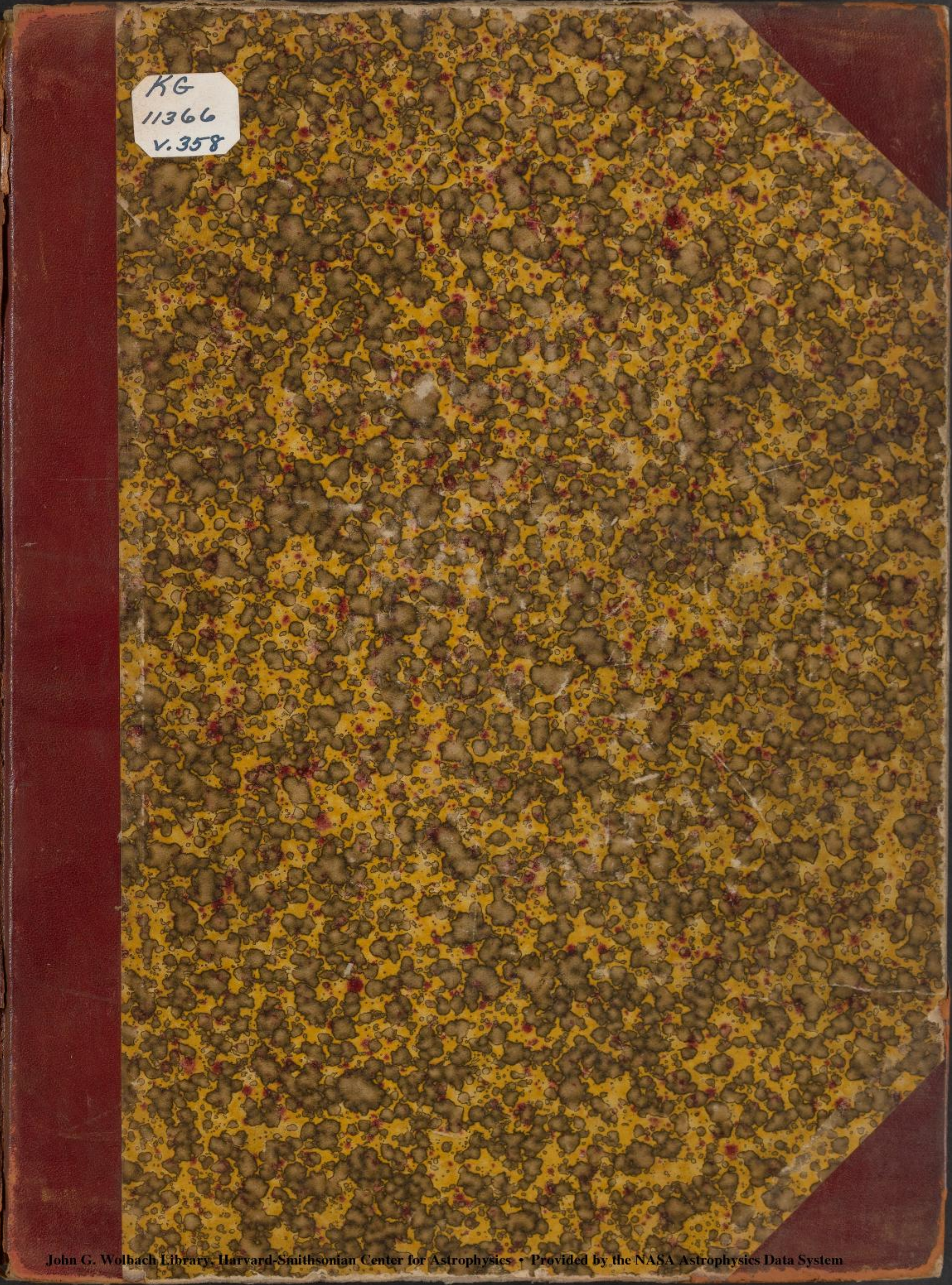


KG
11366
v.358

1899phae.proj.136Zw

May 24, 1899. (Wednesday)

Cap. 6 inches used. Phot. T. W. obs.

δ Librae.

14 56 -8.0 14 56 -8.0
12 03 11 56
2 53 3 00
9 07 9 00

I

Above These observations Plotted, Ledgered, & Copied.

240.0
7 51 00 287.7 47.7+
57.0 52.5× * -1.65×
109.5 100.2+

-1.68×

52 30 240.1
~~32~~ 290.0 49.9+
59.2 47.5+ -1.72×
106.7 97.4+
Twilight strong.

4799.5363×
4797.3869×✓
+2.1494×
+2.3273

-0.1779×

Below
152.6
55 10 196.2 43.6+
329.3 50.1+ -1.82+
19.4 93.7+

-1.72×

145.8
56 30 195.2 49.4+ -1.63+
15 10 332.6 51.6+
7 53 45
5 -1 -25 ~~13~~ 14.2 101.0+ Mean = -1.70+
12 52 20 Gr. M. Time

May 24, 1899.

II

Below

153.2
7 59 50 194.8 41.6⁺
330.0 47.5⁺ -1.94⁺
17.5 89.1⁺

-2.00⁺

151.2
8 01 05 196.8 45.6⁺
334.2 38.8⁺ -2.07⁺
13.0 84.4⁺

Above.

241.2
04 10 285.4 44.2⁺
58.2 51.3⁺ -1.77⁺
109.5 95.5⁺

-1.72⁺

238.3
05 35 290.5 52.2⁺
250 40⁺ 61.0 47.0⁺ -1.68⁺
8 02 40⁺ 108.0 99.2⁺
5 -1 -28
13 01 12⁺ Gr. M. Time.

mean = -1.86⁺

4799.54198⁺
4799.3869
+2.1549⁺
2.3273
-0.1724⁺

May 24, 1899.

III

Above

239.1

8 10 10 286.5 47.4$^{\times}$

57.0 53.0$^{\times}$ -1.65$^{\times}$

~~140.0~~ 110.0 100.4$^{\times}$

-1.63$^{\times}$

12 05 ~~239.3~~ 57.0

~~11 05~~ ~~222.0~~ 107.5 50.5$^{\times}$

238.5 51.5$^{\times}$ -1.61$^{\times}$

290.0 102.0$^{\times}$

Below

330.8

14 20 18.0 47.2$^{\times}$

150.2 45.8$^{\times}$ -1.83$^{\times}$

196.0 93.0$^{\times}$

-1.82$^{\times}$

332.5

15 50 16.0 44.5$^{\times}$

12 25 148.2 49.5$^{\times}$ -1.81$^{\times}$

8 13 06$^{\times}$ ~~178.0~~ 197.7 94.0$^{\times}$

5 -1 -28

Mean = -1.72$^{\times}$

13 11 38$^{\times}$ Gr. M. Time.

4799.5497$^{\times}$

4797.3869

+2.1628$^{\times}$

2.3273

-0.1645$^{\times}$

May 24, 1899.

IV.

Below

~~8~~

329.1

8 18 15 16.0 46.9+

150.3 46.0+ -1.84+

196.3 92.9+

-1.90+

333.5

19 30 14.6 41.1+

150.0 47.4+ -1.95+

~~199.2~~ 197.4 88.5+

Above

239.2

21 35 287.8 48.6+

60.0 47.0+ -1.77+

~~-1.82~~

107.0 95.6+

-1.70+

238.0

22 50 287.7 49.7+

82 10 57.9 51.1+ -1.64+

8 20 32 109.0 100.8+

5 -1 -28

mean = -1.80+

13 19 04 Gr M. Time.

4799.5550+ +2.3273

4797.3869 +2.1681

+2.1681+ +0.1592+

May 24, 1899

V.

Above

8 238.2

5 36 25 289.0 51.8^x

57.8 49.5^x -1.62^x

107.3 101.3^x

-1.58^x

289.7

35 00 287.7 48.0^x

55.2 56.3^x -1.53⁻⁺

1.5

11~~2.0~~ 104.3^x

Below

150.2

40 05 197.5 47.3^x

331.5 45.3^x -1.84^x

16.8 92.6^x

-1.82^x

150.7

41 30 196.3 45.6^x

156 00+ 329.8 48.3^x -1.81⁺

8 39 00+ 18.1 93.9^x

5 -1 28

mean = -1.70^x

13 37 32+ Gr. M. Time.

4799.5678*

4797.3869

+2.1809*

2.3273

-0.1464*

May 28, 1899.

VI

Below

148.2
8 46 15 198.7 50.5+
329.9 46.1+ -1.74+
16.0 96.6+

-1.75+

149.8
48 05 197.0 47.2+ -1.76+
329.4 48.7+
18.1 95.9+

Above

57.2
50 20 110.2 53.0+
238.0 49.4+ -1.60+
287.4 102.4+

-1.58+

~~60~~ 58.8
52 10 109.1 50.3+ -1.59+
196 50+ ~~230.2~~ 236.2 53.3+
8 49 12+ 289.5 103.6+
5 -1 -28
13 47 44+ Gr. M. Time.

Mean = -1.66+

4799.5748+
4797.3869
+2.1879+

2.3273
2.1879
-0.1394+

May 24, 1899

VII

Above

52.5
8 56 55 111.8 59.3x
239.0 50.6x -1.42x
289.6 109.9x

-1.43x

55.8
58 30 111.0 55.2x
237.4 52.0x -1.42x
289.4 107.2x

Below

328.2
9 01 35 17.8 49.6x
152.2 45.8x -1.77x
198.0 95.4x

-1.70x

328.2
0 2 25 17.6 49.4+
148.5 51.4+ -1.64+
239 25+ 199.9 100.8+

8 59 51+
5 1 28

13 58 23 Gr. M. Time.

4799.5822x 2.3273
4797.3869 2.1953+
+2.1953+ -0.1320+

Mean = -1.58+

May 24, 1899

VIII

Below

~~9~~ 327.4
9 07 10 187
149.6 51.3×
198.0 48.4× −1.66×
99.7×

−1.62×

~~329.0~~ 328.8
9 08 45 16.8 48.0×
148.3 50.3× −1.70×
198.6 98.3×

Above

239.2
9 11 10 289.4 50.2×
55.6 53.8× −1.56×
109.4 104.0×

−1.53×
−~~1.45~~

237.6
9 13 00 287.0 5~~7~~0× 0
40 05+ 54.6 56.4× −1.50+
9 10 01 ~~10~~ 111.0 106.4× −~~1.34~~
5 −5 −28+

14 8 33+ Gr M. Time.

−1.60×
Mean = ~~1.56~~

4799.5893+
4797.3869
+2.2024×
2.3273
−0.1249×

May 24, 1899

IX

Above

236.6
9 18 10 ~~259~~ 259.2 52.6x
56.0 53.0x −1.52
109.0 105.6x

−1.54x

238.5
9 20 16 257.1 48.6x
55.2 55.8x −1.55x
111.0 104.4x

Below

148.2
9 23 25 200.0 51.8x
328.5 50.1x −1.61x
18.6 101.9x

−1.60x

148.0
9 34 45 197.8 49.8x
86 30+ 327.1 52.9+ −1.59+
20.0 102.7+

9 21 38+
5 1 28
14 20 10+ Gr. [illegible] Time.

mean = 1.57

4799.5973+
4797.3869
+2.2104+
2.3273
−0.1169+

May 24, 1899

X

Below

146.2
9 34 40 200.5 54.3×
329.5 50.0× -1.55×
19.5 104.3×

-1.53

149.3
35 25 199.0 49.7×
326.2 56.5× -1.51×
22.7 106.2×

Above

3 53.6
37 35 112.0 58.4×
237.8 52.4× -1.40×
290.2 110.8×

~~3~~ 55.5 -1.35×
39 10 113.2 57.7×
26 50 234.3 57.3× 1.30×
9 36 42 291.6 115.0
5 1 28

14 35 14 Gr. M. Time. mean = -1.44×

4799.6077+ 2.3273
4797.3869 2.2208
+2.2208+ -0.1065×

May 24/1899.

XI.

Above

	55 2			
9 44 40	117.8	56.6*		
	234.6	56.9*	-1.34*	
	291.5	113.5*		
				-1.34*
	~~55~~.54.8			
47 10	111.2	56.4*		
	~~233~~.2348	56.9*	-1.34*	
	291.7	113.3*		

Below

	326.2			
49 50	22.0	55.8*		
	149.7	52.6*	1.45*	
	202.3	108.4*		
				-1.40*
	324.0			
51 20	20.4	56.4*		
	146.0	57.0*	-1.34*	
	203.0	113.4*		

19 3 00*
9 48 15*
5 -1 -28
14 46 47* Gr. M. Time

Mean = 1.37*

4799.6159*
4797.3869
2.2290*
2.3273
-.0983*

May 24, 1899

XII

Below

324.7
19 59 00 23.2 58.5
147.2 52.1 -1.40+
199.3 110.6

-1.41+

326.5
10 00 10 19.1 52.6
145.0 57.2 -1.42+
202.2 109.8

Above.

234.2
02 05 294.8 60.6
54.8 57.2 -1.24+
112.0 117.8

-1.25+

235.8
03 30 292.5 56.7
53.0 60.2 -1.26+
244 45+ 113.2 116.9
10 1 11+
5 -1 28

Mean = -1.33+

14 58 43+ Gr. M. Time

4799.6240 1+ 2.3273
4797.3869 2.2372
+2.2372+ -0.0901+

May 24, 1899.

XIII

Above

235.0
10 ,350 291.0 56.0×
~~52~~. 53.5 60.1× -128×
113.6 116.1×

-1.24×

234.3
1620 293.0 58.7+
53.0 61.0+ -1.20×
114.0 119.7+

Below

144.0
1805 203.9 59.9×
325.0 57.8× -1.24×
22.8 117.7×

-1.26×

20 45 145.0
69 00+ 202.2 57.2+
10 17 15+ 324.0 58.9+ -1.28×
5 -1 28+ 22.9 116.1+
15 15 47× Gr. M. Time

Mean = -1.25×

4799.6360×
4797.3869
+2.2491×
2.3273
-0.0782×

May 24, 1899

XIV

Below

+8 143.5
10 24 20 203.2 59.7+
326.0 56.5+ −1.28+
22.5 116.2+

−1.24+

143.0
26 25 203.0 60.0+
323.0 60.0+ −1.19+
23.0 120.0+

Above

51.0
31 10/05 115.5 64.5+
234.2 58.6+ −1.13+
292.8 123.1+

−1.13+

52.3
32 40 113.3 61.0+
114 35 232.0 61.9+ −1.13+
10 28 39 293.9 122.9+
5 1 28
15 27 11 Gr. M. Time.

Mean = −1.18+

4799.6439+
4797.3869
+2.2570+

2.32773
2.25700
−0.07073+

May 24, 1899.

XV.

Above
49.0
10 36 10 112.3 63.3×
233.3 60.7× −1.11×
294.0 124.0×

−1.12×

53.4
35 00 115.3 61.9×
233.0 61.1× −1.13×
294.1 123.0×

Below.
322.2
40 20 24.3 62.1×
143.5 60.1× −1.14×
203.6 122.2×

−1.11×

321.7
43 00 23.6 61.9×
15 7 30 142.0 63.1× −1.08×
39 22× 205.1 125.0×
51 25×
15 37 ~~44~~
54 Gr M. Time.

Mean = −1.12×

4799.6513×
4797.3569
+2.2644×
2.3273
−0.0629×

May 24, 1899

XVI

Below

4.0
11 03 20 66.0 62.0ˣˣ
181.8 6~~4~~4.2ˣ −1.0~~4~~6ˣ
246.0 12~~7~~.2ˣ

−1.04ˣ

2.4
05 15 65.3 62.9ˣ
181.3 64.7ˣ −1.03ˣ
246.0 127.6ˣ

Above

271.3
07 05 337.7 66.4ˣ
91.0 64.3ˣ −0.96ˣ
155.3 130.7ˣ

−0.96ˣ

271.3
08 45 335.6 64.3ˣ −0.97ˣ
24 28 91.8 66.1ˣ
11 − 06 06ˣ 157.9 130.4ˣ
3 −1 28ˣ
16 04 38 Gr M Time. mean = −1.00
4799.6692ˣ
4797.3869
+2.2829ˣ
2.3273
−0.0444ˣ

May 24, 1899.

XVII

above

272.8

11 11 05 336.7 64.7+ 0.99 ~~1.01~~

92.5 64.8+

157.3 129.5+

−0.98+

272.6

12 20 335.8 63.2+

90.89 67.9+ −0.96+

~~160.3~~ 131.1+

158.8

Below.

182.7

15 00 248.8 65.1+

2.8 64.6+ −0.99

~~65.8~~ 129.7+

66.6

183.0

−1.02+

17 05 247.2 64.2+

16 30+ 3.0 63.0+ −1.04

11 14 08+ 66.0 127.2+

5 ~~4~~ .28+

16 12 40+ Gr. M. Time

4799.6754+

4797.3869

+2.2885+

2.3273

−0.0388+

Mean = −1.00+

May 24, 1899

Below XVIII

18 182.0

11 20 25 247.3 65.3x

3.6 62.4x −1.03x

66.0 127.7x

182.8 −1.02x

22 10 247.~~7~~2 64.4x

3.7 63.6x −1.02x

67.3 128.0x

Above

91.4

24 20 160.0 68.6x

271.0 67.5x −0.85x

338.5 136.1x

~~0~~ −0.87x

91.4

25 45 158.3 66.9+

12 40+ 271.0 67.5+ −0.89x

11 23 10+ 338.3 134.4+

5 1 28+

16 21 42+ Gr. M. Time. Mean = 0.94+

4799.~~674~~ Seeing 7, 7, 7.

6817x

4797.3869 2.3273

2.2948x 2.2948

+0.0325x

May 24 1899

Arnold & Dent	Bond 394
11 46 25.0	11 45 00
11 47 25.0	11 46 00

May 25, 1899. (Thursday)

S Cancri.

Phot T. (Wols.)

~~8 35 +19.6~~

8 33 +20.4 8 33 +20.4
12 08 12 03
3 35 3 30

8 36 +18.7 8 36 +15.7
12 16 12 30
3 40 3 54

See following pages for measurements on S Cancri.

May 25, 1899

(These obs. ledgered, plotted, & copied.)
I.

Right & Above

170.1 < var & dis.
8 05 10 253.0 82.9*
355.2 79.8* - 0.33*
75.0 162.7*

-0.25*

170.2
08 30 254.7 84.5*
352.0 86.4* - 0.17*
78.24 170.9*

Left & Below

81.0
12 30 167.9 86.9*
266.5 77.7* - 0.29*
344.2 164.6*

-0.26*

86.5
16 10 164.8 78.3*
42 20 260.0 88.8* - 0.24*
8 10 ~~375~~ 348.8 167.1*
35

mean = -0.26*

5 - 1 - 34

13 9 01 Gr. M. Time.
4800.5479* 9.4845
4791.2220*✓ 9.3259
+9.3259* -0.1586*

May 25, 1899.

II

Left & Below

81.1

8 21 30 166.3 85.2+

262.8 84.8+ − 0.19+

347.6 ~~160.0~~+

170.0+

− 0.14+

80.9

23 30 168.5 87.6+

260.8 87.4+ − 0.09+

~~340~~.

175.0+

348.2

Right & Above

~~352.6~~

352.3

~~170~~ 77.9 85.6+

29 00 171.8 850+ − 0.18+

256.8 170.6+

− 0.18

351.2

31 10 75.8 84.6+ − 0.17+

171.7 861+

257.8 170.7+

105 10

8 26 18 mean = − 0.16+

5 −1 −34

13 24 44

4800.5588+

4791.2220

+9.3368+

9.4845

9.3368

− 0.1477+

May 25, 1899.

R. & A. III

350.3
8 36 10 77.7 87.4
~~[illegible]~~ 171.6 86.6 −0.11
258.2 174.0

−0.11

351.0
38 06 77.84 86.4
170.9 87.7 −0.11
258.6 174.1

L. & B.

259.0
41 00 351.0 92.0
~~[illegible]~~ 90.4 +0.05
78.1 182.4
168.5 177.6

+0.06

258.0
44 00 351.0 93.0
15 9 10 77.8 90.8 +0.07
8 29 48 168.6 183.8
5 −1 −34 176.2
13 38 14 Gr. M. Time mean = −0.02

4800.5682
4791.2220
+9.3462
+9.4845
−0.1383

May 23 1899

	L.O.B		IV
	260.3		
8 48 20	352.5	92.2×	
	82.0	86.4×	−0.03×
	168.4	178.6×	
	258.0		+0.07×
49 37	353.0	95.0×	
	76.5	93.8×	~~+0.0~~
	170.3	188.8+ 171.2×	+0.17
	R. & Above		
	169.2		
52 08	261.1	91.9+	
	348.2	92.5+	+0.08+
	80.7	184.4+ 175.6	
	169.2		+0.08+
54 25	261.3	92.1+	
204 30	348.4	92.6+	
8 51 08	~~80.7~~	184.7+	+0.09+
5 1 34	81.0	175.3	
13 49 34	Gr. M. Time		Mean +0.08+

4800.5761
4791.2220
+9.3541
+9.4845
−0.1304

May 25, 1899.

