KG
11366
v. 363

Nov. 25, 1899 (Saturday)

Cont. from previous book.

Phot. T. x Tauri W6b.
3 53 +12.1
7 45
2 08

No obs. taken experiments made with sum of prisms.

Phot R O Ceti W6b.
R.O.B. 2 12 -3 6
259.2 2 22 Plotted.
9540 286.7 27.5 0 10 Ledgered.
80.5 25.1
105.6 52.6 -3.16
259.5 -3.20
285.0 25.5
79.8 25.2
105.0 50.7 -3.24
L.O.B.
169.7 mean = -3.18
196.9 27.2
348.6 26.3
149 53.5 -3.12
170.0 -3.17
100.2 195.5 25.5
9114.2 349.6 25.7
~~10~~571 15.3 51.2 -3.22
5 -2
14 56.9

Nov. 25, 1899.

Same again.

L & a.
169.3
10 02.4 190.0 25.7
349.9 24.7
14.6 50.4 -3.25

~~140.2~~ 168.6 -3.24
195.2
350.2 26.6
14.9 24.7
R & B. 51.3 -3.22
260.4
285.7 25.3 mean = -3.27
80.0 24.7
104.7 50.0 -3.27

260.3 -3.30
10 11.0 285.4 25.1
13.4 80.7 23.9
10 6.7 104.6 49.0 -3.32
5 -.2
15 6.5 Gm

Nov. 28, 1899.

phot. 7. δ Sagitt. M 66.

21 34 + 42.7
26 54
5 20

Lga comp star = "e" = dd "m"

835 < comp star dis. Ledgard.

10 30.6 145.3 61.8
262.4 63.0
325.4 124.8 +1.09

82.3 +1.08
145.6 63.3
261.1 62.2
323.3 125.5 +1.07
RHB
350.5 mean = +1.13
54.4 63.9
175.4 56.8
234.2 120.7 +1.18

352.1 +1.18
36.0 53.1 61.0
6.6 176.2 59.8
10 33.3 236.0 120.8 +1.18
5
15 33.1 Gr-M. Time
4

Nov. 25, 1899.

R+B Same again.

356.4
10 37.6 35.1 58.7
175.0 58.7
233.7 117.4 +1.25

354.7 +1.22
54.4 59.7
173.3 61.1
23~~44~~ 120.8 +1.18
L+A.
262.7 mean = +1.14
326.0 63.3
82.1 63.6
145.7 126.9 +1.04

263.8 +1.06
10 43.8 325.8 62.0
81.4 82.8 63.5
10 ~~2~~40.7 146.3 125.5 +1.07
5 -.2
15 40.5+ Gr. M. time P. Angle Ser. A. 236.7
4984. Sprocket wheel A system 6.8
" " B " 7.6

Nov. 27, 1899 (Monday)

Comp of chronometers

A. & Dent	Bond
9 45 18.7	9 45 00

Nov. 29, 1899. (Wednesday)

Comp of chronometers.

A & D. Bond 394

6 59 23.0 6 59 00

χ Tauri.

Phot. T. 3 53 +121 M 6k,

0 08

3 45

8 ,5

Experimental.

χ Cygni.

Phot T. M 6k.

19 45 +32,6

24 43

5 00

See next page for measurements.

Nov. 29, 1899.

X Cygni

~~Ledgered~~
Plotted.

L & Above

~~59~~ 61.0 {comp. * dis.
8 17.0 81.3 20.3″
241.3 20.3″
261.6 40.6″ +3.74″

62.3 +3.72″
82.8 20.5″
242.4 20.5″
262.9 41.0″ +3.71″

R & B.

329.9
353.3 23.4″
152.2 22.7″
174.9 46.1″ + 3.45″

331.5 +3.52″
8 24.4 353.9 22.4″
151.4 20.7″
8 20.7″ 272.1 43.1″ + 3.60″
5 -4

13 20.3 Gr. M. Time.

Mean = +3.62″

Nov. 29, 1899.

Same again.

R & B.

328.8

8 26.4 353.1 24.3

151.8 21.5

173.3 45.8 +3.47

331.4 +3.50

353.6 22.2

151.5 22.3

173.8 44.5 +3.53

L & R.

.63

243.5 Mean = +3.~~68~~

264.1 20.6

63.1 18.9

82.0 39.5 +3.79

243.~~8~~7 +3.76

8 33.8 263.8 20.1

8 30.1 62.7 20.6

5 -4 83.3 40.7 +3.73

13 29.7 M.M. Time Position Angle Vernier A, 203.°2

8 4 5 Sprocket Wheel reads. A System 8.6

" " " B " 9.7

Sky a little hazy, and variable faint but observations taken with much care.

Nov. 29, 1899.

Phot. ~~P~~.W   o Ceti.   W.6 Ce.

2 1 2 - 3.6.
1 42
0 30

R. & B.   ~~Ledgered.~~ ~~Plotted.~~

78.3
9 06.3 104.2   25.9
258.8   25.6
284.4   51.5   -3.21

79.9   -3.18
104.8   24.9
258.9   27.6
285.5   52.5   -3.16

L. & A.
348.3   mean = -3.17
16.1   27.8
170.3   25.8
195.3   52.8   -3.15

349.5   -3.16
9 14.7   15.9   26.4
169.2   26.1
9 10.5   195.3   52.5   -3.16
5 -4

14 10.1 Gr. M. Time.

Nov. 29, 1899.

Same Again.

		L & A.		
		349.0		
9	16.2	16.3	27.3^-	
		169.1	24.9^+	
		194.0	52.2^+	-3.17^+
		348.9		-3.16^+
		15.3	26.4^+	
		169.0	26.4^+	
		195.4	52.8^+	-3.15^{-+}
		R. & B.		
		258.6		
		284.9	26.3^+	
		78.9	26.4^+	
		105.3	52.7^+	-3.15^-
		259.6		-3.15^{-+}
9	21.6	285.3	25.7^+	
	37.8	78.4	27.0^+	
9	18.9	105.4	52.7^+	-3.15^+
5	-4			
14	18.5	G. M. Time.		

Mean = -3.16^+

Nov. 29, 1899.

N.O.L. O Ceti again meas with Phot. R

~~Ledgered~~
Plotted.

R & B.
248.1
9 34.4 277.3 29.2
70.1 26.0
96.1 55.2 - 3.05

250.2 - 3.10
275.5 25.3
68.8 27.7
96.5 53.0 - 3.14
L & A.
159.2 mean = - 308
186.5 27.3
339.1 28.2
7.3 55.5 - 3.04

159.9 - 3.07
9 39.8 186.5 26.6
339.4 27.4
14.2 6.8 54.0 - 3.10
9 37.1
5 - 4
9^h 36.7 L. M. Time.

Nov. 29, 1899.

Same again.

L & A.

159.3
9 41.4 186.4 27.1$^+$
340.0 26.0$^+$
6.0 53.1$^+$ −3.14$^+$

160.3 −3.16$^+$
186.3 26.0$^+$
340.4 25.9$^+$
6.3 51.9$^+$ −3.19$^+$

R & B.

69.2
96.5 27.3$^+$
249.7 27.7$^+$
277.4 55.0$^+$ −3.06$^+$

69.0 −3.06$^+$
9 46.8 96.1 27.1$^+$
8.2 248.9 28.0$^+$
9 44.1 276.9 55.1$^+$ −3.05$^+$
5 −4 mean −3.11$^+$
14 43.7 Gr. M. Time.

Nov. 29, 1899

Circumpolar Variables

S Cassiop   WGk.

1 10   +72.1
4 50
1 40

10 13   o 4 var, var 1.5 p   11.4
In large Telescope.

S Persei.

2 08   +57.2
3 10
1 02

Altitude too high and too much haze

S Ursa maj   +62.0

12 37
3 37
9 00
3 00
12 00

12 37
27 37
15 00
12 00
3 00
9 00

Too Cloudy

R Aurigae.

5 02   +53.0
3 45
1 17
10 43

Alt too high.

Nov. 29, 1899.

R Aurigae tried again
q thought to be glimpsed at
intervals variable not certainly seen

17 7.0 q.1 N

c Sky quite hazy and somewhat
cloudy.

December 1, 1899 (Friday)

Comp of Chronometers.

Arnold & Dent				Bond 394		
7	10	27.5		7	10	00.0

Phot R.		O Ceti			W Obs
2	12	2	12	-3.6	
1	25	0	47		
0	47	1	25		
11	13	10	35		

7 30 Cloudy

Cloudy all the time now growing thicker, impossible to anything

9 10 Object glass heavily dewed.

December 2, 1899 (Saturday)

Comp of chronometers

a Dent   Bond 394

7 00 30.5   7 00 00.0

Circumpolar Variables

MOb.

S Persei

2 08 +57.2

0 22

1 46

10 14

7 ; 33 h 3 var, var 24 R est (10.2)

In large telescope,

rather faint for finder

T Persei.

7 53 f 1 var, var 4g In large telescope

~~f 2 var, var 3g " finder Est (9.1)~~

R Aurigae.

5 2 +53.0

1 0

4 2

7 58

8 10 n 2 var, var 2.5 s Est. 13.5

December 2, 1899.

Phot. R. Nova Aurigae W.C.L.

5 26 + 32.0
1 18
4 08 Ledgered.
7 52

L & A.
241.0
8 35.0 287.6 <comp. star = stars, & obs.
64.4 466+
368+
101.2 83.4+ + 2.10+

246.3 + 2.18+
283.8 375+
63.3 403+
103.6 77.8 + 2.26+
R & B
154.4 + 2.20+
195.5 411+
335.5 367+
12.2 77.8 + 2.26+

154.9 + 2.22+
8 46.0 189.8 349+
81.0 330.0 453+
8 40.5 15.3 80.2+ + 2.19+
5 -5
13 40.0 G. M. Time.

Dec. 2, 1899.

Same again.

	R & B.		
	148.3		
8 49.4	191.7	43.4+	
	333.7	40.3+	
	14.0	83.7+	+2.09+
	152.6		+2.13+
	193.5	40.9+	
	333.2	40.1+	
	13.3	81.0+	+2.17+
	L & A.		mean = +2.18+
	63.2		
	102.0	38.8+	
	243.7	39.2+	
	282.9	78.0+	+2.25+
	64.0		+2.22+
8 59.4	102.7	38.4+	
108.8	241.2	42.2+	
8 54.4+	283.4	80.6+	+2.18
5 -5			
13 53.9+			

Observations rather difficult from faintness of Nova. But much care exercised, and obs. considered good.

Spectrum principally monochromatic. On account of faintness of Nova, it is impossible to

Dec. 2, 1899.

say with certainty, whether there is any slight trace of continuous spectrum.

Phot R. o Ceti. W. G6s

2 12 − 3.6
2 16
0 04

R & B.

Ledgered
Plotted.

249.8
9 32.0 275.9 26.1*
70.1 27.3*
97.4 53.4* − 3.12*

250.0 − 3.12*
276.4 26.4*
69.8 27.3*
97.1 53.7* − 3.14*

L & A.
159.7 mean = − 3.07*
187.2 27.5*
339.6 27.7*
7.3 55.2* − 3.05*

159.7 − 3.02*
9 37.2 187.8 28.1*
9.2 339.2 28.9*
9 34.6* 48.1 57.0* − 2.98*
—5—
9 34.1 Gr M Time

Dec. 2, 1899.

(Phot. R) Same Again.

		L&Q.			
		159.9			
9	40.0	187.6	27.7		
		338.5	29.2		
		7.7	56.9	-2.98	
		160.4			-2.98
		187.5	27.1		
		338.2	29.8		
		8.0	56.9	-2.98	
		B&B.		mean = -294	
		67.6			
		98.0	30.4		
		249.3	28.9		
		278.2	59.3	-2.89	
		69.4			-2.91
9	44.7	97.6	28.2		
9	42.4	248.1	29.9		
5	5	278.0	58.1	-2.93	
14	41.9 Gr. M. Time				

Dec. 2, 1899.

(Phot. W.) Same Again

Plotted
Ledgered

R.O.B.

	70.6		
952.3	101.4	30.8	
	253.0	25.9	
	278.9	56.7	-2.99
	73.0		-3.04
	~~10~~98.2	25.2	
	251.4	29.1	
	280.5	54.3	-3.09

L.&A.

	341.5		Mean = -3.05
	11.5	30.0	
	162.6	26.5	
	189.1	56.5	-3.00
	342.5		-3.06
958.5	9.5	27.0	
10.8	162.2	26.8	
955.4	189.0	53.8	-3.11

5 5

14 54.9 Gr. M. Time.

Dec. 2, 1899.

(Phot. W) Same again

	L & A.		
	342.7		
10 000	10.2	27.5	
	163.2	25.7	
	188.9	53.2	-3.13
	342.0		-3.09
	8.8	26.8	
	161.9	28.4	
	190.3	55.2	-3.05
	R & B.		
	250.6		Mean = -3.02
	280.9	30.3	
	72.0	28.4	
	100.4	58.7	-2.91
	251.6		-2.94
10 05.5	279.9	28.3	
	71.9	28.9	
10 02.8	100.8	57.2	-2.97
5 -5			

15 02.3 Gr. M. Time.

Dec. 2, 1899.

Phot. I. SS Cygni. W Obs.

21 39 +43.1

27 16

5 37

~~6 23~~

L & A.

116.4 < comp star dis. – Comp star = "[illegible]" of d not.

10 26.0 211.6 95.2* " " = "e" now not.

299.8 88.3* Ledgered

28.1 183.5*

176.5* – 0.06+

117.6

210.3 92.7* – 0.05+

299.8 89.6*

29.4 182.3*

R & B 177.7* – 0.04+

27.6

117.4 89.8** mean = 0.00

208.8 84.5*

298.3 174.3** + 0.11+

31.5 + 0.06

10 31.8 118.10 86.5*

57.8 205.9 92.6*

10 28.9+ 298.5 179.1* + 0.02+

5 – 5

15 28.4+ Gr. M. Time.

Dec. 2, 1899.

Same Again.

R&B.

Clouds. 30.0

10 Stopped by increasing cloud
and haze. Last settings of
group taken through some haze.

τ Andromeda

Phot T. 0 17 +26.4 W Obs.

3 45

3 28

11 00 Haze too thick.

Dec. 4, 1899. (Monday)

a. D D. Bond 294
7 00 36.3 7. 00 00.0

R Draconis. W Obs.
16 27 +67.4 Posted.
24 32
8 00

7 35 pk 2.5 ~~4~~ var, var 1.59
In large telescope.

Phot. T. DM 3338 W Obs.
Loa. 19 20 +43.0
48.2 Quarda 24 50 I
5 30

7 ~~49~~ 54 35 99.8 51.6+
227.5 50.1+ 9.5 cap used on following
277.6 101.7+ −1.61+ two groups.
481 Plotted.
57 20 99.6 57.5+ −1.61+ Ledgered.
226.8 50.2+
277.0 101.7+ −1.61+
R.A.B
317.3
59 50 7.0 49.7+ mean = −1.62+
137.2 49.8+
187.0 99.5+ −1.67+ 4993.5400+ .5400 (5660)
317.9 4993.0491 (5666) .4705
8 01 15 9.9 52.0+ −1.62+ +0.4909+ +0.0695
~~2~~3 00 136.4 52.0+
7 58 15 188.4 104.0+ −1.56+
5 −36
12 57 Gr. M. Time

Dec. 4, 1899

II

R & B

136.9
8 06 10 189.5 52.6+
315.1 52.8+
7.9 105.4+ -1.53+

137.9 -1.54+
07 45 189.3 51.4+
315.6 53.2+
48.8 104.6+ -1.54

L & A.

49.6 mean = -1.60+
10 50 101.3 52.7+
228.2 49.4+
277.6 102.1+ -1.61+

49.0 -1.65+
12 30 97.9 48.9+
27 15 227.8 49.6+
8 06 49+ 277.4 98.5+ -1.69+
5 -36
13 06 13+ Gr M Time.
4998.5459+ .5459
4993.0491 .4705
0.4968+ +0.0754

Dec. 4, 1899.

Full aperture resumed
on following groups.

L θ a.

	49.3		
8 20 10	96.5	47.2	
	227.3	48.9	
	276.2	96.1	−1.75
	47.1		−1.66
24 00	101.7	54.6	
	228.2	48.8	
	279	103.4	−1.57

R θ B

mean = −1.62

	317.7		
26 55	7.6	49.9	
	136.2	52.2	
	188.8	102.1	−1.61
	317.1		−1.59
28 35	8.4	51.3	
20 00	136.8	52.1	
8 25 00	188.9	103.4	−1.57

5 −36

13 24 24 Gr. M. Time.

4993.5586 .5586
4993.0491 .4705
+0.5095 +0.0881

Dec. 4, 1899

IV

R & B.

317.0
8 33 25 8.6 51.6
137.1 52.0
189.1 103.6 -1.57

316.9 -1.58
35 40 8.8 51.9
136.8 51.4
188.2 103.3 -1.58

L & A
228.6 Mean = -1.64
38 00 276.4 47.8
47.3 50.5
97.8 98.3 -1.70

230.1 -1.70
39 50 278.0 47.9
26 55 47.7 50.3
8 36 44 98.0 98.2 -1.70
5 -36
13 36 08 Gr. M. Time.
4993.5668 .5668
4993.0491 .4705
0.5177 0.0963

Dec 4, 1899.

V

L & a.

229.7
8 44 40 277.4 47.7×
47.9 49.6×
97.5 97.3× -1.72×

230.6 -1.74×
46 50 276.8 46.8×
48.8 49.2×
98.0 96.0× -1.76×

R & B. mean = -1.68×

137.2
48 40 188.2 51.0×
316.3 52.2×
- 8.5 103.2× -1.58×

137.8 -1.62×
51 30 188.6 50.8×
19 31 40 317.7 48.8×
8 47 55 6.5 99.6× -1.67×
5 -36
13 47 19 Gr. M. Time.
4993.5745× 5745×
4993.0491 4705×
0.5254 +0.1040×

Dec. 04. 1899

VI.

