KG
11366
v. 360

1899pmae.proj.1364W

July 20, 1899. (Thursday)

For comp. of chron. see previous book. 108.

Phot.: T. New Variable Star, W. 6½.
disc. on Photographic Plate.

19 20 +43.1
16 05
3. 15 Ledgered.
8 45

Left & Above

527 < vardis.

8 18 00 92.0 39.3
230.4 43.2
273.6 82.5 − 2.12+

50.2 −2.12
20 00 93.8 43.6
231.8 Clouds. 39.4
271.2 83.0 − 2.11

Right & Below

323.2
21 30 360.0 36.8
141.8 41.0
182.8 77.8 − 2.26

321.8 −2.28
22 40 361.5 39.7
82 10 142.0 37.2
8 20 38+ 180.2 76.9 − 2.29+
5 +34 mean = −2.20
13 21 12+ Gr. M. Time.
48 56. 55 64+

July 20, 189
Same continued

Right of Below

3234
8 23 50 361.5 38.1 II
141.0 41.0
182.0 79.1 -2.22

322.0 -2.29
24 50 360.4 38.4
144.4 36.1
180.5 74.5 -2.36

Left of Above

231.6
2700 272.6 41.0
~~2~~ 50.0 44.6
94.6 85.6 -2.03

230.1 2.08
2845 272.2 42.1
24 25 50.9 40.5
8 26 06 91.4 82.6 -2.12
5 +34
13 26 40 Sr. M. Time. mean = -2.18
4856.5602

July 20, 1899.

Left & Above
~~Right & Below~~

231.0
8 30 00. 273.8 — 42.8
50.2 — 44.6
94.8 — 87.4 — 1.98+

-2.04+

231.0
30 55 273.6 — 42.6
50.6 — 40.8
91.4 — 83.4 — 2.10+

Right & Below
~~Left & Above.~~

141.6
32 15 182.0 — 40.4
321.0 — 42.8
363.8 — 83.2 — 2.10+

-2.14+

140.1
33 25 183.0 — 42.9
6 35 322.3 — 38.1 — 2.17+
8 31 39 360.4 — 81.0
5 +34
13 32 13
4856.5640

mean = -2.09+

Comp. Star in preceding groups =
= Dm. +42° 3342 (9.2)
The var. measured above is Dm. +42° 3334 (7.5)
Troubled by clouds.

July 20, 1899 -

Eclipse Jup. Sat.

13 . 57   ~~[illegible]~~
16 . 57   −10.8
3 00

Eclipse Reap. Jup. III   Phot. R. v. Obs.
Comp. with sat on preceding side = Sat II.   Campbell Recorder;

8 49 00 Clouds rather thick.
50 10 Clouds some thinner.
50 25 Somewhat clearer.

8	52	10 ✓	8	51	36			seen
	52	21 ✓			47			145.2
		33 ✓			59	+2.4 ✓	36.8 ✓	152.0
		45 ✓		52	11	+2.4 ✓	37.3 ✓	144.7
	~~53~~	~~0~~			~~20~~		✓	~~151.~~
	53	0 ✓			26	+2.4 ✓	37.3	152.0
		11. ✓			37	+2.2	40.3 ✓	141.7
		22 ✓			45	+2.0 ✓	43.4 ✓	153.1
		32 ✓			58	+1.8 ✓	47.1 ✓	138.0
		45 ✓		53	11	+1.7 ✓	48.8 ✓	156.8
		57. ✓			23	+1.7 ✓	49.0 ✓	137.8
	54	10. ✓			36	+1.7 ✓	49.2 ✓	157.0
		27.			53	+1.5 ✓	52.8 ✓	134.2
	54	46.		54	12	+1.4 ✓	55.7 ✓	159.9
						+1.4 ✓	56.1 ✓	

July 20, 1899.

8 54 57. 8 54 23 +1.3 56.8 133.8
55 7. 33 +1.2 59.1 190.6
19. 45 +1.2 60.4 131.5
30. 56 191.9
~~64.7~~
~~56 0.~~ 55 14 127.2
~~4~~67.0 ~~67.0~~
~~56 1.~~ 23 194.2
66.1
~~55 58.~~ 55 34. ~~35~~ ~~65.8~~ ~~129~~
133.1
56 8. 43 +(0.9) 66.6 ~~66.1~~ 1284
54 194.5
56 06 1283
66.2
16 194.7
56 56. 56 22. 25 69.5 127.0
135.7
36 +0.9 67.8 196.5
49 125.7
74.1
57 06 199.8
74.2
57 44. 57 10. 16 1248
148.3
29 +0.6 74.2 199.0
42 123.7
77.9 201.6
58 32. 57 58. 53
78.8
58 04 12210
156.7
15 +0.4 78.4 200.8
38 123.0
79.8 202.8
59 28. 58 54. 49 78.2
55 158.0 1230
+0.4 79.0

July 20, 1899.

			5		59		11			201.2 ~~201.2~~	
							27		83.5	115.5	
9	0	18.		59		44.	35			202.0	
							50		87.8	115.0	
									171.3		
			9		00		02	+0.2	85.6	205.5	
							17			117.0	
							29		89.0	206.0	
9	1	13.	9	0m		39.	45		90.0	115.0	
									179.0		
					01		04	0.0	89.5	205.0	
							20			115.0	
							30		93.1	205.1	
9	2	11.		1		37.	45		91.7	115.2	
									184.8		
							54	-0.1	92.4	206.9 →	

Lowered images slightly.

					02		11			116.9	
							21		91.9	205.5	
9	3	1		2		27.	32		93.1	116.5	1
									185.0		
							45	-0.1	92.5	209.9	
					03		00			114.5	
							25		95.4	209.9	
9	4	3		3		29.	35		96.4	114.6	2
									191.8		
							50	-0.2	95.9	211.0	
					04		06		95.6	113.9	
							20			209.5	3
9	4	59.		4		25.	32		96.0	114.6	
									191.6		
								-0.2	95.8		

July 20, 1899.

9 04 43 210.0

05 10 114.0

97.8 ✓

✓26 101.5 ✓ 211.8

9 6 4.✓ ✓5 30. 37 199.3 ✓ 111.2 4

45 −0.4 ✓ 99.6 ✓ 212.7

56 112.2

100.8 ✓

06 06 213.0 5

98.9 ✓

9 6 46.✓ 6 12.✓ 17 199.7 ✓ 113.5

30 −0.4 ✓ 99.8 ✓ 212.4

09 24 103.3 ✓ 109.8

✓41 213.1

9 10 21✓ 9 47. 55 102.4 ✓ 110.0 6

✓205.7 ✓

10 07 −0.5 ✓ 102.8 212.4

22 111.2

101.6 ✓ 212.8

✓52

9 11 26✓ 10 ✓52, 100.9 ✓

11 02 202.5 ✓ 111.9 7

14 −0.4 ✓ 101.2 ✓ 212.8

30 102.7 ✓ 110.8

✓43 215.5

9 12 28.✓ 11 ✓54. 57 105.2 ✓ 110.0 8

✓207.9 ✓

12 24 −0.5 ✓ 104.0 ✓ 215.2

Limit Of Visibility

13 55 145.7

33.0 ✓ 178.7

14 ✓20

9 15 0.✓ 14 26.35 32.0 ✓ 146.8

65.0

50 +2.7 ✓ 32.5 178.8

July 20, 1899.

Jupiter a little low and somewhat crossed at ~~at~~ times during eclipse by light cloud, but images pretty steady and eclipse considered good.

Arnold & Dent			Bond 394		
9	20	26.0	9	21	00
	21	26.0		22	00

R. S. Sagittarii.

~~9~~
18 9 −34.2
17 40
0 29

9 35 Thickly cloudy.

U. Coronae

15 8 +32.0
17 46
2 38

9. 41 Cloudy

15 8 +32.0
17 55
2 47

50 Clouds thick.
10 00 Clouds thick

July 20, 1899

15 8 +82.0

18 12

3 04

1005 Clouds too thick; clouds growing thicker

~~Steadily~~ Gradually growing worse, no

10 chance for anything (Parkhurst

July 21, 1899. (Friday)

Phot.-V. W Virginis W. Obs.

13 16 -4.2
16 00
2 44

7 50 Cloudy

13 16 -4.2
8 15 Cloudsthick 16 44
3 28
8 30 Cloudy: clouds thick.

13 16 -4.2
17 06
3 50

9 00 Cloudy

See next page for measurements of W Virginis

July 21, 1899.

W Virginis.

	Left & Above		Plotted. Ledgered.	
	150.~~4~~1			
9 12.~~20~~ .3	172.5	22.4 +		
	330.0	22.9 -		
	352.9	45.3 +	+3.49 -	
				+3.52 +
	150.1			
	172.0	21.9 +		
	330.5	22.5 +		
	358.0	44.4 +	+3.54 +	
	Right & Below.			
	57.9			
	84.6	26.7 +		
	239.1	25.2 +		
	264.3	51.9 +	+3.19 +	
				+3.20
	57.8			
18.3	83.9	26.1 +		
30.6	239.0	25.3 +		
9 15.3	264.3	51.4 +	+3.21 +	
5 +6				
14 15.9 G. M. Time.			Mean = +3.36 +	

4857.5943 +
4849.8499
+7 7444 +

July 21, 1899.

Same Again.

58.7
9 20.2 84.0 25.3+
237.8 26.4
264.2 51.7+ +3.20+
Clouds.
+3.28+
59.3
83.0 23.7+
239.5 24.6+
264.1 48.3+ +3.358

Left Above
330.2
353.9 23.7+
150.4 23.0+
173.4 46.7 +3.42+

+3.443+
330.6
9 31.4 353.3 22.7+
9 57.6+ 150.0 23.8
9 25.8+ 173.8 46.5+ +3.44+
5 +6
14 26.4+ Gr. M. Time. Mean = +3.36+
4857.6017+ Sprocket wheel = -6 or +18.
4849.8499
+7.7518+

July 21, 1899.

Phot. T. W Delphini. N. Obs.

20 31 +17.8

18 05

2 26

10 00 Cloudy. 9 34 Ledgard

05 Clouds thick

Right & Above I

29.6 < comp. + dis.

10 13 25 111.6 82.0

211.1 79.8

290.9 161.8 +0.35

304 +0.30

15 20 112.0 81.6

210.0 83.9

293.9 165.5 +0.25

Left & Below Clouds

306.0

17 40 18.7 72.7

122.3 80.0

202.3 152.7 +0.52

305.9 +0.52

19 40 19.9 74.0

26 05 121.6 4857.6389 ✓ 79.0

10 16 31 200.6 4857.4259 153.0 +0.52

5 + 35 Clouds +0.2130

15 17 06 Gr. M. Time. Mean = +0.41

July 21, 1899

Clouds. M. Delphini

~~1240~~ Left & Below II

Clouds

1218 79.6

10 45 00 201.4 76.8

302.3 156.4 + 0.45+

191

+0.46+

1228

47 10 200.9 77.1

303.1 78.9

92.0 156.0 + 0.46+

Right & above.

30.3

49 10 117.6 87.3

210.0 85.2

295.2 172.5 + 0.14

29.5 +0.14+

51 00 114.9 85.4

192 20 208.7 87.9

10 48 05 296.6 173.3 + 0.13

5 35 Mean = + 0.30+

15 48 40 Gr. M. Time

Arnold + Dent. Bond 394

11 01 25 11 02 00

4857.6558+

4857.4259

+ 0.2329

July 22, 1899. (Saturday).

New Photographic Var. W. obs.

19 20 +43.1
16 30.
−2 50
9 10

Ledgered.

Index above.

227.9
275.9 48.0+
8 22 30. 45.6
50.2+
95.8 98.2+ −1.70+

226.0 51.3+ −1.70+
277.3
8 27 00. 48.2 47.4+
95.6 98.7+ −1.69+

Below

139.8 45.2+
8 31 02. 185.0
318.8 47.0+
5.8 92.2+ −1.56+

137.2 49.7+ −1.51+
8 34 57. 186.9
11 30 29+ 4855.5666+ 319.0 46.1+
8 25 52 5.1 95.8+ −1.76+
5 47 22 −1.76+
13 36, 4h Gr. M. Time.

July 22, 1899

Index below.

8 36 40 | 137.0
186.4 | 49.4+
318.5 | 47.5+
6.0 | 96.9+ | -1.73+

8 39 51 | 137.3
186.6 | 49.3+ | -1.74+
318.7 | 47.5+
6.2 | 96.8+ | -1.74+

Index above.

8 41 16. | 228.2
276.3 | 48.1+
46.6 | 49.3+
95.9 | 97.4+ | -1.72+

8 44 29. | 226.5
277.0 | 50.5+ | -1.72+
48.8 | 47.1+
95.9 | 97.6+ | -1.72+

162 16
8. 40 34+
5 7 22

13 47 56+ gr. m. Time.
4858.5749+

Mean = -1.73+

July 22, 1899.

9 00 00 Clouds — Watch used on preceding groups.

Watch — Bond 394

9 24 38 — 9 32 00

~~19 20 +43.1~~

Indices ~~[illegible]~~ & Above Continued

49.0 — Arnold & Dent. Chron used henceforth.

9 40 00 — 99.0 — 50.0+

226.8 — 50.0+

276.8 — 100.0+ — −1.66+

48.4 — −1.73+

41 30 — 160.0 — 51.6+

231.3 — 42.8+

274.1 — 94.4+ — −1.80+

Below

319.3

44 40 — 3.2 — 43.9+

133.7 — 55.6+

189.3 — 99.5+ — −1.67+

315.5 — −1.70+

46 10 — 9.6 — 54.1+

12 20 — 140.0 — 43.0+

9 43 05 — 183.0 — 97.1+ — −1.73+

5 −28

~~9~~ 14 42 37 Gr. M. Time. — −1.72+

4808.6129

July 22, 1899.

IV

Below
319.6
9 55 20* 5.1
5 -25 136.5
14 54 52 9h 3m. trans.
157.6
4855.6214* Clouds.

45.5
51.1
96.6 -1.74

Stopped by clouds.
No chance for anything further.

Arnold & Dent
10 17 25.5
Wal

Bond 392
10 17 00

July 24, 1899. (Monday)

Arnold & Dent. Bond 394.

7	31	33.0	7 31 00
7	32	33.0	7 32 00

Phot. T. W Virginis. W. Obs.

.13 .16 -4.2

.6 .12

Left & Above 2 5-6

I

8 11.3

329.1

354.6 25.5 Ledgerd. Plotted.

~~160.1~~ 252

148.8 50.7 +3.2~~7~~4+

174.0

330.4 ~~+3.34~~

353.5 23.1 +3.34

149.6 23.5

173.1 46.6 +3.43+

Right & Below

238.5

264.3 25.8

58.6 26.0

84.6 51.8 +3.19+

238.3 +3.22+

18.2 264.0 4860.5515+ 257

9.5+ 58.2 4849.8499+ 252

8 14.8 +10.7016

5 -.6 84.4 50.9 +3.24+

13 14.2+ Gr. M. Time. Mean = +3.28+

July 24, 1899.

Right & Below II

238.4
8 20.2 264.8 26.4
58.2 26.8
85.0 53.2 +3.13

238.3 +3.14
264.5 26.2
58.3 26.4
84.7 52.6 +3.16

Left & Above.

150.3
174.3 24.0
328.8 24.8
353.6 48.8 +3.33

150.5 +3.32
8 27.0 174.0 23.5
7.2 329.0 25.4
8 23.6+ 354.4 48.9 +3.32
5 -6

13 23.0+ Hr M. Time. Mean = +3.23

4860.5576+
-4849.8499+
+10.7077+

July 24, 1899.

III

Left & Above

149.8
8 28.7 174.0 24.2*
329.8 24.2*
354.0 48.4* +3.34*

150.6 +3.36*
174.0 23.4*
329.5 24.0*
353.5 47.4* +3.39*

Right & Below
58.6
84.5 25.9*
~~239.1~~ 238.8 26.3*
265.1 52.2* +3.17*

58.4 +3.18*
8 36.1 84.6 26.2*
64.8 239.1 25.9*
8 32.4* 265.0 52.1* +3.18
5 -6
13 31.8* Gr. M. Time
4 8 60.5638 Mean = +3.27*
4 8 49.8499
+10.7139

July 24, 1899.

Right & Below IV

58.5

8 38.6 84.2 25.7+

238.8 25.2+

264.0 50.9+ + 3.24+

58.8 + 3.22+

84.6 25.8+

238.3 26.0+

264.3 51.8+ + 3.19+

Left & Above.

328.9

354.0 25.1+

150.4 24.1+

174.5 49.2+ + 3.31+

329.6 + 3.32+

8 44.3 353.7 24.1+

82.9 149.4 24.8+

8 41.4+ 174.2 48.9+ + 3.32+

5 -6 Mean = +3.27+

13 40.8+ G.M. Time.

4860.5700+

4849.8499+

+10.7201+

July 24, 1899.

Left & Above

V

329.0

8 46.5 354.0 25.0

150.2 24.4

174.6 49.4 + 3.30

330.0 + 3.31

353.9 23.9

150.0 25.0

175.0 48.9 + 3.32

Right & Below

239.0

265.4 26.4

59.1 24.9

84.0 51.3 + 3.22

238.5 + 3.19

8 52.8 265.0 25.6

99.3 58.2 27.0

8 49.6 ~~86~~. 52.6 + 3.16

~~8~~ -6 85.2

13 49.0 Gr.M.T. Sprocket wheel = + 65 + 15 Mean = + 3.25

~~45~~60.5757

45 49.8499

+10.7258

July 24, 1899

Jup. I comp. with Jup. II to
detect ellipticity of Jup. I if there is any.
Left & Above Pliot. R. W. Oz.

10.4 ∠ Sat. II dia

9 06 30 115.8 195.4+ Ledgered.

192.1 97.7+

289.5 293.1+

156.9+ −0.44+

15.2

08 20 114.4 99.2+ −0.43+

191.3 102.3+

293.6 201.5+

158.5+ −0.41+

Right & Below

280.6

10 25 27.2 106.6+

105.8 94.8+

200.1 200.9+

159.1+ −0.40+

283.0

11 55 24.4 101.4+ −0.46+

~~130~~ 100.6 105.1+

37 10 205.7 206.5+

153.5+ −0.51+

9 09 18+

5 −33

14 08 45+ G.M. Time

Mean = −0.44+

July 24, 1899.

