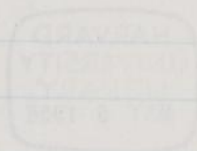


KG
11365
481

R 46 K6 11365.481

Reduction of photometric observations in this book so far as previously made in the book, up to page 109 inclusive, checked by Miss Saunders, Dec., 1878. List of errata found by her pasted below.

No. 46			
Changes made		Not understood	
Page	h m		Page
✓ 11	9 31	§ Leavis	44 + 45 Reducing
✓ 12	9 45	Zero	
✓ 13		Phot. K.	105 + 106 Reducing
✓ 18	7 30	& Leavis	
✓ 23	7 30	& Cam. Kin.	
✓ 25	9 38	Zero	(67 ex) Leavis
✓ 26	7 16	Zero	Zero error corrected
✓ 28	7 37	Zero	
✓ 29	8 33	Phot. K.	
✓ 30	8 47	Phot. K.	
✓ 31	7 26	Phot. K.	
✓ "	7 30	Zero K.	
✓ "	7 34	Phot. K.	
✓ 33	8 36	Phot. K.	
✓ 39	7 52	& Piquet	
✓ 41	9 45	Zero	
✓ "	7 52	B. Capr.	
✓ 49	8 29	B. Capr.	
✓ 52	9 11	Zero	
✓ 59	9 25	& Loyran	
✓ 61	8 40	Zero	
✓ 64	22 51	Key	
✓ 65	22 55	Key	
✓ 69	6 54	Phot. K.	
✓ 80	9 20	Sup. IV.	
✓ 83	9 40	no error	
✓ 88	7 30	Sup. II	
✓ 99	7 0	Sup.	



RG 11365.481



Well Equatorial Phot. H
 May ~~8th~~ 1878.
 4th
 2 Leonis. Obs.

8.95	134.3			app pos cor. $20^{\circ} 10''$
	137.8	3.5		
	315.6			
	319.6	4.0		
	907.3	7.5		
	226.82	1.87		
9.0	45.3	3.3		
	48.6			
	224.3	5.0		
	229.3			
	547.5	8.3		
	136.87	2.07		
9.1			E. Lyrae	
	98.5	83.8	h dis.	
	182.3			
	276.4			
	0.6	84.2		
	657.8	168.0		
	139.45	42.00		
9.2	7.4	89.0		
	96.4	a dis		
	185.3	88.8		
	274.1	a dis		
	561.2			
	140.30	175.8		
		43.95		

9.3

3 Leyrae

110.9	
166.6	55.7

294.0	50.1
344.1	

915.6	105.8
-------	-------

228.90	26.45
--------	-------

9.4

73.7	52.3
------	------

21.4

202.4	58.3
-------	------

260.7	
-------	--

9.23

448.2	110.6
-------	-------

139.45	27.65
--------	-------

2 Leirae

9.9

117.8	27.7
155.5	

300.3	35.1
-------	------

335.4

909.0	72.8
-------	------

227.25	18.20
--------	-------

9.9

28.9	34.8
------	------

63.7

208.8	36.9
-------	------

245.7

547.1	71.7
-------	------

136.77	17.92
--------	-------

Images clearly sufficiently expanded

May 10 1878

8 53

2 Leonis

S. obs.

Clock gives trouble.

134.1

140.0 5.9

313.8

318.5 4.7

906.4 10.6

226.60 2.65

48.6

5.4

54.0

227.8

4.4

232.2

562.6

9.8

140.65

2.45

5 Leonis

29.8

76.7

210.10

258.0

46.9

48.0

574.6

94.9

143.62

23.72

117.10

158.7

291.2

341.6

41.7

50.4

908.5

92.1

227.12

23.02

9 36

S. obs.

Images in line, only
the middle two
in the field.

9 43

S. obs.

May 27, 1878

2 Lewis

48.9 3.6
52.5

Uob

229.0
233.2 4.2

563.6 4.8

140.90 1.95

~~135.9~~~~144.2~~

Uob

137.3
144.3 7.0316.3 5.9
322.2920.1 12.9
1230.02 3.22
Lewis

Uob

9 38

134.5
138.9 4.4315.4
319.5 4.1

908.3 8.5

227.04 2.12

45.0
48.8 3.8

Uob

225.2
229.0 3.8

548.0 7.4

137.00 1.90

Jan 5th 1878. A. L. W. E. E. E.

9.5

143.9

4.6

170°

18°

148.5

324.6

329.2

4.6

944.2

9.2

236.55

2.30

9 36

143.3

4.1

2 out of field

147.4

325.1

329.5

~~4~~
4.1

945.3

8.5

236.32

2.12

350°

15°

9 39

55.0

5.1

60.1

233.2

237.8

4.6

586.1

8.7

146.52

~~2.12~~

9 43

65.6

4.1

2 out of field

59.7

233.4

237.4

4.0

586.1

8.1

146.52

2.02

9 50

3

3310

743

207.7

257.0 ±

572.0

3.00

142.50

41.3

49.3

90.6

22.65

3 Leonis

clouds

June 13, 1878
 2 Leonis

S. obs.

9 40

135.2
 140.0 4.8

Images $340^{\circ} 10''$

313.8
 319.9 6.1

908.9 10.9

9 55

227.22 2.72

Images $175^{\circ} 10''$
 S. obs.

46.2
 49.8 3.6

227.1
 230.4 3.3

453.5 6.9

138.37 1.72

10 3

46.6
 50.0 3.4

U. obs. Images $170^{\circ} 10''$

227.3 2.8
 230.1

554.0 6.2

138.50 1.55

10 8

134.7
 140.7 6.0

U. obs. Images $310^{\circ} 12''$

316.6
 322.7 6.1

914.7 12.1

228.67 3.02

10 22

5 Leonis

114.8

157.8 43.0

290.2

341.1 50.9

I. Abs. Images $290^{\circ} 30''$

10 27

903.9

93.9

225.97

22.47

32.4

41.1

73.5

224.0

256.62 45.6

211.25

435.2

217.6

86.5

43.25

21.62

I. Abs. Images $290^{\circ} 30''$ At long intervals,
between clouds.

This reading taken on account of suspicion that the third reading should have been recorded 214.0. At 224.0 the reduced image seems very obviously too faint. The third reading should be rejected or considered to mean 214.0

9 25 June 1878 17 Can 145^u 257°
 3 Decis Robt ~~ft line~~
 maps in line.

119.7	33.7
153.4	
305.2	350
335.2	
338.2	
304.6	33.7
6 11556.4	6 97.4
259.40	16.25

9 31	23.9	43.4	
	68.2	44.3	
	207.2	42.6	
	249.8		869
	549.1	86.0	21.72
	137.27	21.5	

9 34	30.7	36.5	
	11.7		
	220.8	380	
	248.8		
	556.5	74.5	
	278.25	37.25	
	139.12	18.62	

12

9 42

2558
70.9
2528
259
254.4
2058

45.1

25.85

3.1
253.6

48.6

556.1

139.02

45.05

47.8

2.9

92.9

46.45

23.22

17 Cam

P. obs.

27.3

9 45

107.1

159.8

2863

3432

896.84

224.18

102.5

* 172.8

279.3

* 352.9

907.5

226.88

527

56.9

109.6

27.40

70.3

73.6

143.9

7.6.95
35.97
313.98

P. obs.

u. obs.

250 10

9 57

10 0

21.8

* 69.0

201.1

251.4

543.3

135.82

47.2

50.3

97.5

24.38

u. obs.

100 12

57 34

45 50

17 Cam

P. obs.

* these readings the
brighter image was in
poor focus

Aug 3d 1878. Phot. II.

Variations quite detected from Phot I
and tried directly - class
2 Bootis P. obs.

7 46

24 2

27 1

27 1

28 1

26

$\frac{32}{264} \pm 0.02$

$$\frac{.650}{.264} = \frac{.422}{.180}$$

7 51

2 Ursae Mai

.67 2

.61 4

.65

.18 3

.64 1

$\frac{25}{650} \pm .02$

P. obs.

Stars in Scorpius

	β	δ	π	σ	α	τ	P. obs.
8 49	.99	.65 (err)	1.28 (hazy)	1.47	.43	1.54	
8 52	.76	.50	.89	.74	.36	.60	
8 56	.52	.45	.95	.65	.27	.54	
8 59	.46	.48	.66	1.01	.27	.67	
9 11	Cloudy						

Stars in Bootes

9 7

α	η	
.17	.47	5
.23	.33	9
.14	.40	2
.21	.37	5
.15	.54	12
	.21	23
	.422	26

P. obs.

Aug 12th 1878 Photo. P. obs.

