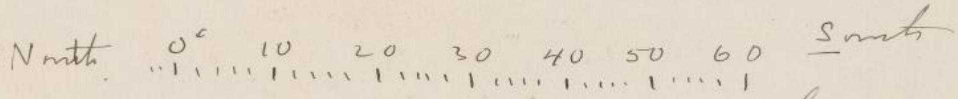
KG
11366
v.632

Error of Frodsham 1327

Dec 8-1899 to Dec. 28-1900

Russian Transit.

The azimuth scale marked



where telescope is adjusted from & to the meridian has the following data derived from observations of April 10 & April 14-1900, this book.

when zero of scale is North and 60th mark is south as in present position of telescope

Value of Azimuth Division=

1 small division = $30^{s}.8$ ~~[illegible]~~ in the effect on the constant m.

The approximate azimuth mark for telescope in meridian is 26.0 the index being the V of the sliding block

J A Dunne
April 16, 1900

See page 70 & 82 for Russian Transit data.

Wire Intervals

Previous to June 1900 a glass reticule was used. Various glass reticules have been used during 15 or 20 years. The intervals of the wires of glass reticule in use before June 1900 and since Sept 15, 1889. The intervals used.

Wire		log			log			
1	+ 23ˢ.51	1.3713	6	7ˢ.47 +	0.8733	11	13ˢ.52 –	1.1309
2	+ 20.99	1.3220	7	3.74 +	0.5729	12	16.00 –	1.2041
3	+ 18.55	1.2684	8	0.00	—	13	18.48 –	1.2667
4	+ 16.06	1.2058	9	3.66 –	0.5635	14	20.97 –	1.3216
5	+ 13.61	1.1338	10	7.37 –	0.8675	15	23.32 –	1.3678

Intervals after June 1900

In spring of 1900 a system of hair lines was inserted at focus of telescope and glass reticulex removed.

From 50 stars miscellaneously distributed in δ the following wire intervals were determined and used in reduction of time stars. (Note later on these results were combined with 100 additional stars, final result differing inappreciably from below, this second result being intended for reduction of zone stars)

Wire		log					
1	+ 28.403	1.4534	6	+ 15ˢ.902	1.2014	11 – 17.708	1.2482
2	+ 26.401	1.4216	7	+ 13.173	1.1197	12 – 20.474	1.3112
3	+ 22.347	1.3492	8	0.000		13 – 22.314	1.3486
4	+ 19.608	1.2924	9	– 13.157	1.1192	14 – 26.373	1.4212
5	+ 17.750	1.2492	10	– 15.047	1.1774	15 – 28.423	1.4537

1 rev of RA. micrometer = 1ˢ.239

1 rev. of δ Micrometer = 37″.100 (δ micrometer put on telescope spring of 1900)

1 division level (Mer. Circle) = 0ˢ.06

1 division level (Russian Transit) = 0ˢ.15

All above values except wire intervals of glass reticule determ. by J. A. Dunne from his observations

Friday, Dec 8, 1899

Meridian Circle

J A Dunne, Obsr.

Attempt to observe asteroid discovered by Charlois, Dec 4, 377 G.M.T.

Predicted place = RA. $4^h\,\overline{33}\,55^s$ } for Dec 8 '99
δ +14° 30 }

—

Note: Clouds came on about 7.15 this evening but a break came just in time to give a clear southern sky for the comparison stars and asteroid when at the meridian. Clear sky for all stars observed.

Clouded up after observations

Dec 8 continued

Meridian circle.

γ Tauri +15°23 — 1 — Too late for observation

Circle ~~4~~ — Circle ~~7~~

δ Tauri +17°18 — 2 — 45-0-55.5 / 56.4 / 55.95 / Runs -.36 / 55.59 — 45-~~0~~- 56.0 / 55.7 / 55.85 / Runs +.27 / 56.12 — 45′ 55.″85

ε Tauri +18°57 — 3 — 5-1-57.9 / 58.3 / 58.10 / Runs -.80 / 57.30 — 5-1-58.3 / 57.5 / 57.90 / Runs +.60 / 58.50 — 6′ 57.″90

α Tauri — 4 — Decided not to observe this star.

Mag. Estimated 9.6 to 10 } Planet? 5 Clear sky — 30-4-10.5 / 9.5 / 10.00 / Runs -1.68 / 8.32 — 30-4-8.5 / 8.5 / 8.50 / Runs +1.23 / 9.73 — ~~Part~~ all of ~~first~~ 2nd tally ~~but~~ and all of third tally — 34′ 9.″02

μ Eridani -3°26 — 6 — 5-4-27.7 / 27.0 / 27.35 / Runs -1.80 / 25.55 — 5-4-22.2 / 22.5 / 22.35 / Runs +1.32 / 23.67 — 9′ 24.″61

π¹ Orionis +6°47 — 7 — 15-2-2.5 / 2.7 / 2.60 / Runs -.80 / 1.80 — 15-2-1.7 / 0.5 / 1.10 / Runs +.60 / 1.70 — 17′ 1.″75

π⁵ Orionis +2°17 — 8 — 40-3-32.0 / 32.1 / 32.05 / Runs -1.40 / 30.65 — 40-3-29.0 / 28.5 / 28.75 / Runs +1.05 / 29.80 — 43′ 30.″22

30.0 Bar
39 Att
31 ext

9 (ι Tauri +21°27′ — Clouds came suddenly

Last min on sheet 5h 7m

Dec 8, continued

14 Rums.	7 Indexcat +14°5'
0-0-38.0	0-0-39.0
38.4	39.5
38.2	39.2
55-5-40.6	55-5-37.4
40.0	37.7
40.3	37.6
5)2.1	5)1.6
.4	.3

Rums 14 -.4 for 1   7 +.3 for 1'

Dec 8, continued

δ Tauri

$4^h\ 18^m$ 11.7 28.5 50.5
14.4 32.6 53.2
17.0 36.3 55.6
19.5 40.3 58.5
22.1 44.2 1.0

84.7 181.9 278.8
16.94 36.38 55.76
19.43 .04 19.33

36.37 36.42 36.43

$4^h\ 18^m\ 36^s.41$
− .27 m correction

4 18 36.14
1.00 level corr

$4^h\ 18^m$ 37.14 Corrected Transit
4 17 12.29 = R.A.

1 24.85

Circle 45' 55.85"
Refraction 28.33"

46' 24.18

+17° 13' 35.82"
δ +17° 18' 32.70

{ + 4' 56.88" Circle correction

ε Tauri

$4^h\ 23^m$ $48^s.0$ 5.0 27.5
50.8 × 30.0
53.5 12.9 32.5
55.9 × 35.2
58.5 21.0 37.6

266.7 38.9 162.8
53.34 12.97 32.56
19.61 .04 19.52

12.95 13.01 13.04

$4^h\ 24^m\ 13^s.00$
−.26 m corr.

4 24 12.74
1.00 level corr.

$4^h\ 24^m$ 13.74 Corrected Transit
$4^h\ 22^m$ 48.90 = R.A.

1 24.84

Circle 6' 57.90"
Refraction 26.23

7' 24.13"

+ 18° 52' 35.87
δ + 18° 57' 34.80

{ +4' 58.93" Circle correction

Dec 8, continued

Asteroid?

δ

II	III
$4^h 34^m$	
35.8	59.6
39.7	2.0
44.0	4.8
48.8	7.1?
53.5	9.8
2218	3233
44.36	4.66
.04	19.06
44.40	45.60

$4^h 34^m 45^s.00$
- .30 n corr.

4 34 44.70
1.00 level corr

4 34 45.70 Corrected Transit

Circle 34' 9".02
Refraction 32".04
34' 41".06

+14° 25' 18".94

See page 6 for position in R.A. & δ

Not μ Eridani

$4^h 41^m$	51.7	8.1	29.0
	54.1?	11.7	31.8
	57.0	15.6	34.1
	59.5	19.2	36.6
	2.0	22.9	38.9
	2843	775	1704
	56.86	15.50	34.08
	18.58	.04	18.49
	15.44	15.54	15.59

$4^h 42^m 15^s.52$
-.45 n correction

4 42 15.07
1.00 level corr

4 42 16.07 Corrected Transit

4 40 32.20 - R.A.

