		
	4,00		
	4,07	12.17	5.27
2612	2,71		
	2.98		
	2,93	8.62	3.73
2617	3.32		
	3,39		
	3.24	9,95	4.31
2627	2.88		
	3,19		
	3,19	9.26	4.01
2630	2.90		
	2.70		
	2.78	8.38	3.63
2632	2.91		
	2.91		
	2.93	8.75	3.79

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1893phae.proj.1334.

June 19, 1893.

	2637	3.40		
		3.49		
10.41		3.66	10.55	4.57

Some light haze about which caused gone to be stopped once or twice but as care was taken in watching the clouds, gone thought not to be seriously affected.

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1893phae.proj.1334.

June 20, 1893.

Showed Mr. de Lury from Toronto the moon and ~~Jupiter~~ Saturn before beginning Hodge Series.

D. M. Hodge Zone, + N. obs.

Series. 123. +9°

+0	55		+10.0
14	45		
+3	50		

8:38	2441	5.30		
		5.45		
		5.22	15.97	6.92
	2444	2.70		
		2.97		
		3.00	8.67	3.75
	2446.	2.50		
		2.89		
		2.57	7.96	3.45
	2447	2.08		
		2.09		
		2.09	6 8.26	2.71

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1893phae.proj.1334.

June 20, 1893.

2450	2.27		
	2.12		
	2.22	6.61	2.86
2457	2.22		
	2.19		
	2.21	6.62	2.87
2461	2.49		
	2.48		
	2.40	7.37	3.19
2467	2.57		
	2.60		
	2.55	7.66	3.32
2475	2.72		
	2.88		
	2.77	8.37	3.62
2477	3.18		
	2.80		
	3.00	8.98	3.89
2479	3.07		
	3.15		
	3.20	9.42	4.08

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1893phae.proj.1334.

June 20, 1893.

2480	2.79		
	2.80		
	2.82	8.41	8.64
2482	5.21		
	5.39		
	5.33	15.93	6.90
2484	2.82		
	2.99		
	2.93	8.74	3.78
2490	3.42		
	3.71		
	3.70	10.83	4.69
2491	2.29		
	2.48		
	2.32	7.09	3.07
2501	2.75		
	2.67		
	2.70	8.12	3.52
2505	2.11		
same star, observed as in	2.22		
series 121	2.20	6.53	2.83

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1893phae.proj.1334.

June 20, 1893

2506	4.42		
	4.23		
	4.21	12.86	5.57
2507	2.40		
	2.44		
	2.47	7.31	3.17
2508	2.33		
	2.34		
	2.37	7.04	3.05
2516	3.15		
	3.31		
	3.18	9.64	4.17
2521	2.30		
	2.50		
	2.38	7.18	3.11
2524	2.29		
	2.10		
	2.22	6.61	2.86
2525	2.70		
	2.80		
	2.77	8.27	3.58

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1893phae.proj.1334.

June 20, 1893.

2528	2.70		
	2.90.		
	2.90	8.50	3.68
2531	2.98		
	2.92		
	2.87	8.77	3.80
2532	2.51		
	2.51		
	2.53	7.55	3.27
2543	3.99		
	3.75		
	3.74	11.48	4.97
2547	2.68		
	2.90		
	2.88	8.46	3.66
2562	3.30		
	3.18		
	3.25	9.73	4.21
2579	3.12		
	3.07		
	3.19	9.38	4.06

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June 20, 1893.

2580	2.40		
	2.58		
	2.49	7.47	3.23
2584	2.65		
	2.79		
	2.72	8.16	3.53
2593	2.99		
	3.20		
	3.09	9.28	4.02
2601	3.03		
	2.99		
	3.02	9.04	3.91
2602	2.75		
	2.95		
	2.84	8.54	3.70
2606	3.79		
	3.74		
	3.84	11.37	4.92
2611	3.99		
	4.00		
	4.22	12.21	5.29

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June 20, 1893.

2612.	3.38		
	3.09		
	3.80	9.77	4.23
2617	3.57		
	3.31		
	3.39	10.27	4.45
2627	3.38		
	3.30		
	3.29	9.97	4.32
2630	3.27		
	3.10		
	3.20	9.57	4.14
2632	2.50		
	2.65		
	2.62	7.77	3.36
2637	3.98		
	3.71		
	3.96	11.65	5.04
2645	2.90		
	2.92		
	2.95	8.77	3.80

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1893phae.proj.1334.

June 20, 1893.

2650	3.00		
	3,08		
	3.10	9.18	3,97
2652	2.79		
	2,70		
	2,75	8.24	3.57
2654	3,40		
	3.35		
	3,39	10.14	4.39
2656	2,44		
	2,38		
	2,42	7.24	3.13
2664	2,75		
	2,89		
	2,84	8.48	3.67
2667	2,94		
	2,99		
	3,00	8.93	3.87
2669	5,10		
	5,11		
10:15	5,29	16.50	6.71

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1893phae.proj.1334.

June 20, 1893.

~~Measts of bright double stars~~ ~~Phot. R.~~ ~~Obs.~~

~~No 121.~~ ~~24 Comae Ber.~~

~~12~~ 29

Some scattered cloud passing at times & a little haze but watch was kept of it & gone thought not to be affected, sky generally pretty clear.

Measts of Bright double stars Phot R.
Obs.

No 124 24 Comae Ber.

12	29	+19.1
16	44	
+4	15	

Index to right

10:46

256.1

14.2 118.1 ✓1

250.0

20.2 130.2 ✓1

248.2 ✓1 ~~+ 0.6 ✓1~~

111.8 -1.38

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1893phae.proj.1334.

June 20, 1893.

Index to left.

340.9
113.9 133.0 ✓
347.2
110.3 123.1 ✓
256.1 ✓ ~~+.04~~ ✓
345.2 103.9 −1.56
111.0 125.8 ✓
337.8
110.0 132.2 ✓
258.0 ✓ ~~+.04~~ ✓
1020 −1.6

Index to right.

78.9
198.0 119.1 ✓
69.8
204.0 134.2 ✓
253.3 ✓ ~~+.05~~ ✓
69.7 106.7 −1.49
205.1 135.4 ✓
75.7
197.1 121.4 ✓
256.8 ✓ ~~+0.4~~ ✓
1028 −1.58

Index to left.

161.1
297.7 136.6 ✓
168.2
287.0 118.8 ✓
255.4 ✓ ~~+.05~~ ✓
1046 −1.54

10.54

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1893phae.proj.1334.

June 24, 1893.

Phot Meas of bright double stars. Phot R. N. obs.

No 119 17 Comae Ber.

12	23	+ 26.6
14	24	
+ 2	1	

Readings below.

8:07

296.1

60.0 123.9

Clouds.

Thickly cloudy with no prospect of clearing.

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1893phae.proj.1334.

June 26. 1893.

Phot. measts. of bright double stars, Yr. obs.

No. 119. 17 Comae Ber.

12 23 +26.6

14 47

+2 22

Index Above

206.8 127.4

332.2

205.1 121.2

326.3 246.6 +0.7

118.4 — 1.34

A 20

Index below

296.0 123.1

59.1

291.2 130.9

62.1 260 +0.5

106.0 — 1.51

293.0 124.3

61.3

297.4 119.2

57.2 241 +0.6

111.9 — 1.07

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1893phae.proj.1324.

June 25th 1893.

Index above

23.9 126.1 ✓ ✓

150.0

27.2 118.8 ✓ ✓

146.0 245.9 ✓ ✓ ~~+0.7~~ ✓ −1.30

1151

30.2 115.0 ✓ ✓

145.2

25.2 121.8 ✓ ✓

147.0 236.8 ✓ ✓ ~~+0.9~~

1232 −1.12 ✓

Index below

115.9 117.1 ✓ ✓

233.0

111.7 125.7 ✓ ✓

237.4 242.8 ✓ ✓ +0.7 ✓ −1.25 ✓

117.2 Mean = −1.22 ✓

A 30

8 25

Photometric Wedge Series Nr. 86.

+9° Series 124.

12 40 +9.8

15 15

+2 35

~~Abandoned for the present.~~

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1893phae.proj.1334.

June 26th, 1893.

~~26 37~~

9.00	2637	3.85		
		3.90		
		3.82	11.57	5.01
	2645	2.75		
		2.88		
		2.85	8.48	3.67
	2650	3.11		
		3.18		
		3.12	9.41	4.07
	2652	3.11		
		3.20		
		3.18	9.49	4.11
	2654	3.61		
		3.61		
		3.60	10.82	4.68
	2656	2.60		
		2.80		
		3.00	8.40	3.64
	2664	2.85		
		3.00		
		2.92	8.77	3.80

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1893phae.proj.1334.

June 26th, 1893.

2667	2.60		
	2.99		
	2.86	8.45	3.66
2669	5.20		
	4.98		
	5.19	15.37	6.66
2675	4.68		
	4.70		
	4.62	14.00	6.06 ~~6.05~~
2676	3.89		
	4.00		
	3.99	11.88	5.14
2685	2.29		
	2.59		
	2.51	7.39	3.20
2687	2.77		
	2.70		
	2.70	8.17	3.54
2694	4.17		
	4.10		
	4.03	12.30	5.33

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1893phae.proj.1334.

June 26th, 1893.

~~2698~~			
2695	2.86		
	2.90		
	2.95	8.71	3.77
2702	3.71		
	3.79		
	3.89	11.39	4.93
2703	3.75		
	3.69		
	3.70	11.14	4.82
2708	4.05		
	4.18		
	4.19	12.42	5.38
2715	3.85		
	4.10		
9 45±	4.02	11.97	5.18

Clouds.

Zone stopped before it was affected by clouds.
Observations Further observations not attempted owing to continuance of clouds.

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1893phae.proj.1334.

June 26 ~, 1893.

Phot. measts. of bright double Stars. W. obs

No. 121 24 Comae Ber.

12.11.29 + +19.0
19.0
4.31

Index to right and below

10.40

113.7
236.6
109.8
241.7

122.9 ✓1
131.9 ✓1
2✓ ✓1 +0.✓1 ✓
105.2

−1.53

Index to left and above

203.1
337.0
207.0
325.6

133.9 ✓1
118.6 ✓1
2✓ 2✓ ✓1 +0.✓ ✓
107.5

325.6

−1.48

209.5
329.1
199.0
333.1

119.6 ✓1
134.1 ✓1
2✓ 3.7 ✓1 +0.✓1 ✓
106.3

−1.50

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1893phae.proj.1334.

June 26th, 1893.

Index to right and below

298.0 121.4 ✓
59.4
290.3
67.9 137.6 ✓
205.0 ✓ +0.4 ✓
161.0 −1.63

289.9 138.9 ✓
68.8
293.6 129.2 ✓
62.8 268.1 ✓ +0.1 ✓
91.9 −1.86

Index to Left and above.

17.5 135.6 ✓
163.1
23.2 125.2 ✓
149.0 261.4 ✓ +0.3 ✓
98.6 −1.69

No. 125 12 Canum Ven.

12 h 50 +39.0
17 h 30
4 h 40

Index above

11 h 00 16.7
154.0 137.3 ✓
13.4 146.7 ✓
160.1 284.0 ✓ −0.3 ✓
76.0 −2.32

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1893phae.proj.1334.

June 26th, 1893.

Index below.

108.2
243.0 13K.8 ✓1

101.0
250.9 149.9 ✓1
2447 ✓1 ~~0.0~~ ✓1
75.3 −2.34

101.0
247.3 146.3 ✓1 *
105.4
244.1 13A7 ✓1
2AV0 ✓2 ~~0.3~~ ✓1
75.0 −2.35

Index above

190.1
343.3 1V3.2 ✓1
200.2
~~197.0~~ 13V.9 ✓1
336.1 249.1 ✓1 ~~0.5~~ ✓1
70.9 −2.48

200.2

196.0
335.0 139.9 ✓1
192.0
192.0 1V1.9 ✓1
343.9 290.9 ✓1 ~~0.5~~ ✓1
69.1 −2.54

192.0

Index below

290.8
66.1 13V.3 ✓1
281.0
71.0 1V0.0 ✓1
2AV3 ✓1 ~~0.14~~ ✓1
74.7 −2.36

11.10

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1893phae.proj.1334.

Pasted to here.

June 29. 1893.

Photmeasts of bright Doubles Phot. R. H. obs.

No 112 54 Leonis.

10	49	+ 25.4
14	40	
+3	56	

Index to right.

8:09

120.6		
257.8	137.2 ✓	
128.0		
251.0	123.0 ✓	
	260.2 ✓	~~+0.3~~ ✓
	99.8	−1.66

Index to left

211.2		
347.1	135.9 ✓	
215.0		
340.9	125.9 ✓	
	261.8 ✓	~~+0.3~~ ✓
	98.2	−1.70
212.8		
340.3	127.5 ✓	
210.1		
345.2	135.1 ✓	
	262.6 ✓	~~+0.3~~ ✓
	97.4	−1.72

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1893phae.proj.1334.

June 29, 1893

Landes to right.

305.5		
70.0	124.5 ✓	
300.5		
73.8	133.3 ✓	
	257.8 ✓	+0.4 ✓
299.0	102	−1.60
73.1	134.1 ✓	
306.2		
69.8	123.6 ✓	
	257.7 ✓	+0.4 ✓
Landes to ~~left~~	102.3	−1.60 ✓
29.5		
166.8	136.8 ✓	
33.2		
162.4	129.2 ✓	
	266.0 ✓	+0.2 ✓
	940	−1.61

8:22

No 118 93 Leonis.

11	42	+20,9
15	14	
+3	32	

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1893phae.proj.1334.

June 29, 1893.

Index to right + above.

8:30

	32.0		
	197.1	165.1	
	33.9		
	197.5	163.6	
		328.7	~~2.8~~
		~~327.3~~	-4.31

Index to left ~~+ below~~.

125.4		
284.5	159.1	
122.2		
285.5	163.3	
	322.4	~~1.9~~
123.0	~~327.6~~	-3.91
285.1	162.1	
125.2		
284.2	159.0	
	321.1	~~1.8~~

Index to right ~~+ above~~. ~~38.9~~ -3.83

212.2		
17.0	164.8	
214.0		
14.5	160.5	
	325.3	~~2.1~~
213.0	~~34.7~~	-4.09
14.5	161.5	
211.0		
16.1	165.1	
	326.6	~~2.2~~
	~~334~~	-4.17

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1893phae.proj.1334.

June 29, 1893.

Index to left + below.

305,1.

	103.9	158.8 ✓ 1
	303.0	
8;41	104.8	161.8 ✓ 1
	320.6	✓ 1 -1.8 ✓ 1
	39.4	-3.8a ✓

M. M. Ridge Gone. Mobs.

Series 125 +9°.

12	40	+ 9.8
15	35	
+2	55	

8:53	2669	5.27		
		5.24		
		5,01	15.52	6.72
	2675	4.25		
		4,50		
		4.39	13.14	5.69

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1893phae.proj.1334.

June 29, 1893.

2676	3.70		
	3.99		
	3.89	11.58	5.01
2685	2.31		
	2.41		
	2.51	7.23	3.13
2687	2.47		
	2.70		
	2.83	8.00	3.46
2694	4.20		
	3.99		
	3.99	12.18	5.27
2695	3.00		
	2.89		
	3.08	8.97	3.88
2702	4.02		
	3.90		
	3.91	11.83	5.12
2703	4.00		
	3.99		
	3.91	11.90	5.15

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1893phae.proj.1334.

June 29, 1893.

2708	4.00		
	4.31		
	4.24	12.55	5.43
2715	3.92		
	3.79		
	3.92	11.63	5.04
2716	3.20		
	3.23		
	3.22	9.65	4.18
2720	4.60		
	4.21		
	4.40	13.21	5.72
2726	2.70		
	2.91		
	2.95	8.56	3.71
2737	4.61		
	4.30		
	4.40	13.31	5.76
2734	2.60		
	2.73		
	3.00	8.33	3.61

2737 accidentally taken before 2734

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1893phae.proj.1334.

June 29, 1893

2757	2.70		
	2.59		
	2.62	7.91	3.43
2759	3.02		
	3.05		
	3.10	9.17	3.97
2769	2.49		
	2.80		
	2.76	8.05	3.49
2770	3.90		
	3.80		
	4.05	11.75	5.09
2771	2.40		
	2.50		
	2.52	7.42	3.21
2780	2.90		
	3.02		
	3.10	9.02	3.91
2782	3.40		
	3.37		
	3.33	10.10	4.37

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1893phae.proj.1334.

June 29, 1895

2787	2.80		
	3,14		
	3,18	9.12	3.95 ~
2789	3.91		
	3,94		
	4,00	11.85	5.13 ~
2794	2.39		
	2,35		
	2,42	7,16	3.10 ~

2794 has a fainter star preceding it 6.5 sec, same declination. Painter star is about 10th. mag. U. M. 2795 is missing. There is no star near its place.

2800	2.35		
	2,49		
	2,51	7.35	3.18 ~
2801	2,37		
	2,90		
	2,70	7.97	3,45 ~
2807	3,71		
	3,59		
	3,59	10.89	4.72 ~

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1893phae.proj.1334.

June 29, 1893

2817	2.90		
	3.00		
	3.05	8.95	3.88
2818	2.10		
	2.40		
	2.49	8.99	3.03
2820	4.10		
	4.30		
	4.20	12.60	5.46
2825	2.75		
	2.90		
	2.97	8.62	3.73
2826	3.40		
	3.50		
	3.75	10.65	4.61
2841	3.00		
	3.02		
	3.05	9.07	3.93
2850	2.55		
	2.71		
	2.95	8.21	3.55

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1893phae.proj.1334.