R & B.

136.9
8 07 25 189.7 50.8+
317.8 50.9+
8.7 101.7+ -1.61+

137.7 -1.62+
59 50 188.5 50.8+
317.4 49.8+
7.2 100.6+ -1.64+

L & a Mean = -1.73+

49.0
9 03 00 96.4 47.4+
229.1 46.0+
275.1 93.4+ -1.82+

50.9 -184+
04 10 96.6 45.7+
244 25 229.5 46.0+
9 1 06 275.5 91.7+ -187+
5 -36
14 00 30 Gr. M. Time.

4993.5836+ 5836
4993.0491 4705
0.5345+ 0.1131

Dec. 4, 1899

~~VIII~~

	Lea.		
	50.2		
9 07 30	96.4	46.2	
	230.4	46.2	
	276.8	92.4	-1.85
	51.6		
09 15	96.3	44.7	-1.90
	231.6	43.7	
	275.3	88.4	-1.96
	RMB.		mean = -1.82
	318.0		
12 10	7.0	49.0	
	139.0	47.8	
	186.8	96.8	-1.74
	317.9		-1.74
14 35	6.7	48.8	
4 43 30	138.1	48.3	
9 10 52	186.4	97.1	-1.73
5 -36			
14 10 16 G.M.time			

4998.5905   5905
4993.0491   4705
0.5414   +0.1200

Dec. 4, 1899

VIII

R. & B.

319.0
9 20 00 5.9 46.9+
140.0 45.0+
185.0 91.9+ −1.86+

320.6 −1.90+
22 00 5.3 44.7+
140.6 44.4+
185,0 89.1+ −1.94+

L & A. mean = −1.98

231.9
24 45 275.0 43.1+
52.0 42.5+
94.5 85.6+ −2.03+

−2.07+
233.2
27 30 273.9 40.7+
14 15 52.1 42.3+
9 23 34 94.4 83.0+ −2.11+
5 −36
14 22 58 Gr. M. Time.

4993.5993+ .5993+
4993.0491 .4705
0.5502+ 0.1288+

Dec. 4, 1899

IX

L.&a.

	234.3		
9 36 15	273.3	39.0+	
	52.9	40.5+	
	93.4	79.5+	−2.21*
	233.2		−2.22*
38 50	272.8	39.6+	
	53.5	39.4+	
	93.9	79.0+	−2.22+

R&B mean = −2.15

	142.0		
41 40	183.3	43+	
	321.2	43.0+	
	4.2	84.3+	−2.07+
	141.9		−2.08*
44 50	183.5	41.6+	
161 35	321.9	42.4+	−2.08*
9 40 24+	4.3	84.0+	

5 −36

14 39 48+ Gr-M-Time.

4993.6110+ .6110

4993.0491 4705

0.5619* +0.1405+

Dec. 4, 1899.

X

R & B.

141.

Altitude getting low, considerable wind, and stars alternating in brightness.

Pos. angle 32.6 Ver. a
Sprocket Wheel. a system +5.6
" " B " -4.5

~~L Alt.~~
Phot W. o Ceti no Obs.
2 12 -8.6
4 27
2 15

See next page for meas.

Dec. 4, 1899

Phot. W. o Ceti W. C. 6a.

Plotted.
Ledgered

R & B

250.4
10 25.7 280.3 $29.9^{\times}$
71.2 $28.5^{\times}$
99.7 $58.4^{\times}$ $-2.92^{\times}$

251.6 $-2.89^{\times}$
280.2 $28.6^{\times}$
69.5 $31.5^{\times}$
101.0 $60.1^{\times}$ -2.86^{+}

L & A

161.6 Mean = $-2.93^{\times}$
190.9 29.3^{+}
341.7 $27.5^{\times}$
9.2 $56.8^{\times}$ $-2.98^{\times}$

162.4 -2.97^{+}
31.6 189.6 $27.2^{\times}$
57.3 340.0 $30.3^{\times}$
$10.\ 28.6^{\times}$ 10.3 57.5^{+} -2.96^{+}
5 -6
15 28.0^{+} Gr. M. Time
$4993.644^{\times}$

Dec. 4. 1899.

L & a. ~~W~~ (Phot W) Same Again

	161.1		
10 33.2	190.4	29.3+	
	341.6	27.7+	
	9.3	37.0+	-2.98+
			-2.99+
	162.1		
	189.1	27.0+	
	340.5	29.3+	
	~~10~~ 9.8	56.3+	-3.00+
	R & B.		
	70.0		mean = -2.93+
	101.0	31.0+	
	251.2	28.7+	
	279.9	59.7+	-2.87+
	71.3		-2.87+
10 39.5	99.4	28.1+	
12.7	249.7	31.7+	
10 36.4	281.4	59.8	-2.87+
5 -.6			

15 35.8 Gr. M. Time.

4993.650+

Dec 4, 1899

Phot R. Same again

Plotted

Ledgered.

R O B.

59.9

10 48.6 97.2 32.3 x

241.8 29.7 x

271.5 62.0 x -2.79 x

61.5 -2.78 x

91.6 Clouds. 30.1 x

240.3 32.4 x

272.7 Clouds. 62.5 x -2.77 x

L & a

331.8 mean = -2.84 x

1.1 29.3 x

153.2 28.7 x

181.9 58.0 x -2.94 x

332.8 -2.90 x

55.2 2.84 29.6 x

103.8 151.5 30.6 x

10 51.9 x 187.1 60.2 x -2.85 x

5 -.6

10 51.3 Gr. M. Time

4993.660 x

Dec. 4, 1899.

Phot R. Tameagain.

	L&A.		
	332.6		
10 57.4	1.7	29.1+	
	152.9	28.8+	
	181.7	57.9+	-2.94+
	333.7		-2.92+
	0.7	27.0+	
	150.9	31.7+	
	182.6	58.7+	-2.91+
	R&B clouds		
	241.2		mean = 2.90
+	272.2	31.0+	
	63.0	28.1+	
	91.1	59.1+	-2.89+
	247.5		-2.88+
11 03.4	272.2	29.7+	
120.8	62.1	29.9+	
11 00.4	92.0	59.6+	-2.87+

5 -6

15 59.8 G. M. Time.

4993.667+

Dec 4 1899
T. Cassiop. W 6 hs.
0 18 +55.9
4 23 Posted-
4 00

n 2 var, var 26 o
11 27 In large telescope

Dec. 5, 1899 (Tuesday)

a O Dent   Bond 394
7 05 39.0   7 05 00.0

Circumpolar Variables
M Obs.

S Persei.
2 8 +57.2
0 42   Posted on
1 26   Bulletin

7 45 h 2.5 var, var 5 k In large telescope

" T Persei.

Posted on Bulletin.

7 48 f 1 var, var 4 g In large telescope.

Phot.W.   o Ceti.   M Obs.
2 12 -3.6
1 12
1 00

See next Page for meas.

Dec. 5, 1899.

ο Ceti

Plotted
Ledgered.

Right
243.5
8 09.4 275.1 31.6*
65.2 29.2*
94.4 60.8* -2.83*

-2.84*

245.2
273.9 28.7*
63.9 31.3*
95.2 60.0* -2.86

Left
1547
185.4 30.7*
335.0 29.6*
4.6 60.3* -2.85*

Mean = -2.86

-2.88

155.5
8 18.0 184.6 29.1*
27.4 334.6 29.9*
8 13.7 4.5 59.0* -2.90*
5 -.6
13 13.1 Gr. M. time

Dec. 5, 1899.

(Phot. Mr.) Same again

Left
154.7
8 20.8 184.1 29.4
335.4 28.1
3.5 57.5 -2.96

155.5 -2.94
183.7 28.2
334.5 30.1
4.6 58.3 -2.93

Right.
64.2 Clouds mean = -2.90
94.8 30.6
245.0 29.5
274.5 60.1 -2.86

64.4 -2.86
8 27.8 94.3 29.9
8.6 244.7 30.0
8 24.3 274.7 59.9 -2.86
5 -.6
8 23.7 Gr. M. Time. Observations made through some light cloud & haze. Obs. thought to be good.

Dec. 5, 1899.

Phot T.　　S S Cygni.　　W Obs.

21 39　　21 39　　+43.1
26 01　　25 50
4 22　　4 11　　21 34　42.6
　　　　　　26 06
L. & A.　　　　4 32

1279 ∠comp star dis {= "e" new notation
9 00.0　197.1　69.2+　(= "m" old notation
307.9　67.9+　　Ledgered.
15.8　137.1+　+0.83+

126.5　　+0.79+
197.5　71.0+
308.4　70.2+
18.6　141.2+　+0.75+
R. & B.
40.2　　mean = +0.84+
107.2　67.0+
217.5　67.6+
285.1　134.6+　+0.88+

39.7　　+0.88+
9 06.1　106.4　66.7+
9 03.0　218.4　67.7+
5 -.6　286.1　134.4+　+0.89+
14 02.4 Gr. M. Time.

December 5, 1899

Same again

R & B.

38.6
9 09.6 105.9 67.3+
219.0 68.6+
287.6 135.9+ +0.86+

38.1 +0.86+
106.6 68.5+
218.6 67.0+
285.6 Clouds. 135.5+ +0.87+

L & A mean = +0.82+
308.1 Clouds
18.4 70.3+
128.0 69.2+
197.2 139.5+ +0.78+

308.2 +0.78+
9 19.4 17.9 69.7+
29.0 128.0 69.6+
9 14.5+ 197.6 139.3+ +0.79+
5 -7
14 13.8+ Gr. M. Time.

Post Angle = 235°.1 Vernier A
Sprocket Wheel = − 6.3 A System
″ ″ = − 5.5 B system

Dec. 5, 1899.

Phot-T.   T. Andromedae   no Obs.

0 17 +26.4

2 49

2 32

Clouds

10 30 Sky wholly cloudy, no stars visible
no chance for anything farther.

Dec. 6, 1899. (Wednesday)

comp. of chronometers.

Arnold & Dent	Bond 394
7 05 41.0	7 05 00.0

New Asteriod discovered by Charlois Dec. 4.

4 28 +16.2 M.⊙ obs.
0 54
3 34
8 26

1 7 11.0 -.5
8 43.0

87 $4^h\ 33^m\ 13^s.8$ 14° 32'.6
1 32.5
4 34 46.3

Stars a & b.

8 04 →

39.7 4.8
40.0 5.0
40.0 5.6
40.0
40.1
40.0
6|239.8
40.0

Dec. 6, 1899.

Stars b & c. Asteriod continued.

4.8
8 07 5.0
5.0
4.9
5.0
5.0
6) 29.7
4.95

Stars c & d.

5.6
5.8
8 12 5.9
6.1
6.0
6.0
6.0
6.0
8) 47.4 20
5.92

Clouds

Stars f & c

6.4
6.5
8 40 6.5
~~8 40~~ 6.4
6.6
32.4
6.5

Clouds

Dec. 6, 1899.

Stars b & c.

9 00 7.1

7.1

9 00 Asteriod preceeds 10.6 magn. star about 7 sec and is about 1'.8 South of it.

8 05 Asteriod preceeds 8.5 magn. star a little less than a square (about 36 or 37 secs) and is about 13' North of it.

Thickly cloudy

Clearer Stars a & B

36.0

36.5

9 34 36.0

36.2

.7

36.2

Stars b & c

8,3

8.2

9 36 8,5

8,3

8.5

.18

8.36

Dec. 6, 1899.

Stars c & d.

5.5
6.0
6.0
9 38 6.0
6.0
60
6 | 35.5
5.9

Therefore star "b" is the asteriod

1) Asteriod preceds 8.5 magn star 41.7 secs
9 40 and is about 13' North of it.

9 42 → Asteriod is about 1.6' South of 10.6 magn Star.

4 28 16.2
3 28
1 00

Phot. T. Asteriod. W.O.b.

Comp star, for photometric measts. on next page, = DM+14° 735 (8.7)

See next page for meas.

Dec. 6, 1899.

Charlois' Astroid Phot. J.

R & A. Ledgered. L.R.

50.2 < comp star dis

10 18.2 94.1 43.9$^+$

226.1 52.3

278.4 Clouds. 96.2 +1.75$^+$

46.0 +1.78$^+$

96.2 50.2$^+$

231.6 Clouds. 43.4$^+$

275.0 93.6$^+$ +1.82$^+$

L & B.

318.4 mean = +1.69

7.7 49.3$^+$

137.9 52.1$^+$

190.0 101.4$^+$ +1.62$^+$

317.0 +1.60$^+$

10 28.6 9.1 52.1$^+$

46.8 138.4 50.6$^+$

10 23.4$^+$ 189.0 102.7$^+$ +1.59$^+$

5 -7

15 22.7$^+$ S. M. Time

Dec 6, 1899.

Same again

L & B

317.0
10 30.8 7.9 50.9
137.7 52.2
189.9 103.1 +1.58

317.1 +1.58
10.2 53.1
139.0 50.1
189.1 103.2 +1.58

R & A
Clouds.
231.2 mean = +1.71
275.6 44.4
48.4 47.4
95.8 91.8 +1.87

226.6 +1.84
10 41.3 278.5 51.9
51.4 42.0
72.1
10 36.0 93.4 93.9 +1.81
5 -7
15 35.3 Gr. M. Time.

Pos. Angle Vernier A = 184.8°
10 55 Sprocket Wheel reads -4.5 A System
" " " -3.4 B "

Dec. 6. 1899.

~~Asteriod cont.~~

Phot. M o Ceti. M Obs.

2 12 - 36

4 32

2 20

LOA. Ledgered

332.7

11 22.7 4.6 31.9 Plotted.

155.4 Clouds 28 5

183.9 60.4 -2.84

3348 -2.82

4.81 30.0

153.0 31.8

1848 Clouds 61.8 -279

R & B Clouds

241.2 Mean = -282

274.2 33.0

63.6 29.4

93.0 62.4 -277

Clouds.

244.2 -2.82

11 36 0 273.6 39.4

53.7 63.8 Clouds 30.6

11 26.8 94.5 60.0 -2.86

5 -7

16 26.1 Gr. M. Time.

Dec. 6, 1899

Same again

R & B.

242.9

11 33.6 274.3 31.4

64.3 cloudsthick.

94.0 29.7

61.1 -2.82

243.8

274.5 Clouds. 30.7 -2.78

62.7 32.3

96.0 63.0 -2.75

L & a

153.9 Mean = -2.82

183.9 30.0

333.6 29.6

3.2 59.6 -2.87

154.8 -2.86

11 43.2 184.1 29.3

76.8 333.2 30.8

11 38.4 4.0 60.1 -2.86

5 -7

16 37.7 Gr M Time Obs taken with some difficulty through clouds.

J

Dec. 7, 1899. (Thursday)

Charlois Asteriod. Dis Dec. 4, 1899

28 28 +16.2 No Obs
23 35
4 53
7 07

6 10 Cloudy

6 50 Cloudy (Thickly)

7 30 Thickly Cloudy

0 5 4 44 0
5 6 32.7

~~28 27~~

4 28 +16.2
0 58
3 30
8 30

8 00 Thickly Cloudy

8 30 Thickly Cloudy

9 10 All cloudy no stars visible impossible to get asteriod

55

Dec. ~~7~~ 8 1899. (Friday)

Comp. of Chron.

a. O Dent. Bond 394.
7 05 00.0 7 05 00.0

Charlois' new asteroid Dis. Dec. 4. m. 6 Cls.
4 28 +16.2
0 48
3 40
8 20

7ʰ20 Clouds.

14
~~0 53 59.5~~
~~54 48.7~~

0 56 40.5
58 29.7

Clouds

1 45 4.0
45 47.5

1 46 11.0
46 52.0

4 33 13.8 +14 32.6
−1 49.2 −10.0
4 31 24.6 14 22.6
−41.0 +2.0
14⁰ Dm 73 (9.4) = 4 30 43.6 14 24.6

8ʰ20

Dec. 8, 1899.
asteroid fol. DM +14°731 (9.4) by 41 sec
and is 2.0' South of it

8 24
1 50 01.0 a
50 04.0 b
50 18.0 c } good

clouds

8 28
1 55 06.0 a
55 08.0 +.3 b } fair through clouds

clouds

~~59.0~~
~~0.2~~

8 31
1 58 15.3 a
58 18.0 b } good

clouds

8 52
2 18 41.2 a
18 45.0 b } good

Cloud

~~20 27.0 a~~
~~20 30.0 b~~

8 55
21 6.5 a
21 10.0 b
21 24.5 c } good

Dec. 8, 1899.

Clouds.

2 22

2 25 13.0 a
25 16.5 b fairly good.

~~9:01 2 27 34.0 a~~
~~27 37.0 b~~
~~27 32.5 c~~

2 28 17.0 (9.4) +14° 731
9:02 28 56.5 asteroid.

9:02 asteroid follows DM 14° 731 (9.4) 32.5 secs
and is 2'.3 South of it.

2 34 3.5 a fairly good
9:07 34 7.0 b through clouds

Cloudy

9:40 Still all cloudy.

Dec. 9, 1899. (Saturday)

Arnold & Dent   Bond 394
6 30 02.0   6 30 00 00

Charlois' Asteroid Dis. Dec. 4, 1899. [illegible]

4 28 +16.2
0 18
4 10

0 35 01.0
36 50.2

12.7
12.5
7 09:00 12.5
12.5
12.5
12.5

asteroid preceeds DM+14°731 (9.4) by
7 09 12.5 secs. and is 1'.5 North of it.

a faintish star follows (9.4) 1 sec and is about
8'.0 North of it.