Right & Below . Same again

277.5

9 13 15 21.1 103.6+

103.3 98.0+

201.3 201.6+

152.4+ −0.41+

288.1

14 45 19.6 91.5+ −0.32+

102.8 101.0+

203.8 192.5+

167.5+ −0.24+

Left & Above

190.1

16 30 299.1 109.0+

15.1 98.7+

113.8 ~~208~~207.7+

152.3+ −0.53+

196.1

19 00 290.2 94.1+ −0.45+

23 30 + 11.4 107.8+

9 15 52 119.2 201.9+

5 −33

158.1+ −0.42+

14 15 19s Gr. M. Time

Mean = −0.40+

July 24, 1899

	Left & above			
	188.2			
9 21 10	295.6	107.4+		
	16.0	97.2+		
	113.2	204.6+		
		155.4+	−0.47	
	196.6			
22 35	290.8	94.2+		−0.43+
	10.8	106.1+		
	116.9	200.3+		
		159.7+	−0.39	
	Right & Below			
	98.7			
23 55	209.5	110.8+		
	284.2	97.6+		
	21.8	208.4+		
		151.6+	−0.34+	
	109.7			
25 00	200.8	91.1+		−0.32+
12 40	279.1	100.2		
9 23 10+	19.3	191.3+		
5 −33		162.7+	−0.21	
14 22 37+	Gr.M. Time			

Mean = −0.40+

July 24, 1899.

IV

Right Below

	280.1		
9 33 20	27.2	107.1+	
	106.9	94.5+	
	201.4	201.6+	
		158.4+	−0.41×
	285.9		
34 45	20.0	94.1+	−0.35×
	102.0	105.0+	
	207.0	199.1+	
		160.9+	−0.36+

Left above.

	190.1		
37 10	296.7	106.6+	
	17.7	92.4+	
	110.1	199.0+	
		160.9+	−0.36+
	197.6		
35 55	289.1	91.0+	−0.37+
24 10	12.3	104.1+	
9 26 02+	116.4	193.6+	
+5 −33		166.4+	−0.26+
14 35 29+ Mr M. Time.			

Mean = −0.34+

July 24, 1899

V

Left Above.

190.3

9·41 40 295.2 104.9+

20.2 88.0+

108.7 192.9+

167.1+ −0.24+

197.7

44 00 ~~2~~ 287.3 89.6+ −0.28

11.4 107.2+

118.6 196.8+

Righto Below. 163.2+ −0.32

102.0

47 05 205.6 103.6+

290.2 87.8+

18.0 191.4+

168.6+ −0.22+

109.8

48 35 196.1 86.3+ −0.24

21 20 279.8 107.0+

9 45 20 26.8 193.3+ 0.25

5 −33 166.7+ −0.26

Jup. somewhat low. ~~trouble with~~

14 44 47 Hr. M. t variable haze of light clouds.

Seeing a little poor, Images ~~rather~~ large and blurry

The Above meas. are of Jup. I comp with Jup. III

To detect elipticity if there is any of Jup. I.

July 24, 1899.

Phot. T. Iapetus. W Obs.

17 10 . - 21.0
15 20
1 10

10 05 Clouds.
10 All cloudy

10 40 Cloudy

Right & Above
236.6 ∠ comp * dis.
11 13 09 265.0
56.4
85.2

232.0
264.6
56.0
87.3 Reject above readings.
Left & Below
Abandoned. Saturn low, moon very
11 35 bright considerable cloud.
Impossible to meas. Iapetus or Titan.

July 26, 1899. (Wednesday)

Arnold & Dent Bond 394
7 35 37.5 7 35 00
7 36 37.5 7 36 00

Phot. T. W Virginis W 6h.
13 16 -4.2
16 16
3 00

7 48 Clouds.
8 15 Clouds.
Left & Above Ledgered Plotted. I
1464
8 20.4 1761 29.7
3260 30.6
3566 60.3 +2.85

1454 +2.86
clouds
176.1 30.7
327.3 29.1
356.4 59.8 +2.87
Right & Below
56.3
86.8 30.5
236.8 30.3
267.1 60.8 +2.83

56.0 4862.5583 +2.84
8 28.8 87.0 4849.8499 31.0
9.2
8 24.6+ 237.2 +12.7084 28.9
5 -.6
13 24.0 + G. M. Time 266.1 59.9 +2.86 mean = +2.85

July 26, 1899.

II

Right & Below

56.0
8 32.5 87.1 31.1
236.5 30.5
267.0 61.6 + 2.80

+ 2.82

56.2
~~87.0~~ 86.8 30.6
236.9 30.3
267.2 60.9 + 2.83

Left & above

327.2
356.1 28.9
146.5 29.4
175.9 58.3 + 2.93

+ 2.92

327.0
8 40.1 357.1 30.1
72.6 147.2 29.0
8 36.3 176.2 59.1 + 2.90
5 -.6
13 35.7 Gr. M. Time

Mean = + 2.87

4862.5665
4849.8499
+12.7166

July 26, 1899.

Left & Above
~~Right & Below~~

III

326.7
8 43.0 356.5 29.8
148.1 Clouds rather thick.
176.7 28.7
58.5 +2.92

326.5 +2.89
356.7 30.2
147.3 29.9
177.2 60.1 +2.56

Right & Below.
2365
2674 30.9
55.9 31.1
87.0 62.0 +2.79

2366 +2.82
8 54.8 2667 30.1
97.8 564 30.4
8 48.9 ~~870~~ 60.5 +2.84
5 -1.6 86.8 mean = +2.86
13 48.3 Gr. M. Time.
4862.57752
4849.8499
+12.72253

July 26, 1899

	Right & Below			IV
	236.9			
8 57.8	267.2	30.3		
	56.3	30.5		
	86.8	60.8	+ 2.83	
	236.6			+ 2.84
	266.9	30.3		
	56.1	30.2		
	86.3	60.5	+ 2.84	
	Left & Above			
	146.9			
	176.5	29.6		
	327.3	29.5		
	356.8	59.1	+ 2.90	
	147.0			+ 2.92
9 03.8	176.2	29.2		
121.6	327.0	29.0		
9 00.8	356.0	58.2	+ 2.93	
5 -.6			mean = + 2.88	

14 00.2ᵐ Gr. M. Time,
4862.5834
4849.8499
+12.7335

July 26, 1899

Left & Above
~~Right & Below~~

	146.6		
9·06·6	177.0	30.4	
	326.8	29.8	
	356.6	60.2	+ 2.85
	147.3		+ 2.88
	176.5	29.2	
	327.0	29.4	
	356.4	58.6	+ 2.91

~~Left & Above~~ Right & Below.

	56.2		
	86.9	30.7	
	236.7	30.2	
	266.9	60.9	+ 2.83
	56.3		+ 2.83
9 13.2	86.9	30.6	
19.8	23~~7.0~~6.3	30.3	
9 9.9	266.6	60.9	+ 2.83
5 -.6			

Str. wheel = -6 or +18.

Mean = +2.86

14 09.3 Gr. M. Time.

4862.5898

4849.8499

+12.7389

July 26, 1899.

Jup. Sat. I comp. with Jup. Sat. II
to detect elipticity of Jup. I if there is any.

	Phot. R.	W. Obs. I	
	Right & Below		Ledgered
	18.3 <Sat. II dis.		
9 32 00	108.0	89.7	I
	198.0	88.2	
	286.2	177.9	+0.04″
	19.0		+0.03″
33 10	108.9	89.9	
	197.9	89.3	
	287.2	179.2	+0.02″
	Left & above		
	286.3		
35 00	17.7	91.4	
	106.4	89.8	
	196.2	181.2	
		178.8	−0.02″
	287.2		−0.02″
36 15	17.1	89.9	
16 25	107.4	90.5	
9 34 06	197.9	180.4	
5 −38		179.6	−0.01″
14 33 28 Gr. M. Time		Mean = 0.00″	

July 26, 1899

	Left & above	II		
	287.3			
9 41 10	17.3	90.0		
	107.8	91.0		
	198.8	181.0		
		177.0	−0.02$^+$	
	287.9			
44 00	14.8	89.9		−0.04$^+$
	105.7	92.9		
	198.6	182.8		
	Right & Below.	177.2	−0.05 ~~0.24~~	
	~~198.0~~			
	197.6			
47 30	286.0	88.4		
	18.2	89.7		
	107.9	178.1	+0.03$^+$	
	197.0			+0.04$^+$
49 20	285.3	88.3		
22 00	19.0	88.3		
9 45 30$^+$	107.3	176.6	+0.06$^+$	
5 −38				
14 44 52$^+$	Gr. M. Time	Mean = 0.00		

July 26, 1899

III

Right & Below

197.4

9 51 40 286.0 — 58.6

17.4 — 90.8

108.2 — 179.4 + 0.01

196.5 — 0.00

53 20 286.8 — 90.3+

17.0 — 91.0+

108.0 — 181.3+

Left & above — 178.7+ − 0.02

108.0

55 20 196.7 — 88.7+

285.4 — 91.7+

17.1 — 180.4

179.6 − 0.01+

107.2

56 40 197.3 — 90.1+ — −0.02+

17 00 286.7 — 91.6+

9 54 15+ 17.3 — 181.7+

5 −38+ — 178.3+ − 0.03+

14 53 37+ Gr. M. Time.

Mean = −0.01+

July 26, 1899.

	Left & Above			IV
	107.8			
9 58 25	197.0	89.2^{r}		
	287.3	89.8^{r}		
	17.1	179.0^{r}	$+0.02^{r}$	
	107.8			$+0.01^{r}$
10 00 05	195.8	88.0^{r}		
	286.1	92.1^{r}		
	18.2	180.1^{r}	-0.00^{r}	
	Right & Below	179.9		
	16.7			
10 01 45	108.0	91.3^{r}		
	198.0	89.3^{r}		
	287.3	180.6^{r}		
		179.4	-0.01^{r}	
	16.0			
03 40	107.9	91.9^{r}		-0.02^{r}
243 55	196.4	90.0^{r}		
10 00. 59	286.4	181.9^{r}		
5 -38		178.1^{r}	-0.03^{r}	
15 00 21 Gr. M. Time				

Mean = 0.00^{r}

July 26, 1899

Right & Below. V

16.4
10 05 30 109.0 92.6^{+}
196.7 90.2^{+}
256.9 182.8^{+}
177.2^{+} − 0.05^{+}

158.0
08 15 108.0 90.0^{+} −0.04^{+}
196.5 91.7^{+}
258.2 181.7^{+}
Left & Above 178.3^{+} − 0.03^{+}

257.2
09 55 17.8 90.6^{+}
~~108~~ 88.9^{+}
108.5 179.5^{+} + 0.01^{+}
196.7

−0.03^{+}

255.8
11 45 18.3 92.5
35 25 105.9 91.4
10 ~~17~~ 08 56^{+} 197.3 183.9
5 − 38 176.1 − 0.07^{+}
15 08 ~~22~~ 18^{+}

Mean = −0.04^{+}

July 26, 1899

Phot. T. · Iapetus (W. Obs.)

17 05 -21.0
18 50
1 45 (= 45 43)
(another D.Z. but not comp. star)

Comp. preceeds the (8.5) 38 secs & is about 63 S

~~230.6~~ comp & dis.
~~10 39.9~~ ~~269.0~~ Above & to Right. Ledgered Plotted.
232.5 ∴ Comp. Star was S.D. -21° 45 40 (8.5)
10 44.0 266.9 34.4
50.6 40.2
90.8 74.6 +2.36

230.1 +2.29
270.5 40.4
52.0 39.4
91.4 79.8 +2.20
Left & Below
142.8
181.5 38.7
323.2 38.0
361.2 76.7 +2.29

142.4 +2.32
10 52.4 180.0 37.6
96.4 323.0 37.5
10 48.2 360.5 75.1 +2.34
5 -.6
15 47.6 Gr-M. Time. mean = +2.30

Comp. Star = S.D. -21° 45 40 (8.5)

July 26, 1899.

Left & Below — Same again

142.9

10 59.4 179.5 36.6

323.5 36.0

do. 359.5 76.6 +2.30

142.0 +2.34

181.2 39.2

325.6 34.5

360.1 73.7 +2.39

Right & Above

50.6

94.8 44.2

233.2 36.2

269.4 80.4 +2.18

+2.19

51.6

11 10.4 90.7 39.1

129.8 230.0 40.8

11 4.9 270.8 79.9 +2.20

5 -6

16 4.3

Mean = +2.26

July 26, 1899.

Titan

Plotted.
Ledgered.

Right & Above
302.0 (Titan dis
11 166 | 209 78.9 ✓
120.6 83.4 ✓
204.0 162.3 ✓ −0.34+

301.3 82.9 ✓ −0.34
24.2
123.3 79.5 ✓
202.8 162.4 ✓ −0.33

Left & Below
208.4 85.8 ✓
294.2
29.0 87.8 ✓
116.8 173.6 ✓ −0.12+

11 224 → 208.4 89.2 ✓ −0.12+
39.0 | 297.6
11 19.5+ | 29.8 84.3 ✓
5. −6 | 114.1 173.5 ✓ −0.12+
16 18.9+

mean −0.23

July 26, 1899

Left & Below   Same again

211.1
80.9
11 25.0   292.0
28.0   87.2
115.2   168.1   −0.22

−0.28

209.3   80.9
295.2
25.8   84.9
165.8   −0.27
113.7

Right & Above

121.7
200.0   77.3
297.6
25.1   87.5
164.8   −0.29

116.0
93.0   −0.19
11 30.8   209.0
55.8   298.6   82.4
175.8   −0.09
11 27.9   21.0
5 −6
16 27.9

mean −0.22

Obs of Iapetus very difficult because of moonlight, milky condition of atmosphere, proximity of planet & faintness of satellite. Saturn rather low. Observations however probably good.

July 27, 1899. (Thursday.)

Phot-T. W Virginis W. Obs.

13 16 -4.2

16 18

3 02

8 07 Clouds Left & above.

325.0 Plotted.

8 11.4 357.5 32.5+ Ledgered.

145.1 32.5+

177.6 65.0+ +2.68+

325.0 +2.66+

358.1 33.1+

145.1 32.9+

178.0 66.0+ +2.64+

Right & Below

234.1

269.2 35.1+

54.2 35.8+

90.0 70.9+ 2.45+

234.4 +2.48+

8 196 269.0 34.6+

31.0 54.0 36.0+

8 15.5+ 90.0 70.6+ 2.49+

5 .7 mean +2.57+

13 14.8+

48 63.5520+

48 49.8499+

13.7021+

July 27. 1899

Right & Below II

233.3

8 22.2 269.9 36.6

54.9 32.6

87.5 69.2 +2.53

2.49

233.9

268.6 34.7

53.3 37.0

90.3 71.7 +2.40

Left & Above

144.5

180.2 35.7

325.3 32.7

358.0 68.4 +2.56

+2.55

145.7

25.2 178.6 32.9

8 50.4 323.5 36.1

8 25.2 359.6 69.0 +2.54

5 -7 +2.52

13 24.5 Gr. M. Time

4863.5586

4849.8499

+13.7087

July 27, 1899.

Left & Above

III

144.6

8 30.3 — 179.9 — 353^{+}

325.2 — 32.7^{+}

357.9 — 68.0^{+} + 25.7^{L}

$+2.56^{d}$

144.8

179.5 — 34.7^{+}

324.1 — 34.2^{+}

358.3 — 68.9^{+} + 2.54^{t}

Right & Below

53.4

89.9 — 36.5^{+}

233.9 — 35.6^{+}

269.5 — 72.1^{+} + 2.44^{L}

$+244^{d}$

36.5 — 53.7

6.8 — 89.4 — 35.7^{+}

8 33.4^{L} — 233.5 — 36.5^{+} + 243^{L}

5 –7 — 270.0 — 72.2^{+}

1332.7^{+} Gr. M. Time.

Mean = $+250^{+}$

4863.5644+

4849.8499

+13.7145+

July 27, 1899

I Right & Below IV

52.6

8 39.4 90.2 37.6

234.4 35.5

269.9 73.1 + 2.41

53.8 + 2.42

89.9 36.1

234.0 35.9

269.9 72.0 + 2.44

Left & Above.

324.3

358.4 34.1

144.8 35.0

179.8 69.1 + 2.54

324.0 + 2.53

47.0 359.0 35.0

86.4 144.5 34.6

8 43.2 179.5 ~~79.6~~

5 -.7 69.6 + 2.52

13 42.5 Gr. M. Time.

4863.5712

4849.8499

+ 13.7213

Mean = + 2.48

July 27, 1899.

Left & above

V

324.0

8 49.7 | 359.6 | 35.4

143.8 | 35.3

179.1 | 70.9 | +2.48

324.6 | +2.49

358.9 | 34.3

143.4 | 35.8

179.2 | 70.1 | +2.50

Right & Below

233.4

269.7 | 36.3

±53.8 | 35.5

89.6 | 72.1 | +2.44

233.4 | +2.43

56.5 | 269.5 | 36.1

106.2 | 53.2 | 36.7

8 53.1 | 89.9 | 72.8 | +2.42

5 -7

13 52.4 G.M.Time.

Sprockets wheel = -6 oz + 18 ~~width~~ = 2.46

4863.5781

4849.5499

+13.7282

July 27, 1899.

Jup. I comp. with Jup. II. for Ellipticity.
Phot. R. W. Obs.

Left & Above

145.0 191.0 Jup. II dia. Ledgered
~~9 300~~ 8 195.0 294.6 103.6
9 13 50 291.0 18.2 91.6
15.4 109.8 195.2
164.8 −0.29

112.2 197.0
~~09 40~~ 193.0 287.8 90.8 −0.24
294.5 12.7 99.3
1 112.0 190.1
Right & Below 169.9 −0.19

112.2
203.2 91.0
286.3 91.1
17.4 182.1
177.9 −0.04

109.4
1920 200.7 91.3 −0.12
282.4 99.6
33 10
9 16 35 22.0 190.9
5 −40 169.1 −0.20

14 15 55 Gr. M. Time

Mean = −0.18

July 27, 1899.