June 29, 1893.

2852	3.03		
	3,23		
	3,30	9.56	4.14 c
2859	3,29		
	3,20		
	3.01	9.50	4.11 c
2868	4.30		
	4,19		
10:43	3.93	12.42	5.38 c

No 125 12 Canum Ven.

12	50	+39.0
17	37	
+4	47	

Index below.

10:55

48.7		
185.0	136.3 ✓	
41.3		
190.0	148.7 ✓	
	+285.0 ✓	~~=0.3 ✓~~
	75.0	−2.35

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1893phae.proj.1334.

June 29, 1893.

Index above.

137.0
280.7 149.7 ✓
136.1
276.1 140.0 ✓
289.7 ✓ −0.5 ✓
136.1 ~~70.3~~ −2.50
276.0 139.9 ✓
131.1
280.0 148.9 ✓
288.8 ✓ −0.5 ✓
~~71.2~~ −2.47

Index below.

224.0
4.0 140.0 ✓
217.3
13.0 155.7 ~~295.7~~ −0.7 ✓
295.7 ✓
218.3 ~~64.3~~ −2.70
9.2 150.9 ✓
224.7
5.7 141.0 ✓
291.9 ✓ −0.6 ✓
~~68.1~~ −2.57

Index above

310.6
102.3 151.7 ✓
316.3
97.8 141.5 ✓
293.2 ✓
~~66.8~~ −2.61 −0.6 ✓

11:05

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1893phae.proj.1334.

June 30, 1893

Phot. measts of bright double stars Phot. R. N. obs.

No 112 54 Leonis.

10	49	+ 25.4
15	2	
+4	13	

Index to right.

8:17

2.0		
138.0	136.0 ✓ 1	
6.2		
132.4	126.2 ✓ 1	
	262.2 ✓ 1	+0.3 ✓ 1
Index to left.	97.1	−1.71
91.7		
229.8	138.1 ✓ 1	
96.5		
227.9	131.4 ✓ 1	
	269.5 ✓ 1	+0.1 ✓ 1
	90.5	−1.90
95.3		
228.1	132.8 ✓ 1	
93.8		
230.1	136.3 ✓ 1	
	269.1 ✓ 1	+0.1 ✓ 1
	90.9	−1.89

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1893phae.proj.1334.

June 30, 1893.

Index to right.

184.0
321.3 137.3 ✓
187.7
315.0 127.3 ✓
264.6 ✓ +0.2 ✓
187.9 ~~95.4~~ −1.77
313.3 125.4 ✓
184.7
321.8 137.1 ✓
262.5 +0.3 ✓
Index to left ~~97.5~~ −1.72

275.8
49.2 133.4 ✓
278.7
8:30 45.0 126.3 ✓
259.7 +0.4 ✓
106.3 −1.50

No 119 17 Comae Ber.

12 23 +26.6
15 25
3 2

1893phae.proj.1334.

June 30, 1893,

8:40

Index above.

110.0
234.8 124.8
115.0
228.4 113.4
238.2 +0.8

Index below 121.8 −1.15

205.0
317.0 112.0
198.8
325.0 126.2
238.2 +0.8

198.8 121.8 −1.15
325.0 126.2
201.8
321.3 119.5
245.7 +0.7

Index above 114.3 −1.32

289.7
58.4 128.7
289.9
55.0 125.1
253.8 +0.5

296.0 106.2 −1.51
46.7 110.7
288.0
53.0 125.0
235.7 +0.9

114.3 −1.32

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1893phae.proj.1334.

June 30, 1893.

Index below.

June 15, 1893 —
Sept 13, 1893

Mean = -1.24

8:54
8 47

+0.8 ✓
-1.24 ✓

No

Bei.

1 2
1 5
4 3

+19.1

9:04

252.1 ✓ +0.5 ✓

Index above.

103.8
235.6 131.8 ✓
114.6
229.2 114.6 ✓
246.4 ✓ +.07 ✓

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1893phae.proj.1334.

June 30, 1893.

Index below.

25.2
139.9 114.7 ✓
19.1
146.5 127.4 ✓
242.1 ✓
117.2 −1.24 ✓

Mean = −1.22

8h 54
8.47

No 121 24 Comae Ber.

12	29	+19.1
15	52	
43	23	

Index below.

9h 04

14.7
145.8 131.1 ✓
20.0
141.0 121.0 ✓
252.1 ✓ +0.5 ✓

Index above.

103.8
235.6 131.8 ✓
114.6
229.2 114.6 ✓
246.4 ✓ +.07 ✓

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1893phae.proj.1334.

June 30, 1893

d index above

117.2
229.9 112.7 ✓ 1
106.1
236.9 130.8 ✓ 1
243.5 ✓ 1 +0.7 ✓ 1

d index below.

201.6
315.3 113.7 ✓ 1
192.0
329.5 137.5 ✓ 1
251.2 ✓ 1 +0.6 ✓ 1

194.1
327.0 132.9 ✓ 1
201.7
323.5 121.8 ✓ 1
254.7 ✓ 1 +0.5 ✓ 1

d index above

282.5
58.0 135.5 ✓ 1
289.9
49.3 119.4 ✓ 1
254.9 ✓ 1 +0.5 ✓ 1

9:19

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1893phae.proj.1334.

June 30, 1893.

Lt. M. Wedge gone.		Ab. obs.
Series		+9°
13	0	+10.0
16	15	
+3	15	

Zone abandoned without taking any stars on account of clouds.

No 123		35 Comae Ber.
12	47	21.9
17	2	
+4	15	

Star too faint to observe through clouds.

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1893phae.proj.1334.

June 30, 1893,

No 125 12 Canum Venat.

12	50	+39.0
17	11	
+4	21	

Index below,

10:23

14.2
151.8 137.6 ✓1
8.8
156.0 147.2 ✓1
284.8 ✓1 ~~1.3~~ ✓1
Index above 75.2 -2.34

98.4
247.9 149.5 ✓1
99.4
242.5 143.1 ✓1
292.6 ✓1 ~~0.6~~ ✓1
100.5 67.4 -2.59
239.8 139.3 ✓1
98.0
246.2 148.2 ✓1
287.5 ✓1 ~~-0.4~~ ✓1
72.5 -2.43

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1893phae.proj.1334.

June 30, 1893.

Index below.

192.6
329.0 136.4 ✓
187.2
337.0 149.8 ✓
286.2 ✓ -0.4 ✓
186.0 73.8 -2.38
335.0 149.0 ✓
192.5
332.9 140.4 ✓
289.4 ✓ -0.5 ✓
70.6 -2.49

Index above.

277.2
67.9 150.7 ✓
281.0
62.3 141.3 ✓
292.0 ✓ -0.6 ✓
68.0 -2.57

18h35

No 135 K Boötis.

14	9	+52.4
17	30	
73	21	

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1893phae.proj.1334.

June 30, 1893.

10:42

Index above.

287.5			
57.2	129.7	✓	
283.0			
60.2	137.2	✓	
	266.9	✓	~~+0.2~~ ✓
Index below	~~931~~		−1.83
19.5			
146.2	126.7	✓	
10.5			
149.4	138.9	✓	
	265.6	✓	+0.2 ✓
11.8	~~264~~		−1.80
150.1	138.3	✓	
16.9			
147.7	130.8	✓	
	269.1	✓	+0.1 ✓
Index above.	~~909~~		−1.89
103.0			
239.8	136.8	✓	
105.8			
236.9	131.1	✓	
	267.9	✓	+0.1 ✓
108.0	~~921~~		−1.86
238.5	130.5	✓	
100.0			
240.8	140.8	✓	
	271.3	✓	+0.1 ✓
	~~897~~		−1.95

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1893phae.proj.1334.

June 30, 1893,

Index below.

	197.7	
	326.8	129.1 ✓
	190.0	
10:56	331.9	141.9 ✓
	271.0 ✓	+0.1 ✓
	129.0	-1.9 ✓

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1893phae.proj.1334.

July 1, 1893

Phot. measts. of Bright doublestars Phot R. W. obs.

No 115 ζ Leonis.

11	17	+11.2.
15	00	
+3	43	

Index to left.

8:18 226.8

Abandoned seeing so bad that star cannot be measured.

No 123 35 Comae Beren.

12	47	+21.9
15	18	
+2	31	

Index to left

8:27 317.1

126.5 169.4 ✓1

319.8

127.5 167.7 ✓1

337.1 ✓1 −3.0 ✓1

229

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1893phae.proj.1334.

July 1, 1893.

Index to right.

49.3
215.7 166.4 ✓1
50.8
216.2 165.4 ✓1
331.8 ✓1 −2,5 ✓1
49.8 28.2
215.9 166.1 ✓1
49.5
215.0 165.5 ✓1
331.6 ✓1 −2,5 ✓1

Index to left. 28.4

140.2
305.4 165,2 ✓1
139.0
307.5 168.5 ✓1
333.7 ✓1 −2,7 ✓1
139.0 26.3
308.3 169.3 ✓1
139.2
305.9 166.7 ✓1
336.0 ✓1 −2,9 ✓1
24.0

Index to right.

233.0
37.2 164.2 ✓1
231.0
8;45 36.9 165.9 ✓1
330.1 ✓1 −2.4 ✓1
299

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1893phae.proj.1334.

July 1, 1893.

	Lt. M. Wedge gone			M. obs.
	Series 126			+ 9.°
	12	55		+ 9.9
	15	48		
	+2	53		
9:00	2703	3.60		
		3.63		
		3.49	10.72	4.64
	2708	3.68		
		3.60		
		3.90	11.18	4.84
	2715	3.48		
		3.49		
		3.50	10.47	4.53
	2716	3.33		
		3.09		
		3.30	9.72	4.21

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1893phae.proj.1334.

July 1, 1893.

2720	4,25		
	4,10		
	4,10	12,45	5.39
	2,83		
	2,88		
	2,87	8,58	3.72
2734	2.95		
	3,28		
	3,34	9.57	4.14
2737	4.38		
	4,34		
	4,21	12.93	5.60
2757	2,70		
	2.80		
	2,85	8.35	3.62
2759	2.90		
	2.91		
	2,96	8.77	3.80
2769	2,69		
	2,80		
	2,80	8.29	3.59

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1893phae.proj.1334.

July 1, 1893.

2770	4.00		
	4.00		
	4.42	12.42	5.38
2771	2.52		
	2.80		
	2.89	8.21	3.55
2780	3.45		
	3.52		
	3.40	10.37	4.49
2782	3.60		
	3.69		
	3.81	11.10	4.81
2787	3.40		
	3.42		
	3.70	10.52	4.56
2789	4.17		
	4.20		
	4.39	12.76	5.52
2795	2.87		
	2.82		
	2.85	8.54	3.70

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1893phae.proj.1334.

July 1, 1893.

2794	2.42		
	2.57		
	2.50	7.49	3.24

2795 accidentally taken before 2794

~~2800~~	~~2.01~~		
	~~2.18~~		
9;50	~~2.11~~	~~6.30~~	~~2.73~~

Atmospheric conditions growing somewhat poor, moon up also, gone discontinued. Gone all right except possibly the last star or so. Star 2800 which is the last star ~~does not seem to identify very well~~ is probably wrong + star 2795 possibly right. star 2800 does not seem to identify well with star 2796 which is an 8.7 + which ~~also~~ seems to check pretty well with 2798 which is a ~~six~~ 6.5 Possibly some error in the D. M.

Star 2800 abandoned as probably wrong.

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1893phae.proj.1334.

July 1, 1893.

No 129 O Virginis.

18	3	−4.9
17	18	
+4	15	

Abandoned. Too low.

No 131 ζ Ursae Maj.

13	19	+55.6
17	19	
+4	00.	

Index to right & below

10:30

341.9
105.6 123.7 ✓1
335.8
111.0 135.2 ✓1
258.9 ✓1 ~~+0.4~~ ✓

Index to ~~left & above~~ 10 1 −1.63
68.0
195.0 127.0 ✓1
64.0
197.1 133.1 ✓1
260.1 ✓1 ~~+6.3~~ ✓
99.9 −1.66

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1893phae.proj.1334.

July 1, 1893.

Index to left & above.

62.8
200.4 137.6 ✓
68.0
190.0 122.0 ✓
259.6 ✓
100.4 ✓

~~+0.4~~ ✓
1.65 ✓

Index to right + below.

155.0
287.0 132.0 ✓
157.9
286.0 128.1 ✓
260.1 ✓

~~+0.3~~ ✓
1.68 ✓

156.4 ~~291~~
286.0 129.6 ✓
154.2
288.4 134.2 ✓
263.8 ✓

~~+0.2~~ ✓
1.75 ✓

~~Index to left & above.~~

253.9
7.5 113.6 ✓
246.3
16.9 130.6 ✓
244.2 ✓

~~+0.7~~ ✓
~~45.8~~ → 1.29 ✓
Mean = − 1.6 ✓

10.40
10.30

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1893phae.proj.1334.

July 1, 1893.

No 135 K Bootis.

14	9	+52.4
17	44	
+3	35.	

10.49

Index above.

338.2		
105.0	126.8 ✓	
328.2		
111.0	142.8 ✓	
	269.6 ✓	~~+0.1~~ ✓
Index below	90.4	−1.90
67.1		
195.3	128.2 ✓	
61.6		
198.0	136.4 ✓	
	264.6 ✓	~~+0.2~~ ✓
62.0	95.4	−1.77
199.2	137.2 ✓	
66.0		
195.0	129.0 ✓	
	266.2 ✓	~~+0.2~~ ✓
	93.8	−1.88

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1893phae.proj.1334.

July 1, 1893.

Index above.

153.6
291.5 137.9 ✓
151.8
285.8 134.0 ✓
271.9 ✓ 0,0 ✓
153.3 ~~88.1~~ −1.96
287.6 134.3 ✓
150.8
291.1 140.3 ✓
274.6 ✓ 0,0 ✓
Index ~~below~~ −2.04
249.8
16.0 126.2 ✓
240.8
10:59 22.8 142.0 ✓
268.2 ✓ ~~+0,1~~ ✓
91.8 −1.87

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1893phae.proj.1334.

July 6. 1893.

Transits of Bright Double Stars. G. obs.

No 131 ζ Ursae Majoris.

13	19	+55.6
15	37	
+2	20	

Too light up.
Abandoned for the present.

Σ 1561.

11.	32	+45.8
15	45	
+4	13	

Index above + to right,

~~8.35~~ ~~336.1~~

Abandoned for present to go over to west dome.

Index above + to right

~~8.35~~ 336.1
8.52 111.0 134.9 ✓ 1
342.0
104.8 122.8 ✓ 1
257.7 ✓ 1 ~~+0.4~~ ✓ 1
102.3 1.60

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1893phae.proj.1334.

July 6, 1893.

Index below & to left.

61.9
192.0 130.1 ✓1
68.7
189.5 120.8 ✓1
250.9 ✓2 ~~+0.6~~ ✓1
109
249.1 -1.44
17.9 128.8 ✓1
245.0
21.8 136.8 ✓1
265.6 ✓1 +0.2 ✓1
~~264~~ -1.80

Index to right & above.

337.1
111.2 134.1 ✓1
338.0
108.0 130.0 ✓1
264.1 ✓1 ~~+0.2~~ ✓1
359
344.5 -1.76
110.1 125.6 ✓1
338.2
106.0 127.8 ✓1
253.4 ✓1 ~~+0.5~~ ✓
106.6
Index to left & below -1.50

69.5
193.0 123.5 ✓1
63.1
9:04 196.4 133.3 ✓1
256.8 ✓1 ~~+0.4~~ ✓1
1032 -1.58

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1893phae.proj.1324.

July 6, 1893

Ill. M. Wedge Zone +9° Ill. obs.

Series 127 +9°

14	11	+10.0
16	34	
+2	23	

9;48	2868	4,30		
		4.40		
		4.31	13.01	5.63
	2872	3.20		
		3,10		
		3.25	9.55	4.14
	2875	4,13		
		4.19		
		4.11	12.43	5.38
	2881	4,10		
		4,10		
		3,93	12.13	5.25
	2889	4,00		
		3,81		
		4,06	11.87	5.14

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1893phae.proj.1334.

July 6, 1893.

2894	3,18		
	3,01		
	3,10	9.29	4.02
2900	2,89		
	3,00		
	2,95	8.84	3.83
2904	4,03		
	4,39		
	4,30	12.72	5.51
2905	3.04		
	3.15		
	3.20	9.39	4.07
2914	3,97		
	4,19		
	4,29	12.45	5.39
2919	3,20		
	3.29		
	3,32	9.81	4.25
2921	4,20		
	4,34		
	4,39	12.93	5.60

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1893phae.proj.1334.

July 6, 1893.

2929	4.42		
	4.33		
	4.61	13.36	5.78
2931	2.80		
	2.78		
	2.82	8.40	3.64
2932	3.20		
	3.38		
	3.32	9.90	4.29
2933	2.89		
	3.10		
	3.00	8.99	3.89
2934	2.51		
	2.70		
	2.49	7.70	3.33
2938	4.52		
	4.70		
	4.70	13.92	6.03
2941	3.00		
	3.24		
	3.36	9.60	4.16

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1893phae.proj.1334.