Dec. 9, 1899

Phot. T. Charlois' asteroid N Obs.
Above

Comp Star = DM+14° 730 (9.3)

25.2 < astriod dis.

Ledgered

7 28.2 127.6 102.4
302.0 104.6
306.6 207.0
103.0 +0.52

17.6
126.2 108.6 +0.58
202.2 103.9
306.1 212.7
Below. 147.3 +0.63
288.6

37.2 108.6 mean = +0.68
109.3 110.0+
219.3 218.6
141.4 +0.75

287.0
7 36.0 38.2 111.2+ +0.78
64.2 107.9 110.7
7 32.1+ 218.6 221.9
5 -.0 138.1 +0.81
12 32.1+ Sr-M Time.

Dec. 9, 1899.

Same again.

	Below			
	286.9			
7 37.8	37.1	110.2		
	108.3	109.3		
	217.6	219.5		
		140.5	+0.76	
	285.6			
	38.8	113.2		+0.80
	109.1	110.0		
	219.1	223.2		
	Above	136.8	+0.84	
	204.0			
	304.0	100.0		mean = +0.62
	19.1	104.7		
	123.8	204.7		
		155.3	+0.47	
	203.7			
7 45.6	303.5	99.8		+0.44
83.4	21.6	102.4		
7 41.7	124.0	202.2	+0.42	
5 0		~~157.8~~		

Poz. Angle Ver. A. 220°.3

12 41.7 Gr. M. Time. Sprocket Wheel. A System −4.5

B System −3.6

Dec. 9, 1899.

Phot. T. χ Cygni. W Obs.

19 45 + 32.6

23 25

L & a 5 40

Ledgered

Plotted.

642 ∠ comp star dir.

8 17.4 81.0 16.8+

244.5 17.4+

261.9 34.2+ + 4.07

64.4 + 4.15

80.4 16.0+

245.0 17.0+

262.0 33.0+ + 4.19+

R & B.

332.3 mean = + 3.93+

352.8 20.5

152.2 21.3+

173.5 41.8+ + 3.67+

~~33~~

333.2 + 3.71+

8 24.6 352.6 18.9+

42.0 152.6 21.4+

8 21.0 174.0 40.3+ + 3.75

5

13 21.0 Gr. M. Time.

Dec. 9, 1899.

Same Again.

R & B.
332.8
8 27.2 353.0 21.0
153.1 20.4
173.5 41.4 + 3.69

332.6 + 3.70
353.1 20.5
152.2 20.3
172.5 40.8 + 3.72

L & A. mean = + 3.87
243.7
262.2 18.5
63.8 17.2
81.0 35.7 + 4.02

244.4 + 4.04
8 33.6 262.0 17.6
60.8 63.6 17.5
8 30.4 81.1 35.1 + 4.06
5
13 30.4 Gr. M. Time Pos Angle Vernier A 204.1
Sprocket Wheel reads A System -45
" " " B " -33

Dec. 9, 1899.

Charlois Asteriod Resumed.

4 28 +16.2
2 48
1 40

17.9
9 29.0 18.0
18.1

Bond 236	Bond 394
3 03 33.5	9 33 00
3 04 55.6	9 34 00
3 05 55.7	9 35 00

Pos. Zero 184.9
45.0
139.9

Setting

3	14	56.0 - .2	asteriod
	15	20.9	star
	15	37.1	astereiod
	15	49.1	star

3	16	17.6	
	16	43.2	-.1
	16	59.0	-.2
	17	11.0	

Dec. 9, 1899.

asteriod cont.

3	18	04.0	
	18	29.6	
	18	45.4	
	18	57.5	
3	19	14.2	+.2
	19	40.0	
	19	55.8	-.2
	20	07.7	
3	20	38.0	+.1
	21	03.5	+.2
	21	19.5	
	21	32.0	-.2
3	22	7.6	
	22	33.0	
	22	48.8	
	23	01.0	
3	23	27.0	
	23	52.5	
	24	08.3	
	24	20.2	+.2

Dec. 9, 1899
Asteriod Cont.

3 24 45.7
25 11.4
25 27.0 -.2
25 49.2 -1

~~3 25 56.4 -.1~~
~~26 2~~
~~26~~
26

3 26 37.5
27 02.9
27 18.5 -2
27 30.8

3 27 51.8
28 17.6 -.1
28 32.6
28 44.8

Both in southern half inside square.
Comp star used in above transits =
DM + 14° 731 (9.4)
Chron. used = Bond 236.

Bond 236	Bond 394
3 35 59.4	10 05 00
3 36 59.5	10 06 00
3 37 59.5	10 07 00

Dec. 9, 1899.

Phot. M.   o Ceti   M. 6 b.

2 12 − 3.6
3 47
1 35

Ledgered.
Plotted

R & B.
64.3+
10 23.0 98.5 34.0+
245.7 31.1+
276.8 65.1+ −2.67+

66.3 −2.70+
90.8 30.5+
244.0 32.6+
278.6 63.1+ −2.74+
L & a.
334.4 Mean = −2.72+
37.9 33.5+
156.4 30.0+
180.4 63.5+ −2.73+

336.~~4~~7 −2.75+
10 31.2 7.0 30.8+
54.2+ 155.0 31.6+
10 27.1+ 187.6 62.4+ −2.77+
5

10 27.1+ (Gr. M. Time)

Dec. 9, 1899.

Same again

LDa.

334.3

10 34.0   7.6   33.3

155.5   31.9

187.4   65.2   -2.67

336.0   -2.70

6.0   30.0

154.6   33.3

187.9   63.3   -2.74

R&B.   mean = -2.68

243.6

277.5   33.9

65.7   31.2

96.9   65.1   -2.67

245.6   -2.66

10 39.4   277.2   31.6

13.4   64.5   34.1

10 36.7   98.6   65.7   -2.65

5

15 36.7 Gr. M. Time.

Dec 9, 1899.

Circumpolar Variables.

W6b.

R Ursa Maj.

Posted on Bulletin

~~10 32~~
~~28 26~~
~~7 54~~
~~4 06~~

10 32 +69.3
4 16
6 16
5 44

11 6 v 4 var, var 1 t.
In large telescope

T Ursa Maj. Posted on Bulletin

12 33 +60.4
4 40
7 53
~~4 07~~

11 70 q 1 var, var 1.5 r
In large telescope
seeing poor, region rather low

Bond 236			Bond 394		
4	59	11.6	11	28	00
5	00	11.8	11	29	00
5	01	12.0	11	30	00

Dec. 10 1899 Sunday

Comp of Chronometers.

21 05 Set Bond 236 by Frodsh. Standard Clock.

Bond 236	Bond 394
14 50 53.1	21 14 00
14 51 53.2	21 15 00
14 52 53.5	21 16 00

Dec. 11, 1899. (Monday)

Comp of Chron.

Bond 236	√Bond 394
1~~8~~9 39 37.0	2 02 00.0
1~~8~~9 41 37.3	2 0~~6~~4 00.0
1~~8~~9 42 37.4	2 05 00.0

9 10 Set Bond 236

Comp of Chronometers

Bond 236	Bond 394
14 53 22.0	21 12 00.0
14 54 22.1	21 13 00.0
14 56 22.3	21 15 00.0

Dec. 12, 1899 (Tuesday)

Comp of Chron.

Bond 236			Bond 394		
19	09	59.8	1	27	00
19	10	00.0	1	28	00
19	11	00.0	1	29	00

Bond 236			Frodsh. 1327		
19	14	10.6	19	14	01.0
19	15	10.6	19	15	01.0
19	16	10.6	19	16	01.0

Charlois' New Asteroid disc. Dec. 4.

$-12.5''$ $\quad$ $+1.5'$ $\quad$ 5 8

−2 $\quad$ 54. $\quad$ +13. $\quad$ 3

−3 $\quad$ 6. $\quad$ +14.5 $\quad$ 17 8

4 30 39.

4 27 33.

3. $\quad$ +14.5'

4. 27 30

28

~~4~~ 28 $\quad$ +16.2

1 15

−3 13

8 47 $\quad$ +14 23.3

+14.5

Clouds $\quad$ 4 27 30 $\quad$ +14 37.8

Dec. 12, 1899.

Phot. T. W Delphini. W Obs.

20 33 +17.9
25 33
5 00

8 15 Region low, sky slightly foggy
some dew on objectglass, var. faint

Charlois' Asteriod Resumed. W Obs.

4 28 +16.2
1 58
2 30
9 30

2 05 06.0
07 38.8

8 ~~44~~ 2 24 48.5 (8.7) 1m 32.7s
26 21.2 Asteriod

~~2 27 13.0 (8.7)~~
~~28 47.0 Asteriod 1m 34.0~~

2 29 48.5 (8.7)
31 21.5 1 33.0

Dec. 12, 1899.

2 32 07.0 (8.7) $1^{m}\,33^{s}.2$
8 51 33 40.2

~~2 34 39.0~~ Dome interfered on this transit.

3
2 36 26.5 (8.7)
37 59.7 -.2 $1^{m}\,33^{s}.0$

2 38 26.0
8 57 39 29.0 $1^{m}\,33^{s}.0$

This is probably the asteriod. If so it follows DM+14° 722 (8.7) by $1^{m}\,33^{s}.0$ and is 4'.2 South of it.

9 21 3 02 46.8 (8.7) (a) ~~ast~~
04 18.8 -.2 (b) ~~(8.7)~~ ~~$1^{m}\,31^{s}.0$~~
$1\ 31.8$

3 04 48.0 (8.7) (a)
06 20.0 -.2 Ast. (b) $1^{m}\,31^{s}.8$

3 06 55.3 b
07 19.5 c $24^{s}.2$
9 25 07 38.3 b
08 02.7 c $24^{s}.4$

Dec. 12, 1899.

3 08 19.3 b
9 26 08 43.8 c $24^{s}.5$

Asteriod preceeds star (c) by above amount and is 7.0′ South of it.

R Lyncis. W Obs.

6 50 55.0
3 28 Posted on
3 22 Bulletin
8 38

10 00 0 3 var, var 2 p
In large telescope.
Observation difficult, moon rather bright; fog also on object glass.

Phot T. χ Tauri W Obs.
3 53 +12.1
3 50
3
11 57

Dec 12, 1899.

Phot. T. λ Tauri. W Ok.
Experimental only. Object glass foggy. Images
L & a all blurry & out of shape.
68.2 < var dis Comp Star = Dm+12° 535 (8.3)

Not to be Ledgered.

	68.2		
10 39.00	77.5	9.3	
	246.8	13.8	
	260.6	23.1	4.98
	67.0	10.9	(4.98)
40 30	77.9		
	248.2	12.0	
	260.2	22.9	4.99
	R & B		
	336.0	13.0	
42 45	349.0		
	155.4	14.6	
	170.0	27.6	4.59
	333.8	14.5	(4.59)
43 50	348.3		
	156.1	13.0	
	169.1	27.5	4.59

mean = 4.78

Dec. 12, 1899.

R & B   Same again.

336.1
10 46.00   348.6   12.5
155.6   15.4
171.0   27.9   4.5–6

333.2   4.5–6
47 15   349.2   16.0
156.6   12.1
168.7   28.1   4.5–5

L & a.
24.
2

Charlois' Asteriod Resumed
Mr 6b.

4 28   +16.2
4 45
0 17

4 50 35.5 (8.7)
11 09   52 3.5 ast.   1m 28s.0

4 52 22.0 (8.7)
53 49.8 +,2 ast 1m 28s.0

asteriod follows (8.7) 1m 28s & is about +.0 N

~~4 55 31.8 b~~

~~56 c~~

star b is therefore asteriod as was assumed.

Dec. 12, 1899

Asteroid continued

	4 59	31.0	b.	
	4 59	39.8	c	28.8
18	5 00	17.5	b	
	5 0	46.5	c	29.0

Star b precedes star c which is 9.4 magn by 29 secs, this also shows that star b is the asteroid.

Thermot. put on repeatedly but asteroid could not ~~then~~ be seen due to fog in glass.

Troubled greatly throughout evening by fog, dome & pier reeking with moisture

Comp. of Chronometers.

Frodsh. 1327	Bond 236
15 19 01.0	15 18 50.6
20 01.0	19 50.5
21 01.0	20 50.6

Dec. 13, 1899. (Wednesday)

Phot. W. β Lyrae. W. Obs.

18 45 +33.2
23 55
5 10

L+A

I
Ledgered
~~Plotted~~

128.5
6 29.2 151.2 22.7 ✓
305.5 29.1 ✓
334.6 51.8 ✓ −3.19 ✓

125.6 −3.14 ✓
155.5 29.9 ✓
308.2 24.2 ✓
332.4 54.1 ✓ −3.10 ✓

R+B.

38.2 mean = −3.05 ✓
62.8 24.6 ✓
213.7 32.8 ✓
246.5 57.4 ✓ −2.96 ✓

34.2 −2.96 ✓
6 37.2 65.8 31.6 ✓
66.4 217.1 25.9 ✓
243.0 57.5 ✓ −2.96 ✓

6 33.2 5002.481
5 − 2 5002.184
11 33.0 Gr. M. Time. +0.297

Dec 13, 1899.

II

R&B.
213.8
6 44.4 246.8 33.0 ✓
37.5 26.8 ✓
63.3 59.8 ✓ -2.91 ✓

217.5
-3.04 ✓
243.4 25.9 ✓
36.7 26.5 ✓
63.2 52.4 ✓ -3.17 ✓
L&A.
304.2 mean = -3.02 ✓
334.5 30.3 ✓
127.6 25.3 ✓
152.9 55.6 ✓ -3.03 ✓

-3.01 ✓
307.3
6 54.4 333.2 25.9 ✓
98.8 124.9 30.7 ✓
6 49.4 155.6 56.6 ✓ -2.99
5 -2
11 49.2 Gr M Time.
5002.492
5002.184
+0.308

Dec. 13, 1899

	L & A		III
	304.0		
7 03.7	336.2	32.2 ✓	
	127.7	24.7 ✓	
	152.4	56.9 ✓	−2.98 ✓
	306.8		−2.98 ✓
	332.7	25.9 ✓	
	124.6	31.1 ✓	
	155.7	57.0 ✓	−2.98 ✓
	R & B.		− 2.95 ✓ mean.
	213.5		
	246.1	32.6 ✓	
	36.6	26.6 ✓	
	63.2	59.2 ✓	−2.89 ✓
	217.0		−2.92 ✓
7 15.1	243.5	26.5 ✓	
18.8	34.4	31.3 ✓	
7 9.4	65.7	57.8 ✓	−2.94 ✓
5 −2			

12 9.2 Gr. M. Time.

5002.506

5002.184

+0.322

Dec. 13, 1899.

IV

	R & B			
	213.6			
7 17.6	346.0	32.4 ✓		
	36.6	26.5 ✓		
	63.1	58.9 ✓	-2.90 ✓	
	216.8			-2.90 ✓
	244.5	27.7 ✓		
	34.0	31.5 ✓		
	65.5	59.2 ✓	-2.89 ✓	
	L & A			-2.94 ✓ mean
	126.4			
	155.2	29.8 ✓		
	306.7	27.8 ✓		
	334.5	57.6 ✓	-2.95 ✓	
	126.4			-2.97 ✓
7 27.6	153.8	27.4 ✓		
45.2	305.8	29.2 ✓		
7 22.6	335.0	56.6 ✓	-2.99 ✓	

5 -2

12 22.4 Sidl time =

5002.515

5002.184

+0.331

Dec. 13, 1899.

L & A. V

124.8
7 36.5 154.6 29.8
306.5 27.0 ✓
333.5 56.8 ✓ - 2.98 ✓

126.0 - 2.98 ✓
153.1 27.1 ✓
304.3 30.0 ✓
334.3 57.1 ✓ - 2.97 ✓

- 2.93 ✓ mean.

R & B.

33.7
66.0 32.3 ✓
216.4 26.9 ✓
243.3 59.2 ✓ - 2.89 ✓

36.2 - 2.818 ✓
7 43.8 63.5 27.3 ✓
80.3 214.2 32.7 ✓
7 40.2 246.9 60.0 ✓ - 2.86 ✓
5 - 2

12 40.0 Gr M time.

5002.528
5002.184

+ 0.344

Dec. 13, 1899.

VI.

R & B.

758.1 ~~333.4~~ 213.4

~~755.2~~ ~~66.5~~ 246.6 .332 ✓

~~216.6~~ 36.5 266 ✓

~~24~~ 63.1 598 ✓ -2.87 ✓

216.7 -2.90 ✓

243.4 267 ✓

34.3 31.3 ✓

65.6 58.0 ✓ -2.94 ✓

-2.94 ✓ mean.

L & a.

123.8

154.6 30.8 ✓

306.9 26.7 ✓

333.6 57.5 ✓ -2.96 ✓

127.1 -2.98 ✓

8 07.3 153.0 25.9 ✓

125.4 304.5 30.5 ✓

8 2.7 335.0 56.4 ✓ -3.00 ✓

5 -2

13 2.5 Gr. M. Time.

0.0020544

0.0002.184

+0.360

Dec. 13, 1899.

L & a

VII

125.2
8 15.8 154.7 29.5 ✓
305.9 27.7 ✓
333.6 57.2 ✓ -2.97 ✓

126.1 -2.94 ✓
154.4 28.3 ✓
304.5 30.2 ✓
334.7 58.5 ✓ -2.92 ✓

R & B.

~~35.2~~ -2.93 ✓ mean.
~~64.6~~ ~~29.4~~
216.3
244.0 27.7 ✓
34.4 30.9 ✓
65.3 58.6 ✓ -2.91 ✓

~~8 2~~

214.8 -2.92 ✓
8 25.0 245.8 31.0 ✓
40.8 36.4 26.9 ✓
8 20.4 63.3 57.9 ✓ -2.94 ✓
5 -2
13 20.2 Gr M Time
5002.356
5002.184
+ 0.372

Dec. 13, 1899.