Right O Below — II

103.8
9 22.0 — 200.0 — 96.2+
286.9 — 94.9+
21.8 — 191.1+
168.9+ — -0.21+

106.1
197.8 — 91.7+ — -0.22+
282.7 — 100.3+
23.0 — 192.0+
168.0+ — -0.23+

Left above
16.1
112.2 — 96.1+
195.5 — 96.2+
291.7 — 192.3+
167.7+ — -0.23+

16.8
27.5 — 1 1 4 — 94.6+ — -0.20+
9.5 — 197.8 — 94.4+
9 24.8+ — 292.2 — 189.0+
5 -.7 — 171.0 — -0.17+
14 24.1+ Gr. M. Time. — mean = -0.21+

July 27, 1899

III

Left & above

	17.2			
9 31.4	109.5	92.3″		
	195.2	97.5″		
	292.7	189.8″		
		170.2″	−0.19″	
	15.0			
	111.9	96.9″		−0.22″
	195.9	95.7″		
	291.6	192.6″		
		167.4″	−0.24″	

Right & Below

	285.2			
	22.8	97.6″		
	105.3	97.6″		
	202.9	195.2″		
		164.8″	−0.29″	
	286.0			
9 36.8	21.6	95.6″		−0.24″
7	107.0	94.7″		
68.2	201.7	190.3″		
9 34.1		169.7″	−0.20″	
5 −7				

14 33.4ˢ Gr. M. Time.

Mean = −0.23″

July 27th 99

Right & Below   IV

287.3

9 39.0   21.2   93.9+

106.1   95.7+

201.8   189.6+

170.4-   -0.18+

285.5

205   94.7+   -0.16+

107.8   93.4+

201.2   188.1+

Left & Above   171.9   -0.13

197.1

291.3   94.2+

15.1   94.8+

109.9   189.0-

171.0+   -0.17+

195.2

446   291.7   96.5+   -0.19+

83.6   16.2   94.8+

9 41.8+   111.0   191.3+

5 -7   168.7+   -0.21

14 41.1+ Gr. M. Time.   mean = -0.18+

July 27. 1899.

Left & Above V

196.0

9 46.4 290.7 94.7

15.3 96.7

112.0 191.4

168.6 − 0.22

195.0 − 0.22

291.8 96.8

16.6 94.7

111.3 191.5

168.5 − 0.22

Right & Below

105.8

202.0 96.2

258.2 96.4

21.6 192.6

167.4 − 0.24

106.3

51.4 201.6 95.3 0.22

97.8 256.4 95.2

9 48.9 21.6 190.5

5 −7 169.5 − 0.20

mean = − 0.22

14 48.2 Gr.M.T. Jupiter low; seeing unsteady and rather poor. Images somewhat large & blurry.

July 27. 1899.

Phot. T. Iapetus. Mr Obs.

17 05 - 2.10

18 37

Left & above 1 32

10 18.3 → 55.1

91.0 Comp Star dis. 35.9+ Ledgered

229.8 41.0+ Plotted

270.8 76.9 + 2.29+

+ 2.30+

54.6

92.6 38.0

231.5 38.5+

270.0 76.5+ + 2.30

Right & Below

322.8

350.8 34.5

145.3 35.2

10 30.7 180.5 69.7+ + 2.52+

49.2

10 24.6+ 325.0 + 2.55

5 .7+ 357.4 32.4

15 23.9+ 145.2 35.5+

4863. 180.7 67.9+ + 2.58+

Mean = +2.42+

July 27, 1899

Same again

Right & Below

324.4

10 33.4 350.6 32.2"

144.5 35.6"

180.1 67.8" +2.58"

323.7 +2.56"

356.9 33.5"

144.8 35.5"

180.3 69.0" +2.54"

Left & Above

229.0

270.1 41.1"

55.1 38.5"

93.6 79.6" +2.21"

230.0 +2.22"

49.0 270.4 40.4"

82.4 54.3 38.8"

10 41.2" 93.1 79.2" +2.22"

5 -.7"

15 40.5" Gr. M. Time.

4863.

Mean = +2.39"

July 27, 1899

Titan

Left & above

300.7 Titan disc.

10 56.6 19.8 79.1^{+} Ledgered &

121.6 79.0 Plotted.

290.6 158.1^{+} − 0.42^{+}

300.2 −0.42^{+}

18.6 78.4

120.7 80.1^{+}

200.8 158.5 − 0.41^{+}

Right & Below

207.6

295.0 57.4^{+}

30.5 55.1^{+}

115.6 172.5^{+} − 0.14^{+}

210.0 − 0.15^{+}

11 04.2 295.0 55.0^{+}

120.8 28.3 56.7^{+}

11 0.4 115.0 171.7^{+} − 0.16

5 − 7

15 59.7 G. M. Time. Mean = − 0.28^{+}

HGF 63.667

July 27, 1899.

Same again.

Right & Below

X	209.0		
11 07.0	294.2	85.2+	
	28.3	87.0+	
	115.3	172.2+	-0.15+
			-0.14+
	209.2		
	294.3	85.1+	
	27.2	88.4+	
	115.6	173.5+	-0.12+

Left & Above.

	120.0		
	199.4	79.4+	
	299.2	82.2+	
	21.4	161.6+	-0.35+
			-0.33+
	120.0		
11 16.6	202.4	82.4+	
23.6	301.5	81.2+	
11 11.8+	22.7	163.6+	-0.31+
5 -7			

16 11.1+ Gr. M. Time.

4863.674+

Mean = -0.24+

July 27. 1899.

Comp. Star of tonight precedes the ~~6.5~~ 6.2 magn near Titan by $1^m 20^s$ and is 14'.5 North of it. Another star ~~slight~~ of about same brightness as comp. star, precedes comp. Star 3.5 secs and about 10' North of it.

Arnold & Dent.			Bond 394		
11	37	40.5	11	37	00
11	38	40.2	11	38	00

Comp. Star used with Japetus + Titan above is SD − 21° 4839 (A.7)

July 28, 1899. (Friday)

Arnold + Hunt. Bond 394

7 27 43.0 7 27 00

7 28 43.0 7 28 00

Phot. T. W Virginis W. Obs.

13 16 −4 2

16 26

3 10

Left & above

142.7 Ledgered, I

756.8 180.6 37.9 Plotted.

321.5 40.3

361.8 78.2 + 2.25

144.1 + 2.29

180.4 36.3

321.0 39.2

360.2 75.5 + 2.33

Right & below

52.5

91.7 39.2

231.0 39.0

270.0 78.2 +2.25

52.9 +2.28

802.6 91.5 38.6

119.4 232.3 4864.5410 37.8

597.7 270.1 4849.8499 76.4 +2.30

−7

1359.0 +14.6911 mean = +2.28

July 28, 1899.

II

Right & Below
50.8

8 04.6 91.3 40.5″
231.3 38.7″
270.0 79.2″ + 2.22″

+2.20″

52.0 39.0″
91.0 38.3″
231.9 77.3″ + 2.25″
270.2

Left & Above
322.3
360.8 38.5″
143.4 37.6″
181.0 76.1″ + 2.31″

320.5 +2.27″
8 09.2 361.5 41.0″
13.8 143.4 37.7″
8 6.9 181.1 75.7″ + 2.23″
5 .7

13 6.2+ Gr. M. Time.
48 64.5459+
48 49.8499+
14.6960+

Mean = +2.26″

July 28, 1899.

III

Left & above

321.8

8 10.6 361.4 39.6

142.8 35.5

181.3 75.1 + 2.25

+2.26

321.6

360.3 35.7

142.4 35.9

181.3 77.6 + 2.27

Right & Below.

232.5

271.1 38.6

52.2 40.6

92.8 79.2 + 2.22

+2.265

232.2

270.8 37.6

8 15.8 52.4 38.6

6.4 91.0 77.2 + 2.38

8 13.2

5 -7

mean + 2.26

13 12.5 Hr. M. Time.

4864.5504

4849.8499

+ 14.7005

Clouds -

July 28, 1899.

Clearer; again.

Photo - Nine Cerasbis Variable W. Ob.

20 08   +46 3
17 03
~~2 05~~
3 5
8 55

Right
113.7   Ledgered ~~Plotted~~. I
8 42 20 207.2 Var. dis.   93.5+
clouds   86.0+
298.5   179.5+ -0.01+
24.5

0.00+

116.1
44 20 205.5   89.4+
295.4   91.3+
26.7   180.7+
Left   179.3+ +0.01+

23.1
46 50 121.4   98.0+
~~205~~   96.3+
203.8   194.3+
300.1   165.7+ +0.29+

234.0
48 50 115.8 4864.5728 √   91.8+   +0.21
22 20+ 203.9 4866.1955+ √   99.2+
8 45 38   300.1 +4.3770 √   187.0+
5 -43+   4.5729   0.19+
13 44 55 Gr. M. Time.   -0.1959   172.0+ mean +0.18

July 28, 1899

Left
79.0
5 51 00 119.8
~~206.8~~ 208.8
295.2

25.6
~~8~~5 53 35 118.2
201.4
300.2
Right
294.3
5 57 15 ~~28~~ 27.7
115.5
207.6

294.6
59 50 25.3
21 40 114.3
8 54 20+ 209.8
5 -43
13 53 37 Gr. M.T.
4864.5789+
4860.1958+
+4.3831
4.5729
-0.1898

II

100.0+
88.4+
188.4+
171.6+ + 0.16+

92.6 +0.19
98.8
191.4+
168.6 + 0.22

93.4+
92.1+
185.5+
174.5+ + 0.10

90.7 +0.11
95.5
186.2
173.8 + 0.12

mean = + 0.15

July 28, 1899.

III

Right
294.1
9 03 20 25.3
117.0
204.9 reject above reading.
clouds stars gone
294.4
~~9 10 50~~ Clouds.
12 05 30. 0 Clouds stars gone.

Left Reject above.

July 25

III

	Right			
	115.5			
9 14 40	209.8	94.3		
	295.2	94.1		
	29.3	188.4		
		171.6	+0.16	
	13.9			
	Clouds.			+0.20
19 10	209.2	95.3		
	292.8	97.4		
	30.2	192.7		
		167.3	+0.24	
	Left.			
	20.4			
22 25	124.5	104.1		
	202.0	98.9		
	300.9	203.0		
		157.0	+0.44	
	22.3			
24 45	124.3	102.0		+0.46
81 00	199.4	103.4		
9 20 15	302.8	205.4		
5 - 43		154.6	+ 0.49	

14 19 .32 Gr. M. Time

4564.5968
4560.1958
+4.4010
4.5729
−0.1719

Mean = +0.33

July 28, 1899.

Sky hazy
Left

IV

9 28 00 20.0
124.7 104.7
201.1 101.9
303.0 206.6
153.4 +0.51

22.2
9 30 15 125.0 102.8 +0.52
198.4 104.8
303.2 207.6
Right 152.4 +0.53

292.3
9 33 30 ~~292~~31.6 99.3
112.0 99.3
211.3 198.6
161.4 +0.35

292.7
9 36 45 31.5 98.8 +0.36
128 30 110.8 101.0
9 32 08 211.8 199.8
5 -43 160.2 +0.35
14 31 25 G. M. Time.

4864.6052
4860.1958
+4.4094
4.5729
-0.1635

Mean = +0.44

July 25, 1899

	Right		IV	
	290.4			
9 41 10	32.4	102.0		
	112.0	99.4		
	211.4	201.4		
		158.6	+0.41	
	292.0			
44 10	32.3	100.3		+0.44
	109.0	104.2		
	213.2	204.5		
		155.5	+0.47	
	Left ~~Below~~			
	195.7			
47 20	306.7	105.0		
	20.3	103.0		
	123.3	211.0		
		149.0	+0.59	
	200.1			
49 30	302.9	102.5		+0.60
22 10	17.1	109.4		
9 45 32	126.~~5~~	212.2		
5 -43		147.5	+0.62	
			mean = +0.52	

14 44 49 Gr. M. Time
4564.6145
4560.1955
+4.4187
4.5729
-0.1542

July 25, 1899

VI

Left
123.2 < comp star dis.

9 54 55 199.2 76.0″
Clouds, stars faint. 73.5″
305.7 149.5″ + 0.55
19.2

+0.60

125.0
55 00 198.6 73.6″
304.5 73.9″
18.7 147.5″ + 0.62
Rigel.
32.5

10 02 00 109.3 76.5″
215.0 74.0″
259.0 150.5″ + 0.56

+0.55

330
10 09 05 110.6 77.6″
244 00 215.8 71.5″
10 1 00″ 287.3 149.1″ + 0.59
5 -43

15 00 17 G.M. Time. Mean = +0.59
4564.6252
4560.1952
+4.4294
4.5729
-0.1435

July 28, 1899

Right.

34.7

10 10 10 106.5 71.8 VII

215.2 71.7

2869 143.5 +0.70

+0.73

34.5

12 20 106.7 72.2

217.3 68.7

286.0 140.9 +0.76

~~Left~~.

309.3

15 40 15.6 66.3

127.2 68.1

195.3 134.4 +0.89

+0.88

305.7

17 35 10.0 69.3

15 45 129.6 65.7

10 13 56 195.3 135.0 +0.88

5 -43

15 13 13 G.M. Time

Mean = +0.80

4864.6341

4860.1958

+4.4383

4.5729

-0.1346

July 28, 1899.

Left. VIII
306.7
10 19 10 14.3 67.6+
126.3 68.3–
194.6 135.9+ +0.86+

307.8 +0.90+
20 50 14.0 66.2+
129.2 65.0+
194.2 131.2+ +0.95–
Right
220.3
23 30 285.2 64.9+
35.0 69.0– +0.90+
104.0 133.9+
215.6 0.86–
288.8 70.2–
26 40 37.3 66.8+
90 10 104.1 137.0+ +0.83+
10 22 32+
5 -43 mean + 0.88+
15 21 49+ Gr. M. Time.
4864.6402+
4860.1958–
+4.4444+
4.5729–
-0.1285+

July 28, 1899.

Phot. T. Iapetus. W. Obs.

Left & Above 17 05 − 21.0

229.4 19 10

Clouds. 2 05 Ledgered

10 5 3.2 272.2 Plotted.

42.8

Clouds. 36.4

55.2 79.2 +2.22

91.6

231.0 +2.22

270.1 39.1

54.2 40.3

94.5 79.4 +2.21

Right & Below.

143.8

182.2 38.4

322.1 34.8

356.9 73.2 +2.40

145.2 +2.40

11 11.0 182.0 36.8

124.2 320.7 36.5

11 2.1 357.2 73.3 +2.40

5 −7

16 1.4 Gr. M. Time. Mean = +2.31

4864.667

July 28, 1899.

Right & Below Same Again.

144.0
11 16.6 183.5 39.5
323.1 33.8
356.9 73.3 + 2.40

145.0 + 2.40
182.7 37.7
321.6 35.6
357.2 73.3 + 2.40

Left & Above

53.4
93.9 40.5
230.2 40.7
270.9 81.2 + 2.16

54.9 + 2.25
11 28.0 91.5 36.6
44.6 230.5 38.7
11 22.3 ~~270.~~ 75.3 + 2.34
5 -7 269.2
16 21.6 G. M. Time. Mean = + 2.32
4864.682

July 28, 1899.

Titan.

~~Left~~ Above | | Ledgered plotted.

	302.0 < Titan dts.			
11 32.6	21.2	79.2"		
	119.6	83.6"		
	203.2	162.8"	−0.33"	
	302.9			−0.40"
	21.3	78.4"		
	123.0	77.3"		
	200.3	155.7"	−0.46"	
	~~Right~~ Below,			
	29.4			
	113.9	84.5"		
	210.0	84.5"		
	294.5	169.0"	−0.21"	
	279.9			−0.22"
11 39.8	114.5	86.6"		
72.4	211.0	80.8"		
11 36.2	291.8	167.4"	−0.24"	
5 −7				
16 35.5 Gr. M. Time.			Mean = −0.31"	
4864.692				

July 28, 1899

Below Same again.

	274		
11 40.8	114.2	86.8	
	211.0	84.4	
	295.4	171.2	-0.17
	285		-0.20
	115.4	86.9	
	210.6	81.7	
	292.3	168.6	-0.22

Above

	300.4		
	21.6	81.2	
	120.6	81.9	
	202.5	163.1	-0.32
	302.3		-0.30
11 47.4	25.2	82.9	
8.2	121.2	81.9	
11 44.1	202.8	164.8	-0.29
5 -7	Time		
16 43.4 G.S.T.	Same comp. star as last night.		mean = -0.25
4864.697			

July 29, 1899. (Saturday)

7 00 Cloudy

7 30 "

8 00 "

8 30 "

Thickly cloudy & clouds growing thicker
no chance for *any* work.

July 31, 1899 (Monday)

Plot 7. W Virginis W 6b.

1.3 1.6 − 4.2

.16 ~~4~~0

3 24

Left Above.

1430 Ledgered, Plotted

7 582 180.5 37.5ᵛ

324.2 33.4ᵛ

357.6 70.9ᵛ +2.48ᵡ

1450 +2.51ᵡ

180.0 35.0ᵛ

324.3 33.9ᵛ

358.2 68.9ᵛ +2.64ᵡ

Right Below

522

92.2 40.0ᵛ

233.4 36.4ᵛ

269.8 76.4ᵛ +2.30ᵡ

532 +2.30ᵡ

8 06.0 90.9 37.7ᵛ

124.2 231.5 38.7ᵛ

8 2.1 270.2 76.4ᵛ +2.30ᵡ

5 7.8 mean = +2.40ᵡ

13 1.3ᵛ G. M. Time.

45675426ᵡ

4567.1210

+0.4216ᵡ

July 31, 1899.

II.

Right & Below

52.8
8 07.9 90.9 38.1
233.3 38.0
271.3 76.1 +2.31

52.2 +2.32
90.4 38.2
232.7 37.2
269.9 75.4 +2.33

Left & Above

323.4
358.8 35.4
143.2 37.1
180.3 72.5 +2.43

323.0 +2.42
8 15.4 359.1 36.1
23.3 143.5 37.0
8 11.6 180.5 73.1 +2.41
5 .8
13 10.8 G. M. Time Mean = +2.37
4867.5492
4867.1210
+0.4282

July 31. 1899

III

Left & Above

	323.9		
8 15.0	358.5	34.6 ✓	
	144.4	35.8 ✓	
	180.2	70.4 ✓	+2.49+
	323.5		+2.46+
	360.1	36.6 ✓	
	144.2	36.1 ✓	
	180.3	72.7 ✓	+2.42+

Right & Below

	232.2		
	272.5	40.3 ✓	
	53.2	37.0 ✓	
	90.2	77.3 ✓	+2.25+
	233.2		+2.25
5 25.0	270.2	37.0 ✓	
5 21.5	51.3	39.9 ✓	
5 -.8	91.2	76.9 ✓	+2.29 ✓

13 20.7+ G.M. Time.

Mean = +2.37+

4567.5561+

4567.1210

+0.4351 ✓

July 31, 1899.