July 6, 1893.

2943	3.20		
	3,41		
	3,69	10.30	4.46
2973	2.90		
	3,00		
	2,95	8.85	3.83
2976	3,25		
	3,14		
	3,30	9.69	4.20
2980	3,10		
	3,00		
	3,00	9.10	3.94

2982 H. M. 2982 is missing region identified by surrounding stars s there is no such star in position. There is a faint star following 2980 about 1 min 4 sec. 1.5 north but this does not accord with the H. M. even assuming an error of 1'

2992	3.22		
	3,24		
	3.20	9,66	4.18

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1893phae.proj.1334.

July 6, 1893.

2997	3,02		
	3,12		
	3,10	9.24	4.00
3016	4.87		
	4,70		
	4.86	14.43	6.25
3021	3.74		
star rather	4,02		
bright	4,13	11.89	5,15
3027	3,85		
	3,77		
	3,94	11.56	5.01
3034	3.64		
	4.00		
	3.98	11.62	5.03
3041	2.70		
	2,92		
	3,08	8.70	3,77
	~~3.15~~ reject seem to be wrong		
3048	3,65		
	3,60	~~10.40~~	
10:55	3.69	10.94	4.74

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1893phae.proj.1334.

July 7. 1893.

Phot. heights of Bot. Dbl. Stars. Gr. dr.

Σ 1495 H. V. III.

10	52	+ 59.6
15	15	
+4	23	

Index to right.

8:19

6,8,1
192.7 124.6 ✓ 1
64,2
146.6 132.4 ✓ 1
257.0 ✓ 1 +0,4 ✓
1030 −1.07

Index to left.

158.3
284.0 125.7 ✓ 1
154.8
287.0 132,2 ✓ 1
257,9 ✓ 1 +0.4 ✓ 1
155,3 1021 −1.61
287.7 132,4 ✓ 1
157.4
283,1 125.7 ✓ 1
258.1 ✓ 1 +0.4 ✓ 1
1019 −1.61

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1893phae.proj.1334.

July 7, 1893.

Index to right.

244.2
19.0 134.8 ✓1
244.0
13.4 129.4 ✓1
264.2 ✓1 +0.2 ✓1
243.9 105.7 −1.52
13.8 129.9 ✓1
245.2
15.0 129.8 ✓1
259.7 ✓1 −1.65 +0.4 ✓1
~~100.3~~

Index to left.

339.0
103.2 124.2 ✓1
334.0
8:30 107.5 133.5 ✓1
257.7 ✓1 −1.60 +0.4 ✓1
102.3

Σ 20' 65 Ursae Maj. pre. & following.

11 49 + 47.2
15 55
74 6

Pos. Aug. 110° Dist. 1'
Btr. of close comps. + dist. comps., meas.

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1893phae.proj.1334.

July 7, 1893.

Index to right + below.

8:40

351.6		
89.0	97.4 ✓	
347.0		
96.0	109.0 ✓	
	206.4 ✓	+1.5 ✓
	153.6	−0.50

Index to left + above.

78.0		
177.0	99.0 ✓	
80.0		
181.0	101.0 ✓	
	200.0 ✓	+1.6 ✓
82.9	160.0	−0.32
185.3	102.4 ✓	
82.0		
181.1	99.1 ✓	
	201.5 ✓	+1.6 ✓
	158	−0.41

Index to right + below.

169.0		
273.8	104.8 ✓	
170.7		
270.0	99.3 ✓	
	204.1 ✓	+1.5 ✓
170.0	155.9	−0.46
268.3	98.3 ✓	
167.0		
271.9	104.9 ✓	
	203.2 ✓	+1.6 ✓
	156.8	−0.44

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1893phae.proj.1334.

July 7, 1893.

Index to left + above.

265.8.

0.0 94.2 ✓ 1

255.0

6.1 111.1 ✓ 1

205.3 ✓ 1 ~~11.5~~ ✓ 1

1547 ~~0.48~~

8:54

8:49.0

Σ 1622 2 Canum Ven.

12	10	+ 41.3:
16	22	
+4	12	

Index to left + above.

9:09

327.1

113.2 146.1 ✓ 1

322.3

118.0 155.7 ✓ 1

301.8 ✓ 1 ~~6.9~~ ✓ 1

~~Index to right + below~~ -293

55.6

203.0 147.4 ✓ 1

52.0

206.7 154.7 ✓ 1

302.1 ✓ 1 ~~0.9~~ ✓ 1

579 -294

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1893phae.proj.1334.

July 7, 1893

Index to right & below

52.7
206.2 153.5 ✓ 1
55.3
208.0 152.7 ✓ 1
306.2 ✓ 1 ~~+1.1 ✓~~
Index to left ~~& above~~ ~~52.8~~ -3.11

142.8
297.0 154.2 ✓ 1
143.8
294.8 151.0 ✓ 1
305.2 ✓ 1 ~~-1.1 ✓~~
146.2 ~~54.8~~ -3.07
295.0 148.8 ✓ 1
143.1
298.1 155.0 ✓ 1
303.8 ✓ 1 ~~+1.0 ✓~~
Index to right ~~& below~~ ~~56.2~~ -3.01

236.0
27.0 151.0 ✓ 1
240.0
9:21 28.9 148.9 ✓ 1
299.9 ✓ ~~-0.9 ✓~~
60-1 -2.86

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1893phae.proj.1334.

July 7, 1893.

D. M. Wedge Zone +9° . Niobe.

Series +9°.

13	25	+9.7
16	53	
+3	28	

Suspected Comet.

13	30	5.4	+9	3.4	
		13.		-1	
13	30	18.4	+9	3A.4	
		1.	~~40~~	~~62~~	
13	30	33.	40	22.	1+
				+2	
			40	24	9.2

The above is A. G. C. 2448.

Series 128 +9°.

10.10	2789	4.28		
		4.21		
		3.98	12.47	5.40

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1893phae.proj.1334.

July. 7, 1893.

~~2.80~~ ~~2.80~~ not wanted.

2795 is missing tonight also. region checked.

2800	2.50		
	2.75		
	2.70	7.95	3.44 <
2801	2.33		
	2.60		
	2.77	7.70	3.33 <
2807	3.65		
	3.89		
	3.60	11.14	4.82 <
2817	2.99		
	2.80		
	2.85	8.64	3.74 <
2818	2.49		
	2.60		
	2.55	7.64	3.31 <
2820	4.00		
	3.98		
	3.90	11.88	5.14 <

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1893phae.proj.1334.

July 7, 1893.

2825	2.72		
	2.68		
	2.70	8.10	3.51 <
2826	3.20		
	3.10		
	3.08	9.38	4.06 <
2841	3.00		
	3.11		
	3.00	9.11	3.94 <
2850	2.71		
	2.85		
	2.80	8.36	3.62 <
2852	2.91		
	2.81		
	2.90	8.62	3.73 <
2859	2.92		
	2.80		
	3.00	8.72	3.78 <
2868	3.50		
	3.78		
	3.75	11.03	4.78 <

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1893phae.proj.1334.

July 7, 1893.

2872	2.90		
	2.98		
	2.95	8.83	3.82 <
2875	3.70		
	4.12		
	3.80	11.62	5.03 <
2881	3.51		
	3.69		
	3.81	11.01	4.77 <
2889	4.09		
	3.77		
	3.80	11.66	5.05 <
2894	2.60		
	2.88		
	3.06	8.54	3.70 <
2900	2.68		
	2.90		
	2.75	8.33	3.61 <
2904	3.90		
	4.00		
	4.08	11.98	5.19 <

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1893phae.proj.1334.

July 7, 1893.

2905	~~2.27~~		
star somewhat	2.49		
faint for a 9.3	2.79		
	2.79	8.07	3.49<
2914	3.80		
	3.80		
	4.02	11.62	5.03<
2919	2.90		
	3.00		
	3.00	8.90	3.85<
2921	4.30		
	4.19		
10;55	4.22	12.71	5.50<

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1893phae.proj.1334.

July 10, 1893.

New Comet of July 9, 1893.

7	50	+ 48.2
15	30	
+7	40	

Approximate position of Comet.

8 h. 33 m. R.A. +47° ~~35~~ 0'

Position gero.
211.8
45.0
256.8

16	25	12.6	≡
16	26	27.1	≡
	27	6.0	✳
	27	22.4	✳
		~~5~~	
16	27	57.6	
	29	12.0	
	29	47.0	
	29	54.3	

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1893phae.proj.1334.

July 10, 1893

16	30	43.6
	31	57.0
	32	27.5
	32	45.6

7

16	34	7.6
	35	19.0
	35	45.5
	36	4.6

16	36	50.1
	38	7.2
	38	23.1
	38	49.4

~~Order~~

16	39	30.9
	40	46.0
	40	58.9
	41	26.1

Order in preceding transits comet comet star star both in southern half of square. Comet bright. 3.5 mag. nucleus rather sharply defined but not quite stellar. Coma considerably fainter than nucleus

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1893phae.proj.1334.

~~H. Ch. ≡~~

Z D. o≡ = Av.° Abs. = 2.24

" " * = A0.0 " = 1.12

1.12

July 10, 1893.

and fades off rather rapidly.

B. 236			B. 394.		
16	54	9.3	9	25	0.0
16	55	9.5	9	26	0.0
16	56	9.6	9	27	0.0

∴ B 236 is 3m. 13s.3 S.
11.50 S.

∴ B. 236 is 3m. ~~11s.5 S.~~

~~B 394 is 1.3 F.~~

B 394 is 2s.3 F.

Comp. Star = 2 Um. +46° 1621 (Av CA)

Least of light of comet. Short L. Ob. obs.
light of nucleus. large Fel. 36 mm. = 1' outside focus.

10:05

Focus		Outside Focus	
11.0	14.93	14.9	Eq. 4.10 = 0.6127 ≤
10.9	10.23	15.0	3.0639
10.6	4.10	14.9	2.11
~~10.8~~ v			3.17
10.23	3)44.8	~~14.9~~	4.34 v
	14.93	~~10.6~~	4.34 magn.
		~~4.1~~	1.12 = Abs. diff.
			7.22 v magn o≡

light of coma about 1.5' from nucleus with large Fel. in focus.

10:10

focus.		outside Focus.	
10.8	Eq. 6.00 = 0.7704 v	17.0	
10.9	3.4907 v	16.9	
11.2	2.11	17.0	
3)32.9	3.17	~~17.0~~	
10.97 v	9.17 v	~~11.0~~	9.17 magn.
	1.12 Abs.	~~6.0~~	
	4.0 v magn ≡	3)v0.9	
		16.97	
		10.97	
		6.00	

~~Comp. star. ζ Ursae Maj.~~

See next page.

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1893phae.proj.1334.

July 10, 1893.

Star used in Obst. measures is a star in Argelander's N. A. map no. 4 at about 132° R.A. & about 49° dec. It is the fre. northern & somewhat brighter of a pair of stars.
∴ Comp. Star is ι (iota) Urs. Maj.

Position zero.

48.6
45.0
93.6

18h.	4	39.6 *
	4	57.8 *
	5	28.5 +.4 sec.
	6	6.4
18	6	58.3
	7	13.3
	7	49.8
	8	24.6

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1893phae.proj.1334.

July 10, 1893.

18	8	52.5	
	9	4.9	+1.2 sec.
	9	46.5	
	10	21.4	
18	11	16.1	
	11	41.0	
	12	13.2	
	13	1.0	+.3 sec.
18	13	56.4	
	14	15.6	
	14	56.3	
	15	42.7	−.2 sec.
18	16	13.6	*
	16	30.9	*
	17	14.8	∈
	18	1.1	∈

Order in preceding transits star, star, comet comet both in northern half. same comparison star used as in early part of evening. comet now follows comp. star.

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1893phae.proj.1334.

July 10, 1893.

Observations rather difficult on account of very low altitude of comet.
In light meads of micius the lower shutters overlapped the object glass a very little at end of observations but not enough to produce any appreciable effect. This was remedied however before 2nd set of light measures on comet was taken. The tail of comet could be seen with naked eye to extend to a distance in arc about equal to that between ε and Alsaih Maj.

B 236			B. 394		
18	37	25,0	11	3	0.0
18	38	25.1	11	4	0.0
18	39	25.3	11	5	0.0

Bond 2:25 F.

B 236			T. 1327		
18	54	14.5	18	56	0.0
18	55	14,4	18	57.	0.0

∴ B. 236 is 3 11.53 S. T. 1327 1m 25.8 S

B 236			T. 1327		
5	10	10.4	5	12	0.0
5	11	11.0	5	13	0.0

∴ B 236 is 3m 14.8 S.

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1893phae.proj.1334.

July 11, 1893.

	B 236			T. 1327	
14	46	8.9	14	48	01.0
	47	90		49	1.0
	48	9.0		50	1.0

∴ B 236 is 3m 17.8 S. T 1327 is 1m 25.4 S.

New comet of July 1893.

9	5	+45.4
15	20	
+6	15	

Position zero. 48.6
45.0
93.6

1st Series on ⊙

16	29	31.0	⊙
	29	~~54.2~~ 54.2	*
	30	9.3	*
	30	21.6	⊙

16	30	55.1
	31	16.6
	31	50.7
	31	43.8

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1893phae.proj.1334.

July 11, 1893

16	32	14.2	⁻.3
	32	34.5	
	32	48.2	
	33	2.7	

9:00

~~16 33 36.1~~
~~33 55.0~~

Order in preceding transits comet, star star comet, comet in southern half star in northern half.

B 236			T 13 27		
16	40	8.5	16	42	1.0
16	41	8.4	16	43	1.0
16	42	8.4	16	44	1.0

T 1327 is $1^m.\ 25^s.4$ S.

∴ B. 236 is $3^m.\ 18^s.0$ S.

Position gro. 48.6
45.0
93.6

2 dr. revs on ○≡

16	59	1.6	*	
	59	14.5	*	
	59	28.1	○≡	
	59	50.4	○≡	

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1893phae.proj.1334.

July 11, 1893.

17	0	21.8	+.2
	0	39.7	
	0	56.1	
	1	12.8	
	1	32.1	
	1	49.0	
	2	6.9	
	2	23.4	
9:29			
	2	47.1	
	3	5.6	
	3	25.1	
	5	49.5	
	4	2.4	
	4	19.6	
	4	41.5	+.3
	4	45.9	
	~~6~~	6.1	
	6	~~26.0~~	
	7	16.4	
	7	31.3	
	7	59.5	-.2
	8	12.4	

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1893phae.proj.1334.

July 11, 1893.

Order in preceding transits star star comet comet comet in south. ern half, star in northern half. Star about 6.th mag.

Dec.	0	17	11	52.1	comp. star	6.5 mag.
"	−6′		13	55.4	"	9.2 "
	+3′		14	34.1	"	8.0 "
	−8′		15	5-8.0	"	6.5 "

Comp. Star = +45° 16′ (7.3 A)

17	14	40.4	+45.3
8	14	45.0	
9	2	55.4	
	3	11	
9	6	6.4	R. A. comp. star app.

45°.3 = Approx. dec. of comp. star.

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1893phae.proj.1334.

July 11, 18 93.

B 236			T. 1327		
17	33	8.0	17	35	1.0
17	34	8.0	17	36	1.0
17	35	8.0	17	37.	1.0

T. 1327 is 1m. 25s.4 s

∴ B. 236 is 3m. 18s.4 s.

Position zero. 48.5

45.0

93.5

Another Series as ∈

18	2	24.5	*
	2	35.8	*
	4	16.1	∈
	4	38.0	∈

~~4 54.3~~

~~7.6~~

5	48.2	
6	3.4	+12
7	46.1	
7	59.6	
8	19.8	
8	37.3	
10	22.9	
10	55.7	

~~10.37~~
~~10 47~~

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1893phae.proj.1334.

July 11, 1893.

~~18 11 6.4 .2~~

18	11	40.6
	11	57.3
	13	46.4
	14	2.5

Order in preceding Transits ×, ×, ○, ○ star in northern Half outside, comet in southern half outside.
Comet low, observations somewhat difficult especially in last set, partly from low altitude, somewhat increasing cloudiness. 5th set could not be taken on account of clouds.

B 236 T. 1327

18	24	7.7	18	26	1.0
	25	7.7		27.	1.0
	26	7.7		28.	1.0

B. 236 is 3m. 18.7 S. T. 1327 is 1m. 25.4 S.

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1893phae.proj.1334.

July 11, 1893.

Circumpolar Variables. H. obs.

R Ursae Maj.

10	38	+ 69.3
18	37	
+7	59	

± 2 R. R 3 u in large telescope faint for finder.

Est 12.3

11:10

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1893phae.proj.1334.

July 13, 1893.

B 236 — F 1327

15	6	54.6	15	9	1.0
	7	54.6		10	1.0
	8	54.6		11	1.0

∴ B. 236 is 3m. 30.6 S. — F 1327 is 1m. 24.8 S

Comet Roardame. — Obs. abs.

9	35	+43.4
15	43	
+6	8	

	10		
16	7	31.1	+40.9 Appr. dec.
6	14	0.0	
9	56	31.1 approx. R. A.	

∴ Position gero. 77.8
45.0
122.8

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1893phae.proj.1334.

July 13, 1893.

1st obs. of ○.