1 43.87

Circle 9' 24".61
Refraction 62".26
10' 26".87

49' 33".13

Not identified

Dec 8. continued

π' Orionis

	II	III
4ʰ 45ᵐ	43.4	4.6
	47.3	7.3
	51.0	9.6
	54.7	12.2
	58.5	14.6
	254.9	48.3
	50.98	9.66
	.04	18.59
	51.02	51.07

4ʰ 45ᵐ 51ˢ.04
−.35 n corr.
4 45 50.69
1.00 level corr
4ʰ 45 51.69 Corrected Transit
4 44 26.78 = R. A.
1 24.91

Circle 17' 1".75
Refraction 43.34
17' 45".09

+6° 42' 14".91
δ +6° 47' 13.00
+ 4' 58.09
Circle correction

π⁵ Orionis

4ʰ 49ᵐ 12ˢ.6	28.6	50.0
15.2	32.5	52.1
17.6	36.3	54.8
20.2	39.8	57.5
22.7	43.5	59.6
88.3	180.7	274.0
17.66	36.14	54.80
18.56	.04	18.48
36.22	36.18	36.32

4ʰ 49ᵐ 36.24
−.39 n corr.
4ʰ 49ᵐ 35.85
1.00 level corr
4ʰ 49 36.85 – Corrected Transit
4 48 64.70 = R.A.
0 2.15

Circle 43' 30".22
Refraction 50.98
44' 21.20

15' 38".80

This observation is 5 Orionis
B.A.C 1508

Dec 8

			ΔT	Circle Correction
δ Tauri	$4^h 17^m$	$+17^\circ 18'$	$-1^m\ 24.85$	$+4'\ 56''.88$
ε Tauri	$4^h 23$	$+18^\circ 58$	$-1\ 24.84$	$+4'\ 58.93$
π¹ Orionis	$4^h 44$	$+6^\circ 47'$	$-1\ 24.91$	$+4'\ 58.09$
			$-1^m\ 24^s.87$	$+4'\ 57''.97$
			Mean	Mean

asteroid?

Corrected transit	$4^h\ 34^m\ 45^s.70$	$+14^\circ\ 25'\ 18''.94$
	$-1\ 24.87$	$+4\ 57.97$
	$4^h\ 33\ 20.83$	$+14\ 30'\ 16.91$

Place of the faint object observed tonight [illegible] magnitude estimated 9.6 to 10 is

R. A. $4^h\ 33^m\ 20^s.8$

Declination $+14^\circ 30'\ 17''$

This object not in DM
and by Mr Wendell's
observation with 15 inch is
not the asteroid

Note. March 23, 1904.

As Mr King wanted today
the error of Frod 1327
for Dec 8, 1899 I find
the only available stars
are δ Tauri
ε Tauri } See p. 6, & previous pages
π Orionis } for reductions

As per page 6, the Error of
the clock Frod 1327 was

"Fast $1^m\ 24^s.87$
at $4^h\ 28^m$ Sid Time"

JAD

The value of
n was
known so
that these
results are
probably as
good as
zenith stars.

20 - 1 - 40 21 - 1 - 41.0

1899
Dec 12

JRD bar

Mer. Circle

τ Tauri
+22° 46'

4ʰ 38ᵐ	54.2	11.7	34.5
	57.1	15.8	37.0
	59.7	19.8	39.8
	2.3	23.8	42.5
	5.0	27.8	45.1
	298.3	98.9	198.9
	59.66	19.78	39.78
	20.11	.04	20.01
Wrong Star	19.77	19.82	19.77

4ʰ 39ᵐ 19.79
4 36 16.94
3 2.85
1 23.41
1ᵐ 39ˢ.44

Star follows τ Tauri

DM
Star is +22° 743

DM mag 8.0

It surely is
much brighter.

4 Camelopa
+56° 35'

	II	III
4ʰ 41ᵐ	14.0	31.9
	20.7	36.5
		41.0
		45.5
		49.9
		204.8
	17.35	40.96
		33.52

~~4 41~~ 7.44

4 39 44.03
1 23.41
.27 n corr
1.00 level corr
1 24.68

Frod. 1327 is fast

1ᵐ 24ˢ.68

at 4ʰ 40ᵐ
Sid. Time

Wed. Dec 13, 1899 JAD Asr

Observation of Charlois' Asteroid.

Meridian Circle

Mic. H. Mic F.

γ Tauri +15°23' 1 40-1-13.5 40- 1- 12.3
13.1 13.30 −48 12.82 12.6 12.45 +.24 12.69 41' 12.75"

II|1:III
δ Tauri +17°18' 2 45-0-57.3 45-0- 57.2
57.5 57.40 −40 57.00 56.8 57.00 +.20 57.20 45' 57.10"

ε Tauri +18°57 3 5-1-59.0 5-1- 59.0
57.8 58.40 −.80 57.60 59.7 59.35 +.40 59.75 6' 58.67"

+14°44± Asteroid? 15-3-27.7 15- 3 25.3
26.5 26.97 −1.36 25.61 25.4 25.13 +.68 18' 25.70"
26.7 24.7 25.81

−3°26 μ Eridani −3° 6 30-0-14.5 30-0- 11.1
15.0 14.75 −.08 14.67 0-12.0 11.55 +.04 11.59 30' 13.13"

π⁵ Orionis +2°16
Missed some of first 8 45- 2- 29.8 45-2- 26.7
29.5 29.65 −1.00 28.65 26.0 26.35 +.48 26.83 47' 27.74"

8 Observed 8th 14th + 15" of place 7.0 mag 3¼' South

Bar 30.00
Ext 40.0
Att th. 48.0
4h 55s d T

9 ι Tauri +21°26 35-2-42.6 35-2- 45.0 37' 43.71"
42.5 42.55 −1.08 41.47 45.8 45.40 +.56 45.96

5h 4 then rattle then 5h 5 Last min

Dec 13, continued

Runs: Observation next Morning: Index +14"5: same as Dec 8, Age 2

H.
0 - 0 - 51.0
51.5
51.25
55 - 5 - 53.5
53.0
53.25
5) - 2.00
- .40

7.
0 - 0 - 51.5
51.2
51.35
55 - 5 - 50.0
51.5
50.50
5) +.85
+.17

Practically no change in runs from Dec 8.

γ Tauri

4h 15m
7.6 24.1 46.0
10.3 x 48.6
12.7 32.1 51.3
15.5 36.0 53.9
18.0 39.6 56.4
6 41 95.8 256.2
12.82 31.94 51.24
19.23 .04 19.14
32.05 31.98 32.10

4h 15m 32.05
.16 n corr
4 15 31.89
+ 1.00 lost
4 15 32.89
RA. 4 14 8.30
1 24.59

Circle 41' 12".75
Refraction 30.33
41' 43".08

+ 15° 18' 16".92
δ + 15 23 14.00
+ 4 57.08

δ Tauri

4h 18m
II
last
43.7

III
50.1
52.8
55.5
58.0
0.5
276.9
55.38

19.33
4h 18m 36.05
- .15 n corr
4 18 35.90
+ 1.00 lost
4 18 36.90
R.A. 4 17 12.32
1 24.58

Circle 45' 57".10
Refraction 27.85
46' 24".95

+ 17 13' 35".05
δ + 17 18 32.60
+ 4 57.55

Dec 13, 1899 continued

ε Tauri

4h 23	47.7	4.7	27.0
	50.4	8.7	29.5
	53.0	12.6	32.9
	55.6	16.6	35.0
	58.3	20.5	37.3
	265.0	63.1	161.7
	53.00	12.62	32.34
	14.61	.04	19.52
	12.61	12.66	12.82

4h 24 12.70
- .15 m corr

4 24 12.55
+1.00 level

4 24 13.55

R.A. 4 22 48.93

1 24.62

Circle 6′ 58.67″
Refraction 25.79
7′ 24.46

+18° 52′ 35.54

δ +18° 57 34.70

+4 59.16

Asteroid?

4h 29	39.6	56.5	18.1
	43.0	0.4	20.7
	45.3	4.1	23.3
	47.6	8.0	25.9
	50.2	11.6	X
	225.7	32.06	88.0
	45.14	4.12	22.00
	19.18	.04	17.82
	4.32	4.16	4.18

1.2366
.0145
1.2511

5.18 × 10 180
.16 × 10 160
.32 × 7 224

27)564(21
54
24
.20

4h 30 4.20
- .16 m corr.

4 30 4.04
+1.00 level

4 30 5.04

Circle 18′ 25.71″
Refraction 31.19
18′ 56.90

+14° 41′ 3.10″

Dec 13, 1899
continued

μ Eridani

4h 45	32.5	48.6	9.5
	35.0	52.2	12.1
	37.3	56.1	14.5
	40.0	59.7	17.0
	42.3	3.4	19.5
	1871	2800	726
	37.42	56.00	14.52
	18.58	.04	18.49
	56.00	56.04	56.03

4h 41 56.02
.25 n corr
4 41 55.77
+1.00 level
4 41 56.77
R.A 4h 40 32.22
1 24.55

Circle 30' 13.13
Refraction 61.21
31' 14.34

-3° 28 45.66

-3° 26 15.30

Star preceding π^5 Orionis 3 or 4' south : 7.0 mag.
Wires 8th : 14th & 15th

Wire 8
4h 49 35.8

W. 14 4h 49 57.0
" 15 59.2

Dec 13, 1899
continued

π⁵ Orionis

4h 50
21.0 42.1
×
× 24.7 44.5
×
28.5 47.0
12.5 32.1 49.5
14.9 35.8 52.0
142.1 235.1
28.42 47.02
.04 18.48
28.46 28.54