Right & Below — IV

233.4
8 267 — 271.7 — 38.3 ✓
52.7 — 37.6 ✓
90.3 — 75.9 ✓ + 2.32*

233.0 — + 2.28*
270.3 — 37.3 ✓
51.1 — 40.7 ✓
91.8 — 78.0 ✓ + 2.25*

Left & Above
144.3
181.4 — 37.1 ✓
322.7 — 37.3 ✓
360.0 — 74.4 ✓ + 2.36*

142.7 — + 2.36*
8 32.5 — 180.9 — 38.2 ✓
59.2 — 324.0 — 36.0 ✓
8 29.6 — 360.0 — 74.2 ✓ + 2.37*
5 -8

13 28.8 Gr M Time — Mean = + 2.32*
4867.5617*
4867.1210
+0.4407*

July 31, 1899.

V.

Left & Above

144.2
834.8 180.2 36.0
322.3 37.7
360.9 73.7 +2.39

+2.40

143.4
180.3 36.9
323.1 35.7
358.8 72.6 +2.42

Right & Below.

53.0
90.5 37.5
232.1 38.6
270.7 76.1 +2.31

52.2 +2.32
848.6 91.0 38.8
+ 83.4 233.5 36.5
8 41.7 270.0 75.3 +2.34 mean = +2.36
5 -.8 Sprocket wheel = -6 or +18
13 40.9 Dr. M. Time.
1867.5700
4867.1210
+0.4490

July 31, 1899.

Phot. I. Iapetus. W. Obs.

17 05 - 21.0
17 45
0 40

Iapetus preceeds Saturn 6 secs. & is 2'.25" off
Left & Above Same comp Star as previous night.

	321.9		
9'14.8	359.8	379+	Ledgered.
	140.1	42.1+	Plotted.
	182.2	80.0+	+2.19+
	320.2		+2.22+
	362.6	424+	
	144.2	35.6+	
	179.8	78.0+	+2.25+
	Right & Below		
	232.4		
	272.6	40.2+	
	48.2	49.8+	
	98.0	90.0	+1.91+
			+1.99+
	232.8		~~+2.00~~
9 24.4	2740	42.2+	
49.2	50.0	42.0+	
9 24.6+	92.0	84.2+	+2.07+
5 - 8			+2.10+
.4 23.8+			
4867.			

July 31, 1899.

Same Again.

Right & Below

233.0

9 26.9 273.5 40.5⁻⁺

47.4 40.4⁺

92.8 80.9⁺ +2.03⁺

232.2 +2.09⁺

274.0 41.8⁻⁺

51.2 39.7⁺

90.9 81.5⁺ +2.15⁻⁺

Left & Above

~~144.8~~

181.0 36.2⁺

322.1 41.0⁺

363.1 77.2⁺ +2.28⁺

142.9 +2.24⁺

9 35.3 182.9 40.0⁺

62.2 322.0 39.5⁺

9 31.1 361.5 79.5⁻⁺ +2.21⁺

5 −.8

14 30.3⁺ Gr. M. Time. Mean = + 2.16⁺

4867.

July 31, 1899.

Phot. T. Titan. W Ob.

Left Ledgered, Plotted.

263 ∠ Titan dis

9 35.5 115.9 89.6+

206.2 91.6+

297.8 181.2+ +0.02+

178.5+

25.5 +0.02+

119.0 93.2+

207.0 87.9+

294.9 181.1+

Right. 175.9+ +0.02+

299.2

28.3 89.1+

122.3 75.7+

198.0 164.8+ −0.29+

300.9 −0.30+

9 44.1 19.0 78.1+

526 145.1 85.2+

9 41.3+ 209.3 163.3+ −0.32+

5 −5

14 40.5+

4567.

Mean = −0.14+

July ~~3~~ 31 1899

Same Again

Right.

300.2

9 48 4 24.0 83.8+

124.9 73.6+

198.5 157.4+ −0.43+

305.0 −0.44+

15.4 73.4+

122.5 82.9+

205.4 156.3+ −0.45+

Left.

207.6

295.6 88.0+

29.0 85.6+

114.6 173.6+ − 0.12

208.8 −0.06+

9 57.0 293.7 84.9+

24.5 95.8+ + 0.01+

10 5.4 120.3 180.7+

9 52.7 179.3+

5 −8

14 51.9 m.t. Mean − 0.25+

4867.

Observations a little difficult on account of proximity of Saturn and also from the fact the Titan is very nearly between the two images of Saturn.

July 31, 1899

Arnold & Dent			Bond 394		
11	37	51	11	37	00
11	38	51	11	38	00

Aug. 7. 1899. (Monday)

~~July 31. 1899.~~

Sr Virginis Phot. T. Sr. obs.

13 16 -4.2.

17 0

+3 44.

Aug. 7. 1899.

Index left + above.

Ledgered
Plotted.

~~160,0~~ 150,8 22.1+
~~173,0~~ 172,9
330,0 ~~71~~ 23.0+
8,10 353,0
45.1+ +3.50+
150,7
173,8 +(3.54)+
330.9 22.3+
352,7 21.2+
43.5+ +3.58+

~~241~~
~~263,0~~
~~58,8~~ ~~58,6~~
~~83,6~~

Index right + below.

58,0 25.2+
83,2 +3.41+
240,6 21.8+
47.0+
262,4 +(3.44)

60,2 22.7+
8,18 82,9 +3.48+
240,3 22.9+
45.6+
263,2

13 14 Gr. m. Time Mean +3.49+
45~~7~~4.5514+
#5 67.1210
+7.4304+

Aug. 7. 1899.
Same again

~~59.2~~ 59.5   24.3
~~83.7~~ 83.8

f 20≠

240.4   22.5   3.42
262.9   46.8

(3.44)

60.4   22.9
83.3
240.6   22.8
~~263.9~~ 263.4   45.7   3.47

Index left + above.

150.2   22.7
172.9
330.2   23.6   3.44
353.8   46.3

150.0   22.9   3.50
172.9
f 30≠   331.2   21.2
13 25   352.4   44.1   3.55

4574.5553
4567.1210
+7.4373

Mean +3.47

Aug. 7. 1899.
Same again

150,4 21,8+
172,2
(£ 332 ± 330,0 23,4+
~~353,6~~ 353.4 45,2+ 3,50

~~149,5~~ 150,0 (3,48)
173,4 23,4+
330,8 22,8+
353,6 46,2+ 3,45+

Index right & below.
60,2 22,3+
~~82,3~~ 82,5 23,0+
~~240,8~~ 240,2 45,3+ 3,49+
263,2

59,5 24,3+ (3,46+)
83,8
£ 42 240,8 22,4+ 3,42
~~262,8~~ 263,2 46,7+

13 37
4574.5674+
4567.1210
+7.4464+

mean + 3,47

(Tuesday), Aug. 8, 1899

W Virginis Phot-T W Ola
13 16 −4.2
16 55
3 39

~~Ledgered~~
Plotted
(Index to left + above

331.6
8:02:25 351.4 < comp. above di
150.5 19.8+
171.6 21.1+
40.9+ 37.2+

330.5 (3.70+)
8:05:40 352.3 21.8+
151.8 19.7+ 3.69+
171.5 41.5+

240.9 Index right + below
8 1515 261.6
61.4 20.7+ 3.71+
81.7 20.3+
8:11:18 41.0+

241.3 (3.72+)
261.4 20.1+
61.2 3.73
81.8 20.6+
40.7+

34 38
8 8 39
5 −1
13
8 8 38 Gr M Time
48 75.5476+
48 67.1210
+8.4266+

mean 3.71+

Tuesday Aug. 1, 1899

241.2
8:14:4 261.9 20.7 Index right & below
61.6
81.9 20.3 3.71+
41.0+

(3.72)

241.5
8:16:50 261.6 20.1+
3.73
60.5
81.1 20.6+
40.7+

~~151.5~~ Index left & above
~~172.1~~

152.1 20.6+
8:21:5 172.7 3.69+
330.8 20.4+
351.6 41.4+

(3.64)

151.5 20.4+
177.9 3.64+
8:23:25
330.9 21.2+
352.1 41.6+

76 02
5 19 00
5 -1

13 15 59+ Gr. M. Time
45 76.5549+
45 67.1210

+ 8.4339+

Mean 3.70+

Tuesday Aug. 8, 1899

Index left + above

151.3
8:26:15 172.2 20.9+
330.4 20.7+ 3.68×
351.4 41.6+

151.6 20.5× (3.71+)
8:29:5 172.1
331.3 20.1× 3.74×
351.4 40.6×

Index right + below

61.3
8:33:0 81.8 20.5+
241.3 20.1× 3.74+
261.4 40.6×

60.5 20.7× (3.72+)
81.2
8:38:43 241.2 20.8+ 3.69+
262.0 41.5+

mean 3.72+

124 03
8 31 01
5 -01

13 31 00 Gr. M. Time -
4875.5632+
4867.1210

+8.4422+

Tuesday, Aug. 8, 1899

Japetus precedes Saturn, 31.5 sec.
and is ~~3/4'~~ 0.'6 north of it
Japetus Phot. I
Index above & left

319.5 < comp. clear dir.
9:13:0 3.6 44.1+ Ledgered, Plotted
136.5
183.5 45.0+
89.1+ +1.94+

319.5 44.6+
9:14:35 4.1 (+1.96)
139.9 42.6+
182.5 87.2+ +1.99

Index below & right
229.2 46.5−
9:17:5 275.7
48.2 45.4+
93.6 91.9+ 1.86+

228.6 44.4+ 1.88+
9:18:55 273.0
23 35 < 49.2 45.6+
9 15 54 94.8 90.0+ 1.91+
14 15 53+ Gr. M. Time mean 1.92+

~~227.8~~
~~9.21.5 274.5~~
~~48.5~~
~~94.3~~

Tuesday, Aug 8, 1899

Index right + below

227.8

9:21:5 274.5 46.7

48.5 45.8+

94.3 92.5+ 1.85−

229.0

9:24:2 274.8 45.8+ (+1.85−)

48.4 46.6+

95.0 92.4+ 1.85+

140.3 Index above + left

185.1 ~~19~~

9:27:0 319.4 44.8+

4.0 44.6+

89.4+ 1.93−

~~136~~

139.6 43.7+ (+1.94−)

9:29:15 183.3

21 22 319.7 45.1+

9 25 20+ 4.8 88.8+ 1.95−

5 −1

14 25 19 Gr. M. Time

4875.

mean +1.90+

Tuesday, Aug. 8, 1899.

Titan Phot. T

Index above & left.

Ledgered

114.6 < comp. st. disappears Plotted.

9:31:50 218.3

294.4 103.7+

28.5 94.1+

197.8+ 162.2 −0.34×

117.5

9:34:0 207.6 90.1× (−0.20+)

295.6 93.4+

29.0 183.5+ 176.5 −0.06×

Index right & below

25.0

9:39 120.9 95.9+

205.3 95.8+

301.1 191.7+ 168.3 −0.22×

~~22~~

23.4

9:40:35 118.6 95.2+ (−0.22+)

14 35 25 205.7 96.7+

9 36 21 302.4 191.9+ 168.1 −0.22+

5 −1

14 36 20+ Gr. M. Time.

mean −0.27

Tuesday, Aug. 8, 1899

Index right + below.

22.7
9:43:35 121.5 98.8+
202.8 97.8+
300.4 196.6+ 163.4 −0.32+

25.3
9:45:58 117.9 92.4+ (−0.24+)
202.0 100.0+
302.6 192.4 167.6 −0.24+

Index above + left

296.2
9:50:15 29.1 92.9+
115.6 90.7+
206.3 183.6+ 176.4 −0.07+

9:53:18 297.3 89.0+ −0.04+
193 06 26.3
9 45 16+ 116.5 92.1+
5 −1
14 45 15 − 208.6 181.1+ 176.9 −0.02+
G.M. Time.

mean −0.16+

Same comparison star used as on previous night. Measts. of Titan rather difficult on account of proximity of Saturn. Comp. star of tonight is B.D. −21° 4540 (8.5)

Watch used in above measts. was 1 sec. fast.

Monday Aug. 14, 1899.

Japetus, Phot. T. W. Obs.

Japetus preceds Saturn 3.7 sec,
and is 2.2′ north of it.

241.8 Index above & left
292.1< comp. star disappears
8:22:35 64.4 50.3. ~~Ledgered~~
111.1 46.7 1.73 ~~Plotted.~~
97.0+

243.9 47.3′ (1.72)
8:24:11 291.2
61.8 50.6
112.4 97.9 1.71

Index below & ~~left~~ right
153.6
8:27:0 197.0 43.4′
332.1 50.3′
22.4 93.7 1.82

153.7 48.4′ (1.74)
8:29:30 202.1
23 25 332.5 51.1 > 1.67+
5 05 52+ 23.6 99.5
5 -1 mean 1.73
13 05 51+ Gr. M. Time

Monday, Aug. 14, 1899.

Same again
Index below + right

	152.7	51.3		
8:30:50	203.6			
	334.5	47.3		
	20.8	98.6	1.69	
	1			
	154.3	49.0		(1.67)
8:34:45	203.7			
	332.1	51.4		
	23.5	100.4	1.65	

Index above + left

	62.2 62.2	50.4		
8:37:15	112.6			
	242.6	49.0		
	291.6	99.4	1.67+	
	62.9	49.2		(1.68)
8:40:5	112.1			
	242.5	49.0		
	291.5	98.2	1.70	

14 2 55
5 35 44
5 . -1
13 35 43 Si. M. Time

mean 1.68

Aug. 14, 1899 (Monday)

Titan

Ledgered
Plotted

~~218.6~~
~~Index~~ above and left.
318.6
8:46:15 36.1 < Titan disappears
134.0 77.5
223.0 89.3 −0.25
166.8

312.3 89.9 (−0.21)
8:48:20 42.2
137.5 81.1
218.6 171.0 −0.17

Index below and right
222.0
8:54:47 311.5 (?) 89.5
45.7 80.4
126.1 169.9 −0.19

224.7 83.9 (−0.16)
8:57:30 308.6
206 52 45.6 88.4
8 51 44 134.0 172.3 −0.14
5 −1
13 51 43 Gr M Time Mean −0.18
~~22~~

Aug. 14, 1899 (monday)

Same again
Index below and right
224.5
8:59:0 310.0 85.5
45.7
125.4 79.7
165.2 −0.28

225.5
9:01:16 308.5 83.0 (−0.25)
44.0 85.2
129.2 168.2 −0.22

Index above and left
133.4
9:05:05 222.5 89.1
316.3 79.7
36.0 168.8 −0.21

138.5 79.7
9:08:42 218.2 (−0.20)
254 03 312.0 90.1+
9 03 31+ 42.1 169.8 −0.19+
5 −1
14 3 30+ Gr. M. Time. mean −0.22

Same comp. star used as on ~~for~~ last night.
Watch used in the above setting was 1½ secs. fast.

Aug. 16, 1899 (Wednesday)

~~[illegible]~~ Wendell obs.

Phot.

o Ceti

Index left Ledgered.

61.5

12:6:48 72.5 o disap.

~~239.8~~ 11.0+

241.1 10.7+ -5.11+

251.8 21.7+

(-5.08)

59.8 11.8+

12:8:32 71.6

240.6 11.3+ -4.98

251.9 23.1+

Index right

330.6 11.0+

12:10:38 341.6

150.2 11.6+ -5.02+

161.8 22.6+

~~330.3~~

~~341.3~~ 330.3 11.0+ -5.06+

12:12:40 341.3

12 38 38 150.6 10.7+ -5.11+

5 161.3 21.7+

12 09 40+

5 -8 mean -5.05+

17 09 32+ Gr. M. Time

4583.715+

Aug. 16, 1899 (

Same again

Index right

12:15:8
330.5 10.9
341.4
150.1 11.4
161.5 22.3 −5.05

330.6 10.9 (−5.08)
12:16:48
341.5
150.4 10.9
161.3 21.8 −5.10

Index left

240.3 11.3
12:18:41
251.6
60.8 11.1
71.9 22.4 −5.04

240.0 (−5.04)
12:20:50
251.5 11.5
60.5
71.4 10.9
22.4 −5.04

mean −5.06

71 27
12 17 52
5 − 5
17 17 44 Gr. M. Time
4FF 3.721

Watch used was 7½ secs fast.

Aug 17, 1899 (Thursday)

Japetus Plate-T W Obs
Screw rec.

Index left + above

63.3 Ledgered.
7:50:5 108.4< comp. star disappears Plotted.
243.0 45.1
290.3 47.3 +1.85
92.4

(+1.89)

64.1 44.4
~~7:53:36~~ 108.5
7:54:15 244.3 45.1 +1.93
89.5
289.4

Index right and below

330.0 53.0
7:57:20 23.0
153.3 48.7 +1.61
202.0 101.7
3
330.3 (+1.57)
52.0
8:02:10 22.3
7 224 50 151.2 53.3
56 12+ 204.5 105.3 +1.53
5 -9 mean +1.73
2
13 56 03+ Gr. M. Time

Aug. 17, 1899 (Thursday)

Same again

Index below and right

329.2
8:06:31 23.5 53.9
152.3 51.0
203.3 104.9 +1.54

~~330.0~~
330.5 52.8 (+1.56)
8:12:15 23.3
153.5 50.0
203.5 102.8 +1.59

Index left + above

243.5 46.1
8:16:38 289.6
63.8 46.8
110.6 92.9 +1.84

243.4 47.0 (+1.83)
8:22:55 290.4
5 8 19 63.7 46.7
8 14 36 110.4 93.7 +1.82
5 -9
mean +1.70
13 14 26 Gr. M. Time.

Titan Aug. 17, 1899 (Thursday)
Phot. 7/1 w. Obs
Severn rec.

Index above + left Ledgered
Plotted

131.8
8:30:39 218.0 < Titan disappears
311.0 86.2
42.7 91.7
177.9 −0.04+

133.4
8:34.0 219.25 85.8 (−0.08+)
312.8 88.3+
41.1 174.1+ −0.11+

Index below + right

44.9
8:38.50 128.5 83.6+
226.0 82.4+
308.4 166.0+ −0.27+

45.5
8:40:00 131.0 85.5+ (−0.24+)
1 44 29 224.5 82.8+
8 36 07+ 307.3 168.3+ −0.22+
5 −09
13 35 07+ Gr M Time. mean −0.16+

19 33
12 40
6 53

Aug. 17, 1899. (Thursday)

Same again.