VIII

	R & B.		
	216.1		
8 34.9	243.6	27.5 ✓	
	33.3	31.7 ✓	
	65.0	59.2 ✓	− 2.89 ✓
	214.2		−2.88 ✓
	245.0	30.8 ✓	
	35.4	28.7 ✓	
	64.1	59.5	−2.88 ✓
	L & A.		
	125.8		−2.91 ✓ better.
	153.8	28.0 ✓	
	304.5	29.4 ✓	
	333.9	57.9 ✓	−2.94 ✓
	125.2		−2.94 ✓.
8 43.4	155.6	30.4 ✓	
78.3	305.5	27.9 ✓	
8 39.2	333.4	58.3 ✓	−2.93 ✓

5 −2

13 39.0 Gr. M. Time.

5002.569

5002.184

+0.385

Dec. 13, 1899.

IX

L & Q.

126.1

8 47.2 153.5 27.4 ✓

303.3 29.3 ✓

334.6 56.7 ✓ -299 ✓

124.8 -295 ✓

156.3 31.5 ✓

306.2 27.2 ✓

333.4 58.7 ✓ -291 ✓

R & B.

35.8 -2.98 ✓ mean.

64.5 28.7 ✓

215.0 31.5 ✓

246.5 60.2 ✓ -2.83 ✓

33.1 -287 ✓

8 53.0 65.6 32.5 ✓

100.2 215.3 26.7 ✓

8 50.1 24~~51~~ 59.7 ✓ -289 ✓

5 -2 20

13 49.9 G.M.Time.

Last group quite difficult region low

8 56 ~~observati~~ images, rather blurry

5002.576

5002.184

+0.392

Dec. 13, 1899.

x Tauri. ~~X~~.

R.A. 3 53 +12.1
3 53 3 15
3 40 0 38
0 13 11 22 9.5 inch capped
11 47 I

Ledgered

L & A
66.8
10 03 10 78.2 11.4 ✓
248.4 9.9 ✓
258.3 21.3 ✓ -5.15 ✓

67.8 -5.20 ✓
05 40 77.6 9.8 ✓
247.8 10.5 ✓
258.3 20.3 ✓ -5.26 ✓
R & B. mean
~~-4.99~~ -5.02 ✓
335.3
08 20 348.3 13.0 ✓
159.8 11.5 ✓ -4.85
168.3 24.5 ~~4.76~~

-4.83
~~4.78~~
336.4
12 00 349.2 12.8 ✓ 5002.6300
29 10 159.7 12.1 ✓
10 07 18 168.8 24.9 ✓ -4.81 ✓
5 -14
15 07 04 Gr. M. Time. Comp. Star = D.M. +12° 535 (8.3)

Dec. 13, 1899.

λ Tauri.

II

	R+B.		
	336.8		
19 4 45	348.2	11.4✓	
	157.1	11.8✓	
	168.9	23.2✓	-4.97✓
	336.4		-4.99✓
16 40	348.5	12.1✓	
	157.6	10.6✓	
	168.~~7~~7	22.7✓	-5.01✓
	L+a.		
	247.4		mean -5.12✓
21 05	257.9	10.5✓	
	67.8	9.4✓	
	77.2	19.9✓	-5.30✓
	248.0		-5.24✓
2 3 25	258.3	10.3✓	
7 5 55	67.1	10.8✓	
10 18 59	77.9	21.1✓	-5.17✓
5 -14			

15 18 45 Gr. M. Time.

5002.

Dec. 13, 1899.

III

L. & a.

247.9
10 32 45 258.4 10.5 ✓
67.1 9.7 ✓
76.8 20.2 ✓ -5.27 ✓

248.3 -5.23 ✓
10 35 20 258.3 10.0 ✓
67.0 10.9 ✓
77.9 20.9 ✓ -5.19 ✓

R. & B. mean -5.08 ✓

156.9
10 38 10 169.2 12.3 ✓
336.4 11.8 ✓
348.2 24.1 ✓ -4.88 ✓

157.5 -4.92 ✓
10 40 45 168.6 11.1 ✓
147 00 336.3 12.1 ✓
10 36 45± 348.4 23.2 ✓ -4.97
5 -14

15 36 31 Gr. M. Time.

5002.

Dec. 13, 1899.

IV

R & B

	157.5		
10 42 50	169.3	11.8 ✓	
	336.1	12.1 ✓	
	348.2	23.9 ✓	−4.90 ✓
	157.3		−4.92 ✓
47 10	169.0	11.7 ✓	
	336.3	11.9 ✓	
	348.2	23.6 ✓	−4.93 ✓

L + a.

	247.1		mean −5.04 ✓
51 25	258.0	10.9 ✓	
	67.0	19.3 ✓	
	77.3	~~19.3~~ 21.2 ✓	−5.16 ✓
	248.2		−5.16 ✓
54 00	258.2	10.0 ✓	
195 − 20 5	67.0	11.1 ✓	
10 48 51 +	78.1	21.1 ✓	−5.17 ✓
5 −14			
15 48 37 Gr. M. Time.			

5002.

Dec. 13, 1899.

V.

L + a.

247.5

10 56 30 257.8 10.3 ✓

66.8 10.8 ✓

77.6 21.1 ✓ -5.17 ✓

248.0 -5.18 ✓

10 58 20 258.0 10.0 ✓

66.9 10.8 ✓

77.7 20.8 ✓ -5.20 ✓

mean -5.07 ✓

R + B.

~~157.7~~ 336.2

11 02 50 ~~168.9~~ 348.4 12.2 ✓

157.5 11.4 ✓

168.9 23.6 ✓ - 4.93 ✓

337.0 -4.96 ✓

11 05 15 348.5 11.5 ✓

2 50 157.4 11.5 ✓

11 00 44 168.9 23.0 ✓ - 4.98 ✓

5 -14

16 00 30 Gr. M.T. Pos. Angle Ver. A = 295.5

11 10 Sprocket Wheel reads = 13.8 A System

5002 " " " = 13.6 B

Dec. 13, 1899.

τ Persei.

no Obs.

2	8	2	8 +57.2
6	8	5	58
4	6	3	50

2 11 +57.3
6 08
3 57

Arnold & Dent	Bond 394
11 32 13.6	11 32 00.0

Dec. 14, 1899. Thursday.

Comp of Chron

Frodsh 1327	Bond 236
0 56 01.0	0 55 23.5
0 57 01.0	0 55 23.5

Bond 394	Arnold & Dent.
7 08 00.0	7 08 15.5
7 09 00.0	7 09 15.6

Phot M. o Ceti. W 66a.

2 12 -3.6
1 12
1 00
11 00

See next page for measurements.

Dec. 14, 1899.

o Ceti.

Plotted.
Ledgered.

Right & Below
217.3
9 51.0 252.8 35.5+
37.9 33.6+
71.5 69.1+ -2.54+
Clouds
217.8 -2.50+
253.4 35.6+
37.4 Clouds 35.5+
8 10.0 72.9 71.1+ -2.47+
Clouds.
L & Above. mean = -2.53+
127.5 Clouds.
162.2 34.7+
308.6 33.4+
8 24.0 342.0 Clouds 68.1+ -2.57+

128.3 -2.56+
8 38.5 163.2 Clouds 34.9+
303.5 308.4 34.2+
8 15.9 342.6 69.1+ -2.54+
5 -3
13 15.6 S. m. Time.

Dec. 14, 1899.

Same again

L & a.
128.3
8 41.5 162.4 34.1^{+}
308.2 34.2^{+}
342.4 68.3^{+} -2.56

128.6 -2.55^{+}
162.2 33.6^{+}
307.6 35.3^{+}
342.9 68.9^{+} -2.54^{+}
R & B.

clouds. mean $= -2.52$
217.2
253.8 36.6^{+}
38.2 33.4^{+}
71.6 70.0^{+} -2.51^{+}

218.0 -2.48^{+}
8 47.6 252.3 34.3^{+}
9.1 37.1 37.0^{+}
8 44.6 ~~73.3~~ 71.3^{+} -2.46^{+}
5 - 3 74.1
13 ~~44~~.3^{+} Gr. M. Time.

Dec. 14, 1899.

Charlois' Asteriod Discovered Dec. 4,
W 6 h.

4 28 +16.2
2 48

1 40
10 20

Too Cloudy.

M. P. 441 W 6 h.
3 31 +62.8
2 57

0 40

11 20

9 20 Sky thickly cloudy and growing thicker
no chance for anything further.

21 12 Set Bond 236

Bond 236			Frodsh 1327		
15	5	58.0	15	6	01.0
15	6	58.0	15	7	01.0
15	7	58.0	15	8	00.0

Dec. 15, 1899. (Friday)

Comp of chron.

Frodsham 1327	Bond 236
19 35 01.0	19 34 54.4
36 01.0	35 54.4
37 01.0	36 54.3

Bond 394	Arnold & Dent
7 05 00.0	7 05 23.0
7 06 00.0	7 06 23.0

Charlois' asteriod Disc. Dec. 4, 1899.

4 28 +16.2 W 6 h.
1 12
3 16
8 44

4 27 39 +14 35.8
-2 54. +12.6
4 24 45.0 +14 48.4
4 26 5.9 14 40.0
- 1 20.9 + 8.4

58
3
174

7 30. 1 22 28.5 Star a
23 33.0 4.5

Dec. 15, 1899

	1	33	15.5	a	
		33	20.5	b	5.0
7 40	1	33	34.4	a	
		33	39.5	b	5.1
	1	33	539	a	
		33	59.0	b	5.1
	~~1~~	~~34~~	~~24.0~~		
		~~34~~			
	1	34	40.5	a	
7 41			45.5	b	5.0
	1	34	57.5	a	
		35	03.0	b	5.0

7 41 Star (a) precedes (b) by 5.0 secs. & is about 6.'0 South of it.

1	41		41.0	
	41		46.5	5.5
1	41	~~4~~	57.5	
	42		030	5.5

Dec 15, 1899.

	1	42	20.8	
		42	26.5	5.7
7 49	1	42	35.0	
		42	40.5	5.5
	1	42	47.5	
		42	53.0	5.5

7 50 Star (a) precedes star (b) by 5.5 secs. and is about 6'.0 South of it.

Star (b) in above transits = DM +14° 717 (8.5)

Phot. T. λ Tauri. W Obs.

3 53 +12.1
1 53
2 00
10 9 00

9 1/2 inch cap used to-night.
See next page for measurements

Dec. 15, 1899.

Phot. T. λ Tauri. W C Ls.
I

L & A.
246.3 Ledgered.
8 22 50 258.8 12.5
67.7 10.1
77.8 22.6 -5.02

247.4 -5.06
25 15 258.5 11.1
66.9 10.7
77.6 21.8 -5.10
R & B.
156.8 mean -4.95
28 35 168.8 12.0
336.3 12.4
348.7 24.4 -4.86

156.4 -4.84
30 20 168.7 12.3
107 00 336.0 12.4
8 26 45 348.4 24.7 -4.83
5 - 23
13 26 22 Gr. M. Time.
5004.

Dec. 15/1899.

II

R & B.

156.8

8 32 05 168.8 12.0

335.8 12.8

348.6 24.8 -4.82

156.6 -4.84

33 45 168.6 12.0

336.1 12.5

348.6 24.5 -4.85

L & A. mean = -4.92

67.0

36 45 78.9 11.9

246.7 11.5

258.2 23.4 -4.95

-4.98

39 15 67.5

21 50 78.7 11.2

8 35 28 246.5 11.6

5 23 258.1 22.8 -5.00

13 35 05 Gr M. Time.

5004.

Dec. 15 1899.

~~III~~

	L & A		
	67.1		
8 43 55	78.0	10.9	
	247.1	11.5	
	258.6	22.4	-5.04
	67.0		-5.05
44 35	78.1	11.1	
	247.4	11.1	
	258.5	22.2	-5.06
	R & B		mean = -4.94
	156.4		
47 40	168.1	11.7	
	336.0	12.8	
	348.8	24.5	-4.85
	156.9		-4.82
49 20	168.9	12.2	
24 40	336.3	12.8	
8 46 10	349.1	25.0	-4.80
5 -23			
13 45 47	Gr M. Time		
5004.			

Dec. 19, 1899.

	R∂B			IV
	156.3			
8 52 40	169.0	12.7		
	335.9	12.4		
	348.3	25.1	-4.79	
	157.0			-4.80
54 40	169.1	12.1		
	336.2	12.8		
	349.0	24.9	-4.81	
	L∂a			
	24. 66.8		mean = -4.90	
57 00	25. 78.2	11.4		
	6. 246.7	11.7		
	7. 258.4	23.1	-4.98	
	24. 67.0			-5.01
58 35	25. 78.1	11.1		
22 55	6. 247.0	11.3		
8 55 44	7. 258.3	22.4	-5.04	
5 -23				
13 55 21 Gr. M. Time				
5004.				

Dec. 15, 1899

V

L & a.

67.1

9 00 50 78.2 11.1

246.7 11.3

258.0 22.4 -5.04

67.3 -5.06

02 35 78.1 10.8

247.2 11.2

258.4 22.0 -5.08

R & B

336.3 mean = -4.96

05 00 349.2 12.9

156.8 12.2

169.0 25.1 -4.79

337.1 -4.86

06 50 348.4 11.3

15 15 156.0 12.4

9 03 49 168.4 23.7 -4.92

5 -23

14 03 26 Gr. M. Time Pos. Angle Vernier Reads 115.5

5004. Sprocket Wheel a System 12.8

" " B " 13.5

Dec. 15, 1899.

Phot W. ο Ceti. m Obs.

2 12 -3.6
3 20
1 08

Plotted.
Ledgered

L & a
127.3
9 36.0 162.5 35.2
307.4 33.7
341.1 68.9 -2.54

127.5 -2.52
163.0 35.8
307.2 34.8
342.0 70.3 -2.50
R & B.
37.6 mean = -2.48
73.4 35.8
216.7 36.5
253.2 72.3 -2.43

37.0 -2.44
9 47.5 72.0 35.0
83.5 216.4 36.8
9 41.8 253.2 71.8 -2.45
5 -.4
14 41.4 Gr m. Time.
5004

Dec. 15, 1899

Same Again.

R & B.

9 50.0 36.1
73.8 37.7
216.1 36.7
252.8 74.4 -2.36

37.6 -2.40
73.1 35.5
216.3 37.0
253.3 72.5 -2.43

L & A.

306.1 mean = 2.43
343.7 37.6
127.4 35.0
162.4 72.6 -2.42

307.9 -2.46
9 58.0 342.0 34.1
126.8 36.5
9 54.0 163.8 70.6 -2.49
5 -.4

14 53.6 Sid time

Observations a little difficult because of bright moon-light and the fact that clock is not running steadily.

5004

Dec. 15, 1899.

Phot. T. R Ursa Mina. n 6 bs.

16 33 +72.9
28 17
11 44

Comp Star = DM +72° 737 (8.4)

L & a

430 ∠ Comp star dia

Ledgered

11 00.0 102.2 59.2

221.0 62.1

283.1 121.3 1.16

44.4 +(1.16)

185.25 + 60.9

222.2 60.8

283.0 121.7 1.16

R & B

307.6

17.9 70.3

130.4 65.5

195.9 135.8 0.86

+(0.85)

308.4 68.9

11 03.8 17.3

128.5 68.0

11 01.9 196.5 136.9 0.87

5 4

Mean +1.00

16 01.5 Gr. M. Time

5004

Dec. 15, 1899.

Same again

R & B.

	310.3			
11 04.8	17.9	67.6		
	127.2	68.0		
	195.2	135.6	+0.86	
	309.6	67.9		+(0.88)
	17.5			
	130.2	65.9		
	196.1	133.8	+0.90	

L & a.

	222.5	60.4		
	282.9			
	41.6	62.1		
	103.7	122.5	+1.14	
	224.5	57.7		(1.20)
11 09.1	282.2			
13.9	42.9	58.8		
11 7.0	101.7	116.5	+1.27	
5 -4				

16 6.6 Gr M Time. Mean +1.04

5 00 4

Dec. 15, 1899

Charlois asteroid Resumed.

4 28 +16.2 W G h.
5 08
0 40

5 17 07.0
17 20.5 13.5

5 17 32.7 +2
17 47.0 13.1

11 24

5 17 59.5
18 13.0 13.5

5 18 25.5
18 39.5 14.0

5 18 46.6
19 00.5 13.9

∴ asteroid precedes Dm +14° 717 (9.2)
11 25 13.6 secs. and is ~~above~~ about 5'.3 South of it.

asteroid is star (a) of early part of evening.

Dec. 16, 1899. Saturday

Comp. of Chron.

Bond 394	Arnold & Dent
7 08 00.0	7 08 19.0
7 09 00.0	7 09 19.2

Bond 236	Frodsh. 1327
1 07 22.0	1 08 01.0
1 08 22.0	1 09 01.0
1 09 22.0	1 10 01.0

Frodsh 3457.	Frodsh 1327
1 34 11.6	1 34 01.0
1 35 11.6	1 35 01.0
37 11.6	1 37 01.0

Observation of Occultations during Lunar Eclipse W. obs.

7 50 Cloudy "

~~1 59 03.8~~

1 59 44.3 5° 9.5 I m. approx fair.
2 07 43.5 -2 35° 8.3 I m. good
2 15 54.5 -2.0 350° 9.3 E m. good.

Dec. 16, 1899.

Hazy

z	27 04.0 :2	95°	8.2	Im	Power 270	good.
z	27 50.0	120°	9.5	Im	"	fairly good

Sky hazy power 270 limb rather bright.

Over

power 105
power 270
power 270

Dec. 16, 1899.