V

	R. & Above			
9 00 10	169.8			
	258.5	88.7+		
	347.4	93.9+		
	81.3	182.6+	+0.05×	
		177.4+		
				+0.10×
	168.0			
02 47	263.8	95.8+		
	348.0	91.9+		
	79.9	187.7+	+0.14×	
	Left & Below.	172.3+		
	76.0			
05 35	170.9	94.9×		
	256.5	97.9+	+0.24×	
	354.4	192.8+		
		167.2×		
				+0.27×
	76.6			
08 18	173.3	96.7+		
16 50	255.1	98.9+	+0.30×	
9 04 12	354.0	195.6+		
5 1 34		164.4+		
14 02 38 Gr. M. Time.				Mean = +0.18×

4800.5851
4791.2220
+9.3631
+9.4845
−0.1214

May 25, 1899

Left & Below VI

74.3
9 ~~20~~ 17 03 174.1 99.8
256.4 97.8 +0.33
354.2 197.6
162.4
+0.36

74.~~7~~4
19 45 175.0 100.6
255.6 100.3 +0.40
355.9 200.9
159.1

Right & Above
345.6
24 07 84.0 98.4
165.7 97.2 +0.30
262.9 195.6
164.4

345.0 +0.34
25 10 84.5 100.5
165.0 100.0
89 05 265.0 200.5 +0.39
9 22 16 159.5
5 1 ~~38~~ 34
14 20 42
4800.5977 94845 Mean = +0.35
4791.2220 9.3757
+9.3757 −0.1088

May 25, 1899.

~~VII.~~

~~Left & Be~~
Right & Above

343.9
9 3537 85.2 101.3^{x}
165.2 98.4^{x}
263.6 199.7^{x} $+0.38^{x}$
160.3^{x}

343.5 $+0.44^{x}$
40 40 86.2 102.7^{x}
162.7 103.3^{x}
266.0 206.0^{x} $+0.58$
154.0^{x}

Left & Below
253.8
4754 357.6 103.8^{x}
72.9 103.1^{x}
176.0 206.9^{x} $+0.51^{x}$
153.1^{x}

257.2 $+0.55^{x}$
5245 357.3 106.1^{x}
176 56 72.0 104.7^{x}
9 44 14 176.7 210.8^{x} $+0.59^{x}$
5 1 34 149.2^{x}
14 42 40 Gr. M. Time
4800.6130
4791.2220

+9.3910
+9.4845
−0.0935

Mean = $+0.50^{x}$

May 25, 1899.

Left & Below VIII

250.1

9 10 10 42 356.5

Reject above readings: impossible to continue farther.

Above groups on S Cancri made with much difficulty throughout. Twilight strong at the start; star keeping a good deal in twilight as it went down. Full moon also came up; ~~Right & above~~ Region getting low; sky murky. Settings especially difficult as start and finish –

May 25 1899.

~~Rights & Above~~ ~~[illegible]~~

Iapetus

17 24 - 21.7
15 00

2 24
9 36

~~Left & Below~~

Impossible to get Iapetus; moon high and near; sky murky.

I Librae

brick cap. used. 14 56 -2.0
15 16 Phot. T. Wobs

0 10

May 23, 1899.

Right & Above δ Librae ~~X~~

~~Left & Below~~

104.0 These obs. reduced, plotted & Copied.

10 48 20 147.4 43.4×

282.6 45.6× -1.94×

327.6 89.0×

-1.92×

100.7

49 25 149.0 48.3×

282.4 42.3× -1.90×

324.7 90.6×

~~Right & Above~~

Left & Below

14.4

51 18 51.3 36.9×

193.5 43.5× -2.18×

237.0 80.4×

-2.22×

13.6

52 52 50.2 36.6×

195.0 41.0× -2.27×

201 55 236.0 77.6×

10 50 29

5 -1 -34 mean = -~~2.12~~ 2.07×

15 48 55

4800.6589✓

4799.7140×✓

+0.9449×

May 23, 1899.

~~III~~
II

Left & Below
~~Right & above~~

14.0
10 55 15 55.2 41.2+
193.1 44.1+ -2.04+
237.2 25.3+

-2.10+

14.2
56 43 55.6 41.4+
195.0 40.0+ -2.15+
235.0 21.4+

~~Left & Below~~
Right & above

251.1
59 03 325.6 44.5+
103.0 43.6+ -1.96+
149.6 22.1+

-1.92+

253.0
11 00 40 326.6 43.6+ -2.00+
1036 43.9+
23 1 41 146.9 26.9+
10 57 55
5 -1 -34
15 56 21 Sd. M. Time.

Mean = -2.04+

4580.6642+
4799.7140
+0.9502+

May 25, 1899

R. & Above III

25~~8.9~~37
11 02 20 327.2 43.5+
103.6 43.4+ -2.00+
147.0 86.9+

-2.00+

283.0
03 47 327.0 44.0+ -2.00+
103.2 42.8+
146.0 86.8+

L, & Below

194.3
06 03 236.3 42.0+
~~144.1~~ 43.2+ -205+
13.7 85.2+
56.9

-205+

193.3
07 12 236.9 43.6+ 2-05+
19 22 13.8 41.3+
55.1 84.9+

11 04 50
5 1 34

16 03 16
4800.~~7~~6690+
4799.7140+
0.9550+

Mean = -2.02+

May 25 1899

L. & Below. IV

195.1
11 09 40 235.5 40.4+
13.3 44.0+ - 2.07+
57.3 84.4+
-2.04+

194.0
11 15 237.5 43.5-+
14.5 42.5+ -2.02+
57.0 86.0+

Right & Above
104.5
13 00 146.6 42.1+
282.6 44.6+ - 2.06+
327.2 86.7+
-1.98+

103.3
16 00 148.1 44.8+
49 55 283.0 43.8+ -1.95-+
11 12 29 326.8 88.6+
5 1 34
16 10 55 Clouds mean = -2.01+

4800.6742+
4799.7140
+0.9602+

May 25 1899

R. & Above V

~~102~~.3
101.5
11 ~~21~~ 30 147.3
283.0
326.2

~~102.7~~ 103.3
~~22 00~~ 146.2
Clouds. 282.0
327.0

L. ~~& Below.~~
~~111~~.1

Reject Above readings

Stopped by clouds.

Arnold & Kent. Bond 394
11 H1 33.7 11 40 00
11 H2. 33.5 11 41 00

May 26, 1899. (Friday.)

U Coronae

15 8 +33.9　　　15 8 +33.9
12 8　　　12 0
3 0　　　3 8　Phot. (Wolo.)
9 0　　　8 52

R. & Above　Ledgered & Plotted & Copied.　I

8
102.5
8 07 50　146.2　43.7×
282.0　46.1×　−1.92×
328.0　49.8×

~~328~~　　−1.99×
100.4
10 20　148.0　47.6+
282.5　44.3+　−1.56×　
326.58　91.9+

4801.5423×
4800.5140×
+0.7343×

Left & Below
14.0
12 45　54.4　40.4×
192.5　44.7×　−2.05×
237.2　45.1×

−2.01×

13.1
14 00　57.1　44.0+
44 55×　192.9　43.9+　−1.97×
236.8　47.9+
8 11 14
5 −1 35
13 9 36× Gr. M. Time.

Mean = −1.95×

May 26, 1899

U Coronae

Left & Below

II

14.6
8 16 50 53.6 39.6+
192.7 44.7+ -2.07+
237.4 84.3+

-2.04+

13.6
18 05 56.7 43.1+
194.0 43.5+ -2.01+
237.5 86.6+

Right & Above.
282.0
20 50 327.5 45.5+
99.8 48.5+ -1.81+
148.3 94.0+
8

-1.84+

280.4
22 40 327.7 47.3+
103.0 44.0+ 1.88+
147.0 91.3+

78 25
8 19 36
5 -1 38

13 17 58 Gr M. Time.

Mean = -1.94+

4801.5542+
4800.8140
+0.7402+

May 26, 1899

U Coronae.

#

Right & Above

282.4
8 24 25 325.7 43.3 ×
101.2 46.7 × −1.91 ×
147.9 90.0 ×

−1.92 ×

281.5
26 30 ~~[illegible]~~ 327.7 46.2 ×
103.0 43.2 × 1.93 ×
146.2 89.4 ×

Left & Below

193.6
29 05 238.1 44.5 ×
12.3 44.3 × 1.95 ×
56.6 88.8 ×

−1.94 ×

190.8
30 45 238.6 47.8 ×
11 30 45 ~~45~~.13.4 41.7 × 1.92 ×
8 27 41 55.1 89.5 ×
5 11 35

13 26 03 Gr M Time.

4801.5597 ×
4800.8140

+0.7457 ×

Mean = −1.93

May 26 1899.

U Coronae

Left & Below — IV

1933

8 36 00 ~~236.5~~ 236.5 43.2^{+}

130 44.7^{+} -1.97^{+}

577 87.9^{+}

-1.96^{+}

191.0

37 40 238.5 47.5^{+}

~~44~~0 41.1^{+} -1.95^{+}

137 88.6^{+}

54.8

Right & Above

1035

39 50 145.~~6~~7 42.2^{+}

279.2 47.2^{+} -1.93^{+}

326.4 89.4^{+}

-1.90^{+}

8099.8

41 30 148.1 48.3^{+}

155 00+ 283.0 43.1^{+} -1.88^{+}

8 38 45+ 326.1 91.4^{+}

5 1 38+

13+ 37+ 07+ Gr. M. Time.

4801.5675+

4800.8140

0.7535+

Mean = -1.93^{2}

May 26, 1899.

U Coronae

I

Right & above

	103.0			
5 45.0	146.7	43.7x		
	250.6	47.0x	1.90x	
	327.6	90.7x		
				-1.90x
	101.2			
47 05	145.3	47.1x	1.90	
	253.0	43.6x		
	326.6	90.7x		

Left & below

	13.3			
50 05	56.2	42.9x		
	191.3	47.1x	1.91x	
	235.4	90.0x		
				-1.90x
	11.7			
52 20	55.6	46.9x		
194 30	193.9	43.9x	1.59x	
5 45 35	237.5	90.8x		
5 1 35				

Mean = -1.90x

13x 47x 00x
4501.5743
4500.8140
+0.7603

Altitude very high and increasingly so, causing observations to be made with considerable difficulty. Much care however was exercised in making settings so that observations thought to be very good.

May 26 1899

W went over to West Dome to revise comp. stars on W Hydrae ~~sequence~~ with Mr. Reed.

Phot 7. (W obs.)

W Virginis

13 6 -4.2 13 6 -4.2
14 50 14 0
1 44 0 54 13 16 -4.2
15 04
Ledgered & Copied & Plotted. 1 48
I

Left & Above

17.2
10 40 15 52.2 350 +
199.7 36.5 + +2.46+
233.2 71.5 +

+2.48+

19.0
42 10 51.3 32.3 +
196.4 38.0 + +2.50+
234.4 70.3 +

4801.6540 +
4798.0366 + ✓
+3.6174 +

Right & Below
257.5
44 25 322.0 34.5 +
108.0 33.4 + +2.52+
141.4 67.9 +

257.1 +2.54+
46 20 321.0 33.9 +
13 10+ 105.8 36.2 + +2.50+
10 43 18+ 142.0 70.1 +
5 1 38+
15 41 40 Gr. M. Time

Mean = +2.51+

May 26, 1899

II

Right
~~Left~~ Below

287.1
10 48 30 321.1 34.0×
107.8 33.3× +2.60×
141.1 67.3×

+2.58×

288.0
50
~~49~~ 00 321.8 33.8×
106.1 34.9× +2.55×
141.0 68.7×

Left above
196.3
52 10 232.2 35.9×
18.8 32.9× +2.55×
52.7 68.8×

+2.54×

197.0
54 00 232.4 35.4×
17.8 34.3× 2.52×
52.1 69.7×

204 40
10 51 10×
5 1 38
15 49 32 Gr. M. Time.
4801.6594×
4798.0366
+3.6228×

Mean = +2.56

May 26, 1899.

Left & Above III.

196.4 < comp & dis.
10 55 45 231.6 35.2+
18.2 32.0+ +2.60+
50.2 67.2+

+2.60+

198.0
57 10 231.6 33.6+
18.8 33.3+ +2.61+
52.1 66.9+

Right & Below.
107.3
59 30 142.3 35.0+
287.7 33.7+ +2.50-+
32~~0.8~~1.4 68.7+

+2.54+

107.8
11 01 30 142.2 34.4+
23 3 55+ 287.2 34.6- 2.54+
10 58 29+ ~~322~~.1 321.8 69.0+
5 -1 -38
15 56 51+ Gr. M. Time.
4801.6645+
4798.0366
+3.6279+

mean = +2.57

May 26, 1899.

Right & Below

IV

~~107.3~~ 108.2

11 ~~14 50~~ ~~142.0~~ 142.6 34.4x

11 17 25 ~~287.1~~ 287.8 33.7x +2.57

322.0 68.1x

+2.54

107.1

18 50 142.3 35.2x

287.4 34.6x +2.51

322.0 69.8x

Left & Above.

17.1

21 00 52.7 35.6x

197.0 34.7x +2.50

231.7 70.3x

+2.54

19.0

22 40 50.4 31.4x +2.57

79 55 196.2 36.8x

11 19 59 233.0 ~~68.4~~ 2x

5 1 35

16 17 21 Gr. M. Time

4801.6788x

+4798.0366

+3.6422x

Mean = +2.54

May 26 1899

V

Left & Above

18.0

11 24 30 52.9 34.9×

196.3 35.9× +2.48×

232.2 70.8×

+2.54×

18.0

25 40 50.8 32.8×

196.7 34.9× +2.59×

231.6 67.7×

Right & Below

286.7

27 40 321.8 35.1×

108.5 33.3× +2.56+

141.8 68.4×

+2.56×

287.8

29 10 321.6 33.8× +2.56+

107.8 34.6×

27 00

11 26 45 142.4 68.4× Mean = +2.55×

5 1 38

16 25 07 LcM Time

Too much cloud for Iapetus.

4801.6841+

4798.0366

+3.6475

Arnold & Stent -.95

Bond 39.4

11 39 38.0 11 38 00

11 40 38.0 11 39 00

May 27, 1899. (Saturday.)

U Coronae

15 5 +33.9 15 5 +33.9
13 15 12 35
1 53 2 33 Phot T. (Wits.)
10 07 9 27

Right & Above.
252.6
clouds thick 327.5
8 46 05

Stopped by clouds; clouds too thick to
9.10 do anything.

May 29 1899 (Monday)

7.00 Cloudy.

δ Librae
14 56 − 8.0
12 30
2 26
9 34

Caf b in.

Ledpredo I
Plotted.
Copied

Right & above
1030
7 58 30 146.2 43.2×
280.5 48.0× −1.88
328.5 91.2×

−.182×

99.1
8 00 05 149.2 50.1×
284.0 40.8× 1.89
324.8 90.9×

4804.5413
4804.3690×
+0.1723

Left & Below
13.8
8 02 10 55.4 41.6×
193.0 44.8× −201×
237.8 86.4×

−200×

11.0
8 03 55 56.8 45.8×
245 00
8 1 157 194.2 41.8× −1.98×
5 −1 50
12 59 25 Gr. m. time 236.0 87.6×

mean = −1.94×

Clouds thick.

May 29, 1899.

δ Librae

II

Left & Below

44 2

clouds. 55.2

8 06 30 192.3

Clouds thick.

8 30 Stopped by clouds; clouds thick no chance for anything farther.

Correction to A. & D. is $-1^m\ 50^s$.

May 30 1899. (Tuesday)

Cap 6 inches used Librae Phot T. N ob.

14 56 -8.0
12 36
2 20
9 40

Below ~~Above~~ Copied, Ledgered & Plotted.
I.

194.2
7 56 30 235.0 40.8ˣ
~~5.5~~ 47.8ˣ -195ˣ
10.2 88.6ˣ
58.0 -1.92ˣ

190.8
59 00 238.6 47.8ˣ -~~190~~
13.2 43.6ˣ 1.88ˣ
56.8 91.4ˣ

4805.5403ˣ ×V
4804.3690
+1.1713ˣ
2 3273
-1.1560ˣ

~~Below~~ Above.
103.2
8 01 10 147.6 44.4ˣ
~~277.~~ 47.7ˣ 1.56ˣ
280.3 92.1ˣ
328.0 ~~-~~1.89ˣ

100.2
02 56 149.0 48.8ˣ -1.92ˣ
239 30+ 284.2 40.9ˣ
7 59 52.5 325.1 89.7ˣ -1.90ˣ
5 1 54.5
12 57 58.0 Gr. M. Time.

May 30 1899.

II

Above
103.0
8 04 20 146.0 43.0x
251.2 47.4x -1.90x
328.6 90.4x

-1.92x

102.0
06 10 149.0 47.0x -1.93+
253.2 42.3x
325.5 89.3x

Below.
14.7
08 05 56.2 41.5x
192.0 45.3x -2.00+
237.3 86.8x

-2.02x

11.3
09 30 57.0 45.7+ 2.04+
28 05+ 195.3 39.7x
8 7 01.2x 235.0 85.4+
5 1 54.5
13 5 6.7+ Gr M. Time

Mean = -1.97+

4805.5452+
4804.3690
+1.1762+
2.3273
-1.1511

May 30, 1899.

III

Below

14.0
8 12 30 54.2 40.2+
194.0 43.3+ -2.09+
237.3 83.5+

-2.04+

12.8
13 45 58.2 45.4+
194.2 41.5+ -2.00+
235.7 86.9+

Above.

102.8
17 30 144.9 42.1+
281.5 47.3+ -1.93
328.8 89.4+

-1.96

102.0
18 45 148.6 46.6+
284.2 40.4+ -2.00
324.6 87.0+

22 30+
8 15 37.5+
5 1 54.5+

13 13 43.0 Gr. M. Time.

Mean = -2.00

4505.5512+
4504.3690
+1.1822+
23273
-1.1451

May 30, 1899.

IV

Above

104.2
8 2230 145.5 $41.3^{\times}$
280.6 $46.7^{\times}$ − $1.97^{\times}$
327.3 $88.0^{\times}$

−$1.94^{\times}$

100.0
2345 148.2 $48.2^{\times}$ − $1.90^{\times}$
284.0 $42.2^{\times}$
326.2 $90.4^{\times}$

Below.

15.0
2600 55.4 $40.4^{\times}$ − $2.01^{\times}$
191.7 $46.1^{\times}$
237.8 $86.5^{\times}$

−$2.00^{\times}$

9.3
2750 56.2 $46.9^{\times}$ − $1.99^{\times}$
20 05 195.6 $40.2^{\times}$
235.8 $87.1^{\times}$

8 25 $1.2^{\times}$
5 −1 −54.5

Mean = −$1.97^{\times}$

13 23 $6.7^{\times}$ Gr M Time.

4805.5577×
4804.3690
+1.1887×
2.3273
+1.1886

May 30, 1899.

~~I~~
V

Below.

~~144~~

8 32 35 56.2 47.8 -2.01
192.3 44.5 ~~-1.99~~
236.8 89.3 -2.03
-1.92

12.3

34 30 57.9 44.6 -2.05
195.0 40.3 ~~-1.84~~
235.3 ~~949~~
84.9

Above.

253.6

36 20 325.5 41.9
100.0 47.4 -1.93
147.4 89.3

-1.90

252.5

38 10 330.2 47.7 1.86

21 35 102.8 44.2
8 35 23.2 147.0 91.9
5 -0 54.5

mean = -1.96

13 33 29.3 Gr. M. Time.
4805.5650
4804.3690
+1.1960
2.3273
-1.1313

May 30, 1899

VI

Above

	282.4		
8 48 50.0	327.0	44.6	
	100.5	49.5	-1.81
	150.0	94.1	
			-1.85
	281.2		
57 20	325.0	46.8	-1.89
	102.2	44.0	
	146.2	90.8	

Below.

	197.0		
5 3 35	235.0	38.0	-2.06
	10.8	46.5	
	57.3	84.5	
			-2.05
05	192.3		
55 ~~05~~	237.0	44.7	-2.04
	14.0	40.8	
208 50	54.8	85.5	

Mean = -1.95

8 52 12.5
5 -1 -54.5
13 50 18.0 Gr M. Time
4805.5766
4804.3690
+1.2076
2.3273
-1.1197

May 30 1899.