46.1 83.9
8:46:40 130.0
225.3 83.9
309.2 167.8 −0.23

44.0
8:49:29 131.5 87.5 (−0.20)
224.6 83.0
307.6 170.5 −0.18

Index left + above
313.3
8:53:19 40.5 87.2
133.0 88.1
221.1 175.3 −0.09

312.6
8:56:8 41.5 88.9 (−0.06)
132.0 89.1
221.1 178.0 −0.08

205 86
8 51 24+
5 −9
13 51 15 4½ m

mean −0.13

Same companion star used as on the previous nights

Aug. 17, 1899 (Thursday)
DM +42° 3338. Phot. T. W. Obs.
New Phot. Var. Issued rec.

Index left
240.9 Comp. star DM +42 3342
290.6 < var. dis.
12:01:20 62.3 49.7 Ledgered.
114.3 52.0 / 101.7 −1.61
(−1.62)
242.2 49.1
12:02:12 291.3
61.2 51.9 / 101.0 −1.63
113.1

Index right
152.5
12:04:53 203.3 50.8
332.6 50.0 / 100.8 −1.64
22.6

152.4 (−1.65)
12:06:58 202.1 49.7
1523 333.5
12 03 51+ 23.5 50.0 / 99.7 −1.66
5 − 9
17 03 42+ Gr. M. time mean −1.64

Aug. 17, 1899 (Thursday)

Same again
Index right

	152.1	51.6		
12:08:50	203.7			
	332.8	50.9		
	23.7	102.5	−1.60	
12:10:35	152.4			
	202.8	50.4		(−1.60)
	331.7	51.9		
	23.6	102.3	−1.60	

Index left

	62.4	51.6		
12:12:38	114.0			
	242.3	48.7		
	291.0	100.3	−1.65	
				(−1.66)
	63.0	48.8		
12:14:50	111.8	51.2		
		100.0	−1.66	
46 53	241.0			
12 11 43+	292.$\overset{2}{\cancel{8}}$ 292.2			mean −1.63

5 −9
17 11 34+ Gr.M.Time.

Watch used this evening 8¾ sec fast

Sept. 4. 1899. Monday

Phot. T. Iapetus W. Obs.

17 00 +2,15

15 26 Campbell Rec.

1 26

Iap. precedes Saturn 2.4 secs. and is 2.6 North of it. Same comp ~~stars as~~ last time.

Left & above

Ledgered

Plotted.

69.8

7 25 101.2 (comp star dis) 31.4

250.3 35.8

256.1 67.2 + 2.60

(+2.55)

67.7

102.0 34.3

251.9 34.4

256.3 68.7 + 2.50

Right & Below

336.7

15.8 39.1

158.0 37.3

195.3 76.4 + 2.30

335.0 (+2.34)

7 35 15.8 37.8

12 30 G.M.T. 159.8 35.8

195.6 73.6 ~~+~~ + 2.39

Mean = +2.46

Sept 4, 1899.

Same Again

338.0
7 37.0 15.0 37.0+
161.3 33.0+
194.3 70.0 +2.51+

(+2.50)+

338.3
15.0 36.7+
161.5 33.9+
195.4 70.6+ +2.49+

Left & above
248.4
286.3 37.9+
66.8 36.7+
103.5 74.6+ +2.36+

250.3 +2.40+
7 48.0 286.7 36.4+
12 42.5+ G.M.T. 67.5 35.6+
103.1 72.0+ +2.44+

Mean = +2.46+

Sept, 4, 1899.

Titan.

227.6
7 5 25 307.0 comp. Star dis.
36.5
135.4

25.0
317.

see next Page

Sept. 4, 1899

Titan.

Left O Above — Ledgered, ~~Plotted.~~

221.6
< comp. Stadia
7 55.5 — 314.3 — 92.7*
43.3 — 87.0*
130.3 — 179.7* — +0.01*
~~180.3~~ ~~-0.18~~

~~228.4~~ 39.2
~~307. 3[illegible].3~~ 138.1 — 98.9* — (0.00)*
227.6 — 81.4*
309.0 — 180.3*
179.7* — [illegible]0.01*

Right. O Below
313.0
~~[illegible]~~ 41.3. — 88.3*
125.0 — 100.3*
225.3 — 188.6*
171.4* — -0.16*

306.8
8 05.0 — 49.0 — 102.2* — (-0.18)*
120.5* — 131.8 — 88.5*
F 00.2 Gr.M.T. — 220.3 — 190.7*
13
169.3* — -0.20*

Mean -0.09*

Sept 4, 1899.
Same again.

	314.0		
8 08.0	42.6	82.6+	
	126.0	99.0+	
	225.0	187.6+	
		172.4+	−0.14+
	307.8		
	48.0	100.2+	(−0.14)+
	134.5	86.5+	
	221.0	186.7+	
		173.3+	−0.13+

Left above

	228.2		
	309.1	80.9+	
	37.3	95.3+	
	135.6	179.2+	+0.02+
	221.2		(−0.02)
8 17.0	315.1	93.9+	
13 125+ Gr.Mt.	42.3	89.7+	
	132.0	183.6+	
		176.4+	−0.07+

Mean = −0.08

Same comp. star used as on last night =
BD −21° 4580 (8.5)

Sept 4, 1899.

Phot. T. (W6b)
Cluster in Hercules, = M 13

16 37 +36.7
19 50
3 13

Star t (in my notation on photographic chart) compared with star f (Prof. P's f)

10 00.0 cloudy
~~Sep 8 above~~

142.9 < comp stars

Ledgered

10 35.0 210.2 67.3
320.1 76.6
36.7 143.9 +0.70

(+0.69)

142.7
213.0 70.3
320.2 74.4
34.6 144.7 +0.68

Rigel o.

55.0
123.2 68.2
230.1 66.9
297.0 135.1 +0.87
54.8

(+1.00)

10 52.0 ~~115.0~~ 117.0 62.2
57.0
15 43.5 Gm. 236.7 60.3
297.0 122.5 +1.14

mean = +0.84

Sept. 4. 1899.
Sept 4, 1899.

Star u (very not.) compared with star f.
Right & Below

~~50.8~~

11 ~~03~~ ~~120.0~~ < comp dis. Ledgered.

50.0 < comp. star dis.

18 06 124.3 74.3
233.0 74.8
307.8 149.1 +0.59

45.0 (+0.50)
128.2 83.2
227.2 75.8
303.0 159.0 +0.40

Left & above

318.0
~~39.0~~ 39.0 81.0
~~178.3~~ 135.3 84.7
220.0 165.7 +0.27

311.2 (+0.22)
18 45 42.0 90.8
16 10.2 G.M.T. 36.8 80.0
216.8 170.8 +0.17
Mean = +0.36

Meas. of two stars in cluster very difficult.

over.

Sept. 5. 1899.

Stars t, and u, measured in the cluster in Hercules with Phot. I. last night on pp. 114, 115, are in my notation in pencil on photographic chart,

t = Potsdam 29.
u = " 288.

~~303.0~~
~~<comp Star~~

Sept 5, 1899 - Tuesday

Phot. I. Iapetus N Obs.
Campbell Rec.

Left & Above 17 10 −21.5
303.0 {Comp. stards 19 00
7 54.0 335.0 1 50 Ledgered Plotted.
127.2 32.0^{+}
33.2^{+}
160.4 65.2^{+} $+2.67^{+}$

$(+2.76^{+})$

303.9
332.6 28.7^{+}
129.2 31.3^{+}
160.5 60.0^{+} $+2.86^{+}$

Right & Below
214.2
249.5 35.3^{+}
35.9 31.6^{+}
67.5 66.9 $+2.61^{+}$

$(+2.64^{+})$

213.1
8 05.0 249.2 36.1^{+}
$7\ 59.5^{+}$ 37.9 29.1^{+}
5 67.0 65.2^{+} $+2.67^{+}$
$12\ 59.5^{+}$ G. M. Time

Mean = $+2.70^{+}$

Sept 5, 1899.

Same Again

215.1

8 08.0 247.5 32.4^+

344 33.4^+

67.2 65.8^+ $+2.65^+$

($+2.62^+$)

213.3

249.9 36.6^+

37.7 30.7^+

62.4 67.3^+ $+2.60^+$

Left & above

127.2

159.5 32.3^+

303.0 32.2^+

335.2 64.5^+ $+2.69^+$

128.6 ($+2.74^+$)

8 18.0 160.6 32.0^+

13 13.0 GrMT 303.2 30.1^+

333.3 62.1^+ $+2.78^+$

Mean = (2.68^+)

Sept. 5, 1899

Titan

2.0 L Titan Dis

Ledgered. Plotted

8 23.0 102.9

190.2

272.3

87.3

82.1

169.4 − 0.20°

6.6

94.1

184.4

281.0

87.5

96.6

184.1

175.9

+ 0.08

(− 0.06)

Rigeut & Below

274.0

369.3

100.6

184.0

95.3

83.4

178.7 − 0.02

(− 0.04)

251.8

8 30.5 361.6

8 53.5 93.8

+

13 26.8 [illegible] 191.0

79.8

97.2

177.0 − 0.06

Mean = − 0.05

Sept 26, 1899.

Same Again.

274.9
8 32.0 367.9 93.0^{+}
100.2 84.1^{+}
184.3 177.1^{+} -0.05^{+}

(-0.10^{+})

283.2
364.0 80.8^{+}
96.8 90.8^{+}
187.6 171.6^{+} -0.16^{+}

Left & above.

183.7
280.1 96.4^{+}
7.2 86.4^{+}
93.6 182.8^{+}
177.2^{+} $+0.05$

188.0
8 40.0 275.6 87.6^{+} ($+0.04$)
13 36.0^{+} Gr.M.T. 4.3 94.1
98.4 181.7^{+}
178.3^{+} $+0.03$ Mean $= -0.03^{+}$

Same Comparison Star as last time —

Sept 5, 1899.

(M 13)
Cluster in Hercules; Phot. F. W 6k.

16 37 +36.7
20 07
3 30

Star t comp with F.

Right
~~15.2~~ {comp star dis Ledgered
858.0 ~~83.6~~ Abandoned.

Star U comp with F

195.0 {comp dis
9 03.0 276.0 81.0
9.6 81.8
~~9~~ 162.8 +0.33
91.4
193.6 (+0.32)
270.6 77.0
9.6 80.9
90.5 157.9 +0.42
Right & Below
100.1
183.2 83.1
281.0 83.6
364.6 166.7 +0.25
101.2 (+0.31)
9155 185.5 84.3
9 18.5 285.2 76.2
14 9.22 m 361.4 160.5 +0.37 mean +0.34

Sept 5, 1899

Right of Below Star iv comp with $\overline{f}$

283.5

< comp star obs.

9 25.0 363.0 79.5 Ledgered

104.0 73.0

177.0 152.5 +0.53

283.7 +(0.58)

356.2 72.5

103.8 75.3

179.1 147.8 +0.62

Left of Above.

194.0

272.6 78.6

14.0 79.2

93.2 157.8 + 0.42)

193.4 (+0.40)

9 37.5 271.3 77.9

62.5 12.0 81.7

14 31.2 Gr. M.T. 93.7 159.6 + 0.39

Mean = + 0.49

Sept. 5, 1899.

Left & Above Star x comp with 8

5.3 < comp * dis.

9 43.5 94.8 89.5 Ledgered.
187.0 86.3
273.3 177.8 +0.04

3.1 (−0.02)

~~97.0~~
96.8 93.7
187.7 91.0
278.7 184.7
Right & Below 175.3 −0.09
278.6
265.5 86.9
99.8 86.4
185.7 173.3 +0.13

276.8 (+0.14)
9 53.5 265.2 88.4
97.0 99.6 84.1
14 48.54 185.7 172.5 +0.14
2 M.x

Mean = +0.06

Sept 5, 1899.

Star Y comp with K

Ledgered.

Left.

304.7 < Comp + dis

10 15.0 335.9 31.2

126.2 34.6

160.8 65.8 +2.65

(+2.66)

304.5

338.5 34.0

126.2 31.4

157.6 65.4 +2.66

Right

213.0

250.0 37.0

31.4 38.8

70.2 75.8 +2.32

(+2.36)

213.3

10 23.0 250.0 36.7

38.0 33.5 36.5

15 19.0 G.M.T. 70.0 73.2 +2.40

Mean = +2.51

Sept 5, 1899.

Right Star E comp with f.

Ledgered.

~~207.5~~ ∠E dis.

10 37.0 255.7 48.2$^+$

26~~8~~1 49.5$^-$

75.6 97.7$^+$ = 1.71$^+$

(−1.66$^+$)

206.0

~~258.4~~ 52.4$^+$

26.5 49.5$^+$

76.0 101.9$^+$ = 1.61

~~Left~~

11~~8~~.0

166.3 48.3$^+$

297.4 46.6$^+$

344.0 94.9$^+$ = 1.79

~~117.~~

(−1.81$^+$)

118.6

10 37.0 167.0 48.4$^+$

15 92.0$^+$ Gr. M. T. ~~298~~ 44.7$^+$

298.7 93.1$^+$ = 1.83

343.4

Mean = −1.74$^+$

f = Potsdam 801.
y = " 778.
u = " 288.
w = " 788.
x = " 799.

Sept 5, 1899.

Phot R. o Ceti. W 6b.

26 12 - 36
22 02
Right & Above H 1 0
135.4 7 50 Ledgered
10 54 00 147.2 < Var dis.
316.0 11.8$^+$
326.0 10.0$^+$
21.8$^+$ - 5.10$^+$

135.5 - 5.11
146.0 10.5$^-$
315.0 11.1$^-$
326.1 21.6$^-$ - 5.12$^-$
Left & Below
45.0
56.1 11.1$^+$
226.1 10.5$^-$
236.6 21.6$^-$ - 5.12$^+$

11 01 00 45.6 - 5.13$^-$
11 5 00 56.1 10.5$^+$
10 57 30$^+$ 225.3 10.9$^+$
5 236.2 21.4$^+$ - 5.14$^+$
15 57.5$^+$ Gr. M. Time

Mean = - 5.12$^+$

Sept 5.7 1899

Same Again

Left & Below

45.0 <

11 03.5 56.1 11.1^{+}

226.1 10.1^{+}

236.2 21.2^{+} − 5.16^{+}

45.5 (− 5.18^{+})

52.8 10.3^{+}

225.4 10.6^{+}

236.0 20.9^{+} − 5.19^{+}

Right & Above

315.3

325.6 10.3^{+}

135.3 10.8^{+}

146.1 21.1^{+} − 5.17

315.3 − 5.16^{+}

11 09.5 326.0 10.7^{+}

13.0 135.3 10.6^{+}

11 6.5 ½ M.T. 145.9 21.3^{+} − 5.16^{-+}

Mean = − 5.17^{+}

Sept 6, 1899 (Wednesday)

Iapetus

Phot. T. (NObk.)

17 10 -213

18 45 (Campbell Rec.)

1 35

Left & Above

Led. Plot

186.4

∠ comp + dis

7 34.0 216.5 30.1+

1.5 27.0+

28.5 57.1+ +2.97

(+2.94)

188.1

216.2 28.1+

0.2 30.9+

31.1 59.0+ +2.90

Right & Below

94.0

119.8 25.8+

276.0 27.3+

303.3 53.1+ +3.14

(+3.16)

96.6

7 47.0 121.0 24.4+

81.0+ 275.8 27.4+

12 40.5 303.2 51.8+ +3.19

mean = +3.05

Sept 6, 1899.

Right Below Same Again

95.5
7 52.5 121.1 25.6″
273.9 29.6″
303.5 55.2″ + 3.05″

96.2 (+3.01″)
123.3 27.1″
273.1 30.1″
303.2 57.2″ + 2.97″

Left above

0.3
31.0 30.7″
186.3 30.1″
216.4 60.8″ + 2.83″

0.2 (+2.84)
A 0.75 30.5 30.3″
120.0 186.0 30.4″
8 00.09 [illegible] 216.4 60.7″ + 2.84″
13

Mean = 2.92″

Sept 6, 1899

Titan, Red. Plot.

Left & Above

242.2 ∠ Titandis.

8 15.0 336.6 94.4 +

67.1 85.0 +

152.1 179.4 + — 0.01

(— 0.04)

248.7

329.7 81.0 +

61.0 95.3 +

156.3 176.3 + — 0.07

Right & Below

152.6

245.7 93.1 +

340.0 80.2 +

60.2 173.3 + — 0.13

158.9 (— 0.10)

8 24.0 238.7 79.8 +

39.0 331.4 95.7 +

18 19.5 G.M.T. 67.1 175.5 + — 0.08

Mean = — 0.07 +

Sept 6/1899

Right & Below Same Again

152.0

8 26.0 246.1 94.1

338.9 81.0

59.9 175.1 − 0.09

159.1 (0.10)

237.9 78.8

331.4 95.3

66.7 174.1 − 0.11

Left & Above

61.2

157.1 95.9

246.2 84.0

330.2 179.9 − 0.00

66.0 (0.00)

8 32.0 151.3 85.3

58.0 240.5 95.2

29.0 G 335.7 180.5

179.9 + 0.01

mean = − 0.05

Same Comp Star as last Time

Sept. 6, 1899.

Phot. U Coronae. W. 6k.

15 5 + 33.2
29 5
~~14~~ 0

Arnold & Dent Used on U Coronae

Left & Above I

174.0 < var dis

A 59 10 227.0

351.2

43.6

Clouds.

177.6 Reject.

9 02 30 2

See next page

Sept 6, 1899.

Ledgered. Plotted.

Left above

174.2 < var dis

9 03 30 224.2 — 50.0^{+}

350.9 — 55.1^{+}

46.0 — $105.1^{+} - 1.53^{+}$

(-1.50^{+})

172.4

9 05 00 228.0 — 55.6^{+}

351.6 — 51.8^{+}

43.~~7~~4 — $107.4^{+} - 1.48^{+}$

Right below.

78.4

06 55 138.0 — 59.6^{+}

259.1 — 60.6^{+}

319.7 — $120.2^{+} - 1.19^{+}$

(-1.24^{+})

79.9

09 05 137.2 — 57.3^{+}

24 30 259.0 — 58.3^{+}

$9\ 06\ 08^{+}$ 317.3 — $115.6^{+} - 1.29^{+}$

5 +34

$14\ 06\ 42^{+}$ Gr. M. Time

Mean = -1.37^{+}

$+904.5580^{+}$

$+904.3524^{+}$

0.2056^{+}

Sept 6, 1899

Right & Below II

80.1

9 11 00 136.9 56.8+

260.8 54.4+

315.2 111.2+ −1.39+

82.7 (−1.38+)

12 30 137.9 55.2+

260.1 57.2+

317.3 112.4+ −1.36

Left & Above.