8 34 Haze thicker

8 43 Sky still quite hazy moon consid-

2 49 22.2 -~~2~~1.5 secs 9.2 290
51 44.0. -1.5 secs. 8.3 315

8 57 Sky Hazy

Frodsh 1327			Frodsh 3451		
3	20	01.0	3	20	11.6
3	21	01.0	3	21	11.6
3	22	01.0	3	22	11.6

Frodsham 3451 used in times on above occultations.

Troubled more or less throughout eclipse connection with haze produced consider abundant the nearer one got to ~~the~~

Dec 16 1899.

rably bright in field.

Em	good	power, 105
Em	good	power, 105

by haze, moon not entirely eclipsed, this in
able glare in field which was naturally more
brighter limb of moon.

Dec. 16, 1899

phot M   o Ceti - M 6h

2 12 - 3.6

5 04

2 52

RPB.   Ledgered

216.6

11 15.0   253.5   36.9   Plotted

36.9   36.4

73.3   73.3   -2.40

217.8   -2.40

252.9   35.1

36.4   37.8

74.2   72.9   -2.41

L&a.

120.9   Mean = -2.44

163.2   36.3

309.0   34.0

343.0   70.3   -2.50

127.4   -2.47

11 21.0   163.1   35.7

36.0   307.0   36.2

11 18.0   343.2   71.9   -2.44

5 -.3

16 17.7 Gr M Time

5006.679

Dec. 16, 1899

Same again

L & a

126.1

11 22.5 164.2 38.1

307.5 34.0

341.5 72.1 -2.44

127.8 -2.46

16~~4~~3.~~0~~ 35.2

307.2 36.0

343.2 71.2 -2.47

R & B.

36.5 mean = -2.44

73.~~8~~9 37.4

217.3 36.1

253.~~4~~ 73.5 -2.39

37.5 -2.42

11 29.0 7~~8~~2.~~8~~ 35.3

11.5 217.4 36.5

11 25.8 253.9 71.8 -2.45

5 -3

16 25.5

5000.684

1899
Dec. 17, (Sunday)

Comps of Chron.

Bond 394	Arnold & Dent
21 19 00.0	21 19 18.5
21 20 00.0	21 20 18.5

21 21

Set Bond 236.

Frodsh 1327	Bond 236
15 31 01.0	15 30 44.2
15 32 01.0	15 31 44.2
15 33 01.0	15 32 44.0

Frodsh 1327	Frodsh 3451
15 39 01.0	15 39 09.6
40 01.0	40 09.6
41 01.0	41 09.6

Dec 18, 1899 (Monday)

7:00 Cloudy

7 30 Cloudy
Shot T. U Cephei. W 6 bs.
8 00 Cloudy

0 50 + A1.1
2 08
1 18

L.&B
115.3 ∠radius.
8 20 40 213.9 98.6
297.1 90.5
27.6 189.1
170.9 +0.17

120.0 Stars gone
24 50 20. Stars practically gone.
2.
2. Reject, stars in clear
R.&A equalizations almost invisible.
Clouds

8 40 Cloudy
Thickly Cloudy and growing worse
9 00. No chance for any work.

Dec 18, 1899.

Comp. of chron.

Frodsh. 1327
15 23 01.0
15 24 01.0
15 25 01.0

Frodsh. 3451
15 23 11.2
15 24 11.2
15 25 11.2

Frodsh. 1327
15 28 01.0
15 29 01.0
15 30 01.0

Bond 236
15 27 16.3
15 28 16.3
15 29 16.3

Bond 394.
21 23 00.0
21 24 00.0
21 25 00.0

A. & Dent. 1158
21 23 21.2
21 24 21.2
21 25 21.2

(Dec. 19, 1899 Monday)

Frodsh 1327	Frodsh 3451
15 26 01.0	15 26 12.8
15 27 01.0	15 27 12.8
15 28 01.0	15 28 12.8

15 20 Set Bond 236

Frodsh, 1327	Bond 236
~~15 32 01.0~~	~~15 31 57.6~~
~~15 33 01.0~~	~~15 32 5~~
~~15 34 01.0~~	~~15 33 0~~
15 36 01.0	15 35 54.0
15 37 01.0	15 36 54.0
15 38 01.0	15 37 54.0

Bond 394	Arnold & Dent.
21 30 00.0	21 30 24.2
21 31 00.0	21 31 24.2

Dec. 20 1899. (Wednesday)

Comps of chronometers.

Bond 236	Frodsh 1327
0 51 01.0	0 50 43.5
0 52 01.0	0 51 43.5

a a Dent	Bond 394
6 39 25.3	6 39 00.0
6 40 25.3	6 40 00.0

Charlois new asteroid disc. Dec. 4, 1899

4 28 +16.2 WCL.
1 13
3 25
8 35

1 22 44.5
22 54.5

7 12 1 24 25.5
1 25 23.5
1 25 44.5

1 30 31.5 a.
30 41.7 b.
7 17 30 52.0 c. 10.3
31 02.2 d. 10.2

Dec. 20, 1899.

	1	31	31.5		a	
		31	42.0		b	
		31	52.1	+.1	c	10.1
		32	02.0		d	9.8
	1	32	24.4	-.1	a	
		32	34.5	-.1	b	
		32	44.5		c	10.0
		32	55.0		d	10.5
	1	33	12.8		a	
		33	23.0		b	
		33	33.0		c	10.0
		33	43.5		d	10.5
	1	34	20.5		a	
7 21		34	30.5		b	
		34	40.8		c	10.3
		34	50.0	+.2	d	9.6

Star = 0′ Dec. Star b = -4′.0 Dec. Star c = -2′.6 Dec. Star d = -2′.8 Dec.

1

Dec. 20, 1899

1	39	03.0	+.2	a'	= -2'.3
	39	14.0		b'	= 0'
	39	18.0		c'	= -4'.0
	39	24.0		d'	= -4'.1
	39	53.0		e'	= -4'.5
	40	56.8	-.2	f'	= (9.4) - a'

1	40	29.0		a'
	40	40.0		b'
	40	43.5		c'
	40	49.6	-.1	d'
	41	19.0		e'
	41	32.5		f'

1	41	47.0		a'
	41	37.4		b'
	42	01.0	+.1	c'
	42	07.0		d'
	42	37.0	-.3	e'
	42	50.0	-.1	f

Dec. 20, 1899.

1 43 08.5 -1 a'
43 17.0 b'
43 27.0 c'
43 28.5 -1 d'
43 38.5 e'
44 11.5 +1 f'

1 44 27.5 a'
7 31 44 37.5 b'
44 41.5 c'
44 47.3 d'
45 17.0 e'
45 30.5 -2 f'

1 47 30.8
34.5

1 47 46.5
49.5

1 50 35.5 a'
50 46.4 -1 b' 10.8

~~1 57 00.0~~

Dec. 20, 1899:

	1	5 1	30.0	a'	
		5 1	41.0	b'	11.0
	1	5 1	52.5	a'	
		5 2	03.0	b	10.5
7 39	1	5 2	15.3	a'	
		5 2	25.5	b'	10.2
	1	5 2	36.5	a'	
		5 2	46.6	b'	10.1
	2	11	17.0	b	
	2	11	26.5	c	
	2	11	40.5	b	
		11	50.0	c	
7 59	2	12	10.0	b	
	2	12	19.0	c	

9.5 secs. b-c

Dec. 20, 1899.

	2	15	36.5	b
		15	46.0	c
		15	57.8	d
		16	7.3	b
		16	16.0 -.1	c
		16	27.0	d
	2	16	53.2	b
		17	01.8	c
		17	13.5	d
		17	23.0	b
		17	32.0	c
		17	43.5	d
		17	52.5	b
		18	01.5	c
		18	13.0	d
8 09	2	20	37.5	
		22	07.6	

Star c in first series probably asteroid if not

Dec. 20 1899.

it follows DM +15°628 (9.4) by this last interval. 1^m 16^s secs and is 1' W of it.

2 25 11.5
2 26 37.8
a star follows (8.2) 15°627 (by 1^m 26 $^{secs.}$ & is 9' South of it..
~~2 27 32.0~~
~~28~~

~~8~~ 18 Star c of first series is the asteroid. it now follows star b by 8.3 secs ~~and~~ and it precedes star d 12.0 secs

Phot T. DM 42° 3338 M Obs
19 20 +43.0
26 40
7 20
Abandoned on account of clouds.

Phot. M o Ceti M Obs.
2 12 −3.6
2 42
0 30

Dec. 20, 1899

Phot. W. o Ceti W 6 b.

Plotted.

Ledgered

L & a.

~~300.7~~

~~Clouds~~

8 38.0 Clouds thick.

305.0 Star gone.

9 37.2 346.4 41.4

125.0 39.5

164.5 80.9 -2.17

Clouds

306.4 -2.20

344.3 37.9

123.9 40.8

164.7 78.7 -2.23

R & B.

214.2 mean: -2.18

256.1 41.9

35.0 40.0

75.0 81.9 -2.14

213.9 -2.16

9 44.8 255.1 41.2

82.0 34.3 40.2

9 41.0 74.5 81.4 -2.18

5 - .4

14 40.6 Grn Time.

Dec 20, 1899.

Same Again

R & B

214.1
9 46.8 254.0 39.9*
33.7 40.3*
74.0 Clouds. 80.2* = -2.19

-2.18
214.5
255.5 41.0*
34.1 41.1*
75.2 . 82.1* -2.16
9 51.0 Clouds.
L & A
125.4 Stars gone
9 53.0 164.4 39.0
30 . The above part of a group not to be used.
34 . Stopped by clouds impossible to finish group
10 00 17 . Observations made through
9 16 more or less clouds
30 .
34 .

Dec. 21, 1899 (Thursday)

Phot T. DM + 42° 3338 m 6 h

19 20 +43.0

24 40

3 20 I

L.O.A. Full Aperture used.

50.3 < vardis

6 35 10 97.2 46.9 Plotted.

226.2 50.9 Ledgered

277.1 97.8 −1.71

48.1 −1.64

36 55 98.4 50.3

226.0 52.9

278.9 103.2 −1.58

R.O.B.

316.8

39 20 7.2 50.4

134.6 53.8

188.4 104.2 −1.55

316.1 −1.56

41 00 8.9 52.8

152 25 137.8 50.5

6 38 06 188.3 103.3 −1.58

5 − 28 Mean −1.60

11 37 38 Gr M Time − 5010.4884

5009.9561

5010.4844 0.5323

Dec. 21, 1899.

II

R & B

315.3
6 46 00 9.0 53.8+
138.0 49.9+
187.9 103.7+ −1.57✓

313.8 55.6+ −1.50✓
47 40 8.9
135.9 53.3+
~~19~~ 189.2 108.9+ −1.44✓

L & Q

228.2
51 00 278.5 50.3+
48.8 48.2+
97.0 98.5+ −1.69✓

228.2 49.1+ −1.72+
52 30 277.3
197 10 49.9 47.3+
6 49 18 97.2 96.4+ −1.75✓
5 −28 mean −1.61+✓
11 48 50+ Gr. M. Time.
~~49~~ 5010.4923+
5009.9561−
.5362+ see pages 134 & 135 for groups III & IV

Dec 21, 1899

~~VII~~
V

Loa

49.8 47.8
7 40 00 97.6
228.7 46.8
275.5 94.6 -1.79

49.0 47.9 -1.78
42 25 96.9
228.4 47.5
275.9 95.4 -1.77

ROB

315.9 54.3
46 00 10.2
133.1 57.0
190.1 111.3 -1.39

316.2 52.5 -1.46
47 20 8.7
5 45 136.5 52.6
7 43 56 189.1 105.1 -1.53
5 -28 mean -1.62
12 43. 28 Gr. M. Time
5010.5302
5010.5231
0.0071

Dec. 21, 1899.

VI

R & B.
~~3105~~ 315.8
7 55 20 9.2 53.4
136.7 52.1
188.8 105.5 -1.52

369 -1.53
316.9 52.1
57 40 9.0
136.1 52.6
188.7 104.7 -1.54

L & A.
8 01 00 228.4 48.1
276.5
49.3 46.9
96.2 95.0 -1.78

229.9 48.0 -1.79
02 40 277.9
236 40 49.8 46.3
7 59 10 96.1 94.3 -1.80
5 -28
Mean -1.66
12 58 42 Gr-M-Time
5010.5408
5010.5231
0.0177

Dec. 21, 1899.

VII

L&Q

229.1 47.2
8 06 10 276.3
48.8 47.4
96.2 94.6 −1.79

228.8 48.6 −1.78
07 45 277.4
49.9 47.4
97.3 96.0 −1.76

R&B

137.3 52.0
10 40 189.3
316.0 53.0
9.0 105.0 −1.54

137.0 52.1 −1.52
12 45 189.1
37 20 314.9 53.8
8 09 20 8.0 105.9 −1.51
5 −28 mean −1.65
13 08 52 Gr. m. time
5010.5478
5010.5231
0.0247

Dec. 21, 1899.

III

L & A

~~6 5~~

229.6 46.7

7 01 50 276.3

48.2 48.3

96.5 95.0 −1.74

229.6 47.4 −1.76

06 15 277.0

49.0 49.0

98.0 96.4 −1.75

R & B.

138.9 48.7

13 25 187.6

315.6 54.9

310.5 103.6 −1.57

130.2 57.4 −1.56

15 20 187.6

36 50 316.0 53.4

7 09 12 9.4 104.8 −1.54

5 −28

12 08 44 Gr. M. Time. Mean = −1.66

5010.5060

5009.9561

0.5499

Dec 21, 1899

~~XXI~~

IV

R&B

137.0 52.0

7 23.00 188.0

317.0 51.6

8.6 103.6 −1.57

137.5 51.1 −1.52

24 30 188.6

315.3 52.0

103.1 −1.52

7.3

~~R+~~

L&A

47.9 47.6

31 00 93.5

227.7 50.4

278.1 98.0 −1.71

48.5 47.4 −1.72

32 55 95.9

7 16 25 227.9 49.6

7 27 51 277.5 97.0 −1.73

5 −28

mean −1.65

12 27 23 G.M. Time

5010.5198

5009.9561

0.5629

Dec. 21, 1899.

R&B VIII

137.5

~~8 23 40~~ 189.6

315.4

316.4

~~8 26 25~~ 8.3 Reject.

137.7

188.0

Clouds.

314.5

8 ~~47~~ 40 . clouds.

13 . Stars gone.

314.1

8 53 30 ~~9.2~~ 9.2

136.2

188.4

316.0

56 35 7.9

134.3 Clouds.

18

9 00 00 Stopped by clouds.

Sprocket wheel — a System − 4.4

" " — b " − 3.5

Pos. angle var. a − 31.0

Dec. 21, 1899.

T Ursa maj. ⊠

W–6 b.

12 33 +60.4
4 13
8 20
3 40

abandoned too cloudy.

Phot W. o Ceti. W–6 b.

2 12 –3.6
4 17
2 05

abandoned for the present Cloudy

Phot T. Monocerotis W–6 b.

6 17
4 30
~~7 17~~ 1 47
~~10 43~~ 10 13

Clouds

Following settings only experimental.
var comp with 9.5 magn.

6 17 +7.2
4 17
2 00

333.8
349.8 16.0
155.9
1

(over)

Dec. 21, 1899

Phot T.   T. Monocerotis   no Obs
var comp with 9.2   experimental only

62.5
82.3   19.8
239.6   25.7
265.3   45.5

60.3

10 55   . Stopped by clouds

α & Dent			Bond 394		
11	02	28.4	11	02	00.0
11	03	28.4	11	03	00.0

Dec. 23, 1899 (Saturday)

Comp of chron

Bond 394   a+Dent.
6 35 00.0   6 35 00.4
6 36 00.0   6 36 00.4

Phot W.   0 cete   Nr 6b
2 12   -3.6
1 20
0 52
L&A   11 08   Plotted
Ledgered

123.9
7 03.4   166.6   43.7
304.9   40.1
345.0   82.8   -2.11

124.0   -2.10
166.0   42.0
304.1   41.5
345.6   83.5   -2.09
R&B.
32.2
75.9   43.7   mean = -2.08
214.8   40.5
255.3   84.2   2.07
34.1
7 12.0   75.2   41.1   -2.07
7 7.7   212.3   43.3   5012.506
255.6   84.4 -2.07
12 7.7 Gr.M.Time

Dec 23, 1899

Same Again

	R & B		
	338		
7 14.2	75.3	41.5	
	213.5	41.6	
	255.1	83.1	-2.10
	34.5		-2.10
	75.5	41.0	
	213.3	42.4	
	255.~~8~~7	83.4	-2.10
	L & A.		
	303.5		Mean = -2.11
	345.~~8~~7	42.2	
	125.7	39.0	
	16~~2~~4.7	81.2	-2.16
	305.0		-2.12
7 20.4	345.4	40.4	
7 17.3	122.6	43.8	
5	166.4	84.2	-2.07

12 17.3 Gr. M Time.

5012.512

Final mean = -2.10

Dec. 23, 1899.

Phot T. v Cephei No Obs:

0 50 +81.1

1 53

1 03 I

L & B. Ledgered

110.0 <var dia

7 37 40 216.0 106.0*

292.7 100.3*

33.0 206.3*

153.7* + 0.50*

111.0

39 30 213.7 102.7* +0.52*

299.9 105.6*

36.5 208.3*

R & A. 151.7* + 0.54*

23.1

42 00 121.9 98.8*

205.6 91.8*

297.4 190.6*

169.4* + 0.20*

6

27,1

44 35 129.7 93.6* +0.19*

163 45 205.2 95.8*

7 40 56 301.0 189.4*

5 - 0 170.6* + 018*

12 40.9* Gr. M. Time.