4h 50 28.50
− .13 m corr
4 50 28.37
+1.00 level
4 50 29.37

R.A. 4h 49 4.73
1 24.64

Circle 47′ 27.″74
Refraction 50.12
48′ 17.86

+ 2° 11′ 42.″14
δ +2° 16′ 38.10
+ 4 55.96

ι Tauri

4h 58 8.0 25.2 47.7
10.7 × 50.5
13.3 × 53.0
16.0 × 56.0
18.5 41.1 58.3
66.5 265.5
13.30 53.10
19.92 19.83
33.28 33.27

4h 58 33.24
.08
4 58 33.16
1.00
4 58 34.16

R.A 4 57 9.49
1 24.67

Circle 37′ 43.″71
Refraction 22.78
38′ 6.49

+21 21′ 53.″51
δ +21° 26′ 51.5
+ 4 57.99

Dec 13, 1899

			ΔT	Declination ~~Circle~~ Correction
γ Tauri	$4^h 14$	$+15^\circ 23$	$-1\ 24.59$	$+4'\ 57''.08$
δ Tauri	$4^h 17$	$+17^\circ 18$	$-1\ 24.58$	$+4'\ 57.55$
ε Tauri	4 22	$+18^\circ 57$	$-\bar{1}\ 24.62$	$+4'\ 59.16$
π^2 Orionis	$4^h 49$	$+2^\circ 16'$	$-1\ 24.64$	$+4'\ 55.96$
ι Tauri	$4^h 57$	$+21^\circ 26$	$-\bar{1}\ 24.67$	$+4'\ 57.99$
MEAN	$4^h 3\bar{2}$	$+15^\circ.1$	$-\bar{1}\ 24^s.62$	$+4'\ 57''.55$

Asteroid?

Corrected Transit & Declination by circle

$$\begin{array}{rr} 4^h 3\bar{0}\ 5.04 & +14^\circ\ 41'\ 3''.10 \\ -\bar{1}\ 24.62 & +4'\ 57.55 \\ \hline 4^h\ \bar{28}\ 40^s.42 & +14^\circ\ 46'\ 0''.65 \end{array}$$

R. A. $4^h\ 2\bar{9}\ 40^s.42$

δ $+14^\circ\ 46'\ 0''.6$

at $4^h\ 3\bar{0}$ Sid Time

Dec 13, Cambridge Mass
Sid. Time

This object
appears to be
DM. +14° 722
DM mag 8.7

Observations for error of Fr. 1327

1899
Dec. 13.25

Dls. obs.

+61°
1.2682
0.3241
1.5923
39.11

Prec. τ Peg
3' N.
I
23h 15m
435
46.3
49.0
50.6
54.4
2438
48.76
20.17
23h 16 8.93

τ Peg.
+23° 10
23h 16
400 57.5 20.4
42.6 1.6 23.0
45.3 5.5 25.8
48.1 9.7 28.5
50.8 13.5 31.0
2270 3278 1287
45.40 5.56 25.74
20.17 .04 20.07
5.57 5.60 5.67
23h 17m 5.61
23 15 41.97
1 23.64
.12
1 23.52

4 Cass.
+61° 42
I II
23h 20m
57.8 31.4
3.1 39.8
8.5 47.6
13.7 53.4
18.9 3.4
3420 2381
8.40 47.62
39.11 .08
47.51 47.70
23h 21m 47.60
23 20 24.46
1 23.14
.25
1 23.39

ι Androm.
+42° 41
23h 34m
6.2 28.0 56.5
9.7 33.2 59.7
13.0 38.3 3.2
16.5 43.2 6.5
19.8 48.2 10.0
652 1909 3159
13.04 38.18 3.18
25.23 .05 25.12
38.27 38.23 38.06
23h 34m 38.19
23 33 14.79
1 23.40
.00
1 23.40

m
+61°
−15°
23.14
23.68
+1.857
−.270
2.127
.54
.42
1.20
.25
m = −.25

κ Androm
+43° 45
335
23 35 25.920
0.4678
0.1066
0.5744 +3.754
8.8028
0.3015 +.127
9.1043
8.9629
0.4463
9.4092 +.256
7.9947m
1.3057 −.200
9.3004m
+3.937
23 35 29.86

8th star, 3' N. of
+42° 41
Wire 2
23h 36
4.2
1.3220
0.1338
1.4658
29.23
23h 36m 33.43

+43° 45
I II
23h 36m
20.7 43.0
24.1 48.0
27.6 ×
31.1 58.4
34.5 3.5
1380 2429
27.60 ~~64.30~~
~~48.~~
53.23
25.67 .05
53.27 53.28
23h 36m 53.27
23 35 29.86
1 23.41
.00
1 23.41

ω² Aquarii
−15° 8
23h 38m
34.8 49.0 10.5
37.5 56.8 13.5
40.0 0.5 16.2
42.5 4.5 18.6
21.0
1123 1703 79.8
37.44 56.77 15.96
19.21 .04 19.12
56.65 .81 .84
23h 38m 56.78
23 37 33.10
1 23.68
.30
1 23.38

+23 23.52 ×1 .52
+42° 23.40 ×2 80
+43 23.41 ×2 82
5) 2.14
43

1 23.43
1.10 Level (see page 19)
1 24.43

Frod 1327 is fast
1m 24.43
at 23h 30m Sid Time

Dec 14, 1899

Charlois Asteroid

J A D [illegible]

Mer Circle	circle H	circle 7.
o' Eridani .7'5	5-4-41.8	5-4-36.0
	41.5	35.8
1 (γ Tauri +15°23)	40-1-12.0	40-1-10.0
	11.5	10.0
2 (δ Tauri +17°18)	45-1-0.8	45-0 58.0
	0-58.8	58.1

Asteroid not seen; cloudy

4h 37 Last min

Bar.	30.157	4h 40 Sid T
Att Th	43.6	
Ext	37.5	

Dec 14, 1889	o^1 Eridani	γ Tauri	δ Tauri
	−7°5′	+15°23′	+17°18′

Friday
Dec 15, 1899
0h 20m
E.S.M.T.

Meridian Circle - JAD obs

Level

	E	W
Telescope South: Screw W	+ 41.3 ~~45.0~~	+ 74.0 ~~74.0~~
W	+ 45.0	+ 77.5
W	+ 42.0	+ 75.0
W	+ 41.5	+ 74.0
E	- 62.1	- 30.0
E	- 67.0	- 35.0
E	- 66.1	- 34.0
E	- 62.0	- 30.0
	+ 169.8	+ 300.5
	- 257.2	- 129.0
Telescope North: Screw E	- ~~92.4~~	~~- 40.5~~
E	- 59.2	- 27.5
E	57.9	- 26.0
E	- 56.0	- 24.3
E	- 56.0	- 24.0
~~W~~	~~+ 56.0~~	~~+ 87.5~~
~~W~~	+ ~~74.4~~	~~+ 109.9~~
W	+ 73.6	+ 105.2
W	+ 72.5	+ 103.7
W	+ 72.4	+ 103.7
W	+ 71.7	+ 103.1
	- 229.1	- 101.8
	+ 290.2	+ 415.7
	+ 460.0	~~3 + 3?~~
	- 486.3	+ 716.2
	- 26.3	- 230.8
		+ 485.4
		- 26.3

32) + 459.1 (14.03
32
139
138
1.10

d
1.403
.06
.84 = b
1.35
1.14 = b sec φ

Use b sec φ = 1.10s

West end high

Mer. Circle

Friday
Dec 15, 1899

Collimation

J A Dodson

1h 0
E.S.M.T.

S. coll. on N. coll

71,5
71,0
71,5   8,0
73,0   71,60
71,0   Set 71,6

Telescope on S. coll

Micrometer found 32,100

32.200
200
197   996   32,1992
197
202

Telescope on N. coll.