~~VIII~~

Below.

195.1
9 02 20 234.0 38.9
13.0 44.4 -2.10
57.4 83.3

-2.06

192.0
05 30 238.5 46.5
15.1 39.1 -2.03
54.2 85.6

Above.

103.8
09 30 146.3 42.5
282.6 43.8 -2.01
326.4 86.3

-1.92

99.
100.4
~~8~~
11 40 ~~150.0~~ 149.7 49.3 -1.84
29 00 283.0 42.3
9 7 15.0 325.3 92.6
5 -1 -54.5
~~14~~ 5 20.5 Gr.M. Time.

4865.5870
4804.3690
+1.2180
2.3273
-1.1093

Mean = -1.99

May 30, 1899.

VIII

Above
103.8
9 16 40 145.8 42.0×
~~278.3~~ 48.2× -1.91×
278.8 90.2×
327.0
-1.89×

101.5
12 05 147.5 46.0× 1.87+
250.6 45.7×
326.2 91.7×

Below
~~15.2~~
13.5
21 00 55.3 41.8×
192.8 44.4+ -2.02×
237.2 86.2×

-2.05×

13.4
22 25 56.6 43.2+
72 10 194.6 40.7+ -2.08+
9 19 32.5× 235.3 83.9+
5 1 34.5
14 17 32.0 Gr M Time.

Mean = -1.97×

4805.5955×
4804.3690
+1.2265+
2.3273
1.1008

May 30, 1899.

W Hydrae (W Ck.)

13 47 -25.0
14 37

0 50

h 6 k Copied.
k 4 l
l 2 m
~~19.00~~ m 3 n
10 00 n 3.5 o
o 5 p
p 3.5 q

Mr W. went over to West Dome to revised comp. Stars for W Hydrae.

I Iapetus.

17 20 -22.0
15 37

1 33
10 27

Seeing 5, 5, 5.

May 30 1899.

Iapetus

Left & above

80.1

11 24 10 170.2 (Comp & dis.) 90.1ˣ

260.3 92.3ˣ

352.6 182.4ˣ −0.05ˣ

177.6

Ledgered-

Copied

77.6 +0.02ˣ

25 45 167.8 90.2ˣ

263.7 85.1ˣ +0.09ˣ

347.8 175.3ˣ

Right & Below.

355.3

27 30 74.2 78.9ˣ

176.6 78.6ˣ +0.43ˣ

255.2 157.5ˣ

~~355.6~~

+0.42ˣ

355.6

25 30 72.6 77.0ˣ

175.0 81.0ˣ +0.42ˣ

25 55

11 26 25.8ˣ 256.0 158.0ˣ

5 1 54.5

16 24 34.3ˣ Gr. M. Time. Mean +0.22ˣ

May 30 1899

Right & Below

Iapetus Again.

~~349~~.0

353.3

11 33 30 74.4 81.1 79.1 +0.38

176.2

255.3 160.2

+0.34

354.8

34 30 74.5 79.7 +0.29

172.0 84.8

256.8 164.5

Left & Above

261.3

37 00 347.8 86.5

76.2 92.0 +0.03

168.2 178.5

260.7

+0.06

347.7 87.0

38 30. 78.3 87.7 +0.10

23 30 166.0 174.7

11 35 52.5

5 1 54.5

16 33 58.0 Gr. M. Time.

Mean = +0.20

May 30/1899

Left Above | Titan | Ledgered
Copied.

I.

187.3 < Titan dis.

11 42 15 244.3 57.0×

12.8 41.8× -1.69×

54.6 98.8×

-1.67×

190.6

239.0 48.4×

7.8 51.8× -1.65×

59.6 100.2×

Right & Below

~~99.2~~

98.6

147.6 49.0×

274.9 57.5× -1.50×

332.4 106.5×

-1.46×

93.5

48 15 153.0 59.5×

9.0 30 279.6 50.7× -1.41×

11 45 15.0× 330.3 110.2×

5 1 -54.5

16 43 20.5 Gr. M. Time.

mean = -1.56×

May 30, 1899.

Right & Below Titan again

~~97.0~~

96.0

11 50 00 150.0 54.0×

272.0 61.2× −1.30

333.2 115.2×

−1.30

91.7

153.0 61.3×

277.0 54.0× −1.30

331.0 115.3×

Left & Above

~~130~~

12.3

57.5 45.2×

183.0 61.2× −1.50

244.2 106.4×

−1.50

8.2

11 55 50 59.2 51.0× −1.49

105 50 187.2 55.4×

11 52 55.0× 243.0 106.4× mean = −1.40

5 1 34.5

16 51 0.5± Gr'th Time ~~Arnold & Hunt~~ Bond 39 H.

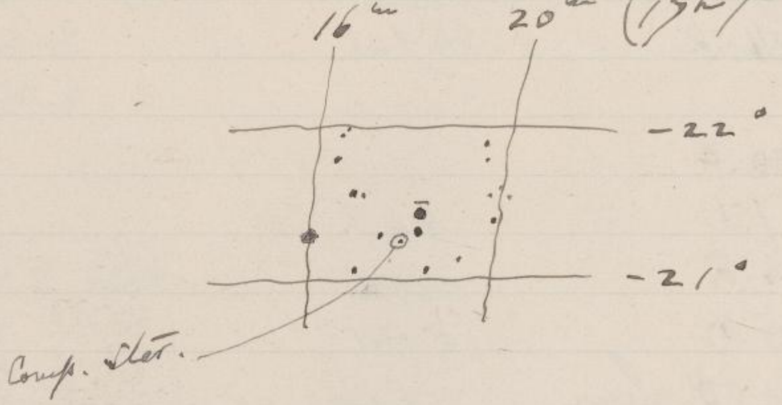
meas. of Titan difficult on account of close proximity to Saturn.

May 30 1899.

Arnold & Dent   Bond 394.

A. + D. is 1^m $54^s.5$ fast.

Comp. Star for Japetus and Titan on this date was S.D. −21° 4605 (9.0)



May 31 1899 (Wednesday)

U Coronae. Phot V. (W obs.)

15 5 +33.9 15 5 +33.9
12 50 12 35
2 15 2 30
9 42 9 30

Right & Above Ledgered, Plotted Copied

254.2
5 04 35 327.3 43.1
100.1 46.1 −1.94
146.2 59.2

−1.95

250.2
5 06 35 327.1 46.9 −1.96
103.5 41.2
145.0 55.1

4506.5462
4504.2663
+2.2799
3.4523
−1.1724

Left & Below
192.0
05 45 236.7 44.7
13.2 42.6 −1.99
55.5 57.3

−1.96

190.1
10 15 235.5 45.7 −1.92
20 10 13.0 44.0
5 7 35 57.0 59.7
5 −1 00
13 6 35 Gr. M. Time.

Mean = −1.96

May 31 1899.

II

Left & Below

192.5
5 12 10 236.5 43.7×
13.6 43.4× -1.99×
57.0 87.1×

191.3 -2.00×
13 50 237.6 46.3×
14.3 40.7× -2.00×
55.0 87.0×

Right & Above.

101.4
16 30 147.0 45.6× -2.00×
253.5 41.4×
325.2 87.0×

103.8 -2.00×
15 40 145.5 42.2
280.8 45.0 1.99×
87.2×

21 10×
5 15 12 ×325.12
5 7 .00

13 14 15× Gr. M. Time.
4506.5516×
4504.2663
+2.2853×
3.4523
[illegible]670×

Mean = -2.00×

May 31 1899.

Right & above — III

101.6

8 21 10 147.7 — 46.1 ×

284.2 — 40.6 × — −2.00 ×

324.8 — 86.7 ×

−2.02 ×

104.2

22 35 145.5 — 41.3 × — −2.03 ×

282.6 — 44.6 ×

327.2 — 85.9 ×

Left & Below

12.3

24 30 56.3 — 44.0 × — −2.03 ×

~~193.0~~ — 41.8 ×

193.2 — 85.8 ×

235.0.

−2.02

~~14.0~~

13.6

27 05 53.8 — 40.2 × — −2.00 ×

15 20+ 191.0 — 45.8 ×

8 23 50+ 236.8 — 86.0

5 −1

13 22 50 Gr. M. Time. — Mean = −2.02 ×

4806.5570 ×

4814.2663

+2.2912 ×

3.4523

−1.1611 ×

May 31, 1899.

IV

Left & Below

	11.4			
8 28 25	56.3	44.9x		
	192.3	43.7x	-1.95-x	
	236.0	88.6x		
				-2.00x
	17.1			
30 00	57.2	40.5x	-2.04x	
	192.3	45.0x		
	237.3	85.5x		

Right & Above.

	281.0			
32 60	327.3	46.3x		
	103.8	41.7x	-1.97x	
	145.5	88.0x		
				-1.96x
	283.7			
33 20	327.6	43.9+	-1.95-x	
	102.3	44.7+		
	147.0	88.6+		

123 45

8 30 56x

5 -1

13 29 56 Gr. M. Time

4806.5624x

4804.2663

+2.2961x

3.4523

-1.1 56.2x

Mean = -1.98x

May 31, 1899.

V

Right & Above

281.2
8 35 15 326.7 45.5×
103.3 41.4× -2.00×
144.7 86.9×

-1.98×

282.3
37 00 324.6 42.3×
102.4 45.7× -1.97×
148.1 88.0×

Left & Below

191.8
38 50 239.0 47.2×
13.8 39.8× -2.00+
53.6 87.0×

-2.04+

194.~~7~~2
41 00 23~~9~~7.0 42.8×
152 05+ 13.6 41.4× -2.07×
8 38 01+ ~~54.5~~ 84.2×
5 - 01 00
13 37 01+ 55.0 Mean = -2.01+

4806.5674×
4804.2663
+2.3011×
3.4523
-1.1512×

May 31, 1899.

δ Librae. Plot T. (Wols.)

6 in cap used. 14 56 -5.0
14 00
0. 56

Above + to Right 11 04 I

Ledgered, Plotted. Copied.

96.3
9 13 40 152.4 56.1
250.0 50.4 -1.50
330.4 106.5

-1.42

95.5
15 00 152.3 56.5
276.6 57.2 -1.33
333.8 114.0

Left + Below.
5.56
16 50 61.3 55.7
191.0 49.0 -1.54
240.0 104.7

-1.54

9.5
15 40 60.5 51.0 -1.54
24 10 155.0 54.0
9 16 02 242.0 105.0
5 01
14 15 02 Gr M. Time

Mean = -1.45

4506.5937
4504.3690
2.2247

2.3273
2.2247
-0.1026

May 31, 1899.

Left & Below II

9 22 30 310.0
5.2 55.2 ×
138.0 49.0 × -1.55
182.0 104.2 ×

-1.57

312.0
24 35 0.5 42.5 ×
138.2 54.4 × -1.59
186.6 102.9 ×

Right & Above
218.5
27 10 277.6 59.1 × -1.36
41.0 53.4 ×
94.4 112.5 ×

-1.36 ×

222.4
28 15 275.3 52.9 ×
22 00 36.8 59.5 × -1.36 +
9 25 30 96.3 112.4 ×
5 -1

14 24 30 Gr M. Time.

4806.6004 ×
4804.3690

2.2314 +
2.3273
-0.0959 ×

Mean = -1.46 ×

May 31, 1899.

III

Right & Above

~~7~~	219.2			
9 31 45	278.2	59.0 x		
	38.7	53.9 x	-1.35 x	
	92.6	112.9 x		
				-1.36 x
	222.2			
34 10	274.4	52.2 x		
	35.6	59.4 x	-1.38 x	
	95.0	111.6 x		

Left & Below

	129.4			
36 50	186.8	57.4 x		
	311.0	53.3 x	-1.40 x	
	4.3	110.7 x		
				-1.38 x
	129.2			
39 20	184.8	55.6 +		
22 05	~~307~~ 311.4	56.6 +	-1.37 +	
9 35 31	8.0	112.2 +		
5 -1				

mean = -1.37 x

14 34 31 Gr. M. Time.

4806.6072 x
4804.3690

+2.2382 x
2.3273

-0.0891

May 31, 1899

Left & Below — IV

307.6

9 44 30 — 4.8 — 57.2ˣ

130.0 — 55.5ˣ — -1.36ˣ

185.5 — 112.7ˣ

-1.36ˣ

312.0

45 50 — 5.5 — 53.5

129.6 — 59.2 — -1.36ˣ

188.8 — 112.7ˣ

Right & Above

~~47 45~~

220.3

47 45 — 277.5 — 57.2ˣ — -1.32ˣ

37.0 — 57.2ˣ

94.2 — 114.4ˣ

-1.30ˣ

221.0

49 20 — 277.5 — 56.5ˣ — -1.27ˣ

2.7 25 — 35.0 — 59.8ˣ

9 46 51ˣ — 94.8 — 116.3ˣ

5-01

Mean = -1.33ˣ

14 45 51ˣ Gr. M. Time

4806.6152ˣ

4804.3690

+2.2462ˣ

2.3273

-0.0811

May 31, 1899

V

Right & Above
219.5
10 01 10 276.9 57.4x
36.3 59.2x −1.27x
95.5 116.6x

−1.24x

219.4
04 25 276.5 57.1x
36.4 61.6x −1.22x
98.0 118.7x

~~Left~~ & Below
~~8~~ 129.3
06 45 187.0 57.7x
308.4 58.0x −1.29x
6.4 115.7x

−1.32x

~~2~~ 131.0
08 40 186.0 55.0x
21 00 308.5 58.3x −1.34x
10 05 15x ~~6.8~~ 113.3x
5 01
15 04 15x Gr. M. Time.
4806.6279x
4804.3690
+2.2589x
2.3273
−0.0684x

mean = −1.28x

72

May 31, 1899

Left & Below VI

129.6
10 15 00 184.6 55.0^{x}
307.7 59.6^{x} -1.31^{x}
7.3 114.6^{x}

-1.25^{x}

129.4
16 55 188.0 58.6^{x}
307.2 61.3^{+} -1.19^{x}
8.5 119.9^{+}

Right & Above

36.3
19 05 97.0 60.7^{x}
219.0 59.5^{x} -1.19^{+}
275.5 120.2^{x}

-1.14^{+}

36.1
20 45 95.3 59.2^{x} -1.09^{+}
71 45 215.9 65.6^{+}
$10\ 17\ 56^{+}$ 281.5 124.8^{x}
5 01 00

$10\ 16\ 56^{+}$ Gr. M. Time.

Mean = -1.20^{x}

4506.6367^{+}
4504.3690
$+2.2677^{+}$
2.3273
$-.00596^{+}$

May 3/1899

Right & above VII

35.0
10 24 20 97.6 62.6ˣ
216.4 61.0ˣ −1.11ˣ
277.4 123.6ˣ
−1.12✓

37.0
26 50 97.5 60.5ˣ −1.12ˣ
215.0 62.0ˣ
278.0 123.5ˣ

Left & Below.

305.5
30 20 6.3 60.8ˣ
125.8 62.2ˣ −1.13ˣ
188.0 123.0ˣ
−1.15ˣ

307.3
31 50 8.3 61.0ˣ
11 33 20ˣ 128.2 60.1ˣ −1.17ˣ
10 22 20ˣ ~~186~~. 121.1ˣ
5 00 188.3 mean = −1.14ˣ
15 27 20 Gr. M. Time.
4206. 6440ˣ
4804. 3690
+ 2.2750ˣ
2.3273
−0.0523ˣ

May 31, 1899.

~~IX~~
VIII

Left & Below
307.7
10 38 25 8.2 60.5x
126.2 63.3x -1.11x
189.5 123.8x

-1.10x

306.0
40 30 9.6 63.6x
129.6 61.2x -1.09x
190.8 124.8x

Right & Above
219.0
43 30 279.9 60.9x -1.08x
34.5 64.3x
~~100.~~
98.8 125.2x
10

-1.04x

216.8
45 50 280.5 63.7x
168 15x 34.2 65.8x -0.99x
10 42 04x 100.0 129.5x
5 01 00

15 41 04x Gr. m. time.

Mean = -1.07x

4506.6536+
4504.3690
+2.2846+
2.3273
-0.0427x

May 31, 1899.

Right & Above

	213.5		
11 00 35	279.6	65.8^x	
	34.2	67.5^x	−0.91^x
	101.5	133.3^x	
			−0.94^x
	214.6		
02 40	251.3	66.7^x	
	34.0	64.0^x	−0.96^+
	96.0	130.7^x	

Left & Below.

	124.5		
05 40	190.8	62.3^x	
	302.4	67.2^x	−0.99^x
	9.6	129.5^+	
			−0.99^+
	125.3		
08 00	192.4	67.1^x	−0.99^+
16 55	304.4	62.2^x	
11 4 14	6.6	129.3^x	

51

16 3 14 Gr. M. Time.

4806.6659x

4804.3690

+2.2999^x

2.3273

−0.0274x

Mean = −0.96^x

May 31, 1899

~~XI~~

X

Left & Below

	128.8		
11 11 20	188.8	60.0$^{\times}$	
	304.0	66.8$^{\times}$	−1.05$^{\times}$
	10.8	126.8^{+}	
			−1.03^{+}
	125.4		
14 10	193.0	67.6^{+}	−1.06^{+}
	305.3	61.0$^{\times}$	
	6.3	128.6^{+}	

Right & Above

	34.0		
17 10	99.6	65.6^{+}	−0.88^{+}
	213.8	69.0^{+}	
	282.8	134.6^{+}	
			−0.92$^{\times}$
	36.2		
19 00	101.2	65.0$^{\times}$	
21 40	214.0	66.0^{+}	−0.96^{+}
11 15 25$^{\times}$	280.0	131.0^{+}	

Mean = −0.98$^{\times}$

5 −1

16 14 25^{+} Gr. m. Time.

4806.6767$^{\times}$

4804.3690

+ 2.3077$^{\times}$

2.3273

−0.0196^{+}

May 31, 1899

~~XVI~~
XI

	Right & Above			
	34.9			
10 24 00	100.3	65.4×	−0.93×	
	215.0	66.8×		
	251.8	132.2×.		
				−0.92×
	35.5			
26.40	102.5	67.0×	−0.92×	
	213.8	65.6×		
	279.4	132.6×		
	Left & Below.			
	305.5			
29 10	7.0	61.5×	−1.01×	
	124.0	67.0×		
	191.0	128.5×		−1.04
	304.2			
31 00	9.3.	65.1+	−1.06	
110 50	128.6	61.2+		
11 27 42+	189.5	126.3+		
5 −1				Mean = −0.98×

16 26 42+ Gr. M. Time.

4806.6852×
4804.3690
+2.3162×
2.3273
−0.0111×

May 31, 1899.

~~XIII~~
XII

Left & Below

305.2

11 35 15 6.0 60.8×
125.4 66.6× −1.03×
192.0 127.4×

−1.06

~~305.0~~ 307.0

39 30 ~~10.0~~ 5.2 58.2× −1.10×
125.2 66.2×
191.4 124.4×

Right & Above

213.2

41 55 281.2 68.0× −0.96×
36.3 63.0×
99.3 131.0×

−0.96×

214.0

44 00 280.4 66.4 −0.95×
35.8 64.9
100.7 131.3

160 50×
11 40 12×
5 −1

16 39 12× Gr. M. Time.

Mean = 1.01×

4806.6939
4804.3690
+2.3249
2.3273
−0.0024×

May 31, 1899.

~~XIII~~

XIII.

Right & Below

213.0

XV 47 20 280.8 67.8

35.4 64.8 -0.92

100.2 132.6

~~214.6~~ -0.96

215.0

49 20 279.8 64.8

35.3 64.0 -1.00

99.3 128.8

Left & Below

128.4

51 30 188.6 60.2

304.4 65.2 -1.08

9.6 125.4

-1.10

127.3

54 25 1~~905~~188.2 60.9 -1.12

305.0 62.5

7.5 123.4

202 35

11 50 39

5 -01

16 49 39 Gr. M. Time.

Mean = -1.03

4806.7011

4806.6962

+0.0049

May 31, 1899.

~~XV~~
~~XIV~~

Left & Below

125.4
11 58 00 ~~190.~~
189.8 64.4x
307.0 52.3x − 1.13x
5.3 122.7x

−1.14x

128.0
12 02 40 188.7 60.7x
306.0 61.0x −1.16x
7.0 121.7x

Right & Above

35.6
12 05 00 100.6 65.0x
216.3 62.5x −1.03x
278.8 127.5x

−1.06x

37.2
12 06 45 96.5 59.3x
252 25 215.9 64.9x −1.10x
211 63 25 280.8 124.2x

12 02 25 ~~Gr. M. Time~~. Mean = −1.10x
+5 01 00
17 02 25 Gr. M. Time.

