KG
11366
v.633

ERROR OF
FRDD. 13[illegible]7
Nov 16 1896 to Nov16, 1898

(1)
Value level division
Mer. Circle (Buff & Berger)
1 div = $^s.0601$

see page 31
Feb 18, 1897

sec φ = 1.35

(2)
J A Dunne
Observer of Merr.
+
Computer

ps. see remarks in black ink
below.

(3) For change
A results on
pendulum A Fr. 1327
during Nov & Dec 1897
see page 132

(4) Remark:-
Collimation are
recorded in the Mer Circle
Micrometer books A zone
-9°50 to -14°10. J A Dunne
Assistant observer from 1889 to 1898
present time; 1888. Prof.
S. Star. J A D.
Mar 12, 1898

Fundamental Stars of Mer Circle zone -9°50' & -14°10' in Gebrauch

7 3 0^h13 ι Ceti
9 0-38 β Ceti
16 θ Ceti ~~θ Ceti~~ 1-18
22 ζ Ceti 1 46
28- 67 Ceti - 2-11
45 - ε Erid. 3-27
51 γ Erid 3-53
54 ο Erid. 4-6
60 53 Erid. 4-33
68 β Erid 5-2
70 β Orion. 5-9
74 α Lep. 5-28
75 δ Orion. 5 30
78 ζ Lep. 5-42
79 κ Orion 5-42
86 β Can. Maj 6-18
90 α Can. Maj 6-40
92 δ Can. Maj 6-49
96 γ Can. Maj 6-58
110-20 Hydra 8-8
124 - α Hyd. 9-22
132 - λ Hyd 10-5
135 μ Hyd. 10-20
146 δ Crat. 11-13
161 δ Corvi 12-24
171 α Virg. 13-19
181 κ Virg. 14-7

7
182 ι Virg 14-10
186 μ Virg 14-37
188 α Librae 14-44
193 β Librae 15-11
211 ζ Ophiuchi 16-31
217 η Ophiuchi 17-4
222 ξ Serpens 17-31
228 ν Ophiuchi 17-53
240 λ Aquilae 19-0
257 α^2 Capricorni 20-11
262 ν Capricorni 20-33
⊗ μ Aquarii 20-46
266 ν Aquarii 21-3
270 β Aquarii 21-26
278 ι Aquarii 22-0
280 θ Aquarii 22-11
289 λ Aquarii 22-47
299 w^2 Aquarii 22-37

(5)
Telescope
is the
large
meridian
Circle

(6) Remark:-
In this and
preceding T.S. books
where the observer is Prof. Searle
the observations will be found
in almost every case on the
zone sheets of zone -9°50' to -14°10'
June 22, 1898

Error of Frodsham 1327

Nov 6, 1896 to

Prof S. Bz.

1896
Nov 6

7289
λ Aquarii
−8° 10

22 45 48.0 9.0
51.8 11.7
55.6 14.2
59.2 16.8
30 19.4

277.6 71.1
55.52 14.22
04 18.65

55.56 55.57

22 45 55.56
22 47 15.17

−1 19.61
+.13
a level

−1 19.48

4TH Cephei
+67°13

23 41 21.6
30.8
40.7
50.1
59.7

202.9
40.58
.10

23 41 40.68
23 42 59.97

−1 19.29
−.18
oo level

−1 19.47

2.38
.14

2.52

9.4771
0.4014

9.0757
.119
.12 = m

2.38
.91

1.47

Frod 1327 Clock 1^{m} $19^{s}.48$ slow
at $23^{h}\ 0^{m}$ Sid Time

Prf S

Nov 9
1896

716
θ Ceti
−8° 45′

1h 17 28.0 49.1
31.5 51.5
35.4 54.0
39.1 56.5
42.7 58.8
176.7 269.9
353.4 539.8
54 18.66
35.38 35.32

1 17 35.35
1 18 53.84
−1 18.49
~~+1 3.04~~ 06
00
−1 18.~~36~~ 43

41 Cephei
+67° 13

22.5
31.5
41.5
51.2
0.5
2~~1~~7.2
23 41 4~~1~~.44
10
23 41 4~~1~~.54
23 42 59.87
−1 18.33
−~~18~~.04
00
−1 18.~~54~~ 42

16

9.2041
0.4016
8.8027

.063 = m

Clock slow 1m 18.44s3

at 24h 00
Sid Time

1896phae.proj.1637B

Nov 11-1896

Level.

Tel. S. ~~Screw~~ ~~W 62.8~~
~~E 72.8~~
Screw W EW 76.0
WE 65.5 10.5
~~Tel N~~ Screw E E 27.8
W 17.0 10.8

Tel. N Screw E W 86.0
E 97.0 11.0
Screw W E [123.7] by estimate
W 113.0 ~~by estimate~~ observed

~~E W~~
~~76.0 65.5~~
~~27.8 17.0~~
~~97.0 86.0~~
~~123.7 113.0~~
~~324.5 281.5~~
~~281.5~~
~~43.0~~
~~5.38 E end~~
~~.06 level div value~~
~~.324~~
~~1.35 sec φ~~
~~1620~~
~~972~~
~~324~~
~~.43740~~
~~.44 = level (missing sign) T. stone~~

ε	ω
+ 65.5	+ 76.0
− 27.8	− 17.0
− 97.0	− 86.0
+ 113.0	+ 123.7
+ 178.5	+ 199.7
− 124.8	− 103.0
+ 53.7	− 96.7
	+ 53.7

8) 43.0 (5.4
40 .06
30 .32 = b

.43 = b sec φ

West axis high

This seems most probable reduction for when screw is W the West end of bubble for + readings should be larger than the east end

Re-reduced
Feb 5-1907

Refs

1896
Nov 14

716

θ Ceti −8° 45

21 Cass
+74° 25′

1 17 29.9 51.0
33.7 53.6
37.5 56.1
40.9 58.6
45.0 1.0
187.0 280.3
37.40 56.06
04 18.66
37.44 37.40

1 17 37.42
0 ~~52.66~~
1 18 53.83
−1 16.41.
−.08
−44 level
~~−1 16.97~~
−1 16.93

0 37 8.0
22.0
35.8
49.5
4.0
179.3
0 37 35.86
10
0 37 35.96
0 38 52.66
−1 16.70
+20
00
−44 level
−1 ~~16.80~~
−1 16.94

.30

~~3.72~~
~~91~~
~~2.81~~
~~2.8~~
~~6~~

3.72
3.58
15
3.73) .30 (.08

Clock slow
1m 16.94
at 1h 00m Sid Time

Bref. S. tm

1896
Nov 16

43 Cass
+67°31

1 34 4.2 9.3
10.5 19.2
17.2 28.8
23.5 38.0
30.0 48.0
85.4 143.3
17.08 286.6
~~.18~~ .10
1 34 17.08 1 33 28.76
1 ~~34 44.70~~ 1 34 44.70
-1 1 59.4
+1.80
-44
$-1\ 16.2\overset{8}{\cancel{6}}$

ξ Ceti
-10°53

1 45 06 22.0
4.4 24.5
8.2 27.0
12.0 29.5
15.8 32.0
41.0 135.0
8.20 27.00
04 18.79
8.24 8.21

1 45 8.22
1 46 23.98
-1 15.76
-0.87
-44
$-1\ 16.2\overset{8}{\cancel{7}}$

$-1\ 16.\overset{2}{\cancel{1}}8$

2.41
-91
1.50

.91
.19
1.10

2.414
-193
2.60.7 | .18

9.2553
0.4161
8.8392

.069

Clock slow 1^m $16.\overset{2}{\cancel{1}}8$
at $1^h 40^m$ Sid Time

1896
Nov 22

Prof. Sohn

7110
20 Mavis −15° 27

8 7 14.5 362
18.3 387
22.1 412
260 438
298 465

1107 2064
22.14 41.28
04 19.14

22.18 2214

8 7 22.16
8 8 36.83

−1 14.67
− 37
−44 lend

−1 15.48

Gr 1308
+68° 41′

~~8~~7 18 374
475
578
84
180

2891
57.82
10

~~8~~7 18 57.92
7 20 1.3.47

−1 15.55
+51
−44

−1 15.48

.88

2.565
0.2773
2.8423

9.9445
0.4537
9.4908
.3096

2.565
913
1.652

Frod 137 slow
1^m 15.48^s
at 8^h 00^m
Sid Time

Dec 1 – 1896 Prof S. [illegible]

7 78
5 Leporis
−14 52

5^h 41 18.6
21.6
23.8
26.5
28.9
1194
2388
19.10
5 41 4.78
5 42 18.99
−1 14.21
−33
−44
−1 14.98

7 110
20 Maris
−15° 27

8^h 8 15.1 37.2
19.1 39.7
23.4 42.3
26.8 44.6
30.5 47.3
1149 2111
22.98 42.22
04 19.14
23.02 23.08

8 8 23.05
8 8 37.09
−1 14.04
−34
−44 level.
−1 14.82

22 H Cam
+69° 21′

5 78
88
19.5
30.0
40.2
96 3
6 19.26
10
6 6 19.36
7 34.22
−1 14.86
+49
−44
−14.81

82

2.653
2773
29303

9.9138
0.4669
9.4469
.2798

2.653
913
1.740

98
82
81

261
84

Find 1327 is slow

$\overset{m}{1}$ $\overset{s}{14}.84$

at 7^{hr} 00^{m}

Dec 3-1896 Conf s.h

745
ε Eridani
-9° 50'

3^h 26 44.8 6.1
48.6 8.6
52.5 11.2
56.3 13.6
60.0 16.0

262.2 5'5.5
52.44 11.10
04 18.74

52.48 52.36

3^h 26 52.42
3 28 6.31

-1 13.89
31
44 level

-1 14.64

716
θ Ceti -8° 45'

1^h 15 32.2 53.3
36.0 56.0
39.7 58.2
43.3 0.7
47.0 3.2

196.2 291.4
39.64 58.28
04 18.67

39.68 39.61

1^h 17 39.64
1 18 53.75

-1 14.11
-31
-44

-1 14.86

-1 14.75

Clock slow
1^m 14^s.75
at 2^h 00^m

1896
Dec 11

Cuf 5 hr

50 Cass
+71° 55'

1h 53 2.5
14.7
27.1
38.7
52.0
135.0

27.00
10

1 53 27.10
1 54 40.43

-1 13.33
∓.44 level
∓.97
~~+1.08~~

~~-1 12.25~~
-1 12.80

3.063
0.1246
~~2.9384~~
3.1876
0.5033
~~1.43~~

~~3186~~

0.1553
~~9.7680~~
~~9.6873~~
0.5033

~~4567~~
9.6520
.449

3.063
.913
2.15

754
o Eridani
-7° 8'

4h 5m	33.4	53.5
	37.2	56.0
	40.0	58.6
	43.5	1.0
	47.2	3.5
	201.3	292.6
	40.26	58.52
	04	1.860
	40.30	39.92

4h 5 40s.13
4 6 52.03
-1 11.90
-.44 level
-.47
~~-1.04~~

~~-1 13.38~~
-1 12.81

Clock slow 1m 12s.80
at 3h 00m
Sid Time

Prof S. Ch

Dec 14-1896

760 53 Eridani

-14°31'

4	32	10.5	32.2
		14.3	34.8
		18.4	37.3
		22.1	39.8
		25.8	42.3
		18.22	37.28
		04	19 06
		18.26	18 22

18.24

4 32 29.57

4 33

-1 11.33

-44 long

-52

-1 12.29

Clock slow T 12.29

at $4^h 30^m$

Sid Time

Dec 19 - 1896
J A Dote

β Triang
+34°30

$\overline{2}$	10.6	31.5
		34.6
	14.9	37.6
	19.5	40.7
	23.9	43.5
	689	37.58
	17.23	
	2.22	22.40
	15.01	15.18

2 2 15.09
2 3 26.12
− 1 11.03

−44 lvl

− 1 11.47

6 Persei
+50°35

$\overline{4}$ 5.86	$\overline{5}$ 23.9	$\overline{5}$ 57.0
2.4	29.7	$\overline{6}$ 0.5
6.3	35.3	4.5
10.4	~~4~~	8.6
14.4	47.2	12.2
6.42	$35.4\overset{3}{7}$	4.56
29.21	06	29.08
35.63	35.53	35.48

2^h 5 35.55
2 6 46.59
−1 11.04

−44 lvl

− 1 11.48

2 6 41.168
351

0.5940
6.0764
0.670444681
8.8390
0.7904n
9.6294n −.4268
8.9511
9.6792
8.6303 .043
8.7414
1.3105
0.0519 1.127
+5.851
426
5.425
2^h 6 $46^s.59$

Clock slow 1^m $11^s.48$
at $2^h 5^m$ Sid Time

1896
Dec 24 3

	υ Piscium			θ Ceti		δ Cass
	+26°43'			−8°43		+59°43
	I	II	III	I	II	III
1 12	~~48.5~~					
	4.6 12.5	30.5	54.0	1h 17 19.7	36.2	18 25.8
	15.4	34.8	56.9	22.5	39.8	31.0
	18.1	39.0	59.8	24.7	43.5	36.0
	21.0 23.9	43.1	2.6	27.6	47.4	40.3
		47.2	5.2	29.6	51.0	
	90.9	194.6	298.4	124.1	217.9	133.1
	18.18	38.92	59.68	24.82	43.58	33.28
	20.76	04	20.66	18.76	04	39.10
	38.94	38.96	39.02	43.58	43.62	1 17 54.18

1.29.49
0.2973
1.5922
39.10

1 12 38.97
1 13 49.10
−1 10.13
−29
−44 lmd
−1 10.86

1 17 43.60
1 18 53.58
−1 9.98
−74
−46 lmd
−1 11.16

1 18 65.44
−1 11.26
+.56
−44
−1 11.~~7~~4

1.712
1534
nat 1.8654
log 0.2707
1.28 0.1072
~~8.2418~~
9.8365
n = .686

10.86
11.16
11.14
316
11.05

Sid 1327 slow
1m 11.s05
at 1h 15m
Sid Time

Prof S ba

1896
Dec 28.3

G +74°58'
Gr. 966

5h 24 23.9
38.6
53.0
7.0
21.6
264.1
52.82
10
5 24 52.92
5 25 63.74
−1 10.82
+1.13
−44
−1 10.13

10.82 | 3.732
9.28 | .105
1.54 | .171
138 | 138
3.870

0.1875
0.5877
9.5998
.398
3.732
913
2.82
1.126

ι Orionis −5°59
775

29 8.8 30.0
12.6 32.5
16.4 35.0
20.0 37.4
23.7 39.6
81.5 174.5
16.30 34.90
~~18.65~~ 04
04 18.57
16.34 16.33

5h 29 16.34
5 30 25.66
−1 9.32
− 41
−44
−1 10.17

κ Orionis −9° 42.5
779

41 37.5 58.7
41.2 1.1
45.0 3.7
48.7 6.2
52.6 8.6
225.0 318.3
45.00 3.66
~~18.81~~ ~~04~~
04 18.73
45.04 44.93

5h 41 44.98
5 42 54.23
−1 9.25
− 43
−44
−1 10.12

1 10.14

Sid, 1327 slow 1m 10s.14
at 5h 30m
Sid Time

1896
Dec 303

9 Cam
+66° 10'

4h 42 24.4
33.6
42.7
52.0
61.1
213.8
42.76
.09
4 42 42.85
4 43 52.52
-1 9.67
+.45
-.44
-1 9.66

745
2 Orionis
-5° 59

5 29 9.4 30.4
13.1 33.0
16.8 35.5
38.0
20.5 40.2
24.2
84.0 177.1
16.80 35.42
04 18.57
16.84 16.85

5 29 16.85
5 30 25.66
-1 8.81
-.34
-.44
-1 9.59

779
κ Orionis
-9° 42

5h 41 37.8 59.0
41.6 1.6
45.3 4.2
49.0 6.5
52.9 9.0
226.6 20.3
45.32 4.06
04 18.73
45.36 45.33

5 41 45.34
5 42 54.24
-1 8.90
-.34
-.44
-1 9.68

2.264

105
.71
276 138
138 2.402
9.67
8.86
.81 9.9085
0.3806
9.5279

.337 = m

Clock slow 1m 9.64s

at 5h 30m Sid Time

2+D Sm

1897
Jan 2

v Persei
+48°6
III

1 30 51.8
55.5
59.2
3.0
6.5
2960
59.20
27.64
1 30 31.56
1 31 40.94
−1 9.38
+ .08
−44
−1 9.74

1.115
296
1.411) 50 (.35
4233
7670

43 Cass
+67°31
II

33.7
43.3
53.0

τ Ceti
−16°29

44.5 1 38 1.4 23.2
47.3 5.4 25.8
49.9 9.2 28.5
52.3 31.0
16.9 33.7

1495 275 1422
49.83 9.17 28.44
19.34 64 19.25
9.17 9.21 9.19

1 38 9.19
1 39 18.08
−1 8.89
−.42
−44
1 9.75

Frod 1327 slow 1^m $9^s.75$

at $1^h 30$ Sid Time

1897
Jan 6.2

ζ Cass +53°20	+30°18 δ Androm	β ~~Persei~~ Ceti −18°33	o Cass +47°43
24.8 51.4	12.8 31.3 53.8	51.8 8.5	38.0 9.5
29.0 58.0	15.9 35.8 58.6	54.4 12.5	(43.8) 13.2
32.8 4.0	18.5 40.0 1.4	56.9 16.4	49.5 17.0
36.8 10.0	21.0 44.1 4.4	59.5 20.4	20.7
41.2 16.5	23.8 48.4 7.0	62.0 24.3	60.4 24.0
164.6 319.9	92.0 199.6 307.2	284.6 82.1	147.9 84.4
32.92 3.98	18.40 39.92 1.44	56.92 16.42	49.30 16.88
31.06 ~~30.91~~ 06	21.48 .05 21.38	19.55 .04	05 ~~27.50~~ 05 ~~27.44~~ 27.44
3.98 4.04	39.88 39.97 40.06	16.47 16.46	~~16.80~~ 49.35 ~~49.44~~ 16.93 49.44
0 30 4.01	0 32 39.97	0 37 16.47	0 37 49.39
0 31 13.89	0 33 49.57	0 38 25.95	0 38 59.19
−1 9.88	−1 9.60	−1 9.48	1 9.80
+11	−.08	−3	+.05
−44	−44	−44	−.44
−1 10.21	−10.12	−1 10.23	−1 10.19

9.88 1.343
9.48 335
.40 1.68

1.68).40(.24 cm
336
640

21
12
23
19
75
10.19

Sid 1327 slow $\overline{1}$ 10.20
at 0^h 30^m Sid Time

1897
Jan 11.4

JAD hr

4 Aurigae
+49° 21'

15.5 39.8 12.3
19.2 45.6 15.9
22.8 51.4 19.8
26.8 57.0 23.5
30.5 2.6 27.4
1148 2564 989
2296 51.28 19.78
2846 06 2833
51.42 51.34 51.45

121
5 [illegible] 51.40
6 16 61.31
−1 9.91
+.08
−.44
−1 10.27

10 Monocerotis
−4° 42'

37.7 58.7
41.2 1.2
45.0 3.5
48.8 6.0
52.5 8.5
2252 179
45.04 3.58
04 1853
45.08 45.05

6 [illegible] 45.06
6 22 54.52
−1 9.46
−.34
−.44
−1 10.24

23 H Cam
+79° 40'

25.8 27.3 28.6
40.5 41.8 43.5
53.5 53.6 56.8
7.5 9.4 10.7
21.5 22.5 24.0
2688 2766 2836
53.76 55.32 56.72
53.76
56.72
1580
5 [illegible] 55.16
103.4
158.56
38.56
6 28 49.89
−1 11.33
+1.53
−.44
−1 10.24

0.7464
1.2682
2.0146
103.4

+5.485
−.082
5.567
0.7457
1.87

0.2718
0.7457
9.5261
.336

5.485
.913
4.572
1.53

15

Frod 1327 slow
$\widetilde{T}$ $10^s.25$
$6^h\ 20^m$ Sid. Time

JRD Obs

1897
Jan 16 3

	ε Cep. −22°31	β Erid −5°13		19 H Cam +79°6	α Aurigae +45°53	
	III	I	II	III	~~II~~ II	III
	5h 0 13.2	1 15.8	32.0	5 43.8	7 46.8	17.0
	16.0	18.3	35.8	57.0	52.3	20.5
	18.6	20.8	39.6	9.8	57.6	24.1
	21.4	23.4	43.2	23.0	2.6	27.8
	23.9	26.0	46.7	35.7	8.0	31.0
	93.1	104.5	197.3	349.3	287.3	120.4
	18.62	20.90	39.46	5 12 9.86	57.46	24.08
	19.98	18.62	04	97.61	05	26.53
		39.52	39.40	5 4 32.25	57.51	57.55
0.7233						
.1.12662	4 59 58.64	5 1 39.46		5 4 32.25	5 7 57.53	
19895	5 1 7.93	5 2 49.07		5 5 42.53	5 9 7.51	
9761	−1 9.29	−1 9.61		−1 10.28	−1 9.98	
	−~~20~~	−15		+65	+.02	
	−44	−44		−44	−44	
	−1 9.93	−1 10.20		−1 10.07	−1 10.40	

10.28 5.193
9.29 0414
.99 5.607

10.28 5.193
9.61 041
.67 5.284

99956
0.7483 .1767
9.2473

9.8262
0.7229 .1269
9.1033
.152 = m

5.193
913 015
.4280
.214
008
.150

.152
Av

9.93
10.20
10.07
10.40
40.60
10.15

Note: The probable reason for discrepancy of α Aurigae is that I changed (~~th~~ lengthened) focus of eye piece 8 mm during transit of tally I to correct bending of wires by stars light (mag. 1.0) see A. Searle's observations of Mira regarding effect of mag on transit

Frod 1327 slow 1m 10s.15 at 5h 0 Sid Time

Prof. S hr

1897
Jan 19.4

Gr 848
+75° 45

#
4 33 224
379
529
7.7
22.6

2635
52.70
11

4 33 52.81
4 34 63.69

−1 10.88
+84
−44

−1 10.48

1.17

+3.938
−277

4.215] 1.17 L.28
8430
32700

3.938
213
3.02

γ Canis Maj
−15° 28'

#
6 57 50.6 12.3
54.5 14.8
58.3 17.6
2.1 20.1
6.0 22.4

291.5 87.2
58.30 17.44
04 19.15
58.34 58.29

6 57 58.31
6 59 8.02

−1 9.71
−34
−44

−1 10.49

Frod. 1327 is slow
⊼ $10^{s}.48$
at 5^{h} 0 Sid Time

1897

Jan 22. Z

0.3459
1.2662
1.6121

40.94

.61

1.977
379
1.607) .61 (.38
4821
12790

1.064

.0228
38
40

ε Cass
+63°10

x 18.5
x 23.8
39.9 29.4
48.3 34.7
56.5 40.2
[4.6
~~20~~93 1466
~~52.33~~ 29.32
48.24 40.94
08
48.32 48.38

1 ~~45~~ 48.36
1 46 59.32
−1 10.96
−44 leul
+40
−1 11.00

β Arietis
+20°18

39.5 1.8
43.3 4.4
47.4 7.0
51.4 9.7
55.3 12.2
2369 351
47.38 7.02
04 19.68
47.42 47.34

1 47 47.38
1 48 57.73
−1 10.35
44
−20
−1 10.99

γ Androm
+41°50′

53.4 14.8 43.0
56.4 19.7 46.7
0.0 24.5 49.4
3.4 29.5 52.8
6.5 34.5 56.2
2997 1230 2476
59.94 24.60 49.52
24.89 04 24.77
24.83 24.64 24.75

1 56 24.74
1 57 35.25
−1 10.51
44
06
−1 10.95

Frod 1327 slow 1^m 10.98^s at $1^h 50^m$ Sid Time

1897
Jan 25.2

wires not illuminated:
obs. by stair light

J A D hr

50 Cass	ν Ceti			γ Androm			α Arietis			β Triang		
+71 53	−21 35			+41 50			+22 58			+34 30		
1 52 11.6	1h 53 34.8	51.8	14.4	1 55 53.2	14.7	43.0	1 59 46.9	4.5	27.2 36.0	2h 1 46.6	6.0	31.5
19.5	37.4	55.8	17.0	56.6	19.7	46.0	49.7	8.5	32.6	49.7	10.8	34.6
27.0	40.0	59.8	19.6	59.7	24.6-25.8	49.5-51.4	52.4	12.4	35.4	52.6	15.2	37.6
35.5	42.7	3.8	22.5	3.0	29.5	53.0-53.9	55.0	16.5	37.8	55.8	19.8	40.6
43.3	45.3	7.8	25.0	6.5	34.5	55.9-57.7	57.8	20.6		58.6	24.0	43.5
136.9	200.2	299.0	98.5	299.0	123.0	247.4	261.8	62.5	168.0	263.3	75.8	187.8
27.38	40.04	59.80	19.70	59.80	24.60	49.48	52.36	12.50	32.60	52.66	15.16	37.56
59.75	19.94	.04	19.85	24.89	.05	24.78	20.15	.04	20.06	22.50	.05	22.40
	59.98	.84	.85	24.69	.65	.70	12.51	.54	.54	15.16	.21	.16
1 53 27.13												
1 54 38.23	1h 53 59.89s			1 56 24.68			2h 0 12.53s			2 2 15.18		
	1 55 10.02			1 57 35.20			2 1 22.80			2 3 25.64		
−1 11.10	−1 10.13			−1 10.52			−1 10.27			−1 10.46		
+.60	−.36			.00			−.14			−07		
−.44 lind	−.44			−.44			−44			−44		
−1 10.96	−1 10.93			−1 10.96			−1 10.85			−1 10.97		

Conf. Fril.
1.2
9
9
1.3
4. [illegible]

~~8667~~
0.5082
1.2682
1.7764
5975
~~3064~~
~~(91)~~
2.151
.97
9.9868
0.3326
9.6542
.45 m
3.064
−0.3935
3.460
9.9868
0.5391
9.4477
.28 m
0.3326
9.4477
9.7803
.60

44
93
96
85
97
93

Frod 1327 slow $\overset{m}{1}$ $10^s.93$
at $2^h\,\overline{0}$ Sid Time

1897
Jan 29.2

γ Androm +41°50		α Arietis +22°58			β Triang +34°30'			6 Persei +50°35'		
II	III									
1^h 56 160	44.2	58/ 482	55	285	0 479	74	327.	59.4	247	577
210	475	508	9.6	310	509	117	357	3.4	305	1.6
258	508	534	135	337	538	16.4	388	7.2	365	56
308	538	56.2	176	364	56.9	208	418	11.2	424	9.5
357	563	588	217	390	59.8	254	446	15.0	480	134
1293	2526	2674	679	1686	2693	817	1936	362	1821	278
2586	50.52	53.48	13.58	33.72	53.86	16.34	38.72	7.24	36.42	5.56
05	2477	20.15	04	20.06	22.50	04	22.40	29.20	.06	29.07
25.91	25.75	13.63	13.62	13.66	16.36	16.38	16.32	36.44	3648	36.49

γ Androm	α Arietis	β Triang	6 Persei
1 56 25.83	1 59 13.64	2 1 16.35	2 5 36.47
1 57 35.13	2 1 22.74	2 3 25.57	2 6 45.82
−1 9.30	−1 9.10	−1 9.22	−1 9.35
00	−15	−07	+09
−44	−44	−44	−44
−1 9.74	−1 969	−1 9.73	−1 9.70

−1 9.71

Frod 1327 slow $\overset{m}{1}$ $\overset{s}{9.71}$
at 2^h 8^m Sid Time

35 1

2 6 45.130

0.5940
9.5381
0.1321 1.355

8.8390
~~9.5381~~
~~0.8064m~~
9.6454m −442

8.9511
1.0850m −1.086
0.0361m
8.7416
1.1921
99337 +.8384
+2.213
−1.528
+.685

2 6 45.815

.25
1.217
424
793].25[.31=m
2379
1210

1897
Feb 1,2

	41 Arietis			τ² Erid.		τ Persei		
	+26°50			-21°26'		+52°20'		
	I	II	III	I	II	II	III	
2 42	19.9	37.8	1.5	2 44 48.3	5.5	45 47.8	10.1	
	22.8	42.1	4.4	51.0	9.5	53.9	14.3	
	25.7	46.4	7.0	53.6	13.6	0.1	18.3	
	28.4	~~49.0~~ 50.7	10.0	56.3	17.5		22.5	
	31.0	54.6	12.6	58.8	21.4		26.0	3.68
	1278	2316	365	2680	675	1618	912	
	25.56	46.32	7.10	53.60	13.50	53.93	18.24	0.5658
	20.79	04	20.69	19.92	04	6.02	30.21	0.2139
	4635	46.36	46.41	13.52	13.54	47.91	48.13	0.7797
								6.022

+ 1.295
-392
1.687

.68

9.8325
0.2271
9.6054

.403

2 42 46.37	2 45 13.53	2 45 48.02
2 43 56.22	2 46 23.07	2 46 58.24
-1 9.85	-1 9.54	-1 10.22
-.16	-.53	+ 15
- .44 [illegible]	- 44	-44
-1 10.45	-1 10.51	-1 10.51

10.49

Clock slow 1^m 10.50 at
2^h 40^m Sid Time

1897

Feb 4.2

δ Ceti
−0° 7
I II
2 32
39.0 55.0 15.7
41.5 58.6 18.1
43.8 2.4 x
46.4 6.1 x
48.8 9.9 x
21.95 31.20
43.90 62.40
18.~~46~~ 04
.54
62.44 62.44

γ Ceti
+2° 48′
II l.3 III
2 35
47.9 1.5
51.5 3.9
55.3 6.4
9.0
11.3
32.1
6.42
18.48
2 35 − 47 94

η Persei
+55° 28
II l.2 III
2 42
6.5 24.3
13.2 28.6
33.0
37.5
41.6
16.50
33.00
32.57
2 42 − 0.43

τ Persei
+52° 20
I II III
2 45
8.3 34.6 9.0
12.3 40.7 12.9
16.3 46.8 17.3
20.3 52.7 21.4
24.6 58.8 25.0
81.8 233.6 85.6
16.36 46.72 17.12
30.35 06 30.21
.71 .78 46.91
240
4680

η Erid −9° 18
II l3 III all
2h 50
.x 27.7
x 30.3
14.0 32.8
17.5 35.4
21.5 37.7
163.9
32.78
18.21
14.07

52.33
tan ~~55~~ 29.5
1- 1.~~484~~
tan −164
~~1.618~~
1.459

2 33 2.44
2 34 13.14
−1 10.70
−.40
−.44 level corr.
−1 11.54

2 35 47.94

2 42 0.43

2 45 46.80
2 46 58.16
−1 11.36
.~~48~~
+17
−44
−1 11.63

2 50 14.07
2 51 24.78
−1 10.71
−~~4~~.48
−44
−1 11.63

.65
9.8729
0.1641
9.6488
m = .4453

54
63
63
180
60

Frod 1327 is slow

1m 11.s60 at 2h 40m
Sid Time

~~[illegible]~~ A.S. In

1897
Feb 9

−16° 34′
α Can Maj
II III
6^h 39 18.6 40.5
22.5 43.3
26.5 45.7
30.4 48.3
34.4 51.0
1324 2288
2648 45.76
04 19.26
26.52 26.50

−11° 54
θ Can Maj
II III
6-48 6.6 28.0
10.4 30.6
14.1 33.1
18.0 35.6
21.7 38.0
708 1653
14.16 3306
04 1887
14.20 14.19

+68° 40
Gp 1308
II
7-18 42.6
52.7
2.8
12.7
23.2
31 40
2.80
10
2.90

6 39 26.51
6 40 38.67
− 1 12.16
−.34
−.44
−1 12.94

6 48 14.20
6 49 26.34
−1 12.14
−.31
−.44
−1 12.89

7 19 2.90
7 20 15.84
−1 12.94
+.46
−.44
−1 12.92

−.2975 .2107
+2561 +2561
+2.858 +2.772
.78 .80
9.8921 9.9031
0. ~~4084~~ 0.4428
0.4561
9.4360 9.4603
.2729 .2886
1615
.2808 = n

2561
913
1.648

+4
−1
+2
2

Frod. 1327 is slow
$1^m\ 12^s.92$
at 7^h 0 Sid Time

JAD obs.

1897
Feb 11.~~2~~3

+3° 40			+53° 5			+40° 32			+19° 19		
α Ceti			γ Persei			β Persei			δ Arietis		
	I	II		II, l. 3	III		I	II			
2 55	18.6	34.7	2 56	8.2	30.8	2 59	45.5	6.4	3 4	~~8.0~~ 10.7	25.0 28.9 32.8	47.1
	21.3	38.4		14.3	34.8		48.7	11.4		13.3	36.8	49.8
	23.6	42.3		20.4	39.0		52.0	16.3		15.8	40.7	52.5
	26.0	45.9			43.0		55.3	21.2		18.5		55.2
	28.6	49.6			47.0		58.4	26.0				57.6
	118.1	210.9		42.9	194.6		259.9	81.3		66.3	164.2	260.2
	23.62	42.18		14.30	38.92		51.98	16.16		13.26	32.84	52.44
	18.58	04		6.120	30.73		24.40	05		19.64	04	19.53
	42.20	42.22		8.18	8.19		16.38	16.21		32.90	32.88	32.89

9.5654
0.2213
9.7867

α Ceti		γ Persei		β Persei		δ Arietis	
2 55	42.21	2 56	8.18	3 0	16.29	3 4	32.89
2 56	54.64	2 57	21.02	3 1	28.92	3 5	45.35
−1	12.43	−1	12.84	−1	12.63	−1	12.46
	−.~~47~~ 30		+.~~23~~ 16		−.~~05~~ 02		−.~~34~~ 20
	−44		−44		−44		−44
−1	~~13.34~~	−1	~~13.05~~	−1	~~13.10~~	−1	~~13.26~~
	13.17		13.12		13.09		13.10

.44 + 1.331
+.065
1.266

9.6435
0.1025
~~9.7460~~
~~.567~~
9.541.0
.35 =

17
12
09
10

12 Fwd 1327 is slow 1m 13.12 at 3h 0m Sid. Time

1897
Feb 16th

σ²Urs. Maj.	θ Hydrae	[38 Lyncis]	83 Cancri	40 Lyncis	α Hydrae
+67° 34	+2° 46	+37° 15	+18° 9	+34° 50	−8° 12
II	I II III	I II ~~XX~~	II ([illegible])	I II III	I II III
8h 59m	9h 7	9h 10	9h 11	9h 13	9h 20
53.3	26.6 42.8 3.6	47.0 7.3	56.3	8.5 28.2 53.8	57.5 13.6 35.0
3.0	29.3 46.5 6.3	50.4 12.1	59.9	11.7 32.8 56.8	0.1 17.5 37.6
12.8	31.7 50.2 8.6	53.3 16.6	x	14.7 37.3 59.8	2.5 21.4 40.0
22.7	34.1 53.7 11.1	56.5 21.3	x	17.8 41.8 2.9	5.1 25.4 42.5
32.2	36.6 57.6 13.3	59.5 26.0	x	20.7 46.4 5.7	7.6 28.7 44.8
36 40	1583 2508 429	2667 833	1162	734 1865 2990	3128 1066 1999
12.80	31.76 50.16 8.58	53.34 16.66	58.10	14.68 37.30 59.80	2.56 21.32 39.98
+.10	18.57 .04 1848	23.29 65	5.90 1121 5.605	2259 03 22.49	1574 04 1865
12.90	50.33 .20 .10	16.63 16.71	9 12 4.00 0.7486 0.0222 0.7708 5.90	37.27 .35 .31	21.30 .36 .33
9 0 12.90	9 7 50.21	9 11 16.67	9 12 4.00	9 13 37.31	9 21 21.33
9 1 26.20	9 9 2.86	9 12 29.51	9 13 16.79	9 14 50.08	9 22 33.96
−1 13.30	−1 12.65	−1 12.84	−1 12.79	−1 12.77	−1 12.63
+42	−.22	−.04	−.15	−.06	−.27
+02	+02	+02	+02	+02	+02
−1 12.86	−1 12.85	−1 12.86	−1 12.92	−1 12.81	−1 12.88

~~0.4186~~

9 12 26.166

135

0.5741
9.5997
0.1738 +1.493
8.5766
0.8304n
9.4070 +.253
8.7947n
1.2043n
9.9990 +.998
8.7475
1.0276
9.7751 +.596
+3341
9-12-29.51

+2.422 | 67
−144
+2.566
9.8261
0.4092
9.4169
m = .2611

+2.422
913
1.509 = N. σ² Ursa Maj
26
13
3
42

−.01

2 + 86 × 5 = 440
2 + 85 × 15 1205
2 + 86 × 10 880
2 + 92 × 2 198
2 + 81 × 15 1245
2 + 88 × 15 1350
62) 5318 (.858
496
358
310
480
.84

Frod 1327 is slow
1m 12s.84 at
9h 0m Sid Time

Telescope horizontal

Feb 17.1 - 1897

J H Dobson

Mer. Circle - Level determination

		E	W	Bubble
Tel S - Screw →	W	96.0	108.0	12.0
	E	9.0	-2.0	11.0
Tel N	E	hidden 124.0	113.0	
	W	32.5	43.0	10.5
Tel N	E	hidden 121.0	1100	
	W	38.0	49.0	11.0
	W	35.0	46.0	11.0
	E	hidden 118.0	107.0	
Tel S	E	8.9	-2.0	10.9
	W	99.0	110.0	11.0
	W	75.3	86.0	10.7
	E	9.0	-2.0	11.0
				99.1

Mean 11.0

E 765.7 W 772.0
W 772.0
24) 6.3 ⌊ ~~.26 division W high~~
~~.06 value div.~~
~~.0156~~
~~1.35 (sec φ)~~
~~0156~~
~~.02 level (W. high (level correction)~~

E		W	
+96.0	-9.0	+108.0	+2.0
+32.5	-124.0	+43.0	-113.0
+38.0	-121.0	+49.0	-110.0
+35.0	-118.0	+46.0	-107.0
+99.0	-8.9	+110.0	+2.0
+75.3	-9.0	+86.0	+2.0
+375.8	-389.9	+442.0	-324.0

-389.9
+375.8
-14.1

+442.0
-324.0
+118.0
-14.1
24) 104. ⌊ $4^d.34$
96
80
72
80

.06
.2604 = b

b sec φ = $^s.35$
West end high

Re-reduced Feb 5, 1901

Feb 18 $\frac{9}{10}$ Level - Meridian Circle

JA Dobr

Tel. vertical

Begun about 22h30

Tel. point. to Zenith Bubble E W

level circle 298.5d Screw West 10.7 57.0 61.7

Tel. point. to Nadir

Screw West 10.5 72.0 82.5

Tel. pointed horizontal and level reversed then

Tel. pointed to Nadir and

Screw East 10.7 8.5 -2.2

118.5

Tel. pointed to Zenith

Screw East [127.7 est.] [117.0] estimated

259.2 259.0

259.0

8|.2

.025 div.

.00150 b

.002 b ecc φ E. elevated

Tel horizontal

Tel. South Bubble E W

Screw E 10.6 -9.6 -(-1.0) E 9.15 W -1.6 -4.30

" E 10.9 -8.7 -(-2.2) -3.25

circle level 118.5d

" " 298.5 Screw W 10.7 ~~1 63.0 73.7~~ rejected seems too large

" W 10.7 +48.0 +58.7 +53.35

" W 10.6 +46.4 +57.0 +51.70

47.2 57.85

56.35

56.25

.10

.025 el. E

Tel North

Screw W 10.5 77.5 88.0 } rejected seems too large

circle level 298.5d " W 11.1 93.9 105.0 }

" W 10.2 62.7 72.9

" W 10.8 +65.8 +76.6 64.07 74.73 +71.20

" W 11.0 +63.7 +74.7 +69.20

cir. level 118.5 " E 10.7 -103.7 -93.0 -98.35

E 10.7 -106.7 -96.0 -101.35

(5) 10.4

Mean 10.7

105.20 94.50

169.27 169.23

169.23

.04

.01 E el. elevated

.025

.010

.035

.018 div.

.001 = b

.0014 = b ecc φ

Remark; the observations marked rejected were made with as great care as the others

Use level = zero

Re- d

Feb 18 $\frac{9}{10}$

2 AB Sar

Temp. of thermom
West pillar 40.5
East pillar 40.2

Determination of value
of Clark Level - Meridian Circle
(Clark model - Buff & Berger, Boston Makers)

Level circle reads 208.5
hence level points N. & S.

Level above tel. axis.

Telescope ~~West~~ East circle

Bubble

			N. End	S. End	
	5° 2′	52″.3 0			
		51.7 -.6	7.0	18.0	12.50
Mic. H.		52.4 +.1			
		52.6 +.3			
		52.5 +.2			
	2′	52.30			
Moved Tel. in decl.			97.4	108.4	102.90
					90.40
	5° 1′	31″.0 +.2			
		30.5 -.3			
		30.8 0			
Mic H		31.0 +.2			
		30.8 0			
	1′	30.82			

1′ 21.48

1.9111
1.9562
9.9549
1.1761
8.7788
.06009 value of 1 division of level

duction Feb 1901

-3.775
+48.750
+52.525

E
+ 9.6 +48.0
− 8.7 +46.4
+ 94.4
− 18.3
+ 76.1

W
+ 1.0 +58.7
+ 2.2 +57.0
115.7
3.2
+ 118.9

+24.375

-14.825
2) +9.550
+4.775
.06
+.286 = b
1.35
.386 = b.c.φ

+70.20
-29.65
~~[illegible]~~ 23.45
Ended
-99.85

West end high

J A Dolan

1897
Feb 19 25/100

+12°11 λ Tauri			−13°49 γ Erid.			+35° 29 ξ Persei		
III	II	I	3h	III	II	3h	III	II
10.5	54.3	32.8	52m	25.6	9.4	51	33.8	14.2
8.2	50.5	30.3		23.3	5.5		31.0	9.8
5.6	46.7	27.7		20.7	1.7		27.8	5.2
3.0	42.8 3h	25.2		18.2	57.8		24.8	0.5
0.5	39.0 53m	22.6		15.6	x		21.7	x
27.8	233.3	138.6		103.4	254.4		140.1	29.7
5.56	46.66	27.72		20.68	63.60		28.02	7.43
18.88	.04	18.97		19.01	1.88		22.68	2.25
46.68	46.70	46.69		1.67	61.72		5.34	5.18

67×5 335
72×4 288
623
69

34×5 170
18×4 72
242
27

3	53	46.69
α 3	54	59.64
	−1	12.95
		−10
		00
	−1	13.05

+39° 42

3	52	1.69
α 3	53	14.54
	−1	12.85
		−18
		00
	−1	13.03

+60° 48

3	51	5.27
3	52	18.19
	−1	12.98
		−05
		00
	−1	12.93

+31° 34

γ Erid 1.83
0.2625
0.0127
0.2752
1.885

ξ Pers 1.83
0.2625
0.0893
0.3518
2.248

9H Cam 1 13.16 +1.789
γ Erid 1 12.85 −246
.31 2.035

9.4914
0.3086
~~9.8000~~
~~.63~~=m
9.1828

_1523=m

ε Persei				9H Cam			ξ Persei		
3h	III	II	I	3	III	II	3	II	I
50	15.0	54.4	27.0	47	57.3	24.4	46	36.4	11.5
	12.0	49.5	23.8		52.7	17.0		31.9	8.7
	8.8	44.7	20.6		47.3	x		27.6	5.9
	5.6	40.0	17.5		42.3	x		23.4	2.9
	2.4	35.1	14.1		37.1	x		18.8	0.0
	43.8	223.7	103.0		236.7	20.7		138.1	29.0
	8.76	44.74	20.60		47.34	11.30		27.62	5.80
	23.99	05	24.10		37.83			05	21.77
	44.77	44.79	44.70		9.51	9.40		27.67	27.57

5.5, 9H Cam
0.7412
0.3117
1.0529

11,30

51×5 255
40×2 80
7)335
48

3	49	44.75
3	50	57.77
	−1	13.02
		−.01 = n corr.
		00 = level corr.
	−1	13.03

3	47	9.48
3	48	22.64
	−1	13.16
		+13
		00
	−1	13.03

3	46	27.62
3	47	40.67
	−1	13.05
		−03
		00
	−1	13.08

−13°.8	−T 13.03
+12.2	13.05
+31.6	13.08
35.5	12.93
39.7	13.03
60.0	13.03
	13.025

~~13.025~~

Frod 1327 slow T 13s.02
at 3h 50m Sid Time

Prof. S. [illegible]

1897
Feb 23.3

Gr 1308
+68° 41
$7^{h}\,19$ 38.6
45.4
52.0
58.7
54
268.1
52.02
50.82
19 1.20

(792) θ Cam. Maj.
−11° 54
II III
$6^{h}\,48$ 5.2 26.5
8.9 29.0 2.5
12.6 31.5 2.5
16.4 34.0 2.5
20.2 36.4 2.4
63.3 157.4
126.6 314.8
04 188.7
12.70 12.61

6 48 12.65
6 49 26.19
−1 13.54
−.30
00
−1 13.84

1.2662
0.4398
1.7060
50.82

7 19 1.20
7 20 15.48
−1 14.28
+.44 in con.
00 lev con
−1 13.84

+2.563 .74
−0.211
2.774
9.8692
0.4431
9.4267
m = .2667

2.563
913
1.650

.2667
889
~~889~~
.4445

.2667
.266
29
.30

Frod 1327 is slow $1^{m}\,13^{s}.84$
at $7^{h}\,0^{m}$ Sid Time

Prof. S [illegible]

1897
Feb 27.4

Br 1147
+76°3'

8 4 58.4
5 1.4.5
29.5
44.7
60.0
447.1
89.42
±15
8 5 29.57

8 6 44.58
−1 15.01
±.52 mm
00 [illegible]

−1 14.49

7124
−8°13'
α Hydrae ~~43°18~~

9 21 12.0 33.3
16.0 35.8
19.6 38.2
23.5 40.5
27.3 43.0
98.4 190.8
19.68 38.16
04 18.65
19.72 19.51

9 21 19.61
9 22 33.97
−1 14.36
−.18
00

−1 14.54

7106
9 Monis −13°37
~~α Hydrae [illegible]~~

7 45 40.3 2.0
44.2 4.3
47.9 7.0
51.8 9.5
53.6 11.9
239.8 34.7
47.96 6.94
04 19.00
48.00 47.94

7 45 47.97
7 47 2.23
−1 14.26
−19
00

−1 14.45

7106
7 47 0.117

0.4446
9.6297 1.187
0.0743

7.8599
0.8304n −.049
8.6903n

8.4884
1.2451n +.541
9.7335

8.7874
0.8524
9.6398 +.436
+2.115

7 47 2.23

1501 +4.026
14.26 −242
.75 4.268

9.8751 (Br 1147 / 7106)
0.6302
9.2449 .176 = m

1501 + 4.026
14.36 − 144
65 4.170

9.8129 (7124 / Br 1147)
0.6201
9.1928
.156 = m

~~mean~~ 166 ←

4026 0.4932
913 9.2201
3.113 97133
52

.166
.016 0081
.0098
176
166
0186
08
171

~~Feb 23 1 13.84~~
~~22 14.49~~
~~1.65~~
~~24 1.16 [illegible]~~
~~.0075 hr.~~

54) 495
45) 49
49

Frod 1327 is slow 1m 14.49s at 8h 0 Sid Time

Prof. S obs

1897

Mar 4.