31.760
767
760   328   31,7656
771   3.9648
770   31.982
12
31.994

Line of reticule
well placed with
regard to motion
of telescope

Set at 31.994

Friday, Dec 15, 1899

Meridian Circle JAD kr

Observations of Charlois Asteroid

	Mic H	Mic 7
1	40-1-12.5 12.5	40-1-12.0 13.0
2	45-0-55.0	45-0-55.1 56.0
3	5-1-54.5 53.5	5-1-57.1 57.0

approximate place of
Extremely faint object 15th ! Charlois?
~~and~~ brighter diffused one [illegible] 12
25-3-48.1 25-3-48.5

Mic 4.292

Sat. Dec 16, 1899

~~Attempt~~ for Charlois Asteroid with Mer. Circle

	Mic H.	Mic 7.
χ Tauri +5°42	20-1-26.8	20-1-26.5
	27.7	1-25.9

c Persei II ~~III~~ α only: no declination

o' Eridani -7°6	5-4-37.5	5-4-34.2
	36.5	34.0
1	40-1-10.5	40-1-11.9
	10.5	11.1
2	45-0-57.2	45-0-57.8
	0-56.5	57.0

4h 20 Sid T.
Bar 30,550
Att 33.4
Ext 26.0

Asteroid observed on some of the 1st 2 tallies {assume perhaps last 3 of I and 2 & 4 of II

Too faint for δ:
Last num, 4h 30m

Error of Frodsham

JAD. hr

Dec 16,

ν Tauri	ε Persei	ο¹ Eridani	γ Tauri	δ Tauri
+5°42	+47°26	−7°6	+15°23	+17°18'
	II III			
3^h58	4^h2	4^h8	4^h15	4^h18
52.5 85 298 55.0 57.4 12.5 32.3 16.1 34.7 00 19.9 37.4 2.5 23.5 39.5	39.5 10.6 45.0 14.2 50.4 17.7 56.0 21.6 1.5 25.0	1.2 17.2 38.5 3.6 21.2 41.0 6.0 24.7 43.5 8.7 28.5 46.1 11.2 32.2 48.5	7.8 24.3 46.4 10.5 28.4 48.8 12.7 32.1 51.7 15.5 36.0 54.0 18.1 39.9 56.4	11.6 28.2 50.2 14.1 32.0 52.7 16.5 36.2 55.5 19.2 40.0 58.1 21.9 43.9 0.7
2874 805 1737 5748 1610 3474 1864 00 1836	2524 891 5048 17.82 05	307 1238 2176 6.14 24.76 43.52 1868 .04 1860	646 1607 2573 12.92 32.14 51.46 19.23 .04 19.14	833 1803 2772 16.66 36.06 55.44 19.43 .04 19.33
16.12 16.14 16.18	27.28 50.53 50.54	24.82 24.80 24.92	32.15 32.18 32.32	36.09 36.10 36.11
3^h59 16.15 3 57 52.34	4^h 2 50.54 4 1 27.09	4^h 8 24.85 4 7 1.12	4^h15 32.22 4 14 8.33	4^h18 36.10 4 17 12.35
1 23.81 .20	1 23.45 .03	1 23.73 .25	1 23.89 .15	1 23.75 .15
1 23.61	1 23.48	1 23.48	1 23.74	1 23.60
51	.49	36	.62	1 23.48

n : 36
assumed

$\left.\begin{array}{l} ^s.51 \\ .62 \\ 48 \end{array}\right\}$ 161   51 × 3 = 161

49   49 × 2 = 98

259

57

210

53

1' 23.52
1.10 corr

1' 24.62

Frod 1327 is fast

1' 24.62

at 4^h 00

Sid Time

Dec 2~~1~~4 1899

Attempt to observe Asteroid (Chalons)

Remarks. Clouds with occasional breaks.

bright star but ?	−7°6	10-4-51,0 51,6	10 4- 48.3 48.4
γ Tauri +15°23	1	40-1-10,1 9,1	40-1-9.7 9.0
δ Tauri +17°18	2	45-0 56.5 56,5	45-.0-56.5 53.9

Asteroid not seen; Cloudy

Index +14°42 { 25-1-20.7 25-1-21.0
a 3,6 mag star.

Set for obs of Dec 8: +14°30' Observed 9.5 star on I II
Circle 30-4-49.8 30-4-47.1
49.2 46.4
Then observed 9.5 star 7' south on III

Last mm 4^h 43^m

Bar. 30.330
Att th 42.5
Ext th 35.5

2AD Im

Dec 21.2
1899

70 Peg.
+12°10
Index +12°10
Circle
H. 7
50-1-425 50-1-420

23^h25
43.5
46.0
51.2
53.1
2424
48.48
18.88
$23^h 25$ 29.60
23 24 6.50
1 23.10
.23
1 22.87

72 Peg
~~30~~ +30°44

23^h30

56.0 58.7	14.5	38.9
1.6	18.8	41.9
4.5	23.2	44.7
7.4	27.6	47.6
	31.6	50.5
30.82	115.7	223.6
1.64	23.14	44.72
21.58	.04	21.48
23.22	23.18	23.24

23^h 31 23.21

ι Androm
+42°41

23^h34

5.5	27.3	56.0
9.0	32.4	59.4
12.2	37.3	2.6
15.5	42.6	6.0
18.9	47.4	9.5
611	1870	3135
12.22	37.40	2.70
25.23	.05	25.12
37.45	.45	.58

23^h 34 37.49
23 23 14.64
1 22.85
.00
1 22.85

κ Androm
+43°45

23^h36

19.9	42.1	11.2
23.5	47.3	14.7
26.7	52.5	18.0
30.3	57.5	21.3
33.5	3.0	24.6
1339	2624	898
26.78	52.48	17.96
25.67	.05	25.36
52.45	.53	52.40

23^h 36 52.46

1 22.86
1.10 Level
1 23.96

ω¹ Aquarii
−15°8
II III

23^h38

48.6	10.2
52.3	12.8
56.4	15.5
0.2	18.0
3.9	20.5
2814	770
56.28	15.40
.04	19.12
56.32	56.28

23^h 38 56.30
23 37 33.00
1 23.30

+2.38
−.27
2.65) .88 (.33−
795
850

.88

41 H Cephei
+67°15
I II

$23^h43.$

30.0	11.5
36.5	21.5
42.6	31.0
49.1	40.2
53.5	49.8
2137	1540
42.74	30.80
47.85	.10
30.59	30.90

23^h 44 30.75
23 43 8.33
1 22.42

0.4117
1.2682
1.6799
47.85

Frod 1327 is fast
1 23.96
at 23^h30^m
Sid Time

Sat. Dec 23, 1899

Attempt for Charlois Asteroid

1 . 4.0-1-13.7 40-1-14.7
14.2 14.7

faint 9.0-9.3 star on 1&2
then perhaps 8.0 star on I last 4 and 2' ~~same~~ North
then 5.0? star on I ~~last 4~~ and ~~1~~ 1/2' North of 7.0
then lastly 7.0 star? 2' N of 1st star the (9.0) on I
Position of this last as follows:-

	H	7
Index +15'25	4.0-2-32.3	40-2-32.8

40.3
30.05
36±

circle

Index +14'23 | 30-4-40.4 30-4-38.0
Obs. of Dec 8
I & III

Dec 23, 1899

4 Cam. +56°34' there

9.0 ok. on I III

mag
7.5

3/5 field South of ok. on III

Circle for 9.0 mag

H

40-1-187 40-1-240

Index +56°25'

ι Aurigae +33°0 ok

ε Aurigae +43°41 ok

Last min 4h 58m

J.A.D. obs

1899
Dec 23

γ Tauri
+15°23'
$4^h\ 15^m$

6.6	23.5	45.2
9.5	27.3	47.7
11.9	31.1	50.2
x	35.5	53.0
x	38.7	55.4
	156.1	251.5
	31.22	50.30
	.04	19.14
	31.26	31.16

$4^h\ 15^m$ 31.21
4 14 8.35
1 22.86
.21
1 22.65

4 Cam.
+56°34
$4^h\ 41^m$

6.2	31.1
13.0	35.6
20.0	40.0
	44.6
	49.0
	200.3
	40.06
	33.51

$4^h\ 41^m$ 6.55
4 39 44.11
1 22.44
.21
1 22 65

ι Aurigae
+33° d
$4^h\ 51^m$

26.2	45.4	10.5
29.2	49.9	13.5
32.0	54.2	x
35.0	58.7	19.3
37.9	3.0	22.3
160.3	271.2	65.6
32.06	54.24	~~13.72~~ 16.40
22.11	.04	22.01
54.17	54.28	54.39

$4^h\ 51^m$ 54.28
4 50 31.63
1 22.65
.09
1 22.56

ε Aurigae
+43°41'
$4^h\ 55^m$

40.6	2.8 8.1	32.0
44.2	13.2	35.3
47.5 51.0	18.3	38.8
54.4	23.5	42.3
~~28~~		45.5
~~249.5~~	65.9	193.9
~~49.90~~ 237.7	13.18	38.78
47.54 25.65	.05	25.54
~~49.92~~ 13.19	13.23	13.24

$4^h\ 56^m$ 13.22
4 54 50.65
1 22.57
.01
1 22.58

δ		
+15°	65	60
+33°	56	
+43°	58	58
+56°	65	65
	244	183
	61	.61

1 22.61
1.10
1 23.71

Frod 1327 is fast

$1^m\ 23^s.71$

at $4^h\ 58^m$ Sid Time

JHD obs.

1899
Dec 26

δ Androm.
+30°17
II ℓ3 : III

$0^h\,35^m$ × 38.4
× 41.1
22.4 44.0
26.7 47.0
30.9 49.5
800 2200
26.67 44.00

0.5654
0.0638
0.6292

4.26 21.38
22.41 22.62
$0^h\,35^m$ 22.51
0 33 60.00
1 22.51
.11
1 22.40

40
52
45
137
.45

α Cass.
+55°58
II ℓ3 : III

$0^h\,36^m$ × 37.5
× 42.2
13.5 46.3
19.9 50.9
27.0 53.4
604 2323
20.13 46.46

0.5654
0.2524
0.8178

6.57 33.01
13.56 13.45
$0^h\,36^m$ 13.50
0 34 51.19
1 22.31
.21
1 22.52

1 22.45
1.10
1 23.55

+47°42
υ Cass.