	α	δ	ϵ	ζ	η	β	γ
8 39	.54						
	.52						
	.61						
	.46						
	.42						
	255						
	.510						

	α	δ					
8 41	.44	1.13	too faint		.54	.87	
	.61				.61	.91	
43	.42				.48	.59	
	.51				.57	.75	
45	.47				220	312	
	245				550	.780	
	.490						

	α Uta Min.	α Lepus	α Bootis	β Uta Min.	α Cor.	α Scorp.
8 48	.50	.20	.19	.50	.47	.43
50	.54	.26	.17	.51	.44	.42
8 55	.47	.19	.21	.47	.39	.45
8 57	.43	.31	.22	.46	.51	.43
9 0	.56					
	250	96	79	194	181	13
	.500	.240	.197	.485	.452	.432

		α Urs Min	α Lyr	α Cyg	α Aq	Jupiter
9	14	.154	.132	.141	.130	.12
9	15	.152	.124	Incl. clouds	.136	.109
9	17	.161	.124	.139	.133	.11
9	20	.155	.123	.142	.142	.113
9	22	.166				
		288	103	161	4	45
					131	
		.1576	.257	.402	.327	.112
					.352	

α Bootis π Bootis

9	34	.30	.99
		.31	.73
	35	.123	.71
		.20	.78
	36	.125	.79
		1289	400
		.256	.800
		8	

Aug 11th. 1878
 2 Urar Minus Sols

Sun
 .29
 .28
 .39
 .27
 .31

 .54
 .31

		2 Urar. Min	2 Layer	2 Root	2 Pleura Min	2 Cor.	2 Surt.
9 25	.45	.32	.13	.36	.20	.18	
31	.40	.12	.18	.27	.31	.52	
35	.33	.18	.14	.43	.37	.39	
42	.37	.14	.13	.46	.41	.44	
45	.34	76	58	152	129	203	
	189	.19	.14	76	.32	.51	
	.38			.39			

C	α Leonis	P, S, U, P, S, U.
	ϵ Lepus	P
	~~ζ Lepus~~	~~P~~
C	γ Leithan	P, S, U, P, S, U, P, S, U
C	β Leonis	S, U, P, S, U
	17 Can.	P, U.
C	γ Can Venet.	U, P, S, P, U
	ζ Ursa Maj.	P, U, P, S, U
	β Cygni	U, P, P
	η Lepus	U, P
	11, 12 Canis	P, U
	~~α Cygni~~	
	β Capricorni	U, P, S, P, S
	ϵ Pegasi	U, P, P, S
	ϵ Lepus	P, U

C	11, 12 Canis	P, P, S, U, U
	β Cyg	U, P, P, S, S
	ϵ Lepus	P, U, P, S, S
	η Lepus	U, P, U, P

1878 Sept. 8 6, 1878.

Tube of West Ey. strapped to East Ey.

7 15 2 Libra
 24.1 27.7 S. obs. $270^{\circ} 5''$ a out of field
 51.8
 193.2 39.7 Distances estimated as if the
 232.9 East Equatorial were used,
 ref. this set as index found
 to be loose

7 25 121.0 51.0 S. obs. $270^{\circ} 10''$
 172.0 Distance estimated as
 299.8 above; ~~typical as given~~ in this position as
 353.4 53.6 in the other. 1 Impossible to
 946.2 104.6 get a good
 473.1 52.30 focus, but
 236.55 26.15 the focus used was better than one
 either longer or shorter.

7 30 27.8 - 50.4 S. obs. $270^{\circ} 5''$
 78.2
 209.1 53.4
 262.5
 577.6 103.8
 288.8 52.90
 144.4 ~~26.45~~
 25.95
 Images found badly out of focus
 by U. Improved by pushing in tube.

7 32 36.6 38.7 u. obs. $270^{\circ} 5'$
 75.3
 215.6 39.3
 254.9
 582.4 78.0
 291.2 39.0
 145.60 19.50

7 36 ~~169.8~~ right aligned form $270^{\circ} 8'$
 123.1 u. obs.
 168.8 45.7
 309.8 38.5
 348.3
 950.0 84.2
 475.0 42.1
 237.50 21.05

7 43 125.7 41.6 P. obs.
 167.3 $270^{\circ} 10''$
 303.3
 346.4 43.1
 942.7 84.7
 471.35 42.35
 235.67 21.18

7 46 37.2 43.6 P. obs. $270^{\circ} 5''$
 80.8
 215.2 36.1 Star low and twinkling
 251.3
 584.5 79.7
 292.25 39.85
 146.13 19.93

12 Cam Vnals

Ubs 100° 4"

8 02 39.3 43.1

82.4

216.2

258.5 42.4

596.5 85.5

298.25 42.75

149.13 21.38

8 05

132.5

32.8

Ubs 200° 4"

165.3

310.1

36.2

346.3

954.2 69.0

477.10 34.50

238.55 17.25

8 8

134.3

33.9

P. obs.

250° 3"

168.2

310.7

38.1

348.8

962.0 - 72.0

481.0 36.0

240.50 18.0

8 10

44.0

30.7

P. obs.

120° 3"

74.7

223.3

33.6

256.9

598.9 64.3

299.45 32.15

149.72 16.07

7 12

Sept 7th 1880
2 Librae Schs.

28° 0' 8" (S. E. side)

40.4

37.0

77.4

221.4

37.9

259.3

598.5

74.9

299.25

37.45

149.62

18.72

7 19

37.4

Clouds.

P. obs.

22

7 14

a. Decline

Sept 8, 1878

S obs

280° 6" scale of
E. Equatorial

36.9	38.9
75.8	
218.4	33.8
252.2	
583.3	72.7
291.65	36.35
145.83	18.18

Image of B elongated

7 17

35.4	
76.6	41.2
213.8	
255.8	42.0
581.6	83.2
290.80	41.6
145.40	20.80

P. obs. 280° 6"

7 20

125.8	42.7
168.5	
306.9	
347.7	41.7
948.0	84.4
474.0	42.2
287.0	21.1

S obs. 280° 10"

Image of A elongated

7 26

124.8	
168.0	43.2
306.2	
346.3	40.1
945.3	83.3
472.65	41.65
236.32	20.83

P. obs. 280° 10"

7 30 L Cam. Ten. P. 110° 5"

132.6	
165.3	32.7
307.9	38.5
346.4	
952.2	71.52
476.1	35.40
238.05	17.88

7 33 ~~110.4~~ Sch. 110° 4"

128.3	
168.6	40.3
308.2	37.0
345.2	
950.3	77.3
475.15	38.65
237.57	19.33

7 38 P. 250° 3"

40.2	
73.4	33.2
220.4	34.5
254.9	
588.9	67.5
294.45	33.75
147.22	16.87

7 41 Sch. 220° 3"

39.8	25.2
75.0	
218.2	40.3
258.5	
591.5	75.5
295.75	37.75
147.87	18.88

90

Sept 9, 1878

7 Ursa Maj. Obs.

120.6

515

180° 5"

172.1

299.5

54.4

353.9

946.1

105.9

473.05

52.95

236.52

26.47

30° 5"

903

312

475

78.7

213.7

45.1

258.8

582.4

92.6

291.2

46.30

148.60

623.15' Capricorni

U. obs.

99

72.5

39.8

32.7

30 7

221.4

2

250.4

39.0

584.1

61.7

292.05

30.85

146.03

15.42

9.3

132.4

26.7

U. obs.

159.1

313.5

24.1

337.6

942.6

50.8

471.3

25.40

235.65

12.70

Ursæ Majoris

U. obs.

9 27

37.5 38.2

75.7

180 5

213.9
266.16 52.7 } thro' clouds

263.2 48.9 } repeated after clouds had moved

214.3

211.3.2
56.60

41958.0 61139.8
239.5 23.30

56.60
21296.7
148.05

U. obs.

9 38

120.7 55.4

45 5

176.1

298.7 58.9

357.6

953.1 114.3

476.55 57.15
238.87 28.58

9 Byra

U. obs.

9 52

10.0 90.7 180° disappears

270 7 reckoning
from image

100.7

195.2

274.6

580.5

290.25

145.13

79.4

170.1

85.05

42.53

U. obs.

10.0

100.2

193.8

285.2

18.2

597.4

298.70

149.35

180° disappears

91.4

82.0

173.4

86.70

43.35

80 7

Impossible to focus well
180° image appeared double
during the set.

26

Sept 10 1878

Can. Venat. Uts

7 10
7

42.1 34.9
77.0
220.5 35.0
255.8
595.7 69.9

240° 6"

7 16

297.85 34.95
148.93 17.47
122.9 40.4
163.3

Uts 110° 4"

307.1 43.2
350.3 8 3.6
9 43.6 4 1.8
4 891.8 2 0.9
240.90
235.90

Disappearance of Jupiter's 3rd satll.
Photometric J.
stop watch started 19^h 25^m by Chron 3451
stopped 20 8 " " " Reading of
stopwatch when stopped 2^m 59.57.
7 11

8 22

27

1 58 1.27
2 54 1.50

8^h 41.50

Rat gone.

} Clouds prevented any
} Real observation. These two
} readings were probably made
} from settings on the wrong
} satellite. The last observation
} "satellite gone" is no doubt
} correct, but was made some
} 8^m after the time of disappearance

Reappearance of Jupiter's 3rd satellite
Stopwatch started at 23^h 6^m 0^s by 7.3451
Seen 6^m 30^s Photometric J
8 35 0.97
9 45 1.49
12 40 1.54
13 15 1.92
12^h 3^m 0^s Watch

watch	stopwatch	Photometer I
12 ^h 10 ^m 0 ^s	0 ^m 0 ^s	2.03
	2 0	1.83
	7 15	1.64
	7 0	1.61
	8 45	1.33
19 30	9 45	1.70
	10 45	1.84
	11 30	2.02
	12 15	1.55
22 45	13 0	1.94

Readings
taken at
intervals
through
and among
clouds.

Stopwatch stopped at 23^h 56^m 0^s
by F. 345A. It then read 0^m 0^s 3

1m 59.1

4 3

5 13

8 8

8 43

Sept 12, 1878.
Adjusted Photo K a Jupiter

7 25 β Cygni Phot II U. obs. $5''$
36.5 36.0
72.5

[215.6] up, altered frame

217.7 36.9
254.6

581.3 9

290.65 36.45

145.33 18.23

120° 5"
U. obs.

7 37

306.0

346.2 40.2

123.0

168.5 45.5

943.7 85.7

471.85 42.85

2381.93 21.42

Phot. K

β K a Persci

P. obs.

8 20

140.0 26.6

166.6

322.0

349.3 27.3

977.9 26.95

488.95 13.47

244.47

P. obs.

8 25

141.8

169.0 27.2

322.1

348.2 26.1

981.1 26.65

490.55 13.33

245.27

Phot. R

2 & 9 Persei

P. obs.

8 30

116.1 72.1

188.2

299.0

7.4	684
610.7	1405
305.35	70.25
182.67	35.13

Same

P. obs.

8 33

128.8 49.4

178.3

309.2

357.2

48.0	97.45
973.5	48.705
486.75	24.35
243.37	7

Same

P. obs.

8 38

126.3 51.0

177.3

309.8

355.3

45.5	96.5
468.7	48.25
484.35	24.13
242.17	

484.35	48.25
242.17	24.13

484.35	48.25
242.17	24.13

00

8 45

 α L α Persi Phot K P. obs.