σ^2 Urs Maj

+67° 33

		II	III
8h	59	50.5	45.4
		04	52.0
		10.0	58.5
		19.6	5.2
		29.3	11.1
		34 9 8	29 2 2
		9.9 6	58.44
		10	48.34
		10.06	10.~~78~~10

9 0 10.08
9 1 26.06
−1 15.98
+ .28 n corr
.00 level corr
−1 15.70

7 124

α Hydrae

−8° 13

		II	III
9	21	10.9	32.1
		14.6	
		18.5	34.7
			37.0
		22.4	
			39.6
		26.0	
			41.8
		92 4	185 2
		18.48	37.04
		04	18.65
		18.52	18.39

9 21 18.45
9 22 33.95
−1 15.50
− .20
.00
−1 15.70

.48 2.42
144
2.564

9.6812
0.4084
9.2723
.1872 = n

2.42
913
1.51

Frod 1327 slow $\overset{m}{1}$ 15.70

at 9h 0m Sid Time

JAD hr

Mar 6.3
1897

	X Gem			27 Cygni			ι Navis			Br 1147	
	+28° 6			+51° 49			−24° 0			+76° 5'	
	I	II	III	I	II	III	I	II	III	I	
7 55	31.5	49.6	13.3	58 51.3	17.6	51.8	T 29.6	47.0 51.4	10.2	3 50.4	
	34.2	53.9	15.9	53.6	23.8	53.2	32.3	53.5	12.8	0.3	
	36.8	58.0	19.0	59.5	29.8	59.7	35.1	59.5	15.7	10.5	1.2682
	39.7	2.0	21.7	3.7	35.5	3.7	37.8	3.1	18.5	21.4	0.6188
	42.4	6.2	24.5	7.4	41.7	7.2		~~10.2~~	20.9	31.5	1.8870
	184.6	289.7	94.4	297.5	148.4	298.0	3 | 105.2	276.5	78.1	35.41	77.09
	36.92	57.94	18.88	59.50	29.68	59.60	35.07	55.30	15.62	10.82	
	21.03	.04	20.93	29.98	.06	29.84	20.30	04	20.20	77.09	
	57.95	.98	.95	29.48	.74	.76	53.37	.34	.42	5 27.91	

7 55 57.96
7 57 14.30
− 1 16.34
− .11
− .01 level
− 1 16.46

7 59 29.66
8 0 46.25
− 1 16.59
+ .11
− .01
− 1 16.49

8 1 55.38
8 3 11.44
− 1 16.06
− 42
− 01
− 1 16.49

8 5 27.91
8 6 44.24
− 1 16.33
Not used

27 Cygni
ι Navis }

16.59 +1.272
16.06 −.445
.53 : 1.717

9.7243
0.2348
9.4895
.3087 = n

Frod. 1327 $\overset{-}{\text{I}}$ $\overset{s}{16.48}$ slow
at 8h 5m Sid Time

1896phae.prpj.1637D

Mon, Mar 8, 1897

about 0h MT. Level: Mer. Circle

Tel. S – Screw

		E	W
	W	+40.0	+50.5
	E	−19.3	−8.8
	W	+49.6	+60.0
	E	−8.7	−3.1
Marks	W	+59.5	+70.0
1185	E	−20.3	−9.8
2985	W	+44.0	+54.8
	E	−21.0	−10.5

~~Tel~~

Tel N. – Screw

E	−103.6	−93.4
W	+47.0	+57.0
E	−66.0	−56.0
W	+57.8	+67.9
E	−109.4	−99.4
W	+61.7	+71.7
E	−107.0	87.0
*W	+52.1	+62.4
E	867.9	862.3

~~862.3~~

~~32) 4.7 (0.15~~

~~32~~

~~150 .06~~

~~.0090~~

~~1.35 sec φ~~

~~.01215 E. high~~

W	E
8.0	−1.7

*Pressed down W. end of frame

E .. " " – Part the 110 mark, j out of refit

~~Bright~~ Returned to Screw W 91.5 81.0

E	W
+89.6	+110.5
+103.5	+124.8
+104.8	+124.9
+113.8	+134.1
−19.3	+494.3
−8.7	−11.9
−20.3	−20.3
−21.0	−149.4
−103.6	−186.4
−66.0	−368.0
−109.4	+494.3
−107.0	+126.3
+411.7	
−455.3	
−43.6	

W +126.3

E −43.6

32) 82.7 (2.6

64

187

.156 = 6

.22 = 6 sec

Re-reduced Feb 5-1901

6 sec φ = 22s

West axis high

Mar. 10.5
1897

[41 Leo.min]		42 Leo.min			[r Hydrae]		[46 Leo.min]			[Br 1508]	
+23°45		+31°14			−15 38		+34 47			+78°20	
II	III	I	II	III	II	III	I	II	III	I	
~~36~~ 10h 36	~~49.5~~	10 38		*	10 43		10 45	9		10 48	
~~26.6~~	52.2	26.5	45.5	10.1	10.0	31.5	50.3	9.8	35.5	38.6	
30.5	54.8	29.6	49.8	13.0	13.8	34.2	53.4	14.5	38.6	51.3	
34.6	57.7	32.5	54.2	15.7	17.8	36.9	56.4	19.0	41.6	3.4	0.6940
38.7	0.1	35.5	58.5	18.6	21.5	39.7	59.4	23.5	44.5	16.0	1.268n 1.9622
42.7		38.4	2.7	21.5	25.4	42.0	2.5	28.0	47.6	27.6	91.66
1731	2743	1625	2707	789	885	1843	2820	948	2078	3169	
34.62	54.86	32.50	54.14	15.78	17.70	36.86	56.40	18.96	41.56	63.38	
.04	20.16	21.68	.04	21.59	.04	19.16	22.58	.05	22.48	1 31.66	
34.66	34.70	54.18	54.18	54.19	17.74	17.70	18.98	19.01	19.18	51 35.04	
10 36 34.68		38 54.18			43 17.72		46 19.06			50 35.04	

430		577	152	433
10 37 48.959		44 32.522	47 33.124	50 43.029
0.5157 9.6473 0.1630 +1.455		0.4701 9.6473 0.1174 +1.310	0.5265 9.6473 0.1738 +1.492	0.6965 9.6473 0.3438 +2.207
8.4384n 0.8320n 9.2704 +.186		8.2474 0.8320n 9.0794n −.120	8.6434n 0.8320n 9.4754 +.299	9.4890n 0.8320n 0.3210 +.209
8.8337n 1.2673n 0.1010 +1.262		8.8164n 1.2673n 0.0837 +1.212	8.8872n 1.2673n 0.1545 +1.428	9.4981n 1.2673n 0.7654 +5.825
8.4075 0.5335 8.9310 +.085		8.3499 0.5235 8.8734 +.075	8.4019 0.5235 8.9254 +.084	8.9834 0.5235 9.5089 +.323
+2.988		+1.477	+3.303	+8.564
10 37 51.95	40 11.49	44 34.00	47 36.43	51 51.59
−1 17.27	−1 17.31	−1 17.28	−1 17.37	−1 16.55
n corr. +.06	+.04	+.17	+.03	−.56
level corr. +.01	+01	+01	+01	+01
−1 17.20	−1 17.26	−1 17.10	−1 17.33	−1 17.10
1	2	3	4	5

+4.842
−0.279
~~4.563~~
+5.121

0.73

9.8633
0.7094
9.1539
n = .1426

4.842
9.13
3.93

n does not seem satisfactory.
collimation?

③ 17.10
① 20
② 26
4 33
5 .10

Find 1327 slow 1m 17.20
at 10h 40m Sid time

Comps for

1897

March 13

σ^2 Urs. Maj
+67° 33

8 59 47.5
57.2
7.2
16.8
26.5
33.52
9 0 7.04
10
9 0 7.14
9 1 25.82
−1 18.68
+.50
+.01
−1 18.17

2.42
14
2.56).86(.33 = m
768
920

.86

2.42
91
1.51

(7124) α Hydrae
−8° 12 + ~~67 33~~

9^h 21 8.6 29.6
12.4 32.3
16.0 34.8
19.7 37.4
23.5 39.6
80.2 178.7
9 21 16.04 34.74
54 18.65
16.08 18.09

9 21 16.08
9 22 33.90
−1 17.82
−.35
+.01
−1 18.16

Frod 1327 slow 1^m $18^s.16$
at 9^h 0 Sid Time

J A D obs.
(except v Aurig)

1897
March 15

α Leporis
−17° 54
III
$5^h\ 32^m\ 27$

86
1.1.1
13.7
16.5
19.0
689
13.78
19.40
5 ~~31~~ 26 54.38
5 ~~31~~ 26 54.38
5 28 12.36
−1 17.98
− 26
+01
−1 18.23

Probably 5 wrong in chart.

ζ Tauri
+21° 4′
I II III
$5^h\ 34\ 29$

I	II	III
476	48	27.3
50.4	8.8	30.0
52.9	12.7	32.6
55.6	16.7	35.4
58.4	20.7	37.9
2649	637	1632
52.98	12.74	32.64
19.87	.04	19.78
12.85	12.78	12.86

5 ~~32~~ 30 12.83
5 31 30.87
−1 18.04
−.11
+.01
−1 18.14

ο Aurig
+49° 46′
II (last 4)
$5^h\ ~~41~~\ 36$

×
33.3
39.0
44.6
50.4
1169
38.97
05
39.02
5 ~~44~~ 36 39.02
5 37 57.25
−1 18.23
+.06
+.01
−1 18.16

v Aurigae
+39° 7
III
$5^h\ ~~48~~\ 43$

22.3
25.6
28.6
32.0
34.9
143.4
28.68
23.79
4.89
5 ~~48~~ 43 4.89
5 44 22.86
−1 17.97
−.02
+.01
−1 17.98

5 44 20.95
101
0.6188
9.6625
0.2813
7.5681
0.8380m
8.4061m −.025
7.7682
1.2718m
9.0400m −.110
8.9331
0.1984
9.1315 +.135
+2.046
−135
1.911 +1.911
5 44 22.86

δ Aurig 18.34 +1.39 9.5563
α Lep. 17.98 −32 0.2330
.36 1.71 9.3233
.21=m

δ Aurig
+54° 16
I
$5^h\ ~~54~~\ 49$

6.4
10.7
15.0
19.3
23.4
748
14.96
31.76
46.72
5 ~~54~~ 49 46.72
5 51 5.06
−1 18.34
+.10
+.01
−1 18.23

β Aurig
+44° 56′
I II
$5^h\ ~~55~~\ 50$

I	II
9.1	31.7
12.6	37.0
16.0	42.1
19.3	47.5
22.9	52.8
799	2111
15.98	42.22
26.19	.05
42.17	42.27

5 ~~55~~ 50 42.22
5 51 60.48
−1 18.26
+.02
+.01
−1 18.23

θ Aurig
+37° 12
II III
$5^h\ ~~56~~\ 51$

II	III
16.3	42.6
20.7	45.8
25.5	48.7
30.2	52.0
34.8	55.0
1275	2441
25.50	48.82
.05	23.17
25.55	25.65

5 ~~56~~ 51 25.60
5 52 43.82
−1 18.22
−.03
+.01
−1 18.24

18.23
18.14
18.24
[17.98] Rej
18.23
18.16
18.23
121
.17 (7)
.20 (6)

Excluding v Aurig. the clock Fr. 1327 is slow $1^m\ 18^s.20$ at $5^h\ 40^m$ Sid. Time

1897
March 17

α Aurig.		β Orionis		γ Orionis	β Tauri	
+45° 53		−8° 19		+6° 15	+28° 31	
II	I ~~II~~	II	III	I	II	III
$5^h\,\overline{7}$		$5^h\,\overline{8}$		$5^h\,17$	$5^h\,\overline{18}$	
37.3	14.3	x	31.8	56.0	21.3	45.5
42.6	17.8	14.5	34.5	58.4	25.8	48.4
48.0	21.3	18.3	37.0	0.9	30.1	51.3
53.3	24.9	22.0	39.4	3.4	34.3	54.0
58.6	28.5	25.6	41.8	5.8	38.4	56.7
2398	1068	548	1845	3045	1499	2559
47.96	21.36	18.27	36.90	0.90	29.98	51.18
05	26.65	04	18.65	18.65	04	21.00
48.01	48.01	18.31	18.25	19.55	30.02	30.18

α Aurig.	β Orionis	γ Orionis	β Tauri
5 7 48.01	5 8 18.28	5 18 19.55	5 18 30.15
5 9 6.40	5 9 36.35	5 19 37.64	5 19 48.34
−1 18.39	−1 18.07	−1 18.09	−1 18.19
+.03 num	−.29	−.22	−.10
+01 level	+01	+01	+01
−1 18.35	−1 18.35	18.30	−1 18.28

1.032
146
1.18) .32 (.27 m
236
840

+5
+5
0
−2
2

Frod. 1327 slow $\overline{1}^m\,18.32^s$
at $5^h\,\overline{0}$ Sid Time

J A Dohn

Mar 23, 1897

Level.

Tel. South 1185

	W.	E	
Screw West	+460	+37.5	8.5
" E	-66	-15.0	8.4
" W	+42.7	+34.0	8.7
E	-11.5	-20.0	8.5
	106.8	1065	8.4

106.8
106.5
8L.3
.0375 div. W high

Tel North

a. In reversing N & S pos. of Tel
the length of bubble changed.
b. Adjusted length of bubble

rej. from
doubt as to pos.
of level

	W	E	
Screw West	~~1010~~ 1020	~~917~~ 925	
E	-96.0	-103.0	90
" W	+77.0	+67.8	92
" E	-62.0	-71.0	90
W	+74.0	+64.8	9.2
			9.1

309.0
3086
~~8L.4~~
~~.0500 div W. high~~

~~0375~~
~~05~~
~~.0875~~
~~.0438 div. W. high~~
~~.06~~
~~.002628 = b~~
~~1.35 = sec φ~~
~~.003 W. end high~~
~~b sec φ = .00~~

W | E

+88.7 -18.1 | +71.5 -35.0
+151.0 -158.0 | +132.6 -176.0
+239.7 -176.1 | +204.1 -211.0
+239.7 | +204.1
+63.6 W | - 6.9
- 6.9 E
16) +56.7 (3.54 d
48
87
80
70
.06
.212 = b
.29 = b sec φ
West end is high

Re-reduction
~~Mar~~ Feb 5, 1901

J A D obsr

1897

Mar 23.2	α Aurig +45°53′		β Orionis −8°19′		γ Orionis +6°15′		β Tauri +28°31′
	I	II	II l.4	III	I	II	III l.3
	5h 7m		5h 8m		5h 17m		5h 18m
	13.0	36.1	×	30.5	54.5	10.7	×
	16.6	41.5	13.3	33.1	57.2	14.4	×
	20.1	46.7	17.0	35.6	59.5	18.2	49.7
	23.8	52.0	20.6	38.1	20	21.8	52.7
	27.3	57.4	24.4	40.6	44	25.6	55.3
	1008	2337	509	1779	2976	907	1577
	20.16	46.74	~~17.0~~	35.58	59.52	18.14	5,257
	~~05~~	~~26.65~~	16.97				23.80
	26.65	.05	.04	18.65	18.65	.04	~~54~~ 28.77
	46.81	46.79	17.01	16.93	18.17	18.18	

1.3205
0.0561
1.3766

5 7 46.80	5 8 16.97	5 18 18.18	5 18 28.77
5 9 6.25	5 9 36.25	5 19 37.53	5 19 48.22
−1 19.45	−1 19.28	−1 19.37	−1 19.45
+.02 = n corr.	−.24	−.18	−.09
00 level corr	.00	00	00
−1 19.43	−1 19.52	−1 19.55	−1 19.54

1.18] .27
1.18 (.23 = n
1.52
.118
340

43
52
54
54
.51 arith. m.

real m is probably smaller

Call x .45 = mean

Frod 1327 is slow 1m 19s.45

at 5h 10m Sid Time

1897
March 25.2

S Monoc.	ε Gem.	[ψ⁵ Aurigae]	α Can Maj	θ Gem.
+9° 59	+25° 14	+43° 41′	−16° 34	+34° 5′
6 33	6 35	6 37	6 39	6 45
I II III		II III	III	III
36.8 53.2 14.4	52.3 9.8 33.2	51.4 20.4	32.8	Last wire 10.8
39.4 56.8 16.9	55.1 14.1 35.8	56.6 23.9	35.4	
41.8 0.7 19.5	57.7 18.2 38.7	1.7 27.3	37.9	
44.4 4.4 22.0	0.5 22.3 41.4	7.1 30.8	40.6	1.3678
46.9 8.1 24.4	3.1 26.3 44.1	11.8 34.2	42.9	0.0818
				1.4496
2093 3032 972	2887 907 1932	3086 1366	1896	28.16
41.86 0.64 19.44	57.74 18.14 38.64	1.72 27.32	37.92	
18.83 .04 18.74	20.49 04 20.40	05 25.54	19.27	
0.69 .68 0.70	18.23 .18 .24	1.77 1.78	18.65	

from Am. Almanac.

6 34 0.69	6 36 18.22	6 38 1.78	6 39 18.65	6 44 42.64
6 35 20.01	6 37 37.58	6 39 21.14	6 40 37.97	6 46 2.18
−1 19.32	−1 19.36	−1 19.36	−1 19.32	−1 19.54

+2.4
−1
2.5

32 × 15	450
36 × 15	540
36 × 10	360
32 + 5	160
54 × 1	54
46	1594 (35
	138
	214

Frod 1327 slow ~~1 39~~
1^m $19^s.35$
at 6^h 30 Sid. Time

1897
March 28

σ² Urs. Maj.
+67° 34
8h 59
II
45.7
55.7
56
15.1
25.0
327.1
5.42
.09
9 0 5.51
9 1 25.32
−1 19.81
+.27 incl.
00 collim
−1 19.54

+2.426 46
−144
2570 | 46 | .18 = m
257
2030

1.51

α Hydrae
−8° 12
9h 21m
II III
6.9 28.0
10.7 30.6
14.6 33.0
18.1 35.6
21.8 38.0
72.1 165.2
14.42 33.04
04
~~18.74~~ 18.66
~~33.16~~ 14.46 ~~33.08~~ 14.39
9 21 ~~33.12~~ 14.42
9 22 33.77
−1 19.35
−.19
.00
−1 19.54

Frod 1327 is slow
1m 19.54s
at 9h 0m
Sid. Time

Prof. S. C.

1897
Mar 31.3

+67°34'
σ² Urs Maj

8 59 45.0
55.1
4.8
14.5
24.4
32.38
4.76
.09
9 0 4.85
9 1 25.21
-1 20.36
+.40 mm
00 level m
-1 19.96

2.57) .70/.27 = m
514
1860

-8°12
α Hyd. (7124)
II
2.0
9 21 10.5 27.8
14.0 30.1
17.7 32.5
21.6 35.1
37.6
70.8 163.1
14.16 32.62
04 18.65
14.20 13.97

9 21 14.08
9 22 33.74
-1 19.66
-28
.00
-1 19.94

Frod 1327 is slow 1^m $19^s.95$
at 9^h on
sid time

Prof. S. hr

1897
April 2

9 H Drac
+76° 15′

		II
10	24	37.2
		53.2
		84
		24.1
		39.8
		34 27
		8.54
		.15
10	25	8.69
10	26	28 78
	−1	20.09

−16° 19′
μ Hyd

		II	III
10	19	41.0	28
		44.8	54
		48.7	79
		52.6	10.5
		56.6	13.0
		2437	396
		48.74	7.92
		.04	19.23
		48.78	48.69

10 19 48.73
10 21 8.85
− 1 20.12

−11° 57′
λ Hyd.

		II	III
10	4	8.7	30.0
		12.5	32.6
		16.2	35.0
		20.0	37.6
		23.6	39.8
		810	175.0
		16.20	35.00
		04	18.87
		16.24	16.13

10 4 16.18
10 5 36.29
−1 20.11

n = 0

Frod 1327 is slow
1^m $20^s.10$
at $10^h 20^m$
Sid Time

J A Dober

1897
April 11.5

γ Virg m −0°52 I/II II/III		76 Urs. maj. +63°18' II/3 III		ε Urs. Maj +56°31' I II ~~I/II II~~		12 Can Venaci +38°53 I II III		
41.0	.569	×	14.0	.265	53.8	21.0	41.5	8.5
43.5	0.4	×	19.7	31.0	2.4	24.3	46.5	11.7
46.0	4.5	43.2	24.7	35.5	9.0	27.3	51.2	14.9 18.1
48.5	8.3	51.7	30.4	40.1	15.8	30.5	55.8	21.2
50.8	12.0	59.8	35.5	44.5	22.6	32.6	06	
229.8	322.1	154.7 51.57	124.3	177.6	345.6	135.7	255.6	74.4

45.96 4.42
18.54 ~~18.16~~ .04
~~46.00~~ ~~45.96~~
4.50 4.46
12 ~~34~~ 35 ~~45.96~~ 4.46
12 36 29.27
~~1 43.29~~
−1 24.81
~~+1.362~~
− ~~4~~ .18 m Corr.
.00 Index

0.5635
0.3474
0.9109
7.96

~~7.96~~ 24.86
41.08
~~12 35~~ 43.61 43.76
12 35 43.70
12 37 8.91
~~−1 25.15~~
−1 25.21
~~−1.26~~
+ .21
.00

355.2 9.12
~~33.57~~ 06
~~06~~ ~~33.44~~
35 ~~58~~ 35.68
9.11 9.18
12 48 9.14
~~35.63~~
12 49 ~~9.1~~ ~~34.13~~
34.13
~~58.50~~
−1 24.99
~~+ .38~~
+ .12
.00

~~27.14~~ 51.12 14.88
23.83 05 23.72
50.97 .19 51.16
12 49 51.10
12 51 16.00
−1 24.90
~~+1.22~~
− ~~4~~ .02
.00

1.2662
0.3474
1.6136

12

+1.988
−0.016
2.004

25.21
24.81
.40

+ 8.31
− 9.63
− 5.37
+ .92

−1 34.98
−1 34.78
−1 27.36
−1 23.68

0.8948
0.2539
0.5980
3.9683
9.6021
0.3018
~~0.7521~~
~~8.456~~ = m
9.3003
.1996
m = .2

~~+ 24.63~~
~~25.12~~
−1 ~~25.14~~
−1 24.87
−1 ~~24.88~~
−1 24.92

−1 24.99
25.00
24.87
24.92
1978
−1 24.95

−1 25.00

Find 1327 slow T 24.95
at 12h 30m Sid Time

April 1897 13.5

Cloudy

√ Ursa Maj

+33°40

H l.4

III

11 11 ~~28.8~~ 27.8

11 ~~49.7~~ 51.7

~~33.3~~ 32.3

~~37.8~~ 36.8

~~47.0~~ 41.0

(3) ~~9~~ 9 6 9

3 2.30

m 8

~~57.7~~ 57.7

~~59.6~~ 54.6

~~58.7~~ 57.7

0.5

27 3 2

54.6 4

2 2.19

3 2.4 5

11 11 32.39

11 12 58.31

-1 25.92

+ .07

.00 level

24.85

2 Leonis

11 18 33.252 -1

161

0.4941
9.7167 0.2108

1.625

8.1093n
0.8188n 8.9281

.085

8.8250n
1.2335n 0.0585

1.144
+2.854

8.0870
0.9218n 9.0088n

-.102

+2.75

33.250
18 18 36.00

+2.135 .70
-253
+2.388).70 L.3=n

δ Crateris

-14°12

II | III | lat 2

11 12 40.5 | 2.0

44.4 | 4.7

48.4

52.2

55.7

24 12

48.24

.04

11 12 48.28

11 14 13.88

-1 25.60

+ .34

~~.00~~

-1 25.26

2 A D Obs

Gr 1771

+64°55

11 15 ~~5~~5.5 (1)

0.3724
0.8733
1.2457 +17.61

II

15 41.3 (5)

0.3724

15.4

15 55.7

0.3724
0.5635
0.9359

-8.628

~~16 13.4~~

0.3724
0.8675
1.2399

-17.380

~~14 38.32~~

16 23.11

14 29.42

1.1304
0.3724
1.5033
1.5187

11 16 49.00

~~2~~
11 15 23.92

11 15 24.11

~~11 15 24.01~~

11 15 24.01

~~35.01~~

-1 24.99

.00

-.36

-1 25.35

ι Leonis

+11°7

11h 17

10.5

18.0 Cast time

0.8675
.0082

0.8757

7.51

10.49

10.50

11 17 10.50

18 18 36.00

-1 25.50

+ .21

.00

-1 25.29

25.26

25.35

25.29

25.30

24.85

Cl Frod 1327 is slow

Δ 24.90s at 11h 0 Sid Time

Prof. S[illegible]

1897
April 16

7132 −11°51 λ Hyd. 10h 4	7135 μ Hyd. −16°19	9 H Drac +76°15	41 Leo Min +23°44	42 Leo min +31°14	Gr 1757 +50°3
II III	II 19 III	10h 24	I 4, II, III 10h 36	I II III 10h 38	I II 11 8
1.5 28.0 54.2 24.5 98.1 27.0 124.8 30 ~~29.6~~ 16 ~~15.6~~ 32.9	34.0 53.6 37.8 58.4 41.6 0.7 45.4 3.3 49.5 5.8	29.8 46.0 1.5 17.0 32.6	2.0 16.6 39.6 4.6 20.6 42.4 7.2 24.7 45.0 10.0 28.9 47.7 32.8 50.3	~~21.7~~ 18.7 37.5 2.1 21.7 42.1 5.0 24.6 46.4 7.8 27.6 50.6 10.8 30.5 54.9 13.5	54.1 18.8 58.0 24.7 1.5 30.5 5.6 36.1 9.6 41.8
452 1350 9.04 28.00 .04 18.87 ~~8.28~~ 9.13 9.08	208.3 3038 41.66 0.76 .04 19.23 41.70 41.53	306.9 1.38 .15 1.53	13.8 123.6 225.0 4.60 24.72 45.00 ~~20.25~~ .04 20.16 ~~21.58~~ 21.68 24.85 24.76 ~~23.42~~ 4630 24.84	123.1 231.5 39.2 24.62 46.30 7.84 .04 21.58 .34 .26 .30	30.88 151.9 1.76 30.38
9.10 10 4 ~~8.28~~ 36.15 10 5 ~~33.94~~	10 19 41.70 10 21 8.71	10 25 1.53 10 26 27.98	10 36 24.82 10 37 51.77	10 38 46.30 10 40 11.26	
−1 27.05 +.14 .00 level	−1 27.01 ~~+.42~~ +.16 .00	−1 26.45 ~~−.0142~~ −.16 .00	−1 26.95 +.06 .00	−1 24.96 +.04 .00	
−1 ~~27.73~~ 26.91 85 87 89 32 .88	−1 ~~26.59~~ 26.85	−1 ~~26.61~~ −1 26.87	−1 26.89	24.92 [illegible] etc	

+4.086
−292
4378) .56 1.13 = m
438
1220

.5 6

4.086
9.3
3.173

Found 1327 slow 1m 26.90s
10h 30m Sid Time

2O2 hr. 51

1897

April 20 ♃

ε Urs maj.
+56°32

12h 47 5 19

23.5	59.1 $^{7.2}$	30.4
27.7	5.6 $^{6.5}$	34.8
32.1	12.4 $^{6.8}$	39.3
35.7	19.0 $^{6.8}$	43.7
41.0		48.1
160.0	37.80	196.3
32.00	5.60	39.26
33.62	.07	33.47
5.62	5.67	5.79

12 48 5.69
12 49 34.09
– 1 28.40
~~.08~~
+ .14
.00 lendum
– 1 28.26

1.51
.20
1.3 } .300 (.23
.26
.40

12 Can ven seq.
+38°53

12 49

17.8	38.2	5.0
20.8	43.0	8.5
24.0	47.9	11.5
27.3	51.6	14.8
30.5	57.4	17.7
?		
24.08	47.62	11.50
23.83	05	23.72
47.91	47.67	47.78

12 49 47.79
12 51 16.00
– 1 28.21
– .02
.00 lendum
– 1 28.23

δ Drac
+66°1
Cauttah

12h 50m

56.0

ε Virg.
+11°32

12 55

13.5	30.1	51.7
16.4	33.9	54.3
19.0	37.7	56.7
21.4	41.5	59.2
24.0	45.4	1.5
94.3		283.4
18.86	37.72	56.68
18.92	04	18.84
37.78	37.79	37.84

12 55 37.80
12 57 5.91
– 1 28.11
~~.07~~
– .25
.00
– 1 28.36

23 } 30 } 28
36 } 26

Frod 1327 slow 1m 28.28

at 12h 50m Sid time

J A Dober. April 23d 1897

ε Virg.
+11° 32

I	II	III
12 55		
13.4 ~~10.4~~	29.4	51.0
15.9 ~~13.9~~	33.4	53.6
18.3 ~~42.3~~	37.2	56.2
21.0	41.0	58.7
23.5	44.8	1.0
92.1	185.8	280.5
18.42	37.16	56.10
18.93	.04	18.84
37.35	37.20	37.26

θ Virg
−4° 58'

I	II
13 2	
47.5	3.5
50.1	7.5
52.6	11.2
55.1	14.8
57.4	18.5
262.7	55.5
52.54	11.10
18.65	.04
11.19	11.14

17 Can Ven.
+ 39° 4

15 Can Ven

II	III
13 3	
×	49.8
×	53.0
×	56.2
37.2	59.3
41.8	2.3
79.0	280.6
34.5	56.12
~~35~~	23.78
	32.34

III
13 4
11.6
14.7
18.0
21.1
24.2
89.6
17.92
23.78
54.14

43 Comae
+28° 25

I	II	III
13 5		
11.8	30.0	53.8
14.7	34.3	56.8
17.6	38.5	59.6
20.4	42.8	2.4
23.1	47.0	5.2
87.6	192.6	297.8
17.52	38.52	59.56
21.09	.04	20.99
38.61	38.56	38.57

20 Can. Ven.
+41° 8'

	I	II
	13 10	
	59.1	20.4
II	2.5	25.5
	5.6	30.4 35.0
	8.8	40.0
	12.1	
	328.1	151.3
	5.62	30.26
	~~38.43~~	~~14.8~~7
	24.62	.05
	30.24	30.31

γ Hydrae
−22° 36'

III
13 12
8.0
10.7
13.4
16.2
18.7
67.0
13.40
20.00
53.40

continued

ε Virg.	θ Virg	17 Can Ven [15 Can Ven / prec. star]	
12 55 37.27	13 3 11.16	13 3 32.34	54.14
12 57 5.91	13 4 39.80	13 5 22.83	22.83
− 1 28.64	−1 28.64	−1 50.59	−1 28.69

17 Can Ven

13 5 19.428

450

0.4421
9.7394
0.1815 1.519
8.7151
0.7951
9.5102 324
8.9158
1.1925
0.1083 1.243
8.3826
1.0564
9.4390 1.275
3.40
22.83

43 Comae	20 Can Ven	γ Hydrae
13 5 38.58	13 11 30.27	13 11 53.40
13 7 7.20	13 12 58.91	13 13 22.06
−1 28.62	−1 28.64	−1 28.66

[Evidently no appreciable azimuth correction.
Level zero

28.64
64
69
62
64
66.
29
65

Frod 1327 slow 1^m $28^s.65$
at 13^h 5^m Sid Time

1897
April 28.3

LAD obs.

μ Urs maj
+42° 1

II l.2	III
	3.2
×	6.5
×	10.2
×	13.5
~~500~~ 550	16.4
~~32~~	
	498
	9.96
	24.84
	~~4~~5.12
10 16	14.67
−1	29.55
	00 mean
	00 level

31 Leon min
+37° 14

I	II	III
59.7	19.8	46.3
2.8	24.5	49.4
6.0	29.4	52.6
9.3	33.9	55.8
12.0	38.5	58.4
3298	1461	2625
5.96	29.22	52.50
23.29	05	23.18
29.25	29.27	29.32
		29.28
10	21	58.61
	−1	29.33
		00
		00

36 Urs maj.
+56° 30

for 80 maj
1st 2
1st Tack
46?
50.8
×
×
×

I	II
53.8	22.8
58.5	29.7
3.0	36.5
7.3	42.9
11.7	49.8
3143	1817
2.86	36.34
33.59	07
36.45	36.41
	36.43
10 24	5.90
−1	29.47
	00
	00

As in Ap 23
no evident
n correction
μ Urs maj −~~1~~ 29.55
& 31 Leon min −1 29.33
having mere
accidental
difference and mean 1 29.44

$-\overset{m}{1}$ 29.44
36 Ursa Maj 29.47 } $\overset{m}{1}$ 29.46

Frod 1327 slow $\overset{m}{1}$ $\overset{s}{2}9.46$

at 10^h 20^m Sid Time

April 30 - 1897

Prof S. Ass

(7146) δ Crat. −14°13	Gr 1771 +64°52	7171 α Virg. −10°37
11 12 36.6 58.3	11 15 2.0	13 18 11.7 33.1
40.5 07	10.6	15.6 35.7
44.3 3.4	19.5	19.4 38.2
48.2 6.0	28.2	23.0 40.6
51.9 8.5	37.5	26.8 43.1
221.5 31.69	97.8	96.5 190.7
44.30 3.38	19.56	19.30 38.14
~~19.1~~04 19.04	11 15 09	04 18.78
44.34 44.34	19.65	19.34 19.36
11 12 44.34		13 18 19.35
11 14 13.76	11 16 48.51	13 19 48.84
−1 29.42	−1 28.86	−1 29.49
+.29	−29	+.26
ov lamp	.ov	r
1 29.13	1 29.15	−1 29.23

+2.135
−0.2530
2.388).66(.24
4776
8240

913
2.135
1,222

36
18
15 } 16

Frod 1327 slow 1^{m} 29.16

at $11^{h}30^{m}$

Sid Time

May 4 1897

(7 146) δ Crat.
~~Gr 1777~~
−14° 13

11 12 36.6 0.9
40.5 3.4
44.4 5.9
48.0 8.3
52.0 10.4
22 15 28.9
44.30 5.78
~~19.04~~ 19.04
04
44 34 4 67 4
~~11 16 48.37~~
54
11 14 13.72

−1 29 38
+22
00
−1 29.16

Gr 1777
~~7146 δ Crat.~~
+64° 52

11 15 20
10.6
19.3
28.0
36.8
96.7
19.34
08
11 15 19 42

11 16 48.37

−1 28.95
−18
00
−1 29.13

~~57~~
2.39 4 3 / 48 [2m

Frod 1327 slow
1^m $29^s.15$
at $11^h\ 10^m$
Sid Time

May 6 - 1897

Prof S. obs

(7171)
α Virginis
−10° 37′

13 18

12.0	33.1
15.8	35.6
19.5	38.5
23.4	40.9
27.2	43.4
97.9	191.5
19.58	38.30
.04	18.78
19.62	19.52

13 19 48.85
13 18 19.57
— 1 29.28
+ .06
oo level
— 1 29.22

+4.787
−187
4.974

5 | .29
.05 =

4.787
9.3
4.87

4H Drac.
+78° 10′

12 5 24.7
43.5
6 1.5
19.0
37.5
306.2
12 6 1.24
.17
12 6 1.41

12 7 30.40
12 ~~10 23.85~~

− 1 28.99
− .24
oo level
− 1 29.23

Frod 1327 is slow

1^m 29.22

at 13^h 0

Sid Time

1897
May 11 13

J A D obs

2 Can Ven +41°15			ε Virginis +11°3			17 Can Ven +39°41			20 Can Ven +41°7	
									II	III
2.2	23.5	51.3	2.8	22.5	50.7	14.0	30.4	51.8	×	49.2
5.5	28.5	54.6	6.3	28.4	53.7	16.5	34.2	54.5	26.2	52.5
8.6	33.5	58.0	9.2	33.0	57.2	18.0	38.0	56.8	31.0	53.6
12.3	38.3	1.4	12.6	37.7	0.3	20.5	41.8	59.5	36.0	59.0
15.1	43.1	4.4	15.6	42.7	3.4	24.2	45.5	1.8	40.9	2.0
436	1669	2897	46.5	1643	2853	93.2	1899	2844	932	2783
8.72	33.38	57.94	9.30	32.86	57.06	18.64	37.98	56.88	31.07	55.66
24.66	05	24.55	24.10	05	23.99	18.89	04	18.82		24.50
33.38	33.43	33.39	33.40	32.91	33.07	37.53	38.02	38.06		31.16

33.40
1.21
12 11
−1 27.81

33.09

261
87
37.87
12 57 5.88
−1 28.01

31.11
13 12 58.83
−1 27.72

level = 0

Frod 13.27 is slow $1^m\ 27.^s80$

at $12^h\ 0^m$
Sid Time

1897
May 17

Current too weak for use

ε Ursa Maj
+56°31

I	II
21.8	51.1
26.1	57.7
31.0	4.4
35.3	11.2
39.7	17.9
153.9	32.23
30.78	4.46
33.59	.07
4.37	4.53

4.45
12 49 33.71
−1 29.26
[illegible]
[illegible]

12 Can Ven seq.
+38°52

16.4	37.1	3.9
19.6	41.6	7.2
22.7	46.5	10.4
26.0	51.2	13.5
29.2	56.0	16.5
113.9	232.4	51.5
22.78	46.48	10.30
23.82	05	23.71
46.60	46.53	46.59

46.57
12 51 15.81
−1 29.24

Frod 1327 is slow 1 $29.^{s}25$
at 13^{h} of Sid Time

Prof S. obs

May 19 1897 (7186)

μ Virg

-5° 12

14 36		14 49
50	258	104
83	28.3	24.3
125	31.0	38.1
16.1	336	52.0
19.7	36.0	6.7
618	1547	
12.36	30.94	
04	18.54	
12.40	12.40	

14 36 12.40
14 37 41.03
-1 28.63
+.34
00 = level

α Librae

(7188) -15° 36

14 ~~48~~ 43	
375	592
415	1.8
453	4.3
49.2	7.0
53.0	94
2265	3217
45.30	4.34
04	19.16
45.34	45.18

14 43 45.26
14 45 14.02
-1 28.76
+.41
.00

β Ursae Min

+74 33

14 49
104
24.3
38.1
52.0
6.7
19.15
38.30
13
38.43

14 49 38.43
14 50 65.87
-1 27.44
- ~~.44~~ .92
.00

+3.618
-279
+3.897 | 1.32 L.34 = m
11691
15090

3.618
913
2.7

-1 28.29

-1 28.35

-1 28.36

-1 28.34

Frod. 1327 slow 1m 28.34
at 14h 30m Sid Time

1897
May 22

7186	α Librae	κ Drac
μ Virg.	(7188)	+70° 26
−5° 12	−15° 36	
14 36	14 43 39.1 0.9	12h 27
6.5 27.6	43.0 3.5	21.5
10.3 30.0	47.0 6.0	32.7
14.0 32.5	50.8 8.8	43.6
17.6 35.0	54.5 11.0	54.4
21.5 37.3	2344 302	57
699 1624	46.88 6.04	2179
13.98 .32.48	04 19.16	43.58
04 18.34	46.92 46.88	10
14.02 13.94		12 27 43.69
14 36 13.98	14 43 46.90	12 29 9.98
14 37 41.03	14 45 14.03	−1 26.29
−1 27.05	−1 27.13	−.51
+.27 n corr	+ 32	
00 [illegible]	00	00
−1 26.78	−1 26.81	−1 26.80

2.811
.913
1.898

2.811
−279
3.090) .84 (27 = n
618
2220

Frod 1327 is slow

$\overline{1}$ $26^s.80$

at 13h 00m Sid Time

Prof s Am

1897
May 29.4

7186	7188	κ Drac
μ Virg	α Librae	
−5° 12	−15° 36	+70° 26
14 36 ~~9~~	14 43	12 27
10.3 31.2	43.0 4.7	24.8
14.0 33.8	46.8 7.3	36.3
17.9 36.2	50.6 10.0	46.9
21.4 38.7	54.5 12.5	57.7
25.1 41.2	58.4 15.0	8.8
88.7 181.1	253.3 49.5	234.5
17.74 36.22	50.66 9.90	46.90
.04 18.34	.04 19.16	.11
17.78 17.68	50.70 50.74	12 27 47.01
14 36 17.73	14 43 50.72	12 29 9.66
14 37 41.06	14 45 14.06	−1 22.65
−1 23.33	−1 23.34	− .41
+ .22	+ .26	.00
.00 = level	.00	
−1 23.11	−1 23.08	−1 23.06

3.09) .70 (.23
.62
.80

2.81
.91
1.90

1 23.07

Frod 1327 slow 1^m 23.07

at 13^h 0^m sid time

1897

May 31.5

[η Serpentis]			ε Coronae		[G 2296]			β Scorpii		
+ 15° 60′			+ 27° 10		+ 55° 2′			− 19° 31		
15 49			15 51		15 53					
58.5	15.0	36.9	34.1	52.0	20.3	49.1	26.0	43.2	0.0 58	22.5
1.0	19.0	39.6	36.8	56.4	24.7	53.8	30.1	45.8	4.2	24.1
3.6	22.8	42.0	39.6	0.5	30.0	2.4	34.5	48.5	8.0	26.8
6.1	26.6	44.7	42.5	4.6	34.4	8.7	39.0	51.1	12.0	30.5
8.8	30.5	47.1	45.3	8.8	38.4	15.0	43.0	53.8	15.8	33.6
3180	1139	2103	1983	3023	1478	3110	1726	2424	400	1375
3.60	22.78	42.06	39.66	0.46	29.56	2.20	34.52	48.48	8.00	27.50
19.30	04	19.21	20.84	~~22.57~~ 04	32.34	.05	32.19	19.68	04	19.59
22.90	22.82	22.85	0.50	0.50	~~44.34~~	~~333~~	2.33	8.16	8.04	7.91
					1.90	2.25				

η Serpentis
−18
15 51 41.672

0.4390 0.2681 +1.811
9.8191
8.0065 +.054
0.7281 n 8.7346

8.5662 n 9.3648 +.232
0.7986 n

8.7691 n 0.0538 1.131
1.2847 n 3.228
15 51 44.90

15 50 22.86

15 51 44.90

−1 22.04
on lond
+13
−1 21.91

+1.43
−3 4
1.79 22.01

α 15 53 22.57
D 15 52 0.50
−1 22.07
+ .08
−1 21.99

15 54 2.16
15 55 22.37
−1 20.21
omitted

15 58 8.03

15 59 30.43
−1 22.40
+ .25
−1 22.15

−1 22.00

G 2296
471
15 53 20.587

0.1573 9.9764 +.947
9.8191

8.6932 9.4213 +.264
0.7281 n

8.7797 9.5783 +.379
0.7986 n

8.9981 +.192
1.2847 n 0.2828
+1.782
15 55 22.37

Frod. 1327 is slow

$\bar{1}$ 22.00

at 16 00

sid time

Prof S. hr.

June 2 1897

7188 α Librae		β Librae 7193		4 Urs Min +78° 1	
−15 36		−9° 0			
14 43		15 10		14^h 9^m	
45.5	7.2	2.7	23.8	5.8	
49.4	9.8	6.5	26.5	18.3	0.6821
53.3	12.4	10.2	28.6	30.4	1.2662
57.0	15.0	14.0	31.5	42.6	1.9483
1.0	17.5	17.7	33.8	53.7	
266.2	61.9	51.1	144.4	150.8	
53.24	12.38	10.22	28.88	30.16	
04	19.16	04	18.9	88.68	
53.28	53.22	10.26	10.19	1.48	

14	43	53.25	15	10	10.22	14	8	1.48
14	45	14.06	15	11	31.14	14	9	20.90
	−1	20.81		−1	20.92		−1	19.42
		+.36			+.32			−1.13
		or level			.00			.00
	−1	20.45		−1	20.60		−1	20.55

+4.705
−.279
4984

5)1.4
.28

1 20.53

4.705
9.3
3.79

Frod 1327 is slow
1^m 20.50^s
at 14^h 30^m
Sid Time

[illegible]

~~June~~
June 3, 1897

Level

D
0 30
M.T.

Tel. S — Screw West

(1183 [illegible])

	W	E
	26.5	19.5 repeated
Screw E	− ~~+2.0~~ 5.0	− ~~13.0~~ 5.0
Screw W	+74.5	+67.5
Screw E	−5.0	−12.0
Screw W	+53.2	+46.2
Screw E	−4.7	−11.7
Screw W	+53.8	+46.5
Screw E	−6.5	−13.7
Screw W	+41.0	+34.0

−17.0 +142.0
−17.0 + 99.4
−16.4 +100.3
−20.2 + 75.0
−70.6 +416.7
−70.6
16) 346.1 (21.62 d
West high

Tel. N.