$0^h\,39^m$ 57.7 21.5 53.2
1.5 27.3 56.5
5.2 32.8 0.5
8.7 38.4 4.0
12.5 43.6 7.5
32.56 163.6 301.7
5.12 32.72 0.34

27.55 .05 27.43
32.67 32.77 32.91
$0^h\,40^m$ 32.78
0 39 10.38
1 22.40
.05
1 22.45

Ch. 1327 is fast

1^m 23.55

at $0^h\,35^m$ Sid Time

1899
Dec 29

Mer Circle.

JAD obs

π Androm		α Cass	o Cass.	ζ Androm
+33°8	+28°44	+55°57	+47°42	+23°42

II/4 : III

0h 32
27.9 47.2 12.4
30.9 51.6 15.3
33.8 56.1 18.0
37.0 0.5 21.0
40.1 5.0 24.0
169.7 280.4 90.7
33.94 56.08 18.14
22.15 .04 22.05
5 809 .12 56.09

0h 32 56.10
0h 31 33.44
1 22.66

0h 34
13.1 (1)
16.0 (2)

0h 35
× 35.9 59.8 37.6
6.9 42.0
40.0 13.2 46.1
44.6 19.8 51.0
44.0 26.5 55.2
366.2 231.9
13.24 46.38
.06 35.07
13.20 13.37

0h 36 13.28

0 34 51.11
1 22.17

0h 39
41.6 5.5 36.6
45.6 11.0 40.0
49.1 16.5 43.8
53.0 21.9 47.5
56.6 27.5 51.0
245.9 82.4 218.9
49.18 16.48 43.78
27.39 .05 27.26
.57 .53 16.52

0h 40 16.54

0 39 10.32
1 6.22

Star 22' South
of o Cass
7.5 mag.
and preceding
16s

0h 43
0.5 17.8 40.6
3.0 22.0 43.7
5.6 26.1 46.2
8.5 30.0 49.1
11.2 34.0 51.6
28.8 129.9 231.2
5.76 25.98 46.24
20.25 .04 20.16
26.01 .02 .08

0h 43 26.04

0 41 63.38
1 22.66

Star of Sextans

.08
1 22.58

.20
1 22.37

.16
1 22.50

23° 50
33° 58 } 54
55° 37 37 } 46 × 3 162
14.5 × 2 74
.48 5)236
.47

T 22.47
1.10 lond
1 23.57

Frod 1327 is fast
T 23.57
at 0h 40 Sid Time

1900

Mer. Circle

JAD obsr

Jan 2

12 Ceti
−4° 31′
all

0h 25m

56.6 12.6 33.8
59.1 16.3 36.2
1.5 20.3 38.6
4.0 23.7 41.2
6.3 27.6 43.6

30.75 100.5 193.4
1.50 201.0 386.8
18.60 .04 185.1

20.10 20.14 20.17

0h 26m 20.14s
0 24 57.07

1 23.07
.70

1 22.37

+1.34
−.08
1.42) 1.05 (.7
~~.98~~ .98
.7 = n

x Cass
+62° 22
II last! III betw.
Probably not x Cass
Faint; no clouds;

ζ Cass
+53° 20
II wires 7.8 9
0h 32m 40.7
47.0
53.4
141.1
47.03
.06
0h 32 47.09
0 31 25.07
1 22.02
.29
1 22.31

α Cass
+53° 57
II l 2 : III
not read;
from chart

π Androm
+33° 8
III
0h 33
12.2
15.0
18.0
21.0
23.7
89.9
17.98
22.05
55.93
0h 32 55.93
0 31 33.38
1 22.55
.18
1 22.37

Foll π And
8.5 mag
½′ South
15th wire
0h 33m 24.7

δ Androm
+30° 17
all
0h 34m
55.0 13.6 38.0
58.0 18.0 41.0
1.0 22.4 43.8
3.8 26.6 46.6
6.5 31.0 49.3
30.43 111.6 218.7
0.86 223.2 437.4
21.47 .04 21.38
22.33 22.36 22.36
0h 35 22.35s
0 33 59.90
1 22.45
.26
1 22.19

Prec α Cass
Precedes
8.5 mag
⅕′ South
14th wire
(between 13 & 14 of clamp)
0h 41 2.2

o Cass
+47° 43
0h 39
57.4 21.4 52.7
1.2 27.0 56.3
4.9 32.3 0.0
8.5 37.8 3.8
12.3 43.5 7.4
32.43 162.0 0.02
4.86 324.0 0.04
27.55 .05 27.43
32.41 32.45 32.61
0h 40 32.49
0 39 10.24
1 22.25
.10
1 22.35

Prec ξ Androm
8.0 mag
3′ North
I clamp
~~0h 41~~
~~0.0 17.9~~
3.0
5.6
8.8
~~1.0~~
0h 41
58.2
1.0
4.0
6.1
8.8

ξ Androm
+23° 43
0h 43
0.0 17.9 40.8
3.0 22.0 43.4
5.6 26.0 46.1
8.5 30.0 48.8
11.0 34.0 51.5
28.1 129.9 230.6
5.62 259.8 46.12
20.25 .04 20.16
25.87 26.02 25.56
0h 43 25.82s
0 42 3.33
1 22.49
.35
1 22.14

for mag 5.7 foll star 1/5 S
15th wire
0h 43 53.3

−4° T 22.37
+23 22.06
+30 .19
+33 .37
+47 .35
+53 .31
165
.28

.21
.33
} .27

1 22.27
1.10 [illegible]
1 23.37

Frod 1327 is fast

T 23.37s

at 0h 35m Sid Time

1900
Sat
Jan 6

mer Circle JRE Asr,

α Triang
+29°4

1ʰ 48		
19.0	37.4	1.2
21.9	41.5	4.2
24.5	45.9	7.0
27.5	50.0	10.0
30.2	54.3	12.6
123.1	229.1	35.0
24.62	45.82	7.00
21.22	.04	21.12
45.84	45.86	45.88

1ʰ 48 45.86
1 47 24.41
1 21.45
.25
1 21.20

β Arietis
+20°18

1ʰ 50		
4.9	22.0	44.4
7.7	26.0	47.2
10.3	30.0	49.9
12.7	34.0	52.6
15.5	37.9	54.9
51.1	149.9	249.0
10.22	29.98	49.80
19.77	.04	19.68
29.99	30.02	30.12

1ʰ 50 30.04
1 49 8.39
1 21.65
38
1 21.27

1 21.24
1.10 level
1 22.34

Frod 1327 is fast
1 22ˢ.34
at 1ʰ50
Sid Time

1900

January 8
Monday

2nd obs.

μ Androm.	ε Piscium	υ Piscium
+37°56′	+7°19′	+26°43′
0h 52m	0h 58m	1h 14m
4.0 24.5 51.2	43.7 $\overset{59.7}{3.6}$ 21.0	53.9 12.0 35.5
7.4 29.3 54.3	46.1 7.4 23.3	56.8 16.2 38.2
10.5 33.9 57.4	48.5 10.9 26.0	59.6 20.3 41.0
13.6 38.6 0.7	51.2 14.7 28.5	2.3 24.5 43.9
16.6 43.5 3.6	53.5 31.0	5.0 28.6 46.5
521 1698 2872	2430 3363 1298	2976 1016 2051
10.42 33.96 57.44	48.60 7.26 25.96	59.52 20.32 41.02
23.52 .04 23.41	18.69 .04 18.61	20.76 .04 20.66
33.94 34.00 34.03	67.29 7.30 7.35	20.28 20.36 20.36
0h 52m 33s.99	0h 59m 7.31	1h 15 20.33
0 51 13.35	0 57 46.24	1 13 59.42
1m 20.64	1m 21.07	1m 20.91
.07	.56	.30
1 20.57	1 20.51	1 20.61

+7° .51
+26 .61
+37 .57
169
1 20.56
1.10 Lond
1 21.66

Frod 1327 is fast
1m 21s.66

at 1h 0m Sid Time

1900
January 10
Wed.

JAD obs

Mer Circle

	ν Piscium			ο Ceti		δ Cass.
	+26°42'			−8°43		+59°41
	I/2 :	II :	III :	I	II	III
	1h 15m			1h 19		1h 21
	×	115	34.9	59.4	15.6	4.5
	×	15.6	37.7	1.9	19.4	9.5
	×	19.7	40.5	4.4	23.1	14.5
	1.5	24.0	43.3	6.8	26.8	19.6
	4.4	28.0	46.0	9.1	30.6	24.2
		988	2024	3216	115.5	723
		19.76	40.48	4.32	23.10	14.46
		.04	20.66	18.76	.04	36.58
		19.80	19.82	23.08	23.14	37.88
		1h 15	19.81	1h 20	23.11	1h 20 37.88
+1.71 −15 1.86) .56/.3		1h 13	59.39	1 19	2.63	1 19 17.96
		1	20.42	1	20.48	1 19.92
n = 3			.16		.32	.32
use n = 4		1	20.26	1	20.16	1 20.24