352.4

~~11 30~~ Clouds. Stars gone.

17 30 44.7 52.3+

171.0 56.1+

227.1 108.4+ −1.45+

3535 Clouds. Stars about gone. (−1.54+)

21 15 44.6 51.1+

62 15 174.9 49.8+

9 15 34+ 224.7 100.9+ −1.63+

5 +34

14 16 08+ Gr. M. Time. Mean=(−1.46+)

4904.5945+

4904.3824

0.2121+

Sept. 6, 1899

III

Left & above

353.9

9 23 25 44.2 — 50.3

172.8 — 51.9

224.7 — 102.2 −1.60

(−1.59)

332.1

25 00 44.7 — 52.6

174.4 — 50.5

2215.3 — 103.1 −1.58

Right & Below

263.1

27 00 315.3 — 52.2

78.0 — 57.2

135.2 — 109.4 −1.43

(−1.44)

257.6

28 05 316.7 — 59.1

23 30 58.8 — 49.8

9 25 52 135.6 — 108.9 −1.44

5 +34

14 26 26 Gr. M. Time.

Mean = −1.52

4904.6017

4904.3824

0.2193

Sept 6, 1899.

Right & Below IV

84.4

9 53 30 136.3 51.9

262.1 54.6

316.7 106.5 – 1.50

80.3 (–1.54)

53 15 133.3 53.0

264.0 50.7

314.7 103.7 – 1.57

Left & above

354.4

56 55 41.3 46.9

174.1 50.7

224.8 97.6 – 1.72

352.4 (–1.68)

58 10 45.7 53.3

23 50 175.7 47.8

9 55 58 223.5 101.1 – 1.63

5 +34

14 56 32 Gr. M. Time. Mean = – 1.61

4904.6226

4904.3824

0.2402

Sept 6, 1899

V

Left above

351,2
9 59 50 43.5 52.3
177,0 45.6
222,6 97.9 = 1.71

(-1.72)

334.0
10 01 50 41.7 47.7
174.3 49.6
221.9 97.3 - 1.72

Right below

262.0
03 55 315.6 53.6
45.8 48.8
134.6 102.4 - 1.60

(-1.64)

264.0
05 40 312.6 48.6
251 15 81.9 50.8
10 02 49 132.7 99.4 - 1.67
5 +34
15 03 23 Dr. M. Time

Mean = -1.68

4904.6274
4904.3824
02450

Sept 6 1899

Right & Below VI

263.0
10 08 00 314.6 51.6
84.1 48.8
132.9 100.4 -1.65

264.6 -1.65
09 50 314.2 49.6
83.3 50.7
134.0 100.3 - 1.65

Left & Above

176.0
12 00 221.6 45.6
353.3 50.4
43.7 96.0 - 1.76

175.0 -1.80
13 50 222.2 47.2
43 40 354.8 45.5
10 10 55 40.3 92.7 - 1.84
5 +34
15 11 29 Gr. M. Time. Mean = 1.72
4904.6330
4904.3824
0.2506

Sept 6, 1899.

VIII

Left & Above

177.6

10 15 55 224.0 46.4^{+}

354.0 50.6^{+}

44.6 $97.0^{+} - 1.73^{+}$

174.9 -1.74^{+}

18 00 221.7 46.8^{+}

352.2 49.0^{+}

41.2 $95.8^{+} - 1.76^{+}$

Right & Below.
Clouds. Stars good.

87.0

25 35 132.8 45.8^{+}

261.6 52.7^{+}

314.3 $98.5^{+} - 1.69^{+}$

82.0 -1.66^{+}

27 50 133.8 51.8^{+}

87 20 265.0 48.8^{+}

$10\ 21\ 50^{+}$ 313.8 $100.6^{+} - 1.64^{+}$ mean $= -1.70^{+}$

5 +34 Above group taken through some cloud.

$15\ 22\ 24^{+}$ Gr. M. Time.

4904.6406^{+}

4904.3824

0.2582^{+}

Feb 6, 1899

Phot. T. Nova Sagittarii (W 6 ½)

~~15~~ 51 -13.0
~~21~~ 56
~~3~~ 05

15 51
22 12 -13.0
3 21

Abandoned Too low.

o Ceti.

Phot. R. 26 12 -3.6 W 6 ½:
22 17
3 55
5 05

See next page

Sept 6, 1899.

~~Left~~ Below 0 cote

41.4 Lnardt Ledgered Plotted.

11 01.0 52.5 11.1^{+}

221.3 8.7^{+}

232.0 19.8^{+} − 5.31^{+}

42.0 − 5.30^{+}

52.3 10.3^{+}

222.1 9.8^{+}

231.9 20.1^{+} − 5.28^{+}

Right & Above

309.8

332.4 12.6^{+}

132.1 10.4^{+}

142.5 23.0^{+} − 4.98^{+}

311.8 − 5.05^{+}

07.0 322.1 10.3^{+}

131.0 11.3^{+}

16 04.0 G.M.T. 142.3 21.6^{+} − 5.12^{+}

Mean = − 5.18^{+}

Sept 6, 1899

Same Again.

Right & Above

317.0

11 09.0 322.6 11.6+

132.0 10.5+

142.5 22.1+ - 5.07+

(- 5.08+)

311.4

322.2 10.8+

131.1 11.2+

142.3 22.0+ - 5.08+

Left & Below

221.3

231.9 10.6+

41.9 10.2+

52.1 20.8+ - 5.20+)

(- 5.25)

222.0

11 14.0 231.7 9.7+

16 11.59 41.3 10.2+

51.5 19.9+ - 5.30+ mean = - 5.16

Arnold & Dent Bond 394

11 23 34 11 23 00

11 24 34 11 24 00

Sept. 7, 1899. (Thursday)

Phot x Iapetus. (N Ob-)

(Campbell Rec-)

−21.5

17 10

18 45

1 35

Left & above.

28 (comp Star dis) Comp Star: −21°4540 (8.5)

7 29 28.5 25.7

187.0 29.3 Ledgered & Plotted

216.3 55.0 +3.06

1.2

30.5 29.3 (+2.92)

186.6 29.4

216.0 58.7 +2.91

Right & Below.

273.6

303.3 29.7

light cloud. 28.6

94.6 58.3 +2.93

123.2

~~7~~

(+2.95)

272.4

7 43 303.2 30.8

12 36½ 96.6 26.4

M.T. 123.0 57.2 +2.97

Mean = +2.96

Sept. 7. 1899

Left & above Same Again
~~Right & Below~~

8 10 ~~27~~3.1 2.5
~~7 47~~ 3~~02.8~~ 30.2 27.7+
Clouds
~~9~~ . 186.8 29.0+
~~12~~ . 215.8 56.7+ + 2.99+

~~27~~ , 2.8 (+2.98+)
~~30~~ , 30.2 27.4+
~~9~~ , 156.2 30.0+
~~12~~ , 216.8 57.4+ + 2.96+

~~Right & Below~~
272.9
303.0 30.1+
96.4 25.6+
122.0 55.7+ +3.03+

274.2 (+3.02+)
~~7~~ 8 24 302.9 28.7+
95.8 27.1+
13 17+ 34 m.7 122.9 55.8+ + 3.02+
mean = (+3.00+)

Sept. 7, 1899

Right & Below   Titan

236.6   Ledgered & Plotted

7 57 336.7 ∠ comp. star dis. 100.1

63.5   90.7

154.2   190.8

169.2 − 0.20

244.0

333.3   89.3   − 0.18

59.3   99.7

159.0   189.0

Left & Above   171.0 − 0.17

151.2

246.0   94.8

332.9   87.1

60.0   181.9

178.1 − 0.03

158.6

8 06 243.9   84.4   + 0.01

332.3   93.2

13 0h15m G.M.T. 65.5   177.6 + 0.05

Mean = −(0.08)

Sept 7, 1899

Same Again

Right & Below.

(8 27) 62.0
150.0 88.0°
243.8 89.8°
8 40 333.6 177.8° − 0.04+

64.0 (− 0.04+)
151.6 87.6°
(8 52) 241.0 95.3°
Stars dim Saturn alone 182.9°
336.3 177.1° − 0.05+

Left & Above.

330.3
66.0 95.7°
154.9 88.1°
243.0 183.8°
176.2° − 0.07+

333.~~4~~
8 56 61.6 88.2°
13 48 9 2 33.7 151.5 93.7° (− 0.05+)
245.~~0~~2 181.9°
178.1° − 0.03+

Mean (0.04+)

9 00 Clouds.
Last group on Titan taken through some light cloud

Sept. 7, 1899.

New Photographic Var.

19 20 +44 31
20 53
1 33

All cloudy in this region

X Cygni.
19 45 +32.6
20 55
1 10

9 30 All cloudy.

M. P. 441
27 33 +62.3
20 55
6 35
5 25

All Cloudy.

10 00 Thickly cloudy everywhere
no chance for any thing farther

Watch used correct.

Sept. 8. 1899. (Friday.).

7 0 Cloudy.

7 30 "

7 40 A little clearer.

Iapetus.

17 0 −21.0
19 10
+2 10

Cloudy again.

8 0 Cloudy.

8 30 "

9 0 "

9 30 " with no prospect of clearing.

Sept 9, 1899. Saturday

Phot. Iapetus. (W. Obs.)
(Campbell Recorder.)

17	10	− 21.0
18	47	
1	37	

7 20 Cloudy
Iapetus fol Sat. 18.5 secs & is 2' N of it.
Left.

183.8 < comp. standis.

8 22 215.3
~~3.8~~
4.0
(33.2

183.9
214.9

Right. Reject
8 50 Utterly impossible ~~to meas~~ to measure Iapetus on account of clouds & low altitude.

Sept. 9. 1899.

M. 13. Cluster in Hercules –
Phot. V. I. W Obs.

16 37 +36.7
2.0 23
---
3 46

Left & Above. (Star IV comp with. 5
70.8 < comp star dis

9 02.0 147.3 76.5^+ Ledgered
248.4 77.7^+
326.1 154.2^+ + 0.49^+

72.6 + 0.56^+
144.8 72.2^+
250.2 75.6^+
325.8 147.8^+ + 0.62^+

Right & Below.
343.6
56.0 73.0^+
161.4 72.5^+
234.2 145.5^+ + 0.66^+

341.6 + 0.58^+
9 20.0 56.0 74.4^+
9 11.0+ 157.5 79.2^+
5 +6 236.7 153.6^+ + 0.50^+
14 11.6 G.M. Time.

Mean = + 0.57^+

Sept. 9. 1899.

Star $\bar{x}$ comp with $\bar{f}$

Right & Below

157.4 < comp dis Ledgered.

9 29.0 244.6 87.2

335.2 88.9

64.1 176.1 +0.07

156.2 +0.12

242.6 86.4

337.7 83.9

61.6 170.3 +0.15

Left & above.

~~328.7~~ 64.8

~~69.3~~ 153.5 89.1

~~153.5~~ 88.5

246.8 177.6 +0.05

333.3

+0.09

64.7

9 47.0 153.4 88.7

9 38.0 246.9 84.4

5 +.6 331.3 173.1 +0.13

14 38.6 Gr. M. Time.

Obs extremely difficult on both of preceding stars. mean = +0.10

Star $\bar{w}$ especially difficult, on account of faintness of stars, ~~and~~ some fog, and haze.

Sept. 9, '99.

Star K comp. with f

~~Left o above~~

354.9 < k dis. Ledgered.

10 06.0 40.9 46.0+

175.0 47.9+

222.9 93.9+ −1.51+

351.7 −1.75+

46.9 55.2+

178.1 43.5+

221.6 95.7+ −1.69+

Right.

266.6

311.1 44.5+

84.2 50.5+

134.7 95.0+ −1.75+

262.2 −1.70+

10 15.0 314.9 52.7+

10 10.5+ 84.7 49.3+

5 +6 134.0 102.0+ −1.61+

15 11.1+ Gr. M. Time.

Mean = −1.72+

Sept. 9. 1899.

Right & Above Star g comp with K

	250.0	Ledgered.	
1024.0	329.0 < k dis.	79.0	
	69.6	80.5	
	150.1	159.5	+0.39
	250.6		+0.38
	329.4	78.8	
	68.5	81.7	
	150.2	160.5	+0.37

Left Below.

	161.6		
	239.7	77.1	
	340.2	76.5	
	56.7	153.6	+0.50
	160.6		+0.46
10 31.0	238.9	78.3	
55.0	339.5	79.0	
10 27.5	58.5	157.3	+0.43
5 +6			
10 28.1 Gr. M. Time		Mean = +0.42	

Sept. 9, 1899.

Below. Star $\overline{l}$ comp with $\overline{k}$

167.2 < $\overline{k}$ dis.

10 47.0 237.7 — 64.5^{+} Ledgered.

345.2 — 59.5^{+}

47.7 — 124.0^{+} $+1.11^{+}$

($+1.14^{+}$)

169.7

228.8 — 59.1^{+}

348.3 — 61.3^{+}

49.6 — 120.4^{+} $+1.18^{+}$

Above

71.3

147.2 — 75.9^{+}

253.3 — 71.3^{+}

324.6 — 147.2^{+} $+0.63^{+}$

10 55.0 74.2 — ($+0.67^{+}$)

10 51.0 145.1 — 70.9^{+}

5 +.6 251.4 — 72.1^{+}

15 51.6^{+} g.m.t. 329.5 — 143.0 $+0.71^{+}$

mean $= +0.90^{+}$

Sept. 9. 99.
~~D 1 20~~ 333

~~Blot~~ T. New Phot. Var(42° 3335) W.C.D.

		19	20	+43.0
		22	40	
	above	3	20	
	177.6 Lvardis			Ledgered.
11 17 30	220.7		43.1	
	352.9		49.1	
	42.0		92.2	−1.56
	1745			
				(−1.56)
19 10	222.4		47.9	
	357.5		43.7	
	41.2		91.6	−1.57
	Below			
	55.0			
22 00	133.4		45.4	
	264.0		49.1	
	313.1		94.5	−1.50
				(−1.52)
	57.0			
23 35	132.0		45.0	
52 15	265.5		47.5	
11 20 34	313.0		92.5	−1.55
5 +35				
16 21 12	Gr. M. Time			
				mean = −1.54

Posted to here

Sept 9, 1899

Below. Same. Again.

55.8

11 25 40 133.5 48.0^{+}

265.1 47.9^{+}

313.0 95.9^{+} -1.76^{+}

(-1.78^{+})

55.8

27 00 133.6 47.8^{+}

266.0 46.0^{+}

312.0 93.8^{+} $- 1.81$

Above

357.4

28 55 40.5 43.1^{+}

177.8 44.9^{+}

222.7 88.0^{+} $- 1.97^{+}$

(-1.94^{+})

355.8

31 00 42.2 46.4^{+}

.11 2 35 176.6 43.7^{+}

11 28 09+ 220.3 90.1^{+} $- 1.91^{+}$

5 +38

16 28 47 g.m.t. Watch 11 40 22

Bond 394 Mean = -1.86^{+}

11 41 00

Sept. 12, 1899. ~~Monday~~ Tuesday.

Saturn.

W. Obs.
-21.5
Campbell Rec.

17 10
19 10
2 00

Moon ~~very~~ near, Iapetus to faint to measure.
8 00 Clouds
Moon too near and clouds, stop meas. of
comp stars for Iapetus.

Phot. R. M. P. H H' W. Obs.

27 31 +62.8
20 00
7 31
4 29

See next page for measurements.

Sept. 12, 1899.

M-P ##1.

Right & Below

Ledgered.

283.6 < var dis.

8 27.0 337.0 53.4

108.2 47.0

155.2 100.4 -1.65+

284.8 -1.62

335.3 50.5

103.4 52.6

156.0 103.1 -1.55+

Left & Above.

192.2

247.2. 55.0

11.0 54.3

65.3 109.3 -1.43

193.3 -1.46

8 35.0 245.2 51.9

8. 31.0 11.4 55.1

66.5 107.0 -1.49

13 31.0 G.M.T.

Mean = -1.54+

Sept. 12 1899.

Same Again.

192.4
8 37.4 246.8 544
11.1 542
65.3 108.6 – 1.45

–1.46

192.0
246.0 540
11.8 541
65.9 108.1 – 1.46

Right & Below
101.8
157.3 555
281.3 54.4
335.7 109.9 – 1.42

100.5 –1.40
8 44.6 157.6 57.1
8 41.0 282.1 54.2
13 4108 ~ m.T. 336.3 111.3 – 1.39

mean = –1.43

Sept. 12 1899.

Phot. T. τ Andromeda. W Obs.

24 17 +26.4
20 35
3 42
8 18

abandoned for the present.

(Phot. P.) M 13. (Hercules) (W Obs.)

16 37 +36.7
20 37
4 00

See next page for meas. of stars.

Sept. 12 1899.

right Star $\underline{\bar{l}}$ comp. with $\underline{\bar{k}}$
~~Left~~ above

74.9
9 15.5 141.6
253.8
322.0

72.0
143.7
257.0
323.3

Left below.
34.
Clouds
Stopped by Clouds.

Phot. R. WOb.

$\underline{o}$ Ceti

26	12	– 3.6
21	16	
4	56	
7	04	

Sept. 12 '99.

o Ceti.

~~Left~~

33.1 < var dis.

9 47.0 44.2

Clouds

. Stopped by clouds.

10 30 All cloudy; no chance for anything further

Sept. 13, 1899. Wednesday

Saturn

17 10   -2 15
19 10
2 00

Iap. fol. Sat. 20 secs. ☉ is about 1' N of it.
Phot. 7. Iapetus   W Obs.
Right & Above   Same comp star as last time.
275.0 ∠ comp star dis.   Ledgered
7 41.5 300.9   25.9+   Plotted
95.4   28.9+
124.3   54.8+   + 3.07

(+3.02)

273.7
304.3   30.6
96.6   26.4+
123.0   57.0   + 2.98
Left & Below
188.0
212.8   24.8
4.3   27.2
31.5   52.0   + 3.18

(+3.30)

187.3
7 54.0 211.1   23.8+
7 47.8 7.9   22.8
5 -8 30.7   46.6   + 3.43
12 47.0 Gr. M. Time.   mean = + 3.16

Sept. 13 99.

Titan.