4506.7100x
4506.6962x
+0.0138x

May 31, 1899

~~XVI.~~
~~XV~~

Right & above

35.2
12 08 10 98.7 63.5
216.4 61.3 -1.09
277.7 124.8

-1.06

36.9
09 40 100.2 63.3
215.3 63.9 -1.04
279.2 127.2

~~Left~~ & Below

307.6
13 15 5.2 57.6 -1.24
127.8 60.4
188.2 118.0

-1.24

307.0
15 05 3.5 56.8
46 10 127.3 60.4 -1.25
12 11 32 187.7 117.2
5 01 00

Mean = -1.15

17 10 32 Gr M. Time.

4806.7156
4806.6962
+0.0194

Arnold & Kent.
12 26 59.7
12 27 59.5

Bond 394
12 25 00
12 26 00

June 1, 1899. (Thursday)

15 35 +38.7
13 31
5 04
6 56

Explained instruments and methods to Mr. Edmands' class of Ladies, Also showed them Jupiter; α Lyrae and ε Lyrae.

W Virginis −4.2
13 16
14 24
1 05

Phot. T.

see next page for meas.

June 1, 1899.
W Virginis.

Left & Above. Ledgered, Plotted, Copied. I

76.2 < comp ✱ dis.
9 42 30 98.2 $22.0^{\times}$
257.3 $20.7^{\times}$ $+3.62^{\times}$
~~277.3~~ $42.7^{\times}$
278.0

$+3.69^{\times}$

77.0
44 20 97.2 $20.2^{\times}$
257.7 $20.0^{\times}$ $+3.76^{\times}$
277.7 $40.2^{\times}$

Right & Below.
346.3
48 00 8.5 $22.2^{\times}$
169.9 $21.1^{\times}$ $3.59^{\times}$
188.0 $43.3^{\times}$

$+3.56^{\times}$

346.2
50 20 8.7 $22.5^{\times}$
185 10 166.3 $22.2^{\times}$ $3.52^{\times}$
9 46 18 188.5 44.7
5 0 -05
14 46 13 Gr. M. Time.

Mean = $+3.62^{\times}$

4807.6154
4798.0366
$+9.5788^{\times}$

June 1, 1899.

Right & Below — II

344.8
9 ~~08~~ 52 50 8.3 23.5x
166.4 21.4x +3.51x
187.8 44.9x

+3.52x

346.6
54 40 8.1 21.5x
165.3 22.8x +3.54x
188.1 44.3x

Left & above
257.0
56 30 277.3 20.3x
76.8 21.2x +3.69x
98.0 41.5x

+3.66

257.7
58 30 278.2 20.5x
22 30 75.7 22.1x +3.63x
9 55 38x 97.8 42.6x
5 -05
14 55 33+ Gr. M. Time.
4807.6219+
4798.0366
+9.5853x

Mean = +3.59x

June 1, 1899.

III

Left & Above

	257.5			
10 01 20	278.0	20.5x		
	76.0	21.8x	+3.64x	
	97.8	42.3x		
				+3.62x
	257.8			
03 00	278.4	20.6x	+3.59x	
	75.2	22.7x		
	97.9	43.3x		

Right & ~~Below~~

	166.0			
08 20	188.0	22.0x		
	346.4	21.8x	+3.57	
	8.2	43.8x		
				+3.56
	165.8			
09 55	187.9	22.1x	+3.54	
22 35	346.0	22.2x		
10 05 39x	8 2	44.3	mean =	+3.59x

5 -05

10 05 34x Gr M T mire.

4857.6259

4792.0366

+9.5923

June 1, 1899.

Right & Below — IV

165.2

10 13 20 — 188.2 — 23.0x

347.0 — 20.6x — +3.58x

7.6 — 43.6x

+3.54x

165.8

16 00 — 188.8 — 23.0x

346.8 — 22.0x — +3.51x

8.8 — 45.0x

Left & Above.

76.8

19 00 — 98.2 — 21.4x

257.2 — 20.8x — +3.65x

278.0 — 42.2x

+3.64x

77.0

20 40 — ~~97.0~~ 98.0 — 21.0x

69 00 — 256.2 — 21.6x — +3.63x

10 17 15+ — 277.8 — 42.6x

5 -05

Mean = +3.59x

15 17 10+ Gr. M. Time.

4807.6369x

4798.0366

+9.6003x

June 1, 1899.

V

Left & Above

	75.8			
10 23 40	98.0	22.2×		
	257.0	21.0×	+3.60×	
	278.0	43.2×		
				+3.62×
	76.4			
25 20	97.6	21.2×		
	2~~56.7~~ 256.7	21.0×	+3.65×	
	277.7	42.2×		

Right & Below

	347.0			
27 50	8.0	21.0×		
	166.4	21.8×	+3.62×	
	188.2	42.8×		
				+3.59×
	346.0			
29 30	8.0	22.0×		
26 20	165.4	22.0×	+3.56×	
10 26 35×	187.4	44.0×		
5 -05				Mean = +3.60×

15 26 30× Gr. M. Time.

4807.6434× Sky hazy; variable rather faint; obs. somewhat

4798.0366 difficult.

9.6068×

June 1, 1899.

Iapetus

17 20 -22.0

15 33 Phot. 7

1 47 (Not.)

10 13

Comp. Star = Same as
one used on May 30 Titan Ledgered.
Left & above
247.8 Copied

11 1 30 296.3 < Titan dis 42.5*

60.0 51.0* -1.67*

111.0 99.5*

9 -1.67*

245.0

289.6 44.6* -1.67*

57.5 54.2*

112.3 99.4*

Right & Below

150.0

204.3 54.3* -1.43*

330.0 55.3*

25.3 109.6* -1.49

156.0 -1.55*

11 08 30 203.9 47.9*

11 04 00* 328.6 56.6*

104.5*

16 4.9 ± 1/2 h M.Time 5.2 mean = -1.58*

4807.670* Comp. Star = BD -21° 4605 (9.0)

June 1, 1899.

Titan again

Right & Below

148.0

11 10 00 203.8 55.8ˣ

333.0 51.2ˣ -1.49ˣ

24.2 107.0ˣ

-1.48ˣ

151.5

202.6 51.1ˣ

327.0 56.5ˣ -1.47ˣ

23.5 107.6ˣ

Left & Above

58.2

~~112.~~

113.0 54.8ˣ -1.58ˣ

243.0 48.2ˣ

291.2 103.0ˣ

-1.59

~~8~~

62.8

11 17 30 114.6 51.8ˣ -1.60ˣ

243.6 50.6ˣ

11 13.8ˣ 294.2 102.4ˣ

5 -.1

16 13.7ˣ Gr M. Time

4807.676ˣ

Mean = -1.54ˣ

June, 1899.

Iapetus.

~~At~~ Left & Above   Ledgered
                                   Copied.

313.3 <comp & dis.
11 22 20   358.8   ∠5.5×
140.8   ∠4.2×   +0.20×
225.0   169.7×

313.0   +0.17×
39.3   ∠6.3×
133.8   ∠6.2×   +0.14+
220.0   172.5×

Right & Below
224.5
310.0   ∠5.5×
42.6   ∠5.4+   +0.17×
129.0   170.9+

+0.22×.

224.8
11 32 00   308.3   ∠3.5×
5.4 20   45.4   ∠2.6×   +0.26+
11 27.2   125.0   166.1+
5 −.1

Mean = +0.20

16 27.1+ G.M.T. Haze growing thicker: obs. especially of Iapetus
4 07.6 85.+ very difficult: Obs. not one half weight.
At D. 11 44 05   Bond 11 44 00
Arnold & Dent 05 sec fast.

June 2, 1899. (Friday.)

B Lyrae

9.5 in cap used. Phot. W. Obs.

18 46 +33.2

12 46

6 00 Ledgered, Plotted, Copied.

Right & Below. 6 00

306.8 < var. dis.

8 05 00 333.5 26.7×

126.2 27.8× -3.05×

154.0 54.5×

-3.10×

307.1

07 43 33~~4~~1 27.0×

127.3 26.7× -3.11×

153.0 53.7×

~~Left & above~~

216.8

8 13 22 243.1 26.3×

36.2 27.8× -3.10×

64.0 54.1×

-3.06×

214.9

16 07 244.3 29.4×

37.0 26.5× -3.02×

42 12× 63.5 55.9×

8 10 33

5 -6 -10

13 10 23× Gr.M.Time.

~~42 05 .5459~~ ×

4205 .549 Phase = 0.105

4414

Mean = -3.05×

June 21 1899.

Left & Above.

II

216.7

8 20 23 242.5 25.8ˣ

35.2 28.8ˣ — 3.07ˣ

64.0 54.6ˣ

215.~~8~~9 — 3.10ˣ

24 00 243.5 27.6ˣ

37.1 25.5ˣ — 3.14ˣ

62.6 53.1ˣ

Right & Below

128.3

28 37 157.2 28.9ˣ — 2.93ˣ

305.1 29.3ˣ

334.4 58.2ˣ

— 3.02ˣ

125.2

30 43 154.3 29.1ˣ — 3.11ˣ

103 43 307.5 24.6ˣ

8 25 56ˣ 332.1 53.7ˣ

5 —10

13 25 46ˣ Gr M. Time. Mean = — 3.06″

45085.~~5596~~ˣ

.560

45085.444

+0.116ˣ

June 2, 1899.

Right & Below III

127.8
8 33 23 151.8 24.0^{x}
306.4 28.0^{x} -3.18^{x}
334.4 52.0^{x}

-3.15^{x}

125.8
3 8 55 155.2 29.4^{x}
308.1 24.0^{x} -3.12^{x}
332.1 53.4^{x}

Left & Above
37.7
4 1 53 62.5 24.8^{x} -3.12^{x}
215.7 28.6^{x}
244.3 53.4^{x} -3.12^{x}

36.4
4 44 2 64.1 27.7^{x} -3.13^{x}
217.2 25.6^{x}
$160\ 53^{x}$ 242.8 53.3^{x}
$8\ 40\ 13^{x}$
5 −10 Mean = -3.14^{x}
13 40 03 Gr. M. Time.
4808.569^{x}
4808.444
$+0.125^{x}$

June 2, 1899

Left & above.

IV.

37.3
5 56 07 64.2 26.9 - 3.02
216.0 29.0
245.0 55.9

- 3.03

35.5
9 00 44 65.0 29.5 -3.04
217.1 25.9
243.0 55.4

Right & Below.
04 50 307.9
333.0 25.1
126.1 29.3 - 3.08
155.4 54.4

- 3.08

305.9
06 30 334.1 26.3
24.5 21 ~~127~~.126.4 26.3 - 3.05
9 02 03 152.7 54.5
5 -10
14 01 53 Gr. M. Time.
420F. 55~~46~~ 51
420F. 444
+0.141

Mean = - 3.06

June 2/1899

Right & Below

V.

307.6
9 16 17 332.2 24.6+
126.1 28.2+ -3.15+
154.3 52.8+

-3.12+

305.9
18 38 334.7 28.8+ - 3.10+
127.4 25.3+
152.7 54.1+

Left & above.

217.0
21 37 243.2 26.2+
35.2 29.1+ - 3.04+
64.3 55.3+

-2.98+

214.8
24 33 244.9 30.1+ - 2.93+
35.7 28.0+
63.7 58.1+

81 05+
9 20 16+
5 -10
14 20 06+ Gr. M. Time.

Mean = - 3.05+

48 08. 5978
42 08. 444
+0.153+

June 2, 1899.

VI

	Left & Above		
	217.0		
9 28 47	243.2	26.2 ×	
	~~34.7~~	29.9 ×	− 3.01 ×
	35.3	56.1 ×	
	65.2		− 2.98 ×
	214.6		
32 56	245. ~~0~~ 1	30.5 ×	− 2.96 ×
	36.4	26.8 ×	
	63.2	57.3 ×	
	Right & Below		
	127.4		
36 36	152.4	25.0 ×	− 3.06 ×
	304.6	30.0 ×	
	334.6	55.0 ×	
			− 3.03 ×
	124.8		
38 48	155.9	31.1 ×	− 3.00
137 07 ×	307.6	25.4 ×	
9 34 17	333.0	56.5 ×	
5 −10			Mean = − 3.00 ×

14 34 07 Gr. M. Time.

4508.607 ×
4508.444
+0.163 ×

June 2, 1899.

VII

Right & Below

127.9
9 42 40 ~~152~~. 152.8 24.9 ×
305.9 29.2 × − 3.10 ×
335.1 54.1 ×

− 3.12 ×

126.4
46 11 154.0 27.6 ×
308.0 25.3 × − 3.14 ×
333.3 52.9 ×

Left & above.

37.4
45 34 62.5 25.1 ×
214.3 29.4 × − 3.08 ×
243.7 54.5 ×

− 3.02 ×

34.5
52 05 64.2 29.7 × − 2.96 ×
189 30 215.8 27.7 ×
9 47 22 × 243.5 57.4 ×
5 10

Mean − 3.07 ×

14 47 12 Gr. M. Time
48 08.616 ×
48 08.444
+0.172

~~Mar~~ June 2, 1899.

~~VIII~~

Left o Above

35.7

9 56 00 63.3 27.6+

214.3 31.0+ − 2.91+

245.3 58.6+

−2.92+

~~34~~.8

57 45 65.1 30.3+ − 2.93+

215.4 28.0+

243.4 58.3+

Right o Below.

307.4

10 00 05 333.7 26.3 − 3.03+

126.0 29.3

155.3 55.6+

− 3.00+

305.0

03

~~08~~ 00 335.2 30.2+ − 2.96+

236 50+ 127.0 27.2+

9 59 12+ 154.2 57.4+

5 10

Mean = − 2.96+

14 59 02+ Gr. M. Time.

4808.6248+

4808.444

+0.180+

June 2, 1899.

Right & Below

IX

307.8

10 07 25 333.4 25.6x

124.5 30.5x -3.01x

155.0 56.1x

-3.00x

10 40 305.6

~~1040 00~~ 335.3 297x

127.0 271x -2.92x

154.1 56.8x

Left & Above

217.0

14 30 243.6 26.6x

35.0 29.4x -3.02x

64.4 56.0x

-2.98x

214.8

16 45 244.4 29.6x -2.95x

49 20 35.0 28.0x

10 12 20x ~~62.~~ 57.6x

5 10 63.0

15 12 10x Gr M Time.

mean = -2.98x

4808.633x

4808.444

+0.189x

June 2, 1899.

X

Left & Above
~~246.7~~
36.5
10 30 00 63.5 27.0x
214.0 30.5x -2.94x
244.5 57.5x

-2.93x

34.1
32 05 65.2 31.1x
216.0 27.4x -2.92x
243.4. 58.5x

Right & Below
306.6
35 05 333.2 26.6x
124.6 31.4x -2.94x
155.4 58.0x

-2.95x

305.5
37 10 335.4 29.9x
127.1 25.9x -3.02x
14 10
10 33 32+ 153.0 55.8x
5 10
15 33 22+ Sr. M. Time.
4508.6450+
4508.444
+0.204

Mean = -2.96x

June 2, 1899

Right & Below XI.

10 55 00 ~~307.0~~ 127.6
~~10 48 45~~ 15 ~~333.4~~ 153.4 25.6x
~~123.3~~ 305.3 30.4 −3.02
~~153.3~~ 335.7 56.0x

−3.02

~~304.9~~ 125.0
~~50 30~~ ~~333.6~~ 156.2 31.2x
10 58 15 ~~127.5~~ 307.8 24.7x −3.02
~~153.2~~ 332.5 55.9x

Left & Above.
37.2
11 01 25 62.5 25.6x
214.2 31.0x −2.99x
245.2 56.6x

−3.00x

34.0
− 03 40 65.0 31.0x −3.00x
10 23 8 20 216.6 25.4x
10 59 35x 242.0 56.4x
5 10
15 59 25x Gr. M. Time.

Mean = −3.01

4808.6668x
4808.444
+0.222

June 2, 1899

XII

Left & Above

36.6

11 11 00 63.2 26.6^{+}

215.0 31.1^{+} -2.95^{+}

246.1 57.7^{+}

34.7 -2.94^{+}

13 00 66.0

31.3^{+}

215.8 26.7^{+} -2.94^{+}

242.5 58.0^{+}

Right & Below.

307.8

17 33 333.9 26.0^{+}

125.6 30.3^{+} -3.00^{+}

155.9 56.3^{+}

-3.02^{+}

305.3

20 00 335.1 29.8^{+} -3.05^{+}

127.6 25.4^{+}

61 35

11 12 26^{+} 153.0 55.2^{+}

5 10

16 15 16^{+} Gr. M. Time

4808.6778^{+}

4808.444

$+0.233^{+}$

Mean = -2.98^{+}

June 21 1899

XIII

Right & Below

11 ~~27~~ 15 ~~307.0~~ ~~126.7~~ 126.6

11 ~~25~~ 40 ~~332.3~~ ~~135.4~~ 155.5 $28.9^{\times}$

11 29 40 307.5 $25.7^{\times}$ $-3.07^{\times}$

333.2 $54.6^{\times}$

$-3.04^{\times}$

126.9

11 33 20 152.8 $25.9^{\times}$ $-3.02^{\times}$

304.9 $30.1^{\times}$

335.0 $56.0^{\times}$

Left & above

34.4

37 05 64.3 $29.9^{\times}$

216.5 $26.7^{\times}$ $-2.99^{\times}$

243.2 $56.6^{\times}$

$-3.03^{\times}$

37.2

41 10 63.3 26.1 $-3.07^{\times}$

14 15 215.4 28.6

244.0 54.7

11 35 $19^{\times}$

5 10

16 35 $09^{\times}$ Gr. M. Time.

$4808.691^{\times}$

4808.444

$+0.247^{\times}$

mean = $-3.04^{\times}$

June 2, 1899.

XIV

Left & Above
34.0
11 47 20 65.0 31.0×
215.9 26.7× −2.95×
242.6 57.7×

−2.97×

35.5
50 15 63.1 27.3× − 2.99×
215.5 29.4×
245.2 56.7×

Right & Below
365.5
52 55 335.0 29.2×
25.9× − 3.05×
127.3
153.2 55.1×

−3.04×

307.5
5645 333.0 25.5× − 3.04×
20 7 05 125.6 29.9×
11 51 46× 155.5 55.4×
5 10
16 51 36+ Gr. M. Time.

Mean = −3.00×

4508. 702~~5~~
3
4508. 444
+0259+

June 2, 1899.

Mme Ceraski Var.

20 9 +46.3
17 23

2 46
9 14

Arnold ~~[illegible]~~ Bond 394

12 45 10.3	12 45 00
12 46 10.0	12 46 00

June 3 1899. (Saturday)

B Lyrae

18 46   +33.2
12 36
6 10
5 50

abandoned for the present.

Mme Ceraski's New Var.

20^h 9^m +46.3
13 0
7 9
4 51

abandoned, Region rather low. twilight too strong

B Lyrae.
18 46   +33.2
13 16
5 30
6 30

June 3, 1899.

Phot. W. B Lyrae W obs.

9½ inch cap Below & Right

~~127~~. 126.8 <var. dis.

F 19 20 ~~153~~

153.5 Ledgered, Plotted. I

26.7+ Copied

306.2 26.6+ - 3.18

332.5 59.3+

127.0 - 3.15+

F 21 50 152.4 25.4+

306.6 27.0+ - 3.17+

333.6 52.4+

Above

36.~~1~~

F 24 00 6~~4~~3.3 27.2+

217.2 24.9+ - 3.15+

242.1 52.1+

- 3.12+

36.1

F 27 45 63.1 27.0+

215.6 25.1+ - 3.05±

Clouds 243.7 55.1+

9.3 35

F 23 24+

S 07

13 23 17+ Gr. M. Time Mean = - 3.14+

4509.558+

4508.444 Phase = +1.114

+1.114+ ~~Gr. M. Time~~

June 3, 1899.

β Lyrae.

Left & Above

8 35 00 335.7 65.0 29.3x
210.8 26.8x − 3.01x
243.6 56.1x

− 3.04x

340.9
38 06 63.0 26.1x
215.3 28.3x − 3.08x
243.6 54.4x

Right & Below.
306.1
40 30 334.2 25.1x
127.6 25.5x − 3.11x
153.6 53.6x

Star gone

Clouds 306.3 − 3.14x
49 45 → 334.3 25.0x
~~Clouds.~~ ~~307~~.3 128.1 24.5 − 3.16x
~~Star gone~~ ~~300.0~~ 152.6 52.5x mean = − 3.09x
9 00 00

Troubled somewhat by clouds in last group especially in latter end.

8 42 05
5 07
13 47 58 Gr. M. Time.

4809.571
4808.444
+1.127x

June 3, 1899.

Mme Ceraski's New Var Resumed.

20 9 +46.3
1.4 9
6 0 Plot. T. Notes.
6 0

Left & Above

323.2 < var dis.
Op 4530 38.2 75.0
142.2 73.6
245.8 148.6
Clouds.