26
16
24
66
22

16
26
24 } 25 } 20 } .21
16
22

1m 20.21
1.10 corr
1 21.31

Tiede 1327 is fast

T 21.31

at 1h 20m

Sid Time

1900
Jan 15

Level: Mer. Circle - J.A.D. Jr

118.0
Noon
0^h 0

Telescope South

		E	W
Screw	W	+ 77.2	+ 101.2
	W	+ 78.0	+ 102.0
	W	+ 79.5	+ 103.5
	W	+ 75.5	+ 99.5
	E	- 27.0	- 3.2
	E	- 37.5	- 14.0
	E	- 30.5	- 7.0
	E	- 32.5	- 9.4
	~~E~~	~~3~~	

Telescope North

		E	W
Screw	E	~~- 77.0~~	~~- 54.5~~
	E	- 70.5	- 48.0
	E	- 69.3	- 47.0
	E	- 69.0	- 46.7
	E	- 70.2	- 48.0
	W	+ 34.7	+ 57.0
	W	+ 34.4	+ 56.5
	W	+ 34.0	+ 56.1
	W	+ 34.0	+ 56.1
		+ 310.2	+ 406.2
		+ 137.1	+ 225.7
		- 127.5	- 33.6
		- 279.0	- 189.7
		+ 447.3	+ 631.9
		- 406.5	- 223.3
		+ 40.8	+ 408.6
			+ 40.8

32)449.4(+14.04
32
129
128
140

+14.04
.06
.8424
1.35
1.14 = b sec φ

Use $b \sec\varphi = 1^s.10$

West end high

1900
Jan 15

0^h 20
ESMT

Collimation: Mer. Circle   JADdn

South collimator on North collimator

765
755
785   356
766   7712
   set at 77.1
785

Telescope on South collimator
Micrometer found at
32.000

32.281
301
282   1442   32.2884
284
294

Telescope on North collimator

31.655
665
667   3328   31.6656
670   3954
671   31.977
   12
Set at 31.989

1900
January
15

Mer. Circle — J.A.D. obs.

Note: It has been cloudy for some days: Cleared this afternoon but clouded again.

ξ Androm.
+23°41'

$0^h 42^m$	56.1	13.8	36.6
	58.9	17.8	39.4
	1.6	21.9	42.0
	4.4	26.0	44.8
	7.0	30.0	47.5
	80.80	109.5	210.3
	1.60	21.90	42.06
	20.25	.04	20.16
	21.85	21.94	21.90

0 43 21.90
0 42 3.16
1 18.74
.20 mean.
1 18.54
1.10 level
1 19.64

Frod 1327 is fast

$\bar{1}\ \overset{s}{19}.64$

at $0^h 40^m$
Sid. Time

1900 JAD. Arr

January 17
Wednesday

Cloudy.

R.A. Micrometer found at 31.989

	α Androm +28° 32 Micrometer		β Cass Microm.	β Cass +58° 36 Microm.	β Cass Mic.	γ Peg. +14° 38 Microm
	31.989		31.989 ~~7.905~~	23.062	7.905	17.615
	I	II	~~last 3~~ III first 4	last 2	last 3	III
	0h 4		0h 5	0h 6	0h 6	0h 9
	4.6?	23.0	~~x~~	×	×	56.2 58.8
	7.6	27.1	34.3	×	×	1.2
	10.3	314	388	×	41.1	38
	12.9	357	43.1	10.0	45.5	65
	15.9	400	48.5	14.0	50.3	
					1369	3065
	513	1572	1647			1.30
	10.26	3144	41.17	12.0	45.64	
			1.2966 0.2832 1.5798 33.09			
				31.989	31.989	31.989
				23.062	7.905	17.615
Displacement of lines				8.927 rev.	24.084 rev.	14.374 rev
" " "				11.07	29.86	17.83
(1 rev = 1.239) 2				22.14	20.92	18.46
				33.21	50.78	36.29
log.				1.5212	1.7057	1.5598
~~log~~						
				1.5212	1.7057	1.5598
log sec δ				0.2832	0.2832	0.0143
				1.8044	1.9889	1.5741
log k				0	0	0
				1.8044	1.9889	1.5741
	21.10	.04	33.09	63.74	97.48	37.51
Mean	31.36	31.48	8.08	8.26	8.16	23.79

0h 4 31.42

8 × 4 = 32
26 × 2 = 52
16 × 3 = 48
9 | 132
8.15

+14° .73 } cc
+28° .59 } cc
+58° .65 .65
1 17.66
1.10 level
1 18.76

0 3 13.71
1 17.71
.12
1 17.59

0h 5m 8.15s
0 3 50.72
1 17.43
.21
1 17.65

0h 9m 23.79
0 8 5.86
1 17.93
.20
1 17.73

Frod. 1327 is last 1m 18.76s at 0h 5m Sid. Time

1900
January 22
Monday

Mer. Circle. — J.A.D. Obsr.

R.A. Mic. found at 31.990

β Triang	α Arietis	55 Cass	γ Triang	67 Ceti
+34°29	+22°58	+66°2′	+33°22	−6°54′
acl	III	II l. 2 : III	III l3	III
Mic 15.765	Mic. 15.765	~~15.765~~ 31.990	31.990	31.990
2h 4m	2h 3m	2h 8m	2h 13	2h 13m
48.0 7.5 33.0	25.4	× 28.3	×	30.2
61.2 12.1 36.1	28.0	× 34.5	×	32.8
54.0 16.6 39.0	30.7	× 40.5	0.9	35.1
57.0 21.1 42.1	33.5	3.9 46.5	3.7	37.8
0.1 25.5 45.0	36.0	13.0 52.5	6.8	40.0
270.3 82.8 195.2	153.6	202.3	3.8	175.9
540.6 165.6 390.4	30.72	40.46	1.3206	35.18
22.50 .04 22.40	20.06	1.2662	0.0784	18.60
16.56 16.60 16.64	10.66	0.3907	1.3990	16.58
2h 5 16.60	2h 3 10.66	1.6569	25.06	2h 13 16.58
		45.38	2h 12 38.74	
		2h ~~8~~ ~~4~~5.08		

Mic 31.990	Mic 31.990
15.765	15.765
16.225	16.225
1.239	1.239
20.102	20.102
log 1.3032	1.3032
0.0840	0.0360
1.3872	1.3392
24.39	21.84

2h 4 52.21	2h 2 48.82	2 ~~8~~ ~~4~~5.08	2 12 38.74	2 13 16.58
2 3 37.07	2h 1 33.52	2 6 40.04	2 11 23.68	2 12 0.97
1 15.14	1 15.30	1 15.04	1 15.06	1 15.61
.06	.20	.33	.07	.25
1 15.08	1 15.10	1 15.37	1 14.99	1 15.36

+66°2′ +2.25
−6°54 −.12
2.37).57(.24
474
960
m = .25

15.08
15.10
14.99
15.06 × 3 18
15.36 × 1 36
4) 54
15.09
1 15.09
1.10 corr
1 16.19

Frod 1327 is fast
1m 16.19s
at 2h 10m.
Sid. Time

Mer. Circle

J.A.D. obs

Friday	55 Cass.	Lac. μ Forn.	γ Triang		θ Arietis		ξ² Ceti		
January 26	+66° 2′	−31° 13′	+33° 23′		+19° 25′		+7° 59′		
1900	III	III (2 3 and 4?)	II last : III		II last : III				
	$2^h 8^m$	$2^h 10^m$	$2^h 12^m$		$2^h 13^m$		$2^h 23^m$		
	26.2	1.2 $^{1?}$	×	53.4	×	3.2	41.9	58.0	×
	32.5	4.2 $^{2?}$	32.6	56.4	45.0	×	44.5	2.0	21.9
	38.5	7.2 $^{3?}$	37.0	×	49.0	8.5	×	×	24.3
	44.5	×	41.5	×	52.7	11.2	×	×	26.8
	50.3	×	46.0	×	56.7	×	51.9	13.1	29.4
	192.0	4.2	157.1	54.90	203.4	22.9	138.3	193.1	102.4
	38.40		39.28		50.85	7.64	46.10	64.37	25.60

Pen defective

Cold night
temp 12°

					13.52	23.51	+11.21	
					18.48	20.99	−7.37	
1.2662	1.3225	0.2608	1.1691	0.2608	20.97	13.61	3.84	1.2944
					52.97	58.11	+7.28	
0.3907	0.0678	0.0784	0.0784	0.0254	17.66	19.37		0.0042
					1.2470	1.2871	0.1072	1.2986
1.6569	1.3903	0.3392	1.2475	0.2862	0.0254	.0042	.0042	
					1.2724	1.2913	0.1114	
45.38	24.57	2.18	17.68	1.93	18.73	19.55	1.29	19.84
		37.10	37.22	48.92	48.91	5.65	5.66	5.71
$2^h 7^m 53^s.02$	$2^h 9^m 39^s.63$	$2^h 12^m 37^s.14$		$2^h 13^m 48.92$				$2^h 24^m 5.67$
2 6 39.88	2 8 31.20	2 11 23.61		2 12 35.12				2^h 22 51.89
1 13.14	1 8.43	1 13.53		1 13.80				1 13.78
	Lapse in ambiguity.							
.44		.08		.20				.27
1 13.58		1 13.45		1 13.60				1 13.51

θ Arietis
.354
2 12 33.668
0.5226
9.6332
0.1558 +1.431
8.2945
0.3258
8.6203 +.042
8.7723
1.0462n
9.8185n −.658
8.5872
1.2165
9.8037 +.636
+2.109
−.658
+1.451
2 12 35.119

n used assumed
.33

+7° $.51^s$ } .52 × 3 1.56
+19 .60
+33 .45
+66 .58 .58 × 2 1.10
214 2.66
.53 .53

1 13.53
1.10 level
1 14.63

Frod 1327 is fast
$1^m 14^s.63$

at $2^h 15^m$ Sid Time

Tuesday
Jan 30.2
1900.0

Mer. Circle:-

J.A.D. Obsr.