	Left or Below			Ledgered Plotted
	155.8 ∠ comp. stars dis			
~~Z~~ 59.0	244.7	88.9″		
	334.0	91.9″		
	65.9	180.8″	−0.02″	
		179.2″		
	151.3			
	246.9	95.6″		(−0.06)
	334.8	90.2″		
	63.0	185.8″		
	Right & Above	174.2	−0.11″	
	Clouds,			
	~~60~~. 63.7			
	156.3	92.6″		
	241.0	91.8″		
	332.8	184.4″		
	61.6	175.6″	−0.08″	
8 06.0	154.2	92.6″		
8 02.5	244.6	89.2″		(−0.06)
5 −.8	333.8	181.8″		
13 1.7 Gr M Time,		178.2″	−0.03″	

mean = (−0.06)

Sept. 13, '99.

Titan again.

Right & Above
63.1
8 08.0 159.1 96.0
243.5 93.1
336.6 189.1
170.9 −0.17"

63.4
155.0 91.6 (−0.12)
243.1 92.0
335.1 183.6
176.4 −0.07

Left & Below.

333.2
65.3 92.1
155.2 89.8
245.0 181.9
175.1 −0.03

333.8
8 16.0 64.2 90.4 (−0.06)
8 12.0 153.6 93.9
8 −8 247.5 184.3
13 11.25 Gr. M. Time 175.7 −0.08
mean = (−0.09)

Same Comp. Star as on last time
Only 1 group could be taken on Iapetus. Obs. extremely diff. in Iapetus.
Sat. very faint. Moon rather bright and very low.
Sat. approaching East. elong.
Obs. not over ½ weight.

Sept. 13, 1899

Phot. T. M 13 (Hercules.) Neb.

16 37 +36.7
20 17
3 40 Ledgered.

~~Right~~ above

76.0 <B dis

8 36.4 142.4 l̄ comp. with R̄

254.3 67.4+

322.4 68.1+ +0.87
135.5+

74.3 (+0.82)

145.7 71.4+

253.4 69.2+

322.6 140.6+ +0.76

Below.

346.3

52.2 65.9+

166.9 64.4+

231.3 130.3+ +0.97

346.9 (+0.97+)

8 46.0 52.3 65.4+

52.4 167.0 64.8+

8 41.2 231.8 130.2+ +0.97+

5 -.8

13 40.4 8a M. Time.

mean = (0.90+)

Sept. 13, 1899.

Star g with k

~~Left~~ < k dis.

	159.4		
8 57.4	239.1	79.7	
	337.6	81.7	
	59.3	161.4	+ 0.35
	160.0		(+ 0.39)
	237.5	77.5	
	339.0	80.1	
	59.1	157.6	+ 0.43
	Right ~~at~~		
	68.6		
	150.8	82.2	
	249.2	80.0	
	329.2	162.2	+ 0.34
	clouds.		
	67.1		(+ 0.30)
9 02.0	150.1	83.0	
8 58.2	248.0	82.8	
	330.8	165.8	+ 0.27

mean = + 0.34

Reject above group: clouds very troublesome: will take again.

Sept 13, 1899.
Star g with k ~~again~~..

Right.
67.2
9 9.0 148.0 80.8 Ledgered.
248.4 80.3
328.7 161.1 +0.36

+0.34

69.1
148.9 79.8
246.5 83.5
330.0 163.3 +0.32

Left.
339.6
58.6 79.0
158.3 79.0
237.3 158.0 +0.42

Clouds.
340.3 (+0.42)
9 21.4 58.4 78.1
159.8 79.4
30.4
9 15.2 ~~214~~ 157.5 +0.43
5 -.8 239.2

14 14.4 Gr. M. Time. mean = (+0.38)

Sept. 13, 1899.

Phot. T. x Cygni Wells.

21 20 +32.6
19 45
1 35

clouds thick. Ledgered. ~~Plotted~~

19 45 19 51 34.8
Left above 21 38 21 41
clouds 1 53 1 50

163.0 < comp. star dis.

10 26.0 237.5 74.5
338.5 75.5
57.0 153.0 +0.52

161.6 +0.50
238.2 76.6
338.8 75.2
57.0 154.8 +0.48

Right & Below
66.4
147.4 81.0
252.5 80.1
332.6 161.1 +0.36

71.6 (+0.42)
10 30.6 148.3 76.7
10 28.3 251.0 78.0
5 - 8 329.0 154.7 +0.48
15 27.5 E. M. Time. mean = (+0.46)

Sept 13 1899.

Same Again

Rights Below

69.2
10 32.4 149.0 79.8″
252.8 74.5″
327.3 154.3″ + 0.49″

70.8 (+0.48)
147.8 77.0″
250.6 78.1″
328.7 155.1″ + 0.48″

Left Above.

337.7
59.6 81.9″
163.4 73.7″
237.1 155.6″ + 0.47

340.1 (+ 0.49)
10 38.0 56.5 76.4″
10 35.2″ 160.8 77.0″
5 -8 237.8 153.4″ + 0.51
15 34.4″ Gr. M. Time.

mean = (+0.48)″

~~Sept~~ 13' 5 99.
New Phot. Var.
Phot. T. Dm 42 3335 N W Obs.

19 20 + 43.0
22 29
3 09

Left Above
176 7/ var dis
Ledgered.

10 47 50 220.5 44.1
356.4 46.0
42.4 90.1 − 1.91

176.5 (−1.91)
49 20 221.5 45.3
355.5 45.0
40.5 90.3 − 1.91

Right Below

53.9
51 10 132.5 45.9
264.7 45.4
312.1 97.3 – 1.72
Clouds.

56.2 −1.76
57 10 132.3 461
205 30 264.2 45.6
10 51 07.5 313.5 94.7 − 179
5 −49.5
10 50 15.0 Gr.-M. Time. mean = (−1.54)

Sept. 13, 1899

Same Again.

Right & Below

849

10 59 00 131.6 — 46.7+
265.7 — 45.6+
311.3 — 92.3+ −1.85+

(−1.80+)

55.8

11 00 35 134.3 — 48.5+
264.7 — 47.9+
312.6 — 96.4 −1.75+

~~Left & Above.~~
Clouds.
352 8 Clouds.

11 09 25 041.6 — 47.8+
175.8 — 42.6+
221.4 — 90.4+ −1.90+

(−1.89)

356.7

11 01 10 41.4 — 44.7+
260 00 176.4 — 46.6+
11 05 00 223.0 — 91.3+ −1.88
5 −50

Mean = −1.84

16 04 10.8 s.m.t. Arnold & Dent — Bond 394

11 20 49.5 — 11 20 00

Sept. ~~13~~ 14, 1899 Thursday

Phot. T. Saturn (Nr. (l 62))

17 10 −21.5
19 20 Campbell Rec.
~~[illegible]~~ 2 10

7 50 Moon too bright region too low to take Iapetus.
7 (4539) comp. with (6.8)
Above ~~87 Comp. with the (6.8)~~
179.0 (6.8) dis.
807.4 220.4 < ~~8~~7d 41.4 Ledgered.
35.78 40.0
37.8 81.4 +2.15

179.3 +2.14
220.5 41.2
358.1 41.2
39.3 82.4 +2.12

Below
85.5
132.1 46.6
268.5 41.9
310.4 88.5 +1.95

85.9
815.6 131.7 45.8 +1.92
811.5 +268.0 44.8
5 −9 312.8 90.6 +1.90
18 10.6 Sr. M. Time Mean +2.03

Sept. 14, 1899
Star 4539 comp with star (6.8)
Same Again.

Below
86.4
8 17.6 133.6 47.2
265.9 45.3
311.2 92.5 ~~+~~ 1.55
(+1.53)

86.6
135.1 48.5
266.2 45.4
311.6 93.9 +1.81

Above
359.9
37.2 37.3
177.1 42.6
219.7 79.9 +2.20
(+2.15)

357.4
8 22.6 39.1 41.7
40.2 178.5 41.5 +2.10
8 20.1 220.0 83.2 Mean = +1.99
8 .9
Cap of 9.5 inches used on previous
13 19.2 hs two groups.
L.M.T.

Sept. 14, 1899.
(4540)
Star ^ comp with (68)
Full aperture used henceforth.

Right

178.2 (68 dis).

Ledgered.

827.0 219.2 41.0″
357.1 41.5″
38.6 82.5″ +2.12″

178.5 (+2.13)
220.3 41.8″
358.8 40.2″
39.0 82.0″ +2.14″

Left
87.5
131.2 43.7″
268.4 42.7″
~~[illegible]~~ 86.4″ +2.01″
311.1

(+1.98)″

88.3
8 34.8 131.6 43.3″
61.8 266.0 45.3″ +1.95″
8 30.9 311.3 88.6″
5 -9 Mean = 2.06″
13 30.0 Gr. M. Time.

Sept. 14 1899.

(4540) comp with (6.8)

Left.
875
8 37.0 131.5 44.0'
268.6 43.0'
311.6 87.0' +2.06'

(+1.99')

88.1
131.9 43.8'
267.8 43.8'
311.6 87.6' +1.98'

Right.
356.9
40.1 43.2'
178.4 43.1'
221.5 86.3' +2.01'

(+2.06')

357.2
8 43.2 38.9 41.7'
178.9 41.2'
80.2' 220.1 82.9' +2.11'

8 40.1
5 -9
13 39.2' Gr.M.T.

mean = +2.03'

Sept. 14, 1899.

Phot. T. T. Andromeda (Mr Obs.)

24 17 +264
20 50
3 27
8 33

Left & above
267.9 < comp dis =(7.5) **Ledgered.**

9 17.0 316.3 54.4
84.3 57.7
136.0 106.1 +1.57

262.0 (+ 1.50)
314.5 52.5
82.6 54.0
136.6 106.5 +1.50

Right & below
174.3
225.1 50.8
354.0 57.9
45.9 108.7 +1.59

175.2 (+1.64)
9 21.8 225.3 50.1
3 8.8 354.0 48.8
9 19.4 42.8 98.9 + 1.68
5 - 9. mean = +1.57
14 18.3 G. M. T.

Sept 14, 1899.

Same Again :

Right & Below

173.9
9 23.4 225.0 51.1+
353.9 49.4+
43.3 100.5+ +1.64+

174.5 (+1.66+)
223.9 49.4+
354.1 49.7+
43.8 99.1+ +1.68+

Left & Above

83.9
137.9 54.0+
262.9 52.5+
315.4 106.5+ +1.50+

81.9 (+1.52+)
9 29.0 137.3 55.4+
12.4+ 264.8 50.0+
9 26.2 314.8 105.4+ +1.53+
5 -9
14 25.3+ Gr. M. Time

Mean = +1.59+

Sept. 14, 1899.

Phot. R. o Ceti. M Obs.

26 12 -3.6
21 27
4 45
7 15

Region too low. star ~~too~~ faint in moonlight to measure at present.

Nova Aurigae.
29 23 +32.0
21 40
7 48
4 17

Too low to measure.

Phot. T. X Cygni, (W. Obs)
19 45 +32.6
21 55
2 10

~~See~~

See next page for meas of X. Cygni.

Sept. 14, 1899

χ Cygni

Above & Left   Ledgered, Plotted.

164.7 < comp-star dis.

10 19.0   235.3   70.6

342.6   73.9

56.5   144.5   +0.68

(+0.62)

160.6

237.1   76.5

341.2   74.8

56.0   151.3   +0.55

Right & Below

72.0

146.6   74.6

250.6   78.9

329.5   153.5   +0.51

(+0.53)

70.4

10 24.8   147.4   77.0

43.8   252.9   74.2

10 21.9   327.1   151.2   +0.55

5 -9

15 21.0 Gr. M.T.

mean = (+0.58)

Sept. 14, 1899

Same Again.

Right & Below

73.0
10 26.8 145.5 72.5
248.4 79.9
328.3 152.4 +0.53

(+0.57)

69.2
147.3 78.1
254.8 70.3
325.1 148.4 +0.61

Left & Above

343.9
57.4 73.5
161.2 76.2
237.4 149.7 + 0.58

(+0.59)

342.2
1032.4 58.3 76.1
59.2 163.9 72.6
1029.6 236.5 148.7 + 0.60
5 -9
15 28.7 Gr M.T. Mean = (+0.58)

Sept. 14, 1899.

New Phot. Var (3338)
Phot T. WOk.

19 20 +43.0
22 27
3 07

Left above — Ledgered

357.4 < var dis.

10 42 25 37.6 — 40.2+
188.4 — 36.7+
217.1 — 76.9+ — -2.29+

(-2.30+)

359.9
39.3 — 39.4+
188.1 — 37.1+
~~218.2~~ — 76.5+ — -2.30+
218.2

Right & Below.

268.3
309.2 — 40.9+
89.0 — 40.6+
129.6 — 81.5+ — -2.15+

(-2.16+)

268.4
10 48 35 309.6 — 41.2+
11 00+ 89.4 — 39.8+
10 45 30 129.2 — 81.0+ — -2.17+
5 -54
15 44 36+ Gr. M. Time. — Mean = -2.23+

Sept. 14, 1899.

Same again.

Right & below

270.0
10 50 00 308.5 38.5
89.0 39.7
128.7 78.2 − 2.25

(−2.21)

268.4
51 25 310.1 41.7
89.3 39.2
128.5 80.9 − 2.17

Left & above.

180.2
54 25 219.1 38.9
~~38~~ . 38.1
0.3 77.0 − 2.25
38.4

179.3 (−2.27)
56 15 218.0 38.7
12 05 0.3 39.0
10 53 01 ~~39.3~~ 77.7 − 2.26
5 −.54 39.3
15 52 07 Gr M. Time. Mean = (−2.24)

Sept. 14, 1899

Phot. R.   o Ceti   W O K

26 1.2 −3.6
22 47
3 25

Left & Below.   5 35

205.2 ∠ var. dis.   Ledgered, Plotted.
11 11.0   217.6   9.4
275.3   10.5
355.1   20.2 −5.27

(−5.30)

207.6
217.5   10.2
25.1   9.5
37.6   19.7 −5.32

Right & above
117.5
127.5   10.0
296.4   11.7
305.1   21.7 −5.11

(−5.16)

117.2
11 15.6   125.2   11.0
11 14.5   297.5   10.5
.5 −9   307.6   21.5 −5.10
16 13.9 Gr. M. Time.

mean = (−5.20)

Sept. 14, 1899.

Same Again.

Right & Above

117.6

11 20.8 127.8 — 9.9″

296.9 — 11.5″

308.4 — 21.4″ − 5.14″

116.6 — (−5.10″)

127.~~6~~ — 11.1″

296.9 — 11.0″

307.9 — 22.1″ − 5.07″

Left & Below

27.9

37.8 — 9.9″

206.7 — 10.8″

217.5 — 20.7″ − 5.22″

26.6 — (−5.20″)

11 26.6 ~~37~~. 38.1 — 11.5″

7.4. 207.6 — 9.4″

11 23.7 ~~216~~ — 20.9″ − 5.19″

5 − 9 217.0

1622.8 Gr. M. Time. — mean = (−5.10″)

Arnold & Dent — Bond 394

11 35 53.5 — 11 35 00

Sept. 15, 1899 (Friday)

Phot. T. (Saturn) W 6h.

17 10 – 2 15
19 15
2 5

Right & above Iapetus Phot. T. W 6h.
974 < comp. star dis. = 21° 45 40/(8.5)
7 35.2 120.8
275.2
300.7

96.0
122.1
274.4
301.2
Left & Below.

Reject above, cannot complete.
Too faint & low.

Sept. 15, 1899.

21° 4540 (8.5) comp. with 6.8

Left

854 Full aperture used.

7 46.8 132.6 47.2 Ledgered

266.6 44.2

310.8 91.4 +1.98

(+1.90)

86.8

131.0 44.2

266.0 45.8

311.8 90.0 +1.91

Right

354.7

41.8 47.1

179.3 40.9 +1.97

220.2 88.0

(+2.06)

358.2

7 58.6 38.2 40.0

100.4 178.5 41.7

7 50.2 220.2 81.7 +2.14

5 −1.0

7 49.2 G. M. Time mean = +1.98

12

Sept. 15, 1899

Same Again.

Right.

337.9 ∠ 68 dis.

7 55.6 39.3 41.4+

178.0 42.3+

220.3 83.7+ +2.09+

+(2.07)

357.0

39.1 42.1+

178.9 42.9+

221.8 85.0+ +2.05+

Left.

265.9

310.8 44.9+

87.1 46.7+

133.8 91.6+ + 1.87

(+ 1.87)

264.9

8 02.6 310.9 46.0+

11.8.2 85.9 45.7+

7 59.1+ 131.6 91.7+ +1.87

5 −1.0

12 58.1+ G. M.T.

mean = + 1.97

Sept. 15, 1899.

21° 4539 comp with (6.8)

Full aperture used.

Above

178.5 < 6.8 dia.   Ledgered.

8 07.0   221.0   42.5″

355.9   43.3″

39.2   85.8″   +2.03″

+2.07″

177.3

220.4   43.1″

358.5   39.8″

38.3   82.9″   +2.11″

Below

85.3

131.9   46.6″

267.7   41.8″

309.5   88.4″   +1.96″

+1.94″

86.9

8 11.0   131.5   44.6″

13 09.0   266.6   45.1″

-1.0   311.7   89.7″   +1.92″

13 8.0 Gr. M. Time.

Mean = +2.00″

Sept. 15, 1899.

Same Again.

Below

85.4

8 13.6 131.8 46.4′

267.8 43.4′

311.2 89.8′ +1.92′

87.5 +1.94′

130.4 42.9′

267.0 45.3′

312.3 88.2′ +1.96′

Above.

357.4

37.7 40.3′

178.1 42.5′

220.6 82.8′ +2.11′

356.7 +2.08′

8 21.0 39.2 42.5′

8 17.3′ 178.3 42.1′

5 -1.0 220.4 84.6′ +2.06′

13 16.3′ Ast. M. Time.

Mean = +2.01′

Sept. 15, 1899.

New Phot. Var. (333 F)

19 20 +43.0
20 40
1 20

δ Ursæ Minoris.

15 33 +79.0
20 45
5 15

15 36 +77.8
21 00
5 24

Phot No — w 66a

see next page for meas.

Sept. 15, 1899.

δ Ursa Minoris.

Right

273.7 ∠ var. dis. Ledgered.

9 13.6 330.1 56.4

98.3 52.6

150.9 109.0 - 1.44

277.3 (-1.50)

327.8 50.5

95.3 53.9

149.2 104.4 - 1.55

Left.