317.0
4715 358 78.0
138.0 86.0
Clouds. 224.0 164.0
Right & Below.

Reject Above.

June 3, 1899.

Mme Ceraski's New Var.

I

Left & Above Ledgered, Plotted, Copied

3140 < vardis.

10 42 05 — 42.3 — 88.3 v ×

Clouds — 134.8 — 87.0 v × — −0.09 ×

221.8 — 175.3 v ×

−0.04 ×

~~−0.05~~

310.3

43 25 — 42.6 — 92.3 v ×

132.5 — 88.1 × — +0.01 ×

220.6 — 180.4 ×

179.6 ×

Right & Below

222.5

46 00 — 309.0 — 86.5 ×

47.0 — 79.4 × — ~~−0.08~~

126.4 — ~~175.9~~

165.9 × — −0.27 × — −0.30 ×

~~−0.20~~

226.3

47 20 — 305.3 — 79.0 +

18 50 + — 45.3 — 83.9 + — −0.32 ×

10 44 45 — 129.2 — 162.9 +

5 −07

15 44 38 + Gr. M. Time.

~~4809.6560~~ + — 4809.6560 ×

~~4809.9111~~ — 4805.3185 × v

~~−0.2551~~ — +4.3375 ×

~~Mean = −0.12~~

Mean $\overset{3333}{=}$ −0.17 ×

June 8 1899

II

Right & Below

223.3
10 49 00 309.4 86.1
46.9 79.5
126.4 165.6 −0.27

−0.29

229.4 78.2
10 51 50 307.6 85.6
163.8 −0.31
42.7
128.3

Left & Above

132.6 90.4
5 2 40 223.0
317.3 81.2 − 0.16
35.5 ~~166.6~~ ~~−0.22~~
171.6

135.5
54 00 224.0 85.5 0.12
206 30 313.3
10 51 38 42.7 89.4
5 07 174.9 − 0.09
− 0.20
15 51 31 GrM Time. 4509.660
4505.3185
~~4509.6600~~
~~4509.9111~~ Phase = 4.3423
~~−0.2503~~

June 3, 1899

Left & Above

III

132.3
10 56 45 222.6 90.3ˣ
317.5 ~~80.9~~
~~38.4~~ 84.1ˣ −0.16 ✓ˣ
41.6 174.4ˣ

−0.12 ✓ˣ
✓

136.0
58 50 218.0 82.0ˣ −0.14ˣ
311.0 90.6ˣ
41.6 172.6ˣ

Right & Below

42.2
11 01 30 130.7 88.5ˣ
231.0 76.2ˣ −0.29 ✓ˣ
307.2 164.7ˣ

−0.25 ˣ✓

46.0
02 45 130.2 84.2ˣ
239 50ˣ 226.0 84.6ˣ −0.21 ✓ˣ
310.6 168.8ˣ

10 59 58ˣ
5 −07
15 59 51 Gr. M. Time.

Mean = −0.181ˣ✓

~~4809.6666~~ 4809.6666
~~4809.9111~~ 4805.3185
−0.~~2445~~ 4.3481

June 3 1899.

Right & Below

IV

	42.2		
11 05 00	130.6	55.4 ✓×	
	230.0	79.3 ✓×	
	309.3	167.7 ✓×	−0.23 ✓×
			−0.19 ✓×
	45.3		
11 06 20	125.5	83.5 ✓×	
		55.6 ✓×	
	224.5	172.1 ✓×	−0.15 ✓×
	313.4		

Left & Above

	311.6		
09 35	44.0	92.4 ✓×	
	136.6	55.5 ✓×	
	222.1	177.9 ✓×	−0.04 ✓×
			−0.05 ✓×
	313.5		
11 00	39.5	55.7 ✓×	
31 55	131.3	91.0 ✓×	
	222.3	176.7 ✓×	−0.06 ×

11 7 59
5 −07
16 7 52 Gr. M. Time,

Mean = −0.12 ×

4509.6721 ×
~~4509.9111~~
~~−0.2890~~
4505.3125
4.3536

June 23, 1899.

Left & Above IV

310.4

11 13 40 46.0 95.6 ✓×

~~136~~134.4 86.8 ✓×

221.2 182.4 ✓ + 0.05 ✓×

177.6 ×

313.3 + 0.02 ✓×

15 30 40.5 87.2 ✓×

132.4 92.6 ✓× 0.00 ✓×

225.0 179.8 ✓

Right & Below

220.6

17 43 312.2 91.6 ✓×

47.1 82.1 ×✓ - 0.12 ✓×

129.2 173.7 ✓×

- 0.12 ✓×

225.3

19 47 309.2 83.9 ×✓

41.5 90.2 × ✓ - 0.11 × ✓

26 40 132.0 174.1 ✓×

11 16 40

5 07

16 16 33 Gr. M. Time. Mean - 0.05 × ✓

4509.6782

4505.3155

~~4509.9111~~

~~-0.2329~~

+ 4.3597

June 3,

Right & Below ~~VI~~

~~224.2~~ 42.2 87.4 v x

~~11 29 50~~ ~~316.2~~ 129.6 ~~92.0~~

11 36 05 221.0 90.0 v x

311.0 177.4 v x −0.0v x

41.7

37 44 132.4 90.7 x −0.06 x

224.2 86.0 v x

310.2 176.7 v x −0.06 +

Left & above.

309.5

39 54 44.5 95.0 v x

134.5 57.5 v x

222.3 152.5 v x +0.0v x

312.5 177.2

41 35 42.5 59.7 v x +0.0A x

129.5 95.5 v x

15 5 21 225.6 155.5 v x +0.10 x

11 38 59

5 −07 174.5

16 38 43 Gr. M. Time. +0.01 +

4509.6936 x

4505.3155

~~4509.9111~~

~~−0.2175~~ ±

4.3751

June 3, 1899.

Left & Above. VII

309.5
11 47 00 45.9 96.1
132.2 92.1
224.3 155.2
171.8 +0.16

313.1
49 02 41.5 55.4 +0.12
131.0 96.1
227.1 154.5 +0.08
175.5

Right & Below

219.5
51 36 314.7 94.9
42.9 56.7
129.6 151.6 +0.03
178.4

224.0 56.7 +0.05
53 45 310.7 95.6
201 26 39.4
11 50 21 135.6 152.3 +0.05
5 07 177.7
16 50 14 Gr. M. Time Mean = +0.08

~~4509.7015~~ 4509.7015
~~4509.9111~~ 4505.3485
~~-0.2096~~ 4.3530

June 3 1899.

Right & Below. VIII

219.0

11 37 26 314.2 95.2 ✓×

42.5 59.2 ✓×

132.0 154.4 ✓×

175.6 × +0.02 ✓×

224.0

59 04 311.0 57.0 ✓× +0.05 ✓×

40.0 93.5 ✓×

133.5 150.5 ✓× +0.02 ✓×

179.2 ×

Left & Above.

129.1

12 02 06 227.2 95.1 ✓×

310.5 ×94.4 ✓×

45.2 192.5 ✓×

167.5 ✓ +0.24 ×

133.2

04 00 223.3 90.1 ✓× +0.19×

2 36 310.0 97.2 ✓×

12 00 39× 47.2 157.3 × +0.14×

5 07 172.7

17 00 32 Gr. M. Time. Mean +0.12×

~~4509.7056~~ 6× 4509.7056

~~4509.9111~~ 4500.3125

-0~~.20~~25× 4,39 01

June 7, 1899.

IX

Left & Above

127.4
12 10 15 229.3 101.9 ✓
310.8 92.2 ✓ +0.27 ✓
43.0 194.1 ✓
165.9 ✓

+0.28 ✓

132.0
12 10 227.1 95.1 ✓
308.1 99.7 ✓ +0.28 ✓
47.8 194.8 ✓
165.2 ✓

Right & Below.

37.8
15 27 136.7 98.9 ✓
221.5 92.5 ✓ +0.22 ✓
314.6 191.4 ✓
168.6 ✓

+0.20 ✓

41.1
17 43 133.4 92.3 ✓
13 3 57 219.8 96.5 ✓
12 13 29 316.3 188.8 ✓ +0.17 ✓
5 07 171.2 ✓

17 13 22½ Gr. M. Time Mean +0.24 ✓

~~4809.7177~~ 4809.7177
4809.9111 4805.3185
-0.1934 +4.3992

June 3. 1899.

Right & Below X.

12 28 45 38.8
136.8 98.0
219.4 94.0
313.4 192.0
168.0 +0.23

39.2
38 40 134.8 95.6
214.8 102.0 +0.28
316.8 197.6
162.4 +0.33

Left & Above
305.8
33 20 43.0 97.2
131.2 94.2
225.4 191.4 +0.22
168.6

307.4 99.2
35 46 46.6 105.9 +0.35
8 31 126.3 205.1
232.2 154.9 +0.48

12 32 08
5 07
Mean +0.32

17 32 01 Gr M. Time.

~~4209.7306~~ In previous groups var. div.
~~4209.9111~~ 4209.7306
~~-0.1805~~ I 4205.3125
4.4121

June 3, 1899.

In following groups comp * dia.

XI

Left & Above

232.7
12 39 50 305.5 72.5 ✓+
46.5 52.2 ✓+ + 0.45 ✓+
129.0 155.0 ✓+

+ 0.52 ✓+

229.0
42 00 306.6 77.6 ✓+
52.3 72.9 ✓+ + 0.57 ✓+
125.2 150.5 ✓+

Right & Below

135.0
44 20 215.8 77.8 ✓+
316.6 51.2 ✓+ + 0.40 ✓+
37.8 159.0 ✓+

+ 0.42 ✓+

137.9
46 05 219.9 52.0 ✓+
172 15+ 320.0 74.8 ✓+ + 0.44 ✓+
12 43 04 34.8 136.8 ✓+
5 -07 Mean = + 0.47 ✓+
17 42 57 Gr. M. Time.

~~4509.7352~~+ 4509.7352
~~4509.911~~+ 4505.3155
-0.1729+ 4.4197

June 3 - 5 PM.

Right & Below XII

138.5
12 56 30 214.6 75.5 77.2 133.0 +0.52
317.3
34.5

~~135~~ 135.0 +0.54
59 15 216.9 75.7 71.6 150.3 +0.57
321.7
333

Left & Above
53.7
13 02.25 120.5 67.2 75.3 142.4 +0.73
229.5
305.1

+0.74

50.5
04 45 123.3 72.5 65.1 140.6 +0.76
3 01 233.2
13 00 45 361.3
5 07
15 00 38 G.M.Time.

Mean = +0.64

~~4509.7504~~ 4509.7504
~~[illegible]~~ 4505.3185
~~-0.1607~~ 4.4319

June 3, 1899

Left of ~~Below~~ Above XIII

13 1365 56.0
1 119.9 63.9 ✓
231.3 71.2 ✓ + 0.87 ✓
302.5 135.1 ✓
+ 0.87 ✓

53.7 68.6 ✓ 1
15 53 122.3 66.7 ✓ + 0.87 ✓
233.6 135.3 ✓
300.3

p
Right of ~~Below~~

324.8
6$\overset{5}{9}$.4
18 30 30.2 +0.82 ✓
72.4 ~~+0.74~~
141.8
214.2 ~~141.8~~
137.8
+0.83 ✓ ×
~~+0.79~~

323.0
70.3 ✓
20 26 33.3
66.4 ✓
68 04 × 145.0 + 0.84 ✓
12 13 17 01 211.4 136.7 ✓
5 5 07

1 18 16 5~~4~~ Gr. M. Time. Mean = + 0.8$\overset{5}{2}$ ✓ ×

~~4809.7617~~ × 4809.7617
~~4809.9111~~ 4805.3185
~~-0.1494~~ × 4.4432

June 3, 1899.

~~XIV~~

Right ~~or Above~~ Below

144.0
13 31 55 209.5 65.5 ✓ ×
324.5 63.7 ✓ ×
25.5 129.3 ✓ × +0.99 ✓ ×

143.0 +0.97 ✓ ×
33 35 209.1 66.1 ✓ ×
325.7 65.5 ✓ ×
131.6 ✓ × +0.95 ✓ ×
31.2

Left or ~~Below.~~ Above

57.6
36 30 117.4 59.5 ✓ ×
234.5 63.2 ✓ ×
295.0 123.0 ✓ × +1.13 × ✓

54.0 +1.12 ✓ ×
38 25 120.2 66.2 ✓ ×
20 25 239.0 58.2 ✓ ×
13 35 07 297.2 124.4 ✓ × +1.10 ✓ +
5 .07 +1.04 ✓ ×
18 35 00 Gr M. Time.

4509.7743 +
4505.3123 –
~~4509.9111~~
+
~~-0.1365~~
4.4555

June 3, 1899.

Star x comp with Comp. *

Left o. o Above

Ledgered.

	67.6		
13 ~~45~~ 46	110.6	43.0 ✓×	
	243.2	45.1 ✓+	+1.96 ✓×
	255.3	55.1 ✓+	
			+1.96 ✓×
	63.5		
	110.6	46.5 ✓+	
	246.2	41.9 ✓+	+1.95 ✓×
	255.1	55.7 ✓×	

Right o Above

	336.2		
	19.0	42.5 ✓+	+1.91 ✓×
	152.9	47.5 ✓+	
	200.4	90.3 ✓+	
			+1.94 ✓×
	336.5		
55 60	20.5	44.3 ✓+	
103 40	155.4	43.5 ✓+	+1.97 ✓×
1 13 51 50 +	198.9	57.5 ✓+	
5 5 07			

Mean = +1.95 ✓×

1 18 51.7 G. M. Time.

June 9, 1899

Same again. (Star X)

Ledgered.

Right & Below

336.0 46.2+
14 03 30 22.2
153.1 46.3+
199.4 92.5+ +1.85

336.2 44.0x
20.2 ~~43.4~~ +1.88
153.0 46.3x
199.3 ~~89.7~~ +1.9x
90.3x

Left & Above

243.8 46.2x
290.0
64.8 47.2x
112.0 93.4x +1.82

244.2 +1.80
14 05 30 292.5 48.3x
64.0
12 00 47.1x
14 6. 00 111.1 95.4+ +1.77
19 5.9 Gr. M. Time.

+1.84

June 3, 1899.

Var. Resumed.

Left & Above

XV

244.6
14 11 20 290.4
352.5
120.0

45.8 ✓+
61.5 ✓+
107.3 ✓+

+1.48 ✓+

+1.53 ✓+

238.4
13 20 293.0
64.3
113.0

54.6 ✓+
48.7 ✓+
103.3 ✓+

+1.58 ✓+

Right & Below.

154.0
16 30 199.3
333.0
~~25.2~~
24.8

45.3 ✓+
51.8 ✓+
97.1 ✓+

+1.73 ✓+

+1.64 ✓+

149.6
15 35 204.3
19 45 332.0
14 14 56+ 21.2
5 07
19 14 49+ Gr M. Time

54.7 ✓+
49.2 ✓+
103.9 ✓+

+1.56 ✓+

Mean = +1.58 ✓+

~~4809.8020~~
~~4809.9111~~
~~-0.1091~~+

4809.8020
4805.3185
4.4835

June 3, 1899.

XVI

Right & Below

155.6
14 30 40 204.6 49.0 ✓×
332.8 46.7 ✓× +1.76 ✓×
19.5 95.7 ✓×

+1.84 ✓×

157.5
32 50 206.5 43.3 ✓×
334.0 46.9 ✓× +1.91 ✓×
20.9 90.2 ✓×

Left & Above

30 15 65.8
110.6 44.8 ✓×
247.0 42.5 ✓× +1.99 ✓×
259.5 87.3 ✓×

+1.94 ✓×

66.2
~~105.~~
35 40 111.1 44.9 ✓×
~~45.1~~
245.8 45.3 ✓× +1.96 ×
17 25
14 34 21 291.1 ~~90.4~~
5 07 90.2 ×

+1.90 ✓×
Mean = ~~+1.89.~~

19 34 14h Gr. M. Time.

~~4209.8754~~ × 4209.8154
~~4209.9111~~ 4205.3185
~~0.09~~57 + 4.4969

June 3, 1899.

Left. + Above   XVII

66.2
14 50 20   105.0   41.5 ✓×
245.5   35.5 ✓×   + 2.19 ✓×
257.0   50.3 ✓×

65.2   + 2.15 ✓×
~~70.0~~   35.0 ✓×
52 00   106.2   + 2.15 ✓×
245.6   42.4 ✓×
291.0   50.4 ✓×

Right & Below
330.0
14 55 00   11.6   36.6 ✓×
157.3   39.0 ✓×   + 2.33 ✓×
196.3   75.6 ✓×

+ 2.32 ✓

336.5
56 25   11.2   34.4 ✓×
157.6   41.3 ✓×   + 2.32 ✓×
195.9   75.7 ✓×

13 45
14 53 26+
5 07
19 53 19+ Gr. M. Time.

mean = + 2.25 ×

Daylight coming. Last group difficult.

4~~509.525~~7+
~~9.911~~
-~~0.05~~24

4509.5257
4505.3155

June 3 1899,

AR & Decl.	Bond 394
15 15 07.2	15 15 00
15 19 07.5	15 19 00

The first three groups are −0.18, −0.22, −0.18 which looks as if the variation had not then started. Immediately thereafter it begins to go down. and reached +2.25 at daylight, or a range of about 2.5 mags. ~~which was~~ This also makes it 0.37 mags. ftr. than star x. Star x was faint and about the best available faint star in the neighborhood that could be measured. When taken, it was supposed that the variable would not go down as faint as that, at least, before daylight, but it went down a little ftr. as above.

Ledgered and plotted up to this date - June 5.

June 5, 1899. (Monday)

δ Librae

6½ in cap.

14 56 −8.0
12 46 Plot. T.
2 10 W.ob.
9 50

Above — Ledgered, Plotted, I.

154.7
7 50 25 ~~170.2~~ 197.8 — 43.1
331.2 — 50.8 — −1.81
22.0 — 93.9

−1.78

156.6
55 20 202.7 — 51.1 — −1.74
333.8 — 45.7
17.9 — 96.8

4811.5397 ✓
4811.3520
+0.1877

Below
2462
59 05 287.5 — 41.3 — −2.02
~~60.1~~ — 44.7
65.7 — 86.0
110.4 — −1.99

243.5
8 01 15 291.0 — 47.5 — −1.96
229 05 — 68.2 — 40.8
7 57 16 — 109.0 — 88.3
5 12
12 57 04 Gr-M. Time.

Mean = −1.88

June 5, 1899.

II

Below

~~2~~479
8 08 15 287.6 — 39.7* — -2.08*
67.7 — 44.1
111.8 — 83.8*

-2.07*

246.6
8 09 40 290.3 — 43.7* — -2.06*
66.4 — 41.1
107.5 — 84.8*

~~48 10~~.5493*
48 11.3520*
+0.1973

above
155.0
8 12 10 200.2 — 45.2 — -1.87
334.5 — 46.5
21.0 — 91.7*

-1.85

~~154~~·1529
8 14 35 200.3 — 47.4 — -1.83
333.8 — 45.7
~~22.2~~ — 93.1*
19.0

Clouds.

4 44 40
8 11 10
5 12
13 10 58

*Gr. M. Time.

Mean = -1.96*

June 5, 1899.

III.

Above
156.0
8 25 20 198.6 42.6
332.3 51.0 −1.82
23.3 93.6 ×

−1.84 ×

153.1
27 00 202.5 49.4
338.8 42.8 −1.86
19.4 92.2 ×

Below.
67.8
31 15 107.1 39.3
245.7 43.6 −2.11
289.3 82.9 ×

−2.10 ×

65.0
32 40 110.0 45.0
11 6 15 247.5 38.1 −2.10
8 29 04 285.6 83.1 ×
5 −12
13 28 52 × Gr. M. Time.
4811.5548
4811.3520
+0.2028

Mean = −1.97 ×

June 5, 1899

IV

Below.

8 35 00 65.8
109.2 40.4
245.3 46.3 -2.00
291.6 86.7 ×

-2.07 ×

66.8
37 10 110.6 43.8
248.2 38.2 -2.14
~~29~~256.4 82.0 ×

Above.
337.3
40 00 19.3 42.0
Clouds. ~~1~~53.5 48.5 -1.90
202.0 90.5 ×

-1.92 ×

334.0
43 15 21.0 47.0 -1.93
156.0 42.4
155° 20 198.4 89.4 ×
8 38 51 ×
-12
13 38 39 Gr. M. Time.
4811.5685 ×
4811.3020
+0.2165 ×

Mean = -2.00 ×

June 5, 1899.