α Androm.	β Cass	α Cass
+28° 32	+58° 36	+56° 0′
	#l2 : III	III
$0^h 3^m$	$0^h 5^m$	$0^h 36^m$
59.6 18.0 41.8	× 28.7	27.0
2.5 22.2 44.6	× 33.5	31.5
6.3 26.4 47.4	× 38.2 9.7	35.6
8.1 30.6 50.3	17.0 43.1	40.4
10.9 34.7 53.0	~~28.7~~ 47.6	44.5
3264 1319 2371	194.1	179.0
5.28 26.38 47.42	13.35 38.22	35.80
	0.7416 0.2832 1.0248	
21.10 , 04 21.00	10.59 35.43	33.01
26.38 26.42 26.42	~~23.94~~	
	2.76 2.79	2.79
$0^h 4$ 26.41	$0^h 5$ 2.77	$0^h 36$ 2.79
0 3 13.55	0 3 50.37	0 34 50.23
1 12.86	1 12.40	1 12.56
.13	.23	.19
1 12.73	1 12.63	1 12.75

$$\begin{array}{lll} +28° & {}^s.73 & \left.\begin{array}{l}73\\ \left.\begin{array}{l}\\ \\ \end{array}\right\} 69\end{array}\right\} .71 \\ +56 & .75 & \\ +58 & .63 & \\ & \overline{2.11} & \\ & .70 & \end{array}$$

$\bar{1}$ 12.70
1.10 corr
$\bar{1}$ 13.80

Frod 1327 is fast

$\bar{1}$ $13^s.80$

at $0^h 15^m$ Sid. Time

Mer. Circle

2 AB obs.

February 2 1900	α Triang.	ε Cass	β Arietis	γ Androm.	α Arietis	β Triang.
	+29° 6	+63° 10'	+20°18	+41°51	+23°0	+34°31'
	I II	III last 3	last part	all (and one star on I not read)		
	$1^h 48^m$	$1^h 49^m$	$1^h 50^m$	$1^h 58^m$	$2^h 2$	$2^h 4^m$
	9.8 28.0	x	x 35.2	27.7 49.5 17.6	20.5 37.9 0.8	21.0 40.5 6.0
	12.6 32.4	x	16.8 37.9	31.2 54.5 20.8	23.1 42.0 3.5	24.0 45.0 9.0
	15.5 36.6	6.3	20.7 40.5	34.5 59.5 24.1	25.8 46.0 6.2	27.0 49.5 12.0
	18.3 40.8	12.0	24.6 43.2	37.9 4.4 27.6	28.6 50.0 9.0	30.0 54.0 15.0
	21.0 45.2	16.8	28.6 45.6	41.0 9.3 30.7	31.3 54.0 11.5	33.0 58.4 18.0
	77.2 183.0 15.44 36.60	35.1 11.70	90.7 22.68 40.48	34.46 59.44 24.16	25.86 45.98 6.20	27.00 49.48 12.00
	21.22 .04 36.66 36.64	1.3206 0.3454 1.6660	0.2608 19.68 0.0278 20.80 0.2886	24.90 .05 24.78 59.36 59.49 59.38	20.15 .04 20.06 46.01 .02 .04	22.50 .04 22.40 49.50 .52 49.60
	$1^h 48^m$ 36.65	46.34 25.36	1.94 20.74 20.80	$1^h 58^m$ 59.41	$2^h 2^m$ 46.06	$2^h 4^m$ 49.54
		$1^h 48^m$ 25.36	$1^h 50^m$ 20.77			
	1 47 24.00	1 47 13.18	1 49 8.03	1 57 46.86	2 1 33.36	2 3 36.88
	1 12.65	1 12.18	1 12.74	1 12.55	1 12.70	1 12.66
	.12	.30	.18	.00	.16	.08
	1 12.53	1 12.48	1 12.56	1 12.55	1 12.54	1 12.58

n = 33 used

+20	12.56
+ 23	.54
+ 29	.53
+34	.58
+41	.55
+63	.48
	24

1 12.54

1.10 level cor

1 13.64

Sid 1327 is fast

1^m 13.64^s

at $1^h 50^m$

Sid Time

Mer Circle

DAD obsr

Feb 5
1900

36 H Cass
+72°22
I II
$2^{h}28$
1 27.2 20.3
2 35.6 32.5
3 43.6 44.9
4 52.0 56.8
5 ~~5~~ 9.0
15.84 223.5
39.60 44.70
65.20 .12
44.80 44.82
$2^{h}29$ 44.81
2 28 33.52
−1 11.29
.80
1 12.09

ν Arietis
+21°31
$2^{h}33$
56.5 14.0 36.5
59.5 18.0 39.2
1.8 21.9 25.9 41.9
4.7 29.8 44.5
7.2 ~~36.5~~ 47.0
30.97 109.6 209.1
1.94 21.92 41.82
19.93 .04 19.84
21.87 21.96 21.98
$2^{h}34$ 21.93
2 33 9.62
1 12.31
.19
1 12.12

θ Persei
+48°48
I II
$2^{h}38$
0.0 24.5
3.8 30.0
7.6 35.6
11.4 41.4
15.0 47.0
37.8 178.5
7.56 35.70
28.15 .06
35.71 35.76
2 38 35.73
2 37 23.80
1 11.93
.07
1 12.00

+27°16
last 3
$2^{h}39$
×
×
9.5
12.2
14.9
12.20
23.54
48.66
2 38 48.66

1.3206
0.0513
1.3719
23.54

1.2962
.518
1.8142

36 H Cam
T² Eridani
fast
+3.14 −1 11.29
−.39 −1 12.56
3.53 1.27 (.36
1.059
2.110
m = +36

+26°50
41 Arietis
$2^{h}44$
53.1 11.1 35.7
56.0 15.4 37.5
× 19.4 40.1
1.6 23.5 43.0
× 27.7 45.6
97.1 201.9
19.42 40.38
.04 20.69
19.46 19.69
$2^{h}45$ 19.58
2 44 7.30
1 12.28
.14
1 12.14

−21°25
T² Eridani
I II
$2^{h}47$
18.5 35.9
21.3 40.0
23.9 43.7
26.5 47.7
29.3 51.8
119.5 219.1
23.90 43.82
19.92 .04
43.82 86
$2^{h}47$ 43.84
2 46 31.28
−1 12.56 *
.47
1 12.09

+52°20
τ Persei
last ~~IV~~ II
$2^{h}48$
~~×~~
×
×
×
57.9
1.9
59.90
36.21
2 48 23.69
2 47 11.81
1 11.88
.14
1 12.00

1.3453
0.2136
1.5589
36.21

δ
−21 12.09
+21 .12 } .13
+26 .14
+48 .00 } .1 } .06
+52 .00
+72 .09
.44
.07
1 12.06
1.10 level
1 13.16

Sid 1327 is fast 1 13.16
at $2^{h}40$ Sid Time

1900
February 7 ~~8~~
Wednesday

Mer. Circle

JAD obsr.