	W	E
Screw W	+102.8	+95.4
" E	−65.0	−72.5
" ~~W~~	~~80.5~~	~~73.5~~
W	+88.0	+81.0
" E	−72.0	−79.0
" W	+103.0	+96.0
" E	−88.0	−95.0

−137.5 +198.2
−151.0 +169.0
−183.0 +199.0
~~−842.1~~ ~~+982.9~~
−471.5 +566.2
−471.5
12) 94.7 (7.89 d
West high

W 762.5 78 6/8 25
E 762.5
~~+4 0.0~~
28
000

Tel S 21.62 d West high
Tel N 7.89 "
2) 29.51
14.75
.06
.883 = b

Level correction = 0.001.35
1.19 = b sec φ
West axis high

W E

+127.7 +113.7
+94.8 +80.5
+222.5 +194.2

−10.0 −24.0
−11.2 −25.4
−21.2 −49.4
+222.5 +194.2
16) +201.3 +144.8 (12.58 +9.05
16 144
41 8
32
93
80
130

~~19~~0.8 +272.4
103.0 −246.5
+293.8 +25.9
−225.0
12) +68.8
60
88
84
40

W E
L 5.73 2.14

W
19

Re-reduced
Feb 6 - 1901

Observation unreliable

Prof's dec

June 11,
1897

7181
κ Virg.
−9° 47

14 6 3.0 24.0
6.8 26.6
10.5 29.3
14.2 31.7
18.0 34.0
525 14.56
10.50 29.12
04 18.74
10.54 10.38
14 6 10.44
14 7 27.11
− 1 16.67
+.33
ov level
− 1 16.34

+4.705
− 1727
4.877

4.88) 1.41 (.29
976
4340

m = ?

4 Urs Min
+78° 1

14 9 9.8
21.5
34.1
45.3
57.2
16 79
33.58
17
3375
8 4.97
14 ~~9 33.75~~
14 9 20.23
− 1 15.26
− 1.14
ov level
− 1 16.40

1.2662
0.6821
1.9483
8878
1 28.78
9 33.75
8 4.97

4.705
913
3.792

1.137

Frod 1327 slow

$\bar{1}$ 16.37 at 14h 0 Sid Time

JAD Bsr.

1897

June 14.5

	x Herculis		β Drac		α Ophiuchi		
	+48° 21		+52° 22		+12° 38		
17 22	13.4	37.0	41.8	16.4	33.2	49.6	11.0
	16.9	42.6	47.8	20.4	35.8	53.5	13.7
	20.3	48.4	26 54.0	24.5	38.5	57.1	16.0
	24.1 27.8	53.7	27.8 59.8	28.5	40.8	1.0	18.5
		59.5	31.9 58	32.2	43.2	4.6	21.1
	10 25	24 12	26 92	12 20	19 15	28 58	8 03
481	20.50	48.24	53.84	24.40	38.30	57.16	16.06
17 24 0.33	27.89	~~27.84~~ 05	.06	-30.21	19.00	.04	18.91
	48.39	48.29	53.90	54.19	57.30	57.20	57.15

57.22

0.2010
9.8524
0.0534 +1.131

8.0690
0.7110 +.0602
8.7800

8.1956
0.3095 +.0322
8.5051

8.9960
1.3080 +2.014
0.3040
+3.237

17 24 3.57

17 22 48.34 — 17 26 54.04

17 24 3.57 — 17 28 9.58 — 17 30 12.54

-1 15.23 — -1 15.54 — -1 15.32

ovlnd — oo bnd — oo lmd

-.06 — -.12 — +33

-1 15.29 — 1 15.66 — -1 14.99

~~15~~ ; ~~4~~

Observed through clouds

+66 × 2 = +132
+29 × 2 +58
-1 × 1 = -1
5 189
38

Frod 1329 is slow

1m 15.40s

at 17h 20m

Sid Time

June 18
1897

	7186 μ Virg −5 12	7188 α Libræ −15 36	β Ursæ Min +74 34
	14 36 20 21.0 42.0	14 43 53.6 15.5	14 49 25.0
	4.0		
	6.3 24.7 44.4	57.5 17.8	39.5
	8.4 28.8 46.9	1.4 20.6	53.0
	10.4 32.0 49.4	5.2 23.4	7.0
	36.0 51.7	9.0 25.6	20.6
	142.2 234.4	306.7 102.9	265.1
	28.44 46.88	1.34 20.58	53.02
	04 18.54	04 19.18	− 13
	28.48 28.34	1.38 1.40	14 9 53.15
3.63 91 2.72	14 36 28.41	14 44 1.39	14 49 53.15
	14 37 41.02	14 45 14.04	14 50 64.61
	−1 12.61	−1 12.65	−1 11.46
33	+ .33	+ .40	− 91
3.65 2.72 1.2 .44 10.98 +020 10.95 10.50	ov level	ov	ov
	−1 12.28	−1 12.25	−12 37

3.63
0.2
3.65

21
37

30

Frod 1327 slow
$\overline{1}$ 12.$\overset{5}{3}$0
at $14^h.40^m$
Sid Time

J A Dobson

June
22
1897

β Lyrae			σ Sagittarii		o Drac	
+33°14			−26°26		+59°15	
18 44			18 47		18 48	
42.0	0.8	26.2	205	385	19.8	08
45.0	5.5	29.3	235	427	27.2	5.8
48.0	10.0	32.0	26.2	47.0	34.3	105
50.8	14.4	35.2	288	51.0	41.5	155
53.6	188	37.8	318	55.4	488	19.8
2394	495	1605	1308	2346	1716	524
47.88	9.90	32.10	26.16	46.92	34.32	10.48
22.17	04	22.07	20.53	04	07	36.10
10.05	9.94	10.03	46.69	46.96	34.39	34.38

+1.68
−.50
2.18

2.18) 5.41 (2.5 = m
4 36
1 040

+.913
−.50
1.41

18 45 10.00	18 47 46.82	18 48 34.38
18 46 19.83	18 48 57.00	18 49 44.02
−1 9.83	−1 10.18	−1 9.64
+06	+35	−19
00 level	00	00
−1 9.89	−1 9.83	−1 ~~9.45~~ 9.83

Frod 1327 slow
1 9.85
at 18 40
Sid Time

~~Rest~~
Prof. S. Time

June 26, 1897

19 Urs. Min
+76 7

16 12 13

12.8
27.6
43.4
58.4
14.6

2168
43.36
.15

16 12 43.51

16 13 49.46

−1 5.95

+ 1.25 to level

−1 7.20

ν Ophiuchi
−9 46

17 52 9.9 31.4
13.8 33.9
17.5 36.5
21.2 38.9
25.1 41.2

87.5 181.9
17.50 36.38
04 18.73

17.54 17.65

17 52 17.59
17 53 25.20

−1 7.61
+.44
00

−1 7.17

+4.041
−.173
4.214

4.2) 1.66 (.4=m
1.68

+4.041
913
3.128

.125

+913
.173
1.086

Ford 1327 is slow
1m 7.20s
at 17h 0m
sid Time

Prof S. [illegible]

June 30
1897

ω Drac.

~~+68~~ 47

17 3~~6~~7 9.6
16.5
23.5
30.3
37.6

117.5
23.50
51.05
~~20.32~~

17 37 3.18

17 36 32.45
17 37 36.72

−1 4.27
−.60
.00 level

−1 4.87

0.4417
1.2662
1.7079

2.75) .95 (35
8 25
1 250

2.578
−173
2.751

2.578
913
1,665

+.913
−173
1,086

7228 (ν Ophiuchi)

−9 48

17 52 12.5 33.6
16.2 36.3
20.0 39.0
23.7 41.4
27.5 43.5

99.9 193.8
19.98 38.76
~~04~~ 18.73
20.02 20.03

17 52 20.02
17 53 25.24

−1 5.22
+.38
00

−1 4.84

Frod 1327 is slow
1^m 4.85^s
at $17^h\ 40^m$
Sid Time

Prof. S. hr

July 4 1897

A Drac
+68° 58'

16 26 51.8
27 25
12.6
23.2
33.3

3634
1 2.68
10

12.78

+2.6
−.18
2.78

16 27 12.78
16 28 14.20

−1 1.42
− .85
w level

2.8) 1.4 (.5ᵐ

−1 2.27

ζ Ophiuchi
−10° 21'

16 30 22.6 43.8
26.2 46.3
30.0 48.8
33.8 51.4
37.8 53.8

150.1 244.1
30.02 48.82
.04 18.76

30.06 30.06

16 30 30.06
16 31 32.87

−1 2.81
+ 53
w level

−1 2.26

2.6
.9
1.7

Frod 1327 is slow

$\widetilde{\lambda}$ $2^{s}.26$
at $16^{h}\ 30^{m}$
Sid Time

Corr s. tm

1897
July 7

A Drac. +68°58	ζ Ophiuchi −10°21
16 26 53.2	16 30 24.0 45.1
3.8	27.6 47.8
14.0	31.5 50.1
24.0	35.2 52.6
34.5	38.8 55.0
369.5	157.1 250.6
13.90	31.42 50.12
.10	.04 18.76
14.00	31.46 31.36
16 27 14.00	16 30 31.41
16 28 14.09	16 31 32.87
−1 0.09	−1 1.46
−.85	+55
00 level	00
−1 0.94	−1 0.91

28) 1.37 (.5 hm

Frod 1327 is slow

$\bar{1}$ 0.92

at 16h 35 sid time

Prof S bn

1897
July 9

η Ophiuchi		ζ Drac.
−15° 35′		+65° 50′
17 3		17 7
24.1	45.8	14.8
28.0	48.4	24.2
31.7	51.0	33.0
35.6	53.7	41.9
39.5	56.0	51.0
1589	2549	1649
31.78	50.98	32.98
.04	19.16	09
31.82	31.82	17 7 33.07

17 3 31.82	17 7 33.07
17 4 32.13	17 8 32.48
−1 0.31	−0 59.41
+43	−48
00 bnd	00
−0 59 88	−0 59.89

+2.23
−28
2.51

2.5) 0.91(.36
75
150

m-4

2.23
.91
1.32

Frod 1327 is slow
$\overset{m}{0}$ $\overset{s}{59}.88$
at 17^h $\overset{m}{0}$
Sid Time

1897
July 11

Prof S

(M 703)
7227
17 49 51.453

0.5474
9.9085 0.4559 2.857

7.0185
0.7057m 7.7242m -.00530

7.5107m
0.7953 8.3060m -.0202

8.8472m
1.2851m 0.1323 1.355
4.212
026
4.186
17 49 53.64

+72° 11
ψ Drac Austr.

17 42 27.3
39.5
51.6
37
15.8
257.9
51.58
.12
17 42 51.70
17 43 49.36
− 0 57.66

+ 3.11
− 34
3.45

∫ 1,10 / ,030 / 700 L.3 = m

3.11
41
2.20

−18° 47′
(7227)
M 703 (NACHRichten)

17 48 49.0 11.1
53.0 13.7
57.0 16.5
0.8 19.2
4.5 21.3
284.3 81.8
56.86 16.36
04 19.50
56.90 56.86

17 48 56.88
17 49 53.64
− 0 57.76

−.70
00 level
− 0 58.36

+.40
.00
0 58.36

Frod 1327 is slow

0^m $58^s.36$

at 17^h 40^m

Sid Time

July 16
1897

ε Lyrae +39 34 I	II	5 Lyrae +39°30 III	β Lyrae +33°14 I	II	III	σ Saggittarii −26°25 I	II	ο Draconis +59°66 II	III
34.1	54.8	24.3	18 44 57.5	16.9	41.8	36.4	54.1	35.0	16.3
37.2	59.6	27.8	0.5	21.2	44.8	39.0	58.3	42.7	21.0
40.5	4.5	31.0	3.4	25.5	47.5	41.7	2.5	50.0	26.1
43.6	9.3	34.0	6.5	29.8	50.7	44.6	6.5	57.5	31.0
46.9	14.1	37.1	9.5	34.2	53.4	47.4	10.6	4.5	35.5
2023	3223	1542	174	1276	2382	2091	3120	2497	1299
4043	4.46	30.84	3.48	25.52	47.64	41.82	2.40	49.94	25.98
24.06	.04	23.92	22.17	.04	22.06	20.70	.04	.07	36.14
4.49	4.50	6.92	25.65	25.56	25.58	2.52	2.36	50.01	49.84
4.50		6.92	18 45 25.60				2.44		49.92
			18 46 19.98			18 48 57.31		~~18 44 57.31~~ 18 49 44.07	
			−0 54.38			−0 54.87		−0 54.15	
			+ 08			+ .46		−.26	
			level = 00			00		00	
			−0 54 30			−0 54.41		−0 54.41	

+ 1.68
− 50
2.18) .72 L .33 = m
66
60

m = .33

r 913
− 50
1.41

11 2
37

Frod 1327 is slow
0 54.37
at 18h 40m
Sid. Time

Prof. S. [illegible]

1897
July 30

Chi Drac
+72°41

18 21 55.2
7.6
19.8
32.5
44.9
40.00
20.00
.12
18 21 20.12

18 22 57.53
−0 37.41
−.69
.00
−0 38.10

+3.2
−0.9

3.3).9 (.3=m

+3.2
.9
2.3

λ Aquilae (7240)
−5° 2'

19 0 5.2 26.4
9.0 28.8
12.7 31.0
16.4 33.5
20.2 36.0
.635 155.7
12.70 31.14
04 18.54
12.74 12.60

19 0 12.67
19 0 50.97
−0 38.30
+.30
on level
−0 38.00

Frod 1327 is slow

0 38.00

at 19h 00

Sid Time

Prof. Stone

1897
Aug 1.

(7260)
λ Aquilae
−5° 2′

19 0 7.8 28.5
11.5 31.2
15.0 33.6
18.9 36.0
22.5 38.5
75.7 167.8
15.14 33.56
04 18.34
15.18 15.02

+2.414
−088
2.502

19 0 15.10
19 0 50.97
− 0 35.87
+.35
.00
− 0 ~~36.22~~
35.52

2.5) .87 (.35=m
75
120

δ Drac.
+67° 28

19 11 40.5
50.0
59.6
9.5
19.2
298.8
59.76
.10
59.86

11 11 59.86
19 12 34.86
0 35.00
.53
00 lost
− 0 35.53

2.41
91
1.50

Frod 1327 is slow
$\overset{m}{0}$ $\overset{s}{35.52}$
slow
at 19^h $\overset{m}{0}$
Sid Time

1897
Aug 5.5

θ Cephei	β Delphini	α Cygni	ε Cygni
+62°38'	+14°13'	+44°54'	+33°34'
20^h 26	20^h 31	20 36	20 41
48.6 77 53.4	51.8 8.0 29.7	54.0 17.4 47.0	6.3 26.3 51.3
54.3 16.2 58.8	54.0 11.7 32.3	58.0 22.6 50.4	9.7 30.7 54.5
× 4.2	56.4 15.7 34.8	1.5 27.5 53.7	12.8 35.3 57.5
31.5 9.5	59.0 19.6 37.4	5.2 32.7 57.4	15.7 39.5 0.5
39.8 14.6	1.8 23.4 39.9	8.5 37.9 0.7	18.7 44.0 3.2
95.2 32.05	283.0 78.4 174.1	307.2 198.1 269.2	63.2 175.8 287.0
~~31.73~~ 4.10	566.0 15.68 348.2	1.44 27.62 53.84	12.64 35.16 57.40
23.80 08 40.11	19.13 .04 19.04	26.18 .03 26.06	22.26 .04 22.16
~~31.81~~ 23.99 23.88	15.73 15.72 15.78	27.62 27.67 27.78	34.90 35.20 35.24
20 27 23.93	20 32 15.73	20 37 27.79	20 41 35.09
20 27 54.51	20 32 46.90	20 37 58.68	20 42 6.19
− 0 30.58	− 0 31.17	− 0 30.89	− 0 31.10
−.36	+.24	−.04	+.04
~~00.bad~~	.00	.00	00
− 0 30.94	30.93	−0 30.93	−0 31.01

0.337
1.2667
1.6032
40.11

1.93
25
1.68

).6).36 in
336
264
168
960

1.93
91
101

0 30.95

Frod 1327 is slow
0^m $30^s.95$
at 20^h 30^m
Sid Time

JADobson

1897
Aug 12.

o' sq. Cygni
+46° 25'

20 9 × 34.0 4.5
× 39.6 8.2
18.1 44.8 12.2
21.5 50.3 15.5
25.0 53.6 19.0
22 4 3 5 9 4
44.86 11.88
.05 26.7 7
44.91 47.1 1

20 9 45.01
20 10 26.63
− 0 41.62

24 Vulpec
+24° 21

20 11 38.1 55.7 18.7
41.0 59.9 21.5
43.6 4.0 24.2
46.4 8.1 26.8
49.0 12.0 28.6
21 8 1 31 9 7 11 9 8
43.62 3.94 23.96
20.36 .04 20.27
3.98 3.98 3.69

20 12 3.88 T
20 12 26.25 α
− 0 22.37

* x Cephei
+77° 24'

20 13 28.9
40.8 } last 3 α
50.5

120.2
40.06

20 12 24.42 T α

β Capricorni
−15° 7'

20 14 31.1 47.9 9.6
33.7 51.7 12.0
36.3 55.5 14.5
38.9 59.4 17.2
41.5 3.3 19.7
181 5 277 8 73 0
36.30 55.56 14.60
19.21 .04 19.12
55.51 55.60 55.48

20 14 55.53 T

γ Cygni
+39° 55

20 17 42.2 3.5 30.8
45.7 8.2 33.9
49.0 13.0 37.2
52.3 18.0 40.5
55.5 22.7 43.5
244 7 65 4 185 9
48.94 13.08 37.18
24.17 .05 24.06
13.11 13.13 13.12

20 18 13.13
20 18 35.35
− 0 22.22

Frod 1327 is slow
$0^m\ 22^s.30$
at $20^h\ 10^m$ Sid Time

JAD

1897
Aug 16. 3

ζ Aquilae
+13° 42
I II
x
x
19 0 7.4(3) 18.7
9.9(4) 22.6
12.4(5) 26.5
30.2
34.0
1320
26.40
54
19 0 26.44
19 0 44.10
− 0 17.66
+.10
.00
− 0 17.56

λ Aquilae
−5° 2
lost 2
x
x
19 0 x
54.2
56.6
~~57~~55.40
2.214
1.3452
0.0017
1.3469
2222
19 0 33.18
19 0 50.92
− 0 17.74
+.15
.00
θ Cygni 0 17.59
+37° 56

[ι Cygni]
+35° 56
19 2 54.1 14.1 40.0
57.4 18.5 43.1
0.4 23.2 46.0
3.5 27.8 49.1
6.3 32.2 52.0
30 17 11 58 23 02
0.34 23.16 46.04
22.89 .04 22.78
23.23 23.20 23.26
19 3 23.23
19 3 ~~34.42~~ ~~40.81~~ Amalon
− 0 17.58
+.03
.00
− 0 17.55

κ Cygni
+53° 10'

δ Drac
+67° 28'
lost early

+2.41
−09
2.50).4(.15
25
150

19 11
15.9
22.5
29.0
35.5
42.3
1452
29.04

17.56
.59
55
59
40
.39
308
17.51

2.4
9
1.5

0.4153
1.2662
1.6815

48.02
17.06
19 12 ~~41.02~~
19 12 34.42
− 0 17.36
−.23
.00
− 0 17.59

19 12 3.6 23.8 50.2
6.7 28.6 53.5
9.6 33.3 56.6
12.9 38.0 0.0
15.9 42.6 2.8
487 1663 2831
9.74 33.26 56.62
23.51 .04 23.40
33.25 33.30 33.22

19 12 33.26
19 12 50.68
− 0 17.42
+.02
.00
− 0 17.40

19 13 49.7 16.5 51.5
54.0 23.1 55.5
58.0 ~~28.6~~ 29.0 59
2.2 ~~33.3~~ 35.0 4.0
6.3 ~~38.0~~ 41.3 8.0
29 02 1449 2984
58.04 28.98 59.68
30.94 .05 30.79
28.98 29.03 28.89

19 14 28.96
19 14 46.29
− 0 17.33
−.06
.00
− 0 17.39

Frod. 327 slow 0m 17.50 at 19h 0m Sid Time

1897
Aug 21,4

Defective chronograph:

β Cap.

−15° 7

I	II	
x	585	
x	24	
x	63	
495	100	1.87
521	x	0.2718
50.8	4.30	0.0153
15.37	1.94	0.2871
6.17	6.24	19.36

14.835
1.1714
0.0153
1.1867
15.37

608

20 15 13.468

0.5279
9.9720
0.4999 3.162

8.0005n
0.7382n
8.7387 .055

8.5845
1.2087
9.7932 .620

8.7588n
1.0154n
9.7742 .594
20 15 17.899

6.20

20 15 1790
− 11.70
+ 18
[illegible]
−0 11.52

γ Cygni

+39° 53

I

1st 2 taps 632] 565]

54.85
~~7.18~~
~~24.00~~
~~47.67~~
23.85
20 18 35.30
~~4.76~~ 3

~~Record illegible~~:

− 0 11.45
+ 01
.00
− 0 11.44

11.03	22.25
55 13	
0.7413	1.3474
0.1151	0.1151
0.8564	1.4625
7.185	29.00

Frod 1327 is slow

$\bar{0}$ 11^s.45
at 20^h 15^m
Sid Time

1897

Aug 26.3

β Lyrae
+33° 14'

γ Lyrae
~~+32° 33~~

72	325
120	355
165	386
209	41.6
255	44.5
821	1927
16.42	38.54
.04	22.07
16.46	16.47
	16.46
18 46	19.64
	3.18

Record confused by chronograph regarding ~~identification~~ of seconds during obs. of β Lyrae

1.68
64
1.04

.5 0 (5

o Drac
+59° 15

R Lyrae

I	II
50.0	21.5
55.2	288
00	361
5.0	43.3
9.8	507
3000	1804
0.00	36.08
36.27	.07
36. 27	36.15
	36.21
18 49	43.20
−0	6.99
	−.38
	.00
	7.37

R Lyrae
+43° 48'

o Drac
~~+58° 51~~

18 51

35.0	57.0	264
38.7	2.5	297
419	7.7	334
455	12.7	366
488	17.6	399
2099	33.75	1660
4198	7.50	3320
		2558
2569	.05	
7.67	7.55	7.62

18 52 7.61
18 52 1586

−0 7.25
+ .01
00

−0 7.24

JAD obs.

γ Lyrae
+32 33

β Lyrae
~~+33° 14~~

18 54

33.0	52.1	17.0
36.0	56.6	200
39.0	08	229
420	5.3	259
449	9.8	287
1949	3046	1145
38.98	092	22.90
22.00	.04	21.90
0.98	0.96	1.00

18 55 0.98
18 55 8.48

− 0 7.50
+ 15
00 bad

− 0 7.35

37
24
35
96
32

7 rod 1327 is slow $\overline{0}$ $7^{s}.30$
at 18^{h} 45
Sidereal Time

1897

Aug. 29.5

31 Pegasi +11° 40

22 16 2.1 18.5 39.9
48 22.4 42.5
7.3 26.3 44.9
9.7 29.8 47.5
12.1 33.7 49.0
360 1307 2238
7.20 26.14 44.76
18.93 .04 18.85
26.13 26.18 25.91
22 16 26.07

22 16 29.890
−0 3 .82
− .52
.00
−0 4.34

523
22 16 26.846

0.4701
9.9803
0.4504 + 2.821

8.0936
0.7563n
8.8499n −.071

8.7871
1.2380
0.0251 +1.059

8.4731
0.8978n
9.3709 +.235
+4.115
−.071
+3.044
22 16 26.846
22 16 29.890

1.266 ~~8~~
.207
1.06)8 L.75
742
580

3 Lacertae +51° 42

22 18 51.6 17.5 51.6
53.6 23.8 53.6
59.8 29.8 59.7
3.8 35.6 3.7
7.8 41.7 7.3
2986 1484 2979
59.72 29.68 59.58
29.92 .06 29.79
29.64 29.74 29.79

22 19 29.72
22 19 34.36
−0 4.64
+ .26
.00
−0 4.38

34
38
50
12 2
41

7 Lacertae +49° 44

22 26 25.6 50.4 23.0
29.5 56.3 26.9
33.4 1.8 30.6
37.1 7.7 34.5
40.6 13.5 38.0
1662 3097 1530
33.24 1.94 30.60
28.67 .06 28.54
1.91 2.00 2.06

22 27 1.99
22 27 6.71
−0 4.72
+ .22
.00
−0 4.50

Frod. 1327 slow

$0^m\ 4^s.40$

at $22^h\ 20^m$

Sid Time

August 31 - 1897

Collimation 2d obs.

Note: Collimation is generally recorded in the Meridian circle zone observation books (Marked on back M)

4^h 0
MT

89.2
87.5 Set. on N. end.
86.0 346
86.4 8692
85.5 Set at 86.9

Tel. on S. end

Mic. found at 32.162

31.692
692
684 428 31.6856
685
675

Tel. on N. end.

32.619
617
625 106 32.6212
620 43068
625 32.1534

Lines of reticule well adjusted to motion of telescope

012

Set at 32.165

J A D obs

1897
Sept 2.5

ζ Capricorni	8 Cygni	β Cephei	74 Cygni
−22°52	+46°4'	+70°6'	+39°56'
21h 20m	21 25	21 ~~27~~ 27	21 32
24.0 41.2 4.0	5.8 28.7 59.0	~~44~~ 59.0	19.5 40.5 7.9
26.7 45.4 6.8	9.4 34.3 2.8	X 6.5	22.8 45.4 11.0
29.3 49.5 9.4	12.8 39.6 6.5	8.4 13.6	25.8 50.4 14.3
31.9 53.5 12.1	16.6 45.0 9.8	19.2 21.0	29.2 55.0 17.5
34.7 57.5 14.7	20.1 50.4 13.5	30.1 40.9 28.1	32.4 59.8 20.4
1466 2471 470	647 1980 3316	577 3682	1297 2511 711
29.32 49.42 9.40	129.4 39.60 66.32	19.23 13.64	25.94 50.22 14.22
20.14 .04 20.04	26.74 .05 26.62	54.23	24.18 .05 24.07
49.46 49.46 49.36	39.68 39.65 39.70	19.41	50.12 50.27 50.15
1.26	1.75	3.67	1.63
21 20 49.43	21 25 39.68	21 27 19.34	21 32 50.18
50.69	41.43	22.01	51.81
21 20 51.96	21 25 42.38	21 27 23.42	21 32 52.86
−0 ~~2.53~~ 1.27	−0 ~~2.70~~ 0.95	1.41 −0 ~~4.08~~	1.05 −0 ~~2.68~~
− .65 .13	+ .05 + .04	+.18 +.92	−.01 − .04
.00 level	.00	.00	.00
~~−0 3.18~~	~~−0 2.65~~	~~−0 3.16~~	~~−0 2.72~~
~~1.26~~ −0 1.40	~~1.75~~ −0 0.94	−0 1.23	−0 1.06

1.2662
0.4680
1.7342
54.23

9 Cygni

21 25 38.823

513

0.3437
9.9839 +2.126
0.3276
8.7334
0.7476m −.303
9.4810m

8.8758
1.2491 +1.334
0.1249
8.7778m
0.8205m +.397
9.5983 +3.857
303
3.554
21 25 42.377

+2.76
−0.42
3.18

4.08
2.53 3.6
1.55 1.49
1.22 .1
2.80

2.76
0.91
1.85

−1.40
94
1.23
1.06
4.63
1.16

~~Used 9 Cygn & 74 Cygn~~

Z

Frod 1327 is slow

0m ~~2.70~~ 2.5s 1.16 corr. for collimation

at 21h 30m

Sid Time

JAD obs.

1897

Sept 5.5

o Andromedae	β Pegasi	α Pegasi	c² Aquarii	π Cephei
+41°45	+27°30	+14 38'	−21 45'	+74 49
22 56	22 58	22 59	23 3	23h 4
440 5.5 336	249 430 6.8	566	37.3 543 17.3	54.7 33.0
475 10.5 369	279 475 9.7	59.3	400 587 19.8	87 42.2
506 15.5 40.3	307 51.5 124	1.8	42.6 2.8 22.5	lost 51.5
540 204 438	335 × 153	4.4	45.3 6.6 25.2	2 0.6
573 255 46.8	36.0 × 18.0	6.8	48.0 10.5 27.8	II 10.0

1.2662
1.5820
1.8484
70.53

2534 774 2014
50.68 15.48 40.28
24.86 .05 24.74
15.54 15.53 15.54
1.68
22 57 15.54
17.22
22 57 14.89
+0 2.33
~~+0 0.65~~
± .02 0
on level.
~~+0 0.63~~
+0 2.33

1530 62.2
3060 12.44
2090 20.81
51.50 51.63
1.41
22 58 51.56
52.97
22 58 50.85
+ 2.12
~~+0 0.71~~
~~− .23~~
+ .11
∞
~~+0 0.48~~
± 0 2.23

3089
1.78
19.07
1.29
22 59 42.71
44.00
22 59 41.87
+ 2.13
~~+0 0.84~~
~~− .39~~
+ .18
∞
+0 0.45
+0 2.31

2132 3129 1126
4264 2.58 2252
19.96 .04 19.87
2.60 2.62 2.65
1.35
23 4 2.62
3.97
23 3 61.93
+ 2.04
~~+0 0.69~~
+ .75
.35
∞
− 0.06
+ 2.39

25.73
51.46
70.53
4.97
23 4 40.93
45.70
23 4 42.56
+0 3.14
~~+0 1.63~~
~~± 1.60~~
− .35
− .05
~~− 0.03~~
+0 2.37

+ .69
− 1.63
3.68
.91
2.77
2.32 | 1.84
2216
1040
1108

63
68
45
3|176
52

2.33
23
31
39
39
165
2.33

3.68
+3.68
−.40
4.08

3.14
2.04
+.69 1.10
−1.63
2.32 | 1.38=m
2040
3160
+4.08 1.10 | .27=m
816
2840

3.68
.91
2.77

Frod is fast

$\widetilde{o}$ ~~0.50~~ 2.33 corrected for error of collimation

at 23h $\widetilde{o}$

Sid Time

1897
Friday
Sept 10,
119°

Level:

Telescope South

		W	E
Screw~~Sc~~	~~W~~	~~4.0~~	~~E 1.0~~
	E	– 8.0	– 12.0
	W	+ 49.0	+ 45.0
	E	– 22.0	– 26.0
	W	+ 48.0	+ 44.0
	E	– 36.3	– 41.0
	W	+ 54.0	+ 50.0

Telescope North

Screw	W	+ 73.0	+ 69.0
	E	– 60.0	– 64.0
	W	+ 66.0	+ 62.0
	E	– 68.0	– 72.0
	W	+ 89.0	+ 85.0
	E	– 92.5	– 96.5

W ~~66~~ 65.8
E ~~66~~ 66.5

~~32~~
24) 0.7 (~~.022~~ 0.028
48
60
220
192

.06
.00124
~~.0015~~
1.35

0

+94.0	-20.0
+92.0	-48.0
+104.0	-77.3
+142.0	-124.0
+128.0	-140.0
+174.0	-189.0
+734.0	-598.3
	+734.0

24) +135.7 (5.66
120
157
144
130

.06
.3396=6
1.35
.46 = bacq

~~Level = zero~~
.00

Re-reduced Feb 6-1901

2ΔD dec.

1897

Sept 11

τ Pegasi +23°9	υ Pegasi +22°49	4 Cass +61°42 last 3 α	70 Pegasi +12°10	72 Pegasi +30°44	ι Androm +42°40 23h 32m
16.8 34.2 57.0	× 16.2 38.9	×	42.7 59.2 20.6	33.2 51.9 16.2	42.8 4.8 32.8
18.6 38.3 58.6	× 20.0 41.7	×	45.6 3.0 23.1	36.2 56.0 19.0	46.3 9.8 36.6
22.2 42.3 2.5	4.2 24.4 44.3	3.7 9.7	48.0 7.0 25.5	39.0 0.3 22.0	49.6 15.0 40.0
24.8 46.4 5.2	6.8 28.3 47.0	14.5	50.5 10.5 28.2	41.6 4.5 25.0	52.9 19.8 43.8
27.6 50.4 7.6	9.6 32.3 49.6		53.0 14.2 30.8	44.6 9.0 27.6	56.2 25.1 46.6
110.0 211.6 310.9	121.2 221.5	27.9	239.8 334.9 128.2	194.6 301.7 109.8	247.8 74.5 199.8
22.00 42.32 2.18	24.24 44.30	9.30	47.96 6.98 25.64	38.92 0.34 21.96	49.56 14.90 39.96
20.16 .04 20.06	.04 20.02	44.23	18.97 .04 18.88	21.58 .04 21.47	25.22 .05 25.11
42.16 42.36 42.12	24.28 24.28	25.07	6.93 7.02 6.76	0.50 0.36 0.49	14.78 14.95 14.85
1.26	1.36	2.64	1.28	1.45	1.70
42.21	24.28	25.07	6.90	0.45	14.86
43.47	25.64	27.71	8.18	1.90	16.56
23 15 36.40	23 20 18.16	23 20 20.18	23 24 0.83	23 28 54.65	23 33 9.24
+0 ~~05.81~~ 7.07	+0 ~~6.12~~ 7.48	+0 ~~4.89~~ 7.53	+0 ~~6.07~~ 7.35	+0 ~~5.88~~ 7.25	+0 ~~5.62~~ 7.32
+.36 .05	+.36 .05	~~+.68~~ −.10	~~−.50~~ +.08	~~−.24~~ +.04	.00
.50	.00	.00	.00	.00	.00
+0 5.45	~~+0 5.76~~	+0 5.57	~~+0 5.57~~	~~+0 5.56~~	~~+0 5.62~~
7.12	7.53	7.43	+7.43	+0 7.29	+0 7.32

1.857
2.16
1.641

1.64) ~~1.18~~ 1.82
~~1.848~~
320

1.64) 18 1.11m
164
160

4 Cass
1.3216
0.3241
1.6457

υ Pegasi
532
23 20 14.204

0.4736
9.9945
0.4681 + 2.939
8.4418
0.7596n
9.2014n −.159
8.8528
1.2663
0.1191 +1.1315
8.0965n
0.5568n
8.6533 +.045
+4.116
−.159
3.957

14.204
3.957
18.161

7.12
53
43
43
29
32
2.12
7.35

72 Peg
536
23 28 50.488

0.4720
9.9945
0.4665 2.927
8.5945
0.7596n
9.3541n −.226
8.8857
1.2663
0.1520 1.419
8.0218n
0.5568n
8.5784 .038
4.384
226
4.158

50.488
4.158
54.646

45
76
57
57
56
42
353
59

Frod 1327. fast 0m ~~5.60~~ 7.35 corrected for error in Collimation

at 23h 20m

Sid Time

J A Dober.

Sept 14,
1897

	ζ Pegasi +10°17	η Pegasi +29°40	[13 Lacertae] +41°16	λ Pegasi +23°0	[τ Aquarii] −14°9	[μ Pegasi] +24°3	ι Cephei +65°39
					I II		II III
	22 36	22 37	22 39	22 41	22 43	22 44	22 46
	8.8 25.0 46.2	55.9 14.6	11.4 32.5 0.5	21.5 39.1 1.7	57.7 14.2	49.0 6.7 29.5	× 45.4
	11.4 28.8 49.0	59.0 18.7	14.6 37.7 3.8	24.2 43.1 4.2	0.3 18.2	51.9 10.7 32.5	× 51.7
	13.8 32.7 51.7	1.8 23.0	17.8 42.6 7.1	26.8 47.0 7.2	2.6 21.7	54.8 15.0 35.0	13.0 57.6
	16.5 36.2 53.9	4.6 27.5	20.2 47.5 10.3	29.5 51.0 9.8	5.4 25.5	57.2 19.0 37.8	21.5 3.4
	18.8 40.2 56.5	7.6 31.6	24.2 52.4 13.7	32.5 55.0 12.5	7.8 29.4	0.0 23.0 40.5	30.7 9.4
1.2662	69.3 162.9 257.3	308.9 115.4	88.2 212.7 35.4	134.5 235.2 35.4	313.8 109.0	272.9 74.4 176.3	287.5
0.3848	13.86 32.58 51.46	1.78 23.08	17.64 42.54 7.08	26.90 47.04 7.08	2.76 21.80	54.58 14.88 35.06	57.40
1.6510	18.85 .04 18.76	21.35 .04	24.67 .05 24.56	20.15 .04 20.06	19.12 .04	20.30 .04 20.20	44.77
44.77	32.71 32.62 32.70	23.13 23.12	42.31 42.59 42.52	47.05 47.08 47.02	21.88 21.84	14.88 14.92 14.86	12.63
	1.27	1.44	1.67	1.36	1.32	1.37	3.03
	22 36 32.67	22 38 23.12	22 39 42.47	22 41 47.05	22 44 21.86	22 46 14.89	12.63
	33.94	24.56	44.14	48.41	23.18	16.26	15.66
	22 36 23.62	22 38 14.39	22 39 33.74	22 41 38.20	22 44 12.81	22 45 5.90	4.99
	+ 0 ~~9.05~~	+ 0 ~~8.73~~	+ 0 ~~8.73~~	+ 0 ~~8.85~~	+ 0 ~~9.05~~	+ 0 ~~8.99~~	+ ~~7.64~~
	10.32	10.17	10.40	10.21	10.37	10.36	10.67
	− ~~.43~~	− ~~.20~~	− ~~.02~~	− ~~.48~~	− ~~.65~~	− ~~.27~~	+ ~~.74~~
	+ .08	+ .05	.00	+ .06	+ .13	+ .05	− .16
	.00	.00	.00	.00	.00	.00	.00
	~~+ 0 8.62~~	~~+ 0 8.53~~	~~+ 0 8.71~~	~~+ 0 8.37~~	~~+ 0 8.40~~	~~+ 0 8.72~~	~~8.38~~
	+ 0 10.40	+ 0 10.22	+ 0 10.40	+ 0 10.27	+ 0 10.50	+ 10.41	+ 10.51

10.40	53
22	71
40	37
27	40
50	72
41	38
51	
271	373
10.39	8.53

2.46) 30 / 246 / 540 (.122 m

Frod 1327 is fast 0^m ~~8.50~~ 10.39 corrected for error in collimation

at $22^h\ 40^m$

Continued

13 Lacertae	τ Aquarii	μ Pegasi
528	617	324
22 39 29.785	22 44 8.307	22 45 1.870
9.9952	9.9952	9.9952
0.4264 +2.640	0.5027 +3.147	0.4595 2.849
0.4216	0.4779	0.4547
0.7537n	0.7537n	0.7537n
8.7400	8.2008n +.090	8.4500 −.160
9.4937n −.312	8.9545	9.2037n
1.2697	1.2697	1.2697
8.9206 +1.550	8.8130 +1.210	8.8397 +1.286
0.1903	0.0827	0.1094
0.4109n	0.4109n	0.4109n
8.4846n	8.3492n +.058	8.3703n +.060
8.8955 +.079	8.7601	8.7812
+4.269	+4.505	+4.195
−.312		160
+3.957		+4.035
22 39 33.74	22 44 12.81	22 45 5.90

9.05
7.64
1.41

+2.209
−252
+2.46) 1.4165 7m
1230
1800

2.209
913
1.296

57
17
.74

J A D Rr.

1897

Sept 19.5

τ Pegasi +23° 9

II	III
23 15	
43.7	6.5
47.7	9.2
52.1	11.8
55.8	14.8
59.7	17.1
259.0	59.4
51.80	11.88
.04	20.06
51.84	51.82

4 Cass +61° 42

II	III
23 20	
19.1	3.1
26.0	8.1
34.4	13.3
42.0	19.0
50.0	23.6
171.5	67.1
34.30	13.42
08	38.93
34.38	34.49

70 Pegasi +12° 10

I	II	III
23 23		
52.3	8.7	30.1
54.7 57.4	12.4	32.8
59.7	16.4	35.4
2.3	20.2	38.0
	23.8	40.3
286.4	81.5	176.6
57.28	16.30	35.32
18.97	.04	18.88
16.25	16.34	16.44

1.2662
0.3241
1.5903
1.3893

1.36
23 15 51.83
53.19
23 15 ~~35.50~~
36.43
~~3.24~~
+0 ~~15.40~~
16.76
− ~~.37~~
+ .04
00 bnd

+0 ~~15.03~~
+0 16.80

2.64
23 20 34.43
37.07
23 20 20.21
16.86
+0 ~~14.22~~
~~1.71~~
− .06
00

+ ~~0 14.93~~
16.80

1.28
23 24. 16.34
17.62
~~38.93~~
23 23 60.88
16.74
+ 0 ~~15.46~~
− ~~.54~~
+ .06
00

+ ~~0 14.95~~
+ 0 16.80

1.857
215
1.642) 1.2 / 1.494 / 1.1 / 7040
~~1.2~~
1.74=m
1.6) 1.12
1.08=m

1.857
9.3
.944

+0 14.97

Frod 1327 is fast

0m ~~15.00~~ 16.80

at 23h 20m Sid Time

Prof. S. [illegible]

1897
Sept 21

ε Drac
+69°60'

19 48
29.9
40.6
51.2
2.7
13.2
257.6
51.52
.11
19 48 51.63

19 48 32.34
+0 19.19
00
02
19.19

(7252) 63 Sagittarii
−13 57

19 56
27.9 | 49.6
31.8 | 52.2
35.5 | 54.7
39.4 | 57.3
43.2 | 59.7
177.8 | 273.5
35.56 | 54.70
04 | 19.02
35.60 | 35.68

19 56 35.64

0.5267
0.0042
0.5309 3.397

7.9037n
0.7493n .045
8.6530

8.5218
1.2731 .624
9.7949

8.7789n
9.1690n .009
7.9479
4.075
19 56 12.385
19 56 16.460

+0 19.18
.50
0.2
19.18

Frod 1327 is fast

by $19^s.20$
at 19^h 50^m Sid Time

Conf S. Lee

1897
Sept 24

κ Cephei
+77° 24′

20 12
10.1
27.6
44.3
0.5
18.0
22 0 5
44.10
16
20 12 44.26

20 12 21.47

7259
ρ Capricorni
−18 9

20 23
17.5 39.8
21.6 42.4
25.5 44.9
29.4 47.7
33.2 50.0
127 2 224 8
25.44 44.96
04 19.42
25.48 25.54
20 23 25.51

~~ν Capricorni~~ 1st
−18° 30

20 ~~34~~ 15.53

0.5352
0.0056
0.5408 3.473
8.1057n
0.7547n .072
8.8604
8.6116
1.2727
9.8843 .766
8.7560n
9.9536
8.7096n −.051

4.311
.051
4.260

20 22 59.123
20 23 33.83
+0 22.137
+ .17
00
+0 22.30

4.474
− 328
4.802

4.8) 66 (14=m
48
180

4.5

+0 22.79
− 63
00 level
+0 22.12

Frod 1327 is fast 0^m 22^s.21 at 20^h 20^m Sid time

Prof. S be

1897

Sept 27 κ Cephei
+77° 24′
20 12
11.6
29.0
46.2
2.8
20.5
2301
46.02
.16
20 12 46.18
20 12 21.19
~~3507~~
+0 24.99
− .31
.00

4.474
335
4.81
.42 .09m

4.47
91
3.56
+0 24.68

7262
ν Capricorni
−18° 31
20 34
32.2 54.3
36.0 57.0
40.2 59.5
43.9 2.0
47.9 4.6
2002 2974
40.04 59.48
.04 19.46
40.08 40.02

20 34 40.06
20 34 15.49
+0 24.57
+.11
.00

+0 24.68

Frod 1327 is fast
0^m 24.68
at $20^h 20^m$
Sid time

J A Dikes

1897
Sept 30.5

7½ mag Some star at +62° 39' I	ι Piscium +5° 3' III	x Androm +43° 45' III	ω² Aquarii −15° 45' I	II	III
23 27	23 35	23 36	23 37		
48.1	25.9	11.9	31.9	48.7	10.5
53.8	27.6	15.3	33.7	52.5	13.0
59.0	30.8	18.7	37.1	56.3	15.6
46	33.5	22.3	39.8	0.7	18.2
10.0	35.6	25.7	42.4	3.9	20.6
295.5	153.4	93.9	184.9	281.6	77.9
59.1.0	30.68	18.78	36.98	56.32	15.58
	18.54	25.56	19.27	.04	19.18
	23 35 12.14	35 53.22	56.25	56.36	56.40
	23 34 43.44	35 24.36	23 37 56.33		
	+ 0 28.70	+ $\overset{3}{0}$ 28.86	23 37 27.40		
	00	00	+ 0 28.93		
	+ ~~.08~~	.00	00 land		
	~~+ 0 28.78~~		~~+ .11~~		

23 35 20.035
335

0.4677
0.0099
0.4776 + 3.003

8.8026
0.7378n − .347
9.5404n

8.9628
1.2685
0.2313 + 1.703
7.9963n
0.4752
8.4715n − .029
+ 4.706
− .376
4.330
23 35 24.36

70 } 81.5
.93 } 86
.84

Frod 1327 is fast

δ 28^s.84

at 23^h 30^m

Sid Time

1897
Oct 4¼

~~Lyrae~~ ε Cygni â pre
+39°33
I II

18 41 1.8 21.5
5.0 27.2
8.1 32.1
11.4 37.0
14.5 41.8
40.8 159.6
8.16 31.92
24.04 .05
32.20 31.97

18 41 32.08
18 40 57.46
+0 34.62

110 Herculis
+20°27
III

18 42 5.4
8.0
10.7
13.4
15.7
53.2
10.64
19.70
18 41 50.94
18 41 16.28
+0 34.66

β Cygni
+33°14
II III

18 46 44.7 9.5
49.0 12.5
53.3 15.5
57.8 18.4
2.0 20.3
266.8 76.2
53.36 15.24
.04 22.07
53.40 53.17

18 46 53.28
18 46 18.82
+0 34.46

σ Sagittarii
−26°26
I II

18 49 4.9 49 22.8
7.7 26.9
10.4 31.2
13.3 35.2
16.0 39.4
52.3 155.5
10.46 31.10
20.71 .04
31.17 31.14

18 49 31.15
18 48 56.57
+0 34.58

ο Drac
+59°15
II III

18 50 1.5 42.7
9.0 47.5
16.2 52.5
23.6 57.5
30.5 1.9
80.8 262.1
16.16 52.42
.07 36.40
16.23 16.32

18 50 16.27
18 49 41.65
+0 34.62

R Cygni
+43°48
II l.4 III

18 52 x 7.0
43.0 10.4
48.2 13.9
53.4 17.5
58.5 20.6
144.6 69.4
48.20 13.88
.03 25.58
48.23 48.30

18 52 48.26
18 52 13.86
+0 34.40

γ Cygni
+32°37
I II III

18 55 14.4 33.4 58.5
17.4 38.0 1.3
20.1 42.2 4.3
23.0 46.6 7.3
26.0 51.0 10.0
100.9 211.2 32.14
20.18 42.24 4.28
21.99 .04 21.89
42.17 42.28 42.39.