Above V

336.0

8 47 15 19.1 43.1

153.8 47.5 −1.90+

201.3 90.6 +

−1.93+

334.3

49 30 20.0 45.7 −1.96+

~~156~~ 42.4

156.8 88.1+

199.2

Below

248.0

52 25 287.6 39.6

70.0 38.6 −2.20

105.6 78.2 +

−2.18

244.3

54 25 258.3 44.0 −2.10

67.8 39.4

203 35 107.2 83.4+

8 50 54+

5 .12

mean = −2.06+

13 50 42+ Gr. M. Time.

~~[illegible]~~9+

4811.3570

+0.2249+

June 5, 1899.

Below VI

247.8
9 01 40 288.0 40.2
67.4 42.6 -2.11
110.0 82.8×

-2.10×

245.3
9 03 25 288.1 42.8
67.8 40.5 -2.10
108.3 83.3×

Above.
176.0
06 00 218.6 42.6
355.1 45.9 -1.95
41.0 88.5×

-1.94×

174.0
08 40 220.6 46.6
19 45 355.2 43.2 -1.92
9 4 56 38.4 89.8×
5 .12
14 4 44 Gr. M. Time.

4811.5866×
4811.3520
+0.2346×

mean = -2.02×

June 5, 1899.

VII

	Above			
	174.8			
9 11 45	229.2	54.4		
	352.2	48.4	~~-1.89~~+	
	40.6	102.8+		
				-1.86+
	175.2			
13 25	230.7	55.5		
	356.3	41.9	-1.72+	
	38.2	97.4+		
	Below			
	87.2			
17 00	125.2	38.0		
	266.4	42.9	-2.17+	
	309.3	80.9+		
				-2.15+
	86.2			
18 50 Clouds.	130.7	44.5	-2.13+	
21 00	268.9	37.7		
9 15 16	308.6	82.2+		
5 12				

14 15 04+ Sid. M. Time. Mean = -1.90+

4811.5938+

4811.3520

+0.2418+

June 5, 1899.

VIII

Below

9 87.8

30 00 127.3 39.5

264.4 42.9 -2.12

307.3 82.4 ×

-2.14 ×

87.3

32 00 130.0 42.7

268.2 38.3 -2.17

306.5 81.0 ×

Above.

355.8

34 50 38.8 43.0

175.7 43.6

219.3 86.6 × -2.01

-2.02 ×

353.8

36 10 39.6 45.8 -2.03

13 10 177.8 39.8

9 33 15 217.6 85.6 +

5 12

Mean = -2.08 ×

14 33 03 + Gr. M. Time.

4811.6062 ×

4811.3520

+0.2542 ×

June 5, 1899.

~~IX~~

Above

335.8
9 44 40 358.0 42.2
176.2 56.5 -1.71
232.7 98.7*

-1.87*

354.6
46 50 40.0 45.4
177.0 40.4 -2.03
217.4 85.8*

Below

269.2
54 20 306.6 37.4
86.2 44.6 -2.14
130.8 82.0*

-2.16*

266.3
56 10 310.0 43.7
202 00 87.0 37.0 -2.17
9 50 30 ~~27.4~~ 80.7*
5 12 126.0 mean = -2.02*
14 50 18* G. M. Time.
48 11.6183*
48 11.3520
+0.2663*

June 5, 1899

Below X.

~~270.3~~

269.2

10 01 05 306.2 37.0

86.6 42.2 -2.22

128.8 79.2 ×

-2.12 ×

264.0

02 40 309.4 45.4 -2.03

87.0 40.3

127.3 85.7 ×

Above

176.3

04 35 218.5 42.2

354.5 44.3 -2.01

38.8 86.5 ×

-1.98

174.7

05 50 221.9 47.2 -1.94

14 00 356.2 42.0

10 3 32 38.2 89.2 ×

5 12

mean = -2.05 ×

15 3 20 Si M. Time. Troubled by clouds somewhat during series.

4811.6273

4811.3526

+0.2753

June 5, 1899

Mme Ceraski's New Algol Var.

Plot. T. 20 9 +46.3
(W. Obs.) 15 23
4 46
7 14

Left Above Ledgered. ~~II~~ I

156.0 < var dis

10 20 15 241.2 85.2+
328.0 78.8+ −0.30+
568 164.0+

−0.38+

160.1
22 15 235.0 74.9+
336.0 81.7+ −0.45+
57.7 156.6+

| 4811.6414 |
| 8914 ×✓ |
| 4809.~~9111~~ |
| +1.7500× |

65.8
24 35 145.2 82.4+ −0.50+
252.2 71.8+
321.0 154.2+

−0.48+

65.8
27 30 144.8 76.0+
14 35 246.3 79.7+ −0.46+
10 23 39+ 326.0
5 −12 155.7
15 23 27+ Gr. M. Time

mean = −0.43

June 5, 1899

Right & Below — II

67.8
10 29 00 145.8 — 78.0 ×
249.8 — 74.4 × — −0.53 ×
324.2 — 152.4 ×

−0.52 ×

70.1
30 50 145.8 — 75.7 ×
246.8 — 78.3 × — −0.50 ×
325.1 — 154.0 ×

Left & Above.

334.8
32 45 58.1 — 83.3 ×
158.3 — 76.7 × — −0.38 ×
235.0 — 160.0 ×

−0.38 ×

337.1
34 25 56.5 — 79.4 ×
156.6 — 80.5 × — −0.38 ×
237.8 — 159.9 ×

7 00 ×
10 31 45
5 −12

15 31 33 Gr. M. Time. — mean = −0.45 ×

4811.6469 ×
4809.~~9114~~ 29114
~~11.7358~~ ×
1.7355

June 5, 1899

Left & Above

337.9

10 36 00 57.8 79.9+

155.3 76.9+ −0.44+

235.2 156.8+

III

−0.42+

337.5 79.2+

37 40 56.7 80.4+ −0.39+

157.4 159.6+

237.8

Right & Below.

~~247.8~~

248.2

40 40 326.8 78.6+

67.1 80.2+ −0.40+

147.3 158.8+

−0.42+

249.1

42 40 326.2 77.1+

157 00+ 67.3 80.5+ −0.43+

10 39 15+ 147.8 157.6+

5 12

15 39 03+ Gr. M. Time. Mean = −0.42+

4811.6521+

4809.~~9114~~ 8914+

~~+1.7410~~

+1.7607

June 5, 1899.

IV

Right to Below.

247.4
18 44 30 327.6 80.2*
66.6 78.7* −0.48*
144.3 158.9*

−0.41*

248.8
47 00 324.5 75.7*
66.2 82.5* −0.42*
148.7 158.2*

Lefoo

157.0 81.9*
07 45 238.9 −0.32*
337.5 81.5*
59.0 163.4*

−0.30*

156.6 82.5* −0.27*
53 50 239.1
83.3*
197 05 335.8 165.8*
10 49 16* 59.1
5 12
15 49 04 Gr. M. Time.

Mean = −0.36*

4811.6591*
8914
4809.~~9111~~
~~+1.7480~~*
1.7677

June 5, 1899

IV

Left & Above

158.8
10 56 00 238.2 82.4⁺
336.7 80.1⁺ − 0.33⁺
56.8 162.5⁺

− 0.33⁺

156.6 79.7⁺ − 0.33⁺
58 35 236.3 83.0⁺
335.9 162.7⁺
58.2

Right & Below

67.0
11 00 40 146.6 79.6⁺ − 0.41⁺
248.8 79.0⁺
327.8 158.6⁺

− 0.42⁺

68.5
11 03 15 146.6 78.1⁺ − 0.43⁺
247.0 79.2⁺
238 30⁺ 326.2 157.3⁺
10 59 38
5 121
15 59 26⁺ Gr. M. Time.

Mean = − 0.38⁺

~~4511.6663~~ 4511.6663
~~4509.9111~~ 4509.8914
~~+1.7552~~ +1.7749

June 5, 1899.

A. P. Hart			Bond 394		
11	09	12.0	11	09	00
11	10	12.2	11	10	00

Reda. of ~~Eclipse~~ (Jup) Sat. I. Phot R.
Comp with ~~the~~ Brighter of two Satellites on Preceding side = Sat III

W. Observer
Campbell. Recorder

11	26	36	11	26	48		seen.	
		46			58	34.9	294.2	+ 2.5
		56		27	08	41.1	329.1	2.1
	27	00			12	47.8	288.0	1.8
		12			24	47.8	333.8	1.8
		23			35	51.4	288.0	1.6
		31			43	53.3	339.4	1.4
		37			49	53.7	284.1	1.5
		46			58	54.6	337.8	1.4
		54		28	06	56.8	283.2	1.3
	28	01			13	58.7	340.0	1.3
		08			20	58.9	281.3	1.2
		15			27	60.9	340.2	1.2
		24			36	63.5	279.3	1.0
		31			43	65.6	342.8	1.0
		47			59	74.6	277.2	0.6
	29	02		29	14	78.8	351.8	+ 0.4

June 5, '99

11	29	12	29	24	79.8	273.0	+0.4
		20		32	80.8	352.5	+0.4
		31		43	82.2	272.0	+0.3
		38		50		354.2	
	30	14	30	03		271.0	
		−12		10	84.0	353.0	1
	30	02		16	82.7	269.5	
				25	83.4	352.5	+0.3
	30	49		39		270.0	
		−12		46	85.8	353.5	2
	30	37		51	82.2	271.5	+0.2
				59	84.0	354.0	
	31	21	31	11		270.2	
		−13		17	83.3	353.5	3
	31	08		25	84.6	271.2	+0.2
				31	84.0	355.5	
	31	51		46		270.0	
		−13		45	82.8	352.5	4
	31	38		55	82.3	270.7	+0.3
			32	02	82.6	353.0	
	33	08		21		271.1	
		−13		31	82.9	354.0	
	32	55			86.1		
					84.5		+0.2

June 5, 1899.

	33	46		269.5	5
		53		355.9	
11 34 22	34	03		270.9	
-13		16	81.3	352.2	6
34 09		29	80.0	272.0	
		41	80.6	352.0	+0.4
		49		271.5	
35 06	35	03	79.3	351.1	7
-13		12	83.8	269.1	
34 53		21	81.6	352.9	+0.3
		32		270.9	
35 42		39	80.2	351.1	8
13		43	84.0	270.0	
35 29		53	82.1	334.0	+0.3
	~~36~~	Limit of Visibility			
36 26	36	07		258.5	
-13		19	45.5	334.0	
36 13		32	42.0	290.0	+2.0
		44	43.8	332.0	

Haze steadily increasing during eclipse; Sat. pretty well seen until towards ~~the~~ last.

Arnold & Hunt. Bond 394.

11 52 13.0 11 52 00

11 53 13.6 11 53 00

chron-corr to be applied = -12 secs to 11 31 00

= -13 " from 11 31 00

June 6, 1899. (Tuesday)

δ Librae

6.5 in. exposed. 14 56 -8.0

13 06 Phot. T. Wob.

1 50

Above 10 10

Clouds 173.0 Ledgered, plotted

8 33 00 216.7 43.7

clouds. 352.1 44.9 -1.95

~~86~~.37.0 88.6

-1.92

171.0

36 40 219.3 48.2

355.7 42.3 -1.90

38.0 90.6

~~Cl~~ Below

56.8

39 10 126.5 39.7

265.6 42.2 -2.14

307.8 81.9

-2.13

54.3

41 00 128.3 44.0 -2.12

267.7 38.6

82.6

149 50 306.3 mean = -2.02

8 37 2x

5 -15

13 37 13 Gr. M. Time.

~~4812.5258~~

4811.3520

~~+1.1738~~

4812.5675

4811.3520

+1.2155

+2.3273

1.2155

-1.1118

June 6, 1899.

II

Below

86.1
8 43 35 126.4 40.3 ×
264.3 42.1 × −2.12 ×
306.~~4~~ 82.4 ×

−2.10 ×

84.1
45 10 129.0 44.9 × −2.08 ×
267.7 39.1 ×
306.8 84.0 ×

Above

~~7~~
47 15 353.8 43.6 ×
37.4 49.0 × −1.84 ×
171.3 92.6 ×
220.3

−1.86

353.3
51 00 37.358 45.2 × −1.89 ×
~~58~~ 172.6 45.6 ×
18 8 00 × 218.2 90.8 ×
8 47 00
15
5
100 46 45 Gr. M. Time.

Mean = −1.92 ×

4812.5742 ×
4841.3520 ×

+1.2222 2×
2.3273
−1.1051

June 6, 1899.

IV

Above

353.6
8 55 20 38.0 44.4×
171.2 ~~47.6~~ 47.6× -1.86×
218.8 92.0×

-1.88×

352.5 46.0×
56 50 38.5 44.5× -1.90×
Clouds 174.3 90.5×
218.8

Below.
267.2
9 00 10 303.9 36.7×
83.0 47.5× -2.07
130.5 84.2×

-2.07

264.2
9 05 00 307.6 43.4+
237 20 85.8 41.0+ -2.07
8 59 20× 126.8 84.4+
5 -15
13 59 05× Gr M. Time
~~4812.5~~×
4811.3520 +2.3273
~~+1.2235~~ +1.2307
+1.2307× -1.0966

Mean = -1.98×

June 6 1899

IV

Below.

265.7
9 07 20 307.2 41.5 ±
83.7 45.0 × -2.01 ±
128.7 86.5 ×
1.94
-~~2.00~~

264.0
Clouds. 45.7 ±
11 20 309.7 45.6 × 1.88 ±
82.8 91.3 ±
128.4

Above

167.0
9 16 20 208.0 41.0 ×
346.8 43.8 × -2.06 ×
~~29.8~~ 84.8 ×
30.6 -2.06

164.0
15 30 207.8 43.8 ± -2.05 ±
346.0 41.3 ×
53 20 27.3 85.1 ×
9 13 20 Mean = -2.09 ×
5 -15 ±

14 13 05 ± Gr.M.Time.
48 12.5925 × ~~2.3273~~ 2.3273
48 11.3520 ~~1.2405~~ 1.2405
+1.2405 ± ~~0966~~ -1.0868

June 6, 1899.

V.

	Above		
	167.5		
9 21 50	207.8	40.3 ×	
	344.2	45.6 ×	− 2.03 ×
	29.8	85.9 ×	
			− 1.98 ×
Clouds	164.7		
thick.	209.2	44.5 ×	− 1.92 ×
9 30 00	343.9	45.2 ×	
	29.1	89.7 ×	
	Below		
	~~77.5~~	39.5 ×	
34 25	~~74~~.117.0	42.1 ×	− 2.15 ×
	253.7	81.6 ×	
	297.8		− 2.09 ×
	76.5	43.6 ×	
36 15	120.1	42.1 ×	− 2.03 ×
	256.0	85.7 ×	
12 30	298.1		

9 30 38
5 −15

14 30 23 G.M. Time

Mean = − 2.04 ×

4812.6045 ×
4811.3520 ×
+ 1.2525 ×
2.3273
− 1.0748

June 6, 1899

W went over to west dome to revise sequence on Mme Ceraski's new Algol Var.

Iapetus.

17 7 -216

16 17 Phot. T.

50 N obs.

11 10

See next page for measurements of Iapetus & Titan

June 6 1899.

Iapetus.

Copied

Ledgered.

I

Left & Below

324.7 < comp. + dis.

11 23 45 | 50.8 | 86.1

145.6 | 84.2 | + 0.18

229.8 | 170.3

+ 0.14

323.3

51.9 | 88.6 | + 0.11

145.5 | 85.7

231.2 | 174.3

Right & Above

235.6

316.5 | 80.9

50.8 | 89.8 | + 0.17

140.6 | 170.7

+ 0.20

235.3

25 45 | 319.8 | 84.5 | + 0.22

12 30 | 54.5 | 84.0

11 26 18 | 138.5 | 168.5

5 15

16 26 00 ± ½ m Time | mean = + 0.17

4 F12.

Comp. Star for Iapetus and Titan tonight is SD − 21° 4605 (9.0)

June 6 1899.

Iapetus again.

236.1
11 31 30 319.3 83.2
54.7 85.3 +0.22
140.0 168.5

+0.22

234.7
~~320.6~~ 318.8 84.1 +0.22
55.2 84.3
168.4
139.5

Left & Below

141.0
234.2 93.2×
321.6 88.7 −0.03
50.8 181.9×
178.1

+0.04

145.0
11 37 20 230.8 85.8 +0.12
8 50 328.2 87.8
11 32 25 50.0 173.6
5 15
16 32 10 Gr M. Time. Mean = +0.13
4812.

June 6, 1899.

Titan.

(See page 158.)
Left & Below

Ledgered.
Copied.

~~305.1~~ Titan !dis
~~11 41 00~~ 66.2
11 42 00 131.8 65.6
244.3 62.9 −1.01*
307.2 125.5
−1.04*

70.3
134.6 64.3
247.8 61.6 −1.07*
309.4 125.9*

Right & Above
335.7
35.7 60.0
155.8 55.8 −1.29*
214.6 115.8
−1.32*

340.0
11 49 00 37.0 57.0 −1.34*
16 45 30 158.0 56.6
−15.8 214.6 113.6
16 45 15.8 G. M. Time. mean = −1.18*
4872.

June 6, 1899.

Titan again.

Right & above

342.5

11 50 00 35.4 52.6

164.8 50.2 − 1.59

215.0 102.8

−1.42

340.0

32.8 52.8 −1.38

~~162~~

157.6 111.8

216.6

Left & Below

250.8

309.8 59.0 − 1.33

70.6 54.7

125.3 113.7

−1.36

202.1

11 56 00 307.5 55.7 × −1.38

71.1 56.1

16 53 00 127.2 111.8

16 52 45

Mean = −1.42

Last ~~two~~ setting especially difficult on account of haze.

Ard. Sid. Chron = 15 s. fast of Bond 324

See next page.

June 7. 1899.

The observations of Titan last night were *extremely* difficult and uncertain as it was near Saturn and nearer still to the supplementary image of Saturn and right between them. In fact, with the images of ~~the~~ Saturn blazing in the eye it was almost impossible to see Titan at all at equalization. If observe~~d~~r moved his head to cut out the additional image of Saturn, he got a prejudiced view of the objects wanted.

Observations of Titan therefore were not considered of much value.

June 8, 1899. ~~(Thursday)~~

Mme Ceraski's Var.
Phot T. (W. obs.)

20 9 20 9 +463
13 30 13 9
6 39 7 0
5 21 5 0

Var seen but too faint to be ~~[illegible]~~ meas. yet.
8 19 considerably below normal brightness
8 22 Clouds
8 23 Clouds thicker

Var magn to magn & half fainter than δ
8 42 (star ± δ is in provis. not. and close to var.)
seen for a moment through the clouds.

8 42.5 All cloudy again

See next page for meas. of Var.

June 8, 1899.

Imme Ceraski's Var.

Ledgered, Plotted.

I

Left & above

69.3 <comp & dis.

5 54 40 125.8 56.5

243.6 66.5 +1.13

310.1 123.0

+1.01

61.3

57 20 130.8 69.5

244.9 65.0 +0.59

309.9 134.5

Right & Below

334.9

9 00 30 38.5 63.6

153.0 66.9 +0.97

219.9 130.5

+0.90

331.3

04 30 40.6 69.3

237 00 154.0 67.4 +0.54

8 59 15 221.4 136.7

5 -25

Mean = +0.96

13 58. 8 Gr. M. Time

~~4814.5820~~ 4814.5823

~~4814.4319~~ 4814.4640

~~+0.1~~506 0.1180

June 8, 1899

Right & Below

II

332.5
9 12 23 41.8 69.0×
150.1 74.0× +0.71*
224.1 143.0*

+0.73*

330.4
14 52 42.4 72.0× +0.75*
152.2 69.0×
221.2 141.0*

Left & Above.

240.4
17 16 311.0 70.6* +0.69
61.4 73.4*
134.5 144.0*

+0.72*

242.3
19 12 315.2 72.9* +0.76*
64.4 67.7*
22 43 132.1 140.6*

9 1 5 41*
5 -25

Mean +0.72*

4 15 16* Gr.-M. Time.
4514.5939*
4645
4514. ~~4319~~
~~+0.1620~~*
0.1294

June 8, 1899.

Left & Above III

241.2
9 24 04 313.1 71.9+ +0.71+
61.2 71.3+
132.5 143.2+
~~132.5~~ +0.63+
235.3
25 06 316.0 77.7+
61.6 73.7+ +0.55+
135.3 151.4+

Right & Below

142.6
31 00 225.1 76.5+ +0.51+
328.4 76.6+
45.0 153.1 +0.54+

145.5 76.2+ +0.55+
33 00 225.0 73.6+
330.0
116 10 43.6 149.5+

9 29 02+
5 .25

14 25 37+ Gr. M. Time.