16	30	33.0	✶
	30	50.2	✶
	33	12.1	○
	33	46.0	○
	34	24.0	✶
	34	40.0	✶
	37	7.0	○
8:56	37	37.8	○
~~38~~	~~27.5~~	~~clouds~~	
38	42.5		

clouds.

star in northern half, comet in southern

16	55	4.9	dec. ~~7~~	6.
18s.6	55	23.5	"	~~9.5~~ 8.
7s.1	55	30.6	"	~~4.0~~ 9.5
32s.6	56	3.2		-0.5
40s.8				
Comp. star 7th mag	56	~~44.0~~	comp. star. ~~4~~ 7	
	12			
Pos. comp. star. 17	~~7~~	14.1	Hyp. dec, Dec. 40.95	
7	18			
~~9~~	~~51~~	~~14.~~	Hyp. R.A.	
9	54	14.1	= Hyp. R.A.	

Comp. Star = 2 Ma. +40° 2274 (A.G.K.)

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1893phae.proj.1334.

July 13 1893.

B 236			T 1327		
17	16	54.0	17	19	1.0
	17	54.0		20	1.0
	18	54.8		21	1.0

∴ B. 894 is 1m. 31.2 S. T. 1327 is 1m. 24.2 S.

~~17 45 9.5~~
~~45 57.0~~

clds.

2 hr obs. of o≡

17	48	32.0	o≡
	49	20.0	o≡
	50	9.0	*
	51	27.6	*
	52	15.8	
	53	7.1	
	54	20.5	
	55	12.5	
	56	16.5	
	57	8.0	
10:17	58	15.8	
	59	10.7	

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1893phae.proj.1334.

July 13, 1893.

17	59	48.5
18	0	40.7
	1	43.6
	2	41.4
	3	15.5
	4	7.5
	5	6.0
	6	6.5
	6	51.9
	7	45.0
	8	38.8
	9	42.0
	10	17.2
	11	11.5
	12	6.0
10.32	13	6.5
~~14~~		~~23.8~~
~~15~~		~~51.0~~
~~16~~		~~45.4~~
~~18~~		~~38.8~~
~~19~~		~~32.4~~

Order in prec. trans. ○= ○= + +;
○ in northern half + in southern half.

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1893phae.proj.1324.

July 13, 1893

			-1.5	8.9
18	22	9	Clear.	Hazy.
18	22	20 comp. *	5	7.9
	23	15.5	9	9.1
	23	15,1 + 27 sec.	4.5	8.5
	23	42.1	10.0	7.8

	31		
18	~~28~~	15.0	+40.4
8	30	20.0	
10	0	55.0.	

Comp. Star = 2 M. +60° 22 Av (A3 sec.)

D 236			T 1327		
18	34	53.5	18	37	1.0
18	35	53.5	18	38	1.0
18	36	53.5	18	39	1.0

∴ B 236 3m 31.8 s. T 1327 is 1m 24.2

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1893phae.proj.1334.

July 14, 1893.

B 236			F 1327		
14	55	47.2	14	58	1.0
	56	47.1		59	1.0
	57	47.1	15	0	1.0

∴ B 236 is 3m. 37.5 F 1327 is 1m. 23.6 s

Comet Reduction. Geo.

10h 37m
9 13
1 24

9 −6 +40.4 (13 th/c)
9 4 +4−.1
+52. −4.3

1.4
44
49.4

√0/42.0(.04
400
20

√0/−4.300 (.086
400
300

21.5
.24
460
1720
14.060

√0/√2.(1.04
√0
20 21.5
√20
104
204
22.360

21.5
.046
1290
1720
1.4490

9 −6 +40.4
22. −1.4
10 14 +39.0 (14 th/c)

10 48 +59.0
15 42
+5 24.

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1893phae.proj.1334.

July 14, 1893

16	0	0		
~~45~~	~~56~~	~~52.5~~		+58.4
5	44			
10	1.6			

			mg	Lec.
16	2	28.0	8	+5
	3	30		+15
	4	14.0	8	+7.5
	5	4.5	8	+2.5

16	5	51.5	
	6	12.5	

Comp. star = 10. M, +38° 21.25 (7.7K)

positon zero 78.0
45.0
123.0

16	25	45.8	*
	26	3.5	*
	29	5.2	E
	29	48.5	E

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1893phae.proj.1334.

July 14, 1893.

16	30	28,0
	30	45,2
	33	48,6
	34	36.8
	35	47.3
	36	3.9
	39	9.5
8:55	40	2,0
	40	38.5
	40	54,0
	44	2.0
	44	58,5
	45	41,2
	45	55.7
	49	6.0
	50	6,5
	~~27,8~~	
	52	55.2
	53	3.2
	56	21,8
	57	23.0

order in proc: transits + + ○= ○=
+ in southern half outside ○= in northern half inside

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1893phae.proj.1334.

July 14, 1893.

Nucleus of ~~G~~ quite stellar. The part of coma ~~whole~~ whole was rather bright ~~coma~~ surrounding the nucleus and 1.5 to 2' in diameter on previous nights when well seen is not so marked in its distinctiveness tonight, instead of that there is a slight bright coma appendage immediately surrounding the nucleus & quite bright being a little more abundant & extensive to preceding, while in a general way the surrounding nebulosity begins to fade away gradually and steadily ~~to the~~ until the outer diameter of visible nebulosity is gradually lost sight of as such. The surrounding nebulosity has a diameter as seen in the telescope of as much as 8' even although it may be slightly affected by haze.

	D 236			T. 1327	
17	9	46.5	17	12	1.0
17	10	46.5	17	13	1.0
17	11	46.5	17	14	1.0

∴ 236 is 3m 38.1 S. ∴ T. 1327 is 1m 28.6 S.

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1893phae.proj.1334.

Z.D.☉ = 40°.0 Alt. = 1.1 F
" " ☆ = 69.0 " = 0.F7
0.67

July 14, 1893.

Measuremet of light of Comet (Bordame) Phot 2. U. obs.

Meast. of light of nucleus with large tel: 1' out of focus.

	Focus		Outside focus.	
10:05	11.2	Log. v.01 = 0.6992 v	16.9	
	11.0	3.F9920	16.6	9.0 + mag.
	11.0	211	16.8	
	11.07	3.12 v		
		8.73		
		8.73 v	3/23	
		.67	16.08	
		8.06 v Cor. mag.	1.07	
			v.01	

Meast. of light of coma about 1.5 from nucleus with large telescope in focus.

	Focus.		Outside focus.	
10:09	11.0		18.4	19.0
	11.2	9.7 v mag.	18.1	19.1
	11.1	Log. 8.00 = 0.90309 v	17.9	19.2
	11.10	v v v v v		19.10
		2.11		19.10
		3.12 v		0.00 v
		9.767		
		9.08 Cor. mag.		

Comp. star for light in both series above = ψ Ursae Majoris: (Psi Urs. maj.)
H. R. 4961. mag. 3.12

Comet to naked eye about equal to μ Ursae Majoris.

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1893phae.proj.1334.

July 14, 1893

Position angle 15° 1.4
45.0
196.4

Same comp. * used as in 1st series tonight.

18	1	11.0	*
	1	36.0	*
	5	39.5	≡
	6	34.3	≡
	8	53.8	
	9	26.0	
	13	32.3	
	14	25.8	
	15	14.0	
	15	53.4	
	19	59.5	
10.36	20	55.5	
		~~24.1~~	~~*~~
	~~22~~	~~24.1~~	
	22	55.0	

Clouds.

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1893phae.proj.1334.

July 14, 1893.

Order in prec. transits ✱, ✱, ☌, ☌, both in southern half.

B 236			T 1327		
18	33	46.0	18	36	1.0
18	34	46.0	18	37	1.0
18	35	46.0	18	38	1.0

∴ B. 236 is 3m. 38.5 S, T 1327 is 1m. 23.5 S.

Tail of ☌ is to night fainter & shorter than when last well seen. Tail ~~estimated~~ traced in field glass to a distance of some 2.5°. Tail ~~seen~~ traced with naked eye to a distance of about 2°.

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1893phae.proj.1334.

July 14. 1893.

Pretty cloudy.

Comet Rordame. Sr. Ro.

9^h	10^m	9 v6	+40.6
9	13	10 16	+36.2
		+20	2.4
		10 16	36.2
Pos. of		10 36	3 V. A
		16 43	
		+6 7	

	16	46.2 +0.	
	6	+6.v	
Ap. pos. of =	10	29.7	+36.0 v

Comet hazily seen through clouds. and circle settings taken.
No stars visible to compare with.

	16	46 = 10	
Chr. cor.		+3 44	
	16	49.9	
	6	16.v	
Ap. pos. of =	10	33.4	+36.0 v
		-2.0	-0.2
Cor. Pos. of =	10	31.4	+35.8 v

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1893phae.proj.1334.

July 1st. 1893.

Setting for circle corrections on
γ Urs. Maj.

Chr. time =	17	1	0.0	
Chr. cor.		+3	44.	
	17	4.7	44.	
	~~17~~	14.7		V 4.7
Pos. ✳ =	11	V 0.2		
Cat. Pos. =	11	48.2		V 4.3
		-2.0		-0.2

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1893phae.proj.1334.

July 19, 1893.

B 236			T 1327		
15	26	14.7	15	29	1.0
15	27	14.6	15	30	1.0
15	28	14.7	15	31	1.0

∴ B 236 is $4^m\ 7^s.3$ S. T 1327 is $1^m\ 21^s$ S.

Comet Rordame

Obs.

11	6		+28.5
15	49		
+4	43		

	45		
16	41	25.5	+ 28.25
5	29	30.0	
11	16		Approx R.A.

Comp. * > D.N. +28° 1993 (9.0 K)

Position gero 151.0

45.0

196.0

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1893phae.proj.1334.

July 19, 1893.

17	13	54.5	○=
	14	26.2	*
	14	43.2	○=
	15	12.0	*
	15	48.0	
	16	19.1	
	16	37.5	
9:14	17	5.4	
	17	38.3	
	18	9.0	
	18	28.3	
	18	56.0	
9:16	19	31.3	
	20	1.5	
	20	21.9	
	20	48.6	
	21	57.5	
	22	27.2	
	22	48.6	
	23	15.3	X

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1893phae.proj.1334.

July 19, 1893.

17	23	56.0
	24	35.5
	24	59.0
	25	23.9
	26	4.1
	26	33.2
	26	58.0
	27	21.8

Order in preceding transits ⊙, ✶, ⊙, ✶, ⊙ in northern half, ✶ in southern half.

Comet somewhat affected by moonlight but the total coma is at least about 5′ in diameter. Nucleus fairly well defined + somewhat stellar but does not seem quite so sharp as on July 14, - Comet pretty bright. There seems to be even in the moonlight some ~~tail to~~ elongation following + it looks as if it were prolonged into a ray or tail as on July 14 which ~~can be~~ it is thought can be traced faintly for a distance of some 10′ or 15′

1893phae.proj.1334.

Z. d. ♃ = 41.6 Abb. = 1.33
" " ☆ = 79.7 " = 0.26
1.07

July 19, 1893.

B 236 Tr 1327

17	3.6	14.0	17	39	1.0
	37	14.0		40	1.0
	38	14.0		41	

∴ B 236 is 4m 8s S. Tr 1327 is 1m 21s S.

Measts. of light of comet Brardane
Phot 2. U. obs.

Measurement of Nucleus, 1' outside focus. with large tel.

	focus.	14.73		outside focus.	
10.04	10.7	10.73	log. 7.00 = 0.69897	16.2	22
	10.8		3.49 K☆ 7	15.8	
	10.7		2.11		
	10.73		3.00	15.5	
			4.60	15.73	
			1.07		
			7.53 Cor. magn.		

Meast. of coma 7.5 from nucleus.
with large telescope 1' outside focus.

	focus.	17.60		outside focus.	
	10.8	10.73	log. 6.87 = 0.83696	17.0	
	10.8		4.1 K☆ 0	17.4	
	10.6		2.11	18.4	
	2.2		3.00	3)52.8	
	10.73		9.29	17.60	
			1.07		
			4.22 Cor. magn.		

Comp. Star. — H.P. 219 7 — 6 (magn. 3.00)

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1893phae.proj.1334.

July 19, 1893.

D. M. Rudge Zone +9°. Ob. obs.

Sirius +9°

14	26	+ 9.9
18	25	
+3	59	

Zone abandoned on account of difficulty of identification of stars without chart. Some cloud also.

Circumpolar variables.

R. Ursae Majoris

+10	32	+69.4
19	2	
+8	30	

s 2.5 R, R 2 t. in large telescope too faint for finder.

11.01 Est 11.9

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1893phae.proj.1334.

July 19, 1893

B 394 B+C, 1882

13 43 48.0 13 34 58.3

44 35 58.3

42 60
34 58.3
8 1.7

Disc. Jupts I. Phot R. Wols. - Faulty Record
Cupid with sat. preceding = equal sat II.

307.0

1 38 45 I 307.0 5.8 2.9 8.7 2.2 17.7 18.9

/ 34 55.5 235.5 111.8 58.8

1 39 40.0 38m 58.9 105.5 308.7
8 2 108.6
47 1
11.0 54.2
18.0 308.1

27.5 108.3 56.4 4.5 2.9
129.0 105.1 7.4
56.5 39m 32.2 308.9 1.8
8 2
45.0 47 34 54.0
49.0 307.2

40 40.0 107.6 54.8 2.0 1.8 3.8
10.5 258.0 105.8 3 0 1.0
40m 3.0 308.0
48 5 53.8
26.5 309.2 3.7
36.5 105.3 54.5 1.0 4.7
164.5 108.6
45.0 40 41.1 306.2 4 1.2
56.5 48 43 54.8
308.8
41 5.0 107.7 56.5 √ 5.3
14.5 103.0 3.4
86.5 105.43 10.2 8.7
28.5 41 21.6 53.2 2.2
38.5
49/24

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1893phae.proj.1334.

July 19. 1893.

	38.5			53.2 →
	45.5	49	48	315.2
	54.5		56	57.2
42	1.5	50	4	316.2
	9.0		11	49.0
	15.5		18	320.2
	23.0		25	47.8
	30.0		32	322.0
	37.5		40	46.1
	43.5		46	322.2
	51.5		54	40.0
	57.5	51	0	323.0
43	4.5		6	26.8
	11.0		13	329.5
	18.5		20	39.1
	25.0		27	330.5
	32.5		34	31.0
	39.5		42	335.3
	46.5		48	~~3~~27.2
	59.0	52	1	341.8
44	10.0		12	19.1
	25.5		28	345.0
	43.5		46	~~3~~23.0

Not seen Palis.

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1893phae.proj.1334.

July 19. 1893.

Sun of mts.

1.45	37.0			342.2		2.2	
46	20.0			37.8	20.0	5.4	
		89.0		38.4		7.6	
	37.0	46	22.2	38.1	343.5	1.9	
	35.0	44	24		21.9		

B394

14	9	0	
	10	0	
	11	0	

B+C 1182

2	0	57.7	
	1	57.7	
	2	57.6	

8	60
0	57.7
8	2.3
8	1.7
	0.6

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1893phae.proj.1334.

July 20, 1893.

B 2 3 6 — T 1 3 2 7

1 5	23	7.7	15	26	1.0
	24	7.7		27	1.0
	25	7.6		28	1.0

Comet Rordame 1893. Alt. obs.

+6	6	
11	20	+26.6
16	6	
+4	4.6	

	17		
16	~~3~~	38.2	
4	55		+26.6
11	22		

Position yero 63,2
45.0
108.2.

Sky too bright for any other work at present, comet taken.

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1893phae.proj.1334.

July 20, 1893.

16	22	59.3	*
	23	47.5	*
	25	20.0	⊙
	26	1.8	⊙
		+	
	26	44.1	
	27	31.7	
	29	6.5	
	29	46.4	
	30	29.8	
	31	17.2	
	32	54.2	
8:26	33	31.8	
	34	7.8	
	34	55.2	
	36	33.5	
	37	10.5	
	37	47.4	
	38	34.0	
	40	14.5	
	40	49.5	

Order in succ. transits *, *, ⊙, ⊙,
* in northern half ⊙ in southern half.

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1893phae.proj.1334.

July 20, 1893

Comp. star (a) 7.9 mag. a 9.1 (b) precedes (a) 42 sec. 5' south. a 9.1 (c) precedes (b) 5.8 sec. 6 is 4' north. a 9.2 (d) precedes (c) 2 sec. 2' north. a 9.2 (e) follows (c) 4 sec. 8' south.

General appearance of comet same as last night, as near as can be judged in moonlight.

H. M. Hedgcock + 9°. Ht. obs.

Series 129 + 9°.

14	28	+10.5
16	51	
2	23	

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1893phae.proj.1334.

July 20, 1893

B 256			F 1327		
17	12	7.1	17	15	1.0
	13	7.0		16	1.0
	14	7.1		17	1.0

Gone abandoned for the present to go over into west dome.

10:13	2889	4.02		
		3.97		
		4.05	12.04	5.21
	2904	4.21		
		4.40		
		4.28	12.89	5.58
	2914	4.10		
		4.25		
		4.30	12.65	5.48
	2921	4.40		
		4.45		
		4.25	13.10	5.67
	2929	4.42		
		4.23		
		4.51	13.16	5.70

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1893phae.proj.1334.

July 20, 1893.