5012.5284*

5012.4122

+0.1162*

Mean = +0.36*

Dec 23, 1899

R & A.   II

27.4
7 47 00 118.5 — 91.1^{s}
207.5 — 89.8^{s}
297.3 — 180.9^{s}
179.1^{s} + 0.02^{s}

27.2
49 10 119.0 — 90.8^{s} — + 0.02^{s}
207.2 — 90.1^{s}
297.3 — 180.9^{s}
L & B. — 179.1^{s} + 0.02^{s}

294.1
52 50 31.8 — 97.7^{s}
116.4 — 92.1^{s}
~~118.9~~
208.5 — 189.8^{s}
170.2^{s} + 0.19^{s}

297.2
55 40 29.0 — 91.8^{s} — + 0.16^{s}
204 40 115.2 — 95.4^{s}
7 51 10 210.6 — 187.2^{s}
5 — 172.8^{s} + 0.14^{s}

12 51.2 Gr M Time.
5012.5355^{s} — mean = + 0.09^{s}
5012.4122
$+0.1233^{s}$

Dec 23, 1899

III

	L&B			
	295.8			
7 58 50	31.9	96.1		
	118.8	87.8		
	206.4	183.9		
		176.1	+ 0.07	
	300.5			
8 00 30	23.6	83.1		0.00
	114.8	93.0		
	207.8	176.1	− 0.07	
	RDA			
	209.0			
8 03 30	298.0	89.0		
	$3\overset{2}{8}$.9	79.8		
	112.7	168.8	−0.21	
	213.1			−0.26
05 20	292.2	79.1		
248 10	30.0	84.5		
8 2 02	114.5	163.6	−0.31	
5				

,3 2.0 Gr M Time — mean = − 0.131

5012.5431

5012.4122

+0.1309

Dec. 23, 1899.

R & A. IV

211.0
8 07 15 292.4 81.4
32.6 80.4+
113.0 161.8 − 0.35

213.4 − 0.38
08 40 291.2 77.8
32.9 80.1+
113.0 157.9 − 0.42

L & B.

120.7
11 30 205.7 85.0
301.0 84.4+
25.4 169.4+ − 0.20

119.3 − 0.20
12 50 202.8 83.5
40 15 300.4 86.6
8 10 04 27.0 170.1+ − 0.19
5

13 10.1+ Gr. M. Time.
5012.5487
5012.4122
+0.1365

mean = − 0.29

Dec. 23, 1899

V

L & B.

118.9

8 15, 0 206.3 87.4^{x}

300.8 83.8^{x}

24.6 171.2^{x} − 0.17^{x}

119.6 − 0.20^{x}

16 00 204.0 84.4^{x}

301.8 84.0^{x}

25.8 168.4^{x} − 0.22^{x}

R & A.

348

19 25 113.0 78.2^{x}

217.0 72.7^{x}

289.7 150.9^{x} − 0.56^{x}

35.0 − 0.62^{x}

21 35 108.6 73.6^{x}

73 00 217.5 71.5^{x}

8 18 15^{x} 289.0 145.1^{x} − 0.67^{x}

5

13 18.2^{x} Gr-M Time

Mean = − 0.41^{x}

5012.5543^{x}

5012.4122

$+0.1421^{x}$

Dec. 23. 1899

T. Ursa Maj. Dr Obs.

12 33 ~~12 33~~ +60.4
2 06 ~~27 06~~
9 27 ~~14 33~~
2 33

Ledgard

9:00 p 0.5 var, var 1.5 q Est. ~~12.0~~ 11.9

Est with power 270.

14:00 G.M.T. Est the same with power 103

5012. J.D.

Phot T. T. Monocerotis Dr Obs.

6 17 +7.2
3 33
2 44
9 16

6 17 +7.2
3 52
2 25
9 35

See next page for measurements
Cap of 9.5 in Cap used
Comp Star = DM+7° 1267 (8.6)

Posted to here

Dec. 23, 1899.

τ Monocerotis

L&a

330.1 ∠ var dis

9 37.4 355.3 25.2

150.3 21.7

172.0 46.9 3.41

329.3 - 3.27

355.3 26.0

149.1 27.3

176.4 53.3 - 3.13

R&B.

240.9

263.5 22.6

59.7 24.6

84.3 47.2

239.6

9 43.6 266.1 26.5

8 ,

Reject experimental

Dec-23.1899
Comp Star = Dm + 7°, 1267 (8.6)
X Monocerotis. W Obs.

L & a.

236.8 < var dis. 9.5 in cap used.

Ledgered

10 10.0 268.0 31.2ˣ
57.3 31.1ˣ
88.4 62.3ˣ -2.77ˣ

236.1 -2.73ˣ
268.8 32.7ˣ
56.6 31.9ˣ
88.5 64.6ˣ -2.69ˣ

R & B

144.8 -2.5~~8~~9ˣ
180.6 35.8ˣ
323.8 35.0ˣ
358.8 70.8ˣ -2.48ˣ

145.0 -2.44ˣ
10 15.0 180.9 35.9ˣ
10 7.5 323.7 37.0ˣ
5 360.7 72.9ˣ -2.41ˣ
15 7.5 Gr M Time.
5012.630ˣ

Dec. 23, 1899.

Same Again.

	R&B		
	144.5		
10 17.0	180.8	36.3	
	324.7	34.1	
	358.8	70.4	-2.49
	145.6		-2.44
	180.3	34.7	
	323.0	38.5	
	361.5	73.2	-2.40
	L&A		
	55.8		-2.34
	88.6	32.8	
	235.4	35.3	
	270.7	68.1	-2.57
	56.3		-2.64
1022.1	87.5	31.2	
39.1	235.8	33.2	
10 19.6	269.0	64.4	-2.70
5			

Final = -2.56

15 19.6 G.M.Time Pos angle Ver a, = 267.4°

5012639 Sprocket wheel at stem -2.5

" " B " -1.4

Dec. 23, 1899

Phot. T. R Ursa Minor. WCL

16 33 +72.9
5 00
11 33
0. 27 Ledgered

L & a.

223.0 (comp star dia.
10 51.7 283.4 60.4
44.5 59.1
103.6 119.5 + 1.20

221.6 +1.18
285.0 63.4
43.4 58.6
102.0 122.0 + 1.15

R & B.

128.5 mean = +1.1~~5~~0
196.0 67.5
311.0 65.2
16.2 132.7 + 0.92

132.1 +1.0~~8~~ ~~7~~ 2
10 58.8 193.5 61.4
10.5 311.6 61.5
10 55.2 13.1 122.9 + 1.13
5

15 55.2 Gr. M. Time
5012.663

Dec. 23, 1899

Same again.

R&B

131.1

11 00.2 195.2 64.1

310.3 62.3

12.6 126.4 + 1.05

131.0 + 1.05

193.7 62.7

311.8 64.1

15.9 126.8 + 1.05

L&a

43.6 mean = + 1.09

101.9 58.3

222.5 63.0

285.5 121.3 + 1.16

47.8 + 1.13

11 06.2 102.9 61.1

11 03.2 222.2 63.0

5 285.2 124.1 + 1.10 Final mean = + 1.10

16 03.2 Gr M Time

5012,669

Pos angle per a = 318.0

~~Sprocket wheel a System~~ =

Sprocket wheel B System = −5.4

Dec. 28, 1899

T. Persei. No 62.

	2 8	#2 8	+57.2
	5 57	5 38	
11 30	3 43	3 30	

Dec. 26, 1899. (Tuesday)

Set & Wound all chronometers.

Comp of chronometers.

Frodsh 1327	Bond 236
20 29 01.0	20 28 45.2
20 30 01.0	20 29 45.2

Frodsh 1327	Frodsh 1351 ~~Bond~~
20 33 01.0	20 32 42.7
20 34 01.0	20 33 42.7

Bond 394	A & Dent.
2 00 00.0	2 00 00.0
2 01 00.0	2 01 00.0

Bond 394	~~A & Dent~~
6 25 00.0	6 25 00.2
6 26 00.0	6 25 00.2

Phot W. β Lyrae. W 6h.

18 45 + 33.2
25 15
6 30

See next page for Measurements.

Dec. 26, 1899.

Phot M. B Lyrae M Obs.

L & A.

Plotted

Ledgered

87.0
6 48.8 116.4 29.4
269.8 23.1
292.9 52.5 - 3.16

87.6 - 3.09
112.6. 25.0
265.9 30.9
296.8 55.9 - 3.02

R & B.

355.4
27.0 31.6
177.8 26.5
204.3 58.1 - 2.93

354.2 - 2.78
6 57.8 27.8 33.6
106.6 174.7 32.8
6 53.3 207.5 66.4 - 2.63
5
11 53.3 Gr. M. Time.
5015.495
5015.100
5 + 0.395

mean = - 2.94

Dec. 26, 1899.

II

R & B.

177.4

7 03.5 205.3 27.9"

357.1 30.3"

27.4 58.2" -2.93"

175.9 -2.83"

206.2 30.5"

354.0 33.2"

27.2 63.7" -2.73"

mean = -2.92"

L & A.

85.7

116.2 30.5"

268.7 25.5"

294.2 56.0" -3.02"

87.8 -3.02"

7 14.1 113.2 25.4"

17.6 265.4 31.6"

7 8.8 296.0 56.0" -3.02"

5

12 8.8 Gr.M. Time

5015.506"

5015.100

+0.406"

Dec. 26, 1899.

~~III~~

Lθa.
85.6
7 22.6 116.2 30.6+
268.6 25.3+
293.9 55.9+ -3.02+

86.5 -3.00+
114.7 28.2+
266.7 28.5+
295.2 56.7+ -2.99+
R. + B.
357.0
23.~~4~~2 26.2+
175.4 31.3+
206.7 57.5+ -2.96+

355.4 -2.95+
7 32.6 26.~~7~~8 31.4+
55.2 177.6 26.5+
7 27.6 204.1 57.9+ -2.94+
5
12 27.6 Gr. M. Time. mean = -2.98+
5015.519+
5015.100
+0.419+

Dec. 26, 1899.

IV

R & B

357.6
7 36.4 24.8 28.2
176.6 28.8
205.4 57.0 - 2.98

356.5 - 2.96
25.6 29.1
176.6 28.6
205.2 57.7 - 2.95

L & R Moon = - 2.98
267.3
294.9 27.6
85.7 29.5
115.2 57.1 - 2.97

266.~~7~~3 - 3.00
7 44.6 294.4 28.1
81.0 87.3 27.3
7 40.5 114.6 55.4 - 3.04
5

12 40.5 Gr. M. Time.

5015.528
5015.100

0.428

Dec. 26, 1899.

V

L & A

267.3

7 48.4 294.6 27.3+

86.6 28.5+

115.1 55.8+ - 3.02+

266.8 - 3.00+

295.7 28.9+

87.7 27.7+

115.4 56.6+ - 2.99

R & B.

176.4 mean - 2.94+

205.6 29.2+

356.0 29.7

25.7 58.9+ - 2.90+

176.03 ~~2~~3+ ~~28~~7+

7 59.8 207.7 31.7

107.4 356.5 29.1+

7 53.7 25.6 60.4+ - 2.84+

5

12 53.7 Gr. M.T. Region, getting low ~~in~~ last group, air unsteady,

5015.537 seeing somewhat poor, but readings

5015.100 made with much care and consid-

+0.437 ered good.

Dec. 26, 1899.

Phot T. Ceraski's Variable

20 8 +46.3 W 6 h

L & B. 26 08

6 50

129.4

8 28 45 195.9 66.5

310.1 65.9 — I

160 132.4 +0.93* Plotted. Ledgered

129.1 +0.94*

31 45 194.6 65.5

309.2 65.4

146 130.9 +0.96*

R & Q.

43.2

35 00 100.7 57.5

222.7 60.8

283.5 118.3 +1.23*

41.1 +1.24*

37 30 102.0 60.9

133 00 224.9 55.9

8 33 15 280.8 116.8 +1.26*

5

13 33.2 Gr M.T. mean = +1.09*

5015.5647

5015.1043

+4.4604

4.5729

-0.1678

Dec. 26, 1899

II

R & a.

42.8
8 39 10 99.8 57.0
227.5 61.1
283.6 118.1 +1.23

42.2 +1.30
41 00 100.8 58.6
226.4 53.1
279.5 111.7 +1.38

L & B.

313.0
44 40 13.1 60.1
132.4 58.0
190.4 118.1 +1.23

312.6 +1.24
47 10 117.2 61.6
172 00 133.3 56.1
8 43 00 189.4 117.7 +1.24
5
13 43.0 Gr. M. Time.

Mean = +1.27

5012.5715 4.45729
5015.1043 +4.4672
4.4672 −0.1057

Dec 26, 1899

III

L & B

314.0
8 49 40 12.8 58.8^{s}
132.6 58.0^{s}
190.6 116.8^{s} +1.26^{s}

312.6 57.9^{s} +1.31^{s}
52 10 10.5 54.8^{s}
134.0 112.7^{s} +1.36^{s}
188.8

R & a.

229.7
55 40 277.4 47.7^{s}
46.0 57.4^{s}
97.4 99.1^{s} +1.68^{s}

226.7 +1.68^{s}
58 20 277.9 51.2^{s}
2 15 50 47.5 47.9^{s}
8 53 58 95.4 99.1^{s} +1.68^{s}
5
13 54.0 Gr. M. Time mean = +1.450^{s}

5015.0792
5014.1043
4.4749
4.5729
−0.0980

Dec. 26, 1899

IV

R & a.

~~229.8~~ {comp star dis. in all groups

9 01 00 ~~275.7~~ ~~45.9~~

~~47.7~~ ~~50.1~~

~~97.8~~ ~~96.0~~

~~228.8~~

03 45 ~~278.1~~ ~~49.3~~

~~48.0~~ ~~46.4~~

~~94.4~~ ~~95.7~~

L & B. Reject last partial group.

139.0 Settings uncertain impossible to finish

08 35 181 . Stopped by low altitude and faintness of variable

Seeing somewhat poor.

Settings made with some difficulty in above groups

Pos. angle Var a. 279.6

Sprocket wheel ~~a System~~

" " B System -1.5

" " C " -0.3

Stars rather unsteady in their light

Dec. 26, 1899.

Phot 7.   7. monocerotis. W 6 bs.

6 17 + 7.2
4 17

2 00
10 00

L & A. 9.5 inch cap used.   Ledgered

2335 < radius
9. 55.6 2721   38.6
56.1   32.1
88.2   70.7   − 2.48

2349
2711.4   36.5   − 2.46
54.3   36.0
90.3   72.5   − 2.43
R & B.
1427
184.3   41.6
322.7   36.2
358.9   77.8   − 2.26

144.9   − 2.22
10 02.5   182.0   37.1
158.1   319.2   43.6
9 59.0   362.8   80.7   − 2.17
5
14 59.0 Sd. M. Time
5015.624

Mean = − 2.34

Dec 26 1899

Same again.

	R & B.		
	142.4		
10 04.8	182.9	40.5"	
	323.5	37.7"	
	361.2	78.2"	- 2.25"
	144.5		- 2.25" .
	181.5	37.0"	
	321.8	41.3"	
	36~~2~~3.1	78.3"	- 2.25"
	L o a.		
	54.5		
	92.2	37.7"	
	236.1	33.6"	
	269.7	71.3"	- 2.46"
	54.6		- 2.46"
10 13.1	89.9	35.3"	
18.0	234.6	36.1"	
10 09.0+	270.7	71.4"	- 2.46"
5			
15 09.0+ G. M. Time			
5015.631+			

mean = - 2.36"

r or Ang Vei a = 267°.3

Sprocketwheel a System - 2.9

B System - 1.5

a Systems approximate

Dec. 26 1899.

Phot. W. o Ceti w. Obs.

2 12 2 12 −3.6

5 14 4 58

3 62 2 46

Plotted.

Ledgered

R & B.

54.5

10 41.0 101.7 47.2

237.3 43.0

280.3 90.2 −1.91

55.0 −1.88

100.3 45.3

235.3 47.6

282.9 92.9 −1.84

L & A.

326.8

10.4 43.6

145.4 45.3

190.7 88.9 −1.94

326.0 −1.91

10 47.6 10.9 44.9

8.6 146.1 46.5

10 44.3 192.6 91.4 −1.88

5

15 44.3 Gr. M. Time.

5015.656

Mean = −1.90

Dec. 26, 1899.

Same again

L & R.

326.4
10 498 10.4 44.0
147.0 44.0
191.0 88.0 −197

326.2 −1.92
10.6 44.4
146.9 46.7
193.6 91.1 −188

R & B.

236.0
281.5 45.5
56.5 43.9
100.4 89.4 −193

236.9 −1.94
10 56.2 280.6 43.7
106.0 55.8 45.3
10 53.0 101.1 89.0 −194
5
15 53.0 Gr. M. Time
5015.662

mean = −1.93

Dec 26, 1899.

Phot. T. T. Persei. w Ob.

2 8 +57.2

5 43

3 35

R&a. Comp. Star = DM +57.548 (9.5)

313.5 ∠ var dis. Ledgered

11 23.0 11.8 58.3

133.2 57.4

190.6 115.7 −1.29

315.2 −1.29

12.6 57.4

134.2 58.0

192.2 115.4 −1.29

L&B.

224.3

281.7 57.4

46.8 51.6

98.4 109.0 −1.44

225.5 −1.41

11 28.8 281.7 2 56.7

11.8 43.2 56.0

11 25.9 99.2 111.7 −1.38

5

16 25.9 Gr. M. Time. mean = −1.35

50 15.680

Dec. 26, 1899

Same again

L + B.

224.6
11 31.2 278.8 54.2
46.0 52.4
98.4 106.6 − 1.50

−1.46

223.6
279.8 56.2
45.5 53.6
99.1 109.8 − 1.42

R + a. mean = − 1.40

133.9
191.8 55.9
317.0 57.6 − 1.34
11.6 113.5

−1.33

132.8
11 37.8 197.9 59.1
9.0 316.6 55.0 − 1.32
11 34.5 11.6 114.1

5 Pos. Angle Vera = 157°.4
16 34.5 G.M.T. Sprocket wheel c System − 5.4
5015.690 " " " B " − 5.5

Dec. 26, 1899.