188.6

238.7 53.1

6.3 50.3

56.6 103.4 - 1.57

187.3 (-1.56)

9 19.4 238.1 50.8

4.3 55.5

9 16.5 59.8 106.3 - 1.54

5 -1.0

14 15.5 Gr. M. Time, mean = -1.53

Sept. 15, 1899.

Same again.

Left

185.5

9 21.4 240.3 54.8

3.6 54.1

57.7 108.9 − 1.44

187.5 (−1.51)

237.0 49.5

6.1 53.7

59.8 103.2 −1.58

Right.

98.2

149.6 51.4

275.9 52.6

328.5 104.0 −1.56

96.6 (−1.52)

~~9 27.6~~ 148.3 51.7

9 24.5 275.3 56.2

5 −1.0 331.5 107.9 −1.47

14 23.5 Gr. M. Time

6

mean = −1.52

Sept. 15, 1899

New Phot. Var (333 8)

Phot. 7. W 6k.

19 20 +436

21 26

2 6

Left & Above

Ledgered

174.8 <var dis.

9 41 30 222.6 47.8

354.2 49.3

43.5 97.1 = 1.73

175.4 -1.70

43 30 223.2 47.8

353.6 51.1

44.7 98.9 - 1.68

Right & Below

83.5

46 20 136.2 52.7

265.0 49.6

314.6 102.3 - 1.60

83.5 -1.56

49 00 133.9 50.4

20 20 ~~26~~ , 2598 55.5

9 45 05 315.3 105.9 - 1.51

5 -57

14 44 08 Gr. M. Time. Mean = -1.63

Sept. 15, 1899

Same again.

Right & Below

81.8
8
9 53 15 136.1 54.3 Ledgered.
263.8 50.5
314.3 104.8 — 1.54

85.0 — 1.54
53 05 134.5 49.5
261.3 54.7
316.0 104.2 — 1.55

Left & above
352.8
10 01 10 451 52.3
1748 48.7
2231.5 101.0 — 1.63

364.5 — 1.63
03 10 427 49.2
232 40 1733 51.8
9 58 10 2251 101.0 — 1.63
5 — 57
14 57 13 Gr. M. Time. Mean = — 1.58

Sept. 15, 1899.

Phot. T. ψ Cygni. W Obs

19 45 . +32 6
22 05
2 20

Left & Above. Ledgered ~~Plotted~~

10 20.5 164.0 { comp. star dis.
232.2 68.2
341.2 73.8
55.0 142.0 +0.73

163.2 (+0.72)
235.4 72.2
343.0 71.7
54.7 143.9 +0.70

Right & Below,
71.0
147.4 76.4
253.8 71.5
325.3 147.9 +0.62

71.9 (+0.60)
10 27.2 144.8 72.9
250.3 76.1
10 23.8 326.4 149.0 +0.59
5 −1.0
15 22.8 G. M. Time. mean = +0.66

Sept. 15. 1899.

Same again

	Right & Below.		
	71.7		
10 30.2	145.2	73.5	
	250.7	75.3	
	326.0	148.8	+ 0.60
			(+ 0.59)
	72.0		
	145.7	73.7	
	250.2	75.9	
	326.1	149.6	+ 0.58
	Left & Above		
	341.7		
	53.9	72.2	
	162.4	71.5	
	233.9	143.7	+ 0.70
	340.6		(+0.68)
10 36.6	55.5	74.9	
10 33.4	164.9	70.3	
5 -1.0	~~236~~	145.2	+ 0.67
10 32.4 g. M. Time	235.2		

mean = + 0.64

Sept 15, 1899.

Phot. ~~W~~ R. O ati W 6h.

26 12 -3.6
22 36
3 36

~~Left & Below~~ 8 24 Ledgered. ~~Plotted~~

33.6 ∠ var dis.
~~10 52.6~~ ~~42.1~~ ~~E~~ Reject
~~214.6~~ Phot changed from W to R.

26.0
10 59.4 37.6 11.6
207.0 9.8
215.8 21.4 - 5.14

(-5.19)

27.0
36.7 9.7
205.6 10.8
216.4 20.5 - 5.24

Right & Above.

295.3
306.5 11.2
116.7 9.7
126.4 20.9 - 5.19

296.4 (-5.20)
11 06.0 306.2 9.8
11 2.7 116.1 11.0
5 1.0 127.4 20.8 - 5.20
16 1.7 Gr. M. Time. mean = (-5.20)

Sept. 15, 1899.

Same Again

Right & above

296.0
11 07.8 306.7 10.7+
116.4 10.5+
126.9 21.2+ = 5.16

296.6 −5.20+
306.0 9.4'
116.2 11.2'
127.4. 20.6+ = 5.23'

Left & Below

206.1
216.5 10.4'
26.7 10.3'
37.0 20.7' = 5.22'

206.6 −5.20+
11 14.6 215.3 8.7+
22.4' 25.8 10.6+
11 11.2+ 36.4 19.3+ = 5.37
5 −1.0
16 10.2+ Dr M. Time.

mean = −5.25+

Sept. 13, 1899.

Phot. T. New. Phot. Var. (3338) in 66.

19. 20 +43.0
23 15
3 55
8 05

Left & Above Legend.

179.4
11 27 20 219.8 40.4+
357.5 43.1+
40.6 83.5+ -2.09+

178.7 -2.12+
11 29 10 219.0 40.3+
357.2 41.3+
38.5 81.6+ -2.15+

Right & Below.

87.1
11 31 30 131.0 43.9+
268.7 40.5+
309.2 84.4+ -2.07+

89.0 -2.07+
11 33 45 130.4 41.5+
121 45 267.4 42.8+
11 30 26 310.2 84.3+ -2.07
5 - 57
16 29+ 29+ Gr. M. Time. mean = -2.10+

Sept. 15, 1899.

Same again.

Right & Below

86.6

11 36 00 131.0 44.4

268.3 42.1 Ledgered.

310.4 86.5 -201

88.2 -2.03

11 38 20 130.2 42.6

267.5 43.1

310.6 85.1 -205

Left & above:

359.0

11 41 20 37.9 38.9

178.0 41.9

219.9 80.8 -2.17

(-2.15)

357.2

11 43 50 39.5 42.3

15 9 30 179.6 39.9

11 39 52 219.5 82.2 -2.13

5 -57

16 38 55 Gr. M. Time.

-2.09

Arnold & Dent Bond 394

11 55 57.2 11 55 00

Sept. 16, 1899 (Saturday)

Plot T. U Coronae (NWOb.)

15 10 +33.9   15 8 +32.0
19 23   19 15
4 13   4 07

I

~~Plotted.~~
Ledgered.

Left & above

355.0 < var. dia.
7 32 40 42.0   47.0
176.8   45.2
222.0   92.0 −1.86

355.6   −1.86
7 34 00 42.4   46.8
176.6   45.4
222.0   92.2 −1.86

Right & Below

4914.5241 ✓
4901.2869
+3.2372
3.4523
~~−0.2151~~

267.4
7 37 00 311.4   44.0
85.5   46.5
132.0   90.5 −1.90

265.4   −1.88
7 38 50 311.3   45.9
22 30   86.6   45.6
7 35 38   132.2   91.5 −1.87
5 08
12 34 40 Gr. M. Time.

mean = −1.87

Sept. 16, 1899

R. o B. II

2677
7 42 00 309 8 42.1
844 48.8
132.4 90.1 −1.91

2659 −1.89
74400 3129 47.0
875 44.9
132.0 91.8 −1.87

L. o A.
177.6
7 46 40 2206 43.0
3552 47.2
42.4 90.2 −1.91

177.6 −1.93
7 48 20 02 22.1 44.5
21 00 357.2 44.3
7 45 15 41.5 88.8 −1.95
5 −58

12 44 17 Gr. M. Trns.

4914.5308
4911.2869
+3.2439
3.4523
−0.2084

Mean: −1.91

Sept. 16, 1899.

L. & A. III

178.9
7 53 20 221.8 42.9
355.5 45.7
41.2 88.6 −1.98

176.3 −1.92
55 25 222.2 45.9
355.3 45.3
40.6 91.2 −1.88

R. & B.
86.0
57 55 133.2 47.2
266.0 45.2
311.2 92.4 −1.85

841 −1.82
59 20 132.7 48.6
26 00 265.9 45.6
7 56 30 311.5 94.2 −1.80
−52
5

12 55 32 G.M. Time. Mean = −1.87

4914.5386
4911.2869
+3.2517
3.4523
−0.2006

Sept. 16, 1899.

R. o B.

IV

85.6

8 48 00 133.9 48.3

265.8 46.2

312.0 94.5 − 1.80

(−1.84)

85.5

10 20 137.9 46.4

265.7 45.3

311.0 91.7 − 1.87

L + A,

355.1

12 40 41.6 46.5

177.2 45.0

222.2 91.5 − 1.87

(−1.88)

355.3

14 15 42.4 47.1

45 15 177.6 43.9

8 11 19 221.5 91.0 − 1.89

5 −58

13 10 21 Gr. M. Time mean = (−1.86)

4914.5489

4911.2869

+3.2620

3.4523

−0.1903

Sept 16 1899.

V.

L.P.A.

356.2
8 19 30 41.3 45.1+
176.7 45.3+
222.0 90.4+ − 1.90

(−1.90)

355.3
20 45 41.9 46.6+
177.2 43.7+
220.9 90.3+ − 1.91

R.Y.B.

265.8
23 10 312.0 46.2+
85.1 46.4+
131.5 92.6+ − 1.84

(−1.83)

265.8
24 20 312.8 47.0+
8 7 45 85.6 46.6+
8 21 56+ 132.2 93.6+ − 1.82
5 −58

13 20 58+ Gr. M. Time.

mean = −1.86+

4914.5563+
4911.2869
3.2694+
3.4523
−0.1829+

Sept. 16, 1899.

~~VI~~

R o B.

	266.6		
8 28 15	311.1	44.5	
	85.6	46.4	
	132.0	90.9	−1.89
			(−1.83)
	265.0		
29 45	312.9	47.9	
	85.2	47.4	
	132.6	95.3	−1.77

L o a.

	177.4		
32 10	222.0	44.6	
	355.3	47.0	
	42.3	91.6	−1.87
			(−1.86)
	176.3		
33 25	222.2	45.9	
123 35	356.1	46.2	
8 30 54	42.3	92.1	−1.86
5 −58			

13 29 56 G.M.Time.

mean = −1.84

4914.5624

4911.2869

+3.2755

3.4523

−0.1768

Sept. 16, 1899.

L. & a. VII

178.2
8 37 50 221.2 43.0
355.8 46.3
42.1 89.3 - 1.93

178.0 (-1.93)
39 35 221.8 43.8
356.6 45.6
42.2 89.4 - 1.93

R. & B.

85.0
42 15 134.0 49.0
265.0 47.7
312.7 96.7 - 1.74

85.4 (-1.76)
43 50 133.8 48.4
16 3[illegible]0 265.9 46.3
5 40 52 ~~312~~ 94.7 - 1.79
5 -55 312.2

13 39 54 Gr. M. Time.

4914.5693
4911.2869
+3.2824
3.4523
-0.1699

Mean -1.84

Sept. 16, 1899.

VIII

R & B.

86.0
9 00 40 134.3 48.3
265.2 46.7
311.9 95.0 −1.78

(−1.78)

85.1
02 20 131.9 46.8
264.8 48.3
313.1 95.1 −1.78

L. & A.

355.0
04 45 41.3 46.3
177.0 44.8
221.8 91.1 −1.88

(−1.90)

356.4
06 40 41.2 44.8
14 25 177.2 44.6
9 3 36 221.8 89.4 −1.93
5 −58
14 2 38 Gr. M. Time.
4914.5851
4911.2869
+3.2982
3.4523
−0.1541

mean = −(1.84)

Sept. 16 1899.

IX.

L. + a.

355.2
9 11 50 41.3 46.1+
177.2 44.9
2222.1 91.0 − 1.89

(−1.88)

355.6
13 25 42.7 47.1−
176.9 44.3
221.2 91.4 − 1.88+

R. & B.

266.0
15 25 312.2 46.2
85.3 46.3 1.85+
131.6 92.5 − ~~1.90~~

265.6 ~~1.86~~
17 00 311.9 46.3 (−1.83)
17 40 85.6 47.8
9 14 25+ 133.4 94.1 − 1.81
5 −58

14 13 27 Gr. M. Time. mean = (−1.86)

4914.5927 +3.3058
4911.2869 3.4523
+3.3058+ −0.1465+

Sept. 16, 1899.

X

R & B.

~~9~~ 176.2

9 43 30 222.6 464 +

355.7 463.

42.0 92.7 + - 184

(1.86)

176.8

45 10 221.1 44.7

355.7 46.7

42.4 91.4 - 185

L & A.

84.9

47 55 132.5 47.6

267.8 44.2

312.0 91.8 - 187

(1.91)

84.6

58 05 131.8 44.2

187 40 267.6 44.3

9 46 55 311.9 88.5 - 195

5 58

14 45 57 G.M. Time

mean = (-1.88)

4914.6[illegible]

4911.2869

+3.3284

3.4523

-0.1239

Region thoroughly identified as to star by transits and various ways.

Region identified by transits with six adjacent stars.

Sept. 16, 1899

XI

~~L.O.A.~~

R.O.B.

264.4

10 08 25 312.5 45.1 ⁺

583.4 50.4 ⁺

133.8 95.5 ⁺ −1.69

(−1.66 ⁺)

265.0

10 45 313.8 48.8 ⁺

582.2 52.2 ⁺

134.4 101.0 ′ −1.63 ⁺

~~R.O.B.~~

L.O.A.

176.8

10 13 40 221.8 45.0 ′

355.2 46.5 ⁺

41.7 91.5 ′ −1.87 ⁻

(−1.85 ⁺)

175.0

10 15 45 221.8 46.8 ⁺

48 35 355.6 46.4

10 12 09 ⁺ 42.0 93.2 ⁺ −1.83 ⁺

5 −58 ⁺

15 11 11 ⁺ G. M. time.

4914.6327 ⁺ Mean = (−1.76 ⁺)

4911.2569 Obs. rather difficult on last group.

+3.3458 ⁺ Region low. and moon bright.

3.4023

−0.1065 ⁺

Sept 16, 1899.

Phot. T. DM+42° 3338 (New Phot. Var.) (WOG)

	19 20		+ 43.0
	22 26		
	3 06		
	Left & Above		
	175.8		Ledgered.
10 39 15	223.7	47.9	
	353.7	49.9	
	43.6	97.8	−1.71
	175.3		−1.71
41 40	223.4	48.1	
	353.5	49.7	
	43.2	97.8	−1.71
	Right & Below		
	83.9		
45 20	134.2	50.3	
	~~263~~ 263.6	49.9	
	313.5	100.2	= 1.65
	82.6		−1.66
47 25	132.8	50.2	
17 3 40	264.0	49.6	
10 43 25	313.6	99.8	−1.66
5 − 58			
15 42 27	G.M.T.		mean = −1.68

Sept. 16, 1899.

Same Again.

R. v B.

83.9
10 51 00 133.6 49.7
263.4 51.3
314.7 101.0 -1.63

82.3 -1.62
53 20 134.6 52.3
264.1 49.5
313.6 101.8 -1.61

L v A.

354.5
55 20 42.8 48.3
174.8 48.9
223.7 97.2 -1.73

354.1 -1.72
57 20 44.2 50.1
17 00 175.0 48.1
10 54 15 223.1 98.2 -1.70
5 -58
15 53 17 Gr. M. Time.

mean = -1.67

Sept. 16, 1899.

Phot. R. o Ceti W. Obs.

26 12 -3.6 26 12 -3.6
23 12 22 04
3 66 4 08
9 00 7 52

R. & a.

293.2 ∠ var. dis.

11 16.6 304.8 11.6
114.8 9.8
124.6 21.4 -5.14 Ledgered ~~Plotted~~.
293.8
304.6 10.8 (-5.16)
114.1 10.3
124.4 21.1 -5.17

L. & B.

204.0
214.2 10.2
24.0 9.9
33.9 20.1 -5.28

204.4 (-5.28)
22.2 213.8 9.4
11 19.4 20.2 10.7
5 -1.0 33.9 20.1 -5.28

16 15.4 Gr. M. Time.

mean = -5.22

Sept. 16, 1899.

Same Again.

L. O. B.

203.4
11 24.4 213.7 10.3"
224.1 9.6"
233.7 19.9" − 5.30"

204.4 − 5.32"
213.5 9.1"
223.2 10.5"
233.7 19.6" − 5.33"

R. O. A.

113.1
124.5 11.4"
293.9 9.9"
303.8 21.3" − 5.18"

114.0 − 5.19"
11 29.6 123.9 9.9"
11 27.0 293.4 10.7"
5 −1.0 304.1 20.6" − 5.23"
16 26.0 G. M. Time

Mean = − 5.26"

Sept. 16, 1899.

Dm 42° 3338 (New Phot. Var)
W. Ob.

Phot T.

19 20 +42 30
23 35
4 10

Left & above

Ledgered.

354.5
11 43 45 42.0 47.5
173.4 50.7
224.1 98.2 1.70

(−1.72)

353.0
11 45 10 43.6
175.8 50.6
222.2 46.4
97.0 1.73
R. & B.
263.2
312.7
11 48 05 528 49.5
1348 52.0
101.5 −1.62
8
2629
11 51 00 314.4 51.5 (−1.61)
18$_2$8 00 833 50.7
11 47 00 ~~137.9~~ 102.2 160
5 −58 134.0
16 46 02 Gr. M. Time.

mean = −1.66

Sept 16, 1899.

Same again

R. & B.

264.1
11 52 50 313.2
83.9 49.1
134.8 50.9
100.0 −1.66

(−1.65)

263.8
54 40 313.7 49.9
83.6 50.7
134.3 100.6 −1.64

L. & A.

173.8
11 57 00 224.1 50.3
355.1 48.1
43.2 98.4 − 1.70

(−1.70)

175.1
11 59 55 223.5 48.4
24 25 353.6 49.3
11 56 06 42.9 97.7 − 1.71
5 −58
16 55 08 Gr M Time.

Mean = (−1.68)

Posted to here.

Sept. 16 1899.

Arnold & Dent			Bond 394		
12	11	58	12	11	00
12	12	58.2	12	12	00

Posted to here.

Sept. 18. 1899. (Tuesday).

New record book not at hand, so observations and reductions recorded in Accident Book, which see.