2931	2.95		
	2.83		
	2.85	8.63	3.74 c
2932	3.31		
	3.20		
	3.22	9.73	4.21 s
2933	2.85		
	3.12		
	3.20	9.17	3.97 c
2934	2.90		
	2.83		
	2.88	8.61	3.73 c
2938	4.82		
	4.85		
	4.80	14.47	6.27 c
2941	3.40		
	3.50		
	3.32	10.12	4.38 c
2943	3.70		
	3.38		
	3.59	10.67	4.62 c

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1893phae.proj.1334.

July 20, 1893.

2973	2.81		
	3.02		
	2.87	8.70	3.77
2976	3.10		
	3.45		
	3.20	9.75	4.22
2980	3.20		
	3.25		
	3.30	9.75	4.22
2982	Missing as in previous zones.		
2992	3.30		
	3.41		
	3.45	10.16	4.40
2997	3.40		
	3.55		
	3.48	10.43	4.52
3016	5.01		
	5.10		
	4.82	14.93	6.46

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1893phae.proj.1334.

July 20, 1893.

3021	3.91		
	4.25		
	3.77	11.93	5.17
3027	4.05		
	4.21		
	3.93	12.19	5.28
3034	3.85		
	3.75		
	3.70	11.30	4.89
3041	2.82		
	2.75		
	2.70	8.27	3.58
3048	3.85		
	3.93		
10:45	3.90	11.68	5.06

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1893phae.proj.1334.

July 21, 1893

Comet Rordame 1893. Obs.

11	28	+25.4
16	11	
+4	43	

	23		
+6	+9	+9	
	24		
16	20	31.5	+25.0
4	5-5		
11	28		

D. M. Madge Bone. +19° Obs.

Series ~~+~~ 130 +19°

12	44	+20
18	19	
+5	35	

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1893phae.proj.1334.

July 21, 1893.

10.12	2694	4.11		
		3.82		
		3.99	11.92	5.16 <
	2601	2.01		
	star faint same	2.19		
	star as in zone 76.	2.38	6.58	2.85 <
	2602	2.28		
	same* as in zone	2.61		
	76	2.60	7.49	3.24 <
	2603.	1.78		
	same* as in zone	2.00		
	76	2.10	5.88	2.55 < ~~2.46~~
	2612X.	4.60		
		4.50		
		4.59	13.69	5.93 ~

2612 accidentally taken before 2609.

	2609	2.50		
		2.92		
		2.62	8.04	3.48 ~

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1893phae.proj.1334.

July 21, 1893

2613	4.11		
same star as in	4.08		
zone 76	4.10	12.29	5.32
2614	4.20		
	4.21		
	4.25	12.66	5.48
2628	2.82		
	2.88		
	2.80	8.50	3.68

2623 accidentally taken before 2620.

2620	1.98		
	2.09		
	2.10	6.17	2.67
2658	4.08		
	3.97		
	4.18	12.23	5.30
2667	4.39		
	4.39		
	4.49	13.27	5.75
2676	2.18		
	2.40		
	2.29	6.87	2.97

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1893phae.proj.1324.

July 21, 1893.

2681	2,20		
	2,35		
	2,25	6.80	2.94
2692	3.60		
	3.48		
	3.60	10.68	4.62
2703	4,30		
	4,24		
	4.30	12.84	5.56
2704	3,30		
	3,27		
10;48	3.49	10.06	4,36

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1893phae.proj.1334.

Posted to Here

July 24, 1893.

B 2 36			T 1327		
15	43	43.0	15	47	1.0
	44	43.0		48	1.0
	45	43.0		49	1.0

Lt. M. Dredge gone +19°. Nobs.

Series 131 +19°.

20	2.0	+20.0
16	26	
-3	54	
12	00	
+8	6	

8:51	4338	3.60		
		3.80		
		3.75	11.15	4.83 ∠
	4347	3.79		
		3.90		
		3.85	11.54	5.00 ∠

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1893phae.proj.1334

July 24, 1893.

4355	5.30		
	5.18		
	5.13	15.61	6.76
4357	4.58		
	4.80		
	4.85	14.23	6.16
4369	4.54		
	4.48		
	4.55	13.57	5.88
4383	2.89		
	3.12		
	3.00	9.01	3.90
4385	4.80		
	4.59		
	4.42	13.81	5.98
4391	5.28		
	5.05		
	5.31	15.64	6.77
4394	2.92		
same as in zone	3.03		
21	3.10	9.05	3.92

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1893phae.proj.1334.

July 24, 1893.

4401	3.20		
	3.07		
	3.10	9.37	4.06 <
4410	3.50		
same * as in zone 21	3.63		
	3.52	10.65	4.61 <
4420	2.72		
following * southern of	3.02		
3.	2.80	8.54	3.70 <
4424 — wrong	~~2.89~~	3.40	
	~~3.00~~	3.32	
	~~3.30~~	3.48	10.20 z 4.42 <
4428	3.15		
	3.09		
	3.20	9.44	4.09 <
4429	4.12		
same * as in zone	4.00		
21.	4.06	12.18	5.27 <
44 33	3.47		
	3.42		
	3.60	10.49	4.54 <

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1893phae.proj.1324.

July 24, 1893.

4446	3.51		
	3.70		
	3.61	10.82	4.68<
4451	4.63		
	4.99		
	4.64	14.26	6.17<
4458	4.18		
	4.20		
	4.21	12.59	5.45<
4459	4.14		
	4.16		
	4.32	12.62	5.46<
4464	4.19		
following + btr of 2.	4.21		
	4.20	12.60	5.46<
4465	4.42		
	4.50		
	4.32	13.24	5.73<
4473	4.62		
	4.62		
	4.50	13.74	5.95<

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1893phae.proj.1334.

July 24, 1893.

4477	3,12		
~~anal x as in~~ anal as in	3.32		
zone 21	3,50	9.94	4.30 <
4480	3,60		
	4,00		
9:43.	3,89	11.49.	4.98 <

S Cygni.

20	8	+57.2
18	38	
-1	30	
12	00	
10	30	

Region of S Cygni carefully examined, star
it easily seen. S. Cygni not certainly seen although
at times a more suspicious is entertained but it
10:26 cannot be confirmed. probably fainter than 14.9.

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1893phae.proj.1334.

July 24, 1893.

T. Cassiop.

0	18.	+55.9
19	0.0	
-5	18	
12	00	
+6	42	

0 3 T, I 2 p in large tel. rather too faint for finder.

10:47. Est. 11.7

T. Ursae Majoris.

12	34	+60.2
19	19	
+6	45	

∴ 2 3 T, T 1.5 $\overline{s}$ in large tel. too faint for finder.

11:02 Est. 12,8

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1893phae.proj.1334.

July 27, 1893.

H. M. Rudge Zone +19° Ab. obs.

Series 132 +19°.

20	3.2	+20.7
16	10	
-4	22	
12	00	
+7	38	

8:12 4465 4.02
3.94
4.15 12.11 5.24<

4473 4.38
4.35
4.13 12.86 5.57<

~~4483~~ 2.37 wrong.
2.35
2.38 7.12.

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1893phae.proj.1334.

July 27, 1893

~~4485~~	2.02		wrong.
	~~2.09~~		
	2.10	~~6.21~~	
~~4487~~	~~1.60~~		wrong.
	1.70		
	~~1.75~~	~~5 0.5~~	
4483	2.30		
	2.10		
	2.35	6.75	2.92 <
4485	3.38		
	3.11		
	3.10	9.59	4.15 < ~~3.29~~
4487	2.83		
	2.54		
	2.62	7.99	3.46 <
4501 +	5.60		
taken out of order.	5.70		
	5.65	16.95	7.34 <
4496	2.80		
	2.90		
	2.85	8.55	3.70 <

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1893phae.proj.1334.

July 27, 1893.

4498	2.52		
	2,46		
	2,60	7.58	3.28 <
4503.	2,30		
	2,22		
	2,20	6.72	2.91 <
4509	3,35		
	3,40		
	3,42	10.17	4.40 <
4515	3,58		
	3,40		
	3.44	10.42	4.51 <
4525	4.05		
rather close double	3,98		
combined light measd.	4,20	12.23	5.30 <
4526	2,41		
	2.31		
	2.35	7.07	3.06 <
4530	4,95		
	5,10		
	5,20	15.25	6.60 <

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1893phae.proj.1334

July 27, 1893.

4543	3.15		
	3.27		
	3.27	9.69	4.20 <
4545	3.22		
	3.39		
	3.30	9.91	4.29 <
4547	3.68		
	3.92		
	3.90	11.50	4.98 <
4553.	4.39		
	4.30		
	4.38	13.07	5.66 <
4554	4.18		
	4.00		
	4.05	12.23	5.30 <
4556	2.79		
	3.11		
	2.83	8.73	3.78 <
4560	2.65		
	2.80		
	2.87	8.32	3.60 <

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1893phae.proj.1334.

July 27, 1893.

4564	4.90		
	4.81		
	4.83	14.54	6.30<
4565	3.50		
	3.59		
	3.55	10.64	4.61<
4567	2.90		
	2.82		
	3.20	8.92	3.86<
~~shut 42.~~ 4585	3.80		
	3.90		
	4.10	11.80	5.11<
4594	2.69		
	2.70		
	2.75	8.14	3.52<
4596	2.70		
	2.67		
	2.72	8.09	3.50<
4597	3.90		
	3.81		
	3.63	11.34	4.91<

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1893phae.proj.1334.

July 27, 1893.

4603.	3.13		
same as in gone 22.	3,22		
	3,19	9.54	4.13 <
4605	3.97		
	3.96		
	4.10	12.03	5,21 <
4607	3.47		
	3.62		
	3,55	10.64	4.61 <
4615	3.60		
	3.70		
	3,70	11.00	4.76 <
4618	4,21		
	4.39		
	4.21	12.81	5,55 < ~~4,55~~
New. start.			
4746	3.40		
	3.79		
	3,80	10.99	4.76 <
4755	4.60		
	4,39		
	4,38	13.37	5,79 <

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1893phae.proj.1334.

July 27, 1893.

4766	3.05		
	3.30		
	3.21	9.56	4.14<
4776	3.37		
	3.37		
	3.35	10.03	4.34<
4779	2.82		
	2.88		
	2.85	8.55	3.70<
4782	3.08		
	2.97		
	3.00	9.05	3.92<
4790	4.31		
	4.77		
	4.58	13.66	5.91<
4794	3.63		
	3.60		
	3.62	10.85	4.70<
4796	3.28		
rather ft for a 9.0	3.18		
region checked.	3.42	9.88	4.28<

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1893phae.proj.1004.

July 27, 1893.
New Start.

5005	3.72		
	3.68		
	3.70	11.10	4.81 <
	~~2.59~~		
	~~2.53~~		
5016	1.80		
	1.70		
	1.75	5.25	2.27 <
5022	1.97		
same as in zone 25	1.78		
	1.99	5.74	2.49 <
5023	3.10		
	3.00		
	3.15	9.25	4.01 <
5031	2.50		
	2.55		
	2.65	7.70	3.33 <
5036	6.28		
	6.40		
	6.45	19.13	8.26 <

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1893phae.proj.1334.

July 27, 1893

5039	4,58		
	4,60		
7:56	4,71	13.89	6.01

Went into Great Dome in order to examine Var. Star sequence,

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July 28, 1893

7:30 Cloudy.

8:20 Still cloudy with no prospect of clearing

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1893phae.proj.1334.

July 29 1893.

Phot. Means of Bright double stars. Phot. R. R. obs.

J ≷ 48' P. XIX 320, 321.

19	48	+ 20.0
16	24	
-3	24	
12	00	
+8	36	

7:47

Index above. A.

40.8 ↓ fell after die.

148.5 102.7 ↑

44.1

139.9 95.8 ↑

198.5 ↑

161.5 B 0.35

Index below

132.7

230.9 98.2 ↑

138.0

225.5 87.5 ↑

185.7 ↑

174.3

136.1 a.11

226.1 90.0 ↑

132.0

232.9 100.9 ↑

190.9 ↑

169.1 0.20

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1893phae.proj.1334.

July 29, 1893.

Index above.	A.	
225.2		
314.2	89.0 →	
218.0		
320.0	102.0 →	
	191.0 →	+1.8 →
218.4	169.0	0.21
321.6	103.2 →	
223.2		
315.7	92.5 →	
	195.7 →	+1.7 →
B. Index below.	164.3	0.30
132.3		
232.0	99.7 →	
138.0		
8:05 227.2	89.2 →	
	188.9 →	+1.8 →
	171.1	0.17

~~Σ 2758 61 Cygni.~~

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1893phae.proj.1334.

July 29, 1893

D. M. Hedge gone +9° H. obs.

Series 133 +9°

20	41	+9.9
17	00	
-3	41	
12	00	
+8	19	

8:32	4591.	4.52	
		4.42	
		4.55	13.49 5.84 <
	4603	3.50	
		3.61	
		3.63	10.74 4.65 <
	4613	4.20	
		4.47	
		4.38	13.05 5.65 <
	4616	4.50	
		4.32	
		4.30	13.12 5.68 <

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1893phae.proj.1334.

July 29, 1893.

4622	3.48		
	3.52		
	3.58	10.58	4.58 <
4624	2.70		
	3.07		
	3.05	8.82	3.82 <
4630	4.20		
	4.20		
	4.30	12.70	5.50 <
4637	2.27		
	2.40		
	2.36	7.03	3.04 <
4640	5.13		
	4.99		
	5.01	15.13	6.55 <
4642	4.14		
	3.98		
8:51	4.17	12.29	5.32 <

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1893phae.proj.1334.

July 29. 1893.

Meast. of Special Cases of ♃ & ♄. N. obs.
Bridge Four plan.

+19°

Cercis 134 (Special)

14	9	+20.0
17	59	
+3	50	

9:30	2752	~~4.92~~ wrong.		
		4,50		
		4,51		
		4,40	13.41	5.81
	2756	2.90		
		3,27		
		2,84	9.01	3.90
	2768	2,78		
		3,10		
9:37		3,10	8.98	3.89

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1893phae.proj.1004.

July 29, 1893.

9:48	2893 ✓	2.98		
		3.10		
		3.10	9.18	3.97
	2903	2.38		
		2.45		
		2.59	7.42	3.21
	2866	4.10		
	taken out of order.	4.08		
9:55		4.08	12.26	6.31

New Zone +19°.

Series 135

22	29	+19.5
18	48	
−3	41	
12	00	
+8	19	

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1893phae.proj.1334.

July 29, 1893.

10:16	4969	3.20		
		3.03		
		3.10	9.33	4.04
	4971	3.04		
		3.04		
		3.11	9.19	3.98
	5007	3.30		
		3.39		
		3.24	9.93	4.30
	5005	3.80		
		4.10		
		4.20	12.10	5.24
	5011	2.74		
		2.61		
		2.76	8.11	3.51
	5016	2.21		
		2.11		
		2.22	6.54	2.83
	5039	4.41		
		4.50		
10:48		4.78	13.69	5.93

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1893phae.proj.1334.

July 29, 1893.

Stars 5041 & 5042 if the sheet is copied rightly have their magnitudes inverted. 5041 is really the 9.1 + 5042 is the 9.5. + this undoubtedly caused the discrepency in measured magnitudes of these 2 * so that when properly adjusted the magnitudes are very accordant.

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1893phae.proj.1334.

Pasted to here.

Sept. 2, 1893.

Circumpolar Variables.

R. Ursae Majoris.

Dome moves very hard and gives much trouble in moving. danger of breakage.

10	33	+69.2
18	52	
+8	19	

	B. 236			T. 1327	
17	46	0.4	18	47	1.0
17	47	0.5	18	48.	1.0

Shutter could not be moved and dome stuck so that were obliged to stop & jack up dome in order to move cannon balls.
Stopped also to oil dome.

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1893phae.proj.1334.

Sept. 2, 1893.

R. Ursae Majoris

R = k in large telescope.
R = k in finder.

9:00 Est. 8.7

S. Ursae Majoris

12	36	+62.0
20	6	
+7	30	

r 3.5 S, S 1.5 o in large telescope rather too faint for finder.

9:11 Est. 11.8

T. Ursae Maj.

T = r in large telescope too faint for finder.

9:31 Est. 12.5

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1893phae.proj.1334.

Sept 2, 1893.

S. Boötis.

1		
14	16	+54.6
20	36	
+6	20	

c 3,5 S, S 2,5 d in finder.
C 3,5 S, S 2,5 d in large telescope,
9:53 Est. 8.7

R Ursae Min.

16	34	+72.9
20	59	
+4	25	

g 2,5 R, R 2 h in large telescope.
g 2 R, R 2 h in finder.
10:14 Est. 10.5

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1893phae.proj.1334.

Sept. 2, 1893.

R Draconis.

16	26	+67.4
21	20	
+4	54	

0 3,5 R, R 1 p in large telescope rather too faint for finder

10:25 Est. 11.7

S Cassiop

28	10	+72.1
21	32	
−3	38	
12	00	
+8	22	

S = n in large telescope.
S = n in finder

10:45 Est 10.6

Much trouble experienced in moving dome, dome goes so hard & cannon balls thump so heavily that there is much danger of breaking something.

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1893phae.proj.1334.

Sept. 4, 1893

Circumpolar Variables. Ol. obs.

S. Cygni.

20	8	+57.2
18	31	
-1	37	
+12	00	
+10	23	

p 1.5 S, S 1.5 p in large telescope too faint for finder.

7:37 Est. 13.6

R. Camelop.

14	40	+84.1
18	52	
+4	12	

R = m in large telescope too faint for finder.