Frodsh 1327	Frodsh B451
17 54 01.0	17 53 43.6
17 55 01.0	17 54 43.7
Frodsh 1327	Bond 236
17 57 01.0	17 56 25.5
17 58 01.0	17 57 25.5

Set a & Dent.

Bond 394	a & Dent
23 20 00.0	23 20 05.0
23 21 05.0	23 21 05.0

Dec. 27, 1899 (Wednesday)

Comp of chronometers

Bond 394	a. & Dent 1182
6 45 00.0	6 45 32.5
6 46 00.0	6 46 32.5

S Boötis. w 6 b.

14 16 + 54.6

25 40

11 28

Too low & cloudy.

Phot T. DM + 42° 3338 w 6 b.

19 20 + 43.0

25 45

6 25

See next page for measurements of DM + 42° 3338.

7.30 Haze too thick, region rather low.

Phot T. T. Monocerotis w 6 b.

6 17 + 7.2

2 12

4 5

7 55

Dec. 27, 1899:

~~Phot. V. DM +42° 3328 W Obs~~

Phot. V. V. Monocerotis W Obs

6 17 +7.2
2 30
3 47
8 13

Too cloudy, no stars visible in this region.

~~D Cete~~

R Draconis W Obs

16 26 +67.4
26 38
10 12

7 55 Clouds to thick.

R Cassiop W Obs.

23 52 +49.7 Posted.
26 40
2 48
23 51 +50.4
26 52
3 01

28 t 1 var, var 2 u Est. 12.3

Observed through some light cloud, observation somewhat difficult.
Power 270 used.
Observation thought to be pretty good

Dec. 27, 1899.

phot T. o Ceti M Obs.
2 12 -3.6
3 15
1 03

Too cloudy

S 5-0 No chance for anything farther. Sky thickly cloudy ~~scarcely any stars~~ visible.

~~a & D~~
~~130 435~~

Dec. 28, 1899 (Thursday)

✓Bond 394	a + Dent. 1182.
1 29 00.0	1 30 43.5
1 30 00.0	1 31 43.5
Frodsh 1327	Bond 236
20 16 01.0	20 14 55.0
20 17 01.0	20 15 55.0
Frodsh 1327	Frodsh 3451
20 21 01.0	20 ~~45~~ 20 45.0
20 22 01.0	20 21 45.0
Bond ~~6 43 00.0~~ 394	a + Dent 1182
6 43 00.0	6 45 03.0
6 44 00.0	6 46 03.0

Phot T. U Cephei. m 60 hs.

$$\begin{array}{rrl} 0 & 50 & +81.1 \\ 1 & 35 & \\ \hline 0 & 45 & \end{array}$$

See next page for measurements.

Dec. 28, 1899.

L & B. u Cephei, I

Lodged

105.1

7 11 18 214.8 var dis. 109.7

289.2 107.6

3~~7~~6.8 217.3

142.7 +0.72

108.6

13 46 215.3 106.7 +0.72

287.2 110.8

38.0 217.5

R & A. 142.5 +0.72

20.3

16

~~21~~ 25 122.5 102.2

201.2 102.9

30~~4~~.1 205.1

154.9 + 0.48

20.8

18 13 122.7 101.9 0.44

19 42 202.9 99.4

7 14 56+ 302.3 201.3

5 -2 -05

158.7 +0.41

12 12 51+ Gr. M. Time.

5017.5089+

5017.3976 Harv. Eph.

+0.1113+

Mean = +0.58+

Dec. 28, 1899.

μ cephei. II

R&A.

23.7

7 22 18 121.2 98.1

203.6 98.3

301.9 196.4

163.6 +0.31

22.8

24 55 120.8 98.0 +0.30

203.2 97.6

300.8 195.6

164.4 +0.30

L&B.

~~290.2~~ 113.4 mean = +0.32

29 22 ~~34.0~~ 211.0 97.6

~~181.2~~ 292.5 101.6

~~24.0.~~ 34.1 199.2

160.8 +0.37

112.8

30 56 211.3 98.5 +0.34

107 31 294.4 97.8

7 26 53 32.2 196.3

5-02-06 163.7 +0.31

12 24 47 G.M.Time

5017.5173

5017.3976

+0.1197

Dec 28, 1899

η Aquilae III

L & B

1138

7 32 21 209.5 95.7

292.4 100.0

32.4 195.7

164.3 +0.30

113.9

33 49 211.5 97.6 +0.26

296.4 94.4

30.8 192.0

R & A 168.0 +0.23

27.4

35 41 116.8 89.4

206.6 89.0

295.6 178.4 −0.03

27.0 −0.04

37 02 114.4 87.4

18 53 208.7 89.8

7 34 44 298.5 177.2 −0.05

5 02 07

12 32 37 Gr M Time

5017.5226

5017.3976

+0.1250

mean = +0.11

Dec. 28, 1899

IV

R & A.

28.5
7 40 16 114.4 85.9^r
210.3 85.5^r
295.8 171.4^r −0.16^r

30.5 −0.27^r
41 53 114.8 84.3^r
218.2 76.0^r
294.2 160.3^r −0.38^r

L & B.
299.8
44 36 26.4 86.6^r
116.8 88.3^r
205.1 174.9^r −0.09^r

299.2 −0.09^r
46 14 26.4 87.2^r
12 59 117.8 88.0^r
7 43 15^r 205.8 175.2^r −0.09^r
5 −02 −07
12 41 08^r Gr. M. Time. mean = −0.18^r
5017. 5286^r
5017. 3976
+0.1310^r

Dec. 28, 1899.

V

L & B
300.3
7 48 05 22.6 82.3
118.8 86.5
205.3 168.8 − 0.21

−0.19
299.0
49 42 26.9 — 87.9
1~~2~~18.9 82.9
201.8 170.8 − 0.17

R & A.
212.7
52 34 292.3 79.6
32.7 80.4
113.1 160.0 −0.38

−0.42
213.3
54 05 290.3 77.0
204 26 32.5 78.8
7 51 04 111.3 155.8 −0.46
5 −2 −08
12 48 56 Gr M Time

mean = −0.30

5017.5339
5017.3976 Hartwigs Ephemeris
+0.1363

Dec. 28, 1899.

VI

R & a

212.2

7 56 22 292.1 79.9^s

33.5 74.3^s

107.8 154.2^s −0.49^s

217.1 −0.57^s

57 30 288.6 71.5^s

36.0 74.7^s

110.7 146.2^s −0.65^s

L & B

123.6

8 01 04 201.5 77.9^s

302.4 81.9^s

24.3 159.8^s −0.38^s

122.3 −0.40^s

03 14 200.2 77.9^s

238 1 0 302.4 80.3^s

7 59 32^s 22.7 158.2^s −0.42^s

5-02 08

12 57 24^s G.M.Time Pos Angle Ver. a = 12.7° ~~mean~~ = −0.48^s

5017.5399^s Sprocket wheel a System −2.5

5017.3976 " " B " −1.4

+0.1423^s

Dec. 28, 1899.

Comp of chron.

Bond 394	a & Dent 1182
8 06 00.0	8 08 09.0
8 07 00.0	8 09 09.0
8 19 00.0	8 21 09.8
8 20 00.0	8 22 09.8

Phot F. γ Monocerotis m 6.6s.

```
6 17  +7.2
3 20
----
2 57
9 03
```

7 inch used on following groups on γ Monocerotis

See next page for meas.

Dec. 28, 1899.
T. monocerotis. m 6b.

~~L & a.~~
~~52.8 L var. dia.~~
8 55.6 ~~90.2~~ ~~37.4~~
~~232.4~~
270

Reject above, images rather too faint. 7 m. cap removed.

L & a 9.5 m. cap put on. I
234.0
9 04.4 272.8 38.8 L. E. Agerad
~~R & B.~~ 39.5
53.2 78.3 −2.25
92.7
−2.30
233.4
272.8 39.4
54.4 35.6
90.0 75.0 −2.35
R & B.
143.8 mean = −2.22
181.5 37.9
320.0 43.3
363.3 81.0 −2.17
140.5 −2.14
9 12.2 183.5 43.0 5017.587
16.6 322.5 39.9 −2.11
9 8.3 362.4 8 29

Dec 28, 1899.

Same again.

R & B.

142.7

9 14.6 181.5 38.8

320.6 40.2

360.8 79.0 - 2.22

141.8 - 2.20

182.9 41.1

322.7 39.3

362.0 80.4 - 2.18

L & a.

55.2

90.9 35.7

235.2 37.0

272.2 72.7 - 2.42

52.6 - 2.38

9 23.6 90.9 38.3

38.2 237.0 37.2

9 19.1 276.2 75.5 - 2.33

5 - 2.2

14 16.9

5017.595

9 40

mean = - 2.29

Pos. angle Vis. a. = 87°.7

Sprocket wheel α System - 2.5

" " β " - 0.4

Dec. 28, 1899

Same again.

L & a.

54.6

9 31.2 90.4 35.8

234.2 39.5

273.7 75.3 -2.34

52.9 -2.34

90.3 37.4

234.2 37.4

271.6 74.8 -2.35

R & B

322.9

362.2 39.3

141.5 41.5

183.0 80.8 -2.17

321.8 -2.19

9 37.4 361.6 39.8

8.6 142.7 39.7

9 34.3 182.4 79.5 -2.21

5 -2.2

14 32.1

5017.606

mean = -2.26

Dec. 28, 1899.

Phot M. o Ceti. M 6 b.
2 12 - 3.6
4 32
2 20

Plotted
Ledgered

L & A.
144.7 Lwardiz.
10 08.8 192.2 47.5
326.2 44.8
11.0 92.3 - 1.85

146.6 -1.86
190.5 43.9
324.8 47.8
12.6 91.7 - 1.87
R & B.
54.6
101.9 47.3
234.8 45.2
280.0 92.5 - 1.85

55.7 -1.84
10 14.6 100.0 44.3
23.4 233.9 49.1
10 11.7 283.2 93.4 - 1.82
5 -2.2
15 9.5 Gr. M. Time.
5017.632

Mean = -1.85

Dec. 28, 1899

Same again

R & B

5243

10 16.2 103.3 48.8

235.8 44.6

280.4 93.4 − 1.82

− 1.82

53.9

100.8 46.9

234.8 46.8

281.6 93.7 − 1.82

L & a

324.9

12.6 47.7

145.8 45.2

191.0 92.9 − 1.84

326.1 − 1.84

10 22.4 12.0 45.9

38.6 145.0 47.2

10 19.3 192.2 93.1 − 1.83

5 − 2.2

15 17.1 Gr M Time.

5017.637

Mean − − 1.83

Dec. 28, 1899.

Phot T.   T. Persei.   m Obs.
2 8 +57.2
5 12
3 04

R+A.   Ledgered
133.4 var. dis.
10 51.6 192.5 59.1+ Comp Star = DM+57°543 (9.5)
314.6 55.6+
10.2 114.7+ - 1.31+

131.4 -1.30+
190.6 59.2+
315.0 56.5+
11.5 115.7+ - 1.29+

L+B.
45.2
99.6 54.4+
224.6 57.6+
2822 112.0+ -1.37+

46.5 -1.42+
10 58.2 98.6 52.1+
9.8 225.0 55.5+
10 54.9+ 280.5 107.6+ -147+
5 -2.2
15 52.7+ Gr. M. Time   mean = -1.36+
5017.662+

Dec. 28, 1899
Same again.

L & B
448
11 00.8 99.2 54.4
224.0 57.6
281.6 112.0 -1.37

458 -1.40
190.0 54.2
224.9 55.5
280.4 109.7 -1.42

R & A
316.5
10.8 54.3
132.2 58.5
190.7 112.8 -1.35

316.2 -1.40
~~11 06.6~~ 09.7 53.5
11 06.6 135.4 55.5
07.4 190.9 109.0 -1.44
11 03.7

mean = -1.40

5 -2.2 Pos. angle Var a . 157°.2
1601.5± Gr M time Sprocket wheel ~~D~~ System
5017.668± " " B " -5.5
" " C " -4.3

Dec. 28, 1899.

Circumpolar Variables
W 6 in.

R Draconis.

16 26 +67.4 | 16 26 +67.4
6 03 | 29 / 5 58
10 23 | 10 28 Posted.
1 37 | 1 32

11 25 o 1 var, var 5 p Est. 11.0

S Bootis
14 16 +54.6
6 10 Posted.
8 06
3 54

11 30 l 3 var, var 1.0 m, Est 11.8

Comp of chronometers

Bond 394	A & Dent 1182
23 43 00.0	23 46. 08.0
23 44 00.0	23 47 08.0

Frodsh 1327	Bond 236
18 34 01.0	18 32 34.2
18 35 01.0	18 33 34.2

Frodsh 1327	Frodsh 3451
18 38 01.0	18 37 45.7
18 39 01.0	18 38 45.7

Dec. 29, 1899. (Friday)

Bond 394
6 34 00.0
6 35 00.0

a & Dent. 1182
6 37 31.8
6 38 31.8

Phot. T. Dm +33°38 w 6h.

19 20 +43.0
25 30
6 10

L & A.

~~Ledgered~~

Plotted

227.8
6 56 04 278.2 30.4
47.5 50.2
97.7 100.6 −1.64

226.4 −1.65
57 36 278.0 51.6
48.6 48.2
96.8 99.8 −1.66

R & B.
185.8 mean = −1.52
7 00 45 189.6 53.8
316.4 52.2
368.6 106.0 −1.51

(.4970 (5.66)
.3738
+0.1232)

186.1 −1.52
7 02 30 190.3 54.2
236 55 317.8 51.2
6 59 14 368.0 105.4 −1.53
5 − 3 34
11 55 40 G. M. Time

5018.4970
5018.4598
+0.0372 (3.67)

Dec 29, 1899.

II

R O B.

137.6
7 08 20 189.0 51.4
316.9 50.5
367.4 101.9 -1.61

137.0 -1.60
7 10 15 189.5 52.5
317.7 49.7
367.4 102.2 -1.60

L & A.

49.8 mean = -1.68
7 13 15 96.3 46.5
227.4 48.7
276.1 95.2 -1.78

49.0 -1.76
7 14 40 96.3 47.3
46 30 227.6 48.8
7 11 38 276.4 96.1 -1.75
5 -3 34
12 08 04 Gr. M. Time
5018.5057 .5057
.3738
5018.4598 +0.1319
+0.0459

Dec. 29, 1899.

III

L & a

~~5~~ 49.7

7.17 25   97.3   47.6

226.6   50.5

277.1   98.1   -1.70

50.5   -1.76

19 05   96.4   45.9

228.3   47.2

275.5   93.1   -1.83

R + B   mean - 1.70

317.4

22 05   367.7   50.3

136.2   51.6

187.8   101.9   -1.61

317.4   -1.64

24 20   365.2   47.8

82 55   135.3   51.5

7 20 44   186.8   99.3   -1.67

5 -3 -35

12.17 09   Gr. M. Time.

5018.5119   5119

5018.4598   3738

+0.0521   +0.1381

Dec. 29, 1899

IV

R & B.

316.6

7 27 10 36~~7.4~~6.9   50.~~8~~3

137.7   48.7

184.4   99.0   -1.68

31~~8~~7.2   -1.66

29 40 367.6   50.4

137.4   50.0

187.4   100.4   -1.65

L & A

229.4   mean = -1.78

32 45 276.0   45.6

49.9   45.5

95.4   91.1   -1.88

228.6   -1.90

34 05 275.6   47.0

12 3 40   51.6   42.6

7 30 55   94.2   89.6   -1.92

5 - 3 - 36

12 27 19 Gr. M. Time

5018.519~~4~~0   .5790

5018.4598   .3738

+0.0592   +0.1452

Dec. 29, 1899

V

L & a

228.8
7.3805 275.1 46.3
50.9 44.2
95.1 90.5 −1.90

229.4 −1.95
3945 274.1 44.7
51.8 42.3
94.1 87.0 −2.00
R. & B.
139.4 Means −1.90
4330 185.9 46.5
319.0 46.6
365.6 93.1 −1.83

138.4 −1.84
46 00 184.6 46.2
167 20 318.7 46.7
7 41 50 365.4 92.9 −1.84
5 −3 −37
12 38 13 G. M. Time.
5018.5265 5265
5018.4598 3738
+0.0667 +0.1527

Dec. 29, 1899.

VI

R & B.

138.0
7 49 40 184.3 46.3
320.0 45.0
365.0 91.3 -188

139.5 -1.92
52 25 183.5 44.0
320.7 44.3
365.0 88.3 -1.96

L & A. mean = -2.04

52.5
54 55 92.9 40.4
231.6 41.7
273.3 82.1 -2.13

52.4 -2.16
56 40 93.0 40.6
2 13 40 232.1 40.0
7 53 25 272.1 80.6 -2.18
5 - 8 - 37

12 49 48 Gr. M. Time.

5018.5346 .5346
5018.4598 .3738
0.0748 +0.1608

Dec. 29, 1899.

~~VII~~

L&a.

53.2
8 01 35 92.5 39.3
232.7 39.9
272.6 79.2 −2.22

53.9 −2.24
04 25 92.0 38.1
232.0 39.6
271.6 77.7 −2.26

R&B ~~mean = 2.18~~

322.3
06 35 363.6 41.3
140.8 42.8
183.6 84.1 −2.05

321.9 −2.12
09 20 361.6 39.7
21 55 142.4 40.7
8 05 29 182.5 80.4 −2.18
5 −3 38
13 01 51 Gr. M. Time.
5018.5430 .5430
.3738
5018.4598 .1692
+0.0832

Dec. 29, 1899.

~~VIII~~

R & B.