4514.6032+
4514.43049
~~+0.171~~3
0.1857

Mean = +0.55+

June 8, 1899

~~IV~~

Right & Below

149.5

9 37 20 225.4 75.9

325.0 80.0 +0.46

45.0 155.9

148.0 +0.45

39 25 228.0 80.0

325.0 77.0 +0.44

445.0 157.0

Left & Above

60.8

43 40 135.8

239.0 ~~80~~ 75.0

315.8 76.5 +0.555

157.5

55.0 +0.49

45 50 ~~139~~.

166 15 138.8 80.8 +0.43

9 41 34 238.0 76.5

5 -25 314.5 157.3

mean +0.49

14 41 09 Gr. M. Time.

4814.6119

4274. ~~4319~~ 4645

~~+0.1800~~

0.1474

June 8, 1899

V

Left & Above

57.3
9 50 50 153.3 76.0× +0.47×
233.6 79.6×
313.2 155.6×

+0.47×

53.7
52 45 134.6 80.9×
237.0 74.3 +0.47
311.3 155.2

Right & Below

325.4
55 35 43.7 78.3 +0.34×
143.0 84.0
227.0 162.3

+0.32×

322.3
57 25 45.3 83.0 +0.30×
16 35 145.8 81.2
164.2
9 54 09 227.6
5 25

mean = +0.40×

14 53 44 Gr. M. Time.

~~4814.6206~~× 4814.6206
~~4814.4319~~ 4814.4645
~~+0.1887~~× 0.1561

June 5, 1899.

VI.

Right & Below

~~227~~.0 322.0

10 07 15 ~~322~~.1 46.3 54.3×

148.3 52.9× +0.24×

226.2 167.2×

+0.22×

322.5

09 40 47.4 54.9×

142.0 55.0× +0.19×

227.0 169.9×

Left & Above.

233.1

12 40 315.6 52.5× +0.31×

54.0 51.0×

135.0 163.5×

+0.32×

233.0

17 25 312.7 79.7×

52.3 +0.32×

135.5 23.5×

163.2×

47 00

10 11 45×

5 25

15 11 20× Gr. M. Time.

Mean = +0.27×

45 ~~14~~.6325×

45 14. ~~4319~~ 4645

~~+0.2009~~

0.1653

June 8, 1899.

Left & Above

VIII

231.5
10 20 45 316.8 85.3
53.3 82.9 +0.22
136.2 168.2

+0.18

231.2 84.4
8 3 30 315.6 85.5 +0.13
49.5 172.9
135.0

Right & Below
139.4
26 45 227.5 88.1
322.0 86.7 0.10
48.7 174.8

~~+.11~~

142.7
29 15 227.4 84.7 +0.11
20 15 319.0 89.0 ~~+.112~~
10 25 04 49.0 173.7 +0.12
5 -25
15 34 39 Gr. M. Time. Mean ~~+.114~~ +0.14
~~4514.6629~~
4514.6421
46455
4514.~~4319~~
~~+0.2102~~
+0.1776

June 8, 1899

Right & Below VIII.

139.8

10 32 45 230.5 90.7

322.3 86.5 +0.05

45.8 177.2

142.2 +0.06

~~8~~5 00 227.8 85.6

318.0 90.7

45.7 176.3 ~~+0.07~~

Left & above.

48.5

39 20 140.9 92.4

230.8 86.6 +0.02

319.4 179.0

+0.04

52.6

43 00 138.8 86.2 +0.06

15 0 10 228.5 90.3

10 37 32 318.5 176.5

5 25

Clouds Mean = +0.05

15 37 07 Gr. M. Time.

48 14.6508

48 14.~~4349~~ 4645

~~+0.2159~~

0.1863

June 8, 1899.

IX

Left & Above

48.0

10 47 05 143.2 95.2 +0.04

236.0 82.5

318.5 177.7

51.5 +0.02

50 10 135.0 56.5

226.1 93.3 0.00

319.4 179.8

Clouds.

Right & Below

316.0

56 00 49.4 93.4

138.9 90.4

229.3 183.8 -0.07

176.2

Clouds. 319.3 -0.07

59 10 48.7 89.4

2 2 25 138.8 94.2

Clouds 232.0 183.6 -0.07

176.4

Mean: -0.02

10 53 06

5 25

15 52 41 Gr. M. Time.

4814.6616

4814.~~4319~~ 4645

~~+0.2297~~

0,1971

June 5, 1899.

Right & Below X

~~Left & Above~~

Clouds ~~317.0~~

315.0

11 07 45 51.7 96.7×

137.0 92.4× -0.17×

239.4 189.1×

~~2~~ 170.9×

318.4 -0.17×

12 00 51.0 92.6×

137.8 96.6× -0.17

234.4 189.2×

170.8×

Left & Above

226.6

15 60 321.6 95.0×

49.2 88.8

138.0 183.8× -0.07×

176.2×

225.1 -0.10×

17 20 318.6 908×

5,2 05 47.2 96.5× -0.14×

11 13 01× 144.6 187.3×

5 25 172.7×

16 12 36× Gr. M. Time. Mean = 0.14

4814.6754×

4814.~~4319~~ 4645

~~+0.2435~~×

0.2109

June 8, 1899.

Left & Above

XI

224.8

Clouds → 323.3 98.5

11 23 05 49.6 158.5 −0.13

138.1

157.0

173.0

227.8 −0.17

11 26 15 ~~318~~ 318.5 90.7

Clouds. 42.7 100.5

143.2 191.2 −0.21

168.8

Right & Below

Clouds ~~340~~

thick. 134.0 97.8

11 35 40 231.8 93.2

316.7 191.0 −0.21

~~49.9~~ 169.0

−0.30

135.4

36 05 230.6 92.2

12 1 05 318.5 105.9 −0.40

Clouds. 5~~2~~4 201.1

thick 158.9 Mean = −0.24

11 30 16

5 25

16 29 51 Gr. M. Time.

4814.6874

4814. ~~4319~~ 4640

~~+0.2555~~

+0. 2229

June 8, 1899.

XIII

Right & Below

11 4625 133.0
235.6 102.6*
319.4 93.7* -0.31*
~~9~~ 9
50.1 196.6*
163.7*
137.7
-0.30*
5015 232.5 94.5*
313.2 99.5*
53.0 194.6* - ~~0.14~~
165.4* -0.25*

Left & Above

45.9
5305 145.6 99.7*
225.0 95.5* -0.30*
320.5 195.5*
164.5*
-0.26*

49.5
5540 142.0 92.7*
205 25 225.2 99.6* -0.23*
11 51 06 324.5 192.3*
5 25* 167.7*
16 50 41* Gr M. Time.

4h14.7019*
4h14.~~4319~~ 4645

~~+0.2700~~*
0.2374

mean = -0.25*

June 8, 1899.

XIII.

Clouds. Left & Above

47.2

12 05 15 142.6 95.4 ×

226.1 93.7 × −0.17 ×

319.8 189.1 ×

170.9 ×

−0.26 ×

46.3

07 45 143.8 96.5 ×

223.7 101.4 × −0.34 ×

324.1 197.9 ×

162.1 ×

Right & Below

315.7

10 20 52.6 96.9 ×

135.0 101.0 × −0.34 ×

236.0 197.9 ×

162.1 ×

313.7 −0.36 ×

56.2 102.5 ×

12 40 135.3 97.7 −0.38 ×

36 00 233.0 200.2 ×

1209 00 × 159.8 ×

5 −25 Mean = −0.31 ×

17 8 30 1/2 m. Finish.

17/45 = 14.7143+ −

45/14. ~~4319~~ 4645

~~+0.2824~~ ×

0.2492

June 8, 1899.

~~XIV~~

Right & Below

317.0

12 22 10 53.0 99.0

135.1 102.5

237.6 201.5 −0.41

155.5

311.5 −0.42

24 40 55.5 104.0

135.2 95.0 −0.42

233.2 202.0

155.0

Left & Above

224.5

27 50 321.5 97.0

43.0 103.8 −0.40

146.8 200.8

159.2

224.0 −0.38

29 40 324.5 100.5

24 20 45.0 99.0

12 26 00 144.0 199.5 −0.37

5 25 160.5

17 25 30 Gr. M. Time.

4514.72605 4645

4514.~~43~~19

~~+0.2941~~

0.2615

mean = −0.40

June 5, 1899.

XV

Left & Above

225.2
12 33 50 319.4 91.2 ×
42.2 102.9 × − 0.27 ×
145.1 194.1 ×
165.9 ×

−0.32 ×

228.6
36 05 326.1 102.5 ×
46.5 96.5 × −0.36 ×
143.3 199.0 ×
161.0 ×

Right & Below

135.0
39 05 232.5 97.5 ×
313.0 102.0 ×
35.0 199.5 × −0.37 ×
160.5 ×

−0.36 ×

134.5
41 00 235.1 100.3 ×
150 00 315.0 98.0 × −0.35 ×
12 37 30 × 53.0 198.3 ×
5 25 161.7 ×

17 37 05 × Gr. M. Time.

Mean = −0.34 ×

4514.7341 ×
4645
4514.~~4319~~
~~+0.3022~~ ×
0.2696

June 5, 1899.

~~XVI~~

Right & Below.

135.0

12 58 30 233.0 95.0×

310.0 104.0×

55.0 202.0× -0.42×

155.0×

0.42×

132.5

53 20 236.0 103.5× -0.41×

315.0 95.0×

53.0 201.5✓

15[illegible].5×

Left & Above

47.0

56 25 144.4 97.4×

223.45 101.2×

324.7 198.6× +0.35×

161.4×

48.8 -0.37×

58 00 147.2 103.4×

14 35 226.0 97.0× -0.39×

12 54 39× 323.0 200.4×

5 25 159.6×

17 54 14× Gr. M. Time. mean = -0.40×

4514.7407×

4645

4514.~~4319~~

~~-+0.3140×~~

0.2814

June 8, 1899

XVII

Left ☉ above

457

13 03 10 142.7 97.0 ×

224.2 101.8 ×

320.0 ~~198.8~~

1 208.8 × −0.55 ×

151.2 ×

44.2

04 30 146.5 102.3 × −0.46 ×

225.0 97.0 ×

372.0 199.3 × −0.37 ×

160.7 ✓

R & Below

314.0

06 30 53.0 99.0

134.2 101.8 −0.40 ×

236.5 200.8 ×

159.2 ×

−0.40 ×

313.0

08 20 54.3 101.3 ×

22 30 133.9 99.3 × −0.39 ×

13 05 35 × 233.2 200.6 ×

5 25 159.4

18 05 13 G.M. Time.

4814.7536

4646

4814.~~4319~~

+~~0.3217~~ +

+0.2591

Mean = −0.43 ×

June 8 1899.

Arnold & Dent	Bond 3.94.
13 19 25	13 19 00
13 20 25	13 20 00

June 9, 1899. (Friday)

7 0 Cloudy,

7 30 "

8 0 "

8 30 "

9 0 "

9 30 " with no prospect of clearing.

June 10, 1899 (Saturday)

Phot. F (W. obs.)

W Virginis

13 16 -4.2

13 33 Plotted & Ledgered.

Left & Above 0 17

Plotted.

256.1 < comp ✱ dis.

8 21.1 293.2 37.1 ×

77.2 34.8 × +2.44 ×

112.0 71.9 ×

+2.40 ×

257.4

291.9 34.5 ×

74.6 39.7 × +2.37 ×

114.3 74.2 ×

Right & Below

164.4

204.4 40.0 ×

345.9 37.1 × +2.28 ×

23.0 77.1 ×

+2.26 ×

166.1

8 18.3 202.8 36.7 × +2.25 ×

8 24.7 344.2 41.6 ×

5 -.6 25.8 78.3 ×

13 24.1 Gr. M. Time.

4816.5584 ×

4816.3077

1.2507 ×

Mean = +2.33 ×

June 10, 1899.

Right & Below II.

162.1

8 32.0~~00~~ 200.9 38.8+

345.3 36.8+ +2.38+

22.1 75.6+

+2.286+

166.5 < dome interferes slightly.

203.7 37.2+

342.3 42.9+ +2.19+

25.2 80.1+

Left & Above.

76.1

114.7 38.6+

+2.32+

25~~4~~.7 37.4+

292.1 76.0+

+2.40+

77.3

8 39.5 111.2 33.9+ +2.48+

8 35.8+ 255.7 37.0+

5 -6 292.7 70.9+

13 35.2+ Sgr. M. Time. Mean = +2.33+

4816.5661+

4815.3077

+1.2584+

June 19, 1899.

III

Left & Above

74.6

δ 41.5 114.7 40.1 +

256.8 35.2 + +2.34 +

292.0 75.3 +

+2.40 +

77.1

117.7 34.6 +

256.3 36.5 + +2.46 +

292.1 71.4 +

Right & Below

343.3

24.8 41.5 +

160.5 37.5 + +2.22 +

204.0 79.0 +

346.6 +2.22 +

δ 49.0 23.2 36.6 +

163.4 42.3 + +2.23 +

δ 45.2 + 206.7 78.9 +

5 -6

13 4 46.6 Gr. M. Time

4516.5726 +

4515.3077

+ 1.2649 +

mean = +2.31 +

June 10, 1899.

~~Left & Above.~~ IV.

Right & Below.

343.5

9 03.2 25.2 41.7+

164.8 38.2+ +2.20+

203.0 79.9+

+2.25+

345.7

24.0 38.3+

165.0 38.2+ +2.30+

203.2 76.5+

~~Left &~~ Above.

257.3

292.1 37.8+ +2.38+

76.0 36.0+

112.0 73.8+ +2.35+

~~257.0~~ 74.5

~~9~~ 9.2 ~~292.4~~ 116.0 41.5+

9 10.8 256.8 34.2+ +2.32+

9 07.6+ 291.0 75.7+

5 .6

mean = +2.30+

14 6.4+ Gr. M. Time

4816.5878+

4810.3077

+1.2801

June 20, 1899.

Left & above V

75.5
9 12.2 111.7 36.2×
255.2 38.8× +2.35×
294.0 75.0×

+2.42×

76.3
111.3 35.0×
256.5 35.5× +2.49×
292.0 70.5×

Right & Below
343.7
24.1 40.4×
165.2 37.4× +2.26×
202.6 77.8✓

+2.26

Clouds-
Stars gone 344.0
9 23.8 22.0 38.0× +2.25×
9 18.0× 165.0 40.0–
5 .6 205.0 78.0–
14 17.48 M. Time

mean = +2.34×

Clouds. Last group taken through some clouds

4816.5954×
4815.3077
+1.2877×

June 10, 1899.
Examination of Comp. Stars for
June Ceraskis Var.

20 9 +46.3
15 2
5 7
6 53

10 00 Cloudy.

As far as can be determined selected sequence of comp stars seems to be good; but it is ~~so~~ cloudy that extension of sequence will have to be defered until another time

M. P. 441
3 36 +62.3
15 42
1~~1~~ 06
0 54
Abandoned

Iapetus
17 7 -21.6
15 45
1 22
10 38

June 10, 1899.

Iapetus

Right & above

Ledgered.

Copied

48.4 [comp + dis

11 6.7 134.3 85.9ˣ

231.3 83.3ˣ + 0.20ˣ

314.6 169.2ˣ

+ 0.28ˣ

54.0

134.4 80.4ˣ

234.0 81.3ˣ + 0.35ˣ

315.3 161.7ˣ

Left & Below

322.0

Clouds 54.0 92.0ˣ

147.1 78.9ˣ + 0.17ˣ

226.0 170.9ˣ

+ 0.12ˣ

322.6

11 15.1 ~~49~~ 52.4 89.8ˣ

141.8 86.3ˣ + 0.07ˣ

11 10.9ˣ 228.1 176.1ˣ

5 .6

16 10.3ˣ Gr M. Time

mean = + 0.20ˣ

June 10 1899.

Iapetus again

Left & Below

319.2

11 17.05 52.8 ~~9~~3.6

14~~7.2~~6.0 75.8

224.8

Cloudy
Clear gone.

3 ,

12 00 Abandoned too Cloudy for anything further.

Bond 394	Arnold & Dent
12 05 00	12 05 33
12 06 00	12 06 33

Same comp. star used as on June 6 1899.

June 12, 1899 (Monday)

δ Librae

6 in capused ,14 56 -8.0

,13 30 Phot. T. W. obs.

1 26

Above 10 34

338.5 <var + dis. Ledgered, Plotted

7 57 35 28.5 50.0+

158.6 50.6+ -1.64x

209.2 100.6x

-1.62x

337.8

59 50 28.2 50.4+

160.3 47.2+ -1.72+

207.5 97.6+

Below

252.6

8 03 00 295.5 42.9x

74.0 43.5x -2.01x

117.5 86.4x

-2.02x

~~8~~ 253.0

05 10 295.7 42.7x -2.02+

245 35 72.3 43.4x

8 01 24 115.7 86.1x

5 42

13 00 42+ Gr. M. Time. Mean = -1.85x

4518.5422x

4048.3343x

+0.2079x

June 12, 1899.
D δ Librae

II

Below
72.7
8 09 30 118.8 46.1+
253.2 43.5+ -1.92+
29~~7~~6.7 89.6+

-2.00+

72.7
11 10 117.5 44.8+
255.2 39.6+ -2.07+
294.8 84.4+

Above
340.3
14 00 25.8 45.5+ -1.83+
160.7 47.5+
208.2 93.0+ -1.84+

339.7 -1.85+
15 ~~20~~ 50 25.0 46.2+
50 30 162.8 45.3+
8 12 38× 207.0 92.0+
5 -42
13 11 56+ Gr. m. Time.

Mean = -1.92+

4818.5499+
4818.3342+
+0.2157+

June 12, 1899.

Above III

341.6

5 21 35 26.4 44.5 ×

160.3 47.7 × −1.56 ×

207.6 92.1 ×

−1.58 ×

338.5

23 50 26.4 47.9 ×

163.2 42.5 × −1.90 ×

205.7 90.4 ×

Below.

~~205.5~~ 72.6

27 50 ~~293.3~~ 115.5 ~~37.5~~

255.1 43.2 + 2.10 ×

295.0 39.9 ×

83.1 × +2.14 ×

74.9

29 50 114.3 39.4 × +2.17 ×

23 05 253.7 41.3 ×

+25 31 295.0 80.7 ×

5 43

18 24 49 Mr. M. Time.

Mean = +2.01 ×

4515.5589 ×

4515.3342 ×

+0.2247 ×

June 12, 1899.

Below
~~Above~~

IV.

72.8
8 37 40 117.8 45.0+
254.2 38.5+ -2.09+
292.7 83.5+

-2.02+

73.2
39 50 115.8 45.6+
253.6 42.7+ -1.96+
296.3 88.3+

Above.
~~Below~~.

341.2
42 45 26.0 44.8+
162.8 43.3+ -1.96+
206.1 88.1+

-1.97+

~~342.~~
343.6
45 50 26.3 42.7+
45.0+ -1.98+
166 05 161.1 87.7+
8 41 31+ ~~206.~~
5 42 206.1

13 40 49+ Gr. M. Time.

4818.5700+
4818.3342
0.2358+

Mean = -2.00+

June 12, 1899

above
~~Below~~ V
342.8
8 53 00 83.3 40.5×
162.0 44.2× -2.06×
206.2 84.7×

-2.01×

343.1
54 40 26.8 43.7×
162.0 44.5× -1.96×
206.5 88.2×
Below
~~Above~~
253.8
57 00 295.0 41.2×
72.4 43.3× -2.06×
115.7 84.5×

-2.02×

253.7
58 45 296.3 42.6×
23 25 74.7 41.1× -2.09×
8 55 51× 119.2 83.7×
5 42
13 55 09× Gr. M. Time.
4218.5800×
4218.3342
+0.2458×

Mean = -2.04×

June 12, 1899.

Below

VI

254.1
9 02 05 296.3 42.2*
73.2 40.8* -2.11*
114.0 83.0*

-2.10*

254.8
08 40 295.5 40.7*
74.0 43.0* -2.09*
117.0 83.7*

Above
162.2
08 10 206.2 44.0*
342.3 44.4* +1.96
26.7 88.4*

-1.96

163.1
10 55 207.5 44.4* -1.97
343.4 43.4*
24 50 26.8 87.8*
9 06 12*
5 42

mean = -2.03*

14 05 30* Gr. M. Time
4518.5872*
4518.3342
+0.2530*

June, 2, 1899.

VIII

Above

9
162.0
17 45 206.5 44.5× −1.94×
342.2 44.5×
~~27.~~ 89.0×
26.7
−1.95×

161.7
20 00 206.4 44.7× −1.96×
342.7 43.6×
26.3 88.3×

Below
~~74.~~ 73.2
23 20 116.8 43.6× −2.02×
253.5 42.5×
296.0 86.1
−2.06×

73.8
25 50 116.4 42.6× −2.09×
86 55 254.0 41.1×
9 21 44 295.1 83.7×
5 42 Mean = −2.00×
14 21 02 Gr. M. Time.
4818.5979×
4818.3342
+0.2637×

June 12, 1899.