18 55 42.28
18 55 7.69
+0 34.59

18 40 55.539
261
0.2979
0.0164 +2.062
0.3143
7.9904
0.7360n −.0537
8.7264n
8.1864
1.2630 +.2815
9.4494
8.9299n
0.6401 −.3715
9.5700n 2.343
.424
+1.919
18 40 57.458

Comparing
σ Sagittarii
and ο Drac
n will be
very small.
Level = zero

hence

+0 34.62
66
46
58
62
40
59
393
+0 34.56

Frod. 1327 is fast
0ᵐ 34.56
at 18ʰ 50ᵐ
Sid. Time

JAD obs

1897
Oct 9 1/4

α Lyrae
+38° 41
18 33
39.1 59.7 26.6
42.4 34 - 4.5 29.8
45.4 9.1 32.9
48.8 13.9 36.1
51.9 18.7 39.1
227.6 345.9 164.5
45.52 9.18 32.90
23.76 .05 23.65
9.28 9.23 9.25
18 34 9.25
18 33 28.86
+0 40.39
∞ level

ε Lyrae ap
+39° 33
18 41
13.9 28.3 55.4
17.4 33.0 58.7
20.3 37.8 1.8
42.8 5.0
Left 3
flat 47.7 8.2
189.6 30.91
37.82 1.82
.05 23.93
37.87 37.89
18 41 37.88
18 40 57.32
+0 40.56
∞

β Lyrae
+33° 14
18 46
31.0 50.2 15.4
34.0 54.7 18.4
37.0 59.0 21.3
39.8 3.5 24.3
42.9 8.0 27.0
184.7 295.4 106.4
36.94 59.08 21.28
22.17 .04 22.07
59.11 59.12 59.21
18 46 59.15
18 46 18.71
+0 40.44
∞

18 40 55.539
261

0.2979
0.0189
0.3168 2.074
7.9904
0.7390n -.054
8.7294n
8.1864
1.2531
9.4395 .275
8.9299n
0.7829
9.7128n -.516
2.349
570
+1.779
57.318

39
56
44
139
46

Frod 1327 is fast

0m 40.46

at 18h 40m

Sid Time

3.

3.

Prof. Searle

1897
Oct 13

24 Cephei
+71 49

2h 38
15.8
28.0
40.0
51.8
3.6
199.2
39.84
44
− 39.95
22 8
52.43
22 7
+ 0 47.52
− .42
.00
+ 0 47.10

F 280
θ Aquarii −8 18

2h 12
28.5
31.3
33.9
36.2
38.6
168.5
33.70
18.65
22 11 15.05
22 11 ~~28.13~~
+ 0 46.92
+ .20
00 level
+ 0 47.12

3.042
146
3.188) .60 [illegible]

3.042
913
2.13

Frd 1327 is fast

by $47^{s}.10$

at 22^{h} 10^{m}

at Sid Time

Oct 15 - 1897

Corr S. Ar

24 Cephei
+71 49

Current defective

22 8 17.5
29.2
41.2
53.2
4.7
2058
41.16
.11
41.27

22 8 41.27
22 7 52.33
+0 48.94
− 50
.00
+0 48.44

3.188) 78 (.24=m
6376
1424

2.13

913
−146
1,057

7280
θ Aquarii −8 17

22 12 8.6 30.0
12.5 32.4
16.2 34.8
20.0 37.5
23.8 40.0
81.1 174.7
16.22 34.94
04 18.65
16.26 16.29

22 12 16.27
22 11 28.11
+0 48.16
+ 24
00 less
+0 48.40

Frod 1327 is fast
5^{m} $48^{s}.42$
at 22^{h} 10^{m}
Sid time

J A Dober.

1897

October 18.5 γ Androm

1 58 +41°49

0.1 21.5 49.7
3.8 26.8 52.8
6.8 31.7 56.5
10.0 36.4 59.7
13.4 41.5 .2.9

341 1579 2816
6.82 31.58 56.32
24.88 .06 24.77

31.70 | 31.63 | 31.55

1 58 31.63
1 57 39.80

+0 51.83

β Triang.

2 3 +34°29′

53.2 12.6 38.0
56.2 17.3 41.3
59.3 22.0 44.4
2.1 26.2 47.1
5.2 30.8 49.6

2960 1089 2204
59 20 21.78 44.08
22.50 .04 22.40

21.70 21.82 21.64

2 4 21.72
2 3 29.92

+0 51.80

Frod 1327 is fast

0 51.80

at 2^h 0

Sid Time

J R D obs

1897
October 23

β Capricorni	γ Cygni	θ Cephei
−15° 7	+39° 55′	+62° 38
20 15	20 19	20h 27m
50.9 7.4 29.3	1.1 22.1 49.5	57.6 33.7
53.5 11.5 31.6	4.5 27.4 53.0	4.3 42.0
56.1 15.2 34.3	7.8 32.0 56.1	9.7 50.0
58.7 19.0 37.0	11.0 36.8 59.6	15.5 58.0
1.1 22.9 39.5	14.2 41.6 2.6	20.5 6.2
28 03 760 1719	38 6 1599 2808	34 76 2499
56.06 15.20 34.38	7.72 31.98 56.16	9.52 49.98
19.21 04 19.12	24.17 .05 24.06	40.28 08
15.27 15.24 15.26	31.89 32.03 32.10	49.80 50.06
20 16 15.26	20 19 32.01	20 28 49.93
20 15 17.16	20 18 34.13	20 27 52.09
+ 0 58.10	+ 0 57.88	+ 0 57.84
−.14	−.01	+.12
oolend	00	00
+ 0 57.96	+ 0 57.87	+ 0 57.96

1.2682
0.3371
1.6053

20 15 13.468
608

0.5279
0.0312 3.623
0.5591

8.0005n
0.7143n .059
8.7148

8.5845
1.1205
9.7901 .617
8.7588n
1.0241
9.7829n .607

4.299
.607
3692

20 15 17.16

+ 1.93
−27
2.20).26(.12 = n
22
16

279
93

F rod 1327 is fast

0m 57.93

at 20h 20m

Sid Time

1897 October 26

2 + 8 hr.

II	III	a 4	I II
15 Cygni	δ Cygni	α Aquilae	ψ Cygni
+37°6	+44°52	+8°35	+52°9
			19 48 53
27.0	6.7	25.6 41.5 3.0	21.8 48.1
32.0	10.4	28.0 45.5 5.5	25.9 54.0
36.4	13.7	~~35.5~~ 30.8 49.4 8.0	30.0 0.1
41.3	17.3	33.0 53.0 10.5	34.0 6.0
46.0	20.8	35.6 56.7 13.0	38.0 13.6
182.7	68.9	153.0 246.1 40.0	149.7 30.18
36.54	13.78	30.60 49.22 8.00	29.94 0.36
-.05	26.06	18.75 .04 18.66	30.22 .06
36.59	47.72	49.35 49.26 49.34	0.16 0.42
	19 41 46.92	49.35	19 49 0.29
19 40 37.39		19 45 48.39	19 52 59.20
59.20	+0 60.80	+0 60.96	+0 61.09

61.09

2 05

61.03

60.80

60.91 Level = zero

One second wrong somewhere probably here

19 40 33.747

~~53~~
499

0.3339
0.0337
0.3676
8.3509
0.6994n
9.0303n
8.5504
1.1911
9.7415
8.8789n
1.0544
9.9383

2331

.407

.531

.868
3.710
107
3,643

19 40 37.39

Fund 1327 is fast

$0^m\ 60^s.91$

at $19^h\ 50^m$

Sid. Time

1897
Oct 30

9 Cygni
+46° 4

I III
12.7 6.1
16.3 9.5
20.0 13.3
23.3 17.0
26.6 20.4
989 663
19.78 13.26
26.74 26.62
46.52 ~~46.62~~
46.64
46.58
21 25 41.34
+0 65.24

74 Cygni
+39° 56

~~4~~265 475 150
298 526 180
338 574 215
365 20 249
394 70 277
1660 865 1071
33.20 57.30 21.42
24.18 05 24.07
57.38 .35 57.35
57.36
21 32 51.99
+ 65.37

13 H Cephei
+57° 0'

10.2 39.4 18.2
14.7 46.4 22.6
19.3 53.4 27.0
24.0 0.2 32.0
28.4 6.7 36.0
966 2661 1358
19.32 53.32 27.16
34.05 04 33.89
53.37 .34 3.27
53.34
21 35 48.05
+0 65.29

x ~~4~~ Pegasi
+25 9

41.5 59.1 22.4
44.1 3.2 25.0
46.8 7.4 27.6
49.3 11.5 30.5
52.4 15.8 33.0
2341 3367 1385
46.82 7.34 27.70
20.48 04 20.39
7.30 .36 7.31
7.32
21 40 1.99
+ 65.33

Continued

g Cygni		13 H Cephei		κ Pegasi	
513		515		310	
21 25 38.823		21 35 45.854		21 39 58.776	
0.0407		0.0407		0.0407	
0.3437	2.423	0.2695	2.043	0.4333	2.979
0.3844		0.3102		0.4740	
0.6854		0.6854m		0.6854m	
8.7334m	−.262	8.9194n		8.4094	
9.4188n		9.6048n	−.402	9.0948n	−.124
1.1691		1.1691		1.1691	
8.8758		8.9957	+1.461	8.7806	
0.0449	1.109	0.1648		9.9497	.891
1.1010		1.1010		1.1010	
8.7778n	−.756	8.8579n		8.6259n	−.533
9.8788n		9.9589n	−.9097	9.7269n	
	+3.532		+3.504		3.870
	−1.018		1.312		.657
	2.514		2.192		3.213
	38.823		45.854		58.776
21 25 41.337		21 35 48.046		21 39 61.989	

κ Peg.	+65.33
74 Cyg	65.37
g Cygn	65.24
13 H.	65.29
	123

~~44~~
31

No level cor.

Frod 1327k 0^m $65^s.30$ fast at 21^h 30^m Sid Time

2nd Ser

1897
Nov. 3¼

γ Sagittar
+19 12
59.0 16.0 38.1
1.7 19.8 40.8
4.1 23.9 43.4
6.9 27.8 46.1
9.1 31.6 48.5
32 08 119.1 216.9
4.16 23.82 43.38
19.63 .04 19.54
23.79 23.86 24.84
23.83
19 54 13.10
+1 10.73

θ Aquilae
−1° 8'
49.8 5.7 26.8
52.4 9.6 29.3
55.7 13.4 17.0 31.9
57.3 20.6 34.2
59.7 ~~26.6~~ 36.3
27 49 66.1 158.5
54.98 13.22 31.70
18.55 .04 18.46
13.53 13.26 13.24
13.34
20 5 62.52
+1' 10.82

o'ay. Cygni
+46° 25
I II
1.2 24.5
5.0 30.0
8.5 35.4
12.1 40.6
15.5 46.0
42.3 176.5
8.46 35.30
26.89 .05
35.35 35.35
35.35
20 10 24.83
+1 10.52

33 Cygni
+56° 25
last 2 wires
49.0
53.4
51.20
40.03
11.17

4 29
22.1 45
1.3453
0.2571
1.6024
4003

γ Cygni
+39° 55'
20 19 13.8 34.7 2.0
17.0 39.6 5.3
20.2 44.4 8.5
23.5 49.0 11.4
25.7 54.2 14.9
100.2 221.9 42.1
20.04 44.38 8.42
24.17 .05 24.06
44.21 44.43 44.36
44.33
20 18 33.88
+1 10.45

−1° 8 +1 10.82
+19 12 .73
+39 55 .45
+46 25 .52

Using +46° 25 and +39 55 only,
level = zero

Frod 1327 is fast $1^m\ 10^s.50$
at $20^h 00$
Sid. Time

2&3 obs.

1897

Nov 7¼

Prec. star perhaps ~~4~~ 6th mag.
~~apparently not in DM~~
ad a regards mag.

perhaps variable

Pub +28° 4704
~~DM~~ DM mag 7.5

Prec. star II	α Androm +28° 31 I	II	β Cassiop. +58 35		22 Androm +45 30		γ Pegasi +14 37		
0h 2m 27.7	0h 3m 57.3	4m 15.5	0h 4m 54.2	5m 27.5	6m 23.5	37.6	8m 51.8	9m 8.5	30.2
32.0	4 0.2	19.7	5 1.2	32.0	28.8	41.2	54.5	12.3	32.8
36.3	2.8	24.0	8.4	37.0	37.6	44.7	57.0	16.0	35.3
40.4	5.7	28.3	15.4	41.6	41.3	48.3	59.5	19.9 23.8	37.8
44.6	8.3	32.6		46.3	44.9	51.7	22		40.4
181.0	31.43	120.0	18.48	184.4	223.5		285.0	80.5	176.5
36.20	2.86	24.00	61.60	36.88	44.70		57.00	16.10	35.30
4	21.10	04		35.43	26.33		19.16	.04	19.07
0 2 36.26	23.98	24.04		1.45			16.16	16.14	16.23
~~8.03~~				1.60	0 6 18.37				
	0 4 24.01		0 5 1.53				0 9 16.18		
	0 3 8.03		0 3 45.47		0 5 2.39		0 7 60.16		
	+1 15.98		+1 16.06		+1 15.98		+1 16.02		

16.06
15.98
16.02
16.01

22 Androm

337
0 4 57.988

0.4916
0.0475
0.5391 3.460
8.8314
0.6775n
9.5089n -3227
8.9782
1.1141
0.0923 1.237
7.3141
1.1683 030
8.4824 4.727
323
4.404
0 5 2.392

Frod 1327 is fast
1m 16.00s
at 0h 0m
Sid Time

Prof. S. [illegible]

1897
Nov 10

73 Ceti
$-9^{\circ}\ 23$

$0^h\ 15^m$

27.5 48.7
31.4 51.5
35.0 54.0
39.0 56.3
42.5 58.8

175.4 269.3
35.08 53.86
04 18.71
35.12 35.15

0 15 35.14
0 14 15.15

+ 1 19.99

21 Cass
$+74^{\circ}\ 26'$

0 39 ~~49.4~~ 50.2
50.2 3.6
57 17.0
31.5
45.0

387.3
17.46
.13
17.59

0 38 57.51

+ 1 20.08

Level = 0

Frod 1327 is fast
$1^m\ 20^s.00$
at $0^h\ 20^m$
Sid Time

JAD obsr.

Nov 23	3 Arietis	o Persei		40 Cass
1897	+20° 17′	+48° 47′	o Ceti	
			−8 43	+72 31
	$1^h 50^m$	2 38		
	29.6 52.0	40.2 12.0	1 20 32.9	1 32 0.0
	33.5 54.5	458 158	1 18 57.01	1 30 2477
	37.5 57.2	514 19.5	+1 35.89	+1 3523
	41.5 59.8	573 23.3		
	454 2.3	2.8 27.0	3.37 .34 [illegible]	
	1875 2858	2575 976		
	3750 57.16	51.50 19.52	+3.172	
	.04 19.68	.06 28.02	−.153	
			3.32	
	37.54 37.48	51.56 51.50		
	1 50 37.51	2 38 51.53		
	1 48 61.81	2 37 16.09		
	+1 35.70	+1 35.44		
	−.10	+.02		
	50 level	.00		
	+1 35.60	+1 35.46		

Frod 1327 is fast

1^m $35^s.53$

at $2^h 00^m$

Sid Time

JAD obsr.

Nov 27 1897

δ Ceti
−0°8
32.0 48.1 9.3
34.6 51.9 11.6
37.0 55.6 14.0
39.5 59.3 16.6
42.1 2.7 18.9
18 5 2 27.76 7 0 4
37.04 55.52 14.08
18.54 .04 18.46
55.58 55.56 55.62
55.59
2 34 16.96
~~21.37~~
+1 38.63

o Persei
+48°47
18.5 42.6
22.3 48.7
26.4 54.5
30.3 0.0
33.8 5.6
13 1 3 27 1 4
26.26 54.28
28.15 .06
54.41 54.34
54.37
2 37 16.10
+1 38.27

μ Ceti
+9°40
41.8 58.4 19.6
44.7 2.1 22.3
47.1 6.0 24.7
49.6 9.7 27.3
52.0 13.4 29.7
23 5 2 32.9 6 12 3 6
47.04 5.9 2 24.7 2
18.81 .04 18.73
5.85 5.96 5.99
5.93
2 39 ~~27.31~~
+1 38.62

[η Persei]
+55°27
14.6 42.8
19.1 49.5
23.1 56.0
27.6 2.5
31.6 9.0
11 6 0 27 9 8
23.20 55.96
32.70 .06
55.90 56.02
55.96

41 Arietis
+26°49
54.2
34.8 57.0
39.0 59.8
43.1 2.6
47.3 5.3
11 6 9 29 8 9
38.97 59.78
20.68
38.97 39.10
39.05
2 43 60.54
+1 38.51

τ Persei
+52°20
3.4 30.0 4.4
7.7 36.0 8.5
11.6 41.9 12.4
16.2 48.3 20.5
[illegible] 54.2 16.5
5 8 9 21 0 4 6 2 3
11.78 42.08 12.4 6
30.35 .06 30.21
42.13 42.14 42.2 5
42.17
2 46 63.84
+1 38.33

38.63
.62
.51
.27
33
236
.47
level = zero

Frod 1327 is fast 1^{m} $38^{s}.47$

at 2^{h} 40^{m} Sid Time

ZAD obsr.

1897
Nov 30

3 Lacertae
+51 42
22 20

35.3 1.3 35.0
39.7 7.0 39.0
43.6 13.3 43.2
47.4 19.3 47.3
51.3 24.9 51.0
217.3 65.8 215.5
43.46 13.16 43.10
29.92 06 29.79
13.38 13.22 13.31
22 21 13.30
22 19 32.78
1 40.52
+12
+1 40.64

Preced. star
27
59.3
28 3.0
6.7
10.7
14.0
33.37
6.74
28.69
35.43
28 35.43

7 Lacertae
+49°44
28
34.5 6.9
40.1 10.6
45.8 14.6
51.4 18.2
57.3 21.8
229.1 72.1
45.82 14.42
06 28.56
45.88 45.86
28 45.87
27 5.30
+1 40.57
.09
+1 40.66

η Aquarii
−0°40′
31
24.8 40.9 1.9
27.5 44.8 4.4
30.0 48.5 6.7
32.3 52.0 9.3
34.8 53.8 11.6
149.4 242.0 33.9
29.88 48.40 6.78
18.55 04 18.46
48.43 48.44 48.32
22 31 48.40
22 30 7.41
+1 40.99
32
+1 40.67

Preced. star
34
II III
51.7 x
56.4 22.0
1.3 24.8
5.8 27.9
10.4 x
30.56 74.7
1.12 −24.90
.05 23.58
1.17 1.32
35 1.24

10 Lacertae
+38°30
35
51.9 12.5 39.4
55.1 17.1 42.3
58.2 22.0 45.6
1.5 26.7 49.0
4.6 31.6 51.8
291.3 109.9 228.1
58.26 21.98 45.62
23.69 .05 23.58
21.95 22.03 22.04
22 36 22.01
22 34 41.28
+1 40.73
04
+1 40.69

ξ Pegasi
+10°17
37
39.8 56.0 17.5
42.3 0.0 20.0
45.0 3.8 22.7
47.6 7.6 25.1
50.0 11.5 27.6
224.7 318.9 112.9
44.94 3.78 22.58
18.85 .04 18.76
3.79 3.82 3.82
22 38 3.81
22 36 22.97
+0 40.84
.27
+0 40.57

η Pegasi
+29 40
39
27.1 45.5 10.0
30.4 50.0 12.9 15.8
33.0 54.3 18.5
35.8 58.6 21.4
38.7 2.8
165.0 271.2 78.6
33.00 54.24 15.72
21.35 04 21.25
54.35 54.28 54.47
22 39 54.37
22 38 13.57
+0 40.80
12
+0 40.68

m
1.27
01
1.3
.47
.34
.80
.36

+1 40.64
66
67
69
57
68
.65

Level = zero

Frod. 1327 fast
1m 40.65s at 22h 30m
Sid. Time

JRD obs.

1897
December 2

η Aquarii
−0° 40

22 31

26.0 42.0 3.4
28.8 46.0 5.7
31.4 49.7 8.0
33.8
53.5 10.7
36.3 56.8 13.0
15.63 24.80 4.08
31.26 49.60 8.16
18.55 .04 18.46
49.81 49.64 49.70

22 31 49.72
22 30 7.38
+1 42.34
32
+1 42.02

10 Lacertae
+38° 30′

22 35

53.3 13.6 40.5
56.6 18.6 43.8
59.4 23.4 46.8
2.7 28.0 50.3
5.8 32.6 53.2
29.78 11.62 23.46
59.56 23.24 46.92
23.69 .05 23.58
23.25 23.29 23.34

22 36 23.39
22 34 41.24
+1 42.15
.04
+1 42.11

ζ Pegasi
+10° 16

22 37

41.3 57.4 19.0
43.8 1.4 21.4
46.5 5.1 24.0
49.0 9.0 26.7
51.3 12.9 29.0
23.19 32.58 12.01
46.38 5.16 24.02
18.85 .04 18.76
5.23 5.20 5.26

22 38 5.23
22 36 22.95
+1 42.28
27
+1 42.01

η Pegasi
+29° 40

22 39

28.6 47.0 11.7
31.4 51.4 14.3
34.3 55.6 17.0
37.0 0.0 20.0
39.9 4.0 22.6
17.12 27.80 8.56
34.24 55.60 17.12
21.35 05 21.25
55.59 55.65 55.87

22 39 55.80
22 38 13.55
+1 42.25
12
+1 42.13

13 Lacertae
+41° 16

22 41

x
10.0 33.0
14.9 36.1
19.8 39.0
24.7 42.6
46.0
44.7 19.67
14.90 39.34
05 ~~24.57~~
14.95 14.77

22 41 14.86

λ Pegasi
+23° 0

22 42

54.0 11.6 34.0
56.9 15.7 37.0
59.4 19.7 39.7
2.1 23.7 42.5
4.8 27.7 45.0
29.72 9.84 19.82
59.44 19.68 39.64
20.15 .04 20.06
19.59 19.72 19.58

.34
.28
.17
.25
15

22 43 19.63
22 41 37.46
+1 42.17
~~17~~
+1 42.00

+1 42.02
11
01
13
00
27
05

Level = zero

f rod 1327 is fast 1^m $42.\overset{5}{0}5$
at $22^h\ 30^m$ Sid. time

LPD obsr

Monday
December
$5\frac{23}{24}$

Level:-

Telescope North. E W

Screw E
" W
" E.
" W
" E
" W

2 AD bar.

1897
December 6

ζ Cephei
+57° 41
22 11
32.7 44.4
51.8
58.7
4.7
12.3
29.19
58.38
~~[illegible]~~ 07
22 11 ~~23.44~~ 58.45
22 7 18.25
4 40.20

star is
+57° 2485
8.8 mag
follows ζ
$2^m 53^s.5$

γ Aquarii
−1° 55
22 17
47.2 2.8
49.4 6.6
52.0 10.5
54.5 14.0
56.7 17.8
259.8 51.7
51.96 10.34
18.56 04
10.52 10.38
22 18 10.45
~~[illegible]~~
22 16 23.64
+1 46.81
−31
+1 46.50

3 Lacertae
+51° 42
22 20
41.5 7.0 40.8
45.3 13.4 44.8
49.4 19.0 49.0
53.5 25.2 53.0
57.3 31.2 56.8
247.0 95.8 244.4
49.40 19.16 48.88
29.92 06 29.79
19.32 19.22 19.09
22 21 19.21
22 19 32.62
+1 46.59
+.12
+1 46.71

Prec 7 Lacertae
7.0 mag
22^m 28
5.3
9.1
13.0
17.0
20.9
65.3
13.06
03
29.42
~~42.98~~
22 28 13.11 ~~42.98~~
Star is pub
+49 3874
Dm mag 8.0
looked before:

7 Lacertae
+49° 44
22 28
57.1 12.5
29 16.5
20.2
24.2
27.8
101.2
20.24
28.36
22 29 51.68
22 27 5.16
+1 46.52
+.09
+1 46.61

10 Lacertae
+38° 30
22 36
18.4 45.0
23.4 48.5
27.8 51.7
32.5 54.8
37.0 57.8
139.1 257.8
27.82 51.56
05 23.58
27.87 27.98
22 36 27.93
22 34 41.17
+1 46.76
−03
+1 46.73

+51.7 +1 46.71
+49.7 61
+38.5 .73
+29.7 .43
+10.3 .60
−1.9 .50
358
.60

ζ Pegasi
+10° 16
22 37
45.8 2.2 23.6
48.4 6.0 26.0
50.8 9.6 28.5
53.6 13.4 31.0
56.1 17.1 33.5
254.7 48.3 142.6
50.94 9.66 28.52
18.85 04 18.76
9.79 9.70 9.76
22 38 9.75
22 36 22.90
+1 46.85
−.25
+1 46.60

η Pegasi
+29° 40
22 39
32.8 51.5 15.6
35.6 55.8 18.6
38.5 0.0 21.5
41.7 4.2 24.4
44.2 8.6 27.0
192.8 300.0 107.1
38.56 0.00 21.42
21.35 04 21.25
59.91 60.04 60.17
22 40 0.04
22 38 13.49
+1 46.55
−12
+1 46.43

Frod 1327 is fast $1^m\ 46^s.60$ at $22^h\ 30^m$
Sid. Time

1897
Dec ~~10~~ 9

Br 3077	γ Piscium	τ Pegasi
+56°35	+2°42	+23°10
$23^h 9$	$23^h 13$	23 17
300 ~~59~~ ~~26~~	20.6 36.7 58.0	1.0 18.6 41.4
350 59.2 37.2	23.3 40.7 0.3	3.9 22.6 44.0
39.7 6.2 42.2	25.6 44.2 2.8	6.7 26.8 46.9
43.9 12.6 46.5	28.4 48.0 5.2	9.1 30.6 49.7
48.5 19.6 61.0	30.7 51.6 7.5	12.0 34.6 52.0
26.1 53.3		
1971 3637 2322	1286 2212 3138	327 1332 2340
39.42 12.74 46.44	25.72 44.24 2.76	6.54 26.64 46.80
3369 .07 33.54	18.57 .04 18.48	20.17 .04 20.07
13.11 12.81 12.90	44.29 44.28 44.28	26.71 26.68 26.73
23 19 12.94	23 13 44.28	23 17 26.71
23 8 22.24		23 15 35.81
~~35.16~~		
+1 50.78		+1 50.90

Level = zero

Frod 1327 is fast

$1^m\ 50.^s80$

at $23^h\ 10^m$

JAD obsr

Dec 16, 1897

Drift 2° 800

Star prec π⁵ Orionis
4ʰ 49ᵐ

47.9	7.5	24.8
50.3	11.4	27.3
53.7	14.8	29.8
55.7	18.8	32.1
57.8		34.3
26.49	33.7	148.3
52.98	11.23	29.66
18.57	04	18.48
11.54	11.27	11.18

4 50 11.33

π⁵ Orionis
+2° 16′
4ʰ 50ᵐ

45.5	56.3	17.4
47.8	59.8	20.0
50.2	4.0	22.5
	7.5	24.8
	11.1	27.2
	31.87	111.9
	3.74	22.38
	04	18.48
	3.78	3.90

4 51. 3.84
4 48 58.39
+2 5.45

ι Aurigae
+33° 0′
4ʰ 52ᵐ

0.8	19.8	45.0
3.8	24.7	48.1
6.8	29.0	51.0
9.9	33.4	54.0
12.7	37.7	56.8
34.0	144.6	254.9
6.80	28.92	50.98
22.11	.05	22.01
28.91	28.97	28.97

4 52 28.95
4 50 23.55
+2 5.40

ε Aurigae
+43° 40
4ʰ 56

14.6	36.8	6.0
17.9	42.0	9.4
21.2	47.1	12.9
24.8	52.4	16.3
28.3	57.3	19.5
106.8	235.6	64.1
21.36	47.12	12.82
25.65	.05	25.54
47.01	47.17	47.28

4 56 47.15
4 54 41.72
+2 5.43

ι Tauri
+21° 26
4ʰ 58ᵐ

42.4	59.6	24.8
45.0	3.7	27.7
47.8	7.9	30.0
50.4	11.8	32.7
53.0	15.7	
238.6	338.7	137.2
47.72	7.74	27.44
19.92	04	19.83
7.64	7.78	7.61

22.0

4 59 7.68
4 57 2.19
+2 5.49

η Aurigae
+41° 5′
5ʰ 0ᵐ

58.7	19.9	47.8
2.1	25.0	51.1
5.3	30.0	54.5
8.7	34.8	57.8
11.5	39.7	0.8
32.63	149.4	272.0
5.26	29.88	54.40
24.61	05	24.50
29.87	29.93	29.90

5 1 29.90
4 59 24.44
+2 5.46

ε Leporis
−22° 31
5ʰ 2ᵐ

50.7	8.3	31.0
53.6	12.3	33.5
56.1	16.2	36.0
58.9	20.0	38.8
1.5	24.1	41.6
280.8	80.9	180.9
56.16	16.18	36.18
20.07	.04	19.98
16.23	16.22	16.20

5 3 16.22
5 1 10.68
+2 5.54

−22.5	+2 5.54
+2.3	.45
21.4	.49
33.0	.40
41.1	.46
43.7	.43
	.46

Level = zero

Frod 1327 is fast 2ᵐ 5ˢ.46
at 5ʰ 0ᵐ Sid Time

Prof's ler.

1897
Dec 21

722
5 Ceti $^{-10}$ 50
1 48

31.3 529
35.4 53.5
390 57.8 0.3
429 28
465 ~~44~~
1951 ~~2957~~
3902 ~~3918~~
.04 2893
34.06 57.86
57.86
18.79
1 48 39.07
1 46 26.95
+2 12.12
-33
+2 11.79

50 Cass
+71 56
1 56
32.8
44.5
57.1
9.0
20.5
2839
5678
.12
1 56 56.90
1 54 ~~45.88~~
+2 11.02
+72
11.74

3.06
-59
3.25] 1.1 (+1/3

3.06
.91
2.15

Level = zero

Frod 1327 is fast
2^m $11.^s75$
at 1^h 55^m
Sid Time

1897
Dec 28

α Andromedae +28°30		[22 Andromedae] +45°28			γ Pegasi +14 35			Br 6 +76°22
0h 5m		0 7			0 9			IInd, lat ?
II	III							0 12
14.0	38.0		6.0	36.0	50.6	7.0	28.6	7.4
18.1	40.9		11.0	39.5	53.4	10.8	31.4	9.0
22.3	43.6	53.8	16.5	42.9	55.8	14.8	33.9	9.8
26.9	46.6	57.1	21.5	46.3	58.3	18.2	36.6	21.2
30.9	49.3		27.5	50.1	1.0	22.4	38.9	22.7
								24.5
11 22	21 84		8 25	21 48	27 91	7 32	16 94	
22.44	43.68		16.50	42.96	55.82	14.64	33.88	
04	21.00		03	26.32	19.16	04	19.07	
22.48	22.68		16.55	16.64	14.98	14.68	14.81	

26.2

66.4

0.8733 0.5729
0.6283 0.6288
1.5016 1.2012
31.74 15.90

8.73
31.74
40.47

~~13.40~~

22.13
15.90
~~[illegible]~~ 38.03

~~[illegible]~~
~~7 6.[illegible]~~
23.62

0 5 22.58
0 3 7.45
+2 15.13

0 7 16.60
0 5 1.47
+2 15.13

247
0 10 14.82
0 7 59.69
+2 15.13

22 Andromedae
337
0 4 57.988

0.4916 4.046
0.1152
0.6068

8.8314 -.264
0.5910n
9.4224n

8.9782
0.3994n -.238
9.3776n

7.3141
1.3067 .041
8.6208

4.087
.602
3.485

0 4 61.473

level = zero
" evidently non-appreciable

Frod 1327 is fast

2m 15s.13

at 0h 0m

Sid Time

+2 14.65 / 15.64 / 1.00 — 2.38 / 27 / 2.65 } 1.00) 2.37 = m / 795 / 2050

LPD obsr

1897

Dec 30

[x Androm]
+43° 45
II f_4; III

335
23 35 20.035

0.4677
0.1165
0.5842 | 3.839

8.8026
0.5928m
9.3954m   −.2488

8.9628
0.5005m
9.4633m   −.2906

7.9963m
1.3043
9.3006m | −.200
3.839
789
3.100

23 35 23.135

23 37 | 33.0 | 56.9
38.3 | 0.3
43.5 | 38
48.5 | 7.3
10.6
1148 | 3189
38.27 | 3.78
05 | 25.56
38.32 | 38.22

23 37 38.27
23 35 23.14
+2 15.13
+.00
.00
+2 15.13

ω² Aquarii
−15 8

23 39 18.0 | 34.6 | 56.3
20.5 | 38.4 | 58.9
23.0 | 42.3 | 1.4
25.7 | 46.0 | 4.0
28.2 | 49.9 | 6.5
11 54 | 2112 | 3071
23.08 | 42.24 | 1.42
19.21 | .04 | 19.12
42.29 | 42.28 | 42.30

23 39 42.29
23 37 26.65
+ 2 15.64
−.44
.00
+ 2 15.20

41 H Cephei
+67° 13
II   III

23 44 56.4 | 50.8
6.2 | 57.2
~~15.8~~
~~16.9~~ | 3.7
25.0 | 10.0
34.7 | 16.5
3781 | 3782
15.62 | 3.64
.09
15.71 | 47.66
15.98

1.2662
0.4120
1.6782

23 45 15.84
23 42 61.19
+2 14.65
+.54
.00
+2 15.19

φ Pegasi
+18° 32
II f_3; III

539
23 49 14.113

0.4736
0.1165
0.5901 | 3.891

9.0097
0.5928m
9.6025m   −.400

9.0864
0.5005m
9.5869m   −.386

7.7585m
1.3043
9.0628m   −.116
3.891
−.902
2.989

23 49 17.102

$23^h 49^m$ | 48.1
33.8 | 50.8
37.7 | 53.3
41.5 | 53.8
68.6
2666
53.32
19.46

23 49 33.86
23 47 18.39
+2 15.47
−.22
.00
+2 15.25

+2 15.13
20
19
25
08
14
99
.16

[ε Cass]
+56° 54
I   II

$23^h 50$
49.0 | 18.0
53.4 | 25.3
58.0 | 32.0
2.5 | 38.7
7.0 | 45.6
2899 | 1596
57.98 | 31.92
33.95 | .07
31.93 | 31.99

23 51 31.96
23 49 17.10
+ 2 14.86
+ .22
.00
+ 2 15.08

ω Piscium
+6° 16

23 55
56.8 | 12.8 | 34.0
59.3 | 16.8 | 36.6
1.8 | 20.5 | 39.0
4.3 | 24.1 | 41.7
6.8 | 28.0 | 44.0
3090 | 1022 | 1953
1.80 | 20.44 | 3906
18.65 | .04 | 18.57
20.45 | 20.48 | 20.49

23 56 20.47
23 54 5.03
+ 2 15.44
−.30
.00
+ 2 15.14

Frod 1327 is fast 2^m $15^s.16$ at $23^h 40^m$
Sid Time

JAD Obs

1898
Jan 3rd

o Ceti
$-3°28'$

59 22.0 50.3
86 25.6 53.0 (wt 2)
11.0 29.3
13.5 33.0
15.9 36.8
549 146.7
10.98 29.34
18.58 .04
29.56 29.30
29.43
2 14 13.01
+ 2 16.42
− .37
00
+ 2 16.05
24
07
36
12

ν Arietis
$+21°30'$
$2^h 34$

54.2 11.5 34.0
56.8 15.4 36.7
59.5 19.5 39.3
2.2 23.4 41.8
4.8 27.3 44.6
297.5 97.1 196.4
59.50 19.42 39.28
19.93 .04 19.84
19.43 19.46 19.44
2 35 19.44
2 33 3.01
+ 2 16.43
− .19
00
+ 2 16.24

ο Persei
$+48°46'$

2 39
II/2 III

37.5 52.2
43.0 55.9
0.0
3.6
7.4
299.1
59.82
28.01
2 39 31.81
2 37 15.83
+ 2 15.98
+ .09
.00
+ 2 16.07

Frod 1327 is fast
$2^m\ 16.12^s$
at $2^h\ 30^m$
Sid time

2AD obsn

1898
Jan 7
~~Jan 17~~

0 42 55.351
12

0.5391
4.5316 1.177
0.0707
9.0083
0.5785m -.386
9.5868m
9.0834
0.7654m -.706
9.8488m
8.3610
1.2886 .446
9.6496
1.623
1.092
0.531

0 42 55.88

o Cass
+47°.42
$0^h 40$
44.1 7.8 39.2
48.0 13.5 42.7
51.5 19.0 46.4
55.4 24.5 50.0
58.7 29.9 53.5
2577 947 2318
51.54 1894 4636
27.55 - 05 27.43
19.09 1899 1893
0 41 19.00
0 39 2.91
+2 16.09

ξ Androm
+23°41
$0^h 43$
47.2 4.9 27.7
50.0 8.9 30.4
52.8 13.0 33.2
55.5 17.0. 35.9
58.1 21.0 38.5
2636 648 1657
5272 12.96 33.14
20.25 .04 20.16
12.97 13.00 12.98
0 44 12.98
0 41 56.63
+2 1635

η Cass
+57° 15
III
0 45
37.4
41.8
46.5
51.0
55.3
2320
46.40
34.12
0 45 12.28
0 42 55.88
+2 16.40

μ Androm
+37°55
0 52
52.4 12.9 39.5
55.6 17.6 42.6
58.8 22.3 45.8
2.0 27.0 49.0
5.1 31.7 52.0
2939 1115 2289
58.78 2230 4578
23.51 .05 23.40
2229 22.35 2238
0 53 22.34
0 51 6.30
+2 16.04

level = zero

16.09 16.24
16.40

16.22

16.35 .20
04

Errd 1327 is fast
$2^m\ 16.22^s$

$0^h\ 45$
Sid Time

JAD obsr.

1898 Jan. 10	4 Cam	Star pr. τ Tauri	τ Tauri	53 Eridani	α Tauri
	+56°34	7.5 mag. 1' south	+22 45	−14°30	+16°18
	I II				
	4 41	4 37 58.0	4 38	4 35	4 32
	7.0 36.2	×	0.5 18.0 40.8	32.6 41.4 3.1	14.8 36.8
	11.8 42.8	×	2.7 3.2 22.0 43.5	35.0 45.3 5.7	18.8 39.3
	16.0 49.8	~~8.8~~ 9.2	2.8 6.0 25.8 46.2	49.2 8.3	22.7 42.0
	20.6 56.5		8.7 ~~9.2~~ 2.7 2.4 30.0 48.9	53.0 10.8	26.6 44.5
	24.9 32		11.1 34.2 51.5	56.9 13.3	30.3 47.0
	803 2485	1272	295 1300 2309	2458 412	1132 2096
	16.06 4970	63.6	5.90 2600 4618	4916 824	2264 41.92
	33.66 .07	2 0.10	20.10 04 2001	.04 1906	.04 19.23
	49.72 49.77	4 38 23.7	26.00 2604 26.17	4920 49.18	2268 22.69
		2 DM +22 737 8.5			
	4 41 49.75		4 38 26.07	4 35 49.19	4 32 22.68
	4 39 33.71		4 36 9.63	4 33 32.48 ~~4 31 16.31~~	4 30 6.20
+1.52 .26 1.78	+2 16.04		+2 16.44	~~−1 4 33.88~~ +2 16.71	+2 16.48
	+.23		−.19	−.45	−.24
1.78) .67 (.4 712 38=n 534 1360	∞ level		∞	∞	∞
	+2 16.27		+2 16.25	+2 16.26	+2 16.24
	25 26 .24 25				

Frod 1327 is fast

2^{m} $16^{s}.25$

at 4 30

Sid Time

Prof. S. Ast.

1898
Jan 13

(751)
γ Eridani
−13° 48

	II	III
3 55	27.3	55 49.0
	31.2	51.5
	34.8	54.0
	38.5	56.5
	42.6	59.0
	174.4	~~3~~2700
	34.88	54.00
	.04	19.01
	34.92	34.99

3 55 34.95
3 53 18.03
+ 2 16.92

+ 2 16.92
16.87
16.90

9 Cam
+66° 10

at this time current was very weak & defective. this observation with much care but with certainty was read by [illegible] and written out in ink for reference on the chronograph sheet.

Last tally.

4h 46	48.3 49.0 50.0	49.10 33.46 →	1.1309 0.3936 1.5245	→	4h 16m 15s.64
4 46	53.6 54.6 55.3	54.50 39.60 →	1.2041 0.3936 1.5977	→	✓ 14s.90
4 47	0.4 Missing 2.7	1.55 45.74 →	1.2667 0.3936 1.6603	→	15.81
4 47	6.9 7.6 8.4	7.63 51.90 →	1.3216 0.3936 1.7152	→	15.73
4 47.	12.6 13.5 14.4	13.50 57.73 →	1.3678 0.3936 1.7614	→	15.77

295
10
285
~~4.570~~

Mean :- 4 46 15.70
4 43 58.83
+ 2 16.87

+ rod 1327 is fast
2m 16s.90
at 4h 20m
Sid. Time

Prof. S obsr

1898

Jan 16

451 γ Erid. −13° 48′		9 Cam +66° 10′		
3 55		4 45	4 46	
28.0	49.6	57.4	49.7	
31.8	52.2	6.7	55.4	
35.7	54.4	16.0	1.7	1.2662
39.5	57.1	25.0	7.6	0.3936
43.1	59.7	34.0	13.7	1.6598
1781	2730	3791	3081	4569
35.62	54.60	75.82	1.62	
.04	19.01	~~[illegible]~~	~~19.04~~	
35.66	35.59		~~42.61~~	
		.09	45.69	
		75.91	15.93	

3 55 35.62
3 53 18.00
+2 17.62
− ~~14~~ .22 on level
+2 17.40

4 46 15.92
4 43 58.77
+ 2 17.15
+ .24 on level
+2 17.39

+2.263
− 246
~~017~~
2.509) .18 = m
47 (.
250
2200

2.263
4.13
1.35

Frod 1327 is fast

+2m 17s.40

at 4h 20m

Sid Time

1898
Jan 18

22 H Cam.
+69 21

$6^h\ 9^m$

38.0 37.2
48.0 44.1
59.1 51.4
9.5 58.6
19.7 5.1

2943 2564
58.86 51.28
10 52.36

58.96 58.92

0.4528
1.2662

1.7190

6 7 42.29 = α
6 9 58.94 = T.

+2 16.65
+40
.00

+2 17.05

+2.653
- 0.323

2.976

~~2.98~~
3.1 7.6 6.23 = m
.6
10

2.653
.913

1.740

7 86 (β Cam. Maj.)
−17 54

6 20

24.3 46.3
28.0 49.0
32.0 51.6
35.8 54.0
39.9 56.6

1600 2575
32.00 51.50
04 19.40

32.04 32.10

6 20 32.07 = T
6 18 14.73 = α

+2 17.34
−.29
.00 long

+2 17.05

Frod 1327 is fast.

2^m 17.05

6^h 15^m

Sid Time

148°5
118°5

Monday, Jan 24, 1898

Level: Meridian Circle:

Telescope S -		E	W
~~Screw~~	~~W~~		
Screw	W	20.7	26.0
Screw	E	3.5	[-1.8 (by estimate)]
Screw	W	44.7	50.0
Screw	E		
Screw	W		
Screw	E		

[illegible]

Level frame ~~to~~ too tight on bed plate
Mr Gerrish loosened screw and
oiled a little —
adjusted bubble:—

				E	W	bubble
	-30.0	Tel. S.-Screw	E	- 30.2	- (Est. -0.2)	30.4
+103.5		"	W	+ 35.5	+ 68.0	32.5
	- 36.9	"	E	- 34.7	- 2.2	32.5
+112.1		"	W	+ 39.9	+ 72.2	32.3
	- 28.7	"	E	- 31.0	- (-2.3)	33.4
+107.0		"	W	+ 37.0	+ 70.0	33.0
	- 37.5	"	E	- 35.5	- 2.0	33.5
+110.4		"	W	+ 38.3	+ 72.1	33.8
+433.0	-133.1					

E 282.1 -2.5
W 284.0 286.5
284.0
21.4
32.7

16 | 1.9 w
16
30
16
140
0.119

				E	W	bubble
+159.7		Tel. N.-Screw	W	+ 63.0	+ 96.7	33.7
	-191.5	"	E	(112.5)	79.0	33.5
+179.2		"	W	+ 72.7	+ 106.5	33.8
	-181.7	"	E	107.7	74.0	33.7
+188.8		"	W	+ 77.4	+ 111.4	34.0
	-172.4	"	E	103.0	69.4	33.6
+180.8		"	W	+ 73.3	+ 107.5	34.2
	-183.5	"	E	108.2	74.3	33.9
+708.5	-729.1					

E 717.8 718.8
W 718.8
30.4
~~3.6~~
33.8

16 | 1.0 (w)
96
40
0.063 div

Time ending
1h 0
M.T.

0.119
0.063
.182
.092 West up
.06
.00552
1.35
.007 = b sec φ {Stars come early:

b sec φ = .70
West axis high

Re-reduced
Feb 6-1901

+433.0 -133.1
+708.5 -729.1
+1141.5 -862.2
-862.2
32)+279.3 (8.73
256
233
224
.90

8.73
.06
.5238 = b
.70 = b sec φ

Use b sec φ = zero
= 0.00

JAD obsr.