322.3
8 14 ~~25~~ 363.6 41.3
30 141.3 40.9
182.2 82.2 −2.13

322.0 −2.20
17 20 361.8 38.8
142.8 39.1
181.9 77.9 −2.26

~~mean~~ −2.32

L & A

233.8
22 20 271.2 37.4
54.6 36.0
90.6 73.4 −2.40

234.4 −2.44
25 20 269.4 35.0
79 30 54.8 35.4
8 19 52 90.2 70.4 −2.49
5 −3 39
13 16 13 Gr. M. Time. Angle V. & A. 212°.8
5018.5529 Sprocket wheel α System −4.3
5018.4598 " " B System −3.5
+0.0931 .5529
.3738
+.1791

Dec. 29, 1899.

Bond 394 a o Dent 1182
8 32 000 8 35 40.2
8 34 000 8 37 40.2
Phot T. T. Monocerōtis no Obs.
~~7 9.5 inch cap~~ used.
9.5 inch cap used.

L & a 6 17 + 7.2
5 2.2 Lardis. 3 5 2 Ledgered
9 18.5 91.3 39.1 2 25
233.8 38.4 9 35
272.2 77.5 - 2.27

53.2 -2.29
90.3 37.1
233.1 39.0
272.1 76.1 -2.31
K & B. mean = -2.18

320.4
365.0 44.6
142.1 40.7
182.8 85.3 -2.04

322.4 -2.06
9 26.3 362.5 40.1
44.8 139.5 43.6
9 22.4 183.5 83.7 -2.09
5 - 3.7
14 18.7 Gr. M. Time
5018.597

Dec. 29, 1899.

Same Again.

R & B.

320.2

9 28.8 364.7 44.5

140.4 42.8

183.2 87.3 -1.99

32~~2~~1.3 -2.04

362.2 40.9

140.3 42.6

182.9 83.5 -2.09

L & A.

mean = -2.16

233.0

272.5 39.5

52.7 37.9

90.6 77.4 -2.27

233.0 -2.28

9 38.4 272.8 39.81

67.2 52.3 clouds ~~36.8~~ 37.8 .29

9 33.6 ~~90.5~~ 76.69 -2 ~~.30~~

5-3.7 89.4

14 29.9 Gr. mt.

5018.604

10 10

Pos Angle Vien A = 88.2

Sprocket Wheel A System -2.8

" " B " -1.4

Slightly troubled by clouds in last group.

Dec. 29, 1899

R & a

234.7 Same Again..

10 00.0 272.6 37.9″

54.3 35.1″

89.4 73.0″ -2.41″

234.1 -2.34″

272.0 37.9″

52.7 39.1″

91.8 77.0″ -2.28″

R & B

mean = -2.22″

140.2

183.5 43.3″

323.0 38.7″

361.7 82.0″ -2.14″

141.2 -2.10″

10 06.0 183.2 42.0″

10 03.0 321.1 43.1″

5 -3.7 364.2 85.1″ -2.05″

14 59.3 Gr. M. Time

~~5~~

~~14 59.3~~ Slightly troubled also by clouds in this last group.

5018.624″

Dec. 29, 1899.

Phot M. o Ceti. M Obs.

2 12 -3.6.
5 03
2 50

R & B
4.8
235.0

Plotted.

Ledgered

1
7
10 27.8 282.5 47.5
55.0 45.8 1
100.8 94.0 -1.88

234.8 -1.80
282.4 47.6
54.1 47.5
106.6 95.1 -1.78

L & A.
324.5
9.0 44.5
145.2 47.3
192.5 91.8 -1.87

325.7 -1.86
10 29.8 10.9 45.2
11.6 144.9 47.1
10 25.8 197.0 92.3 -1.85
5 - 3.7
15 22.1 Gr M Time
5018.640

mean = -1.83

Dec. 29, 1899.

Same Again.

L & A.

323.3
10 33.4 12.6 49.3+
144.9 47.5
192.4 96.8 − 1.74+

325.0 −1.78+
12.6 46.6+
145.8 47.0+
192.8 93.6+ − 1.82+

mean = −1.78+

R & B.
235.0
282.8 47.8+
54.9 46.2+
101.1 94.0+ − 1.81+

234.2 −1.78+
10 39.0 282.6 48.4+
12.4 54.9 47.8+
10 36.2+ 102.7 96.2+ −1.785+
5 − 3.7
15 32.5+ Gr. M. Time
5018.648+

Dec. 29, 1899.

Phot. T. T Androm. W 6 b.

0 17 +26.4
5 47
5 30

Rather low, star very faint. will
try at a higher altitude.

Dec 30, 1899 (Saturday)

Bond 394	a & Dent 1182
1 54 000	1 58 46.4
1 55 00.0	1 59 46.4

Bond 394	a & Dent 1182
6 59 00.0	8 04 04.5
7 00 00.0	8 05 045

Phot 7. DM +42° 3338 nr 6 hr.

19 20 +46.3
~~L&A~~ 26 00 ~~Ledgered~~
2300 6 40 I
7 19 25 277.0 47.0 ✓ Plotted.
49.2 45.6 ✓
94.8 92.6 ✓ −1.84 ✓

228.0 −1.83 ✓
22 00 276.0 48.0 ✓
50.3 45.7 ✓
96.0 93.7 ✓ −1.82 ✓
R&B
137.8 mean = −1.74 ✓
25 05 186.3 48.5 ✓ .5124
816.1 51.6 .0058
367.7 100.1 ✓ −1.65 ✓ .5068
(.5660) ✓
136.8 0 −1.64 ✓ 5019.5126
26 30 187.8 51.0 ✓ 5019.2278
12 23 15 ✓ 317.6 50.4 ✓ 0.2848
−5−0
12 18 00 368.8 101.4 ✓ −1.62 ✓ (.5670)

Dec 30, 1899.

IX

R+B
138.4
7 29 40 187.0 48.6✓
316.8 51.5✓
368.3 100.1✓ −1.65✓

136.2 −1.62✓
31 00 186.6 50.4✓
316.7 52.1✓
368.8 102.5✓ −1.60✓
L+A.
49.6 mean = −1.69✓
37 15 94.3 44.7✓
226.7 53.1✓
279.8 97.8✓ −1.71✓

49.6 −1.76✓
43 00 96.2 46.6✓
229.5 47.6✓
12 35 26. 277.1 94.2✓ −1.80✓
−5 −7
12 30 19 G. M. Time
5019.5210⁺ .5210
5019.2278 .0058
0.2932 .5152

Dec 30, 1899

~~III~~

L & A

48.8

7 46 50 95.0 46.2 ✓

228.5 48.3 ✓

276.8 94.5 ✓ −1.80 ✓

48.9 −1.77 ✓

50 00 95.3 46.4 ✓

228.5 50.4 ✓

278.9 96.8 ✓ −1.74 ✓

R & B.

mean = −1.68 ✓

314.8

57 10 369.2 54.4 ✓

137.6 47.2 ✓

184.8 101.6 ✓ −1.62 ✓

317.8 −1.59

[illegible] 01 60 367.2 49.~~6~~4 ✓

12 7 53 55 134.7 54.6 ✓

−5 −8 189.3 104.0 ✓ −1.5~~5~~6 ✓

12 48 47 G. M. Time.

5019.5339 5339

5019 .2278 0058

0.3061 5281

Dec. 30, 1899.

R & B.

~~L & A~~

IV

317.0

8 04 40 368.0 51.0

136.2 52.1

188.3 103.1 −1.58

316.1 −1.58

08 40 368.4 52.3

135.3 50.8

186.1 103.1 −1.58

L & A.

227.3 mean = −1.66

13 1 0 275.4 48.1

49.2 47.0

96.2 95.1 −1.78

228.5 −1.75

16 30 276.7 48.2

13 10 45. 48.5 49.4

+ −5 −9. 97.9 97.6 −1.72

1 3 05 36 G. M. time.

5019.5455 .5455

5019.2278 .0058

0.3177 .5397

(.5670) (.5660)

Dec. 30, 1899

Lo a.

X

22 .

27 .

.

.

Pos. Angle Vertical = 203.3

Sprocket wheel A System -43

22 . " " B " -3.5

27 . " " C " -29

.

.

RoB.

Bond 394		a & Dent. 1182	
8	20 00.0	8	25 09.8
8	21 00.0	8	26 09.8

Region getting rather low images throughout rather poor, and a little of equalization, but all possible care exercised

Phot. T. ~~T. Andromeda~~. W Obs.

T. Monocerotis

6 7 + 7.2

9 1/2 inch oak need.

3 50

2 27

9 33

Dec. 30, 1899.

T. Monocerotis

L. & A. Ledgered.
Plotted

234.3
9 18.4 273.3 39.0 ✓
52'.5 38.5 ✓
91.0 77.5 ✓ − 2.27 ✓

231.8 − 2.23 ✓
272'.5 40.7 ✓
52.4 39.5 ✓
91.9 80.2 ✓ − 2.19 ✓
R. & B.
140.8 Mean = 2.14 ✓
183.0 42.2 ✓
321.1 41.4 ✓
362.5 83.6 ✓ − 2.09 ✓
141.7 ✓
9 26.6 182.9 41.2 ✓ − 2.04
45.0 329.5 45.5 ✓
9 22.5 * 365.0 86.7 ✓ − 2.00 ✓
5 − 5.2
14 17.3 Si M Time.

Dec. 30, 1899.

Same again.

R & B.

140.8
9 29.6 184.6 43.8 ✓
321.8 40.4 ✓
362.2 84.2 ✓ -2.07 ✓

141.3 -2.04 ✓
183.2 41.9 ✓
329.8 45.1 ✓
364.9 87.0 ✓ -2.00 ✓

L & a.
51.3 mean = -2.13 ✓
93.5 42.2
233.0 38.6
271.6 80.8 -2.17 ✓

53.2 -2.22 ✓
9 39.2 91.6 38.4
68.8 233.1 39.0
~~14~~ 9 34.4 272.1 77.4 -2.27 ✓
5 - 5.2
14 29.2 Gr. M. time Pos. angle Var. a. 267°.5
Sprocket wheel a System -2.5
" " B System 1.5

Dec. 30, 1899.

Phot. T. T. Andromeda W6b.

0 17 +26.4

4 53

4 36

Variable too faint to be measured in this seeing, alt. rather low

S Ursa Min.

15 36 +77.8

5 15

10 21

1 39

Abandoned

λ Tauri.

9.5-in cap used.

Phot T. 3 53 +12.1 W6b

5 28

1.35

see next page for meas.

Abandoned. for tonight

images rather poor.

Dec. 30, 1899

~~[illegible]~~ W O G

Phot. T. R. Ursae, min. ✗

16 34 72.9

5 49

10 45

L O a. 1 15 Ledgered

2233 comp✱ < ~~var~~ alis Plotted

1119.0 282.8 ~~60.7~~ 59.5 ✓

42.6 59.5 ✓

102.1 119.0 ✓ +1.21 ✓

223.4 +1.28 ✓

280.8 57.4 ✓

44.9 56.4 ✓

101.0 113.5 ✓ +1.34 ✓

R & B.

132.2 mean +1.22 ✓

192.6 60.4 ✓

312.6 60.5 ✓

013.1 120.9 ✓ +1.17 ✓

131.2 +1.16 ✓

11 26.7 19~~4.0~~3.9 62.7 ✓

45.7 311.6 59.9 ✓

11 22.8 16 5 122.6 ✓ +1.14 ✓

5 – 5.2

16 17.6 G. M. Time.

5019.

Dec, 30, 1899.

Same again.

R+B
132.6
11 28.6 192.2 59.6✓
311.5 60.3✓
11.8 119.9✓ + 1.19✓

+1.18✓

131.2
192.5 61.3✓
312.7 59.2✓
11.9 120.5✓ + 1.18✓

L+a. mean = +1.19✓

42.2
101.5 59.3✓
221.6 60.9✓
282.5 120.2✓ + 1.19✓

+1.20✓

43.0
11 35.0 101.5 58.5✓
.636 222.0 60.1✓
11 31.8 282.0 118.6✓ + 1.22✓

5 -5.2

16 26.6 Gr. m time. Pos. ang. vera 319°.3

~~Skrodzki wheel A [illegible]~~ -
" " " B " ~~-5.5~~
C " -4.3

C approx.

~~Dec. 30, 1899.~~

Jan. 1, 1900 Monday.

Phot W o Ceti W6b.

2 1 2 -3.6

L & A 2 35

143.0 0 23 Ledgered

7 5 2.0 194.3 51.3

323.5 50.5 Plotted.

14.0 101.8 -1.61

144.6 -167

193.8 49.2

324.5 47.9

12.4 97.1 - 173

R H B.

53.2

103.5 50.3

233.9 50.0

283.9 100.3 -1.60

51.2 -168

759.0 103.0 48.8

11.0 233.6 49.6

7 55.5 283.2 98.4 170

5 -7.2 mean = -1 68

1248.3 Gr M Time

5021.533

Jan. 1, 1900

Same again.

R & B
53.8
8 03.4 104.0 50.2
234.4 48.6ˣ
283.0 98.8ˣ −1.69ˣ

53.9 −168
102.4 48.5ˣ
233.5 50.0ˣ −1.169
283.7⁵ 98.5ˣ ~~−1.70~~

L & A.
324.1
12.9 48.8ˣ
142.4 50.4ˣ
192.8 99.2ˣ −1.68ˣ

325.0 −1.72ˣ
8.20.2 12.3 47.3ˣ
23.6 144.5 48.3ˣ
8 11.8 192.8 95.6ˣ −1.77ˣ
5 − 7.2 mean − 1.70
1 [illegible] 04.6 Gr. M Time -
5021.545ˣ

Jan. 1, ~~1899~~ 1900

Phot. T. ℞ Monocerotis W 6h.

6 17 +7.2
3 20
2 57 Ledgered
9 03

8 30 Clouds Plotted

9.5 inch cap used.

L&a.

50.2
8 42.2 92.6 42.4
232.9 40.2
Clouds. 82.6 −2.12
273.1

51.8 −2.12
92.2 40.4
232.2 42.0
274.2
R & B. 82.4 −2.12
clouds. stars about gone Mean = −2.00
318.6
366.4 47.8
140.0 43.8
183.8 91.6 −1.87

320.8 −1.89
8 51.6 363.8 43.0
93.8 137.9 47.0
8 46.9 184.9 90.0 −1.91
5 −7.2
5021.5~~96~~ 69
13 39.7 Gr M Time

Jan. 1, 1900

Same Again.

R & B.
318.4
8 54.0 368.1 49.7
140.0 43.5
183.4 93.1 − 1.83

321.0 − 1.88
364.6 43.6
138.9 46.2
185.1 89.8 − 1.92

L & A. Mean = −2.00
232.1
274.2 42.1
52.4 39.6
92.0 ~~79.7~~
81.7 2.14
231.8
9 02.0 273.5 41.7 −2.12
116.0 51.6 41.6
8 58.0 93.2 83.3 −2.10
5 − 7.2 Troubled at times by light cloud.
13 50.8 G.M.T. But much care exercised, and obser-
5021.577 vations considered good.

Jan. 1, 1900

Circumpolars:

R Cass   W O G.

2 3 5 2   + 49.7

2 8 26

4 34

9 43 clouds.

~~9 4~~ t 2 var, var 1 w ✓

Obs made through some cloud.

9 53 not over 1/2 weight.

R Lyncis

6 49 +55.0

4 54

1 55

10 05

10 00 All thickly cloudy, no stars visible.

Bond 394   a+Dent 1182

9 59 00.0   10 07 125

Jan. 2, 1900 (Tuesday)

~~Ret α & Dent.~~

Comp of chron.

Bond 394 — α & Dent.

6 25 00.0 — 6 25 28.8

6 26 00.0 — 6. 26 28.8

Phot T. U Cephei M Obs.

0 50 + 81.1

1 47

0 57

11 03

6 45 Thickly cloudy I

L & B. L. E. Agerd.

146.4 < vardis. prob. read (146.4) for 116.4

7 18 50 207.3 90.9

297.8 91.9

28.7 182.8

177.2 + 0.05

145.8 prob read (145.8) for 115.8

7 21 05 207.3 91.5 + 0.04

298.6 89.5

29.8 181.0

~~R + a~~ 179.0 + 0.02

29.9

24 30 114.0 84.1

210.7 83.8 Mean = − 0.10

294.5 167.9 − 0.23

29.6

26 35 113.2 83.6 − 0.24

9.1 00 214.0 82.6

7 22 45 29.6 16 166.2 − 0.26

7 22 45

5 − 0 − 32

12 22 13 for mt.

5022.5154

5022.3832

+ 0.1322

Jan. 2, 1900

II

R&A

31.9
7 28 00 112.2 80.3
210.7 82.6
293.3 162.9 -0.32

330 -0.38
7 29 30 111.0 78.0
213.4 78.6
297.0 156.6 -0.45

L&B.

297.0
7 32 20 26.2 89.2 Mean = -0.27
121.0 82.6
203.6 171.8 -0.16

300.6 -0.16
3400 24.7 84.1
12350 119.4 88.0
7 30 5820 7.4 172.1 -0.15
5-0-33
12 30 25 Gr. M. Time
5022.5211
5022.3832
+0.1379

Jan. 2, 1900.

III

L & B
301.0
7 35 50 25.5 84.5″
120.4 82.3″
202.7 166.8″ − 0.25″

302.6 − 0.29″
38 00 23.3 80.7″
121.0 82.0″
203.0 162.7″ − 0.33″
R & B.
215.0 Mean = − 0.41″
41 00 289.3 74.3″
33.8 75.5″
109.3 149.8″ − 0.58″

213.0 − 0.53″
42 30 292.2 79.2″
157 20 34.2 75.8″
7 39 20 110.0 155.0″ − 0.48″
5 − 0 33

12 38 47 G.M.Time.
5022.5270
5022.3832
+0.1438