142.0

167.4

322.0

347.3

978.7

489.35

244.68

25.4

25.3

50.7

25.35

12.67

145.6

171.3

321.7

347.3

985.9

492.95

246.48

25.7

25.6

51.3

25.65

12.87

12

8 47

Sept 14; Phot K.
 α Rucini β Rucini

7 26

127.7 53.6
 181.3

24

298.9 68.4
 43 5

612.2 ~~1200~~ 119.0
 306.10 ~~60.0~~ 59.5
 153.05 30.0 29.75

7 28

121.3 67.6
 188.9

30

300.3 66.5
 33.4 60.0
 6.8

617.3 ~~667.3~~ 134.1
 308.65
 154.32 ~~33.65~~ 67.05
 151.52 ~~66.82~~ 33.52

7 34

104.7 100.6
 205.3

25.7 98.5
 286.2 9

21.9 ~~199.1~~ 200.1
 310.95 49.55 100.05
 155.47 49.47 56.02

34

108.8 87.4

196.2

293.3 80.0

13.3

171.6 167.4

305.80 83.20

152.90 41.85

32

B

7 u1

130.3

47.6

177.9

308.0

55.1

u2

3.1

619.3

102.7

309.65

51.35

154.83

28.67

810

119.7

69.4

189.1

302.8

67.9

10.7

12

622.3

137.3

311.15

68.65

158.57

34.32

14

1120

P

192.3

803

298.2

738

12.0

614.5

154.1

307.25

77.05

153.63

38.52

B

17

126.3

55.0

181.3

299.7

68.7

8.4

615.7

123.7

307.85

61.85

153.92

30.93

Bif any day
brighter chap

836

$$\begin{array}{r} \beta \\ 122.3 \\ 185.2 \\ 297.8 \\ 10.0 \\ \hline 615.3 \end{array}$$

629

782

135.1

307.65

67.85

153.82

33.82

640

107.2

85.8

193.0

292.0

8.7

76.7

600.9

1625

300.45

81.25

150.22

40.63

42

121.3

64.9

186.2

306.0

612

7.2

620.7

126.1

310.35

63.05

155.17

31.52

$$\rho = \alpha > \beta \quad 8.23$$

p

B

855

B

117.2 64.4

181.6

304.3 59.0

3.3

606.4 123.4

303.20 61.70

151.60 30.85

B

57

121.0 60.1

181.1

302.6 58.5

1.1

605.8 118.6

302.90 59.30

151.45 29.65

118.8

196.6

77.8

297.3 64.5

1.5

614.5 142.3

307.25 71.15

153.62 35.57

118.2 63.5

181.7

301.3

61.8

3.1

604.3 125.3

302.15 62.65

151.07 31.32

59

p

B

focus beam

903

908

122.3
192.1
304.3
8.5

β informed

69.8

64.2

627.2 1340

313.60 67.0

156.80 33.50

922

130.0 β

184.2 54.2

308.2 61.9

10.1

632.5 116.1

316.25 58.05

158.13 29.02 β

32

127.0 57.0

184.0

305.1 63.1

8.2

624.3 120.1

312.15 60.05

156.07 30.030

34

121.8 76.4

198.2

289.2 77.5

6.7

615.9 153.9

307.95 76.95

153.97 38.47

9 39

173.2

182.9

302.0

2.2

610.3

305.15

152.57

Cust 129.97

59.7

60.2

119.9

59.95

9 40

141.4

168.3

322.0

350.6

982.3

491.15

245.59

137.6

167.3

317.4

350.3

972.6

486.30

243.10

139.5

169.0

319.4

350.3

978.0

489.0

244.5

26.9

28.6

55.5

27.75

13.88

29.7

32.9

62.6

31.30

15.65

29.7

30.9

60.6

30.3

15.15

 $\alpha \alpha$ $\alpha - \alpha$

45

9 4 5 1149 α β
 177.3
 303.6 62.3
 4.8 61.2

600.5 123.5

300.25 61.75

150.12 30.87

9 5 4

122.2 55.0 α β

179.2 52.2

308.7 0.9

613.0 107.2

306.50 53.60

153.25 26.80

10 1

127.3 55.9 ρ

183.2 68.4

303.4 12.2

626.5 124.3

313.25 62.15

156.63 31.07 β

10 5

129.8 45.0

174.8 48.3

310.6 358.9

974.4 93.3

487.05 46.65

243.52 23.33

10 38

136.3

40.0

176.3

318.1

35.8

353.9

984.6

75.8

492.30

37.90

246.15

18.95

10 40

125.8

186.1

60.3

364.0

60.4

4.4

620.3

120.7

310.15

60.35

155.07

30.18

43

134.8

175.7

40.9

316.0

355.6

39.6

982.1

80.5

491.05

40.25

245.52

20.13

Sept. 16, 1878

39

7 52

 ϵ Pegasi

U. obs.

142.6 7.2

120° 4"

149.8

320.0 8.4

A out. of field

328.4

940.8 175.6

470.40 8.80

235.20 4.40

3.90

U. obs.
270° 6"

7 57

52.1

59.9 7.8

232.5

239.3 6.8

582.8 14.6

291.9 7.3

145.95 3.65

9 29

 $\frac{3}{2}$ Ursa Major Obs

124.6

150° 5"

178.6 54.0

309.9 50.2

0.1

613.2 104.2

306.60 52.1

153.30 26.05

9 34

89.7 58.6

190° 5"

31.1

215.2 44.1

259.3

595.3 102.7

297.65 51.35

148.83 25.67

10

9 50

 β Capricorn

127.5 31.2

158.7

312.7 28.7

341.4

940.3 59.9

470.15 29.95

235.07 14.98

A. out of field
190° 5'

9 53

38.4 33.9

72.3

217.8 34.6

252.4

580.9 68.5

290.45 34.25

145.22 17.12

30° 5'

Sept. 17, 1878

Jupiter I P. obs.

245 0.17.0

324 1.58

359 1.43

450 1.72

55 1.84

60 2.21

650 1.91

725 2.23

805 2.04

87 1.87

37 26

limit of vis

.68

.70

.56

.60

.52

.16

.632

Double rattle

Stopped stopwatch at 19 50 limit 1.2

Phot. K

α & β Persei

45.3

39.9

P. to

85.2

221.1

46.9

268.0

619.6

86.8

309.80

43.4

154.90

21.70

α & ρ Persei

P. to

27.3

69.4

96.7

212.0

57.2

269.2

605.2

126.6

302.60

63.3

151.30

31.65

clouds short distance below

8 48

 $\alpha \delta \beta$ Persei

36.2

P. obs.

97.1

60.9

314.3

875.3

61.0

822.9

411.45 60.95

205.75 30.48

 $\alpha \delta \alpha$ Persei

45.3

P. obs.

75.6

30.3

220.2

89.6

259.8

600.9 69.9

300.45 34.95

150.22 17.47

 $\alpha \delta \alpha$ Persei

P. obs.

46.3

79.5

33.2

225.1

258.4

33.3

609.3

304.65 33.25

152.32 16.63

 $\alpha \delta \beta$ Persei

P. obs.

39.3

77.0

37.7

219.3

42.0

261.3

596.9 79.7

298.45 39.85

149.23 19.93

9 26

2 & p Persei P. obs.
Edge of cloud.

9 29

359.8
117.1 79.1
289.0 ~~72~~ 70.8
196.2
9 62.1 149.9
481.05 74.95
240.53 37.48

α & β Persei

9 32

42.2 57.6 P. obs.
79.8
221.3 38.7
260.0
603.13 76.3
301.65 38.15
150.83 19.07

α & α Persei

9 51

43.2 34.6 P. obs.
77.8
222.2 40.0
262.2
605.4 74.6
302.70 37.30
151.35 18.65

Chrom. chart.

37

39 m 30

51

Sun

7h 49m 40.0

1.17

50 28

40 30

40 31

1.58

51 7

41

10

41 10

1.43

47

44

41 45

1.72

52 21

42

29

41 46

1.84

53 6

54 long

42 51

2.21

31

43

48

43 46

1.91

54 25

44

36

44 36

2.23

55 13

45

13

45 11

2.04

50

49

45 49

1.87

56 25

47

46

dubious 47 46

2.26
2.052

51 35

34.5

54

10

= 8h 44m 44.50 E.M.T.

38 45	39 51	48	40 31
39 24	40 30	39 - 39	41 10
59	41 5	40 - 35	45
40 0	41 6	34 ~~41~~	41 46
41 5	42 11	45 65	42 51
42 0	43 6	25 / 55	43 46
50	56	54 / 50	44 36
43 25	44 31	48 / 35	45 11
44 05		36 / 40	45 51
		57 / 55	47 46

7	25	41
	<u>23</u>	<u>41</u>
7	49	22

Sept. 18 1878
Photometer H

8 58 5 Urs. Maj. S. obs. $30^{\circ} 4''$

119.0

53.8

172.8

295.9

61.4

3157.3

945.0

115.3

472.5

57.60

236.25

28.80

9 5

27.6

57.2

S. obs. $175^{\circ} 4''$

84.8

27.6
84.8
216.0
259.6
587.4

218.9

40.1

216.0

43.0

100.0

50.0

25.0

259.0

213.1

587.4

293.70

146.85

3^d setting repeated to see whether
it was not 208.9 in fact; but the new
reading does not prove this; images look
well enough at setting 220.
Take mean of 218.9 & 213.1, 216.0

Images faint and sometimes
scarcely visible both in these and the
following sets.