1898
Jan 24

ε Cass
+63 9
II last 3 III all

1 49 22.0 49 52.0
30.0 57.1
39.0 2.8
last 3 8.6
13.8
31.43
2.86
40.86
1 49 22.00
1 47 4.11
+2 17.89
+.27
ob'ed
+2 18.16

0.3451
1.2662
1.6113
40.86

1.975 17.89
2.246 17.98
4.221
+2.110 17.93
-.396 18.61
2.506).68 (.26 =
5012
17880

β Arietis
+20 17
III

51 34.1
36.8
39.4
42.0
44.6
196.9
39.38
19.68
1 51 19.70
1 49 1.29
+2 18.41
-.13
.00
+2 18.28

ν Ceti
~~υ Ceti~~
-21° 35'
~~+41° 49~~

1 57 6.2 23.5 46.3
8.7 27.6 49.0
11.6 31.6 51.7
14.3 35.5 54.5
16.9 39.4 56.8
57.7 157.6 258.3
11.54 31.52 51.66
19.94 .04 19.85
31.48 31.56 31.81
185
1 57 31.62
1 55 13.01
+2 18.61
-.35
.00
+ 2 18.26

γ Androm
+41° 49'

1 59 25.9 47.6 15.8
29.1 52.6 18.9
32.6 57.5 22.4
35.8 2.4 25.7
39.2 7.1 28.7
162.6 287.2 111.5
32.52 57.44 22.30
24.88 .05 24.76
57.40 57.49 57.54
1 57.48 57.48
1 57 39.26
+ 2 18.22
.00
.00
+ 2 18.22

α Arietis
+22° 57

2 5 19.2 36.8 59.6
22.0 40.8 2.0
24.6 44.9 5.0
27.5 49.0 7.6
30.4 53.0 10.2
123.4 224.5 32.44
24.68 44.90 4.88
20.15 .04 20.06
44.83 44.94 44.82
2 3 44.86
2 1 26.47
+2 18.39
-.13
.00
+2 18.26

+2 18.26
.28
.26
.34
.22
.33
.16
185
.27

β Triang.
+34° 29

2 5 19.4 39.0 4.5
22.3 43.2 7.4
25.3 47.8 10.5
28.3 52.5 13.5
31.4 56.9 16.2
126.7 239.4 52.1
25.34 47.88 10.42
22.50 .05 22.40
47.84 47.93 48.02
2 5 47.96
2 3 29.56
+2 18.40
-.06
.00
+2 18.34

55 Cass
+66° 1
I last 2 II all

2 8 29.2
38.6
47.7
56.9
9 5.6
238.0
47.60
.09
2 8 47.69
2 6 29.71
+ 2 17.98
+.35
.00
+2 18.33

Frod 1327 is fast 2 18.27
at 2h 0m Sid Time

1898

JHD obsr.

Jan 27

υ Ceti
-21° 35

1h 57m

7.6 25.0 47.6
10.0 28.9 50.1
13.0 32.9 52.8
15.7 37.0 55.6
18.3 40.9 58.2

64.6 164.7 264.3
12.92 32.94 52.86
19.94 .04 19.85
32.86 32.98 33.01

1 57 32.95
~~1 57 39.21~~
1 55 12.96
+ 2 19.99
− 57
00 losd
⊥ 2 19.42

γ Androm
+41° 49 (4 fold star on sheet)

1h 59m

27.2 48.8 17.0
30.8 53.7 20.3
34.0 59.0 23.7
37.3 3.8 27.0
40.5 8.8 29.8

169.8 294.1 117.8
33.96 58.82 23.56
24.88 .05 ~~24.40~~ 24.76
58.84 58.87 58.80

1 59 58.84
1 57 39.21
+ 2 19.63
.00
00
+ 2 19.63

α Arietis
+22° 57

II l. 2 III

2h 3m 4m

50.1 } lost
54.1 }

0.8 } l. 2
3.5 }
x } lost on sheet
x }
x }

52.10 2.15

11.03
5.515
0.7416
0.0360
0.7776
5.992
5.99
46.11

2952
14.76
1.1691
00360
1.2051
16.03
16.03
46.12

2 3 46.12
2 1 26.43
+ 2 19.69
− .22
00
+ 2 19.47

β Triang.
+34° 29

2h 5m
20.7 40.0 5.4
23.8 44.6 8.3
26.6 49.2 11.4
29.6 53.5 14.5
32.5 58.0 x lost

133.2 245.3 34.2
26.64 49.06 11.40
22.50 .05 22.40
49.14 49.11 49.00

2 5 49.08
2 3 29.51
+ 2 19.57
− .10
00
⊥ 2 19.47

*

1882 +2.246
19.49 .396
1.17 2,642

m =
2,642) 1.17 (.443
10568
11320
10568
7560

⊥ 2 19.42
.63
.47
47
.41
240
⊥2 19.48

55 Cass
+66° 1

I II

2h 7m
50.7 30.0
57.0 39.4
2.8 48.4
9.0 57.6
15.0 6.7

31.45 242.1
2.90 48.42
45.59 .09
48.49 48.33

2 8 48.41
2 6 29.59
+ 2 18.82
+ 59
00
~~23~~
+2 19.41

1.2682
~~1.2062~~
0.3907
~~1.6069~~ 1.6569
~~4538~~
1.6589
4559

2,246
913
1,333

7 rod 1327 is fast
2m 19.48s at 2h 0m Sid Time

JAD obsr.

1898

Jan 29

prec T Tauri
4h prec is
4h 38 ~~55.0~~
2.0
13.0
15.0
4 38 7.5
= +22° 737 D.M.
DM mag 8.5.
Is really brighter
7.0 mag.

T Tauri

+22° 45′

4h 38 ~~56.2~~

4.2	21.5	44.5
7.0	25.5	47.3
9.4	29.5	50.0
12.4	34.3	52.6
15.2	37.9	54.8
48.2	148.7	249.2
9.64	29.74	49.84
20.10	.04	20.01
29.74	29.78	29.83

4 38 29.78
4 36 9.48
+ 2 20.30
− 22
oolacel
+ 2 20.08

4 Cam.

+56° 34

4h 41 10.6	39.9 · 42	18.0
15.3	X	22.5
19.5	53.4	27.0
24.2	0.3	31.4
27.8	6.7	36.0
97.4	160.0	134.9
19.48	53.34	26.98
33.68	.06	33.54
53.16	53.40	53.44

4 41 53.33
4 39 33.40
+ 2 19.93
+ .26
.00
+ 2 20.19

Frod 1327 is fast

2m 20.15s

at 4h 40m

Sid. Time

1898

JAD obsr

Feb. 4

χ Gem
+28° 5'

7 59 12.5 30.8 54.7
15.4 35.1 57.5
18.2 39.3 .04
21.0 43.5 3.0
23.9 47.6 5.9

9 10 19.63 30.15
18.20 39.26 0.30
21.03 .04 20.93

39.23 39.30 39.37

+ 1.271
- .445

1.72) .65 (.38
5.16
1340

.38
.4 = m

7 59 39.30
7 57 18.35

+ 2 20.95
- .15
.00 level

+ 2 20.80

27 Lyncis
+51°48'

8h 2m 33.7 59.5 33.7
37.9 5.8 37.8
41.7 11.8 41.7
45.8 17.6 45.8
49.5 23.6 49.6

20.86 35.93 20.86
41.72 11.76 41.72
29.98 .05 29.84

11.70 11.81 11.88

8 3 11.80
8 0 51.25

+ 2 20.55

+ .14
.00 level

+ 2 20.69

69
69
80

217
72

ι Navis
-24° 0'

8 5 9.8 27.4 50.3
12.6 31.5 53.1
15.4 35.6 53.8
18.2 39.6 58.6
20.8 43.5 1.1

7 68 17.76 27.89
15.36 35.52 50.78
20.30 .04 20.20

35.66 35.56 35.58

8 5 35.60
8 3 14.40

+ 2 21.20
- 32
.00 level

+ 2 20.68

Frod. 1327 is fast

2m 20s.72

at 8h 0m

Sid Time

J. A. D. obs.

1898

Feb 6

κ Gem.
+24°39

	I	II
7h 40m	15.0	32.8
	17.9	36.7
	20.5	41.0
	23.4	45.0
	26.0	49.1
	102.8	204.6
	20.56	40.92
	20.41	.04
	40.97	40.96

7 40 40.96
~~7 40 59.12~~
7 38 20.38
+2 20.58
− .17
00 level
+2 20.41

β Gem.
+28°17′

	I (last 3),	II,	III,
7h 41m	×	19.5	43.5
	×	23.8	46.3
	6.8	27.9	49.0
	9.6	32.2	52.0
	12.5	36.2	54.3
		139.6	245.1
		27.92	49.02
		.04	20.96
		27.96	28.06

7 41 28.01
7 39 7.56
+2 20.45
− .14
00 level
+2 20.31

π Gem.
+33°40′

	II	III
7h 43m	10.5	35.9
	15.0	38.7
	19.5	41.8
	23.8	44.8
	28.3	47.7
	97.1	208.9
	19.42	41.78
	.04	22.19
	19.46	19.59

7 43 19.52
7 40 59.12
+2 20.40
−.10
.00
+2 20.30

[26 Lyncis]
+47°50′

	I	II	III
7h 49m	6.2	29.8	1.3
	10.0	35.7	5.0
	13.8	41.0	8.8
	17.4	46.8	12.8
	21.0	52.3	16.1
	68.4	205.6	44.0
	13.68	41.12	8.80
	27.62	05	27.49
	41.30	41.17	41.31

7 49 41.26
7 47 21.07 (Amer. Ephem.)
+2 20.19
+.08
00
+2 20.27

.41
3.1
3.0
2.7
129
.32

Frod 1327 is fast

$2^m\ 20^s.32$

at $7^h\ 45^m$

Sid Time

Clock Frod. 1327:

Change of weights:-

During the autumn the rate of Frod 1327 was so great ~~that~~ Mr Attwill was compelled to alter length of pendulum (by weights) in order to compare Bond 394 conveniently on graphic chart. By request Mr. Attwill gives me the following dates of changes made by him.

1897	Nov 29.1	Added	1 gr. to	Frod 1327;	load	4 gr.
	Dec 1.9	"	1/2 gr. to	"	"	4 1/2 gr.
	Dec 7.2	"	1/2 gr. to	"	"	5 gr.
	Dec 11.1	"	1 gr. to	"	"	6 gr.
	Dec 18.2	Removed	2 gr. from	"		4 grs
	Dec 19.9	"	1 gr "	"	"	3 gr.

J.A.D.

This list given me Feb 7, 1898 by W. H. Attwill who takes clock comparisons

Feb 10, 1898

Gr. 966
+ 74°58'

5 28 — 28 29
1.6 — 58.8 — 22.6
15.8 — 32.0
30.6 — 41.5
44.3 — 51.4
58.8 — 0.3
1511 — 2078
30.22 — 41.56
.14 — 71.32
30.36 — 30.24

0.5870
1.2662
1.8532

71.32

5 28 30.30
5 26 11.14
+ 2 19.16
+ .51
oolerd
+ 2 19.67

+ 3.732
− 266
3.998

4.) .71 (.18 = m
4
31

3.732'
913
2.82

ζ Leporis
778
− 14°51

5 44
34.3 — 55.8
38.1 — 58.4
41.9 — 1.0
45.8 — 3.6
49.6 — 6.0
2097 — 3048
41.94 — 0.96
04 — 19.19
41.98 — 41.77

5 44 41.88
5 42 22.01
+ 2 19.87
− .21
.00
+ 2 19.66

Frod 1327 is ~~slow~~ fast

2^m $19^s.66$

at 5^h 40^m

Sid. Time

JAD obs.

1898

Feb 17

	Br 1197 −3° 33		o Urs Maj. +61° 4'		Gr 1450 +38° 22		η Cancri +20° 48'
	III		III		III		III
8 23	9.5	8 24	39.7	8 28	57.4	8 29	25.4
	12.0		44.8		0.4		28.4
	14.7		49.8		3.6		~~[illegible]~~
	17.1		55.1		6.7		30.9
	19.5		59.9		9.8		33.7
							36.1
	72.8		249.3		31.79		154.5
	14.56		49.86		3.58		30.90
	18.49		38.15		23.55		19.74
8 22	56.07	8 24	11.71	8 28	40.03	8 29	11.16
8 20	36.37	8 21	52.61	8 26	20.57	8 26	51.63
+2	19.70	+2	19.10	+2	19.46	+2	19.53
	−.32		+.28		−03		−.17
	00 level		00 level		00		00
+2	19.38	+2	19.32	+2	19.43	+2	19.36

1.2662
.3154
1.5816
3815

+1.809
−.062
1.871

.60 32 m
5 61
3 90

1.809
913
.896

19.38
.36
.43
.32
149
.37

Frod 1327 is fast

$2^m\ 19^s.37$

at $8^h\ 20^m$

Sid. Time

Prof. S. [illegible]

1898
Feb 24

(796)
γ Can. Maj.
−15°29

$7^h 1^m$ 23.0 44.5
26.6 47.0
30.4 49.6
34.4 52.2
38.2 54.8
152.6 248.1
30.52 49.62
.04 19.15
30.56 30.47

$7^h 1^m 30.51^s$
6 59 10.71
+ 2 19.80
− .44
~~.62~~
00 level
+2 19.36

Gr. 1308
+68°40

$7^h 23^m$ 18.0
24.6
31.5
38.5
45.0
157.6
31.52
50.75
40.77

0.4392
1.2662
1.7054
50.75

7 22 40.77
7 20 22.02
+ 2 18.75
+ ~~.62~~
00 level
+ 2 19.37

+2.561
−277
2.838

2.84 | 1.05 | .4
1136 .37
852
1980

n = .37

2.561
713
1.648

Frod. 1327 is fast $2^m 19.36^s$

at $7^h 15^m$

Sid. Time

1898

Feb 26

JDD Obs.

n (no 2)

+2 ~~19.84~~ 2.264 19.25
2 ~~19.18~~ −.259 2 19.69
.66 2.523 .44
9.64 35
~~9.8195~~
0.4019 ~~.2616~~=n
~~9.4176~~ 1744=n
0.2416
Using 9 Cam and 53 Erid.

n (no 1)

+2 17.85 | +75.75 | 3.938
2 19.69 | −14.5 | −.259
1.84 | | 4.197
0.2648 Using Gr 848 and −14°30 53 Erid
0.6229
9.6419 .4384=n

ε Tauri
+18°56
4h 24
36.0 52.9 15.0
38.7 56.7 17.7
41.2 0.8 20.2
43.9 4.7 23.0
46.4 8.5 25.3
2062 3036 1012
4124 0.72 2024
19.60 04 19.51
0.84 0.76 0.73
4 25 0.78
4 22 41.21
+2 19.57
− ~~.25~~ −.10
00
~~+2 19.32~~
+2 19.47

α Tauri
+16°17
4h 33
15.8 27.0 48.0
18.4 30.6 50.5
20.8 ~~30.4~~ 53.0
34.4 55.3
38.0 57.8
17.20 26.46
34.40 52.92
04 18.49
34.44 34.43
4 33 34.44
4.31 14.74
+2 19.70
− ~~.44~~ ~~.26~~ .16
00
+2 19.26
+2 ~~19.45~~
19.54

γ Eridani
−3°34
4h 35
27.5 44.0 5.5
29.8 47.8 8.0
32.2 51.4 10.5
35.0 55.1 13.1
37.5 59.0 15.9
1620 2573 530
32.40 51.46 10.60
19.32 15 04 19.55
51.72 55 51.50 51.37 57
4 35 51.53
4 33 31.84
+2 19.69
− ~~.51~~ ~~.30~~
.00
+2 19.18
+2 19.49

53 Erid.
−14°30
4h 32
0.6 17.1 39.1
3.4 21.2 41.7
5.8 24.8 44.6
8.2 28.9 47.2
11.0 32.8 49.6
290 1248 2222
5.80 24.96 44.44
19.32 04 19.23
25.12 25.00 25.21
4 32 25.11
4 30 5.64
+2 19.47
− ~~.27~~ .10
.00
+2 19.20
+2 19.37

Gr 848
+75° 45
4h 37 38
13.0 23.4
28.2 33.5
43.0 43.7
57.7 54.0
32
1419 2178
7 35.48 42.56
~~70.24~~
740 74.49
~~4288~~ ~~39.72~~
28.08 27.57
4 37 27.82
4 35 9.97
+2 17.85 ~~.79~~
~~+1.33~~ 1.51
00
~~+2 19.18~~
~~+2 18.64~~
+2 18.36

1.2381
0.2589
1.4970
31.41

17.303
1.2381
0.6088
1.8469
7024
1.823
0.2608
0.6088
0.8696
7.403

0.6088
1.2662
1.8750
7499

3.938
913
3.025

4 Cam
+56°34
4h 41
14.2 38.6 16.9
18.3 45.4 21.2
23.0 52.0 26.0
27.5 58.8 30.1
~~38.6~~ 5.7 34.5
8.30 26.05 12.87
20.75 52.10 25.74
31.41 .07 33.51
52.16 52.17 52.23
4 41 52.19
4 39 32.62
+2 19.57
+.26 ~~+.14~~ +10
00
+2 19.83
+2 ~~19.71~~
19.67

9 Cam
+66°10
4h 45
I II
18.4 57.8
24.2 7.5
30.3 16.4
37.1 25.6
43.0 34.7
1530 3820
30.60 76.40
~~.09~~ 09
45.90
1650 16.31
4 46 16.55
4 43 57.30
+2 19.25
+ .59 ~~35~~
00 +23
~~+2 19.84~~
+2 ~~19.60~~
19.48

0.3936
1.2682
1.6618
4590
2.264
913
1.351

Feb 26, 1898

Continued

	From N No 1		~~n No 2~~	n No 4			
−14° 30′	+2 19.39	19.393		+2 19.18	19.49	19.47	
−3° 34	19.45			19.26	.54	19.24	
+16° 17	19.31			19.20	.37		
+18° 56	19.42		.262	19.32	.47		.59
+56° 34	19.71	19.655		19.83	.67	.57 19.835	
+66° 10	19.60			19.84	.48		
+75° 45	[18.64]			[19.18]			
	6)288			6)263	302		
	+2 19.48	Mean	+2	19.44	19.50		

48
.50

Mean +2 19.4~~6~~9

F rod 1327 is fast

# 2ᵐ 19ˢ.4~~6~~9

at 4ʰ 30ᵐ

Sid Time

JAD obs

1898
Feb 28

ε Tauri
+18°56

4h 24 36.1 53.1 15.6
38.8 57.0 18.0
41.4 1.0 ~~23.7~~
44.0 4.8 23.0
46.6 8.8 25.7
2069 3047 823
41.38 0.94 20.58
19.60 .04 19.51
0.98 0.98 1.07

4 25 1.01
4 22 41.18
+2 19.83
− .14
.00
+2 19.69

α Tauri
+16°18

4 32 0.9 17.6 39.3
3.2 21.4 42.0
6.0 25.4 44.6
8.7 29.2 47.2
11.1 33.0 49.7
29.9 126.6 222.8
5.98 25.32 44.56
19.32 .04 19.23
25.30 25.36 25.33

4 32 25.33
4 30 5.61
+2 19.72
− .15
.00
+2 19.57

−14°31
53 Eridani

4 35 27.6 44.3 5.9
30.0 48.0 8.3
32.6 51.8 10.9
35.1 55.5 13.5
37.6 59.4 15.9
162.9 259.0 54.5
32.58 51.80 10.90
19.15 .04 19.06
51.73 51.84 51.84

4 35 51.80
4 33 31.81
+2 19.99
−.29
00
+2 19.70

7h 2m 19.35 +2.264
19.99 −.259
.64 +2.523

9.8062
0.4017
9.4045
.254 = m

2.264
913
1.351

τ Tauri
+22°45'

4 38 3.4 20.8 43.5
6.0 24.8 46.1
8.8 28.8 48.8
11.4 32.8 51.5
14.1 36.5 54.1
43.7 143.7 244.0
8.74 28.74 48.80
20.10 04 20.01
28.84 28.78 28.79

4 38 28.80
4 36 9.03
+2 19.77
− .12
00
+2 19.65

4 Cam
+56°34

4 41 9.6 38.8 16.9
14.2 45.5 21.2
18.7 52.2 ~~24.7~~
23.4 59.0 25.7
27.7 5.5 30.5
34.8
93.6 261.0 124.1 ~~153.8~~
18.72 52.20 ~~37.7~~ 2
33.66 07 33.51
52.38 52.27 ~~58.25~~ 52.31

4 41 52.32
4 39 32.56
+2 19.76
+.15
00
+2 19.91

9 Cam
+66°19

4 45 18.1 58.0 ~~50.0~~
24.4 7.6 56.0
16.8 2.5 {2.2 2.9
30.4 25.8 8.5
36.7 34.8 14.3
42.8
152.4 383.0 311.3
30.48 16.60 2.26
45.90 09 45.69
16.38 16.69 16.57

1.2682
0.3936
1.2662
1.6618
1.6598
45.90
45.69

4 46 16.56
4 43 57.21
+2 19.35
+ .34
00
+ 19.69

−14°.5 19.70
+16.3 .57
+18.9 .69
+22.7 .65
} 261 .65
+56.6 .91
66.1 .69
} 160 .80
421
.70

−02
−13
− 1
.7 − 5
+21
− 0

69
57
65
191
} .64
155 .77
91 } .91

+2 19.70
+2 19.77
+2 19.73

Frod 1327 is fast
2^m 19.73^s

at 4^h 30^m Sid Time

2d D. obs.

1898

Mar 3

	9 Cam		ι Aurigae			ε Aurigae		[ζ Aurigae]	
	+66°9'		+33°0			+43°40		+40°55'	
	II	III				I	II	II	III
	4^h 45		4^h 52			4^h 56		4 57	
	58.0	48.7	14.3	33.4	58.4	28.0	50.0	32.0	0.1
	7.3	56.0	17.4	37.8	1.3	31.2	55.0	37.0	3.0
	16.6	2.2	20.1	42.1	4.3	34.5	0.3	42.0	6.4
	25.8	8.2	23.1	46.6	7.3	38.0	5.3	47.0	9.7
	34.6	13.9	26.0	51.0	10.0	41.3	10.2	51.8	13.0
	3823	3090	1009	2109	3213	1730	3008	2098	322
	16.46	1.80	20.18	42.18	4.26	34.60	0.16	41.96	6.44
	09	45.64	22.11	.04	22.01	25.64	~~25.64~~ ~~0.05~~	.05	24.42
	16.55	16.11	42.29	.22	.25	0.24	0.21	42.01	42.02
	4 46 16.33		4 52 42.25			4 57 0.23		4 57 42.02	
	4 43 57.08		4 50 22.94			4 54 40.97	Jahrbuch	4 55 22.89	from Eng Ephem
	+2 19.25		+2 19.31			+2 19.26		+2 19.13	
	+.34		−.06			+01		−01	
assumed n from Feb 28	00 lev		.00			.00		00	
	+2 19.59		+2 19.25			+2 19.27		+2 19.12	

2682
3936
2662
618
598
590
569

25
31
26
13
95
24

31
26
13
70
23 } 24
25 }

59
25
27
12
123
.31

~~25~~
~~27~~
~~12~~
~~64~~
~~21 } 80~~
~~59 }~~

~~.40~~

27
12
25
64
21

24
24
31
179
.26

Frod 1327 is fast

2^m $19^s.26$

at 4^h 50^m

Sid Time

L.D. obsr.

1898
March 8

ε Aurigae
+43° 40'

26.0 48.0 17.0
29.5 53.1 20.5
33.0 58.4 24.0
36.3 3.4 27.5
39.7 8.5 30.7
16.45 29.14 119.7
32.90 58.28 23.94
25.64 .05 25.53
58.54 58.33 58.41
58.43
4 54 40.85
+2 17.58

Tape lost on sheet. Pen failed at end: last min ~~lost~~ uncertain

ζ Aurigae
+40° 55'

×
×
57.? 5.8
56.? 8.0
11.0
24.8
8.27
27.68
40.59

20.82
1.3205
0.1216
1.4421
27.68

22 40.59 ~~35.0~~ ~~26.0~~ from Am. Ephs.
4 45
~~14.59~~
+2 17.79

ι Tauri
+21° 26

54.0 11.3 33.8
56.7 15.2 36.3
59.4 19.2 39.0
2.0 23.0 41.8
4.7 27.1 44.2
29.68 95.8 195.1
59.36 19.16 39.02
19.92 04 19.83
19.28 19.20 19.19
19.22
4 56 61.58
+2 17.64

η Aurigae
+41° 5

10.0 31.2 ×
13.2 36.1 ×
16.4 41.0 5.7
19.8 46.0 9.0
23.0 51.0 12.1
82.4 205.3 26.8
16.48 41.08 8.93
24.60 05 27.76
41.08 41.11 41.17
41.12
4 59 23.65
+2 17.47

1.3205
0.1229
1.4434

β Erid.
−5° 13'

45.6 × 22.7
48.1 5.4 25.2
50.5 9.2 27.7
53.0 12.9 30.0
× 16.5 32.5
151.6 27.5 138.1
5.053 9.17 27.62
18.62 04 18.54
~~23.67~~ 9.21 9.08
9.15
9.15
5 2 51.57
+2 17.59

α Aurigae
+45° 53
I II III
55.0 23.5 48.1
58.7? ~~28.3~~
5.8 39.3
9.2
28.72
5 9 11.37
+2 17.35

Red. mics α Aurigae

1.3713 | 1.3220 | 1.2058 | 1.1338
0.1574 | 0.1574 | 0.1574 | 0.1574
1.5287 | 1.4794 | 1.3632 | 1.2912
33.79 | 30.16 | 23.08 | 19.55
55.00 | 58.7 | 5.8 | 9.2
28.79 | 28.86 | 28.88 | 28.75

0.8733 | 0.5729 | 0.8675 | 1.3678 | 1.1309
0.1574 | 0.1574 | 0.1574 | 0.1574 | 0.1574
1.0307 | 0.7303 | 1.0249 | 152 | 1.2883
1677 | 5.37 | 10.59 | 33 | 19.42
 | 23.5 | 39.3 | 58. | 48.1
 | 28.87 | 28.89 | | 28.68

28.79
86
88
75
87
89
68
572
.82

Level = zero

−5° 13 +2	17.59
+21 26	17.64
+40 55	17.79
+41 5	17.47
+43 40	17.58
+45 53	17.35

~~.605~~
.673
① .548
.467

.59 × 11	6.49
.64 × 15	9.60
.79 × 3	2.37
.47 × 13	6.11
.58 × 15	8.70
.35 × 7	2.55
64	35.82
	32.0
	382

.56 ②

③ .673 × 1 673
.467 × 2 934
2 | 1607
.536

① .548
② .560
③ .536
144
+2 17.548

Frod 1327 is fast
2m 17.55s
at 5h 0m
Sid. Time

Determination of Level:-

March 11, 1898

Observation unreliable
J.G.S.
Feb 6-1901

1185 ~~23~~ 23 30 M.T.
C.S.
to 0,30 M.T. Mar 11

Tel. S:-

	W.	E.	Bubble			
Screw West	+61.0	+28.0	33.0	−.2	+44.5	
Screw East	− −1.0	−32.0	33.0	−.2		−15.5
Screw West	+65.5	+32.0	33.5	+.3	+48.8	
Screw East	− −1.0	−32.1	33.1	−.1		−15.6
Screw West	+64.8	+31.5	33.3	+.4	48.1	
Screw East	− −1.3	−32.0	33.3	+.1		−15.4
Screw West	+66.0	+33.0	33.0	−.2	+49.5	
Screw East	− −1.3	−32.0	33.3	+.1		−15.3
Screw West	+64.0	+30.9	33.1	−.1	+47.4	
Screw East	− −1.0	−32.3	33.3	+.1		−15.7
	+321.3	315.8	33.19		+238.3	−77.5

~~+321.3~~
~~−5.6~~
~~W +315.7~~
~~E 315.8~~
~~2)0.1~~

~~L.005 East high Tel. S.~~

Reduction:-

	d.	
Telescope S.	.005	East high
Telescope N.	.020	West high
	.015	
Level error =	.007	West high
	.06	
	.00042 = b	
	1.35	
	.00 ~~5~~ = b sec φ = level correction	

Stars come early hence in the present form of time star reduction the sign for level correction will be +, but an inappreciable amount

b sec φ = + .00

Note 1.

Tel. N:-

As bubble met end of tube and both ends could not be read I adjusted the horizontality of level by the two screws. ←

	W	E		
~~Screw West~~				
Screw East	~~50.8~~	~~83.0~~		
Screw West		~~94.5~~		

~~Screw East~~	~~22.1~~	~~54.3~~	These rejected See note 2			
Screw West	+104.0	+71.5	32.5	+.2	+87.8	
Screw East	−2.0	30.3	32.3	.0		−14.2
Screw West	+105.0	+72.9	32.1	−.2	+88.9	
Screw East	−1.8	30.3	32.1	−.2		−14.3
Screw West	+99.0	+66.5	32.5	+.2	82.7	
Screw East	−2.0	30.5	32.5	+.2		−14.3
Screw West	+107.5	+75.0	32.5	+.2	+91.2	
Screw East	−1.9	30.3	32.2	−.1		−14.2
Screw West	+97.0	+65.0	32.0	−.3	+81.0	
Screw East	−1.8	30.3	32.1	−.2		−14.3
			32.28		+431.6	−71.3

W 503.0 502.6
E 502.6

~~20)1.01~~
~~1.00~~
~~10~~
~~20)4~~
~~L.005 West high, Tel. N~~
.020

+238.3 −77.5
+431.6 −71.3
+669.9 −148.8
−148.8
20) 521.1 (26.06
40
121
120
1
.06
156 = b

b sec φ = 2.10

Note 2. When tel. is pointing in N. direction the level is difficult to read, especially when the screw is West (screw ⌖). This discordance in the results is due to a looseness ~~in~~ of the level frame or holder at its pivot and which does not assert it self so when tel. is pointing S.

1898
March 11

[μ Leonis]
+26° 30

9h 49
98
14.2
12.0
24.18
9 48 43.82

21.64
1.3353
0.0483
1.3836
24.18

Gr 1586
+73° 23
II

9 51 15.1
28.2
41.3
54.1
7.2
20.59
41.18
.13
9 51 41.31
9 49 23.66
+ 2 17.65
Not used;
hazy.

[19 Leon Min]
+41° 33

9 53 42.6 54
47.3 90
52.0 12.0
56.9 18.4
1419 35.8
47.30 11.94
05 24.66
47.35 47.28
9 53 47.31
9 51 30.02
+2 17.29
~~+.01~~
00 lond

χ Leon.
~~+12 29~~
~~+17 17~~
+12 29

10 4 52.1 8.8 30.5
55.0 12.8 33.0
57.6 16.8 35.5
02 20.2 37.8
2.5 24.1 40.4
287.4 82.7 177.2
57.48 16.54 35.44
19.00 .04 18.91
16.48 16.58 16.53
10 5 16.53
10 2 59.31
+2 17.22
~~.10~~
.00

λ Urs Maj
λ Hydrae
+0.446
-.0204
1.155] .17 1.15 m
115
550
not used

η ~~χ~~ Leon.
~~+11° 30~~
~~+12° 29~~
+17 17

10 3 42.0 59.0
44.7 2.8
47.1 6.8
50.0 10.5
52.4 14.3
236.2 33.34
47.24 6.68
19.43 04
6.67 6.72
10 4 6.70
10 1 49.44
+ 2 17.26
~~- .09~~
.00

-11°50 +2 17.44
+12 29 .22
+17 17 .26
+41 33 .29
+43 26 .27
24
.26

λ Hydrae
-11°50'

10 7 33.2 49.4 10.8
35.5 53.2 13.4
38.1 57.0 15.8
40.8 0.5 18.4
43.1 4.7 20.8
190.7 284.8 79.2
38.14 56.96 15.84
18.44 .04 18.86
57.08 57.00 56.98
10 7 57.02
10 5 39.58
+ 2 17.44
~~-.17~~
00

λ Urs. Maj.
+43° 26

10 12 45.5 7.5 36.4
3.3 5.3
48.8 12.8 40.0
3.6 5.2
52.4 18.0 43.2
3.4
55.8 22.9 46.8
3.2
59.0 27.8 49.8
261.5 89.0 216.2
52.30 ~~18.00~~ 43.24
.53 17.80
25.98 .05 25.41
17.83 17.85 17.83
10 13 17.84
10 10 60.57
+ 2 17.27
~~+.00~~
00

Frod 1327 is fast
2m 17.26
at 10h 0

2nd obser.

1898

March 14

β Urs. Maj.
+56° 57
10h 57 x 48.9 27.4
x 55.8 32.0
28.5 2.9 36.5
33.1 9.4 41.0
37.7 16.1 45.5
31.31 182.4
2.62 36.48
.07 33.89
2.69 2.59
10 58 2.64
10 55 45.86
+2 16.78

α Urs. Maj.
+62° 19
10 59 32.0 17.2
40.3 22.3
48.3 28.0 0.3328
56.0 33.0 1.2662
39 38.6 1.5990
240.5 139.1 39.72
48.10 27.82
.08 39.72
48.18 48.10
10.59 48.14
10 57 31.27
+2 16.87

χ Leonis
+7° 54
11h 1 41.5 57.4 18.8
43.8 1.3 21.3
46.7 5.1 23.7
49.1 8.7 26.3
51.3 12.4 28.6
232.4 32.49 118.7
46.48 4.98 23.74
18.72 .04 18.63
5.20 5.02 5.11
11 2 5.11
10 59 48.21
+2 16.90

Level = zero

ψ Urs. Maj
+45° 4′
11h 5 43.0 6.0 35.6
46.7 11.2 39.0
50.2 16.5 42.6
53.6 21.6 46.2
57.1 26.8 49.3
250.6 82.1 212.7
50.12 16.42 42.54
26.26 05 26.14
16.38 16.47 16.40
11 6 16.42
11 3 59.64
+2 16.78

β Crateris
−22° 15
11 8 32.6 49.8 12.6
35.3 54.0 15.1
38.0 58.0 18.0
40.7 2.0 20.7
43.1 5.8 23.2
189.7 289.6 89.6
37.94 57.92 17.92
20.03 .04 19.94
57.97 57.96 57.98
11 8 57.97
11 6 41.15
+2 16.82

δ Leonis
+21° 6′
II
11 10 52.8
56.8
1.0
4.8
8.7
304.1
0.82
.04
0.86
11 11 0.86
11 8 44.19
+2 16.67

θ Leonis
+16° 0
last tab
11h 11 37.4
1.3678
.0172
1.3850
24.27
11 11 13.13
11 8 56.28
+2 16.85

ν Urs maj
mag 8.7
+33° 40
+33° 20.96
~~28.5~~
11h 14
x ~~[illegible]~~
28.0
31.1
34.0
93.1
31.0
~~[illegible]~~
25.21
~~[illegible]~~
11 14 56.21
11 14
50.0 9.2 34.7
53.2 14.0 37.5
56.0 18.5 40.5
59.0 22.8 43.8
2.0 27.1 46.3
280.2 91.6 202.8
56.04 18.32 40.56
22.28 .05 22.18
18.32 .37 .38
11 15 18.36
11 12 61.76
+2 16.60

−22 15 +2 16.82 15
+7 54 .90 15
+16 0 .85 1
+21 6 .67 5
+33 40 .60 15
+45 4 .78 15
+56 57 .78 10
+62 19 .87 10

1230
1350
85
335
900
51 | 3900 | .764
357
330
306
240

117 0
0780
0870
35 | 2820 | 0.807
280
200
| 1571
.785

3900
2820
86 | 6720 | .782
602
700
120

Frod 1327 is fast

2m 16.78s

at 11h 00m

Sid. Time

DPT. obsr

1898
March 18

(10 Monoc −4° 41)

Preced. star
2' or 3' South
f 10 Mon
−4° 41
Preced star = 9.0
tally III
6 23 9.0
11.5
14.0
16.4
19.0
699
13.98
18.53
6 22 55.45
−4° 1501
~~BD~~ SD mag 8.0

Preced. star
9.0 star,
about 1/2' south
tally I
6 24 40.7
43.0
45.8
48.0
50.4
227.9
45.58
18.61
6 25 4.19
Probably
−4° 1523 (~~Dm~~ S.D. 8.5 mag)

10 Monocerot.
−4° 41
6 24 x 6.2 27.4
52.9 9.9 29.9
53.2 13.7 32.4
57.6 17.5 35.0
0.2 21.2 37.3
165.7 68.5 162.0
55.24 13.70 32.40
18.53 .04 18.61
13.77 .74 .79

6 25 13.77
6 22 57.08
+2 16.69

51 Aurigae
+39° 29
6 33 24.0 45.0 12.4
27.7 50.0 15.3
30.8 54.8 18.9
34.0 59.4 21.8
37.0 6.4 25.0
153.5 274.6 93.4
30.70 54.92 18.68
24.03 .05 23.92
54.73 54.97 54.76
246
6 33 54.82
6 31 37.97
+2 16.85

S Monocerot.
+10° 0'
6 37 16.4 33.0 54.3
19.3 36.8 56.7
21.6 40.5 59.2
24.2 44.2 1.8
26.8 48.0 4.3
108.3 202.5 296.3
21.66 40.50 59.26
18.83 .04 18.74
40.49 .54 .52
6 37 40.52
6 35 23.64
+2 16.88

ε Gem.
+25° 14'
6 39 32.2 50.3 13.2
35.2 54.2 16.0
37.9 58.4 18.8
40.7 2.3 21.6
43.4 6.3 24.3
189.4 291.5 93.9
37.88 58.30 18.78
20.49 .04 20.40
58.37 .34 .38
6 39 58.36
6 37 41.64
+2 16.74

[ψ⁵ Aurigae]
+43° 41
6 41 10.3 32.2 1.4
13.7 37.5 4.8
17.0 42.7 8.2
20.6 47.6 11.8
24.0 53.0 15.0
85.6 213.0 41.2
17.12 42.60 8.24
25.65 .05 25.34
42.77 .65 2.70
6 41 42.71
6 39 25.89
+2 16.82

ψ⁵ Aurig.
6 39 23.190
390
0.6365
9.7266 2,308
0.3631
8.0369
0.6356
8.6725 .047
8.1977
1.2730
9.4707 .296
8.9582
9.7155
8.6737 .047
6 39 25.888

−4° 41 +2 16.69
+10° 0 .88
+25° 14 .74
+39° 29 .83
+43° 41 .82
329
Simple mean .82

247 wt 2
.82
.82 wt 1
.82

Level = zero.
No appreciable n term.

F rod 1327 is fast
2m 16s.82
at 6h 30m Sid Time

J.A.D. obsr.

1898

March 24

χ Urs. maj.
+48° 22

	II	III
11h 42	49.0	20.5
	54.5	24.4
	0.3	28.2
	5.9	31.9
	11.4	35.5
	30.11	140.5
	0.22	28.10
	.06	27.79
		~~5.89~~
	0.28	00.31

11 43 0.30
11 40 43.85
+2 16.45
+ .07
on level
+2 16.52

β Leonis
+15° 15

11h 45	46.7	3.1	25.0
	49.3	7.0	27.7
	.51.9	11.1	30.1
	.54.5	15.0	32.8
	.57.0	18.7	35.1
	259.4	54.9	150.7
	51.88	10.98	30.14
	19.23	.04	19.14
	11.11	11.02	11.00

11 46 11.05
11 43 54.43
+2 16.62
− .21
00
+2 16.41

β Virginis
+2° 22

	II	III
11h 47	35.0	56.0
	38.7	58.7
	42.5	1.0
	46.2	3.7
	50.0	6.0
	212.4	305.4
	42.48	1.08
	.04	18.48
	42.52	42.60

11 47 42.56
11 45 25.80
+2 16.76
− .29
00
+2 16.47

γ Urs. maj.
+54° 17

11h 50	8.5	35.6	11.8
	12.6	42.0	16.0
	16.8	48.4	20.2
	21.0	54.9	24.5
	25.4	1.0	28.6
	84.3	241.9	101.1
	16.86	48.38	20.22
	31.78	.06	31.63
	48.64	48.44	48.59

11 50 48.56
11 48 32.25
+2 16.31
+ .16
00
+2 16.47

β Virg.
γ Urs. maj.

1,392
042
1,350
.45
405
.333 = n
450
405
450

+2° 22	+2 16.47
+15 15	.41
+48° 22	.52
+54° 17	.47
	187
	47

Frod 1327 is fast
2m 16s.47
at 11h 45
Sid Time

Prof. S. [illegible]

March 26, 1898

7124	Gr 1836	7132
α Hydrae		λ Hydrae
−8° 13′	+73° 22′	−11° 51′
9h 24 46.0 7.2	9 51 13.2 27.0	10 7 48.5 9.8
49.8 9.6	26.7 36.0	52.3 12.4
53.6 12.2	39.6 44.9	56.1 15.0
57.2 14.7	53.0 53.4	00 17.5
0.9 17.0	5.2 16	3.7 20.0
2675 607	1977 2229	2806 747
53.50 12.14	39.54 44.58	56.12 14.94
.04 1865	.12 64.54	.04 1887
53.54 53.49	39.66 40.04	56.16 56.07
9 24 53.51	9 51 39.85	10 7 56.11
9 22 36.95	9 49 23.15	10 5 39.50
+ 2 16.56	+ 2 16.70	+ 2 16.61

0.5436
1.2662
1.8098

n inappreciable

70 } 66 }
61 }
70 } 63 } 65
56 }

level = zero

Frod 1327 is fast
2m 16s.65
at 10h 0m
Sid Time.

1898
Mar. 31

[38 Lyncis] +37° 15′

40 Lyncis +34° 50′

DAD Ser.
foll. 40 Lyncis (4′ n.)
obs. on 2nd wire, III tally.
(8.0 m ±)

9h 14m 20.1 40.4 6.7
232 450 98
26.3 49.7 12.8
29.4 54.1 15.9
32.6 58.8 18.9
1316 2480 641
26 32 49.60 12.82
23.30 05 23.19
49.62 49.65 49.63

9 14 49.63
9 12 33.08
+2 16.58
−.01
00
+2 16.57

9 16 41.8 1.2 26.8
44.7 5.9 29.8
47.7 10.4 32.8
50.8 14.6 35.8
53.7 19.4 38.8
2387 515 1640
47.74 10.30 32.80
22.59 05 22.50
10.33 10.35 10.30

9 17 10.33
9 14 53.60
+2 16.73
−.02
00
+2 16.71

+2 16.64

9 17 40
19.5
9 17 20.5
~~17 34.6~~
fol 10.2 s
4′ n

1.2041
0.0856
1.2897
(1)948

Is Dm 1981 {2′ n.
86 m Dm

38 Lyncis
135
9 12 29.913

0.5741
9.7457
0.3198 2.088

8.5766n
0.6184n .157
9.1950

8.7948n
1.2645n 1.147
0.0593

8.7474
0.6055n
9.3529n
−.225
3.392
225
3.167
9 12 33.08

Frod 1327 is fast
2m 16.70s
at 9h 15m
Sid Time

Prof S. Ser.

7135
M Hyd.
−16° 19′

	II	III
10 23	21.1	43.0
	25.0	45.6
	28.9	48.0
	32.8	50.8
	36.6	53.1
	1444	2405
	28.88	48.10
	04	19.23
	28.92	28.87

10 23 28.90
10 21 12.00
+2 16.90
end on
−.11
+2 16.79

+4.077
−292
4.37

9 H Drac.
+76° 14′

	II	III
10 28	18.5	29 47.1
	34.5	57.7
	50.0	8.4
	5.7	18.6
	21.3	28.3
	2500	3401
	50.00	8.02
	15	77.50
	50.15	50.52

1.2662
0.6231
1.8893
77.50

10 28 50.34
10 26 33.81
+2 16.53

4.37) .37 (.09 = n
33
oo end
+.28
+2 16.81

mean
+2 16.80
Prof. S.

Determination of U from above

J.A.D. obsr

1898
April 6

ε Virginis
+11° 32

39 20.2 41.5
6.5 24.1 44.0
8.9 27.8 46.6
11.5 31.5 49.2
14.0 35.3 51.7
44.8 138.9 233.0
8.96 27.78 46.60
18.92 .04 18.84
27.88 27.82 27.76

27.82
12 57 9.00
+2 18.82

θ Virginis
−4° 57
III l.3

20.55
23.00
25.40
68.95
22.98
21.00
1.98

0.0017
1.3206
1.3223

13 4 43.04
+2 18.94

[17 Can Ven]
+39° 4′
III l.3

46.3
49.7
52.7
148.7
49.57
26.96
7 22.61
13 5 24.25
1 5.84
2 18.9
20.5

0.1100
1.3206
1.4306

.450
13 5 22.187
0.4421
9.7500 1.536
0.1921
8.7160
0.6174 .215
9.3324
8.9157
1.2531 .148
0.1688
8.3829
0.7830 .146
9.1659
13 5 24.252

A preceding star about same mag. & altitude

15 Can. probably observed

43 Comae
+28° 25

2.0 20.4 44.3
5.0 24.5 47.1
7.8 29.0 50.0
10.8 33.1 52.7
13.5 37.3 55.6
39.1 144.3 249.7
7.82 28.86 49.94
21.09 .04 20.99
28.91 28.90 28.95

28.92
13 7 10.04
+2 18.88

20 Can Ven.
+41° 8
II l.3 III

0.5654
0.1229
0.6883
4.88

20.4
25.4
30.2
76.0
25.34
4.88
20.46

38.2
41.7
45.0
48.3
51.5
224.7
44.94
24.51
20.43

20.45
13 13 1.60
+2 18.85

−4° 57 +2 18.94
+11 32 .82
+28° 25 .88
+41 8 .85

n inappreciable
level = zero

Frod 1327 is fast
2m 18.85
at 13h 0m
Sid Time

J A D obser

1898
April 8

17 Can Ven

450

13 5 22.187

0.4421
9.7529 1.567
0.1950

8.7150n
0.6054n .209
9.3204

8.9157n 1.459
1.2482n ~~.146~~
0.1639

8.3829n
0.8281n .163.
9.2110

13 5 ~~24.272~~
25.585

θ Virginis
−4°58

13 36 55.2
36 39.0 58.9
40.5 2.7
44.0 6.3
46.6 10.0
48.9

2190 3131
4380 2.62
1862 .04
6242 2.66

13 7 2.54
13 4 43.05
+2 19.49

[17 Can Ven]
+39°4

13 7 × 35.5 2.4
× 40.1 5.5
× 24.0 44.7 8.9
27.3 49.7 ×
54.8 15.0

2248 263
44.96 8.77
.04 23.78
45.00 44.99

13 7 45.00
~~25.58~~
13 5 ~~24.27~~
+2 ~~20.73~~
19.42

43 Comae
~~+41°8~~
+28°25

13 9 3.6 21.0 44.7
5.3 25.0 47.6
8.2 29.4 50.3
11.0 33.5 53.2
13.8 37.5 55.8

419 1464 2516
8.38 29.28 50.32
21.09 04 20.99
29.47 29.32 29.33

13 9 29.37
13 7 10.07
+2 19.30

~~5 Urs maj.~~
~~+55°29~~
~~III~~

[20 Can Ven]
+41°8

13 14 49.7 11.0 38.7
53.0 16.0 42.0
56.2 20.8 45.3
59.5 25.7 48.6
2.8 30.7 51.8

2812 1042 2264
56.24 20.84 45.28
24.61 05 24.50
20.85 20.89 20.78

13 15 20.84
13 13 1.61
+2 19.23

5 Urs maj.
+55°29
III
36.1

13 22 40.5
45.0
49.1
53.7
[54.3]
5th ttm III Tally

2239
44.78
32.59

13 22 12.19
13 19 53.12
+2 19.07

Gr 2001 +72°56
II l.4 III

13 25 ~~×~~ ~~26 9.9~~ 26 43.3
× 22.0 51.8
× 59.8
43.8 8.7
56.8 16.8
49
22.0

30 04
.0.08
62.84
25 57.24
13 23 37.87
+2 19.37

0.532
1.2662
1.7982
62.84

[illegible]

Continued

17 H Can. Ven
+37°43

τ Böotis

13 32 27.4 54.1
324 57.4
37.1 0.5
41.6 3.6
46.5 6.6

1850 3022
37.00 0.44
.05 2332
37.05 37.12

13 32 37.08
13 30 17.81
+2 19.27

τ Bootis
+17°59

13 44 45 1.4
II
× 4.0
× 6.7
46.1 9.2
51.1 11.8
54.8

331
662
19.41
13 44 47.21

13 42 27.95
+2 19.26

η Urs. Maj.
+49°50

II III
11 45 42.1 15.1
× 18.8
53.8 22.7
59.7 26.5
54 30.3

1613 1134
53.77 2268
.06 2861
53.83 54.07

13 45 53.95
13 43 34.96
+2 18.99

τ−α
−4°58 +2 19.49
~~+39 4~~
+28°25 .30
+39° 4
+41 8 .23
49 50 {18.99}
37 43 .27

level = zero

−4.0 +2 19.49 × 10 | 490
+17.0 - - - - .26 × 5 | 130
+28.4 .30 × 15 | 450
+37.2 .27 × 10 | 270
- - - .42 × 10 | 420
+39.1 .23 × 10 | 230
+41.1 [18.99] × 15 | −15
+49.8
+53.4 19.07 × 5 | 35
72.9 19.37 × 5 | 185
75) 1775 (24
150
275

85) 2195 (26
170
495
510

Frod 1327 is fast
2m 19.s24
at 13h 15m
Sid Time

L A D. obsr.