7:53 Est. 13.0

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1893phae.proj.1334.

Sept. 4, 1893.

Phot. measts of Brt. double stars. Phot R. N. obs.

Σ 1962 178 Librae B.

15	32	−8.3
19	25	
+3	53	

P.A. 190°, Dist. 10.″ Wrgs. 6.2, 6.3.
Index to left. 12.

8:25

306.5 (southern dis.
52.4 105.9 ✓1
317.0
46.0 89.0 ✓1
194.9 ✓1 ~~+1.7~~ 1
~~165.1~~ Index to ~~reject~~. + 0.2f

44.9
134.0 89.1 ✓1
48.0
134.8 86.8 ✓1
175.9 ✓1 +2.1 ✓1
51.0 ~~89.4~~ + 0.2f
131.2 80.2 ✓1
46.0
131.9 85.9 ✓1
166.1 ✓1 ~~+2.3~~ ~~+2.3~~
+ 0.2.6

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1893phae.proj.1334.

Sept. 4, 1893.

Index to left. B.

138.7			
217.5	78.8 ✓ 1		
127.0			
228.8	101.8 ✓ 1		
	180.6 ✓ 1		+2.0 ✓ 1
126.1	179.4 ✓		−0.01
227.4	101.3 ✓ 1		
138.0			
222.0	84.0 ✓ 1		
	185.3 ✓ 1		+1.9 ✓ 1
	174.7	Index to right. A.	−0.10
225.3			
311.5	86.2 ✓ 1		
221.1			
316.0	94.9 ✓ 1		
	181.1 ✓ 1		+2.0 ✓ 1
	178.9		−0.02

8.37

Star rather low.

Σ 2063 H. IV 62

16	28	+45.9
19	58	
+3	20	

P. A. 195° Dist. 16.″ (57, 62)

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1893phae.proj.1334.

Sept 4, 1893.

Index above.

8:57 14,8 ftr. dis.

162,0	147.2 ✓ 1	
12,1		
165.0	152.9 ✓ 1	
	300.1 ✓ 1	~~-0.9~~ ✓ 1
	~~59.9~~	-2.86

Index below.

102.1		
256.0	153.9 ✓ 1	
98.0		
258.0	160.0 ✓ 1	
	313.9 1	-1.5 ✓ 1
	~~461~~	3.45
98.8		
257.5	158.7 ✓ 1	
101.9		
255.2	153.3 ✓ 1	
	312.0 ✓ 1	-1.4 ✓ 1
	~~48.0~~	

Index above

		-3.36
192.3		
339.8	147.5 ✓ 1	
192.2		
343.2	151.0 ✓ 1	
	298.5 ✓ 1	-0,8 ✓ 1
	~~61.5~~	2.80
193.8		
342.2	148.4 ✓ 1	
193.4		
342.9	149.5 ✓ 1	
	297.9 ✓ 1	-0,8 ✓ 1
	~~62.1~~	2.78

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1893phae.proj.1334.

Sept. 4, 1893.

Index below.

284.4

74.2 149.8 ✓

281.7

9:12 73.3 151.6 ✓

301.4 ✓ 2.91 −0.9 ✓

Transit of nickel found to ~~[illegible]~~ 58.6 a film of dirt upon it which had accumulated during vacation, causing

Σ 30′ 16,17 Draconis.

16	33	+53.2
20	44	
+4	11	

Index to left and northern component

9:37 352.6 of Fl. dis.

88.1 95.6 ✓

349.8

87.7 97.9 ✓

193.4 ✓ +1.7 ✓

~~166.6~~ A. −0.25

Index to right

76.0

179.2 103.2 ✓

81.5

174.1 92.6 ✓

195.8 ✓ +1.7 ✓

164.2

−0.30

Image gone to be examined. Clouds & mirage & muddy seeing. Mirror cleaned & silvered.

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1893phae.proj.1334.

Sept. 4, 1898.

Index to right.

83.0		
173.2	90.2 ✓ 1	
81.8		
177.0	95.2 ✓ 1	
	185.4 ✓ 1	+1.9 ✓ 1
B Index to left.	174.6	−0.10
171.0		
267.7	96.7 ✓ 1	
174.5		
270.5	96.0 ✓ 1	
	192.7 ✓ 1	+1.8 ✓ 1
170.1	167.3	−0.24
269.9	99.8 ✓ 1	
170.5		
266.0	95.5 ✓ 1	
	195.3 ✓ 1	+1.7 ✓ 1
A. Index to right.	164.7	−0.29
258.3		
359.4	101.1 ✓ 1	
269.5		
9:50 355.1	85.6 ✓ 1	−0.13
	186.7 ✓ 1	+1.9 ✓ 1
	173.3	

Comparisons rather difficult on account of close proximity of faint star to bright component.

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1893phae.proj.1334.

Sept. 4, 1893.

Σ 2096 19 Ophiuchi.

16	41	+2.3.
21	8	
+4	27	

10:01

Index above.
323.0 after dia.
118.4 158.4 ✓
321.8
118.5 156.7 ✓
312.1 ✓ +.4 ✓
~~479~~ 3.37
Index below.
51.7
201.6 149.9 ✓
50.0
206.0 156.0 ✓ 3.10
305.9 ✓ -.1 ✓
52.5 54.1
207.5 155.0 ✓
53.1
205.8 152.7 ✓
307.7 ✓ -1.2 ✓
523
3.17

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1893phae.proj.1334.

Sept. 4, 1893

Index above.

143.0		
297.1	154.1 ✓ 1	
141.7		
295.0	153.3 ✓ 1	
	307.4 ✓ 1	~~1.2~~ ✓ 1
142.0	526	-3.16
293.8	151.8 ✓ 1	
142.2		
296.2	154.0 ✓ 1	
	305.8 ✓ 1	~~1.1~~ ✓ 1
	562	-309

Index below.

235.7		
25.0	149.3 ✓ 1	
231.5		
28.2	156.7 ✓ 1	
	306.0 ✓ 1	~~1.1~~ ✓ 1
	540	-310

10:14

Observations rather difficult from low altitude.

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1893phae.proj.1334.

Sept 4, 1893.

Circumpolar Variables. Ph. obs.

R. Aurigae.

5	2	+55.0
21	32	
-7	30	
12	00	
+4	30	

α 2 R, R. 2 α in large telescope too faint for finder.

10:36 Est. 12.9

6 — 49

R. Lyncis.

6	49	+55.1
21	46	
9	3	
12	0	
+2	57	

Region rather too low. Sky slightly hazy.

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1893phae.proj.1334.

Sept 5, 1893

7:00 Cloudy.

Still too cloudy to work.

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1893phae.proj.1334.

Sept. 6, 1893

7:15 Somewhat cloudy at present time.

Σ 1850

14	28	+ 28.8
18	38	
+4	15	

7:26 Index to right + below

351.0 L ftr. dis.

92.5	101.5 ✓	
347.4		
96.0	108.6 ✓	
	210.1 ✓	~~+1.4~~ ✓
Index to left	149	− 0.58
78.2		
179.8	101.6 ✓	
82.0		
183.0	104.6 ✓	
	203.2 ✓	~~+1.6~~ ✓
clouds thicker	156.8	− 0.44
73.2		
180.9	107.7 ✓	
82.5		
176.0	93.5 ✓	
	201.2 ✓	+1.6 ✓
	158.8	− 0.44

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1893phae.proj.1334.

Sept. 6, 1893.

Index to right & below.

171.8		
268.8	97.0 ✓	
167.0		
280.0	113.0 ✓	
	210.0 ✓	+1.4 ✓
170.0	150.0	−0.58
272.4	102.4 ✓	
174.0		
271.7	97.7 ✓	
	200.1	+1.6 ✓
	152.2	−0.38

Index to left & below.

258.9		
7.1	108.2 ✓	
258.3		
3.0	104.7 ✓	
	212.9	+1.4 ✓
	147.1	−0.63

Still rather cloudy for Circumpolar work.

7: 3 8

Σ 1919 H.W. 62

15	7	+19.8
19	10	
4	3	

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1893phae.proj.1334.

Sept. 6, 1893.

Index to left & below

7:54.

~~291.3~~
~~46~~ ~~102.1~~
254.1
11.2 117.1 ✓
262.5
358.3 95.8 ✓
212.9 ✓ ~~+1.1~~ ✓
Index to right & above 1471 0.63
355.0
92.2 97.2 ✓
350.0
105.5 115.5 ✓
212.7 ✓ +1.4 ✓
348.0 1473 0.63
101.0 113.0 ✓
355.2
103.7 108.5 ✓
221.5 ✓ +1.2 ✓
Index to left & below 1383 0.80
79.2
196.2 117.0 ✓
84.0
191.9 107.9 ✓
224.9 ✓ +1.1 ✓
1351 0.87

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1893phae.proj.1334.

Sept 6, 1893.

Index to left + below.

85.0		
190.9	105.9	
83.0		
192.0	109.0	
	214.9	+1.3
	145	−0.67

Index to right ~~+ above~~.

167.4		
283.3	115.9	
170.0		
284.6	114.6	
	230.5	+1.0
	129 5	−0.99

8!07

Examinations of regions of circumpolar variables to select pair of brt & ft stars for extension of photometric scale to ft. magnitudes.

S Ursae Maj.

1		
12	36	+62.0
19	36	
+7	00	

No good pair in connection with this variable.

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1893phae.proj.1334.

Sept. 6, 1893.

T Ursae Majoris.

Index below.

8:43

323.2
133.0 169.8 ✓^
323.2
133.2 170.0 ✓^
339.8 ✓^ −3.3 ✓

Index above.

53.9
224.0 170.1 ✓^
54.0
222.9 168.9 ✓^
339.0 ✓^ −3.2 ✓

54.0
222.6 168.6 ✓^
52.6
223.5 170.9 ✓^
339.5 ✓^ −3.2 ✓

Index below.

142.4
314.0 171.6 ✓^
142.5
313.2 170.7 ✓^
342.3 ✓^ −3.6 ✓

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1893phae.proj.1334.

Sept. 6 1893.

Index below.

143.9.
312.0 168.1 ✓^
142.2
314.0 171.8 ✓^
339.9 ✓^ −3.3 ✓

Index above.

~~223.5~~ wrong.
~~42.6 179.1~~
233.1
42.2 169.1 ✓^
234.0
43.3 169.3 ✓^
338.4 ✓^ −3.1 ✓

9:20

Position zero 1425.
450
187.5

20 57 35.0 ft. *
58 2.7 Brt ~~*~~
58 38.5 ft. *
58 40.2 Brt *

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1893phae.proj.1334.

Sept 6, 1893.

~~20~~ 59 ~~35.8~~
21 0 3.4

21	1	21.0
	1	48.0
		~~8 0.5~~
	2	21.6
	2	23.6
	4	21.0
	4	49.2
	5	21.4
	5	23.4

Bathein northern half.

ft. star is the 13.5 mag + brt star is comp. star f.

R. Ursae Min.

16	54	+72.8
21	17	
+4	43	

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1893phae.proj.1334.

Sept. 6, 1893.

Index below.

10.30

~~285.7~~
~~4[illegible].7~~ ~~123.5~~
~~280.0~~

There is a quite faint star which can be compared with star if desirable,

R Draconis,

16	26	+67.4
22	2	
+5	36	

Star g. can be compared with star f. g is 12.0 mag. or perhaps a little ftr.

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1893phuee.proj.1334.

Sept. 7, 1893.

71327 0 48 1.0 D256 0 48 18.1
49 1.0 49 18.0

T 1327 54.2 Slow.
∴ D256 is 36.1 S.

Dreb Jef II. Ph R. Wob Feeb Rec. and f with
1 cent in right = Sat I.

0 54 38.0 38.0
55 3.0 0 55 10.0 121.5 83.5
23.0 13 30 6 38.0 79.0
2)162.5
46.0 117.0 81.25
57.0 44.0
56 10.0 0 56 23.4 117.7 73.7
38.0 39.0 81.0
2)154.7
48.5 120.0 77.35
59.5 38.2
57 9.0 57 13.2 117.2 79.0
17.5 40.8 76.2
2)155.2
27.0 117.0 77.6
36.0 39.2
48.0 57 53 119.0 79.8
58 0.0 39.5 76.9
2)156.7
7.0 116.4 78.35
7.5 39.3
26.0 58 35.9 115.5 76.2
47.5 38.0 80.0
59.# 2.5 2)156.2
118.0 78.1

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1893phae.proj.1334.

Sept 7, 1893

1	0	38.0			40.3		
		54.5	1	1 3.8	117.8	77.5	
	1	13.5			40.0	76.5	
		24.0			116.5	2)154.0	
		32.5		1 48.0	41.8	77.0	
		41.5			116.2	74.4	
		52.5			40.5	73.9	
	2	5.5			114.4	2)148.3	
		15.0			39.8	74.15	
		25.5	2	28.5	116.3	76.5	
		33.0			40.0	77.5	
		40.5			117.5	2)154.0	
	6	7.5			39.5	77.0	
		18.0	6	23.1	116.4	76.9	
		28.5			39.0	76.0	
		38.5			115.0	2)152.9	
	8	19.0			40.0	76.45	
		32.0	8	37.5	115.4	75.4	
		43.5			42.2	72.8	
		55.5			115.0	2)148.2	
	9	5.0			42.0	74.1	
		14.0	9	22.0 ~~19.5~~	118.5	76.5	
		25.5			41.6	73.4	
		33.5			115.0	2)149.9	
		47.5	10	3.9	40.0	74.95	
		58.5			117.0	77.0	
	10	11.0			41.6	75.3	
		18.5			116.9	2)152.3	
						76.15	

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1893phae.proj.1334.

Sept 7, 1893

10/5	35.0	10	56.4	– 3 sec.	41.1	
	48.5				115.8	74.7
11/6	7.5				40.0	77.2
	14.5				117.2	2)151.9 75.95
	30.0	11	37.9		40.2	
	31.0				114.4	74.2
	40.5				430	71.0
	46.0				1140	2)145.2 72.6
	57.5		(57.5)		450	
	56.0	11	58.9		114.4	69.8
12/7	1.0				437	65.3
	6.5				109.0	2)135.1 67.55
	13.0				420	
	19.5	12	22.6	–	113.0	71.0
	26.5				46.0	64.0
	31.5				110.0	2)135.0 67.5
	37.0				46.2	
	42.5	12	45.5		111.2	65.0
	47.5				48.2	65.0
	55.0				113.2	65.0
12/8	1.0				443	
	7.5	13	10.5		109.2	64.9
	14.0				457	65.4
	19.5				1131	2)130.3 65.15
	25.0				49.0	
	30.5	13	33.6	–	110.5	61.5
	36.0				48.5	59.7 2)121.2 60.6
	43.0				107.8	

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Sept 7, 1893

	Eq. 5	50.7
	56.0	108.4
14	1.0	49.8
	8.5	106.2
	13.5	97.5
	20.0	103.7
	25.5	52.0
	30.5	103.0
	36.5	53.5
	43.5	100.7
	49.5	55.8
	55.5	98.3
15	4.0	57.2
	10.0	98.5
	15.5	155.5
	22.0	95.7
	28.0	61.5
	35.5	96.0
	42.0	61.3
	50.5	94.7
	56.5	63.0
16	3.0	93.0
	9.5	63.8
	16.5	89.5
	26.5	67.5
	34.5	58.0
	46.5	68.1
[17]	0.5	55.8

13 51 58.0

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1893phee.proj.1334.

Sept 7, 1893

not seen later.

S.V.

	49.5			69.5		
	58.5	18	7.ff	85.3		16.8
18	11.5			69.2		17.0
	27.0			86.2	2	33.8
						16.9

71327	2	13	1,0 0.0	B256	2	13	17.6
		14	1,0 0.0			14	17.6

T 1327 is 54°.2 S. ∴ B236 is 36°.6 S.

2	55	1,0 0.0		2	55	17.5
	56	1,0 0.0			56	17.5

T 1327 is 54°.1 S ∴ B236 is 36°.6 S

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1893phae.proj.1334.

Sept. 7. 1893.
Reef. Jupt II, Ph R. Wols. Foulerse, comp with Sat I

Sept	16	57			62.3	
	17	10.5	17	28.8	94.0	31.7
		23.5			60.0	32.0
	18	4.0			92.0	2)63.7
						31.85

	3	32	15.5	Saln.
East. Time. 16	7 = 4.1		= 33.5	63.0
			44.5	95.2
			53.0	53.0
		33	3.5	93.5
			9.0	56.2
			18.0	98.8
			25.0	51.7
			33.0	98.5
			39.0	51.0
			47.5	103.5
			57.5	49.0
		34	6.0	106.4
			12.5	47.2
			25.0	106.8
			32.0	43.5
			40.5	108.5
			52.0	47.8
		35	0.5	105.0
			9.5	44.7
			17.0	112.8
		36	4.5	47.0
			14.0	110.8

— 1 sec.
36 36
63.8

1893phae.proj.1334.

Sept 7, 1893.