β Capricorni

9 45

131.2
 160.1 28.9
 310.5
 340.5 30.0

I. obs. $340^{\circ} 4''$

9 42.3 58.9

47 2.15 29.45

~~236.87~~ 14.72

34.6 27.0

71.6

216.9 37.9

254.8

577.9 64.9 74.9 37.45

288.95 32.45 18.72

144.48 16.22

9 52

I. obs. $170^{\circ} 5''$

1878 Sept. 19 Phot. II
 6 58 ~~6.58~~ ϵ Uro. Maj. $0^{\circ} 3''$ U. obs.

128.9 50.2

179.1

303.5 60.3

363.8

975.8 110.5

487.65 55.25

243.83 27.62

U. obs.

7 4

~~38.0~~

39.5 52.7

92.2

223.6 ~~38.4~~

262.0 39.3

262.9

263.85 92.0

618.2 46.0

309.10

154.55 23.0

ϵ Pegasi

58.7

63.5 4.8

$90^{\circ} 8''$ U. obs.

7 19

238.4

246.3 7.9

606.9 12.7

303.45 6.35

151.72 3.17

U. obs.

7 24

148.3

155.5 7.2

327.5 8.5

336.0

967.3 15.7

483.65 7.85

241.82 3.93

$270^{\circ} 8''$

815

Σ Reguli Abs
 153.6 6.7 80° 10'
 160.3
 330.9 6.4
 337.3
 982.1
 491.05 6.55
 245.52 3.27

822

60.4 7.6
 68.4
 241.8
 249.1 7.3
 620.1
 310.05 7.45
 158.03 3.73
 350° 10'

829

β Capricorni
 70.8
 50.0 19.2
 227.2 20.8
 152.4 25.2
 600.4 44.4
 300.20 22.2
 150.10 11.50
 460
 23.0
 190° 10'

835

138.0 29.4
 167.4
 313.3 31.8
 345.1
 963.8 61.2
 481.9 30.6
 240.95 15.30

50

8 42

11.12 Camel.

21.9

102.6

202.4

280.2

70.7

77.8

617.1

8.5

308.55

74.25

154.27

37.13

150°, 5'

8 45

1.8

112.1

189.6

9.8

202.6

600.1

77.5

73.2

10.7

300.05

75.35

150.02

37.68

320.5

Sept-20. 1878.

8 18

39.3 42.1 (Cygus. Abs. 130° 3"
 81.4
 222.6
 260.0 37.4

603.13 79.5
 301.65 39.75
 150.82 18.88

330 5

8 21

128.1 43.7
 171.8
 312.5 37.1
 349.6
 962.0 80.8
 481.0 40.40
 240.50 20.20

8 30

a Pegasi. Abs. a at of full
 145.0 290° 10"
 155.2 102
 323.3 8.1
 331.4
 954.9 18.3
 477.45 9.15
 238.72 4.57

8 32

54.7 6.6 60° 10"
 61.3
 237.5 6.5
 242.0
 596.5 13.1
 298.25 6.55
 149.13 3.27

E Pegasi

S. obs. $50^{\circ} 5''$

A. out of field

9 7

54.0	90
63.0	
234.3	87
243.0	
594.3	17.7
297.15	8.85
148.57	4.43

9 11

146.3	8.2
154.5	
322.1	9.6
331.7	
954.6	17.8
472.3	8.9
~~238.15~~	4.45
238.65	

S. obs. $270^{\circ} 5''$

A. out of field

Watch	9	$10 \frac{3}{4}$	
7.3451	21	20	0

Stopwatch Started

7.3451	21	20	0	= $9^h 20^m 16^s$ C.M.T.
--------	----	----	---	--------------------------

Reappearance of Jupiter's 2^d satellite.

Stopwatch	7	40	Photometer	1	Satellite seen as soon as photometer was ready for observation; no doubt time of reappearance may have been two minutes earlier than the first recorded time.
	9	15		0.72	
	10	5		0.91	
	10	55		1.11	
	11	50		1.17	
	13	0		1.13	
	14	10		1.16	
	15	30		1.15	
	16	50		1.18	
				1.158 ⁹	

Watch

9 22 30

21 50

Watch

Stopwatch

Photometer I

18 10

1.19

19 10

1.22

20 0

1.33

21 10

1.09

22 5

1.22

1.05
1.210

9 32 45

Watch

9

47 0

F. 3451

21

56 23

Stopwatch

stopped

5 0

F. 3451

21 55 0

Driving clock of West Equatorial
not in use during observations of
Jupiter; no time to put it on before the
observations, and it did not seem worth
while to put it on afterwards.

4

Sept 23, 1878.

11.12 Camel. Obs

8 37

299 63.4 135 10

93.3

224.8 61.5

276.3

614.3 124.9

307.15 62.45

153.57 31.22

8 41

1

119.5

186.3 66.8

302.4 58.2

358.6

966.8 123.0

483.40 61.5

241.70 30.75

9 10

3.7

119.4

186.9 67.5

295.4 68.3

608.4 135.8

302.70 67.90

151.35 33.95

33.2

99.6

209.4

269.8 60.4

612.0 6.8

306.6 63.4

153.0 31.70

Obs
340° 103.7 = Star at 340° disappearance
S. obs. 340° 6"

S. obs. 150° 8"

9 44 β Capricorn *I. obs.* $270^\circ 15''$
 127.2
 163.8 36.6

304.7
 347.8 43.1
 943.5 79.7
 471.75 39.85
 235.88 19.92

9 50 35.0 *I. obs.* $270^\circ 15''$
 93.5 reject; on looking again, reduced image much too bright.
 77.0 112.0
 222.5

255.0 32.5
 74.5
 589.5 37.25
 294.75 18.65
 147.37

10 22

η Lyra *Obs.*
 1409 23.1
 164.0
 319.7 23.3
 343.0
 967.6 23.2
 483.8 11.60
 241.90

10 29

ϵ 110° 5'
 526 16.8
 69.4
 234.4 16.2
 250.6
 607.0 16.5
 303.5 8.25
 +6
 151.75

56

Sept. 25, 1878.

9 0

11, 12 Camel.

135°

U. obs

5"

32.0 56.9
88.9206.8 62.0
268.8

596.5 118.9

298.25 59.45

149.12 29.73

9 8

108.8 76.2

185.0

292.2 69.2

361.4 145.4

947.4 72.70

473.70 36.35

236.85

E Lyra

9 18

96.4

188.7

277.6

16.3

579.0

289.5

144.75

84.5

42.25

9 25

109.5

196.4

286.4

15.3

607.6

363.80

151.90

86.9

88.9

15.8

87.90

42.95

0°

5" U. obs,

270° U. obs,
7"

U. obs

90° 6"

803 Sept 27. 1878
E. J. J. J.

7.8
111.3
183.0 71.7

284.4 83.4
586.5

293.25 105.1

146.62 77.55
38.78

809 21.4 71.2
92.6

102.4 76.4
278.8

595.2 7.6

297.6 73.80

148.80 136.90

0° cube apparently painted to eye

815

12.0

104.4 83.9

188.3

287.8 84.2

592.5 8.1

296.25 84.05

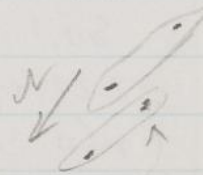
148.13 42.02

Rebe

< 90° dis
probably
180° dis.

this image
disappeared

240° 20"



reflect reflect.

30° 10"

< 180° dis

< 180° dis 240° 5'

< 180° dis



58

821

400

80.1

220.4

260.3

600.8

300.4

150.20

40.1

39.9

80.0

40.0

20.0

*Bygones**Robt*

120° 5"

825

128.8

175.5

310.3

351.2

965.8

482.90

241.45

46.7

40.9

87.6

43.80

21.90

300° 5"

850

Bygones

133.0

170.6

310.1

350.9-

964.6

482.3

241.15

37.6

40.8

48.4

39.20

19.60

Clock not running

300° 5"

Robt

857

47.0

77.5

221.2

261.1

606.8

303.4

151.70

30.5

39.9

70.4

35.20

17.60

Robt

100° 5"

9 14 ϵ 85 Lyrae Clock not running
 9.9 91.1 ϵ Lyrae disappears
 101.0
 190.0
 285.2 95.2

586.1 6.3
 293.05 93.15
 146.52 46.57

5 Lyrae much elongated
 in both sets.

9 25 14.5 ϵ Lyrae disappears
 103.4
 198.8 98.4
 282.8

599.5 91.7
 299.75 94.05 93.55
 149.87 47.03 46.77

9 42 γ Lyrae U. obs.
 231.9 13.7 300 5"
 245.6

51.2 19.4
 70.6
 599.3 33.1
 299.65 16.55
 149.83 8.27

10 47 320.5 18.8 90° 5" U. obs.
 9 339.3

141.9 18.9
 160.8
 962.5 37.7
 481.25 18.85
 240.62 9.43

9 55

11/12 Camel.

20.5

330° 6" U. ob

97.2

76.7

198.5

77.3

275.8

592.0 14.0

296.0 77.0

148.0 38.5

10 2

170° 7" U. ob

115.5

65.7

181.2

287.8

70.9

358.7

943.2 136.6

471.6 68.30

235.80 34.15

1878 Sept. 28

ε 85 Lyrae

358.0

104.4

S. obs. 240° 5"

— ε Lyrae disappears

102.4

193.0

298.2

105.2

951.6

209.6

478.80

104.80

~~238.40~~

237.90

52.40

19.0

S. obs.

— 5 Lyrae disappears

86.0

181.8

95.8

272.5

559.3

106.5

279.65

282.3

139.83

101.15

50.57

5 Lyrae (the southern star)
judged to be decidedly
the brighter when one
pair of images disappear.

β Lygnae

33.0

46.0

S. obs. 90° 5"

79.0

219.2

260.6

41.4

591.8

74

295.96

43.7

147.95

21.85

126.4

44.3

S. obs. 280° 5"

170.7

307.5

350.0

412.5

954.6

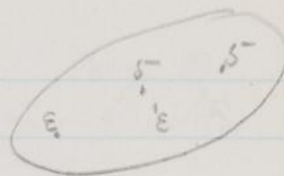
86.8

477.30

43.40

238.65

21.70



9 48

 η Lyrae

Obs

100° 5"

129.7

18.9

158.6

320.3

13.9

334.2

952.8

32.8

476.46

16.46

238.20

8.20

9 50

50.2

20.0

300° 5" Obs.