1898
April 11

ε Urs Maj. +56°32

I II
$12^h\ 52^m$ 26.4 42.3
28.8 46.1
31.5 50.2
33.9 53.8
36.3 57.2
156.9 249.6
31.38 49.92
18.39 .04
49.97 49.96
12 52 49.96
12 50 30.87
+2 19.09

δ Virginis +3°58

I II III
53^m 14.0 28.0 55.2
17.2 32.8 58.4
20.1 37.8 1.4
42.5 4.7
47.4 8.0
188.5 307.7
37.70 1.54
.05 23.72
37.75 37.82
12 53 37.78
12 51 18.86
+2 18.92

12 Can Venat. +38°53

~~III~~ l.4
I
12 51 ×
17.4 17.30
22.0 1.2380
26.5 0.2584
31.0 1.4964
31.36
96.9
~~22.30~~
24.23
31.36
12 51 55.59
12 49 36.70
+2 18.89

8 Drac +66°0

~~III~~ l.4
12 54 ×
28.8
34.5 19.69
40.8 1.2943
46.5 0.3907
1.6850
48.42
150.6
37.65
48.42
12 53 49.23
12 51 30.11
+2 19.12

ε Virginis +11°31

12 59 4.1 20.4 41.8
6.6 24.0 44.3
9.4 28.0 46.9
11.4 32.0 49.4
14.1 35.6 51.7
45.4 140.0 234.1
9.08 28.00 46.82
18.92 .04 18.84
28.00 28.04 27.98
12 59 28.01
12 57 9.02
+2 18.99

ε Urs Maj
δ Virg.
1.511
070
1.44) .20 (.14 = n
144
560

8 Drac
δ Virginis
2.246) .03 (.0 = n
07
2.18
n assumed zero

+3°58 +2 19.09 × 10 190
+11 31 18.99 × 15 −15 (a)
+38 53 18.92 × 10 −80
+56°32 18.89 × 4 −44
+66°0 19.12 × 4 48
+238
−139
43) 99 (23
86
130
19.023

+11 31 18.99
38 53 .92 } 18.96 (b)
+56 32 18.89
185
18.92 ~~tonight~~

Level = zero

(c)
+2 18.92 (weight 3) −24
+2 19.02 (weight 2) +4
5) −20
−4
Final mean 18.96

Frod 1327 is fast
2^m $18^s.96$
at 12^h 55^m
Sid Time

+402.5 −265.2
1830 −408.9
+587.5 −674.1
587.5
40)86.6(2.1
80
66
.06
6=.036
.15

+84.3 −46.0
−408
+125.1
−121.0
8)4.1
.5
.06
+.030
1.35
+.04 = b sec φ

April 16, 1898 J.A.D. Asr.

Observation for Level:—(Merid. Circle)

Observation unreliable use b sec φ = .00 ?

about 0h 10 M.T.

119°

Tel. South:—

	E		W	(bubble)
Screw E −	47.3	−26.3	5.3	42.0
Screw W +	18.0	+39.0	60.0	42.0
Screw E −	47.4	−26.3	5.3	42.1
Screw W +	20.1	+41.1	62.0	41.9
Screw E −	51.5	−30.7	9.7	41.8
Screw W +	15.3	+36.5	57.7	42.2
Screw E −	45.0	−24.0	3.0	42.0
Screw W +	21.3	+42.3	63.3	42.0
Screw E −	48.0	−27.0	6.0	42.0
Screw W +	18.0	+39.0	60.0	42.0
Screw E −	47.4	−26.4	5.4	42.0
Screw W +	20.3	+41.3	62.1	41.8
Screw E −	47.5	−26.5	5.5	42.0
Screw W +	19.3	+40.3	61.0	41.7
Screw E −	47.0	−26.0	5.0	42.0
Screw W +	21.7	+42.7	63.5	41.8
Screw E −	50.0	−29.0	8.1	41.9
Screw W +	18.0	+39.0	59.3	41.3
Screw E −	44.0	−23.0	2.0	42.0
Screw W +	21.3	+41.3	63.0	41.7
				41.9

Tel. North (See Note) *(See note left)

	E		W	
Screw E −	~~43.5~~ 58.3	−37.6	~~2.0~~ 17.1	41.2
Screw W +	(−1.8)	+18.5	39.0	40.8
Screw E −	60.1	−39.7	19.2	40.9
Screw W +	(−1.8)	+18.5	39.0	40.8
Screw E −	58.3	−37.6	17.1	41.2
Screw W +	(−1.8)	+18.5	39.0	40.8
Screw E −	53.0	−34.5	14.0	41.0
Screw W +	(−1.8)	+18.5	39.0	40.8
Screw E −	~~(−1.8)~~ 59.6	−39.0	~~3.8~~ 18.5	41.1
Screw W +	(−2.0)	+18.5	39.0	41.0
Screw E −	62.0	−41.5	21.0	41.0
Screw W +	(−1.8)	+18.5	39.0	40.8
Screw E −	65.0	−44.5	24.0	41.0
Screw W +	(−1.8)	+18.5	39.0	40.8
Screw E −	66.2	−45.5	25.0	41.2
Screw W +	(−1.8)	+18.5	39.0	40.8
Screw E −	59.0	−38.5	18.0	41.0
Screw W +	(−1.8)	+18.5	39.0	40.8
Screw E −	71.0	−50.5	30.0	41.0
Screw W +	(−2.0)	+18.5	39.0	41.0
				40.9

* Note: Found ~~that~~ when Tel. is North Screw W. the bubble could not be read; adjusted level of level-tube

666.6 667.2
667.2
40)0.6 W(.015 W high (Tel. S)
0
40
200

6145 5939
−184
E 596.1
W 593.9
40)2.2 E
.055 E high (Tel. N)

Tel. S. div .015 W high
Tel. N .055 E high
2).040 E
.020 E high
.06
s.0012
1.35
s.0016 E high = b sec φ = Assume b sec φ = s.00

JAD obs.

1898
April 18

[o Leonis]
+10° 22′

I II III
9 37 ~~51.9~~ 49.3 58.0 19.6
~~58.0~~ 2.0 22.0
~~12.0~~ 5.8 24.6
9.5 lost
13.2 29.5

32.85 7.37
5.70 24.57
.04 18.77

5.74 5.80

From v Urs Maj +59°32 and 6 Sextan -3°44 } N=0
9 38 5.77
9 35 44.89
+2 20.88

ε Leonis
+24° 15′

I II III
9h 42 1.5 19.0 42.1
4.2 23.1 45.0
7.0 27.3 47.4
9.8 31.1 50.4
12.3 35.3 52.9

34.8 135.8 237.8
6.96 27.16 47.56
20.33 .04 20.24

27.29 27.20 27.32

9 42 27.27
9 40 6.45
+2 20.82

v Urs. Maj.
+59° 32

I
9 45 23.1
×
32.9
37.8
42.6

9 86
~~19.72~~
3 2.87
36.40
9 4~~6~~ ~~56.47~~
9 2 7
9 43 48.36
+2 20.91

-3° 44 +2 20.91
+10 22 .88
+24 15 .82
+26 30 .91
+41 33 .97
+59 32 .91
540
+2 20.90

.91 × 10 910
.88 × 8 704
.82 × 15 1230
.91 × 15 1365
.97 × 13 1261
.91 × 3 273
64 5743
+2 20.90

Level = zero

μ Leon.
9 46 57.788
144

0.5363
9.7742 2.046
0.3105

8.4437n
0.5933n .109
9.0370

8.7944n
1.2150n 1.022
0.0094

8.6112
0.9959n
9.6071n .407

3.177
.407
2.770
9 46 57.788
9 47 0.558

6 Sextan.
-3° 44′

I II
9 48 5.5 21.5
8.0 25.2
10.0 ×
12.7 32.6
15.3 36.4

51.5 115.7
10.30 28.93
18.58 .04
28.88 28.97

9 48 28.92
9 46 8.01
+2 20.91

[μ Leon.]
+26° 30′

I II III
9 48 55.1 13.0 36.6
57.8 17.3 39.1
0.8 21.5 42.1
3.6 25.8 45.0
6.4 29.8 47.5

303.7 107.4 210.3
0.74 21.48 42.06
20.72 .04 20.63

21.46 21.52 21.43

9 49 21.47
9 47 0.56
+2 20.91

[19 Leon. Min.]
+41° 33

I II III
9 53 19.0 40.4 8.6
22.2 45.3 11.9
25.8 50.4 15.2
× 55.3 18.6
32.4 0.1 21.8

77.2 251.5 76.1
25.74 50.30 15.22
24.77 .05 24.66
50.51 50.35 50.56

9 53 50.47
9 51 29.50
+2 20.97

Frod 1327 is fast 2m 20s.90
at 9h 40m Sid. Time

April 20, 1898 J.A.D. obsr.

Collimation

4h 20
E.S. M.T

S. coll. on N. coll.

94.2	95.5	
95.7	94.7	
95.5	94.8	581
95.7	95.6	95.2 Set
94.6	95.8	

Tel. on S. Collimator found 32.076

32.002	018	
014	.012	
011	015	32.0141
017	017	
022	013	

Tel. on N. collimator

32.197	196
199	201
193	203
202	201
198	197

Lines of reticule well adjusted to motion of telescope

32.1987
.2128
32106
012

Set at 32.118

Remark: During these last ten years the observations of collimation have been recorded in the Mer Circle (zone -9°50' to -14°10) books; the observations are recorded in these Zone Star books occasionally when there has been a temporary cessation of zone work. JAD has been the obsr. of coll. during these last 9 years. The coll. observations will be found in the zone books marked M

JA Dober,

1898
April 21,

[last wire ζ Ursa maj. fol.
13 22 56.5]

ζ Urs. maj. pr.
+55° 28

I	II	III
13	21	
32.8	1.4	38.2
37.4	7.8	42.5
41.8	14.4	47.0
46.1	20.7	51.3
50.6	27.2	55.5
208.7	71.5	234.5
41.74	14.30	46.90
32.72	.06	32.57
14.46	14.36	14.33

13 22 14.34
13 19 53.13
+2 21.25
−03
.22

Gr. 2001
+72° 56

I	II	III
13	24	
39.2	33.4	45.6
47.7	46.2	53.8
56.2	59.3	2.0
4.1	11.6	10.8
12.5	24.5	18.6
279.7	29.50	310.8
55.94	59.00	2.16
−63.19	.12	62.90
59.13	59.12	59.26

13 25 59.17
13 23 37.81
+2 21.36
−.14
.22

Gr 2001
1.2682
0.5324
1.8006
63.19

1.2662
0.5324
1.7986
62.90

foll.
69 H Urs. Maj.
+60° 30
(about 8.0)

III
13 28
23.8
29.0
34.5
39.0
43.8
170.1
34.02
37.49

13 27 56.53
13 24 46.87
+3 9.66

DM+60° 1465
Dm mag 8.3

ζ Virginis
−0° 3

I	II
13 31	
30.3	50.4 46.6
32.8	54.0
35.1	57.8
×	1.1
40.4	
105.8	269.9
35.27	53.98
18.54	−.04
53.81	54.02

13 31 53.94
13 29 32.76
+2 21.18
+.05
.23

+72° 56 +2 21.36
−0 3 2 21.18
.18

3.25
.06
3.25).18 (.06=n

2.34

.22×15 330
.22×15 330
.23×8 184
.30×10 300
.23×10 230
−.01×15 −15
73 | 1359 | .18
73
629
584
450
.19

17 H Cam Vew.
+37° 43

~~I II III~~
II 13 32 III

II	III
29.6	56.4
34.4	59.3
39.2	2.5
43.9	5.7
48.2	8.8
195.3	312.7
39.06	2.54
~~23.43~~	23.32
.04	
39.10	39.22

Level = Zero

13 32 39.16
13 30 17.87
+2 21.29
+.01
.30

τ Böotis
+17° 59

I	II
13 44	
24.5	41.4
27.3	45.3
29.8	49.3
32.4	53.0
34.9	57.0
148.9	246.0
29.78	49.20
19.50	.04
49.28	49.16

13 44 49.22
13 42 28.03
+2 21.19
+.04
.23

η Urs. maj.
+49° 50

I	II	III
13 45		
19.5	44.5	17.0
23.5	50.3	20.7
27.5	56.0	24.5
31.2	1.7	28.7
34.9	7.4	32.2
136.6	279.9	123.1
27.32	55.98	24.62
28.74	.06	28.61
56.06	56.04	56.01

13 45 56.04
13 43 35.03
+2 21.01
−02
20.99

Frod 1327 is fast 2^m $21^s.19$
at 13^h 30^m Sid Time

JAD obser.

1898

April 26th

α Virg.
-10° 36
I II
13 21 50.4 6.8
53.1 10.5
55.6 14.4
58.0 18.0
0.5 21.9
2776 716
55.52 14.32
18.87 .04
14.39 14.36

13 22 14.37
13 19 52.21
+2 22.16

ζ Urs. Maj. pr.
+55° 28
III f. 3
13 22 x
x
47.5
51.8
56.0
1553
51.77
36.92
14.85

20924
1.32050
0.2467
1.5672
3692

13 22 14.85
13 19 53.10
+2 21.75

69 H Urs. Maj.
+60° 30
I II III
13 26 21.1 53.8 36.1
26.4 1.7 41.6
31.1 8.8 46.3
36.5 16.4 51.3
41.4 24.0 56.2
1565 34.47 2315
31.30 8.94 46.30
37.66 07 37.49
8.96 9.01 8.81

13 27 8.93
13 24 46.82
+2 22.11

17 H Can. Ven.
+37° 43
I II III
13 32 10.3 30.4 57.2
13.3 35.6 0.3
16.7 40.0 3.4
19.8 44.6 6.6
23.0 49.1 9.7
831 1996 3172
16.62 39.92 3.44
23.43 .05 23.32
40.05 39.97 40.12

13 32 40.05
13 30 17.87
+2 22.18

Level = zero
N very small

-10° .16 × 10 160
+55 -25 × 3 -75
+60 11 × 15 165
+37 18 × 15 270
+18 00 × 10 00
+49 -10 × 15 -150
595
68| 225 / 370 / 340 / 300 (54

+2 22.05

τ Boötis
+17° 59
I II
13 44 25.4 42.2
28.0 45.8
30.8 50.0
33.1 53.8
35.9 57.8
1532 2496
30.64 49.92
19.50 .04
50.14 49.96

13 44 50.05
13 42 28.05
+2 22.00

η Urs. maj.
+49° 50′
I II III
13 45 20.3 20.3 45.3 18.0
25.5 24.5 51.1 21.9
29.3 28.2 57.0 25.5
33.0 32.0 2.7 29.3
35.9 8.3 33.0
1409 2844 1277
28.18 56.88 25.54
28.74 .06 28.61
56.92 56.94 56.93

13 45 56.93
13 43 35.03
+2 21.90

Frod 1327 is fast 2^m $22^s.05$
at 13^h 30^m Sid Time

JAD obsr.

1898

May 1

ε Virg.	θ Virg.	[17 Can Ven]	43 Com	[20 Can Ven]
+11°32′	−4°58′	+~~39~~ 39° 4′	+28°25′	+41°8′
Lines confused.	13h 7	13 7	13 9	13 15

ε Virg.

245 455
80 281 483
10.7 320 51.0
13.0 154 358 53.5
17.9 39.3 53.8
650 1597 2541
13.00 31.94 50.82
18.92 .04 18.84
31.92 31.98 31.98
31.96
12 57 9.04
[2] 22.92

θ Virg.

x 19.5
x 22.4
x 24.8
9.7 27.0
13.3 29.4
11.50 1231
24.62
0.7416
0.0017
0.7433 18.54
5.538
~~17.04~~ 6.08
5.96
13 7 6.02
13 4 43.12
2 22.90

[17 Can Ven]

x 5.8
43.8 9.0
48.5 .22
53.0 15.5
58.0 18.6
2033 611
50.83 12.22
0.2608
0.1100
0.3708
2.349 23.78
48.48 48.44
13 7 48.46
13 5 25.59
+2 22.87

43 Com

6.2 24.2 48.0
9.1 28.7 51.0
11.7 32.9 53.9
14.8 37.0 56.6
17.7 41.1 59.1
595 1639 2686
11.90 32.78 53.72
21.09 .04 20.99
32.99 32.82 32.73
13 9 32.85
13 7 10.07
+2 22.78

[20 Can Ven]

3.0 14.7 42.1
6.4 19.6 45.8
24.5 49.2
28.8 52.1
34.0 55.2
4.70 1216 2444
24.32 48.88
1.1713
0.1229
1.2942
19.69 05 24.51
24.39 24.37 24.37
13 15 24.38
13 13 1.62
+2 22.76

17 Can Ven
450
13 5 22.187

0.4421
9.7968 1.734
0.2389

8.7150
0.5551m .186
9.2701

8.9157n
1.1470n 1.155
0.0627

8.3829n
1.1326n .327
9.5155
~~24.550~~
25.592

Weights by no. wires.

−5°	2	22.90	× 7	630
+11		.92	15	1380
+28		.78	15	1170
+39		.87	9	783 ~~819~~
+41		.76	12	760 142
			58	4901 [.845 .839]

464
265
~~232~~ 540
290
260

+41°8′	2 22.76	× 5	380
39 4	22.87	× 4	348
+28 25	.78	× 3	231
		12	959 [.799

84
119
108
110

3 stars: weight by δ & assumed.

Mean
839
.799
.819

Chrol
Zero

Frod 1327 is fast 2m 22s.82
at 13h 10m Sid Time

1896phae.proj.1637B

May 2, 1898
Collimation 2d D. Ar

See Remark bottom page 155

0h 40m
E.S.M.T.

S. coll. on N. coll.

.935
945
945 211
93.1 9422
95.3 Set 94.2

Set on S. coll
Mic. found at 32.117

31.966
964
955 . 318
965 31.9636
968

Set on N. coll.

32.285
283
278 406
281
279

32.2812
4.2448
32.122
12
Set 32.144

Lines of reticule
well adjusted to
motion of telescope

May 7, 1898

JDD. Obs.

Determination of Level.

(Meridian Circle)

Buff & Berger "Clark" level.

$\frac{1}{2}\frac{9}{9}\}$ div

Telescope South

Screw	E		W	
E −	68.4	−43.0	18.0	50.4
W +	34.0	+59.0	84.2	50.2
E −	72.0	−47.0	22.0	50.0
W +	32.0	+57.0	82.0	50.0
E −	69.0	−44.0	19.0	50.0
W +	34.5	+59.5	84.5	50.0
E −	69.7	−44.7	19.7	50.0
W +	33.0	+58.0	83.0	50.0
E −	67.8	−42.8	17.8	50.0
W +	30.7	+55.7	80.7	50.0

34.0 +289.2 −221.5	18.0
32.0	22.0
34.5	19.0
33.0	19.7
30.7	17.8
68.4	84.2
72.0	82.0
69.0	84.5
69.7	83.0
67.8	80.7
	51.09

E 51.11
W 51.09
W 20|.02
 .001

.001 W. high
.0045
.0053
.0026

$b \sec\phi = {}^{s}.000$

Telescope North

Adjusted level as regards its bearing on (tightened) bed plate; this was necessary.

Screw	E	W		
W +	~~1.7~~ 45.6	~~51.5~~ 95.7	50.1	+70.6
E −	69.0	19.0	50.0	−44.0
W +	46.5	96.5	50.0	+71.5
E −	67.5	17.5	50.0	−42.5
W +	50.8	100.8	50.0	+75.8
E −	72.5	23.0	49.5	−48.0
W +	50.8	100.8	50.0	+75.8
E −	70.0	20.1	49.9	−45.1
W +	50.0	100.0	50.0	+75.0
E −	68.0	18.2	49.8	−43.2

45.6	19.0
46.5	17.5
*50.8	23.0
50.8	20.1
50.0	18.2
69.0	95.7
67.5	96.5
72.5	100.8
	100.8
70.0	100.0
68.0	

E 59.07
59.16
20|.09 W
 .0045

+368.7 −222.8
+289.2 −221.5
+657.9 −444.3
−444.3
20)+213.6(10.68
20
13.6
12.0
1.60

.06
.641 = b
1.35
$b \sec\phi = {}^{s}.86$

West end is high

Re-reduced Feb 6-1901

1898
May 7

2AD obs

Prof. S. obs

6 Can. Ven. +39°36'

12h 22m 46.0	6.4	34.0
49.1	11.5	37.1
52.3	16.4	40.5
55.6	21.1	43.6
58.8	25.7	46.6
261.8	81.1	201.8
52.36	16.22	40.36
24.06	05	23.95
16.42	16.27	16.41

κ Drac. +70°21

II	III
12 31 14.3	17.4
26.0	24.7
36.7	32.0
47.8	39.4
58.6	46.6
183.4	160.1
36.68	32.02
11	54.89
36.79	37.13

36.95

1.2662
0.4733
1.7395
5489

7161 δ Corvi −15°56'

12 26 54.0	15.7
57.8	18.4
1.7	21.0
5.7	23.8
9.5	26.1
30.87	105.0
1.74	21.00
04	19.21
1.78	1.79

6 Can Ven
442

12 20 49.610

0.4731
9.8066 1.904
0.2797

8.7395n
0.5154n
9.2549 .180

8.9353n
1.1038n 1.094
0.0391

7.8949n
1.1774n .118
9.0723 3.296

52.906

12 23 16.37
12 20 52.91
+2 23.46
+.01 DD lev.
+2 23.47

12 31 36.95
12 29 12.87
+2 24.08

12 27 1.78
12 24 38.11
+2 23.67

+2.798
−.285
~~513~~
3.083) .411(.13 = M
300
1020

2.793
913
1.88
.13
564
188
.2444

+2 24.08
−24
00
+2 23.84

1.2
.13
36
12
.156

+2 23.67
+16
00
+2 23.84

+2 23.84 Prof S.

7 rod. 1327 is fast

2m 23.s47

at 12h 20m

Sid Time

Prof S.'s stars on his zone sheet.

JAD's, Isomethe on regular T.S. sheet

1898
May 9

Prof. S. obsr

Gr. 2001, +72°55'	25	25	26	
13 24 42.0	~~36.0~~	36.0	47.8	
Xlost	~~49.8~~	49.4	56.2	2.04×1 204
59.0	~~56.2~~	1.6	4.9	1.77×3 531
7.1	~~5.0~~	14.1	12.9	1.68×5 840
15.1	~~12.8~~	26.7	20.8	1.68×5 840
				14 | 2415
201.2	~~208~~	307.8	322.6	m 1.72
67.07		1.56	4.52	
54.70		.12	62.84	
1.77		1.68	1.68	

42.0
80.04
2.04

13 26 1.72
13 23 37.39
+2 24.33
−.30

η Böotis +18°54'		
13 51 52.0	9.0	31.1
54.7	13.0	33.8
57.4	16.8	36.5
0.0	20.8	39.1
2.5	24.7	41.6
286.6	84.3	182.1
67.32	16.86	36.42
19.60	.04	19.51
16.92	16.90	16.91

13 52 16.91
13 49 52.88
+2 24.03
+.07
+2 24.10

11 Böotis +27°53'		
13 58 33.8	52.0	15.2
36.6	56.0	18.4
39.5	0.4	21.2
42.3	4.4	24.0
45.0	8.5	26.7
197.2	301.3	105.9
39.44	0.26	21.18
20.99	.04	20.89
0.43	0.30	0.29

13 59 0.34
13 56 36.25
+2 24.09
+.05
+2 24.14

Ⅱ
1.3713
0.5320
1.9033
80.04

1.2060
0.5320
1.7380
54.70

Ⅲ
1.2662
0.5320
1.7982
62.84

JAD obsr

58 Urs Maj +43°45', 44.03

Xlost	
21.9	45.6
27.0	49.1
32.5	52.6
37.3	56.3
	59.5
118.7	263.1
29.68	52.62
	25.56

2.52

0.2608 27.16 27.06
.1412
0.4020

assuming n of May 7
n = 13

Prof S. Gr 2001 +2 24.03
η Boötes 24.10
11 Boötes 24.14
24.09 Prof S.

27.11
11 25 3.25
+2 23.86

Level = zero.

58 Urs maj.
437
11 25 0.020

0.5142
9.8133 2.125
0.3275

8.7996n
0.5064n
9.3060 .202

8.9600n
1.0873n
0.0473 1.115

8.1472
1.1904n
9.3376n
−.218
3.442
−.214
3.228
11 25 3.248

— Using JAD. obs. (Prof S.'s stars merely indicating no large accidental n term)

Frod. 1327 is fast

2m 23s.86, at 11h 20m Sid Time

ΔAD. obs.

1898

May 13

ε Corvi
−22° 2

~~I~~ l. 3	~~II~~	III
12h 6 59.6	11.7	34.3
7 2.3	15.9	37.0
5.1	19.8	39.8
	23.8	42.4
	27.8	45.0
	99 0	198 5
	19.80	39.70
	.04	19.91
	19.84	19.79

12 7 19.81
12 4 55.46
+ 2 24.35

44 Drac
+78° 12

II

12 9 19.8
38.1
56.4
10 14.8
32.4
281 5
56.30
~~90.26~~
~~126.04~~
+.18
12 9 56.48
12 7 32.09
+ 2 24.39

~~1.266/2~~
~~0.689 3~~
~~1.955 5~~
~~90.46~~

[2 Can. Ven.]
+41° 15

I	II	III
12 12 57.2	18.6	46.8
13 0.8	23.8	50.0
4.0	28.6	53.1
7.4	33.6	56.5
10.5	38.5	59.7
31 9 9	143 1	266 1
3.98	28.62	53.22
24.66	05	24.55
28.64	28.67	28.67

12 13 28.66
12 11 4.24 (Am almanac)
+ 2 24.42

n = zero ; level = zero

[6 Can Ven]
+39° 36

I	II	III
12 22 46.8	7.6	34.8
50.0	12.5	38.0
53.2	17.1	41.1
56.5	22.0	44.4
59.5	26.8	47.5
266 0	86 0	205 8
53.20	17.20	41.16
24.06	.05	23.95
17.26	17.25	17.21

12 23 17.24
12 24 52.86
+ 2 24.38

6 Can Ven

442
12 20 49.610

0.4731
9.8235
0.2966 1.980

8.7395n
0.5100n .178
9.2495

8.9353
1.0510n .969
9.9863

7.8949n
1.2139n .128
9.1088

12 20 52.865

20 Comae
+21° 29

II	III
12 26 55.4	18.0
59.3	20.4
3.2	22.8
7.1	25.6
11.2	28.0
31 6 2	114 8
3.24	22.96
.04	19.85
3.28	3.11

12 27 3.20
12 24 38.92
+ 2 24.28

8 Can Ven.
+41° 56

I	II	III
12 30 50.0	11.7	39.8
53.3	16.7	43.2
56.7	21.8	46.4
0.0	26.8	49.8
3.3	31.6	53.2
283 3	108 6	232 4
56.66	21.72	46.48
24.92	.05	24.80
21.58	21.77	21.68

12 31 21.68
12 28 57.25
+ 2 24.43

−22° 2 + 2 24.35
+21 29
+39 36
+41 15
+41 56
+78 12

.28 × 10
.38 × 15
.42 × 15
.43 × 15
.139 55
225
.37
Mean of rest

280
570
630
645 Mean of 4
2125 1.38
165
475

Frod 1327 is fast
2m 24s.38
at 12h 15m
Sid Time

L.A. Dobes.

1898
May 17.

2 Can Ven
+41° 15

12 6 55.8 13.0 35.8
58.5 17.2 38.5
1.3 21.2 41.2
3.9 25.2 44.0
6.5 29.2 46.5

30.60 105.8 20.60
1.20 21.16 .4120
20.00 .04 19.91

21.20 21.20 21.29
12 7 21.23
12 4 55.42

+2 25.81
50
50

ε Corvi
−22° 2′

12 12 58.8 20.0 47.8
13 2.2 25.2 51.4
5.5 30.0 54.5
8.8 35.0 57.8
12.0 39.8 0.9

32.73 150.0 27.24
5.46 30.00 54.48
24.66 .05 −24.55

30.12 30.05 29.93
12 13 30.03
12 11 4.16

+2 25.87
00
00

n = zero
level = zero

Frod 1327 is fast

$+2^m$ $25^s.84$

at 12^h 10^m

Sid Time

2 Can Ven

441

12 11 0.975

9.8274
0.4795 2.028
9.3069

0.4988n
8.7661n .184
9.2649

1.0092n
8.9471n .904
9.9563

1.2342n
7.6293n
8.8635 .073

12 11 4.164

May 17. 1898 23h 00 E.S.T.

Collimation

S. coll. on N. coll.

915
915
913 85
918 Set at 91,78
924

Tel. on S. coll.

Set at 32.127

31,885
892
886 446 31,8892
888
895

Tel. on N. coll.

32,327
317
325 120 32,3240
325
326

42132
32,1066
012

Set α 32,119

1898
May 29

Prof S. [illegible]

*

observations on regular Time star sheet

ε Urs. Maj.
+56° 32

ε Virginis
+11° 32

Observed through clouds.

12 51	22.6	51.5	29.7	12 59	13.8	30.0	51.6
	26.8	58.4	34.0		16.4	33.9	54.0
	31.0	4.9	38.7		19.0	37.7	56.7
	36.0	11.7	43.0		21.3	41.6	59.0
	40.0	18.0	48.0		24.0	45.3	1.7
	156.4	324.5	193.4		94.5	188.5	283.0
	31.28	4.90	38.68		18.90	37.70	56.60
	33.62	.06	33.47		18.92	.04	18.84
	4.90	4.96	5.21		37.82	37.74	37.76

12 52 5.02
12 49 35.99
+ 2 29.03

12 59 37.77
12 57 8.91
+ 2 28.86

Remark: there has been a remarkably long spell of continuously cloudy weather

Level = zero

N term for ε Urs Maj. = −.60 (δ 56°.5)
" " " ε Virginis = +.71 (δ +11°32)

Hence as an accurate value of n is not known, we use the following weights.

(ε Urs maj.) $29^s.03$) × .70 = 203.21
(ε Virgin) $28^s.86$ × .60 173.16

13) 376.37 ($28^s.95$ = mean
26
116
104
123
117
67
65
20

1.5
(13).17

Frod 1327 is fast

$2^m\ 28^s.95$

at $13^h\ 00^m$
Sid Time

Prof. S. obser.

1898 Observation on zone -9°50'-14°10' sheets

June 1

	12 Can Ven seq. +38°52	ε Virginis +11°30'	[20 Can Ven] +41°6'
	12h53 186 39.2 61	12 59 150 31.5 528	13 15 317 528 206
	218 44.1 95	178 35.2 554 388	350 578 240
	249 486 126	202 428 578	382 28 275
	278 535 158	226 46.7 0.5	41.7 7.6 304
	312 583 188	25.2 29	449 12.6 336
	1243 2437 628	1008 1950 2894	1915 3136 1361
	2486 4874 1256	2016 39.00 5788	3830 2.72 2722
	23.82 .05 23.72	18.92 .04 18.84	24.61 .05 24.50
20 Can Ven 451	48.68 48.79 48.84	39.08 39.04 39.04	62.91 2.77 2.72
13 12 58.163	12 53 48.77	12 59 39.05	13 16 2.80
	12 51 18.47	12 57 8.88	13 13 1.29
0.4326 9.8564 0.2890 1.945	+2 30.30	+2 30.17	3 1.51
	-.01 in level	+.07 on level	
8.7424n 0.4434n 9.1858 .153	+2 30.29	+2 30.24	
8.9245n 0.7777n 9.7022 .504			
8.4424n 1.2872n 9.7296 .536	+2 30.26		
1.291			

This star is probably +41°2381 DM mag 8.0: but ~~precedes~~ follows the DM place by 2s.4: Prof. S. estimated mag. 6.5

Frod 1327 is fast

2m 30s.26

at 13h 00

Sid Time

Prof. S. Ar.

1898
June 7

72 Ophiuchi
+9° 33'
I II
18h 4m
43.0 59.3
45.5 3.0
47.9 6.8
50.6 10.6
53.0 14.3
24.00 34 0
48.00 6.80
18.80 .04
6.80 6.84
18 5 6.82
18 2 34.26
+2 32.56
+.07
35 Drac. +2 32.63
+76° 58'
17h 56 57m
4.8 37.8
21.3 49.1
37.8 0.0
54.0 10.8
10.6 21.6
188.5 299.3
37.70 59.86
.16
~~0.6479~~
~~1.2662~~
~~1.9140~~
~~82.41~~
0.6478
1.2662
1.9140
82.04
th
37.86 ~~0.11~~ ~~0.07~~ 37.82
17 56 ~~0.06~~ 37.84
17 53 64.84
+2 33.00
-.31
+2 32.69

ο Herculis
+28° 45
II III
18h 6
1.2 25.2
5.3 27.8
9.5 30.7
13.8 33.6
18.0 36.4
47.8 153.7
9.56 30.74
.04 21.05
9.60 9.69
18 6 9.65
18 3 37.06
+2 32.59
+.03
λ Aquilae +2 32.62
-5° 2'
19h 3
18.9 39.8
22.6 42.3
26.5 44.7
30.0 47.3
33.8 49.6
131.8 223.7
26.36 44.74
.04 18.54
26.40 26.20
26.30
19 3 26.30
19 0 53.70
+2 32.60
+.09
+2 32.69

α Lyrae
+38° 41
18 35
34.8 55.3 22.0
38.0 0.0 25.2
41.0 4.7 28.5
44.4 9.5 31.6
47.5 14.1 34.5
205.7 32.36 141.8
41.14 4.72 28.36
23.76 .05 23.65
4.90 4.65 4.71
18 36 4.75
18 33 32.22
+2 32.53
+.01
+2 32.54

[5 Lyrae]
+39° 30
III
18 43
53.0
56.3
59.6
3.0
6.0
297.9
59.58
23.92
18 43 35.66
18 41 3.07 ~~3.08~~
+2 ~~4.98~~
32.59
+.01
+2 32.60

5 Lyrae
18 40 59.975
262
0.2984
9.8743 1.489
0.1727
7.9904
0.4161n
8.4065n -.026
8.1868
0.6223n -.064
8.8091n
8.9296n
1.2995n 1.694
0.2291
3.183
-090
3.093
18 41 3.068

Level = zero

+2 32.63
α Aquilae 32.69

	weight	
32.66	1	.66
32.62	3	186
32.54	5	270
32.60	4	240
	13	762

59
65
112

Frod 1327 is fast
2m 32s.60
at 18h 30m Sid Time

+4.33
-09
4.4) 40 / 39 .09 = M
4.33
.91
3.42

J. A. Dober,

1898

June 12, Star prec

109 Virg.
+2° 20
fast 2 mins

α Librae
−15° 36′
about $+6.0^{m}$

14^{h} 47
x 320 538
x 358 563
x
204 398 590
23.0 435 14
256 474 40
188 5 2945
39.70 58.90
−.04 19.16
39.74 39.74

14 47 39.74
14 45 17.59
+2 22.15

SD −15° ~~3967~~ 3965

14^{h} 44 3.3
5.83
4.58

1.3453
0.0004
1.3457
22.16

14 43 42.42
14 41 8.77
+2 33.65
+.30
.00
+2 33.95

Gr 2164
+59° 43

14^{h} 50

420 138 534
47.0 21.3 0.5
518 284 52
56.8 36.0 104
1.8 43.1 15.0
2594 1426 3265
51.88 2852 5.30
36.77 .07 36.60
28.65 28.59 28.70

14 51 28.65
14 48 54.44
+2 34.21
−.27
.00
+2 33.94

P XIV 221
+14 52

II III
14 53
x 15.1
57.2 17.8
54 1.0 20.4
5.0 23.0
8.8 25.4
183 2 101 7
61.06 20.34
.04 19.10
1.10 1.24

14 54 1.17
14 51 27.65
+2 33.52
+.22
.00
+2 33.74

Gr 2164
109 Virg

+1.71
+.06
1.65) .56 (.34 = m
.56
495
650

β Boötis
+40° 48

15 0

11.9 33.3 1.0
15.3 38.0 44
18.7 43.0 7.7
21.9 47.9 11.0
25.1 52.8 14.0
929 2150 381
18.58 43.00 7.62
24.50 .05 24.39
43.08 43.05 43.23

15 0 43.12
14 58 9.47
+2 33.65
+.02
.00
+2 33.67

Level = zero

ψ Boötis
+27° 22

I II

15 2

15.0 33.0
17.8 37.3
20.6 41.5
23.3 45.5
26.0 49.8
1027 2071
20.54 41.42
20.89 .04
41.43 41.38

15 2 41.40
15 0 7.71
+2 33.69
+.14
.00
+2 33.83

+2° +2 33.95
+14° .74
+27° .83
+40 .67
+59 .94

Weight 2 } Using m
weight 3

4) 346
.865 × 2 = 1.730
.670 + 3 = 2.010
5) 3.740
.748 (1)

Weight by wires
+2° +2 33.65 × 2 = 1.30
+14° .52 × 8 = 4.16
+27° .69 × 10 = 6.90
+40° .65 × 15 = 9.75
+59° 34.21 × 15 = 1210 605
50) 4026 (.805 (2)
400
260

Mean of (1) & (2)
(1) .748 weight 3 = 2.244
(2) .805 " 2 = 1.610
5) 3854
.77 Mean

Frod 1327 is fast 2^{m} 33.77
at 15^{h} 0^{m} Sid Time

Prof. S. obs.

June 14
1898

ι Herculis	ο Herculis	α Lyrae	β Lyrae
+46°4'	+28°45'	+38°41	+33°14'
17h 38	18h 5	18 35	18 48
39.0 2.2 32.5	44.7 3.0 27.0	36.7 57.3 24.2	28.5 47.5 12.7
42.6 7.5 36.0	47.5 7.4 29.9	39.9 2.0 27.4	31.4 52.1 15.7
46.2 13.0 39.7	50.4 11.5 32.7	43.0 6.7 30.5	34.2 56.5 18.7
49.8 18.2 43.0	53.3 15.8 35.4	46.3 11.5 33.6	37.3 1.0 21.7
53.3 23.6 46.5	56.0 20.0 38.1	49.5 16.1 37.0	40.3 5.2 24.5
2309 645 1977	2519 577 1631	2154 336 1527	1717 2823 933
46.18 12.90 39.54	50.38 11.54 32.62	43.08 6.72 30.54	34.34 56.46 18.66
26.73 .05 26.61	21.14 04 21.05	23.76 .05 23.65	22.17 05 22.06
12.91 12.95 12.93	11.52 11.58 11.57	6.84 6.72 6.89	56.51 56.51 56.60
17 39 12.93	18 6 11.56	18 36 6.83	18 48 56.54
17 36 38.44	18 3 37.14	18 33 32.33	18 46 22.07
~~51.37~~			
+2 34.49	+2 34.42	+2 34.50	+2 34.47

n evidently is inappreciable very small

+28° +2 34.42 }
+33° .47 } weight 3 +2 34.46 = 18
+38° .50 }
+46 .49 } weight 2 .49 18

5)36
7
+2 34.47

Frod 1327 is fast 2m 34s.47

at 18h 10m

Sid Time

L.A.D. obsr.

1898

June 17

η Serpentis
−2° 56′

18h 18
16.4 32.4 53.7
19.0 36.4 56.2
21.4 39.9 58.6
24.0 43.7 1.0
26.4 47.5 3.4
10 7 2 1999 29 2 9
21.44 39.98 58.58
18.57 .04 18.48
40.01 40.02 40.10
18 18 40.04
18 16 5.63
+ 2 34.41
+ .24
+2 34.65
+ 08
+2 34.49

109 Herculis
+21° 43′

18h 21
33.4 50.8 13.3
36.3 54.7 16.0
38.8 58.8 18.8
41.5 2.8 21.6
44.3 7.0 24.0
19 4 3 29 4 1 9 3 7
38.86 58.82 18.74
19.95 .04 19.86
58.81 58.86 58.88
18 21 58.85
18 19 24.50
+ 2 34.35
+ .12
+ 2 34.47
+ .04
+ 2 34.39

b Drac
+58° 44
I II
18 24
17.8 48.5
22.5 55.8
27.5 3.0
32.2 10.2
36.9 17.4
1369 3149
27.38 2.98
35.73 .07
3.11 2.91
18 25 3.01
18 22 28.48
+ 2 34.53
− .18
+ 2 34.35
− .06
+2 34.47

χ Drac
+72° 41′
II l.2 III
18 26 → × 18.0
× ~~42.8~~ × 26.3
× 57.0 × 34.2
× 45.0 42.8
26.3 57.4 51.0
34.2
1034 1723
51.20 34.46
0.7416 1.2662
0.5267 0.5267
1.2683 1.7929
18.53 62.08
32.65 32.38
~~32.51~~
18 26 32.46
18 22 57.27
+ 2 35.19
− .51
+2 34.68
− .19
+2 35.00

3.2
.9
2.3
48
.8
.51

χ Drac & η Serp.
35.19
34.41
3.2 / −.05 / 3.25) .78 / 650 / 130 1.24 = m (m 1)

b Drac & η Serp.
34.53
.46
1.64 / −.05 / 1.7) .12 / 136 1.08 = m (m 2

Level = zero

prec α Lyrae
7.0m, 6′ n
III total
18 34 51.8
1.1309
~~1.3678~~
.10772 2386
1.4755 1732
29.82 ~~29.82~~
18 34 ~~21.98~~ 34.48
α Lyrae 18 36 6.65
prec. 1 ~~44.67~~ 32.17
is D.M.
+38 32 29

α Lyrae
+38° 41′
18 35
36.4 57.0 24.0
40.0 2.0 27.1
42.9 6.7 30.4
45.8 11.4 33.4
49.3 16.0 36.5
21 4 4 33 3 1 15 1 4
42.88 66.62 30.28
23.76 .05 23.65
6.64 6.67 6.63
18 36 6.65
18 33 32.37
+ 2 34.28
+ .02
+ 2 34.30
+ .01
+ 2 34.31

ε Lyrae
+39° 33
I II
18 43
~~10.9~~ 4.7 25.5
17.9 7.9 30.5
11.0 35.0
14.3 39.9
17.5 44.7
55 4 17 5 6
11.08 35.12
24.04 .05
35.12 35.07
18 43 35.10
18 40 60.76 ~~59.98~~
+ 2 ~~35.12~~
34.34
+ .02
+ 2 34.36
+ .01
34.37

5 Lyrae
+39° 30′
III
18h 43
55.0
58.2
1.5
4.4
7.8
30 6 9
1.38
23.9 2
18 43 37.46
18 40 63.22
+ 2 34.24
+ .02
+ 2 34.26
+ .01
34.27

ε Lyrae
18 40 57.523
261
0.2979 0.1891 +1.545
9.8912
~~0.1891~~
7.9908 8.3811n −.024
0.3903n
8.1867 8.2311n −.017
0.0444n
8.9299n 0.2397 +1.737
1.3098n
18 40 60.76

5 Lyrae
18 40 59.975
262
0.2984 0.1896 1.548
9.8912
7.9904 8.3807n −.024
0.3903n
8.1867 8.2311n −.017
0.0444n
8.9296n 0.2394 +1.736
1.3098n
18 40 63.22

weighting by n¹

n 1		(a)		(b) weight	
−2°	s.65		.47		
+21	.47 × 15	705	.30		
+38	.30 × 15	450	.36	.35 × 5 = 175	a .363
+ 39 (ε)	.36 × 10	360	.26		b .354
+ 39 (5)	.26 × 5	130	.35	.35 × 2 70 / 7) 245 / .35	.356 mean
+58°	.35 × 10	350			
+72	.68 50	) 1995 .363			

by n²

n 2		(a)		(b) weight	
−2°	s.49		.39		
+21	.39 × 15	585	.31	.335 × 5 = 167 5	a .368
+38	.31 × 15	465	.37		b .374
ε +39	.37 × 10	370	.27		.371 mean
5 +39	.27 × 5	135	.47	.47 × 2 = .9 40 / 12.6 15	
+58	.47 × 10	470			
+72	1.00 50	) 2035 366			

equal weight to values of n 1 & n 2
356
.371
s.363

Frod 1327 is fast
2m 34.s36
at 18h 30m

Prof. S. In

1898
June 19

β Drac.
+52°23

I II

17 30

69 33.3
11.3 39.3
15.0 45.2
19.3 51.6
23.2 57.7

757 2271
15.14 45.42
30.39 .06

45.53 45.48

17 30 45.50
17 28 10.99

+2 34.51

α Ophiuchi
+12°38

17 32

26.0 42.3 3.8
28.5 46.1 6.4
31.0 50.0 9.0
33.5 53.8 11.4
36.0 57.5 14.0

1550 2497 446
31.00 49.94 8.92
19.00 .04 18.91

50.00 49.98 50.01

17 32 50.00
17 30 15.52

+2 34.48

level = zero
〃 inappreciable

Frod 1327 is fast

2^{m} $34^{s}.50$

at $17^{h}30^{m}$

Sid. Time

Prof. S. obs.