	24.5			44.0		63.8
37	40.5			108.2		64.2 / 2)128.0 / 64.0
	49.5			42.2		
	58.5			113.0	70.8	
38	7.5	38	2.5	42.8	69.0	
	14.1			111.8	2)139.8 / 69.9	
	23.5			42.5		
	32.0	38	37	110.0	67.5	
	41.0			45.0	66.4	
	52.0			111.4	2)133.9 / 66.95	
39	0.5			44.0		
	11.0			111.0	67.0	
	18.5	39	17	46.0	66.3	
	37.0			111.3	2)132.3 / 66.15	
	48.0			46.5		
	55.5			110.7	64.2	
40	6.0	40	1	45.3	63.2	
	15.5			108.5	2)127.4 / 63.7	
	26.5			46.0		
	35.5			108.4	62.4	
	47.1	40	42	46.1	58.9	
	57.0			105.0	2)121.9 / 60.65	
[41]	6.0			45.3		
	23.5	41	27	110.3	65.0	
	34.5		2 Sec.	47.7	54.6	
	43.0			107.3	2)124.6 / 62.3	
	42.0			47.3		

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1893phae.proj.1234.

Sept 7. 1893.

42	41.5			106.1	58.8	
	16.0	42	8	48.3	63.5	
	32.5			111.8	2)122.3	
44	37.0			46.5	61.15	
	51.5	44	57	105.0	58.5	
45	3.5			48.8	57.2	
	151.5			106.0	2)115.7	
	2 ~~38.0~~			49.2	57.85	
	38.0	45	44	106.0	56.8	
	50.0			47.9	58.1	
	0.0			106.0	2)114.9	
					57.45	

Seeing Good. Altitude very uncertain: Sat. near limb of Jupiter & drawing closer to it. Clock also gave trouble during hour of rapid variation causing stoppage of clock for a few moments.

$\mathcal{F}1327. = 4\ 2\ 1.0\ \ 4\ 2\ 17.0 = B256.$
$\quad\quad\quad\quad\quad\quad 3\ 1.0\ \ \quad\quad 3\ 17.0$

$\mathcal{F}1327$ is $54^s.1$ S. $\therefore$ B256 is $37^s.1$

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1893phae.proj.1334.

Sept 8, 1893

Examinations of regions of circumpolar Variables to select pairs of Bright & faint stars for extension of photometric scale to faint magnitudes N. obs.

S. Ursae Maj.

12	36	+ 62.0
19	2	
+6	26	

Comp of star g with pt x about 12.4 mag. to extend photometric scale.

Index above. Plot R. N. obs.

7:55

177.5		
336.2	158.7 ✓^	
176.2		
337.1	160.9 ✓^	
	319.6 ✓^	-1.7 ✓

Index below.

266.6		
67.2	160.6 ✓^	
268.0		
64.5	156.5 ✓^	
	317.1 ✓^	-1.6 ✓
267.8		
65.7	157.9 ✓^	
266.8		
67.7	160.9 ✓^	
	318.8 ✓^	-1.7 ✓

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1893phae.proj.1324.

Sept. 8, 1893.

Index above.

358.0		
156.1	158.1 ✓	
357.0		
152.0	160.0 ✓	
	318.1 ✓	−1.7 ✓
359.1		
155.9	156.8 ✓	
357.7		
156.3	158.6 ✓	
	315.4 ✓	−1.5 ✓

Index below.

87.8		
244.1	156.3 ✓	
88.0		
244.9	156.9 ✓	
	313.2 ✓	−1.4 ✓

8:18

Nickel used without eyestop tonight
Eye stop removed during observations on
Sept 6 as it was found that the emergent
pencil could be grasped more readily &
easily without it.

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1893phae.proj.1334.

Sept. 8, 1893

location of ft * with reference to * g.

Position gives 06.7
45
351.7

20	4	2.5	ft *
	4	41.0	Brt. *
	5	15.5	ft. *
	5	26.0	Brt. *
	5	54.4	ft *
	6	32.5	Brt *
	7	6.2	ft *
	7	17.4	Brt *.
	7	58.9	ft *
	8	34.4	Brt *
	9	7.3	ft *
	9	18.6	Brt *

Bothain northern half.
Brt.

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1893phae.proj.1004.

Sept. 8, 1893.

R. Draconis.

16	26	+67.4
20	19	
+3	53	

Location of ft. Comp star g with reference to star f.

20	29	50.5 ft. *
	30	49.5 brt *
	31	34.4 ft *
	32	0.5 brt *
	32	32.1 ft. *
	33	31.5 brt *
	34	16.8 ft. *
	34	41.7 brt *
	35	18.9 ft. *
	36	17.4 brt *
	37	1.5 ft *
	37	27.4 Brt *

Both in northern half.

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1893phae.proj.1334.

Sept. 8, 1893.

Comp. of star f with ft star g. Phot R, Ot. obs.
Extension of Plot Scale.

Index below.

9:30

265.3		
69.0	163.7 ✓	
265.0		
69.0	164.0 ✓	
	327.7 ✓	−2.2 ✓

Index above.

356.4		
158.3	161.9 ✓	
357.0		
158.0	161.0 ✓	
	322.9 ✓	−1.9 ✓
356.4		
157.2	160.8 ✓	
357.0		
158.0	161.0 ✓	
	321.8 ✓	−1.9 ✓

Index below

85.2		
248.2	163.0 ✓	
85.8		
248.0	162.2 ✓	
	325.2 ✓	−2.1 ✓

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1893phae.proj.1334.

Sept. 8, 1893.

Index below,

85,2

248.8 163.6 ✓

85,8

247.8 162.0 ✓

325.6 ✓ −2.1 ✓

Index above.

175,3

337.7 162.4 ✓

174.4

9:48 338.2 163.8 ✓

326.2 ✓ −2.1 ✓

R. Aurigae.

5	2	+53.0
21	25	
−7	37	
+12	00	
+4	23	

Compar. Star g with faint stars to extend Photometric table.

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1893phae.proj.1334.

Sept. 8, 1893.

Index to right & above.

10: 21

268.8

60.0 151.2 ✓^

271.2

60.5 149.3 ✓^

300,5 ✓^ −0.9 ✓

Index to left & below.

359.8

154.0 154.2 ✓^

2.2

154.2 152.0 ✓^

306.2 ✓^ −1.1 ✓

1.0

154.2 153.2 ✓^

1,2

153.8 152.6 ✓^

305,8 ✓^ −1,1 ✓

Ind to right & above.

92.0

242.0 150.0 ✓^

91,1

240.9 149.8 ✓^

299.8 ✓^ −0.9 ✓

90.9

242.2 151.3 ✓^

89.3

242.0 152.7 ✓^

304.0 ✓^ −1.0 ✓

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1893phae.proj.1204.

Sept. 8, 1893.

Index to lifts below.

179.2 .

331,3 152.1 ✓^

179.5

10;48 331,2 151.7 ✓^

303,8 ✓^ -1,0 ✓

Fit. * precedes * g 8 sec, * is 0'.3 north of it.

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1893phae.proj.1334.

Sept. 9, 1893

Circumpolar Variables

S. Cygni. N. obs.

20	8	+ 57.2
18	48	
-1	20	
12	10	
+10	40	

p 2 S, S 3 g in large telescope too ft. for finder.

8!46 Est. 13.4

S. Ursae Maj.

Comp. of * g with ft. * about 12.4 mag. to extend photometric scale to faint stars.

Phot. R. N. obs.

12	36	+ 62.0
19	24	
+6	48	

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1893phae.proj.1004.

Sept. 9, 1893.

Index above.

8:00

177.2 ftr. dis.
335.8 158.6 ✓^
174.0
338.3 164.3 ✓^
322.9 ✓^ −1.9 ✓

Index below.

266.0
66.4 160.4 ✓^
268.3
66.0 157.7 ✓^
318.1 ✓^ −1.7 ✓

267.2
65.0 157.8 ✓^
267.5
68.0 160.5 ✓^
318.3 ✓^ −1.7 ✓

Index above.

358.8
155.7 156.9 ✓^
357.2
158.0 160.8 ✓^
317.7 ✓^ −1.6 ✓

359.2
157.4 158.2 ✓^
358.8
155.7 156.9 ✓^
315.1 ✓^ −1.5 ✓

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1893phae.proj.1334.

Sept. 9, 1893.

Conclex below.

88.7

245.8 157.1 ✓^

88.8

8:30 245.2 156.4 ✓^

313.5 ✓^ -1.4 ✓

n 3. S, S 2 0 in large telescope two ft. for finder.

8:39 Est. 11.7

R. Aurigae

5	2	+53.0
20	20	
-8	42	
12	00	
+3	18	

Too low.

R. Draconis

Comp. of * f with ft. * q.	Obst. R.	Obs.
16 26.	+67.4	
20 26		
+4 00		

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1893phae.proj.1334.

Sept. 9, 1893.

Index below.

9:00 87.0 ∠ ftr. dis

248.0	161.0 ✓^		
87.0			
247.3	160.3 ✓^		
	321.3 ✓^	-1.8	✓

Index above.

176.9			
337.2	160.3 ✓^		
175.8			
337.5	161.7 ✓^		
	322.0 ✓^	-1.9	✓
175.2			
338.2	163.0 ✓^		
175.2			
338.5	163.3 ✓^		
	326.3 ✓^	-2.1	✓

Index below.

266.8			
68.8	162.0 ✓^		
266.0			
67.5	161.5 ✓^		
	323.5 ✓^	-2.0	✓
266.0			
67.8	161.8 ✓^		
265.9			
68.0	162.1 ✓^		
	323.9 ✓^	-2.0	✓

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1893phae.proj.1334.

Sept 9, 1893.

Index above.

356.8
157.2 161.4 ✓^
356.5
9:25 158.0 161.5 ✓^
322.9 ✓^ −1.9 ✓

0 4 R, R 2 p in large telescope too faint for finder.

9:33 Est. 11.7

R. Aurigae. Phot. R.

Comp. of + g with ft Star to extend Phot. table, Pt. obs.

+53.0

5	2
21	17
−7	45
12	00
+4	15

Index below.

9:58 180.3 ft. dis.
330.2 149.9 ✓^
179.9
330.1 150.2 ✓^
300.1 ✓^ −0.9 ✓

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1893phae.proj.1934.

Sept. 9, 1893.

d ndex above.

93.1
243.2 150.1 ✓^

93.1
241.9 148.8 ✓^
298.9 ✓^ −0.8 ✓

93.1
242.8 149.7 ✓^
92.0
242.8 150.8 ✓^
300.5 ✓^ −0.9 ✓

d ndex below.

180.0
330.2 150.2 ✓^

180.2
329.7 149.5 ✓^
299.7 ✓^ −0.8 ✓

180.2
331.1 150.9 ✓^
180.7
330.2 149.5 ✓^
300.4 ✓^ −0.9 ✓

d ndex above.

93.1
243.0 149.9 ✓^
91.9
242.8 150.9 ✓^
300.8 ✓^ −0.9 ✓

10:27

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1893phae.proj.1334.

Sept 9, 1893

r 2, R, R 3.3 in large telescope too faint for finder.

10!35 Est. ~~13,9~~ 13,5

Sky a little hazy, observations somewhat difficult.

S. Cassiop.

1	10	+72.1
22	15	
-2	55	
12	00	
+9	5	

0 1,5 S,S 2 p. in large telescope.
Same in finder but rather faint.

10!57 Est. 11,1

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1893phae.proj.1934.

Sept 10, 1893.

#1327	3	12	~~0.0~~ 1.0	B236	3	11 6	53.4
		13	~~0.0~~ 1.0			12 7	53.4

#1327 is 5° 2'.4 S.
∴ B236 is 5 9°.0 S

Decaf. Jup. I, Ph R. Wolv Tank Rec. compared with Sat IV. = smaller of pair – Decy. in Almanac

3	B3	52.5				107.3	114.5	does not correct effect at first time to stay
3	24	10.0	3	24	21.0	103.1	221.8	
		33.5	15	47	27.6	2)210.4 / 105.2	117.0	
		48.0					220.1	In almanac
		59.5					113.2	Sat I = Smaller
25		12.5	3	25	19	106.9	220.1	Intended to
		23.5				116.5	113.5	make Sat IV
		39.5				2)223.4 / 111.7	230.0	draftsman
		54.0					117.0	but from distances
26		4.5	26	16		102.3	219.3	confusion with
		26.0				101.2	115.0	almanac Sat
		38.0				2)203.5 / 101.8	216.2	I was made
27		0.5	–	18.		112.5	114.2	to disagree
		22.0	27	28		117.7	216.7	the list &
		36.5				2)220.2 / 110.1	111.1	adhered
		52.5					218.8	throughout
28		2.5				106.3	111.9	
		15.5	28	19		107.8	218.2	
		24.0				2)214.1 / 107.0	112.2	
		33.5					220.0	

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1893phae.proj.1334.

Sept 10, 1893

		51.5				110.2		
		59.5				217.1	106.9	
3	29	9.0	3	29.	6	110.4	105.4	
		22.5				215.8	2)212.3	
		38.5				116.7	106.2	96.3
		48.5		29.	59	213.0	109.1	
	30	2.0				111.7	2)205.4	102.7
		25.5				~~212.0~~	220.8	
		58.0				110.0	112.0	
	31	10.0		31	15	222.0	105.9	
		21.5				113.0	2)217.4	
		31.0				218.9	108.95	
		40.5				112.2	104.9	
		58.5		32	1	217.1	103.2	
	32	7.5				111.8	2)208.1	
		16.0				215.0	104.0	
	33	3.5		—	18.	112.6	101.6	
		15.5		33	24	214.2	105.9	
		30.5				114.0	2)207.5	
		45.0				219.9	103.75	
		53.0				115.1	101.9	
	34	10.0		34	12	217.0	105.7	
		17.0				110.5	2)207.6	
		27.5				216.2	103.8	
		34.5				114.0	100.3	
		41.5		34	45	214.3	105.8	
		48.0				110.2	2)206.1	
		55.0				216.0	103.0	

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1893phae.proj.1334.

Sept. 10, 1893.

3	35	25			109.8	106.3	
		10.5	3	35.14	216.1	100.5	
		17.0			113.0	2)206.8	
		27.0			213.5	103.4	
		34.5			113.3	97.8	
		43.0	35	48	211.1	102.2	
		53.0			114.8	2)200.0	
[36]		3.5			217.0	100.0	
		11.0			112.0		
		19.5	36	23	212.3	100.3	
		27.5			111.2	101.6	
		35.0			212.8	2)201.9	
		43.0			111.4	100.95	
		50.5	36	56	215.0	103.6	
		59.0			112.8	104.7	
[37]		11.0			217.5	2)208.3	
		18.0			110.3	104.15	
		28.0	37	31	215.2	104.9	
		35.5			115.7	92.3	
		43.0			208.0	2)197.2	
		49.5			115.7	198.6	
		57.0	38	0/45	209.7	- 94.0	
[38]		3.5			120.6	95.7	
		10.5			216.3	2)189.7	
		19.5			113.1	94.85	
		29.0	38	33	215.0	101.9	
		37.0			111.2	100.9	
						2)202.8	
						101.4	

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1893phae.proj.1334.

Sept. 10, 1893

		45.5	112.1
		52.5	120.0 94.8
3	[39]	0.0 3 39 5	214.8 105.1
		8.5	111.2 2)199.9
		18.5	99.95
		30.5	216.3
		37.0	110.0
		43.0	214.2
		53.0	110.5
	[40]	1.0	219.7
		12.0	105.3
		22.0	221.2
		32.0	106.0
		41.5	221.2
		54.0	98.0
	[41]	2.0	229.0
		11.0	98.0
		19.5	232.8
		31.5	98.2
		43.5	237.5
		54.0	92.7
	[42]	5.0	244.3
		19.5	87.2
		31.0	247.2
16	5 46.	42.5	83.2
			250.8

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Sept. 10, 1893

Not seen Later:

S.V.	43	25.0			82.0	
		49.0			249.0	167.0
3	44	9.5	44	1.	81.5	167.5
		42.0			249.0	167.25

Seeing rather poor. Images blurry - attitude inconvenient. Just high.

J 1327	4	12	1.0 ~~0.0~~	B 236	4	11/6	53.2
		13	1.0 ~~0.0~~			12	53.1

J 1327 is 52°.4 S. ∴ B 236 is 59°.2 S.

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1893phae.proj.1334.

Sept. 11, 1893.

Comps. of comp. * f with 13.5 mag. *. Phot. R, O. obs
T. Olcese May.

12	36	+ 61.0
19	2	
+6	26	

Index below.

7:45

323.6 ft. dis.

133.5	169.9	✓^
322.9		
133.3	170.4	✓^
	340.3	✓^

- 3.3 ✓

Index above.

54.2		
223.8	169.6	✓^
54.3		
223.0	168.7	✓^
	338.3	✓^

- 3.1 ✓

54.1		
222.5	168.4	✓^
52.8		
223.9	171.1	✓^
	339.5	✓^

- 3.2 ✓

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1893phae.proj.1334.

Sept. 11, 1893.

Index below.

323.8
133.0 169.2 ✓^
322.7
133.9 171.2 ✓^
340.4 ✓^ −3.8 ✓

322.0
133.8 170.8 ✓^
322.9
133.9 171.0 ✓^
341.8 ✓^ −3.5 ✓

Index above.

53.0
224.4 171.4 ✓^
53.8
223.2 169.4 ✓^
340.8 ✓^ −3.4 ✓

8:
8:32

si 3 7, 7 2 u in large telescope too ft. for finder.

8:44 Est. 13.4

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1893phae.proj.1334.

Sept. 11, 1893

S. Ursae Maj.

Comps. of * g with fe * about 12.4 magn. to extend Photometric scale. Phot. R. Ot. obs.

8:50

Index below.

266.1 ∠ ftr. dis.