70.2

230.2

16.4

246.6

597.2

36.4

298.60

18.20 8.11

149.30

9.10

113.6

178.0

} not the star

 η Lyrae not seen double

1878 Sept 30

 η Lyrae

Companion seen with some difficulty.

S. obs. $300^{\circ} 5''$

10 5

187.9

15.2

153.1

319.6

13.8

333.4

944.0

9.0

472.0

14.50

236.0

7.25

10 15

52.0

7.6

~~59.6~~

230.7

11.3

242.0

584.3

18.9

292.15

9.45

146.07

4.72

S. obs. $90^{\circ} 5''$

Sept 30, 1878

22 32

W Equat Dome dark

S obs

Ap 1" alt

1.56

1.62

1.72

1.67

1.578

1.630

7.6.8 cms. }

7.38 "

} ~~great test~~ two
perpendicular
diameters of gas
aperture used yesterday

3.8 cms. }

3.8 "

} two perp. diameter
of metallic aperture
used today.

22 48

1.65

1.54

1.59

1.62

1.63

1.606

P. obs.

22 51

1.67

1.75

1.64

1.75

1.60

1.728₂

S obs. Dome light

22 55

1.67

1.53

1.61

1.57

1.64

 1.602₄

P. obs.

Object glass out.
Sobs

23 0

2.10

2.28

2.04

2.08

1.96

 2.092

23 2

1.95

1.71

1.95

1.76

1.84

 1.842

P. obs.

Sky uniformly blue; observations better than those of previous afternoon; but difference of tint in the two halves of the field pretty marked.

1878 Oct. 1

 η LyraeCompanion seen somewhat more easily
than Sept. 30

10 6

51.5

62.2

10.7

232.2

241.4

9.2

587.3

19.9

293.65

9.95

146.83

4.97

10 16

140.7

152.14

11.7

319.2

333.1

13.9

945.4

25.6

472.70

12.80

236.35

6.40

S. obs. $280^{\circ} 5''$

Oct 3 d 1878
Eclipse, Sep. Latul.

Comp. with Sat. II.

P. obs.

Stop watch started at 5 50

Watch 7 1/2 sec slow

limit vis

. ○ ○

6 02

35.6

43.8

79.4

39.6

88.0

46.4

10.10
43.10
22.10

24 0 6 37.0

60.15

80.6

43.6

35.5

43.2

88.7

81.77 0
2.2.13

8
43.4
21.70

24 1 8 8 48 2.4
60.45 60.40

Set at 35.0

Suspicious.
Certainly seen.

9

9

0 4

Cur

48

25.0

56.3

10

10

21

91.3

71.0

40

20.3

77.8

11

11

6

98.1

78.9

30

19.2

82.1

55

101.7

82.5

12

12

25

197.3

81.0

54

98.3

82.5

13

13

18

15.8

85.4

~~14~~

~~9~~

101.2

11.4

14

14

33

8.6

92.6

15

15

10

100.2

91.6

38

10.2

90.0

16	08	99.1	16
~~98.8~~			
7	22	12.3	89.3
13	13	101.6	
2	2	15.2	810 19 m
35	96.2		
22	14.7	88.7	225.73 112.65 56.32
45	103.4		10.3 85.15 22.57 42.57
09	13.9	90.7	
38	104.6	179.4	
	236.6	89.70	
	118.3	44.85	
	59.15		

Stopped stop watch at 6, 25 Wavet 6.3

Wavet at 6.39 $8\frac{1}{2}$ sec elem

Computed 6 8 59
16
9 14.5

Oct 10 1878.
 α - α Persei

6 54
 43.2
 73.0 39.8
 223.2 2
 265.4 42.2
 604.8 82.0
 302.4 41.0 36.0
 151.20 20.5 18.00

α - β Persei

6 57
 38.1
 80.2 42.1
 220.1 45.7
 265.8
 604.2 87.8
 302.10 43.90
 151.05 21.95

α - ρ Persei P. obs.
 clouds near.

7 4
 21.0
 95.0 74.0
 202.5
 279.1 76.6
 597.6 150.6
 298.8 75.3
 149.4 37.65

α - β Persei P. obs.

7 6
 41.0
 79.8 38.8
 219.3 42.9
 262.2
 602.3 81.7
 301.16 40.85
 150.58 20.42

70

West Equatorial; clock would not run even without telescope. Photometer H. Reappearance of Jupiter, I.
Stopwatch started at 7^h 40^m B.394
Limit 39.0

Stopwatch

5	25	First seen
6	5	32.3
	40	92.3
7	25	10.0
8	0	87.8
	35	23.4
9	10	97.3
	50	23.1
10	45	92.0
11	40	27.0
12	18	92.5

S. obs.

Compared with nearest satellite following ^{III} shifting of photometer circle out of focus may affect first readings.

Comp. with Sat. II.
Chronograph taps for all these settings.

Images could not be brought close enough for symmetry.

13	30	24.1	67.1
		91.2	
		206.1	65.8
		271.9	
		5933	132.9
		29665	66.45
		148.33	33.22

Stopwatch stopped at 8^h 22^m B.394
It then read 2^m 8.5

Japetus Obs

8 30

.88

.90

101

72

76

427

.854

Copied into R 47, 197

~~Copied in~~ α & α Persei Phot IR

S.Obs.

9 30

47.4

65.5

18.1

244.4

242.8

109.5

Stars too near edge of field;
just leaving field at last-
reading; reject.

 α - α Persei

P.Obs.

9 35

38.3

36.4

74.7

221.7

32.5

254.2

58 89 68.9

29445 34.45

147.22 17.22

 α - β Persei

P.Obs.

9 39

39.3

33.9

73.2

219.6

33.1

252.7

584.8 7.0

292.40 33.5

146.20 16.75

$\alpha - \rho$ Persei

P. obs.

9 42

27.4 63.8
91.2

204.1 68.5

272.6

595.3 12.3

29765 66.15

148.82 33.07

 $\alpha - \beta$ Persei

P. obs.

9 44

39.2 34.0

73.2

217.8 35.3

253.1

583.3 9.3

291.65 34.65

145.82 17.32

 $\beta - \beta$ Persei

P. obs.

9 46

44.1 29.3

73.4

216.0 37.7

253.7

587.2 7.0

2936 33.5

146.80 ~~16.75~~
16.75

1878, Oct. 14-

a Urseae in Hills
throughout

73

2 - 2 Urseae Min.

Phot. K.
P. obs.

8 43

36.3
72.4 36.1
219.2 37.6
256.8
58 47 13.7
29 2 35 36.85
146.17 18.42

y Aquilae - 2 Urseae Min.

8 47

48.0
65.3 17.3
228.6 15.7
244.3 33.0
58 6 2 16.50
29 3 1 8.25
146.55

P. obs.

2 Aquilae - 2 Urseae Min.

8 51

27.6
79.8 52.2
213.6 51.7
265.3
58 6 3 10.39
29 3 15 51.95
146.57 25.97

P. obs.

B $\neq$ Aquilae - 2 Urseae Min.

8 56

228.6
244.3 15.7
50.3 12.0
62.3
58 5 5 27.7
29 2.75 13.85
146.38 6.93

P. obs.

θ Aquila - α Ursae Min.

50.5 P. obs.
 65.2 14.7
 227.8 16.4
 244.2
 587.7 31.1
 293.85 15.55
 146.92 7.77

9 5

η Aquila - α Ursae Min.

51.1 P. obs.
 61.6 10.5
 231.7 9.6
 241.3
 585.7 20.1
 292.85 10.05
 146.43 5.03

9 8

ζ Aquila - α Ursae Min.

51.4 P. obs.
 60.2 8.8
 [232.3] 222.3 18.5 Should be 232.3
 240.8

9 12

584.7 27.3
 292.35 13.65
 146.17 6.82

ν Aquila - α Ursae Min.

50.3 P. obs.
 60.5 10.2
 229.9 11.4
 241.3
 582.0 21.6
 291.0 10.8
 145.5 5.40

9 19

8 Aquilae — 2 Ursae Min.
P.Obs.

9 22
48.3 13.9
62.2
227.3 15.0
242.3
580.1 28.9
290.05 14.45
145.02 7.23

μ Aquilae — 2 Urs. Min.
P.Obs.

9 27
231.7 8.3
240.0
50.8 8.6
59.4
581.9 16.9
290.95 8.45
145.47 4.23

ε Aquilae — 2 Urs. Min.
P.Obs.

9 34
230.3 10.0
240.3
49.6 10.0
59.6
579.8 20.0
289.9 10.0
144.95 5.0

9 36 2 Urs. Min. — 2 Urs. Min.

49.0 10.8
59.8
229.4 10.2
239.6
577.8
2889 10.5
144.45 5.25

6

Oct 15, 1878.
Jupiter II Eclipse

6 14 14.6

23 41.

6 37 54. C.M.T.

6 38 9 B.M.T. Computed.

+ 55

35

Stopwatch started at 6 21
rattle at 6 24.0 by watch

Summit of visit.