1898
June 21

β Drac	α Ophiuchi	ξ Serpentis	ι Herculis	o Herculis
+52°23	+12°38	−15°20	+46°4	+28°45'
II III				
17 30	17 32	17 ~~34~~ 33	17 38	18 5
33.2 7.9	26.0 42.5 4.2	59.0 15.4 37.6	39.4 2.3 32.7	45.2 3.5 27.4
39.8 16.1 11.9	28.6 46.3 6.7	34m 1.5 19.5 40.9 42.6	43.0 8.0 36.3	48.0 7.8 30.2
45.8 20.2	31.1 ~~49~~ 50.3 9.2	4.2 23.4 45.1	46.6 13.4 39.9	50.8 12.0 33.08
51.8 23.9	33.8 54.0 11.7	6.8 27.1 47.5	50.0 18.5 43.5	53.5 16.0 36.0
57.8 ✓	36.4 57.6 14.0	9.4 31.0	53.8 23.8 46.8	56.4 20.4 38.5
228.4 80.0	155.9 ~~249.7~~ 250.0 45.8	320.9 116.4 213.1	232.8 66.0 199.2	253.9 59.7 165.1
45.68 16.00	31.18 ~~49.94~~ 9.16	4.18 23.28 42.62	46.56 13.20 39.84	50.78 11.94 33.02
.06 30.25	19.00 50.14 .04 18.91	19.23 .04 19.14	26.73 .05 26.61	21.14 .04 21.05
45.74 45.77	50.18 50.28 50.25	23.41 23.32 23.48	13.29 13.25 13.23	11.92 11.98 11.97
17 30 45.76	17 32 50.24	17 34 23.40	17 39 13.26	18 6 11.96
17 28 10.99	17 30 15.53	17 31 48.83	17 36 38.47	18 3 37.21
+ 2 34.77	+2 34.71	+2 34.57	+2 34.79	+2 34.75

ξ Serpentis not used

m inappreciable

Level = zero

+52° ^{s}.77
+46 .79
+28 .75
+12° .71
^{s}.744

by wires
^{s}.07 × 10 70
.09 × 15 135
.05 × 15 75
.01 × 15 15 .754
55) 295 (^{s}.54
275
200

by N terms
^{s}.07 N −.4 −
.09 −.1 −
.05 +.4 +
.01 +.7 +
^{s} Resid
.07 +.02
.09 +.01
.05 .00
.01 −.4
.05
−.18
−.6
.00
.12
24) .66 (^{s}.03
.08 N −.20 .08 × 2
.03 +.55 .03 × 1
16
3
3) 19
^{s}.06
34.70
34.76

Fund 1327 is fast

2m 34s.75

at 17h 40m

Sid Time

J A D obsr

1898
June 24

θ Lyrae
+37°57

I	II
19 14	
586	18.8
1.8	23.7
5.0	28.5
7.9	33.0
11.1	37.8
32.44	141.8
4.88	28.36
23.53	.05
28.41	28.41

19 15 28.41
19 12 52.87
+ 2 35.54

ω Aquilae
+11°24

III

19 15
x
57.0
59.5
2.2
x
17.81
59.37
18.84
~~19 15 47.10~~
40.53
19 13 5.31
2 ~~41.79~~
+ 2 35.22

Not used
only 3 wires and
observation hurried.

κ Cygni
+53°10

I	II	III
19 16		
43.9	11.0	46.0
48.2	17.2	50.2
52.5	23.6	54.2
56.6	29.6	58.5
0.8	35.8	2.3
262.0	117.2	271.2
52.40	23.44	54.24
30.94	.06	30.79
23.34	23.50	23.45

19 17 23.45
19 14 47.98
+ 2 35.47

(1 - b/N)   by wires

9   x   10 x .54 | 90   51.60

6   x   15 x .47 | 90   42.30

(80) 93.90 (.52
400
390
360
30

Frod 1327 is fast

2^m 35.50^s

at 19^h 15^m

Sid Time

1898

J.A.D. obsr.

June 29

Star prec α Ophiuchi +12°38
8.0 I (first taking 2nd wire)

θ Ophiuchi −24°53

I	II	III
17ʰ18		
1.4	19.0	42.2
4.1	23.0	45.0
6.9	27.2	47.8
9.5	31.3	50.5
12.2	35.2	53.0
34.1	135.7	238.5
6.82	27.14	47.70
20.45	.04	20.35
27.27	27.18	27.35

17 18 27.27
17 15 49.09
+2 38.18
+.40
+2 38.58

χ Herculis +48°21′

I	II	III
17 26		
8.5	32.5	4.4
12.3	38.2	8.0
15.8	44.1	11.8
19.6	49.8	15.8
23.3	55.2	19.0
79.5	219.8	59.0
15.90	43.96	11.80
27.90	.05	27.77
43.80	44.01	44.03

17 26 43.95
17 24 5.21
+2 38.74
−.06
+2 38.68

β Drac. +52°23′

I	II
17 30	
11.0	37.0
15.0	43.5
19.3	49.5
23.4	55.5
27.4	1.6
96.1	247.1
19.22	49.42
30.39	.06
49.61	49.48

17 30 49.55
17 28 10.96
+2 38.59
−.11
+2 38.48

α Ophiuchi +12°38

I	II	III
17 32		
29.8	46.0	8.0
32.5	50.2	10.3
35.0	54.0	12.8
37.4	57.8	15.5
40.0	1.4	17.9
174.7	269.4	64.5
34.94	53.88	12.90
19.00	.04	18.91
53.94	53.92	53.99

17 32 53.95
17 30 15.58
+2 38.37
+.20
+2 38.57

f Drac +68°12′

I	II	III
17 34		
1.1	44.5	40.7
8.2	54.4	47.8
14.9	4.6	54.3
21.2	14.4	1.0
27.7	24.6	7.6
73.1	25	271.4
14.62	4.50	54.28
	.10	
1.2682		1.2662
0.4302		0.4302
1.6984		1.6964
49.94		49.71
4.56	4.60	4.57

17 35 4.57
17 32 25.53
+2 39.04
.46
+2 38.58

f Drac
482
17 32 22.151

9.3898n
9.9165
9.3063n −.2024

8.3021n
0.3777n +.048
8.6798

8.3343n
0.4776 −.065
8.8119n

9.2510n
1.3048n +3.595
0.5558 +3.643
−.267
+3.376

17 32 25.527

χ Herculis
481
17 24 1.916

0.2010
9.9165 +1.310
0.1175

8.0687n
0.3777n +.028
8.4464

8.1953n
0.4776 −.048
8.6729n

8.9960n
1.3048n +2.000
0.3008

3.338
−.048
+3.290

17 24 5.206

ι Herculis +46°4

I	II	III
17 38		
42.8	6.1	36.5
46.6	11.5	40.0
50.0	16.9	43.5
53.7	22.1	47.2
57.2	27.6	50.6
250.3	84.2	217.8
50.06	16.84	43.56
26.73	.05	26.61
16.79	16.89	16.95

17 39 16.88
17 36 38.48
+2 38.40
−.04
+2 38.36

β Ophiuchi +4°37

II	III
17 41	
0.5	21.7
4.3	24.1
8.1	26.6
11.7	29.2
15.3	31.6
39.9	133.2
7.98	26.64
.04	18.52
8.02	8.12

17 41 8.07
17 38 29.75
+2 38.32
+.24
+2 38.56

μ Herculis +27°47

I	II	III
17 44		
43.5	1.5	25.1
46.3	5.6	27.8
49.0	9.8	30.7
52.0	14.0	33.6
54.5	18.2	36.1
245.3	49.1	153.3
49.06	9.82	30.66
20.96	.04	20.86
10.02	9.86	9.80

17 45 9.89
17 42 31.45
+2 38.44
+.11
+2 38.55

n

		tan
f Drac	+2 39.04	R.50
θ Ophi	38.18	−.46
	0.86	2.96

9.9345
0.4713
9.4632

29 = n

N for θ Ophiuchi
+.913
−.464
1.377

N for f Drac
+2.50
−.91
1.59

−24°	+2 38.58 × 3	174	
+4°	.56 × 2	112	
+12°	.57 × 3	171	
+27°	.55 × 3	175	All by times
+46	.36 × 3	108	
+48	.68 × 3	204	
+52	.48 × 2	90	
+68	.58 × 3	174	
	22	1208	.504
		120	
		80	

Omitting ι Herculis & −24° and +68°

+4°	.56
+12°	.57
+27	.55
+48	.68
+52	.48
	5)2.84
	.568

Equal weight to both
504
568
.536 Mean

Frod 1327 is fast
$2^m\ 38^s.54$
at $17^h\ 30^m$ Sid Time

LAD obs.

July 1
1898

Gr 2640
49 1
18 35 53.919

9.2765
9.9193 +.157
9.1958
8.3563
0.3731n
8.7294n -.054
8.3976
0.5258 +.084
8.9234
9.1991n
1.3036n
0.5027 +3.182
57.288

Star prec
α Lyrae
(about same δ)
6.0 mag.
III

18 34
57.0
0.1
3.4
6.5
9.4
31 64
3.28

α Lyrae
I II III
+38°41

$18^h 35$

I	II	III
41.8	2.0	29.0
45.0	7.0	32.3
48.0	11.8	35.5
51.4	16.2	38.8
54.2	21.2	41.8
24 04	5 82	17 74
48.08	11.64	35.48
23.76	.05	23.65
11.84	11.69	11.83

18 39 11.79
18 33 32.51
+2 39.28
+.04
+2 39.33

ε Lyrae
+39°33
I II
~~II III~~
18 44
× ×lat
×lat
× 16.3
×lat
3.1^4 21.5^4
7.0^5 24.2^5

110 Herculis
II +20°26'
II III
$18^h 43$
22.8
×
30.7 40.3

Gr 2640
+65°24
I II III

18 37

I	II	III
41.0	19.4	9.4
47.0	28.2	15.6
52.8	37.4	21.8
58.5	46.2	27.6 33.4
4.4	55.0	
263 7	186 2	107 8
52.74	37.24	21.56
44.55	04	44.34
37.29	37.33	37.22

0.3806
1.2682
1.6488
44.55

0.3806
1.2662
~~1.1144~~
1.6468
44.34

18 38 37.28
18 35 54.29
+2 39.99
.47
39.52

β Lyrae
+33°14

18 48

I	II	III
33.2	52.4	17.8
36.5	56.8	20.6
×		
42.1	1.2	23.6
45.0	5.9	26.7
	10.4	29.4
15 68	30 67	11 81
~~31.36~~ 39.20	1.34	23.62
22.17	.04	22.07
~~53.53~~ 1.37	1.38	1.55

last
wire
of
following star
31.2

18 49 1.43
18 46 22.27
+2 39.16
+.09
+2 39.25

July 1 Continued

σ Sagittarii

σ Sagittarii
−26° 26′

$18^h 5\overline{1}$

I	II	III
13.8	31.8 ^{1}	53.0
16.8	lost ^{2}	57.8
19.3	40.0 ^{3}	0.8
22.2	44.0 ^{4}	3.6
24.8	lost ^{5}	6.0
96.9		3032
19.38		0.64
20.71		20.62
40.09		40.02

18 51 40.05
18 48 61.04
+2 39.01
+.52
+2 39.53

σ Serpent.
+4° 57

$18^h 5\overline{3}$

lost ^{1}	44.4 ^{1}	8.0 ^{1}
30.9 ^{2}	48.1 ^{2}	x ^{2}
lost ^{3}	52.0 ^{3}	x ^{3}
35.8 ^{4}	lost ^{4}	x ^{4} lost
38.3 ^{5}	59.5 ^{5}	x ^{5}
		x

γ Lyrae
+32° 33

18 57

22.6	41.5	6.5
25.2	x	9.4
28.3	x	12.5
31.2	54.8	15.2
34.1	59.4	18.0
141.4		61.6
28.28		12.32
22.00		21.90
50.28		50.42

18 57 50.35
18 55 11.08
+2 39.27
+09
+2 39.36

n

39.99 +2.184
39.01 −.497
.98 2.681

9.9912
6.4283
9.5629
.3652
.37 = n

with n

−26	+2 39.53		
+32	.31		
+33	.25	~~44~~ → 39.31 ^{s} weight 5	
+38	.33	.52 weight 2	
+65	.52		

155
104
7) 259
.37 = mean

Level = zero

without n

39.01
.27
.16
.28
.99

Frod 1327 is fast

$2^m\ 39^s.37$

at $18^h\ 40^m$

Sid Time

1898

July $5\frac{9}{10}$

J A D obsr

α Aurigae

+45°54'

5 $\overline{11}$

19.2 42.0 12.3

23.0 47.5 15.9

26.3 52.8 19.4

30.0 58.0 23.0

33.4 3.3 26.4

1319 2636 970

26.38 52.72 19.40

26.65 .05 26.53

53.03 52.79 52.87

869

2897

5 11 52.90

5 9 11.15

+ 2 41.75

− .04

+ 2 41.71

Level = zero

Frod 1327 is last

2^m $41.^s70$

at 5^h 10^m

Sid Time

J A D

July 6.0

0^h 10^m

E.S.M.T.

Collimation.

Remark: Collimation is usually recorded in the -9°50′ – -14°10 zone books but as that work is finished for the present, observations will be recorded in Time Star book.

S. coll. on N. coll.

944
943
940 240
965 480
948

Set 94.8

Tel. on S. coll.

Micrometer found at 32,180

31,674
665
667 349 31,6698
669
674

Tel. on N. coll

32,620
607
615 74 32.6148
614
618

Seeing poor

42846
32.142
12
32.154

Set at 32.154

J.A.D. obr

1898
July 7

72 Ophiuchi
+9°32

18^h 4 9.6 31.0
53.3 13.4 35.7
x
58.6 17.0 33.4
10 x 38.3
24.8 41.0
x
.794
51.4 35.88
17.13 18.72
.04
17.12 17.16
18 5 17.16
18 2 34.55
+2 42.61
+ .36
+2 42.97

o Herculis
+28°45

18 5
52.9 11.7 35.7
56.3 16.0 38.5
58.8 20.1 41.1
1.9 24.4 44.1
4.6 28.7 46.8
294.5 100.9 206.2
58.90 20.18 41.24
21.14 .04 21.05
20.04 20.22 20.19
18 6 20.15
18 3 37.29
+2 42.86
+ .17
+2 43.03

Gr. 2533
+42°7

18 14
43.2 4.9 33.2
46.6 10.0 36.4
49.9 14.9 39.6
53.3 19.8 43.0
56.6 24.8 46.3
249.6 74.4 198.5
49.92 14.88 39.70
24.99 .05 24.88
14.91 14.93 14.82
18 15 14.89
18 12 31.59
+2 43.30
.00
+2 43.30

Gr 2533
486
18 12 28.212

0.2708
9.9332
0.2040 1.600

7.5157
0.3978n − .008
7.9135n

7.6892
0.7100 +.025
8.3992

8.9530
1.2937n
0.2467 +1.765

33.90
.008
33.82

18 12 31.594

η Serpen.
−2°55′

18 18
24.6 40.9 2.0
27.3 44.8 4.6
29.8 48.3 7.0
32.7 52.0 9.5
35.0 55.8 11.9
149.4 241.8 35.0
29.88 48.36 7.00
18.57 .04 18.48
48.45 48.40 48.52
18 18 48.56
18 16 5.83
+2 42.73
+ .47
+2 43.20

109 Serpen
+21°43′

18 21
42.2 59.5 21.9
45.0 3.4 24.7
47.5 7.2 27.5
50.0 11.4 30.0
52.8 15.5 32.6
237.5 337.0 136.7
47.50 7.40 27.34
19.45 .04 19.86
7.45 7.44 7.48
18 22 7.46
18 19 24.67
+2 42.79
+ .24
+2 43.03

χ Drac
+72°41

18 24
22.0 16.1 27.0
30.9 29.0 35.1
39.0 41.4 43.5
47.6 53.5 52.2
55.8 6.4 59.7
195.3 206.4 217.5
39.06 41.28 43.50
~~58.59~~ 2
62.36 .12 62.08
41.42 41.40 41.42
18 25 41.41
18 22 57.17
+2 44.24
− .99
+2 43.25

1.2682
0.5267
1.2662
1.7949
1.7929
62.36
62.08

+3.2
−.05
3.25 | 1.5 1.47 = m
~~.075~~
1300
2000

Level = zero

−2° +2 43.20
+9° 42.97
+21° 43.03 } wt 2
+28° 43.03
+42° 43.30 } wt 2
+72° 43.25 wt 3
187.8
43.13
Simple mean

43.01 wt 3
43.22 wt 3
43.30 wt 2
7

3
66
60
128
.19
.20
.19 × 3 57
.13 × 2 26
5 81
16

Frod 1327 is fast
2^m 43.20
at 18^h 15^m Sid Time

J. A. D. obsr.

1898

July 10

μ Sagitt.
-21° 5'

	I	II	III
18 10 1	39	21.2	43.8
2	69	25.2	46.6
3	x	29.5	49.0
4	x	33.3	51.8
5	x	37.3	54.2

1465 2454
29.30 49.08
.04 19.78
29.34 29.30
18 10 29.32
18 7 44.27
+2 45.05
+ 58
+2 45.63

+2 45.97 +1.645
45.05 -3.86
.92 2.031

2.03)92(.45=n
812
1080

n=45

Gr 2533
+42° 7'

I II
18 14 x
45.0 12.25
48.5 16.70
52.1 22.20
55.4 x
58.8
2598 5115
51.96 17.05
24.99 04
16.95 17.09
18 14 17.04
18 12 31.58
+2 45.46
00
+2 45.46

η Serpent.
-2° 55

I II III
18h 18
27.5 43.5 4.4
30.0 47.0 7.0
32.1 50.9 9.5
34.9 54.6 12.0
37.3 58.0 14.5
1618 2540 474
32.36 50.80 9.48
18.67 .04 18.48
50.93 50.84 51.00
18 18 50.92
18 16 5.85
+2 45.07
+.45
+2 45.52

109 Her.

109 Her
~~II III~~ I II III
+21° 43

18 21
44.6 1.3 24.3
47.3 5.6 26.9
49.8 9.8 29.8
52.4 13.6 32.6
53.0 17.8 35.1
2491 481 1487
49.82 9.62 29.74
19.95 .04 19.86
9.77 9.66 9.88
18 22 9.77
18 19 24.68
+2 45.09
+.23
+2. 45.32

Level = zero

b Drac
+58° 44

fol. b Drac
mag 7.0, 1½' north

I II III
18 24
29.0 0.0 40.5
34.0 7.6 (7.6, 7.4) 45.1
38.5 15.0 (6.7) 50.2
43.6 21.7 (7.1) 55.3
48.0 28.8 59.3
1931 731 2504
38.52 14.62 50.08
35.73 .07 35.56
14.25 14.69 14.52
18 25 14.48
18 22 28.51
+2 45.97
-.32
+2 45.65

III(5)
18 26 3.3 (5)
1.3678
0285
1.653
4498
18 25 18.3
18 25 14.5
fol. 3.8 (5)
Star is
+58° 1801
Dm mag 9.0

-21 45.63 (5)
-2° .52
+21 .32 weight 3 ...1
+38 .38 ...3
+42 .46 weight 2
+58° .65

52
32 } 42 wg ...1
38
46 } 42 ...3
mean .42

52
32
38 } 41 weight 3 | 3
46 } 46 wt 2 | 12
5 | 15
3
Mean .43

Gen mean 42 (5)
43 } .42

α Cygni
+38° 41

18 35
47.7 (3.3) 8.5 35.5
51.0 (2.8) 13.2 (4.7) 38.4 (2.9)
53.8 (3.3) 17.8 (4.6) 41.8 (3.4)
57.1 (2.9) 22.8 (5.0) 44.6 (2.8)
0.0 27.3 (4.5) 47.8 (3.2)
2696 896 2081
53.92 17.92 41.62
23.76 04 23.65
17.68 17.96 17.97
18 36 17.87
18 33 32.54
+2 45.33
+.05
+45.38

Frod 1327 K fast 2 min. 45.42 (55)
at 18h 20m Sid Time

J.A.D. obsr ~~Wednesday, July 13 1898~~

Friday July 15, 1898

Determination of Level

Meridian Circle: Level is the Buff & Berger "Clock level"

Began ~~3 20~~ ~~E.S.M.T.~~

Began 3,30 ESMT

Telescope South — Telescope North

Began 3:45

	Telescope South ~~E~~ E W Screw E ~~W 48.3~~		Telescope North E W Screw E
49.0	W+35.7+84.7 ~~+120.4~~	48.2	W+56.3+104.5
49.0	E−89.0−40.0	48.3	E−75.6−27.3
49.2	W+35.5+84.7	48.1	W+52.5+100.6
48.7	E−83.7−35.0	49.0	E−67.0−18.0
49.2	W+38.0+87.2	–	W. ~~47.8 94.8~~ Anomalous: rejected
49.2	E−91.9−42.7	48.5	E−70.9−22.4
49.3	W+37.3+86.6	48.4	W+57.9+106.3
49.5	E−86.0−36.5	48.1	E−70.1−22.0
49.5	W+42.0+91.5	48.5	W+58.5+107.0
49.0	E−89.5−40.5	48.3	E−66.0−17.5
49.0	W+38.5+87.5	48.6	W+54.5+103.1
49.0	E−87.0−38.0	48.3	E−62.0−13.7
48.7	W+41.3+90.0	[50.0]	W+53.3+103.3
49.1	E−84.6−35.5	48.7	E−61.0−12.3
48.9	W+41.5+90.4	48.5	W+53.0+103.5
49.0	E−88.7−39.7	48.2	E−72.0−23.8
49.0	W+39.0+88.0	48.4	W+53.4+103.8
49.0	E−84.0−35.0	48.4	E−66.4−18.0
48.7	W+37.0+85.7	48.7	W+56.3+105.0
49.0	E−82.7−33.7	49.0	E−71.0−22.0
		48.0	W+52.5+100.5

End of obsn. at 4h.10

20)1.0 Bubble 49.05

E 1252.9 1252.9

W 1252.9

0.00

Mean {20 48.52 / 19 48.39

1234.2 1234.6

1234.6

40)0.400 0.01 w high

119.0 } index points
289.0

East		West	
+71.2	172.7	+169.4	−75.0
75.3	177.9	173.8	79.2
80.5	176.5	179.0	78.5
82.8	173.3	180.4	75.2
76.0	166.7	173.7	68.7
+108.8	−142.6	+205.1	−45.3
+116.4	−141.0	+213.3	44.4
+107.8	−128.0	+206.4	31.2
+110.4	−133.0	207.3	36.1
+108.8	−137.4	205.5	40.0
+938.0	−1548.1	+1913.9	−573.6
−1548.1		−573.6	
−610.1		+1340.3	
		−610.1	

80) 730.2 (9.13
720
10.2
80
220

.03
548
1.35
.74

b sec φ = .74

West axis high

Re-reduced Feb 6-1901

div .01 / .00 / .005 w high

.00030 = b

1.35 = sec φ

b sec φ .0004

Level = zero

J.A.D. obsr.

1898

July 14

~
+67°
-14
+2 47.08
46.00
1.08

+2.44
-.26
2.70) 1.08 (.40 = m
1 18
81
27

δ Böötis
+33°42
I II III
15h 14m
36 28.8
50.3 8.1 31.9
12.5 34.7
53.3 17.0 37.9
56.2 21.6 40.6
62.8 173.9
12.56 34.78
~~22~~.04 22.19
12.60 12.59
15 14 12.60
15 11 26.38
+2 46.22
+.10
+2 46.32

1H Urs. Min
+67°45
II III
15 16 53.2
17 0.0
5.9
13.0
19.0
331.1
6.22
48.75
15 16 17.47
red. 15 13 30.39
+2 47.08
-.60
+2 46.48

Reduction
1.2662
0.4218
1.6880
48.75

red.
+2.44
.91
1.53

μ Boötis
+37°45
I then changed eyepiece focus II III
22m 57.7 18.0 44.5
23 1.0 22.7 47.5
4.0 27.5 50.8
7.0 32.0 54.0
10.0 36.7 57.0
319.7 136.9 253.8
3.94 27.38 50.76
23.45 .05 23.33
27.39 27.43 27.43
15 23 27.42
15 20 41.06
+2 46.36
+.05
+2 46.41

star foll. μ Böötis
2' south
15h 23 58.2
(Red. 1.3678
0.1020
1.4698
29.37 29.37
15 23 28.83
15 23 27.42
foll. 1.4
δ Dm +37 2637
Dm mag = 7.0

2 Drac
+59°20
I II
15h 24m I
42.9 25m
48.0 14.4
52.6 21.8
57.5 36.0?
2.3 43.6
263.3
52.66
36.36
15 25 29.02
15 22 42.20
+2 46.82
-.31
+2 46.51

~~53.2~~
~~0.0~~
~~5.9~~
~~13.0~~
19.0

β Coron. bor.
+29°28'
II l4 III
26m x 42.2
22.5) 45.0
26.7 48.0
30.9) 50.8
35.2 53.5
80.1 239.5
26.70 47.90
.04 21.20
26.74 26.70
15 26 26.72
15 23 40.45
+2 46.27
+.14
+2 46.41

ν' Boötis
+41°11
I II III
15 29
34.0 55.3 23.0
37.5 0.5 26.5
40.5 5.1 29.7
44.0 10.0 33.0
47.1 15.0 36.3
203.1 32.59 148.5
40.62 5.18 29.70
24.60 .05 24.49
5.22 5.23 5.21
15 30 5.22
15 27 18.85
+2 46.37
+.02
+2 46.39

γ Librae
-14°26'
I II III
15 32
14.6 31.1 52.8
17.2 35.0 55.3
19.6 38.9 58.0
22.2 42.5 0.5
24.7 46.4 2.9
98.3 193.4 289.5
19.66 38.78 57.90
19.14 .04 19.05
38.80 38.82 38.85
15 32 38.82
15 29 52.82
+2 46.00
+.46
+2 46.46

by wires
-14° +2 46.46 x 15 690
+29° .41 x 8 328
+33° .32 x 10 320
+37° .41 x 15 615
+41° .39 x 15 585
+59 .51 x 5 255
+67 .48 x 5 240
298 73) 3033 (.42 (2)
292
113
(1) mean .43

(3)
.41
.32
.41
.39
mean
1.53
.38 (3)

wt
(1) .43 2 86
(2) .42 3 126
(3) .38 (3) 114
8) 326
.41
Gen. Mean by weights

Frod 1327 is fast
2m 46s.41
at 15h 20m Sid. Time

1898
July 15

2AD obs

λ Cygni	32 Vulpec	ν Cygni
+36° 6'	+27° 39	+40° 45
II . III		
20^h 46	20^h 52	20 53
8.0 34.0	37.1 55.2 19.0	42.3 3.4 31.0
12.5 37.0	40.0 59.6 21.7	45.7 8.4 34.3
17.1 40.0	42.8 3.6 24.5	48.7 13.2 37.7
21.6 43.1	45.8 7.8 27.5	52.0 18.0 41.0
26.1 46.0	48.4 12.0 30.0	55.3 23.0 44.0
853 2001	2141 3182 1227	2440 660 1880
17.06 40.02	42.82 3.64 24.54	4880 13.20 37.60
+05 −22.85	20.93 +.04 20.83	2448 05 24.37
17.11 17.17	3.76 3.68 3.71	13.28 13.25 13.23
20 46 17.14	20 53 3.71	20 56 13.25
20 43 29.63	20 50 16.38	20 53 25.74
+2 47.51	+2 47.33	+2 47.51
+.08	+.16	+.02
00 level	00	.00
+2 47.59	+2 47.49	+2 47.53

wt
+36° +2 47.59 | +9 × 10   +90
+27°   .49 | −1 × 15   −15
+40°   .53 | +3 × 15   +45
+135 −15
40) +120 (03
120
+2 47.53

Frod 1327 is fast 2^m 47^s.53
at 20^h 50^m Sid Time

W. P. G. Obs.

July 20, 98 (1898)

53·32
~~·11~~
·11 ~~53·21~~
·01
53·31

43·26
−·02
43·24

·21
·1
·02

β Herculis			τ Herculis		
17·9	8·0	5·9	9·2	7·3	6·5
20·4	5·6	6·0	3·0	4·0	7·0
23·1	2·8	5·9	6·5	0·3	6·8
25·8	0·2	6·0	0·2	6·8	7·0
28·3	7·5	5·8	3·6	3·0	6·6
3~~7~~5·1	1·0	6·1	2·3	4·1	6·4
39·1	7·0	6·~~8~~1	8·0	~~7~~8·8	6·8

43·0
~~16·8~~
15 | 14·8

16 28 42·99
16 25 53·31
+ 2 49·68
+ ·20
·00
+ 2 49·88

33·2
15 | 35·3

16 19 33·35
16 16 43·24
+ 2 50·11
− ·06
·00
+ 2 50·05

W. P. G. obs.

1898

July 22.

.21
.3
.063

43.26
.06
43.20

.11
3
.033

53.32
.03
53.29

τ Herculis

9.8	7.9	7.7
3.1	4.5	7.6
6.9	0.7	7.6
0.5	7.1	7.6
4.0	3.7	7.7
3.0	4.4	7.4
8.4	9.2	7.6
		34.0
	15)	12.2
16	19	33.81
16	16	43.20
		[illegible]
+	2	50.61
		−.06
		.00
+	2	50.55

β Herculis.

8.1	8.7	6.8
1.1	5.8	6.9
3.4	3.3	6.7
6.3	0.6	6.9
8.8	8.0	6.8
5.5	1.3	6.8
9.5	7.4	6.9
		43.5
	(15)	6.3
16	28	43.42
16	25	53.29
		[illegible]
+	2	50.13
		+.20
		.00
+	2	50.33

1898 Collimation LAD. obs

~~July 29~~

July 28 $\frac{10}{10}$ S. coll. on N. coll.

86.7

87.8

85.3 340 86.80

87.5 Set at 86.8

23h 40m 86.7

E.S.M.T.

Tel. on N. coll.

Microm. found at 32.155

31.695

697

707 3498 31.6996

705

694

Tel. on S coll.

32.618

625

632 113 32,6226

624

614

43222

32.161

012

Set at 32173

1898

July 29.5

β Cephei
+70° 5
II l.2; III
21h 30m

×	59.2
×	6.8
30.1	21.5
41.3	28.5

36.95
13.90
54.17
21 30 49.73
21 27 24.81
+2 54.92
− 1.23
+2 53.70

1.2662
0.4676
1.7338
54.17

54.92
53.19
1.73

74 Cygni
+39° 56
I II III
21 35

I	II	III
18.5	39.1	6.7
21.6	44.2	10.0
24.8	49.1	13.1
28.0	53.9	16.5
31.2	58.7	19.6
124.1	245.0	65.9
24.82	49.00	13.18
24.18	05	24.07
49.00	.05	.11

21 35 49.05
21 32 55.36
+2 53.69
+ .04
+2 53.73

ε Pegasi
+9° 23
I II III
21 41

I	II	III
44.0	0.2	21.5
45.6	4.0	24.0
49.0	7.8	26.4
51.6	11.4	29.0
54.1	15.3	31.5
244.3	38.7	132.4
48.86	7.74	26.48
18.79	04	18.71
7.65	.78	.77

21 42 7.73
21 39 14.54
+2 53.19
+ .50
+2 53.69

κ Pegasi
+25° 9
II l.4; III
21 42

×	14.0
54.6	16.6
59.0	19.2
3.0	22.1
7.0	24.6

96.5
19.30
20.39
21 42 58.91

+9° +2 53.69
+25° .76
+39 .73
+48 .69
+70 .70
357
.71

~~1.77~~ .73 ~~1.46~~
~~1.42~~ .69 ~~1.38~~
~~8~~ ~~1.384~~
.71

+2 53.70

Level = zero

2.75
.16
2.6 1.73 1.7
~~1.82~~
1.56
1.70
.67 = m

2.75
.91
1.84

π² Cygni
+48° 49
I II III
21 45

I	II	III
23.5	47.7	19.5
27.3	53.5	23.3
31.0	59.1	27.3
34.9	4.6	30.8
38.7	10.1	34.5
155.4	295.0	135.4
31.08	59.00	27.08
28.16	05	28.03
59.24	.05	.05

21 45 59.12
21 43 5.27
+2 53.85
− .16
+2 53.69

16 Pegasi
+25° 25
I II III
21 50

I	II	III
56.3	14.4	37.6
59.4	18.5	40.3
2.1	22.3	43.0
4.6	26.4	45.8
7.4	30.7	48.3
309.8	112.3	215.0
1.96	22.46	43.00
20.53	04	20.44
22.49	.50	.56

21 51 22.52
21 48 29.06
+2 53.46
+ 30
+2 53.76

Frod 1327 is fast 2m 53.70 at 21h 40m Sid Time

JHD ber.

1898
August 2

ρ Cap.
609

20 23 2.593

0.5351
9.9738 +3.227
0.5089

8.1063m
0.4166m +.033
8.5229

8.6128
1.0847 +.498
9.6975

8.7553m
1.1923m +.886
9.9476
4.644

20 23 7.237

γ Cygni
+39° 55

II III

20h 21m

237 51.1
287 54.5
33.5 57.7
38.3 0.9
43.2 3.9

1674 2881
3348 57.62
05 24.06
33.53 33.56

20 21 33.55
20 18 37.71
+2 55.84
+.03
+2 55.87

ρ Capricorni
−18° 10

20h 25m

37.9 54.9 16.9
40.6 58.8 19.5
43.0 2.6 22.0
45.8 6.4 24.8
48.3 10.4 27.2

2156 3131 1104
43.12 2.62 22.08
19.52 04 19.43
2.64 2.66 2.65

20 26 2.65
20 23 7.24
+2 55.41
+.57
+2 55.98

θ Cephei
+62° 38

I II

20 30

1.0 35.8
6.9 44.0
12.0 52.5
17.3 0.4
22.7 8.0

599 2607
11.98 52.14
40.36 .08
52.34 52.22

20 30 52.27
20 27 58.81
+2 56.46
−.47
+2 55.99

0.3375
1.268n
1.6057
40.36

β Delphini
+14° 14

56.46 +1.93
55.41 −.33
1.05 2.26

2.26) 1.05 (.46 = n
904
1460

n = .46

Inst: Zero

20 35

21.2 37.6 59.4
24.0 41.7 2.0
26.1 45.5 4.6
28.8 49.3 7.0
31.4 53.1 9.5

1315 2272 3224
26.30 45.44 4.48
19.13 .04 19.04
45.43 45.48 45.44

20 35 45.45
20 32 49.87
+2 55.58
+.31
+2 55.89

star preceding α Delphini
mag 7.0 14.3' south

I

20 36

56.0
58.7
1.0
3.9
6.4

3060
1.20
19.24
20 37 20.44

prec α Delph.
33s

Star α Dm
+15° 4220
Dm mag 6.0

α Delphini
+15° 32

20 37

29.1 45.8 7.5
31.8 49.5 10.1 12.8
34.2 53.5 15.4
36.8 57.2 18.0
39.4 1.1

1713 2671 638
34.26 53.42 12.76
19.24 .04 19.15
53.50 .46 .61

20 37 53.52
20 34 57.94
+2 55.58
+.29
+2 55.87

α Cygni
+44° 54

20 40

23.5 46.3 16.0
27.3 51.5 19.6
30.6 57.0 23.1
34.3 2.1 26.7
37.6 7.4 29.8

1533 2843 1152
30.66 56.86 23.04
26.18 .05 26.06
56.84 .91 .98

20 40 56.91
20 37 60.94
+2 55.97
−.04
+2 55.93

−18° +2 55.98
+14° .89
+15° .87
+39° .87
+44° .93
+62° .99

356
.89

Frod 1327 is fast 2m 55.90 (3)
at 20h 30m Sid Time

1898
Aug 13

Remarks: There has been a long spell of cloudy weather at night

LHD obsr

9 Cygni
+46° 4
Chron. lines
186 416
222 470
255 525
292 576
326 30
1281 2617
2562 5234
26.73 .05
52.35 52.39
52.37

β Cephei
+70° 5
II III
obscure
record obscure
43.5
~~54.6~~
~~12.9~~
~~27.2~~
~~41.3~~
~~31.94~~
~~11.88~~
~~8 1 3~~
~~27.10~~
~~61.46~~
~~25.64~~
~~24.89~~
~~0.75~~
~~0.468~~
~~1.3206~~
~~1.7886~~
~~61.46~~

74 Cygni
+39° 56
21 35
322 527 204
355 578 235
385 3.0 269
416 7.5 302
449 12.2 331
1927 3132 1341
3854 2.64 26.82
2408 05 24.07
2.72 2.69 2.75
21 36 2.71
21 32 53.49
+3 07.22

ε Peg.
+9° 23
III
21 42
353
378
403
427
451
2012
40.24
18.71
21.53
21 42 21.53
21 39 14.70
+3 6.83

κ Peg.
+25° 9'
III
21h 43
276
303
330
359
383
1651
33.02
20.39
12.63
21 43 12.63

π² Cygni
+48° 49
21 45
366 13 335
410 71 372
446 129 410
481 186 446
520 238 484
2223 637 2047
4446 12.74 40.94
2816 05 28.03
12.62 12.79 12.91
21 46 12.77
21 43 5.42
+3 7.35

16 Peg.
+25° 16
21 51
103 278 514
134 321 540
158 361 566
185 404 591
210 444 18
790 1808 2829
1580 36.16 56.58
20.51 04 20.42
36.31 36.20 36.16
21 51 36.22
21 48 29.22
+3 7.00

+9° +3 6.83
+25° 7.00
+39° 7.22
+48° 7.35 } 7.28

Frod 1327 is fast
3^{m} $7^{s}.28$
at 21^{h} 50^{m}
Sid Time

Remark:
Cloudy spell:-

LD obs.

Aug 20

74 Cygni
+39°56

21h 35
38.1 58.6 26.2
41.5 4.0 29.7
44.6 8.7 32.8
48.0 13.0 35.9
50.9 18.1 39.1
22.31 34.24 16.37
44.62 8.48 32.74
24.18 .05 24.07
8.80 8.53 8.67
21 36 8.67
21 32 55.52
+3 13.15

γ Capri.
−17°8′

I III
21 37
19.1 58.2
22.0 0.8
24.6 3.5
27.1 6.0
29.8 8.4
122.6 31.69
24.52 3.38
19.40 19.31
43.92 44.07
21 37 43.99

ε Pegasi
+9°23

I II
21 42
3.8 20.0
6.4 24.0
9.0 27.8
11.3 31.6
13.8 35.4
44.3 138.8
8.86 27.76
18.79 ,04
~~18.79~~ ~~.01~~
27.65 27.72
21 42 27.68
21 39 14.75
+3 12.93

χ Pegasi
+25°9′

I III
21h 42 43
52.5 33.7
55.5 36.2
58.1 38.8
1.0 42.0
3.7 44.7
29.08 195.4
58.16 39.08
20.48 20.39
18.64 18.69
21 43 18.66

π³ Cygni
+48°49

21 45
43.1 7.5 39.3
46.7 13.1 42.9
50.5 18.8 46.9
54.2 24.2 50.5
58.0 30.0 54.2
252.5 93.6 233.8
50.50 18.72 46.76
28.16 06 28.03
18.66 18.78 18.73
21 46 18.72
21 43 5.45
+3 13.27

16 Pegasi
+25°25′

II III l.4.
21 51 x
34.1 59.8
38.1 2.5
42.1 5.3
46.1 8.3
50.2
210.6
42.12
42.04
~~21.10~~
42.16 42.16
21 51 ~~21.10~~
21 48 29.27
+2 ~~51.83~~
12.89

+9° +3 12.93
+25° 12.89 } 12.99.
+39° 13.15
+48° 13.27 13.27

} 12.93 x2 −14
13.14
① } 13.21x3 +64
5 1.50
13.10
② ~~[illegible]~~

① mean 13.14
② " 13.10
+39° 13.15
+48 13.27
Call error 13s.14

Level = zero

Trod 1327 is fast 3m 13s.14
at 21h 40m Sid Time

1896phae.proj.1637b

Remark:-
Cloudy spell.-

J A D obs.

1898
Aug 27

o' Sey. Cygni
+46° 25'

$20^h 13^m$

14.5	37.5	8.1
18.4	43.2	11.7
21.7	48.5	15.5
25.4	53.6	19.0
29.0	59.2	22.3
109.0	242.2	76.6
21.80	48.44	15.32
26.90	05	26.78
48.70	48.49	48.54

20 13 48.58
20 10 28.56
+ 3 20.02

24 Vulpec.
+24° 21

I III

$20^h 15^m$	16
23.0	3.5
25.8	6.3
28.5	9.1
31.0	11.5
33.8	14.1
142.1	44.5
28.42	8.90
20.35	20.26
48.77	48.64

20 15 48.70
20 12 28.93
+ 3 19.77

ν Cygni
+39° 55'

I II(first); III l.4

$20^h 27^m$

26.9	47.5	*
30.3	52.5	18.3
33.4	57.5	21.3
36.6	2.2	24.8
39.8	×	27.7
167.0	172.2	64.4
33.40	57.40	21.47
24.18	05	24.07
57.58	57.45	57.40

by wt.
20 21 57.50
20 18 37.60
+ 3 19.90

N

19.77	+ 24°	+.47
19.90	39°	+.07
20.02	46°	-.12

19.96 wt 5 95
19.77 wt 1
6 | 95
1.6
77
.93

Frod 1327 is fast

3^m 19.93^s

at $20^h 15^m$

Sed Time

D.A.D. obsr.

1898

Aug 30

13 H Cephei	ε Pegasi	δ Cap.	π² Cygni	16 Pegasi
+57° 0′	+9° 23	−16° 36′	+48° 49	+25° 25
II III	I l4; II III	II l4; III	I II III	I II III
20h 39	20h 42	20h 44	20h 45	20h 51
0.8 39.3	⅄ 29.9 51.0	× 6.0	52.3 16.6 48.7	26.0 43.6 6.6
7.8 44.0	16.0 33.6 53.6	48.0 8.5	56.3 22.6 52.3	28.8 48.0 9.5
14.5 48.4	18.7 37.2 56.1	51.7 11.2	0.0 28.5 56.4	31.5 52.0 12.2
21.4 53.2	21.0 41.0 58.5	55.5 13.7	3.8 33.8 0.0	34.3 56.0 15.2
28.0 57.3	23.6 44.9 1.0	59.5 16.1	7.5 39.4 3.7	36.9 59.9 17.6
725 2422	~~557~~ 1866 2802	1552 555	2999 1409 2811	1575 2595 611
14.50 48.44	~~18.57~~ 37.32 56.04	51.74 11.10	5998 2818 5622	31.50 51.90 12.22
.07 33.89	18.57 .04 18.71 18.79	.04 19.27	28.16 .05 28.03	20.53 .04 20.44
14.57 14.55	37.36 37.36 37.33	51.78 51.83	28.14 28.23 28.19	52.03 51.94 51.78
20 39 14.56	20 42 37.35	20′ 44 51.80	20′ 46 28.19	20′ 51 51.92
	21 39 14.77	21 41 29.37	21 43 5.44	21 48 29.30
	+3 22.58	+3 22.43	+3 22.75	+3 22.62
	+.23	+.36	−.07	+.12
	.81	.79	.82	.74

−16°	+3 22.43	.79	
+9°	.58	.81	
+25°	.62	.74	
+48°	.75	.82	
		316	
		.79	

+1.14
.30
1.44

1.44).32(.22 = n
288
320

call n, 3

Call n, 3

F rod 1327 is fast

3m 22.79

at 21h 45m

Sid Time

JAD obsr.

1898
Sept 5

74 Cygni	ε Pegasi	δ Capri.	π² Cygni	16 Pegasi
+39°56	+9°23	−16°36	+48°49	+25°25′
		II III		I III
21h35	21 42	21 44	21 45	21 51
52.5 13.4 40.8	18.1 34.3 53.6	48.7 10.9	57.2 21.7 53.5	30.7 48.6 11.7
55.6 18.6 44.0	20.7 x 58.4	52.7 13.2	1.0 27.4 57.1	33.4 x 14.3
59.0 23.3 47.2	23.2 x 1.0	56.5 15.8	4.7 33.0 1.2	36.1 x 17.0
2.3 27.8 50.5	26.0 46.0 3.5	0.5 18.5	8.6 38.6 5.0	39.0 1.0 19.9
5.5 32.8 53.5	28.3 49.5 6.0	4.1 21.0	12.4 44.1 8.3	41.8 4.9 22.5
2949 1158 2360	1163 3045	282.5 79.4	3239 1648 3051	1810 854
58.98 23.16 47.20	23.26 0.90	56.50 15.88	4.78 32.96 1.02	36.20 17.08
24.18 .05 24.07	18.79 .11 18.71	.04 19.27	28.16 .05 28.03	20.53 20.4[illegible]
23.16 23.21 23.13	42.05 42.19	56.54 56.61	32.94 33.01 32.99	56.73 56.64
21 36 23.17	21 42 42.12	21 44 56.57	21 46 32.98	21 51 56.68
21 32 55.49	21 39 14.77	21 41 29.38	21 43 5.41	21 48 29.29
+ 3 27.68	+ 3 27.35	+ 3 27.19	+ 3 27.57	+ 3 27.39
+ .02	+ .22	+ .32	− .06	+ .11
27.70	.57	.51	27.51	27.50

1.14
30

1.440] .38 [.27
288
920

n = .27
(n = 3
assumed)

+25° 27.50
+9 .57 } 27.535

+48° 27.51
27.525 (1)

+39°.5 27.70
+48° .51 } 27.60 (2)

all 27.70
57
51
51
50
279
27.56 (3)

		wt.	
(1)	27.52	3	6
(2)	.60	2	20
(3)	.56	4	20
			9) 46
			5

27.55 Gen mean

Frod 1327 is fast
3m 27s.55
at 21h 45m
Sid Time

J.A.D. Ser

Sept 7 $\frac{9}{10}$, 1898 -

Collimation

$23^h\ 10^m$
E.S.
(M.T.)