66.7 160.6 ✓^

267.4

65.0 157.6 ✓^

318.2 ✓^ −1.7 ✓

Index above

178.0

335.9 157.9 ✓^

176.0

337.0 161.0 ✓^

318.9 ✓^ −1.7 ✓

176.0

337.0 161.0 ✓^

178.0

336.4 158.4 ✓^

319.4 ✓^ −1.7 ✓

Index below.

265.0

67.7 162.7 ✓^

266.7

67.5 160.8 ✓^

323.5 ✓^ −2.0 ✓

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1893phae.proj.1334.

Sept 11, 1893.

Index below.

266.7
66.2 159.5 ✓^
266.9
65.1 158.2 ✓^
317.7 ✓^ −1.6 ✓

Index above.

179.0
336.0 157.0 ✓^
176.3
9:27 337.9 161.6 ✓^
318.6 ✓^ −1.7 ✓

R. Draconis.

Comp. of * f with ft. * g. Phot R. Obs.

16 26 +67.4
21 11
+4 45

Index below.

9:47 86.0 ⟨ Interval
247.5 161.5 ✓^
84.0
248.9 164.9 ✓^
326.4 −2.2 ✓

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1893phae.proj.1334.

Sept. 11, 1893.

Index above.

175.5
336.2 160.7 ✓^
175.0
337.6 162.6 ✓^
323.3 ✓^ −2,0

175.3
338.0 162.7 ✓^
174.5
337.8 163.3 ✓^
326.0 ✓^ −2,1 ✓

Index below.

264.8
68.5 163.7 ✓^
264.1
68.0 163.9 ✓^
327.6 ✓^ −2,2 ✓

264.8
67.9 163.1 ✓^
265.0
68.5 163.5 ✓^
326.6 ✓^ −2,2 ✓

Index above.

356.0
156.0 160.0 ✓^
355.1
157.7 162.6 ✓^
322.6 ✓^ −1,9 ✓

10:13

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1893phae.proj.1334.

Sept. 11, 1893.

R. Aurigae.

Comp. of * g with faint * to extend Shwd. scale to ft. *s. Phot R. Ast. obs.

5	2	+53.0
21	57	
−7	5	
+12	0	
+4	55	

10:30

Index above.

91.7 < ftr. dis.
239.0 147.3 ✓^
90.0
242.0 152.0 ✓^
299.3 ✓^ −0.8 ✓

Index below.

179.2
332.5 153.3 ✓^
179.3
330.6 151.3 ✓^
304.6 ✓^ −1.0 ✓

181.0
331.7 150.7 ✓^
179.4
332.0 152.6 ✓^
303.3 ✓^ −1.0 ✓

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1893phae.proj..1334.

Sept. 11, 1893.

Index above.

272.0		
61.2	149.2 ✓	
271.4		
61.8	150.4 ✓	
	299.6 ✓	−0.8 ✓
272.0		
61.2	149.2 ✓	
271.2		
63.8	152.6 ✓	
	301.8 ✓	−0.9 ✓

Index below.

180.2		
329.8	149.6 ✓	
180.0		
330.8	150.8 ✓	
	300.4 ✓	−0.9 ✓

11:03

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1893phae.proj.1334.

 Pasted to here.

Sept. 12, 1893.

T. Orsae Maj.

Comp of * f with a 13.5 magn. *. Phot. R. Ob. obs.

12	36	+61.0
20	7	
+7	31	

Index below.

8.132

323.8
134.5 170.7 ✓^
324.2
133.8 169.6 ✓^
340.3 ✓^ −3.3 ✓

Index above.

55.0
223.9 168.9 ✓^
54.0
222.5 168.5 ✓^
337.4 ✓^ −3.0 ✓

54.2
222.7 168.5 ✓^
53.0
223.8 170.8 ✓^
339.3 ✓^ −3.2 ✓

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1893phae.proj.1334.

Sept. 12, 1893.

Index below.

324.0		
133.2	169.2 ✓^	
323.1		
133.7	170.6 ✓^	
	339.8 ✓^	−3.3 ✓
323.5		
133.6	170.1 ✓^	
322.6		
133.4	170.8 ✓^	
	340.9	−3.4 ✓

Index above.

53.1		
224.2	171.1^	
53.5		
223.0	169.5^	
	340.6^	−3.4 ✓

9.04

Examinations of S. Persei to select pair of bt & ft. *s for extension of Photometric scale to faint magns. H. obs.

S. Persei.

2	8	57.2
21	0	
−5	8	
12	00	
76	52	

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1893phae.proj.1334.

Sept. 12, 1893.

S = g. in ~~large~~ tel. finder.
g 2 S, S 3 h in large telescope,
Est. 9.8

T. Persei.

T = e in large telescope.
T = e " finder.
Est 9.1

There is a ft. * a few seconds preceding comp. * c and a little south which can probably be used to extend scale.

Transits to determine position of ft. star with reference to * c. position gov. 194.9

45.0
239.9

21	32	39,8	ft *
	32	41.0	Brt *
	33	32.0	ft *
	33	41.3	brt. *
	34	10.4	ft *
	34	11.5	brt. *
	35	1.4	ft *
	35	11.0	brt *

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1893phae.proj.1334.

Sept. 12, 1893.

21	35	38,5	ft *
	35	39,5	brt *
	36	30,8	ft *
	36	39,3	brt *.

Both in southern half.

Dis. Jupr. I. Shot. Rs. Obs. Ht. Rec.
Compared with 1st Sat. preceding = Sat. III.

	B 236			T 1327		
21	48	40.0		21	49	1.0
	49	40.0			50	1.0
	50	40.0			51	1.0

T 1327 is $5^{s}.7$ S. ∴ B 23.6 is 1^{m} $11^{s}.7$ S

Limit of Vis.

22	3	∠ 2,0			66,0	
		√ 3,0			∠ 9,3	23,3
	4	6,5	4	1	√ 6,3	28,4
		23,0			∠ 4,7	4)51,7
						25,85.

Jupiter low and seeing poor.

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Sept. 12, 1893.

22		9	8.0			128.2	81.1
10	21	47.	26.0	5	27.	205.3	80.0
			33.5			130.0	2)161.1
			33.0			210.0	80.55
			32.0			127.2	77.8
6			00	6	6	203.0	74.4
			10.0			124.7	2)152.2
			21.5			203.1	76.1
			32.0			126.6	78.0
			30.5	6	45	206.6	70.5
			39.0			131.7	2)148.5
			30.0			202.2	74.25
7			7.0			126.6	80.0
			16.5	7	20	206.6	72.7
			25.0			130.4	2)152.7
			33.0			203.5	76.35
			35.5			127.5	72.8
			27.0	8	8	200.3	73.5
4			9.5			126.5	2)146.3
			20.0			200.0	73.15
11			4.5	—	1 sic.	131.5	70.9
			15.5	8	22	202.4	69.6
			30.0			132.3	2)140.5
			30.0			201.9	70.25

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22	12	1.5			127.3	75.4	
		12.5	12	18	202.7	76.8	
		23.0			123.6	2)152.2	7
		34.0			200.4	76.1	
		44.0			127.3	72.1	
		54.5			197.4	69.1	
	13	6.0	13	2	130.4	2)141.2	
		15.0			199.5	70.6	
		26.0			122.7	83.4	
		34.5	13	39	206.1	73.8	
		44.5			127.2	2)157.2	9
		50.5			201.0	78.6	
		54.0			124.1	77.1	
	14	7.0	14	12	201.2	79.6	
		16.0			123.4	2)156.7	10
		27.0			202.0	78.35	
		36.0			126.0		
		44.5			202.1		
		52.5			127.2		
	15	0.0			204.9		
		7.5			127.9		
		17.0			194.4		
		24.0			121.6		
		33.0			196.4		

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Sept. 12. 1893.

22	15	41.5	1926
		47.5	1949
		53.0	1409
		59.5	1924
	16	5.0	1402
		11.0	1907
		14.0	1400
		25.0	1434
		32.5	1466
		39.5	1442
		47.5	1452
		55.0	1439
	17.	1.0	1544
		9.0	1540
		17.5	1754
10	33	44 26.0	1561

Not seen later.

B 236 F 1927

22	21	39.8	22	22	1.0
	22	39.9		23	1.0

F 1327 in 50.7 s. ∴ B 236 in 1 11.8 s.

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Sept. 12, 1893.

R. Lyra's.

6	49	+55,1
22	32	
-8	17	
+12	00	
+3	43	

30
6 49 √√,1
22 60
8 9
3 √-1

R = nn in large telescope.
R > mm in finder but ft.

11:05 Est. 11.0

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Sept. 13, 1893.

S. Persei.

Comp. of * c with ft. * to extend phot. scale to ft magnitudes. Phot. R. N. obs.

2	8	+ 57.2
19	3	
-7	5	
12	00	
+4	55	

Index to ft * below.

7.38

357.5 ft dis.

156.1 158.6 ✓^

352.4

154.8 162.4 ✓^

321.0 ✓^ -1.8 ✓

Index to right * above.

86.2

246.4 160.2 ✓^

84.2

247.2 163.0 ✓^

323.2 ✓^ -2.0 ✓

84.0

246.5 162.5 ✓^

86.1

246.9 160.8 ✓^

323.3 ✓^ -2.0 ✓

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Sept. 13, 1893.

Sun due to left & below.

173.0		
337.8	164.8	
177.0		
336.0	159.0	
	323.8	-2.0
176.2		
335.5	159.3	
175.0		
338.0	163.0	
	322.3	-1.9

Index due to right & above.

265.9		
66.1	160.2	
263.1		
67.8	164.7	
	324.9	-2.1

8.05

S. Bootis

Comp. of brt ** ft. * to extend Rhot. scale to ft. magn.

Rhot	B.			N. obs.
14	~~16~~	16		+54.6
19		56		
+5		40		

It is ft. * with comp. * c.

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1893phae.proj.1334.

Sept 13, 1893

Index to right & above.

8:34

83.0 < for. dis.

251.5 168.5 ✓^

83.0

250.1 167.1 ✓^

335.6 ✓^ −2.9 ✓

Index to left & ~~below~~ above.

172.2

340.4 168.2 ✓^

173.1

339.9 166.8 ✓^

335.0 ✓^ −2.8 ✓

173.0

339.8 166.8 ✓^

171.7

341.0 169.3 ✓^

336.1 ✓^ −2.9 ✓

Index to right & above.

264.7

68.9 164.2 ✓^

263.0

69.1 166.1 ✓^

330.3 ✓^ −2.4 ✓

262.0

70.8 168.8 ✓^

263.9

69.2 165.3 ✓^

334.1 ✓^ −2.7 ✓

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1893phee.proj.1334.

Sept. 13, 1893.

Circles to left + below.

	353.3	
	160.1	166.8
	353.3	
9.03	160.9	167.6
		334.4 -2.8

with square bar.

Transits to determine position of ft. * with reference to * C.

position zero 91.6
45.0
136.6

~~20 56 35.0 ft *~~

20	57	20.8 ft. *
	57	46.0 brt. *
	58	4.0 brt *
	58	34.5 ft. *
20	58	56.5 ft *
	59	21.2 brt *
	59	39.0 brt *
21	0	10.4 ft *
21	0	26.5 ft *
	0	52.0 brt. *
	1	10.5 brt *
	1	42.0 ft. *

(over)

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Sept 13, 1893.

Bath in southern half.

ft × follow @ 3 sec. & is 4.5 north of it.

@ 3 S, S 2 d in finder.
@ 3 S, S 2 d in large telescope.
9:25 Est. 8.6

R. Ursae Min.

16	34	+72.8
21	20	
+4	46	

R = g in finder.
R = g in large telescope.
9:45 Est. 10.2

T. Cassiop.

0	18	+55.9
21	39	
−2	39	
12	00	
+9	21	

Too high up.

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Sept. 13, 1893

R. Lyncis.

6	49	+55.1
21	44	
-9	5	
12.	00	
	55	
+2		

Comp of bet * & ft * to extend Phot scale to ft. magnitudes Phot R. Vis abs.

These are comp * & ft. *.

Index below.

10.23

271.2 ft vis.

62.1	150.9	✓
269.4		✓
61.7	152.3	✓
	303.2	✓ — 1.0 ✓

Index above.

1.0		
153.0	152.0	✓
1.2		
153.8	152.6	✓
	304.6	✓ — 1.0 ✓
1.1		
152.1	151.0	✓
1.0		
151.1	150.1	✓
	301.1	✓ — 0.9 ✓

~~Index below.~~

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1893phae.proj.1334.

Sept 13, 1893.

Index below.

92.0
242.0 150.0 ✓^
90.9
242.4 151.5 ✓^
301.5 ✓^ −0.9 ✓

91.2
243.2 152.0 ✓^
90.2
243.3 153.1 ✓^
305.1 ✓^ −1.1 ✓

Index above.

182.2
332.0 149.8 ✓^
181.1
333.0 151.9 ✓^
301.8 ✓^ −0.9 ✓

10:47

Transits between f & ft *.

position zero. 91.8
45.0
136.8

.22 39 2.6 brt *
39 42.5 ft. *
ft *
brt *

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1893phao.proj.1334.

This book all posted.
Sept 13, 1893.

~~22~~	40	46.0	brt ~~*~~
	41	26.5	
22	41	47.8	brt.*
	42	27.1	ft.*
	43	6.0	ft *
	43	10.0	brt *
22	43	34.5	brt *
	44	13.7	ft.*
	44	51.3	ft *
	44	56.2	brt *
22	45	24.0	brt *
	46	3.7	ft *
	46	40.0	ft *
	46.	46.0	brt.*.

Both in southern half.
Ft.* follows f 18 sec. * is 3.5 south of it.

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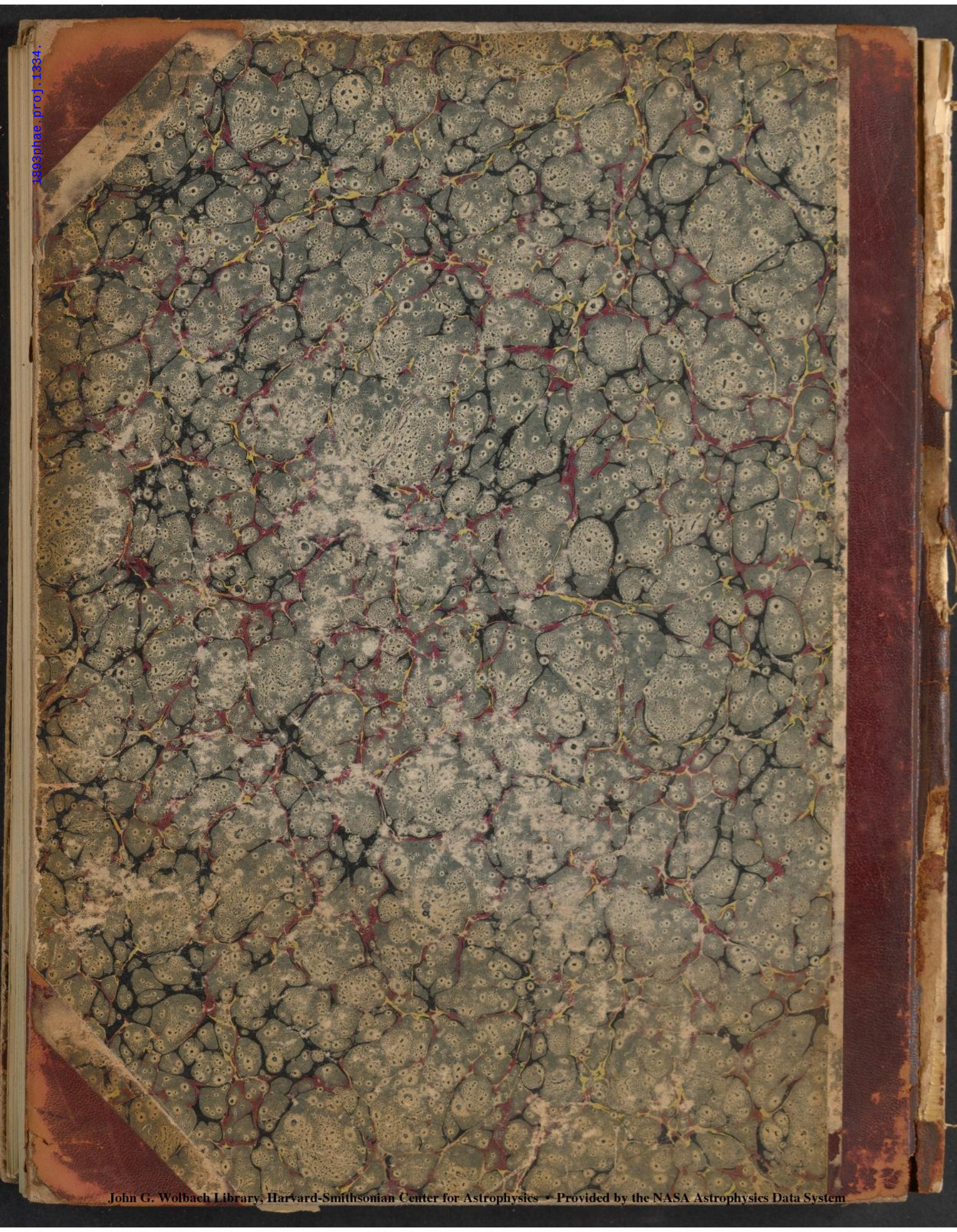
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