6 31

304.4

45.9

350.3

298.7

46.8

345.5

12989

12.7

64945

46.35

32473

- 23.17

C.M.I.
 Let at 120.0
 1 37 45
 58

1st top suspected
 2d top seen
 3d top nearly 120.0
 4th top

6 37 25

38 10 38 11 120.0 54.8

38 30 37 45 " 32 174.8 67.8

" 55 107.0 69.0

39 13 176.0 69.7

39 31 38 " 32 106.3 75.0

40 0 183.3 76.1

17 107.2 76.7

40 35 39 50 ± 38 183.9 82.6

" 5 101.3 86.7

27 188.0 86.3

6 40 " 45 0 47 101.7 86.9

6 42 188.8

36 101.7 86.3

55 188.0

4 30 3 45 43 27 287.3

44 2 188.7

33 103.6

82.8

4 50 4 10 55 186.4

45 46 100.3

46 7 187.6

87.3

5 47 9
 2 8 8 9 5
 1 4 4 4 7

10 1
 8 5 1 0 5
 4 2 5 3

Top and middle at 6 m 00 of stop
 6 45 by watch (2 min slow)

5.8 sec

6 50 = 9 5.8 Skopavitch.
 51 10 60

755

Dear John Rolfe Micro 22 200

β Ceti?

Structural lines on against $\star = 580$ by alt. value
= 12'

*

900

$$\text{in to } (2)? = 25.4 - 24.6$$

m(R) ^{very} highly

Inner edge of crinoid at 17.5 gives
up of two - 62 stars

5.3
10.2
15.5

+ ? ③

diff der $\approx .3$ interval times.

1. Field S of $G\frac{1}{2}$ mag.

1878 Oct. 16
Stopwatch started at 7^h 50^m B.394

Photometer I

Pallas (2) compared with λ Aquarii
S. obs.

8 50

4.17

4.20

4.04

4.24

4.13

.78

4.156

Star next preceding (2) compared with λ Aquarii.
S. obs.

8 57

4.27

3.04

3.25

3.33

3.13

2.02

3.404

Star next following (2) compared with λ Aquarii.

9 13

2.85

2.73

2.95

2.91

2.94

4.38

2.876

Set at 4.27 after completing
the set; reflected image
then considered to be too
bright, but not so much so
as to justify rejection of 1st reading.

1878 Oct. 17

Photometer

8 40

Jupiter III S. obs.

single satellite following Jupiter

1.66

1.23

1.31

1.25

1.19

6.64

1.328

9 15

Jupiter II

S. obs. nearest to Jupiter of the two satellites preceding.

1.64

1.55

1.52

1.57

1.67

7.95

1.590

9 20

Jupiter IV

S. obs. farthest from Jupiter of the two satellites preceding.

0.96

0.97

1.01

1.04

0.93

4.91

0.882

9

9 59 44
10 0 0

Peak of Jupiter I.

Satellite suspected -

Cornel

6.30

6.37

6.50

8.20

8.51

36.0

86.3

37.3

77.7

49.5

Barely seen

40.1

Set at 40.0

Taken alone.

10h

0 51.1.10

53.1.12

56.1.15

1 24.1.13

44.2.03

52.2.11

2 5.2.24

20.2.39

36.2.55

55.3.14

3 13.3.32

26.3.45

41.3.60

53.4.12

4 11.4.39

37.4.56

5 1.5.20

Reading. Seen.

40.0

43.3

83.3.

52.0

31.5.

59.5

90.0

60.4

30.4.

58.0

88.7.

58.1

30.3.

64.4

92.7

64.9

29.2

69.9

99.7

73.3

26.4.

67.9

94.3.

72.1

22.2

75.1

94.3

72.1

25.2 -

70.1

95.2

70.1

95.2

70.1

Checked at 5 40

B.M.1

Started at 9 40 0.0

9 39 4.5

15.5

Stopped at 10 11 = Watch at 1m 4.8

29.3

10 1 19

1 min 4.80

7 20

1878 Oct. 21

Photometer I

Jupiter I

P. obs.

9 15

1.43

1.49

1.61

1.46

1.40

2.039

1.478

Jupiter IV

P. obs.

9 17

0.90

.89

.83

.79

.95

436

.872

Jupiter IV

S. obs.

9 19

0.64

.73

.82

.67

.69

355

.710

Jupiter I

S. obs.

9 23

1.09

0.99

0.91

1.11

1.10

935

III

~~2.25~~

2.02

1.52

1.33

1.35

1.42

7.64

1.528

Schs.

right limits not coincident

III

II

O

IV

I

940

.99

1.50

86

104

82

~~4.45~~ 475~~9.50~~ 0.950~~10.50~~

945

1.10

95

86

1.07

106

504

II

Pds

950

1.53

175

III

bar interferes right

84

9 53

1.60

1.47

1.72

1.45

1.44

768

1.536

III Pds

9 57

.69

.58

.64

.58

.57

306

.612

Jupiter

Oct 22
~~23~~ 1878
 I U. obs.

III

I

O

IV

8.15

1.23

1.25

1.24

1.21

1.39

1.264

III

U. obs.

8 20

1.37

1.45

1.49

1.56

1.51

1.476

8 25

IV

U. obs.

1.04

1.04

0.91

1.32

1.06

1.074

86

8 44

IV Rob

85

95

92

81

96

449

.898

8 55

1.47

1.50

1.48

1.77

1.94

8.16

1.632

I

8 57

1.93

2.07

2.19

1.67

1.99

1005

2.010

III

Reappearance of Jupiter II

Photometer 11.1 obs.

Stopwatch started at $9^h 1^m 0^s$ B.394,
At $9^m 0^s = 9^h 20^m 0^s$ B.394, the
satellite could just be seen with Jupiter
out of the field and the other image
extinguished. Thick haze.

1878

Oct. 24

Phot I,
P. obs.

Jupiter II

7 30

1.73.

1.66

1.70

~~1.44~~ rej. too bright

1.92

← Moved artificial star.

1.35

1.26

3.82

+ 5.70
1.603

7 35

Jupiter II

U obs.

1.24

1.04

1.25

1.06

1.26

85

1.170

Oct 26, 1878

$$\begin{array}{r}
 6 \quad 0 \quad 13.1 \\
 \quad 23 \quad 41 \\
 \hline
 6 \quad 23 \quad 54 \\
 \quad \quad 15 \\
 \hline
 6 \quad 24 \quad 9
 \end{array}$$

C.M.?

Stephanit started at 6h 02 0.00 ^{B 394}

Reappearance of Jupiter's satellite I.

27.3	Suspected	31.00	170
~~27~~ 25	Seen	31.16	175
27.40	100		9 2 4
27.50	99		1.8 4 8
28.03	127		
28.18	116		
28.30	119		
28.48	125		
29.03	148		
29.17	131		
29.31	138		
29.50	157		
29.05	136		
29.43	141		
29.06	133		
29.14	123		
29.57	153		
29.11	165	7 7 7	
29.31	143	1.5 5 4	
30.20	164		
30.35	188		
30.45	204		

Limit of Visibility -

32.20	37
32.34	38
32.57	36
33.15	38
33.34	34

$\frac{36}{372}$

B 394.
Ar 6 37 0.0

Star Unit
7 8.4

7 7

Jupiter I Phot. I.
S. obs,

1.57
1.66
1.83
1.98
1.60

8 6 4

1.7 2 8

1878 Oct. 28

91

Neptune; & Arctis. Photometer I
P. obs.

9 0

$$\begin{array}{r}
 2.87 \\
 3.80 \\
 3.64 \\
 2.63 \\
 \hline
 4.50 \\
 3.488
 \end{array}$$

9 20

$$\begin{array}{r}
 3.70 \\
 3.00 \\
 2.57 \\
 2.98 \\
 \hline
 3.05 \\
 3.060
 \end{array}$$

S. obs.

Nov. 2nd 1878Started stop watch at 8^h 5^m

Reappearance of Jupiter I Photometer I

Limit readings

I. obs.

9^m

39

40

43

45

46

$$\begin{array}{r} 13 \\ .426 \end{array}$$

$$\begin{array}{r} 8 \quad 19 \quad 46.0 \\ 8 \quad 19 \quad 47.5 \end{array}$$

Set at 0.48

Reappearance

Satellite close to
Jupiter; readings
difficult on that
account.

5 5

9 48

24 53

41 75

56 81

6 13 93

30 94

45 109

7 4 142

21 173

35 195

50 197

8 22 195

47 129

9 23 182

9 57 123

107

160

093

141

124

1248

2 15 105
 130
 157
 139
 152

 183
 1366

at 8^h 34^m watch is 9^m 7^s
 watch stopped at 8^h 35^m read 10^m 7^s

Readings of the Chronograph Sheet.

Chronograph.	Stop watch	Chron.	stop watch.
8 ^h 19 ^m 19 ^s	19 P	23 ^m 4 ^s	3 S
26	27 P	28	28 S
33	38 P	24 4	04 S
44		37	
47	46 S	54	
50	50 S	25 11	
20 6	5 S	41	
~~38~~ 33	22 S	26 6	
38	37 S	33	
48			
55	54 S		
21 12	11 S		
27	26 S		
41			
46	45 S		
22 2	02 S		
16	16 S		
31	31 S		

Nov. 4, 1878. Photometer I

Obs.
Hydram & 2 Anils

3.12

2.91

2.30

4.33

3.10

76

3.152

9 5

4.51

S. obs.

3.62

3.01

3.90

3.71

3.75

3.750

9 21

4.17

U. obs.

3.22

3.69

4.64

4.41

0.13

4.026

Nov 5, 1878

June

6 24

W. Equat

June 8 Capric.

Polo

276

294

365

360

277

159.2

3.184

a 8 ay so very slightly higher
than ③

6 28

358

363

323

381

424

349

3.698

Polo

H. Br

a

June

Star a

Nov. 5, 1878

U. St.

6 40

3.89

4.25

4.01

3.83

3.91

489

3.978

6 44

June ③

U. St.

3.14

3.15

2.45

3.39

2.88

1501

3.002

8

2

~~359.3~~~~87.3~~

Nov. 5, 1878.