Nova Sagittarii

18 56   -.3.0

15 31   Plot. T. (W. obs.)

3 25

Left & above   8 40

70.9 < comp & dir ✓

10 8.3   114.7   43.5 ✓

254.2   43.0 ✓   +2.00 ×

297.2   86.5 ✓

+2.13 ×

74.5

113.5   39.0 ✓

255.1   35.9 ✓   +2.26 +

294.0   77.9 ✓

Right & Below

342.0

29.0   47.0 ✓

161.0   44.5 ✓   +1.5~~7~~ ×

205.5   91.5 ✓

+1.55 ×

341.3

17.7   26.9   45.6 ✓   +1.55 +

161.5   45.7 ✓

23.0 ×   207.2   91.3 ✓

10 17.5

5 -.7 +

15 10.8 Gr. M. Time.

mean = +2.00 ×

June 12, 1899

Same again.

Right & Below

341.3
10 16.6 27.6 46.3 ✓
161.5 45.3 ✓ +1.27 ×
206.5 91.6 ✓

+1.29 ×

341.5
27.7 46.2 ✓
162.5 44.0 ✓ +1.91 ×
206.5 90.2 ✓

Left & Above

250.0
295.1 45.1 ✓ +1.92 ×
74.2 42.5 ✓
116.7 87.6 ✓

+2.00 ×

254.0
23.3 295.5 41.5 ✓
39.9 71.6 45.0 ✓ +2.01 ×
116.6 86.5 ✓
10 20.0 ×
5 −.7 Mean = +1.94 ×
15 19.3+ Gr. M. Time.

June 12, 1899.

– Iapetus. –

17	7		15	15	-21,6
16	40	-21,6	16	35	
0	27		1	40	
11	33		10	20	

11 35. Sky became thickly cloudy preventing observations on Iapetus.

Arnold & Hunt			Bond 392
11	45	41.7	11 45 00
"	49	42.0	11 49 00

June 13, 1899.

S Cancri.

8 38	8 38 +19.6	
13 38	13 20	8 36 +18.7
5 00	4 42	13 39
		5 03

Right & above

Plotted.

48.7 (var dis.

Ledgered

8 35 05 13~~8~~1 89.4×

232.4 87.1× −0.06

319.5 176.5×

+0.06

45.3

40 15 139.6 94.3×

2~~2~~7.3 95.3× +0.18

322.6 189.6×

170.4×

Left & Below

315.~~4~~

47 25 5~~4~~.0 98.6×

134.6 98.0× +0.32×

232.6 196.6×

163.4×

+0.37×

313.9

50 45 54.7 100.8×

173 30 133.1 101.4× +0.42×

8 43 22× 234.5 202.2×

5 - 47 157.8

13 42 35× Gr. M. Time

Mean = +0.22

48 19.5712× 9.4845×

48 10.1923× +9.3789×

+9.3789× −0.1056×

June 13, 1899.

Left & Below II

314.4
8 54 10 56.2 101.8
134.8 99.3 +0.40
234.1 201.1
158.9
+0.42

313.0
57 40 55.4 102.4
134.6 100.4 +0.43
235.0 202.8
157.2

Right & Above

222.0
9 02 40 325.0 103.0
242.7 102.5 +0.49
145.2 205.5
154.5
+0.42

222.7
07 00 324.3 101.6
241 30 42.4 103.3 + +0.45
9 00 22 445.7 204.9
5 47 155.1

Mean = +0.45

13 59 35 Gr. m. Time.
4819.8830
4810.1923
+9.3907

9.4845
+9.3907
0.0938

June 13. 1899.

Observations of δ Cancri very difficult throughout; at beginning twilight strong, moon somewhat near; sky in this region also hazy. Observations made ~~with~~ very slowly and with difficulty; last settings extremely difficult and a little uncertain. At end of observations object glass was at upper side of lowest small shutter.

Iapetus.

17 7 + 21.6
15 4
2 3

9 57

See next page for meas of Iapetus'

June 13, 1899.

Phot R. Iapetus. MWW

Comp. stars. ~~Left~~ & above

208.8
9 47.5 244.0
27.5
67.2

207.3
245.8
29.5
65.0

Rejected

see note.

Right & Below
118.6
154.3
298.0
338.8

116.2
10 00.7 158.2
299.8
337.0

Reject ~~the~~ Above group: so cloudy that obs. are very uncertain.

June 13, 1899.

Phot. R. used to night on Japetus + Titan.

Phot R. Titan. W. Elts.

Right & Above Ledgered.

0.0 < Titan dis

10 6.4 88.2 98.2×

175.3 100.8× +0.36×

276.1 199.0×

161.0× +0.32×

8.5

97.3 95.8

178.7 98.1 +0.27×

276.8 193.9

166.1×

Left & Below

264.8

7.5 102.7×

84.2 103.8× +0.51×

188.0 206.5×

153.5× +0.55×

~~261~~.262.0

10 13.4 12.0 110.0×

~~19.8~~ 86.8 100.7× +0.59×

10 9.9× ~~188.~~ 210.7×

5 -.8 187.5 149.3×

15 9.1 Gr. m. Time.

4819.631

Mean = +0.44×

June 13 1899

Titan Again -

Left & Below

267.2

10 16.2 7.9 99.8 ×

83.8 108.1 × + 0.53 ×

191.9 207.9 ×

152.1

+0.50 ×

266.8

10.3 103.5

87.5 100.7 + 0.46 ×

188.2 204.2

155.8

Right & Above

176.7

276.3 99.6 ×

356.1 105.5 × + 0.48 ×

101.6 205.1 ×

faint 154.9 ×

Clouds thick 176.5 + 0.54

10 25.8 → 284.3 107.8

Stars gone → 357.7 103.3

10 48 00 101.0 + 0.60 ×

211.1

148.9

10 20.3 Mean = + 0.52 ×

5 - 9 ×

15 24.5 Gr. M. Time

4 8 19.642 ×

June 13, 1899

Iapetus ~~again~~.

Clearer again.

Ledgered.

~~299.3~~

Below.

298.8 {comp x dis

10 46.2 333.5

118.3

155.0

34.7 ×
36.7 × +2.46 ×
71.4 ×

+2.550 ×

298.3

333.5

119.0

158.2

35.2 ×
34.2 × +2.53 ×
69.4 ×

Above

~~244.5~~

209.2

244.2

30.0

63.8

35.0 ×
33.3 × +2.56 ×
68.3 ×

+2.56 ×

2083.

(Φ 57.8 248.6

29.0

98.0

10 49.0 − 62.2

5 −.8

35.3 ×
33.2 × +2.56 ×
68.5 ×

Mean = +2.553 ×

15 48.2 Mr M. Time.
48 19.658 ×

Comp. Star on Titan + Iapetus = S.D. −21° 4594 (8.2)

June 13, 1899

Iapetus Again

11

Above

208.0

10 54.3 244.0 36.0 x

28.2 35.8 x +2.405 x

64.0 71.8 x

+246 x

208.3

24~~7~~4.2 35.9 x

28.4 35.6 x +2.46 x

64.0 71.5 x

Below

119.8

154.0 34.2 x

298.8 35.5 x +2.52 x

334.3 69.7 x

+251

1~~70.2~~

119.8

11 00.7 154.3 34.5 x

299.0 35.6 x +2.50 x

11 5.0 334.6 70.1 x

10 57.5 +

5 -.8

15 56.7 + Gr. M. Time.

45 19.666 +

mean = +2.48 x

June 13 1899

Phot. W. R. S. Sagittarii

18 9 -34.2

17 0 W. Ok.

1 9

10 51

I

Right o Below

Ledgered.

300.0

11 31 00 333.0 ⟨var + dis

33.0

122.2

29.1 -2.78

151.3

62.1

-2.79

302.2

32 20 332.1

29.9

121.0

31.8 -2.80

132.8

61.7

Left o Above

210.3

34 35 245.2

34.9

32.5

30.3 -2.67

62.8

65.2

-2.66

211.8

36 30 243.2

32.1

14 45 30.3

33.7 -2.65

11 33 41 64.0

65.8

5 -407

16 32 34 42 M. Time

4519.6895

4517.7465

+1.9430 Epoch 4198

Mean = -2.72

June 13, 1899.

II

Left & above

210.3

11 38 30 243.9 33.6x

31.7 31.3x −2.68x

63.0 64.9x

−2.66

210.8

11 40 40 243.7 32.9x

~~30.9~~ 30.9 33.1x −2.64x

64.0 66.0x

Right & Below

120.5

43 00 152.6 32.1x

300.9 31.2x − 2.74x

332.1 63.3x

−2.71x

120.3

44 35 153.1 32.8x

6 45 301.2 32.2x −2.68x

11 41 41x 333.4 65.0x

5 47

16 40 54x Gr. M. time ε.

4819.6950x

4817.7465

1.9485

Mean = −2.68x

June 13 1899.

III

R. O Below

120.4
11 46 30 153.3 32.9×
301.2 32.0× −2.68×
333.2 64.9×

−2.70×

120.3
48 15 153.0 32.7×
301.0 31.5× −2.71×
332.5 64.2×

L. & A.
31.0
50 20 63.3 32.3×
210.2 33.6× −2.65×
243.8 65.9×

−2.64×

30.3
63.5 33.2×
53 00 210.3 33.0× −2.64×
19 05 243.3 66.2×

11 49 31×
5 47
16 42 44× Gr. M. Time.

mean = −2.67×

Arnold & Hunt

Bond 3 94

4219.7005 ×12 3 47.2 12 3 00
4217.7465 12 4 47.5 12 4 00
+1.9540

June 14, 1899.

Phot. T. (6 in cap) δ Librae.

14 56 - 8 0 14 56 -8.0
14 12 13 56 (W. Obs.)
0 44 1 . 00
11 00

I

8 30 Cloudy
Right & Above Ledgered, Plotted.
155.3 {var. & dis
8 40 15 213.5 58.2
334.4 59.4 -1.25
38.8 117.6

-1.24
154.8
42 00 214.6 59.8
334.5 59.1 -1.24
33.6 119.0

4820.0711
4818.3344
+ 2.2367
+ 2.3273
- 0.0906

Left & Below
67.0
8 44 20 123.0 56.0
245.7 55.3 -1.39
301.0 111.3

-1.41

70.0
46 30 126.0 56.0
13 05 248.2 53.6 -1.43
8 43 16 109.6
5 -51 301.8
13 42 25 Gr. M. Time

Mean = -1.32

June 14, 1899.

Left & Below — II

183.0
~~8~~ 57 40 236.4 — 53.4×
359.8 — 56.3× — −1.43×
56.0 — 109.6×

−1.39×

181.0
53 40 237.2 — 56.2×
0.6 — 56.7× — −1.35×
57.3 — 112.9×

Right & Above

86.8
55 50 147.0 — 60.2×
268.8 — 58.4× — −1.22×
327.2 — 118.6×

−1.20×

85.8
57 30 142.8 — 63.0×
16 40 269.4 — 57.9× — −1.17×
8 54 10× 327.3 — 120.9×
5 −51

13 53 19× Gr. M. Time — Mean = −1.30×

4820.5757×
4818.3344
+2.2443×
2.3273
−0.0830×

June 14, 1899.

Right & Above — III

347.5
9 00 20 — 46.6 — 59.1
167.5 — 62.1 — -1.17
229.6 — 121.2

-1.19

346.2
02 40 — 45.6 — 59.4 — -1.21
168.7 — 59.7
228.4 — 119.1

Left & Below
260.4
04 40 — 316.4 — 56.0 — -1.29
76.8 — 59.4
136.2 — 115.4

-1.24

258.8
06 50 — 319.7 — 60.9
14 30 — 77.6 — 59.5 — -1.18
9 3 38 — 137.1 — 120.4
5 -51

14 2 47 Gr. M. Time — Mean = -1.22

4520.5853
4518.3344
+2.2509
2.3273
-0.0764

June 14, 1899.

Left & Below IV

258.2
9 13 20 316.8 58.6×
78.0 58.1× -1.27×
136.1 116.7×

-1.22

257.8
15 45 320.0 62.2× -1.18×
79.3 58.5×
137.8 120.7×

Right & Above.

× 167.0
18 35 230.8 63.8×
344.1 62.2× -1.06×
46.3 126.0×

-1.06×

166.3
9 50 230.0 63.7×
27 30 345.6 62.2× -1.07×
9 16 52 ~~40.4~~ 125.9×
5 -5 1 47.8

14 16 01 Gr. m. time. Mean -1.14×

4820.5944× Pencils gave trouble in previous groups:
4818.3344
+2.2600× Changed nicol for foucault.
2.3273
-0.0673×

June 14, 1898.

Right & Above V

36.8
9 31 10 99.4 62.6*
217.2 64.8* −1.03*
252.0 127.4*

−1.10*

37.3
33 20 98.8 61.5*
218.0 60.0* −1.16*
278.0 121.5*

Left & Below.

310.0
36 20 9.4 59.4*
127.4 63.9* −1.12*
191.3 123.3*

−1.18*

310.4
38 00 10.3 59.9
18 50 131.0 58.4 −1.23*
9 34 42* ~~190.9~~ 118.3
5 −51 189.4
14 33 51* Gr. M. time.*

4520.6068*
4518.3344
+2.2724+
2.3273
−0.0549*

Mean = −1.14

June 14, 1899.

Left & Below VI

~~30?0~~ 128.0

~~9 43 25~~ ~~9.0~~ 129.8 61.8×

9 47 00 307.2 62.6× −1.10×

9.8 124.4×

−1.10×

129.5

50 00 190.6 61.1×

309.0 63.0× −1.10×

11.0 124.1×

Right & Above

~~39.~~

35.8

54 25 102.2 66.4×

216.9 65.1× − 0.95×

282.0 131.5×

−0.88×

35.5

~~[illegible]~~

57 35 106.8 70.3× −0.82

209 00 214.8 67.6×

282.4 137.9×

9 52 15×

5 −51

14 51 24× Gr. M. Time.

mean = −0.99×

4520.6190×

4518.3344

+2.2846×

2.3273

−0.0427×

June 14, 1899.

Right o Above VII

131.0
10 15 05 195.0 64.0
309.4 59.6 -1.11
19.0 123.6

-0.95

~~129~~
128.7
12 35 197.5 69.1 -0.79
308.0 70.0
18.0 139.1

Left o Below

43.2
22 40 109.1 65.9
228.8 67.7 -0.90
286.5 133.6

-0.96

43.1
23 40 106.0 62.9
3 00 222.0 65.5 -1.01
10 20 45 287.5 122.4
5 -51

10 19 54 Gr. M. Time.
4520.6355
4518.3344
+2.3044
2.3273
-0.0229

Mean = -0.96

June 14, 1899

Left & Below VIII

41.9
10 34 35 106.8 64.9 ×
222.5 63.2 × − 1.02 ×
285.7 128.1 ×

− 0.97 ×

42.6
10 36 05 106.7 64.1 ×
219.1 68.5 × − 0.92 ×
287.6 132.6 ×

Right & Above.

309.2
39 45 18.5 69.3 ×
127.3 71.0 × − 0.77 ×
198.3 140.3 ×

− 0.78 ×

304.5
43 00 15.6 71.1 ×
153 25 130.5 67.8 × − 0.80
10 38 21 198.3 138.9 ×
5 51
15 37 30 Gr. M. Time.

mean − 0.88 ×

4520.6510 ×
4518.3344
+ 2.3166 ×
2.3273
− 0.0107

June 14, 1899.

Nicol replaced.
Right & Above

IX

320.0
10 48 15 28.0 68.0x
140.0 70.0x −0.81x
210.0 138.0x

−0.82x

320.0
50 30 29.4 69.4x −0.84x
142.5 67.1x
209.6 136.5x

Left & Below
232.2
52 30 299.5 67.3x
52.3 66.0x −0.91x
118.3 133.3x

−0.92x

233.3
54 45 299.0 65.7x −0.92x
6 00 ~~50.8~~ 67.0x mean = −0.87x
132.7x of Phot. T.
10 51 30x 51.8 Immergent pencils gave trouble through-
5 −51 118.8 out all the above obs. on δ Librae.
15 51 39x h M.T. So that settings were made with some difficulty
4820.6608x
4818.3344
+2.3264x
2.3273
−0.0009x

Arnold & Dent.	Bond 894
11 01 50.7	11 01 00
11 02 50.7	11 02 00

June 14, 1899

Dis of Jup. (Sat. III.) Phot. R.
Comp with second of three W. Observer.
sat. on following side (= Sat. I). Campbell Recorder
The nearest of the three sat. being Jup. III.

	h	m	s		Checked
	11	13	33.		161.2
11 13 54+		13	45	113.8+	275.0
-51		14	03	106.0+	165.0
11 13 03+			12	104.9+	271.0
			38		165 ✓
14 38+			50	103.4+	265.5
-51		15	06	104.3+	167.0
14 07+			16	103.8+	271.3
			42		163.0
16 04+			56	109.0+	272.0
-51		16	12	105.6+	165.5
15 13+			25	107.3+	271.1
17 26+		~~[illegible]~~ 17	07		164.0
51			17	107.6+	271.6
16 35+			35	110.8+	162.5
			47	109.2+	273.3
		~~18~~	~~21~~		~~160.~~
		18	27		162.2
			39		273.1

June 14, 1899

			110.9	
11				
~~18~~ 18 48	18	51.	111.6	162.3
51	19	15	111.2	273.9
17 57		42		161.3
		52	110.7	272.0
19 56				
51	20	01	106.0	164.0
19 05		09	108.4	270.0
		16		162.4
20 30		27	109.5	271.9
51		35	111.6	161.9
19 39		42	110.6	273.5
		52		165.0
21 13	21	09	105.6	270.6
50		19	101.6	166.2
20 23		27	103.6	267.0
21 50		36		166.3
50		47	101.7	266.0
21 00		55	100.9	166.9
	22	03	101.3	267.0
22 50		16		166.0
50		45	100.0	268.8
22 00		57	100.9	166.3
	23	20	100.4	267.2
23 48		30		167.9
50		43	101.1	269.0
22 58		54	94.5	171.3
	24	07	97.8	265.8

June 14, 1899.

11 24 50	24	31		169.0
50		45	96.7	265.7
11 24 00		56	95.9	169.1
	25	10	96.3	265.0
		30		168.5
25 49			98.3	266.8
50		40	91.0	~~168.7~~
24 59		~~51~~	94.6	
		58		172.0
	26	08		263.0
26 30				
50		18		170.9
25 40		26	90.0	260.9
			90.0	169.9
		34	90.0	
		42		259.9
27 10		52		171.5
50	27	05	90.5	262.0
26 20		17	90.3	172.7
			90.4	
		27		263.0
28 00		46		173.1
50		53	89.7	262.8
27 10	28	06	84.1	175.0
		17	86.9	259.1
		30		178.7
		37		258.0

June 14, 1899.

28 43	28	47	79.3	
50			82.9	177.5
27 53		57	81.1	260.4
				179.1
29 23	29	10		
50				
28 33		20	77.9	257.0
		28	78.0	178.0
			78.0	256.0
		35		
30 14		49		189.1
50		~~50~~		
29 24	30	08	79.1	258.2
		26	76.5	178.0
			78.3	254.5
		35		
31 10		57		181.0
50	31	06	76.7	257.7
30 20		14	70.6	181.9
		25	73.6	252.5
		36		184.5
32 01		55	67.0	251.5
50	32	108	65.6	184.0
31 11		22	66.3	249.6
		33		186.0
32 51		44	63.1	249.1
50		59	63.0	186.0
32 01			63.0	

June 14, 1899.

	33 09		249.0
33 42+	23		187.9
50+	40	58.1+	246.0
32 52		56.0+	
	47	57.0	190.9
	56		246.9
33 20+	34 10		191.9
30+	20		242.9
41+	31		192.5
54+	44		241.1
34 08+	55		195.9
19+	35 09		241.5
			195.0
29+	19		236.0
38+	25		199.0
50+	40		
35 09+	59		238.9
23+			200.0
	36 13		
39+	29		232.9
53+	43		200.9
	37 ~~02~~		~~233.2~~
36 25+			230.9
	15		
~~29~~	~~4~~ 19		Not seen later.

Limit of Visibility.

38 02	46		202.0
50	56	28.9+	230.9
37 12+	38 07	31.6	201.0
	15	30.2+	232.6

Seeing pretty good, only sky hazy, and Jup. somewhat low, making settings towards the last somewhat difficult.

June 14, 1899.

Arnold & Dent	Bond 3921
11 52 50.2	11 52 00
11 53 50.5	11 53 00