S. coll. on N. coll.

86.0
85.5
85.5 290 8580
85.5 set 85.8
86.5

Tel. on S. coll.
Mic. found at
32,173

31,641
643
637 210 31,6420
643
646

Tel on N. coll.

32.697
676
690 431 32,6862
685 4328
683 32.164
12

Set at 32,176

1898

JAD Obsr.

Sept 8.5

o. Androm.
+41°47′

Both through thick clouds,

22 52
9.8 27.6
12.2 31.8
15.0 35.7
17.8 ×
20.6 44.4

23h 0m

16.0 37.8 6.4
20.3 42.9 9.7
23.2 48.0 12.8
26.2 53.7 16.2
29.5 58.4 19.0

Note:
"rej. but
tenta-
-tively"
'if discordant

: 115.2 240.8 64.1
23.04 48.16 12.82
24.88 .05 24.76
47.92 48.21 48.06
rejected

23 0 48.13
22 57 17.94
+3 30.19
.01
ov level
+3 30.20

β Pegasi
+27°32.
II III

α 23h 2

15.5 39.3
× 42.1
24.2 44.8
28.0 47.6
32.3 .50.1

72.0 223.9
24.00 44.78
.04 20.81
24.04 23.97

23 2 24.00
22 58 53.99
+3 30.01
+.12
.00
+3 30.13

Clock-load changed:-

On Sep 8.9, 22h 39m E.S.T. Mr Attwill took 2 grammes from 7·1327. Rate has been too high for a long time.

30.20 wt 3 60
30.13 2 26
5 86
.17

7 rod 1327 is fast
3m 30s.17
at 23h 0m Sid Time

J A Dober

1898
Sep 11.5

α Pegasi	c² Aquarii	π Cephei	Br. 3077	τ Pegasi
+14°40	−21°43′	+74°50	+56°37	+23°11′
II III	II III	l.4 f III		
$23^h 3^m$	$23^h 7^m$	23 9	23 11	23 18
7.3 29.1	26.8 49.3	x	14.5 44.0	44.0 1.2 24.4
11.0 31.6	31.0 52.3	16.6	19.5 50.8	46.8 5.5 27.0
15.1 34.1	35.0 54.8	26.1	23.7 57.5	49.4 9.7 29.8
18.8 36.8	39.0 57.3	37.0	28.5 4.0	52.3 13.6 32.5
22.4 39.1	42.9 59.8	46.0	33.0 10.9	54.5 17.6 35.0
74.6 170.7	174.7 273.5	125.7	119.2 287.2	247.0 47.6 148.7
14.92 34.14	34.94 54.70	31.43	23.84 57.44	49.40 9.52 29.74
.04 19.08	.04 19.86	1 15.29	33.71 .07	20.17 .04 20.07
14.96 15.06	34.98 34.84	23 8 16.14	57.65 57.51	9.57 9.56 9.67
23 3 15.01	23 7 34.91	23 4 45.21	23 11 57.53	23 19 9.60
22 59 45.07	23 4 5.26		23 8 27.00	23 15 39.58
+3 29.94	+3 29.65	+3 30.92	+3 30.53	+3 30.02
+.20	+.40	− .87	−.19	+.15
00land	00	.00	.00	.00
+3 30.14	+3 30.05	+3 30.05	+3 30.34	+3 30.17

π Ceph
1.2944
5823
1.8767
75.29

3.713
- 398
4.111)1.27(.31
822
448
411
370
n = .31

δ	
−21	30.05
+14	.14
+23	.17
+56	.34
+74	.05

.15.5
3 40
.25

Frod, 327 is 3^m 30.25^s fast
at $23^h 10^m$
Sid Time

1898

Dober.

Sep 16

μ Androm
+37°57
$0^h 54$

10.0 30.3 56.9
13.1 35.0 59.0
16.2 39.6 3.1
19.3 44.4 6.5
22.4 49.1 9.4

81.0 198.4 314.9
16.20 39.68 2.98
23.53 05 23.42
39.73 39.73 39.56

0 54 39.67
0 51 10.29
+3 29.38
+.04
ov losl

+3 29.42
68
.61
171
.57

wta. - arbitrary
.42 × 5 210
.68 × 3 204
.61 × 4 244
12 658
.55

.56

ε Piscium
+7°21
$1^h \bar{0}$

48.0 4.1 25.3
50.6 8.0 28.0
53.0 11.7 30.4
55.7 15.5 32.8
57.9 19.2 35.2

265.2 58.5 151.7
53.04 11.70 30.34
18.69 .04 18.61
11.73 11.74 11.73

1 1 11.73
0 57 43.29
+3 28.44
+.24
.00

+3 28.68

[τ Piscium]
+29°33
$1^h \bar{9}$

8.5 27.1 51.2
11.4 31.3 54.2
14.0 35.7 56.8
17.0 40.0 59.7
20.0 44.1 2.6

70.9 178.2 284.5
14.18 35.64 56.90
21.31 04 21.21
35.49 35.68 35.69

1 9 35.62
1 6 7.11
+3 28.51
+.10
.00

+3 28.61

τ Pis.
17
1 6 2.477

0.5169
0.0173
0.5342 3.422

8.5591
0.4701n
9.0292n -.107

8.8661
1.2705
0.1366 1.370

8.3380
0.3485n
8.6865n -.049

+4.792
-.156
4.636
1 6 7.113

Frod 1327 is fast
$3^m 28.^s56$
at Sid Time
$1^h \bar{0}^m$

ZPD obs

Sep 18 $\frac{9}{10}$

23^h $\bar{0}$

E.S.T.

Collimation

Set on N. coll.

767
77.5
765 362 7724
780 set 77.2
77.5

Tel. on ~~A~~ S. coll.

Mic. found at 32.175

31.785
767
787 421 31.7842
787
795

Tel. on N. coll.

focus poor: i.e. N. coll. lines poor

by tangents		by coincidence as usual
32.067	32.947	32.495
085	924	498
089	968	480
089	943	500
088	952	475
418	234	2448
32.0836	32.9468	32.4896

Not used

32.0836
32.9468
1030
32.515

31.784
32.515
4299
32.150
12

Set at 32.162

1898

2 A Dobs.

Sep 20

41 H Cephei
+67°15
I
23h 45

350 1.268m
414 0.4126
1.6808
475 47.95
546
~~08~~
~~1783~~ 2393
~~3570~~ 47.86
47.95
23 46 35.81
23 42 67.46
+3 28.35
−25
+3 28.10

+ 2.38
− .53
2.93

28.35
27.84
2.93) .51 (.17 = n
293
2170

.17 = n

[ρ Cassiop.]
+56 56

23 52

7.5 36.4 15.1
11.8 43.2 19.8
16.2 50.5 24.1
20.8 57.0 28.5
25.1 3.4 32.6
81.4 250.5 120.1
16.28 50.10 24.02
33.98 07 33.83
50.26 50.17 50.19

23 52 50.20
23 49 22.21
+3 27.99
+11
00
+3 27.88

Clau.
539
23 49 17.086

0.4737
0.0196 3.114
0.4933

9.0098
0.4477n
9.4575n −286

9.0865
1.2728 2.288
0.3593

7.7566n
9.9263n
7.6829 .005

5.407
286
5.121

23 49 22.207

Lac. δ Sculpt.
−28°42
I II III
23 46

× 0.8 24.5
× 5.3 27.6
48.0 9.4 30.5
51.0 13.6 33.3
53.6 17.6 36.0
46.7 151.9
9.34 30.38
04 21.04
9.38 9.34
23 47 9.36
23 43 41.52
+3 27.84
25
28.09

ω Piscium
+6°19

23 57

12.7 29.0 50.3
15.1 32.7 52.8
55.1
17.7 36.6 57.6
20.3 40.2 0.0
23.7 43.7
89.5 182.2 275.8
17.90 36.44 55.16
18.65 .04 18.57
36.55 36.48 36.59

23 57 36.54
23 54 8.82
+3 27.72
.13
00
+3 27.85

φ Pegasi
+18°33

23 50

25.3 42.0 4.3
27.8 46.0 7.1
30.3 50.2 9.5
33.0 53.7 12.1
35.5 57.7 14.6
151.9 249.6 47.6
30.38 49.92 9.52
19.56 .04 19.46
49.94 49.96 50.06

23 50 49.97
23 47 22.28
+3 27.69
+10 on level
+3 27.79

−28° +3 28.09
+6 27.85
+18 27.79
+56 27.88
+67 28.10
397.1
27.942 ①

27.85 } 27.82
.79 }
27.88 } 27.85 ②

① 27.94
② .85
27.89

Frod 1327 is fast 3m 27s.90

at 23h 50m Sid Time

J.A.D. obsr.

1898

Sep 27

41 H Ceph
+67°15
II
23^{h}46^{m}
14.9
24.8
34.5
44.5
53.6
172 3
34.46
10
23 46 34.56
23 42 67.48
+3 27.08
-25
00
+3 26.83

φ Pegasi
~~[illegible]~~
+18°33
23^{h}50
24.4 41.3 3.6
27.0
29.6 45.5 6.3
32.0 49.1 8.8
53.3 11.6
34.7 57.0 14.0
147.7 246.2 44.3
29.54 49.24 8.86
19.56 04 19.46
49.10 .28 .40
23 50 49.26
23 47 22.32
+3 26.94
+10
00
+3 27.04

ρ Cass
+56°56
23 52
6.1 35.7 14.3
11.1 42.6 18.7
15.5 49.8 23.4
20.0 56.3 27.8
24.5 3.0 32.2
77.2 247.4 116.4
15.44 49.48 23.28
33.98 07 33.83
49.42 .55 49.45
23 52 49.47

ω Piscium
+6°19
23 57
17.1 28.3 32.0 49.4
52.0
19.2 35.6 54.2
22.0 39.3 56.9
43.0 59.2
178.2 271.7
35.64 54.34
~~18.65~~ .04 18.57
35.68 35.77
23 57 35.82
23 54 8.86
+3 26.96
+13
00
+3 27.09

27.04 }
09 } 27.05
26.83
26.94

Frod 1327 is fast

3^{m} 26.94^{s}

at 23^{h} 50^{m}

Sid Time

1898
Sep 30

J A Dober.

o Cass	ξ Androm:	[Br. 82]	μ Androm
+47°44	+23°43	+63°42	+37°57
II III	I II III	II III	I II III
0h 42	0h 45	0h 47	0 54
	1.0		
235 54.3	4.0 18.6 41.3	12.5 48.5	7.0 27.4 53.9
29.0 57.9	6.6 23.1 44.6	17.3 57.2	10.4 32.3 57.0
34.0 1.7	9.4 27.0 47.1	23.5 5.6	13.4 36.8 0.3
39.6 5.4	12.0 31.0 49.8	28.9 3.8	16.5 41.2 3.3
45.1 8.7	35.0 52.5	34.5 21.7	19.6 46.1 6.1
1712 3080	330 1347 2353	1167 3268	669 1838 3006
34.24 1.60	6.60 26.94 47.06	23.34 5.36	13.38 36.76 0.12
05 27.43	20.25 .04 20.16		23.53 .05 23.42
34.29 34.17	26.85 26.98 26.90		36.91 .81 .70
0 42 34.23	0 45 26.91		0 54 36.81
0 39 7.51	0 42 0.49		0 51 10.48
+3 26.72	+3 26.42		+3 26.33
−.04	+10		+04
levl 00	.00		00
+3 26.68	+3 26.52		+3 26.37

+23	26.42	.52
+37	.33	37
+47	.72	.68
		157
		52

Frod 1327 is fast
3m 26s.52
at 0h 45m
Sid. Time

JAD obs

1898
Oct. 6

x Piscium
+0° 42

II III
23h 25
3.1 24.0
6.7 26.7
10.7 29.4
14.2 31.7
17.7 33.8
52.4 145.6
10.48 29.12
64 18.46
10.52 10.66
23 25 10.59 +3 24.95
1.00
23 25 11.59
23 21 46.64

all these four stars redd from sheet 1s wrong

70 Peg.
+12° 13

23h 27
3.8 20.3 41.7
6.5 24.3 44.2
9.1 28.1 47.0
11.6 31.9 49.5
14.0 35.7 51.8
45.0 140.3 234.2
9.00 28.06 46.84
18.97 .04 18.88
27.97 28.10 27.96
23 27 28.01
1.00
23 27 29.01
23 24 4.10
+3 24.9'

[72 Peg]
+30° 46
Poor seeing

23h 31
54.4 13.0 37.1
57.5 17.5 40.1
0.2 21.8 43.1
3.0 26.3 46.1
6.0 30.3 49.0
301.1 108.9 215.4
0.22 21.78 43.08
21.59 04 21.49
21.81 21.82 21.59
23 32 21.74
1.00
23 32 22.74

[λ Androm]
+45° 55

23 35
29.0 52.2 22.1
32.6 57.5 25.8
35.9 2.8 29.5
39.8 8.0 33.1
43.2 13.4 36.6
180.5 313.9 147.1
36.10 2.78 29.42
26.66 .05 26.54
62.76 2.83 2.88
23 36 2.82
1.00
23 36 3.82
23 32 38.90
+3 24.92

ι Piscium
+5° 5'
~~ι And~~
~~+42° 43~~

η # III
23h 38
3.8 25.2
7.6 27.6
11.5 30.0
15.4 32.6
19.0 35.0
57.3 150.4
11.46 30.08
.04 18.54
11.50 11.54
23 38 11.52
23 34 46.68
+3 24.84

ι And ~~Piscium~~
+42° 43
~~+5° 5'~~

~~III~~ IX
23 36
55.8
59.5
2.5
6.4
9.5
31 37
2.74
25.13
23 35 37.61
23 33 12.54
+2 25.07

[χ Androm]
+43° 46

~~III~~ III
23h 39
14.0
14.8
18.0
21.4
24.8
90 0
18.00
25.57
23 38 52.43

γ Cephi
+77° 4
last 4
23h 39
m 52.6 53.6
5.0 6.0
16.0 17.0
26.0 27.0
283.6
70.90
1 28.02
23 38 42.88
23 35 18.64
+3 24.24

1.2944
0.6502
1.9446
88.02

+77° ~~24.24~~
+0° 24.95
4.364
012
4.352
.70 } 1.16 = η
435
2650
η unsatisfactory

+0° +3' 24.95 .14
+5 24.84 .13
+12 24.91 .11
+42 25.07 .00
+45 24.92 .02
+77 [24.24] .55
2469
24.938 Gen m

24.95
84
91
24.90 w 1
25.07
24.92
24.99 w 3
mean 24.96
24.95

Frod 1327 is fast 3m 24.95s at 23h 30m Sid Time

Level = zero

Reduction
^ Copied direct from sheet. Prof S. computer

Prof. S obsr.

Oct 12, 1898

o Draconis

0.2915 +59° 15.8
1.2662

18 52 51.8
59.5
53 6.4
13.6
20.8 32.1
6.42
.07
6.49

32.8
37.7
42.4
47.3
52.1 212.3
42.46
36.12
6.34

T 18 53 6.42
α 18 49 42.30
α-T − 3 24.12
.13
23.99

γ Lyrae

1.2682
0.0742 +32° 33.0
1.2662

18 58 6.0
9.0
11.8
14.8
17.6 59.2
11.84
22.00
33.84

24.9
29.4
33.7
38.0
42.6 168.6
33.72
.04
33.76

49.9
52.8
55.8
58.6
61.5 278.6
55.72
21.90
33.82

18 58 33.81
18 55 9.88
− 3 23.93
+ 05
23.98

ξ Aquilae

1.2682
0.0125 +13° 42.7
1.2662

19 3 45.9
48.3
51.0
53.5
55.9 254.6
50.92
19.08
10.00

4 2.3
6.2
10.0
13.8
17.6 49.9
9.98
.04
10.02

23.9
26.6
29.0
31.5
34.0 145.0
29.00
19.00
10.00

19 4 10.01
19 0 46.15
− 3 23.86
+ .11
23.97

Continued.

θ Lyrae

1,2682 +37° 57.1
0,1032
1,2662 19 15 45.9
490
52.1
55.2
58.4 260.6
52.12
23.52
15.64

16 6.2
11.0
15.7
20.4
25.0 78.3
1566
.05
15.71

32.8
36.0
39.0
42.2
45.2 195.2
39.04
23.41
15.63

19 16 15.66
19 12 51.72
− 3 23.94
+ 02
23.96

κ Cygni

1,2682 +53° 10.8
0.2224
1.2662 19 17 30.8
34.9
39.1
43.3
47.2 195.3
39.06
30.94
10.00

57.7
18 3.9
10.0
16.2
22.2

32.6
36.8
40.9
45.0
49.0 204.3
40.86
30.80
10.06

19 18 10.04
19 14 46.11
− 3 23.93
− 07

Clock fast 3 23.98
at 19^h 00

W. P. G. obsr.

1898

Tues Oct 18	ω Piscium	α Androm	γ Pegasi
	[Poor seeing]		
	+6° 18'	+28° 32	+14° 37'
	0 6	23 57	0 11 thus star read 1s small
	~~48.0~~		
	7.5 25.6 ~~49.5~~ ~~47.9~~	8.2 24.4 45.0	1.0 17.1 39.5
	10.0 29.7 52.2 ~~50.2~~	10.5 28.0 47.9	3.4 21.4 41.8
	13.0 34.0 55.2 ~~53.0~~	12.8 31.6 50.2	6.1 25.2 44.1
	15.7 38.3 57.9 ~~55.5~~	15.6 35.0 53.0	8.8 29.0 46.8
	18.4 42.7 ~~0.6~~	18.0 39.1 55.5	11.0 33.0 49.3
	64.6 170.3 275.4	65.1 158.1 251.6	30.3 125.7 221.5
	12.92 34.06 55.08	13.02 31.62 50.32	6.06 25.14 44.30
	18.65 04 18.57	~~18.65~~ .04 18.57	19.16 .04 19.07
	~~3+.57 34.10~~	~~21.11 .04 21.01~~	25.22 25.18 25.23
	21.11 04 21.01	~~3976~~	
	34.03 34.10 34.07	31.67 31.66 31.75	corr +1s.0
	0 6 34.06	23 57 31.69	0 11 25.21
	0 3 11.47	23 54 8.87	0 7 63.51
	+ 3 22.59	+ 3 22.82	+ 3 22.70
	,04	.08	.07
n s.10	.63	.90	.77
n .20	.08 22.67	.16 22.98	.14 .77
n .30	22.71	23.06	22.91
n .40	22.75	23.14	22.98

Cal n .3

+6° 23.06 } 22.99 at 2 198
+14 22.91 }
+28 .71 22.71 at 6 355

2) 553
.79

Level = zero

Frod 1327 is fast 3m 22s.80 at 0h 0m 0
Sid. Time

J.A.D. obs.

1898
Oct 20

[31 Pegasi]
+11° 42
$22^h 19^m$
31.3 48.0 9.1
33.9 51.7 12.0
36.6 55.5 14.1
39.0 58.9 16.9
41.6 2.9 19.0
182.4 277.0 71.1
36.48 55.40 14.22
18.93 .04 18.83
55.41 55.44 55.37
22 19 55.41

3 Lacertae
+51° 44
$22^h 22^m$
20.1 46.0 19.8
24.0 52.0 23.8
28.0 57.9 27.8
32.0 3.6 31.7
36.0 10.0 35.6
140.1 289.5 138.7
28.02 57.90 27.74
29.94 06 29.80
57.96 57.96 57.94
22 22 57.96
22 19 36.47
+3 21.49

δ Ceph
+57° 54
~~I~~ l 2 2 28
~~V last~~ part ~~III-16~~
$22^h 28^m$ 34.0
8.5 } last 41.0
17.8 48.0
22.4 part 54.8
34.0 2.0
46.0
239.8
47.96
~~34.73~~ .07
22 28 ~~13.23~~
48.03

7 Lacertae
+49° 46
22 29
54.0 18.8 51.5
57.9 24.8 55.2
1.6 30.3 59.1
5.6 36.0 3.0
9.2 41.9 6.7
308.3 151.8 295.5
1.66 30.36 59.10
28.71 06 28.58
30.37 30.42 30.52
22 30 30.44
22 27 9.04
+3 21.40

η Aquarii
−0° 38
22 33
9.0 25.0 46.1
11.7 29.0 48.8
14.0 32.6 51.2
16.5 36.3 53.6
18.9 40.0 56.1
70.1 162.9 255.8
14.02 32.58 51.16
18.34 04 18.46
32.56 32.62 32.70
22 33 32.63
22 30 11.10
+3 21.53

10 Lacertae
+38° 32
22 37
36.1 56.7 23.9
39.5 1.8 26.5
42.6 6.5 29.8
45.8 11.2 33.0
49.1 16.0 36.0
213.1 33.2 149.2
42.62 6.44 29.84
23.70 03 23.59
6.32 6.49 6.25
22 38 6.36
22 34 44.93
+3 21.43

-0° $+3^m$ 21.53
$+38^\circ$ .43 } 43 } mean
+49 .40 } } .44 } .44
+51 .49 }

level = zero

Frod 1327 is fast
3^m $21.^s44$
at 22^h 30^m Sid Time

1898
Sunday
October 23

JAD obser.

24 Vulpec	x Ceph	γ Cygni	ρ Capricorn.	ε Delphini
+24°21′	+77°24	+39°55′	−18°9	+10°57
	last wire			
20h 15m	20h 17m	20h 21m	20h 26m	20h 31m
227 40.4 3.4	24.0s	26.2 47.0 14.5	2.2 19.0 41.0	20.2 36.5 57.8
25.5 44.3 6.0		29.4 52.0 17.7	5.0 22.7 43.9	22.8 40.4 0.5
28.0 48.7 8.8	1.3678	32.8 56.8 21.0	7.5 27.0 46.4	25.3 44.2 3.0
31.0 52.7 11.6	0.6613	36.0 1.5 24.1	10.2 30.8 49.1	27.9 48.0 5.7
33.8 56.6 14.2	2.0291	38.8 6.6 27.1	12.7 34.6 51.7	30.4 51.8 8.0
	1069			
1410 2427 440		1632 2839 1044	376 1341 2321	1266 2209 3150
28.20 48.54 8.80		32.64 56.78 20.88	7.52 26.82 46.42	25.32 44.18 3.00
20.35 .04 20.26		24.18 .05 24.07	19.51 .04 19.42	18.89 .04 18.80
48.55 48.58 48.54		56.82 56.83 56.81	27.03 26.86 27.00	44.21 .22 .20
20 15 48.56 ~~84~~	20 15 37.1	20 21 56.82	20 26 26.96	20 31 44.21
20 12 28.05	20 12 16.96	20 18 36.48	20 23 6.55	20 28 23.67
+3 20.51	+3 20.14	+3 20.34	+3 20.41	+3 20.54
− .05	+.35	− .01	− .13	− .07
ov level	00	00	00	00
.46	.49	.33	.28	.47

ρ Capri.
609
20 23 2.593

0.5351
0.0508 3.834
0.5859

8.1063n
0.3584n .022
8.4647

8.6128
1.2101
9.8229 .665

8.7553n
1.0113
9.7666n −.584

4.541
584
3.957

20 23 6.55s

+4.47
−32
4.8 | .27 | .288 | 10=n

.1s = n

4.47
91
3.52

+10 +3m 20.47 } 45
+24° +3 20.46 }
+39 +3 20.33 } .33 } .39 .40

Frod 1327 is fast

3m 20s.40

at 20h 20m

Sid Time

J A D obs.

Oct 25 $\frac{9}{10}$

Collimation—

S. coll. on N. coll. (See remark 4 on first cover)

$23^h 00$

E.S. M.T.

706 727

722 720

728 717 239

735 719 ~~[illegible]~~

730 735 S. = 72.4

Tel. on S. coll

Mic. found at 32.161

Dark day!

Seeing very poor.

32.003 .006

009 013

006 015 .0102

009 013 32.0102

015 014

Tel. on N. coll

32.255 253

255 255

255 256 531

247 240 32.2531

258 255 2633

32.132

12

Set at 32.144

J.A. Dobson

1898.
Oct 25.2

α Aquilae
+8° 36'

19h 49

3.3 24.7
7.2 27.2
11.0 29.7
14.7 32.3
18.5 34.7
54.7 148.6
10.94 29.72
.04 18.66
10.98 11.06

19 49 11.02
19 45 51.47
+3 19.55
+.03
.58

ε Drac
+70° 0
I last 4: II

3tch sight means
19 50
× 27.8
48.5 39.1
55.6 50.0
2.9 0.5
10.0 11.3
237.0 248.7
~~47.40~~ 49.74
59.25 .11
50.59
49.84 49.83

19 51 49.84
19 48 30.21
+3 19.63
-.07
.56

1.2381
0.4659
1.7040
50.59

β Aquilae
+6° 9'

19h 53

17.2 33.4 54.5
19.8 37.1 57.0
22.2 41.0 59.5
24.8 44.6 2.0
27.0 48.3 4.4
111.0 204.4 297.4
222.0 408.8 59.48
18.65 .04 18.57
40.85 .92 .91

19 53 40.89
19 50 21.29
+3 19.60
+.03
.63

ψ Cygni
+52° 10
I II

19 55

42.0 8.2
46.3 14.5
50.1 20.4
54.3 26.5
58.3 32.4
251.0 102.0
50.20 20.40
30.24 06
20.44 20.46

19 56 20.45
19 52 60.98
+3 19.47
-.02
.45

γ Sagitt.
+19° 12'

19 57

10.8 27.6 50.0
13.4 31.7 52.6
16.0 35.7 55.2
18.5 39.5 57.8
21.1 43.4 0.4
79.8 177.9 276.0
15.96 35.58 55.20
19.63 .04 19.54
35.59 .62 .66

19 57 35.62
19 54 16.07
+3 19.55
+.02
.57

2-7.5 ε Drac
-2.3 α² Cap
2.98
3) .11 (.037
.9
20
m = .04

o¹ Seg. Cygni
+46° 25'

20 13

12.4 35.8 6.3
16.1 41.2 9.8
19.8 46.7 13.5
23.5 52.0 17.0
27.0 57.5 20.5
98.8 233.2 67.1
19.76 46.64 13.42
26.90 05 26.78
46.66 .69 .64

20 13 46.66
20 10 27.17
+3 19.49
-.00
.49

Level = zero

α² Capricorn,
-12° 52

20 15

22.8 39.1 0.9
25.5 43.0 3.4
28.0 47.0 6.0
30.5 50.7 8.6
33.0 54.5 10.9
139.8 234.3 29.8
27.96 46.86 5.96
19.02 .04 18.93
46.98 46.90 47.03

20 15 46.97
20 12 27.45
+3 19.52
+.04
.56

	correction without	with
-12°	19.52	.56
+6	.60	.63
+8	.55	.58
+19	.53	.57
+46	.49	.49
+52	.47	.45
+70	.63	.56
	3.81	3.84
	.55	.55

60
55
55
170
.57
49
47
48 } .52
Gen m .55
.52
.535

63
58
57
178
.59
49
45
47 } .53
Gen m .55
.53
.54

final Gen m .54

+10
+18
+27
+44
+49
+5

Sid 1327 is fast 3m 19s.54
at 20h 0m Sid Time

J A D obs.

1898

Oct. 27.3

β Cygni
+27° 44

I	II
19 29	
31.4	49.3
34.1	53.6
37.0	57.7
39.8	2.0
42.5	6.1
184.8	288.7
36.96	57.74
20.95	04
57.91	57.78

19 29 57.84
19 26 38.77
+3 19.07

foll. β Cygni
6.0m 1/4m North
last wire III tardy

19 30 8.5
-26.4

19 29 42.1
19 29 57.8
prec. (β Cygni) 15.7

Star very likely
is +27 34 11 a foll. star

~~27~~ 2 Cygni
+51° 30

III

19 30
50.0
54.0
58.0
2.0
5.9
289.9
57.98
29.66
19 30 28.32
19 27 9.21
+3 ~~18.8~~ 19.11

θ Cygni +49° 58

19 36		
26.3	51.0	23.8
30.4	57.0	27.5
33.7	2.8	31.5
37.6	8.2	35.5
41.2	14.1	39.0
169.2	313.1	157.3
33.84	2.62	31.46
28.85	.86	28.72
2.69	2.68	2.74

19 37 2.70
19 33 43.66
+3 19.04

Magn

+10°	19.00	3.0
+18	.38	← 4.0
+27	.07	3.0
+44	.45	← 2.8
+49	.54	4.6
+51	.11	4.1
	10.5	
	.18	

γ Aquilae
+10° 22

I	II
19 44	
22.5	39.1
25.3	42.9
27.6	46.3
30.0	50.4
32.7	54.3
138.1	233.0
27.62	46.60
18.86	.04
46.48	46.64

19 44 46.56
19 41 27.56
+3 19.00

δ Cygni
+44° 53

II 1.3 III

19 46	
4.5	26.0
8.5	29.4
12.4	32.0
16.4	34.7
20.1	37.0
61.9	159.7
12.38	31.94
04	19.44
12.42	12.50

19 46 12.46
19 41 48.95
+3 ~~3.51~~ 19.38

δ Sagittae
+18° 17

II III

19 45
27.5
31.0
8.5 34.5
13.6 37.9
18.9 41.4
172.3
34.46
~~19.47~~
26.06
19 45 8.40
19 42 53.08
+3 19.45

Frod 1327 is fast 3m 19.20s
at 19h 30m Sid. Time

ectio
With
.56
63
58
.57
.49
.45
.56
38.4
.55
63
58
57
78
59
9
15
7
.53
55
53
.54
54

1898
Oct 31.2

J A Dobson

δ Aquilae
+2°54

19h 23

17.0 33.0 54.0
19.5 36.8 56.7
21.9 40.5 59.0
24.5 44.0 1.5
26.9 48.0 4.0

109.8 202.3 295.2
21.96 40.46 59.04
18.57 .04 18.48

40.53 40.50 40.56

19 23 40.53
19 20 24.29

+3 16.24
− .14
00 level

+3 16.15

β Cygni
+27°44

I II

19 29

28.3 46.5
31.1 50.7
34.0 54.8
36.9 58.9
39.5 3.2

169.8 274.1
33.96 54.82
20.95 .04

54.91 54.78

19 29 54.84
19 26 38.69

+3 16.15
− .06
00

+3 16.09

fol β Cyg.
III Cast Wire
6m 1/3 in

19 30

54

26.4

19 29 39.0
19 29 54.8
prec. 15.8
β Cyg

See Oct 27

ι Cygni
+51°30
II l.4. III

19 30

× 46.8
19.0 51.0
25.2 54.8
31.0 58.8
37.0 2.6

75.2 274.0
25.07 54.80
.05 29.66

25.12 25.14

19 30 25.13
19 27 9.09

+3 16.04
+ .05
00

+3 16.09

assume
m = .15

Rod 1327 is fast
3m 16s.10
at 19h 30m

3rd Time

JAD obsr.

1898 Nov. 4

Nov. 4	20 Ceph	27 Peg	π Peg	5 Ceph	24 Ceph	θ Aquarii
	+62°17	+32°40	+32°40	+57°41	+71°50	−8°18
	I		II III	I	III l.3	I II
	22h 4m	22h 7m	22h 8m	22 9	22 13	22 14
	19.0	30.5 49.6 14.4	34.3 59.3	50.5	×	20.2 36.4
	24.8	33.6 54.0 17.3	38.9 2.5	55.3	×	22.7 40.0
	29.8	36.3 58.6 20.2	43.4 5.5	59.6	5.1	25.1 43.8
	35.2	39.2 2.8 23.4	47.8 8.4	4.4	13.2	27.6 47.6
	40.6	42.2 7.3 26.1	52.0 11.1	9.0	20.9	30.0 51.3
	149.4	181.8 292 3 1014	2164 3268	2988	392	1256 2191
	29.88	36.36 58.46 20.28	43.38 5.36	59.76	13.07	25.12 43.82
	39.89	22.03 .04 21.93	04 21.93	34.70	67.09	18.74 ~~18.65~~ 04
	9.77	.39 .50 58.35	43.42 43.43	34.46	22 11 5.98	43.86 43.86
	22 5 9.77	22 7 58.41	22 8 43.43	22 10 34.46	22 7 52.85	22 14 ~~25.17~~ 43.86
	22 1 57.05	22 ~~5 30.83~~	22 5 30.83	22 7 21.72		22 11 31.16
	+3 12.72		+3 12.60	+3 12.74	+3 13.13	+3 12.70
	−.13		+.04	−09	−28	+14
	ouleyd		.00	.00	.00	.00
	+3 12.59		+3 12.64	+3 12.65	+3 12.85	+3 12.84

20 Ceph
1.2682
0.3327
1.6009
39.89

24 Ceph
1.3206
0.5061
1.8267
67.09

+3.05
−.146
3.20

13.13s
12.70
.43 (.13=M)
32
1.10

−8°18	84	.74	.68
+32°	.64s		
+57°	.65	.62	
+62°	.59		
+71°	.85		

Chrod 1327 is fast

3m 12.68s

at 22h 10m

Sid Time

Level - J.O.D. obs.

Nov 6 10/10

23h 40
E.S.M.T.

Tel. S., Screw	E	W	
W.	+43.0	+89.5	46.5
E	-81.7	-35.0	46.7
W	+44.3	+91.0	46.7
E	-78.2	-31.5	46.7
W	+50.9	+97.5	46.6
E	-81.5	-34.6	46.9
W	+46.0	+93.0	47.0
E	-77.3	-30.2	47.1
W	+49.5	+96.5	47.0
E	-83.3	-36.2	47.1
W	+48.8	+95.5	46.7
E	-79.0	-32.0	47.0
W	+45.8	+92.5	46.7
E	-79.0	-32.0	47.0
W	+49.9	+97.0	47.1
E	-79.0	-32.0	47.0
W	+48.8	+95.5	46.7
E	-76.3	-29.0	47.3
W	+49.0	+96.0	47.0
E	~~[illegible]~~ 79.5	32.4	47.1

	Tel. N., Screw	E		W
70.8	E	69.0	-	-1.8
70.8	W	+20.1		+90.7
70.8	E	-69.5	-	-1.3
70.2	W	+12.8		+83.0
70.2	E	-68.4	-	-1.8
70.0	W	+17.0		+87.0
70.0	E	-68.3	-	-1.7
70.0	W	+15.0		+85.0
70.0	E	-68.2	-	-1.8
70.0	W	+20.0		+90.0
69.7	E	-68.0	-	-1.7
69.7	W	+16.3		+86.0
70.0	E	-68.0	-	-2.0
[68.9]	W	+20.8		+19.7 89.7
69.7	E	-68.1		-1.6
70.0	W	+16.0		+86.0
69.7	E	-68.0	-	-1.7
70.0	W	+19.0		+89.0
69.5	E	-68.1	-	-1.5
69.5	W	+15.7		+85.2

/ 119.0 Index
289.0

+68.5	-58.5
67.5	-55.0
74.4	-58.1
69.5	-53.7
73.0	-59.7
72.3	-55.5
69.3	-53.5
73.4	-53.5
72.3	-52.5
72.5	-53.9
+55.1	-34.0
47.8	-34.5
52.0	-33.4
50.0	-33.3
55.0	-33.2
51.3	-33.0
53.8	-33.0
51.0	-33.1
54.0	-33.0
50.7	-33.1
+1233.4	-893.5

+1233.4
40)+339.9
320
19.9

8.5
.06
.510=b
1.35
.70=b sec φ

West axis is high

Ended
25h 0
E.S.M.T.

Re-computed Feb 6-1901

78 | 49
130 | 88
127 | 126
E 1270.8 W 1268.9
W 1268.9
40 ⌊1.9 W
.047 W

43 ✓ | 801.6
126 ✓ | 16.9
85 ✓ | 784.7

E 856.3
W 784.7
40 ⌊71.6 W ⌊1.79 W
40
316
280
360

.047 W
1.79
1.84
.92 div
.06
.0542
1.35
0.54
0.18
.07

Level error $\overset{s}{.}07$
West end high:
hence stars come early.
While clock is fast
use sign +.

Level correction to $T-\alpha = +\overset{s}{.}07$

JAD obs.

1898
Nov 7.5

55 Cass.
+66°
Cat 2 of I

$2^h 10$
66
12.5

352
2 11 14.909

0.0649
0.5502
0.6151 +4.122

0.2863m
8.5672
8.8535m −.071

1.1218
8.8267
9.9485 +.888

1.1609
8.6361
9.7970 +.627
20.546
.071
20.475

γ Triang.
+33°22

$2^h 15$

2.0	21.5	46.5
5.4	25.6	49.4
8.1	30.3	52.2
11.0	34.6	55.0
13.7	39.0	58.3
40.2	151.0	261.4
8.04	30.20	52.28
22.20	.04	22.10
30.24	30.24	30.18

2 15 30.22
2 11 20.48
+4 9.74
B see note below

θ Arietis
+19°25′

$2^h 16$

16.8	34.0	56.1
19.5	37.6	58.8
22.6	41.8	1.2
25.0	45.8	4.0
27.6	49.8	6.6
111.5	209.0	306.7
22.30	41.80	1.34
19.66	.04	19.57
41.96	.84	.77

2 16 41.86
2 12 32.19
+4 9.67
B see note below

θ Arietis
354
2 12 27.012

0.0649
0.5225 +3.868
0.5874

0.2863m
8.2944 −.038
8.5807n

1.1218
8.7724 +.784
9.8942

1.1609
8.5868 +.560
9.7477
32.224
.38
32.186

o Ceti
−3°27
III

36
2 20 39.450

2 18

39.7
42.0
44.5
47.2
49.4
222.8
44.56
18.49

2 18 26.07
2 14 16.32
+4 9.75
B

0.0649
0.6886
0.7535 +5.669

0.2863
9.1074m
9.3937m −.248

1.1218
9.1435
0.2653 +1.842

1.1609
8.9914 +1.420
0.1523
48.381
.248
48.133

1.2682
.407
1.6752
47.34

2 Cass
+65°56
I

2 23

57.2
4.3
10.5
17.0
23.2
352.2
10.44
47.34

2 24 57.78
2 20 48.13
+4 9.65
see B note above

Remarks: sheet probably wrong T.

ξ² Ceti
+8°0

2 26

35.0	51.2	12.2
37.7	55.0	14.8
		17.3
40.0	58.8	19.8
42.6	2.3	22.0
45.2	6.1	
200.5	293.4	86.1
40.10	58.68	17.22
18.73	.04	18.64
58.83	.72	.58

2 26 58.71
2 22 49.03
B +4 9.68
see note above

−3°	+4	9.75
+8°		.68
+19		.67
+33		.74
+66°		.65
		3.49
	+4	9.70

Frod 1327 is ~~3m 9.70~~ fast
at $2^h 15^m$ Sid. Time $3^m 9.77^s$
(Corrected later)

1898
Nov 11

1,268m
508
1,776
5970

β Arietis
+20°18
III
1^h 52
26.6
29.3
31.9
34.6
37.0
159.4
31.88
19.68
1 52 12.20
1 49 5.30
+3 6.90

50 Cass
+71°55
I
1 56
43.5
51.8
59.6
8.0
15.6
298.5
59.70
59.70
119.40
1 57 59.40
1 54 52.59
+3 6.81

ν Ceti
−21°35
1 57
58.2 15.5 38.0
08 .19.4 40.5
3.5 23.5 43.5
6.3 27.5 46.0
8.9 31.4 48.5
31.7 117.3 216.5
3.54 23.46 43.30
19.94 04 19.85
23.48 .50 .45
1 58 23.48
1 55 16.54
+3 6.94

γ Androm
+41°50
2^h 0
18.8 40.7 8.7
22.7 45.9 12.2
25.8 50.6 15.6
29.3 55.6 19.0
32.5 0.6 22.0
129.1 253.4 77.5
25.82 50.68 15.50
25.28 05 24.78
51.10 50.71 50.72
2 0 50.84
1 57 43.95
+3 6.89

α Arietis
+22°59
2 4
11.8 29.1 51.8
14.6 33.3 54.6
17.2 37.2 57.2
20.0 41.3 0.1
22.6 45.1 2.6
86.1 186.0 286.3
17.22 37.20 57.26
20.15 04 20.06
37.37 37.24 37.20
2 4 37.27
2 1 30.53
+3 6.74

β Triang
+34°30
2 6
12.1
15.3
24.1
31.6
45.0
49.5

Pen failed

50 Cas 6.81
ν Ceti 6.94
.13

n is unappreciable

−21° 6.94
+20 .90
+22 .74
+41 .89
+71 .81
4.28
.856

Level = zero (ass.)

Frod 1327 is ~~3m 6.86~~ fast

at 2^h 0 Sid Time

Corrected for level
Frod 1327 fast 3m 6.93

1898

Prof. S. obsr.

Nov 14, 1898

ε Cygni +33° 35' 20 44	ν Cygni +40° 46' 20 53	61 Cygni pr. +38° 15' 21 4	Br 2777 +77° 43' 21 8	α Cephei +62° 9' 21 18
43.8 3.0 28.2	57.8 19.0 46.8	56.8 17.1 43.8	43.7 58.8 37.3	23.9 58.1 43.1
46.6 7.5 31.1	1.2 24.0 50.0	0.0 22.0 47.0	55.1 16.2 49.0	29.3 6.2 48.4
49.8 11.8 34.1	4.4 29.0 53.4	3.0 26.8 50.2	6.5 34.0 1.0	34.4 14.2 53.4
52.7 16.1 37.0	7.7 33.7 56.6	6.2 31.4 53.4	19.0 51.2 12.5	40.0 22.0 59.0
53.6 20.8 40.0	10.9 38.6 59.6	9.3 36.1 56.3	30.5 8.5 23.8	45.0 30.1 4.1
2485 592 1704	3220 1443 2664	3153 1834 2507	3348 4687 3036	1726 3706 2680
49.70 11.84 34.08	4.40 28.86 53.28	3.06 26.68 50.14	6.96 33.74 0.72	34.52 14.12 53.60
22.26 .04 22.16	24.49 .05 24.38	23.61 .05 23.51	87.16 .17 86.76	39.70 .08 39.52
11.96	28.89	26.67 26.73 26.63	34.12 33.91 33.96	14.22 14.20 14.08
.88	.91	67	34.12	21 19 14.17
.92	.90	63	33.96	
20 45 11.92	20 56 28.90	21 5 26.68	21 10 34.00	21 16 9.97
20 42 7.46	20 53 24.44	21 2 21.99	21 7 29.91	+3 4.20
+3 4.46	+3 4.46	+3 4.69	+3 4.09	+.10
−.02	−.00	−.01	+.37	+.07
+.07	+.07	+.07	±.07	
+3 4.51	4.53	4.75	4.43	4.37

~~1.2682~~
~~0.0794~~
~~1.3476~~
~~22.26~~

~~1.2662~~
~~0.0794~~
~~1.3456~~
~~22.13~~

~~1.2682~~
~~0.0794~~
~~1.3476~~
~~22.26~~

~~1.2662~~
~~0.0794~~
~~1.3456~~
~~22.13~~

α Ceph

1.2682 1.5988
0.3306
1.2662 1.5968

39.70
39.52

Br 2777

1.2682 1.9403
0.6721
1.2662 1.9383

87.16
86.76

+3 4.09 +77°43' +4.59
3 4.46 +33°35' + 66
3.93
39] .37 [illegible] m
n=1

		wts.	
+33°	.51	× 3	153
+38	.75	× 4	300
+40	.53	× 5	265
+62	.37	× 3	111
+77	.43	15	829

6.55 by wt. mean

~~207~~
75
79

216
.54 simple mean

Frod 1327 is fast

3m 4.55s

at 21h 0m

Sid Time

DOD obs

Wed.
1898
Nov 16 -3

μ Peg
+24°3

22^h ~~45~~ 47

460 37 26.5
485 7.6 29.0
51.2 11.8 32.0
54.0 15.8 34.7
57.0? 19.6 37.1

2567 585 ~~18.59~~ 159.73
51.34 11.70 ~~37.18~~ 31.86
20.30 .04 31.86
20.21
.64 .74 11.65

22 ~~45~~ 47 11.68

ι Ceph
+65 39
III l.3

22 47 9

53.8
0.0
5.6

1794
59.80
50.75
~~49~~ 9.05

22 46 5.84

+3 3.11
+.10
+07

+3 3.28

δ Aquarii
−16°23
Il 3 : II : III

22^h 50 2

24 138 35.8
50 17.9 38.3
7.5 21.8 40.9
25.6 43.7
29.3 46.0

1084 2047
21.68 40.94
.04 19.24
21.72 21.70

22 50 2 21.71

22 49 18.40

+3 3.31
− .10
+07

+3 3.28

o Androm
+41°46

22 59

48.6 10.2 38.1
52.0 15.2 41.5
55.4 20.2 44.9
58.6 25.0 48.3
1.8 29.8 51.3

2764 1004 2241
55.28 20.08 44.82
24.87 05 24.75
.15 .13 20.07

22 60 20.12

22 57 17.30

+3 2.82
− .00
+07

+3 2.89

β Peg
+27°31

22 ~~59~~ 61

~~30.0~~ 32.8 48.3 11.6
35.6 52.6 14.6
38.6 56.6 17.5
41.3 0.8 20.0
5.0 23.0

1783 2833 867
35.66 56.66 17.34
20.90 ~~1~~.04 20.81
.56 .70 56.53

22 ~~59~~ 61 56.60

22 58 53.55

+3 3.05
− .03
+07

+3 3.09

α Peg
+14°39
III

23 +3

1.8
4.5
7.0
9.7
12.0

350
7.00
19.08

23 2 47.92

22 59 44.69

+3 3.23
− .06
+07

+3 3.24

1.3206
0.3848
1.7054
50.75

+2.209
−294
2.50) 20 | .08
200

.08 = n

−16° 3.28
+14° 3.24 } 3.16
+27 3.09 } 3.03
+41 2.89 } 2.89
+65 3.28
1578
3.16

3.10

3.16

Frod 1327 is fast

3^m $3^s.10$

at 22^h 50

Sid Time