8 38

June ③, δ Capricorni
1.29 1. obs. Clouds.

May 6, 1878
June 8 Copie

P.

8 27

203
217
227
238
247
2.264

wire
cbs
ff



8 32

3.00
3.13
2.58
3.64
4.07
3.72
3.214
3.357

8th mag. P.

8 40

8th mag star I. obs. Not the star wanted.
3.80 } Reject first three for great
3.28 } inequality of focal adjustment
3.30 } between images.

5.115
5.035
4.26
3.50
3.93
2189
10945
4.378

This star has a faint
companion preceding, like the star which
precedes June

Nov. 6 1878

Following the last,
~~Star~~ ~~from~~ ③

S. Capricorni
 S. obs.

8 55

2.00

1.72

1.62

1.64

1.58

8 56

1.712

from ③, *S. Capricorni*
 S. obs.

9 0

3.32

2.72

2.25

2.62

2.51

2.644

8

1342

2.684 ✓

8th mag. star from *from*
 S. obs.

9 8

3.89

4.50

3.45

3.10

4.37

3.862

Eye-piece too loose; focus
 apparently sometimes changes.

100

Nov. 6, 1878

8 mag. - 8 Cap.

u. ob.

9 18

2.91

3.02

3.29

3.35

3.02

3.118

9 22

(3)

- 8 Cap.

u. ob.

2.91

2.90

2.98

3.24

3.08

3.022

Nov 7 1878
 Direct Jupiter IV
 Supplied data at 6 0 0.0

P. Obs.

Rattle following stroke 6.10.0.^s

6^m 16^m 5^s 97
 16^m 26^m 126

44^m 96 within a second

17. 14^s 85

516

17. 39 112

1032

54. 149.

18. 50. 125

19. 8. 123.

25. 100.

630

57. 125

1260

20. 13. 112

20 3. 106.

50. 114.

21. 7. 99.

533

1066

23. 102.

45. 86.

59. 104.

22. 13. 102

Not quite sure if I tapped.
 Tapped wrong

34. 114

531

~~22~~ 57 125

1062

23 15 109

23. 33. 110

50. 90.

24. 7. 119

6. ^{Ln} 24. ^{on} 23. 116. 552
1.104

24. 39. 125.

49. 115.

25. 15. 90.

33. 130. 583

54. 115. 1.166

26. 8. 128.

26. 120.

41. 154. too bright.

60. 120. [9] 647

27. 16. 125. 1.294

33. 105.

57. 92.

28. 10. 120.

29. 110. 562

49. 135. 1.124

29. 25. 120

Rattle following signal at 30th past

30. 20. 123

36. 119.

47. 123. 611

31. 3. 126. 1.222

~~4~~ 19. 125.

40. 106.

55. 127. 614

32. 16. 126. 1.228

33. 130.

50. 125.

33. 7. 133

38. 106.

40. 104.

all of five to this point.

32 26

43

33 04

16

33	30	~~36~~ ^h	33 ^m	54 ^s	110	
	42			67.	122.	
	54		34	19.	106	
34	10			35.	107	
	23			18	104-	
	38		35.	3-	107-	
						<i>Lapped by meteor</i>
	56			21.	89	
35	12			37.	94-	
	25			50.	75-	
	38		36.	3.	82.	
	49			14.	79	
36	01		26	26.	103	
	14			39.	83.	
	25			50.	99.	
	39		37	4.	88.	
	51			16.	79	
37	01			26.	86.	
	16			41.	67-	
	30			35.	67-	
	46		30.	12.	63-	
	54			20.	64.	
38	11			37.	50.	
	23			49.	64-	
	39		39.	5.	59-	
	57			23.	44-	
39	7			33.		<i>Not seen</i>
	46		40.	12		<i>Thin clouds</i>
40	21		41.	47		<i>Limited visibility 61.</i>
				54.	47-	

6^h 41^m P. P1.
 28^s 58^s 342
 56. 95. .684

Kattle follows tap at 6.43⁰
 Long Kattle at 43.30

Slipped at 46 12.0 = 46 00

Clock would not run, the cord slipping

Readings of Chronograph sheet: Howard 191.
Howard clock + 16⁵⁵ of H.P.M.T.

2	2	30	32	
	18		37	
	38		47	46 ⁵ ~~8~~
24	53		53	
25	2		56	55 S
	11	32	9	
	32		16	15 S
	47		27	26 P
26	3		28	27 S
	19		44	43 P
	37		57	56 S
	53	33	3	04 P
27	11		14	14 S
	35		25	16 P
				23 S
27	47		30	30 P
28	7		36	35 S
rattle			43	42 P
	26		52	51 S
29	2		55	54 P
	37 rattle.	34	11	10 P
	57		12	12 S
30	13		24	23 P
	25		29	28 S
	40		39	38 P
	56		48	47 S
31	17		49	Snijela fap.
	29		57	57 S

Chronograph Readings Continued.

6 ^h	34	59	56 P	39 7	7 P
	35	~~12~~ 13	12 P 13 S	40 52	21 P
		26 (7)	25 P	41 6	
		31	30 S	44 25	
		38	38 P	41	
		49	49 P	42 1	
		49	47 S		
36	3	01 P	01 P	22	
	15	02 S	02 S		
	32	14 P	14 P	33 (rattle)	
	32	20 S	20 S	43 3 (rattle)	
		25 P	25 P		
		32	31 S		
		39	39 P		
		51	50 S		
		52	51 P		
37	1	01 P	01 P		
	5	4 S	4 S		
	16	16 P	16 P		
		15 S	15 S		
	28	27 S	27 S		
	30	30 P	30 P		
	42	37 P	37 P		
		41 S	41 S		
	43	46 P	46 P		
	55	54 P	54 P		
		55 S	55 S		
38	12	11 P	11 P		
	13	12 S	12 S		
	24	23 P	23 P		
		24 S	24 S		
	26	24 S	24 S		
	37	37 S	37 S		
	39	39 P	39 P		
	52	52 S	52 S		
	58	57 P	57 P		

1878 Nov. 24
started stopwatch 5^h 15^m 0^s by B. 394
Reappearance of Jupiter IV. hidden
by clouds.

Dec. 7 1878.

Juno preceded 'star' 4' north of it
by 28^s

5 55

Juno (3) S Capri Photo. I.
P. obs.

5 59

2.84

2.48

2.42

2.44

2.17

2.35

2.470

(3)

S obs.

6 06

1.81

2.02

1.65

1.58

1.68

3.74

1.748

8 magn. star used previously

6 15

3.41

3.32

2.63

3.17

2.670

.13

3.026

P. obs.

Sd
S. chs

622

8 mag.

2.41

2.15

1.52

1.53

1.66

9.27

625

1.854

Juno precedes star 4' north of it. by $25^{\circ} 15'$

Dec 16, 1878
 Neptun & Ceres
 Obs.

8 35

2.49

2.96

3.13

2.53

3.69

~~4.84~~~~2.968~~ 2.964

3.81

2.58

2.37

3.25

3.91

9.2

3.184

11.82

2.964

8 41

Sch

8 48

2.86

3.05

2.87-

3.29

3.30

3.7

3.074

U. obs.

Aug. 2, 1879

3451
18 11 53
15 18

Disappearance of Jupiter IV S. obs. - c.m.J.
1.07 Phot ± 9^h 20^m 32^s
Seen (at least strongly suspected), 23 57
3451 394
18^h 1^m 3.7^s = 9^h 10^m 0^s

Limit of Vis.

0.60

.74

.42

.39

.45

260
.52

S. obs.

1. 3.7

9 44.5

51 19.2

51 20

51 21

18 1

18 4

18 10

18 16

Zero point of photom. at 0.10 and
pencils far from coincident.

On reexamination with a brighter
light, it seems likely that the zero point
was correct.

7.3451

13.3941

Limit of visibility

0.65

0.66

0.541

0.58

0.69

312
634

S. obs.

22 14 45.5

22 44.5

52 01

38 = 52 05

41 52 06

47 52 07

53 52 08

Aug. 2, 1879

Reappearance of Jupiter IV. / Photometer I. S. obs.

Chrom. 7, 3451

22 39 40 Suspected

C. m. J. 5
47 35

40 0 confirmed

55

41 9, 0.75

49 03

41 58 0.86

52

42 46.5 1.041

50 40

43 85 1.04

51 29

44 30 1.22

52 24

45 12 1.48

53 06

45 52,5 1,51

46 50 1,37

$$\begin{array}{r} 243 \\ 1486 \end{array}$$

47 43 1.610

Bar interferes with prism.

49 12.5 1.65

50 44 1.30

Prism moved.

52 21 1107

11 11 farther

54 10 1.1 g

55 28 1.0 L

56 59 1.0

57 27 1.31

69

1.138

Aug. 2, 1879.
 Disappearance of Jupiter II.
 Compared with Jupiter by Phot. I. Obs. Proc.
 Comp. 23 39

Jupiter II

	31				1.66
clouds	31	25	^h ₁₄	^m ₃₈ ^s ₁₂	2.68
	32	5		38 51	2.03
		30		39 16	1.98
	32	52		39 38	1.65
	~~33~~				<u>10.00</u> 2.00

33 - 36 thick clouds
 Sat II near 35 57
 3 36 18

C. m. J.				
43 ^m 46 ^s	370	1.62		
44 14	37 28	1.99		
45 40	38 55	= IV		
46 20	39 35	< IV a little fainter 3 mag?		
47 05	40 20	not seen nearly char IV seen only		
14 48 05	41 20	II certainly gone		

3451
 23 47 0.5
 48 0.1

3394
 14 55 0.0
 56 0.0

~~Aug. 3. 1879.~~

~~Dec. of Jupiter I~~

~~7. 3451~~

~~B. 394~~

~~22 5 42.0~~

~~13 10 0.0~~

~~22 6 42.0~~

~~11 0.0~~

See R 52, 193

Aug 12 1879

9 52 W.H.'s watch 2^m 2^s slow of Bond 394.

S. obs. H. rec

10 ^h	3 ^m	8 ^s	1.15
	~~3~~ 33 ^m		0.99
4	9		0.75
4	31		1.19
4	53		1.50
5	15		1.82
5	41		1.56
6	7		1.73
6	35		1.72
7	16		1.34
7	42		1.31
8	20		1.29
8	44		0.95
9	29		0.76
	40		0.71
	55		0.69
10	15		0.58
	29		0.63
	52		0.58
11	11		0.58
	34		0.67
12	10		0.53
	33		0.55

Photometer I.

Disappearance
of Jupiter I.

Cause of large
readings here
conjectured by
observer to be
failure of part
of the pencil
from the prism
to enter the eye.

As the satellite
was only just
bright enough
to be seen in
the West Equatorial
this observation is
merely one of
the time of
disappearance,
and the readings
need not be
reduced.

Aug 12 1879.

12	59	0.63
13	23	0.71
	49	0.62
14	28	0.64
	51	0.59
15	14	0.69
	31	0.77
	50	0.87
16	12	0.60

Lost sight of at the time of the last reading. Not seen afterwards.

Limit of visibility

10 ^h 19 ^m 30 ^s	0.62
	0.63
	0.62
	0.66
	0.67
	<u>0.64</u>

10.27 Watch slow of B. 394 2^m 2^s

Sept. 25, 1879.

30	04	211.8	63.0	20 ^h	49	0.0
	12	148.8	61.4			8.5
	22	210.2	62.6			17.5
	30	147.6	66.0			26.5
	47	213.6	69.0			43.0
	58	144.6	72.7			54.0
31	10	217.3	73.6		√0	6.0
	22	143.7	75.1			18.0
	38	218.8	78.5			~~33.5~~
	49	140.3	84.5			45.0
32	03	224.8	86.3			59.0
	17	138.5	86.9		√1	13.5
	31	225.4	88.0			28.5
	43	137.4	87.8			40.5
	57	225.2	90.4			53.5
33	10	134.8	93.5		√2	7.0
	21	228.3	93.7			18.0
	40	134.6	94.0			37.0
34	00 ~~5.8~~	228.6	97.3			56.5
	15	131.3	97.2			11.5
	26	228.5	99.7			20.0
	45	129.3	101.1			42.0
		230.4	97.8			56.0
	719.5	132.6	99.5		√3	14.0
	359.5	231.1	101.5			28.0
	179.88	129.6	101.8			43.5
35						

Sept. 25, 1879,

37	2314	8	20 ^h	54	58,0
	124,4			55	14,0
	233,6	109.2			31,5
	126,0	106.1			45,0
	232,1	$\frac{215}{10463}$		56	0,0
38	126,2	106,0			17,0
	232,2				41,0
	130,7	98.0			56,5
	228,7	$\frac{2040}{51.00}$		57	12,0
	$\frac{7161}{35850}$				

21 S. 5, 42	128,4		21	0	57,5
	233,9	105,5		1	11,0
	132,3	101,1			30,0
	233,4	$\frac{2046}{51.65}$			47,0
	$\frac{7280}{3640}$				

Comparison of Chronometers

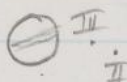
Bond. 394

8 ^h	48	0,0
	49	0,0
	50	0,0

Ford 3451.

21 ^h	6	44,0
	7	44,0
	8	44,0

Sept 25, 1879



Oct 8 1879
 Jupiter. Satellite IV Phot. H. Pabs.
 TV 10 8 16 Comp. with Sat. I.

23 41

10 31 57

10 32 Comput.

10 24

B 394

The Horner's watch. 17881

9 47 0.0

46 58.0

48 0.0

9 47 58.0

79.6	65.2	10 12 45
144.8	62.4	13 10
82.4	62.5	28
45 17 22 58.5 112.98	66.5	42
144.9	65.0	0
78.4	52.8	14 15
143.4	64.6	35
44 76 22 38 111.90	66.7	54
80.6	66.7	8
145.2	64.5	54
78.5	65.9	15 11
145.2	67.2	30
45 10 22 55 112.75	64.2	45
80.7	60.7	2
146.6	63.1	15
79.4	64.1	32
143.6	60.8	50
45 15 22 57.5 112.88		
82.7		
145.8		
81.7		

17^m 13^s
31

Oct 8 1878⁹

142.5	60.7	10	18	2	17 ^m	43 ^s
81.8	61.6			25	18	06
143.4	61.5			40		21
81.9	58.4			58		39
140.3	56.2	19		12		53
84.1	55.5			38	19	19
139.6	53.9			50		31
85.7	53.0	20		2		43
138.7	50.3			18		59
88.4	47.1			35	20	16
141.3	51.6			56		34
89.7	49.9	21		18		59
139.6	48.0			32	21	13
91.6	41.7	22		10		51
~~133.3~~				25	22 ^m	06 ^s
133.3				30		11
				46		27
					Suspected	
					Suspected	

Limit of Visibility

87.6	54.0	10	24	30
145.6			25	0
89.6	47.1			20
137.3				30
46.02	57			
11.502	52.85			
	26.42			

B 394
10 27Buckett 17881
10 26 58

Oct. 25, 1879.

sid watch 394

$$10 \quad + \quad 9 \quad 16.3 = \quad 8^h 30^m$$

m. n. J.	8	19	8.9
		23	41.1
	8	42	40.0

Oct. 29, 1879.
Pocket Chron. - 19^s of Band 394

9^h 18 13.1
23 41.1
9 41 54.2
9 41 58

Phot H. Poles. J.W. Rec.
Jupiter I Comp. with II. Comp. with Sat. II.

9^h 37^m 20^s 286.6
50 322.4 35.8
38 10 286.3 38.0
25 324.3 36.8
161.96 18.45
3049.0

ret at 105.0

42^m 20^s 42 24.5 24.5
38 42.5 105
47 51.0 141.4
01 43 51.0 102.8
11 51.0 140.9
24 27.5 103.2
35 39.0 143.1
52 56.0 99.7
05 44^m 9.0 145.4
22 25.5 97.7
38 42.5 158.3
52 56.0 101.0
01 45 5 153.3

12	45	16	93.8	
22		26.5	146.3	52.5
34		38.5	95.9	
48		51.5	147.6	51.7
02	46	6.5	89.7	
14		18.0	149.9	60.2
08	47	12.0	90.2	
25		29.0	148.3	58.1
36		40.0	92.4	118.3 159.5 29.58
49		53.0	150.8	58.4
12	48	15.5	88.8	
26		30.0	152.6	63.8
			4846 2423 121.15	122.2 61.1 30.55

Rejection - 19.5 of Band 374 at 9^h 50^m

1880

Jan 19.

S' Cancri. Phil J. β Seren. W. Can.

9 20	S' Cancri	Preceding star,	^{Sis upper} ^{En. long} P. obs
------	-----------	-----------------	---

23		4.27	4.74
----	--	------	------

24 21		3.22	4.56
-------	--	------	------

25		3.83	3.59
----	--	------	------

		11 32	1289
--	--	-------	------

		3.77	4.50
--	--	------	------

29 26		3.18	5.04
-------	--	------	------

31		3.69	4.08
----	--	------	------

		3.86	4.43
--	--	------	------

		10 73	13.55
--	--	-------	-------

		3.58	4.52
--	--	------	------

		5.21	4.53
--	--	------	------

9 38 35		3.84	4.72
---------	--	------	------

		4.20	4.83
--	--	------	------

		13 35	13.58
--	--	-------	-------

		4.45	4.53
--	--	------	------

9 4		3.11	3.64
-----	--	------	------

9 50		3.31	3.50
------	--	------	------

		2.95	3.84
--	--	------	------

		4.00	4.08
--	--	------	------

9 53 50		4.14	4.07
---------	--	------	------

		3.88	4.18
--	--	------	------

		02	33
--	--	----	----

		4.21	4.11
--	--	------	------

Jan 19, 1880
S. Canis ϵ

9 38
 2.96 3.31
 3.37 3.98
 3.33 3.34

Wobs

ϵ estimated at 1.2 to 3 brighter than δ (Yr.)

10 5
 3.77 3.89
 3.88 3.59
 3.55 3.68
 220 216
 3.73 3.72

P. Obs.

ϵ estin. 3 brighter than δ by P.

10 12
 3.14 3.50
 3.17 3.48
 3.12 3.24
 43 122
 3.14 3.41

10 18
 3.76 4.84
 3.24 3.88
 3.73 4.14
 173 86
 3.58 4.29

P. Obs.

10 22
 3.10 4.11
 3.17 3.40
 3.11 3.30
 38 141
 3.13 3.60

Wobs

Jan. 19, 1879.

S. Cæleri E.

~~3.4-7~~

4.00

night

P. Chs.

Clouds S looked much fainter
than E

Jan 21, 1880.
Phot. IV ing. & Em. to faint for S

Phot. I p. 100. P. 100.

9 0

168

5

2

168

108

167

.95

9 05

165

.94

203

105

172

.95

10 25

151

1.05

f, a, R
 $386.3 \quad 180^\circ \quad 40''$ *

$\phi \quad 3^\circ 45' \quad 44.03''$
 $3 \quad 58' \quad \underline{49.12''}$

* $A \quad A' \quad B'$
 B

3 4 25 36.15

3 57

$A \quad P$

$165, 8^\circ 25'$

P
 40.12
 40.26

* $A \quad A' \quad B'$
 B
 $A \quad B$
 $B \quad B'$
 A'