α Arietis	β Triang.	γ Arietis	θ Persei
+22°59	+34°31'	+21°32'	+48°48'
2h 2m	2h 4m	2h 34	2h 38
19.9 37.4 0.0	26.1 39.6 5.2	x 13.7 36.3	x 24.2 56.1
22.6 41.3 2.6	29.3 44.3 8.2	x 17.7 38.9	3.6 30.0 59.8
25.2 45.3 5.4	32.2 48.6 11.2	1.7 21.6 41.5	7.5 35.6 3.5
27.9 49.3 8.2	Cust 3 4I 52.2 14.2	4.4 25.5 44.4	11.2 41.0 7.5
30.5 53.3 10.6	57.7 17.2	7.0 29.6 46.7	14.8 46.7 11.0
1261 2266 268	2424 560	1081 2078	223 1775 3179
25.22 45.32 5.36	48.48 11.20	21.62 41.56	7.44 35.50 3.58
20.15 .04 20.06	.04 22.40	.04 19.84	28.15 .05 28.02
45.37 45.36 45.30	48.52 48.80	21.66 21.72	35.59 35.53 35.56
2h 2m 45.34	2h 4m 48.66	2h 34 21.69	2h 38m 35.56
2 1 33.26	2 3 36.77	2 33 9.58	2 37 23.72
1 12.08	1 11.89	1 12.11	1 11.84
.18	.09	.19	.07
1 11.90	1 11.80	1 11.92	1 11.91

δ
+22' .92 ×3 36
23 .90 ×2 20
34 .80 ×2 0
48 .91 ×3 33
10) 89 (9
.80
.89
1 11.90
1.10 lond
1 13.00

Frod 1327 is fast

1m 13s.00

at 2h 20m

Sid Time

1900
Feb 11 $\frac{10}{10}$
~~Feb 4 $\frac{10}{18}$~~
~~22 4 50~~

23 20
E.S.M.T.

Meridian Circle -- Level.

JA obsr.

Telescope South:

	E	W.
Screw W	+ 66.7	+ 94.0
W	+ 67.0	+ 94.2
W	+ 66.0	+ 93.0
W	+ 62.0	+ 89.0
~~E~~	~~[illegible]~~	~~[illegible]~~
E	− 51.2	− 25.2
E	− 48.4	− 22.7
E	− 45.9	− 20.4
E	− 51.0	− 25.3

Telescope North

Screw E	− 78.0	− 52.9
E	− 77.7	− 53.0
E	− 76.5	− 51.7
E	− 76.3	51.7
W	~~28.5~~	~~53.0~~
W	+ 50.0	+ 74.0
W	+ 51.5	+ 76.0
W	+ 51.1	+ 75.1
W	+ 54.3	+ 78.0

+ 261.7	+ 370.2
+ 206.9	+ 303.1
− 196.5	− 93.8
− 308.5	− 209.3
+ 468.6	+ 673.3
− 505.0	− 303.1
− 36.4	+ 370.2
	− 36.4

32) + 333.8 (10.44
320
138
128
100

.06
.6264 b
1.35
.83 b sec φ
W. end high

$b \sec \varphi = {}^{s}_{-}.80$ West end high

1905
Feb 12.0

JAD obs

Tel. on N. coll.

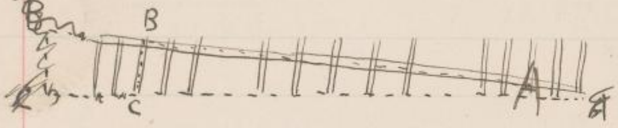
Wire 3 at intersection of inclined wire
on N. coll. cross

Circle:- Mic H.

314° (45'-1)- 41".5
41.5 41".50

Wire 13 ditto by moving Tel. R.A. Micrometer
moving reticule 314° (45'-2) 27".5
27.3 27.40

45".90



Wire 3 to 8 = 18s.563
13 to 8 = 18.493
37s.056 = 9' 15".84

BC = 45".90
AC = 9' 15.84

$\frac{BC}{AC} = \tan A$. A = 4° 43' 15"

Hence the angle i
is 4° 43' 15"

1900
Feb. 12

Mer. Circle - Collimation [illegible]

S. coll. on N. coll

79.1
78.2
80.5
80.5
80.9

3992

79.84
set at 79.8

Tel. on S. coll.
Mic. found (previous obs. on preceding page, at 31,890) ✓

32,205
205
205
205
206

322052

Tel. on N. coll.

31,717
725
717
725
720

104

31,7208
3926
31,963
012
31,975

Set at 31,975

Lines tested for verticality; there is at the extreme limit of the reticule a slight tendency toward deviation from verticality; but not noticeable near inclined wire where observations are made

Mer. Circle:-

[illegible] obs

February 14
1900

δ Persei +47°28		ν Persei +42°16	η Tauri +23°47		ζ Persei +31°35	ε Persei +39°43	ξ Persei +35°30	
I	II	III	I	II	III	III	II	III
$3^h 36$		$3^h 39$	$3^h 42$		$3^h 49$	$3^h 52$	$3^h 53$	54
25.9	49.6	54.5	18.9	36.5	19.0	38.5	31.8	X
29.7	55.1	X	21.8	40.7	22.0	41.7	36.5	✓
33.0	0.6	1.3	24.4	44.5	24.8	45.0	41.0	3.3
36.8	6.2	4.7	27.1	48.7	27.8	48.3	45.6	6.4
40.5	11.6	7.9	29.7	52.7	30.6	51.3	50.2	9.5
1659	3031	2484	1219	2231	1242	2248	2051	6.40
33.18	0.62	62.1	24.38	44.62	24.84	44.96	41.02	
27.45	.05	25.79	20.27	.04	21.67	24.00	.04	25.69
0.63	0.67		44.65	.68	3.17	20.96	41.06	40.71

δ Persei	ν Persei	η Tauri	ζ Persei	ε Persei	ξ Persei
$3^h 37$ 0.65	$3^h 39$ $36^s.31$	$3^h 42$ 44.66	$3^h 49$ 3.17	52 $20^s.96$	$3^h 53$ 40.93
3 35 50.26	3 38 25.96	3 41 34.08	3 47 52.60	51 10.57	3 52 30.51
1 10.39	1 10.35	1 10.58	1 10.57	1 10.39	1 10.42

δ		red. for n=3		for n=4	
+23°	10.58	.15	10.43	.20	10.38
+31	.57	.09	.48	.12	.46
+35	.42	.06	.36	.08	.34
+39	.39	.03	.36	.04	.35
+42	.35	.00	.35	.00	.35
+47	.39	.04	.43	.56	.45
	270		241		233
	.45		.40		.39

n assumed
= 4

1 10.39
.80 corr
1 11.19

1 11.20

Frod 1327 is fast

$\tilde{\Delta}$ $11^s.20$

at $3^h 45$

Sid Time

J.A.D. obsr

1900 February 16	δ Arietis	α Persei	δ Persei	ν Persei
	+19°21	+49°31	+47°28	+42°16
	$3^h\,\bar{6}$	$3^h\,\bar{17}$	$3^h\,\bar{36}$	$3^h\,\bar{39}$
	41.5 58.3 20.7	46.3 11.2 43.5	25.7 49.1 20.2	4.3 26.0 54.0
	44.0 2.3 23.3	50.4 17.0 47.2	29.2 54.8 23.8	7.7 31.2 57.6
	46.6 6.2 25.8	54.0 22.9 51.1	33.0 0.4 27.6	11.1 36.0 0.9
	49.3 10.3 28.6	58.0 28.3 55.0	36.5 5.5 31.3	x 40.7 4.5
	51.9 14.1 x	1.7 34.0 58.6	40.1 11.0 35.0	17.5 45.8 7.5
	2333 331.2 777	2704 1134 2554	1645 3008 1379	329 1797 3045
	4666 6.24 25.90	54.08 22.68 51.08	32.90 0.16 27.58	10.97 35.94 0.90
	19.65 .04 19.56	28.57 05 28.43	27.44 .06 27.31	25.06 .05 24.96
	6.31 6.28 6.34	22.65 22.73 22.65	0.34 0.22 0.27	36.03 35.99 35.94
T=	$3^h\,\bar{7}\ 6^s.31$	$3^h\,\bar{18}\ 22.68$	$3\ \bar{37}\ 0^s.28$	$3^h\,\bar{39}\ 35.99$ = T
α	3 5 56.02	3 17 12.77	3 35 50.20	3 38 25.92
α−T =	−1 10.29	−1 9.91	−1 10.08	1 10.07
n(tan δ − tan φ)	.24	.10	.06	.00
	−1 10.05	−1 10.01	−1 10.14	−1 10.07

δ	
+19	^{s}.05
+42	.07
47	.01
49	.14
	27
	.07

1. 10.07
.80 level = b [illegible]
1 10.87

Hod 1327 is fast

T $10^s.87$

at $3^h\ 25$

Sid Time

JAD. obr

1900 February 20 Tuesday	α Ceti	γ Persei	ρ Persei	β Persei	α Persei	ο Tauri
	+3°41	+53°6′	+38°27	+40°34	+49°30	+8°40′
	I II	III	III	all	all	all
	$2^{h}\,57$	$2^{h}\,\overline{59}$	$3^{h}\,\overline{0}$	$3^{h}\,\overline{2}$	$3^{h}\,\overline{17}$	$3^{h}\,\overline{20}$
Day light observation	51.7 7.8	7.7	15.5	21.0 42.0 9.7	46.9 11.8 43.9	14.4 30.6 51.8
	54.3 11.5	11.9	18.6	24.2 47.0 13.0	x 17.5 x	19.4 34.6 54.3
	56.7 15.2	16.0	21.8	27.4 51.9 16.2	54.5 23.1 51.5	21.9 38.1 56.8
	59.2 19.0	20.2	25.0	30.6 56.7 19.5	58.5 29.0 53.5	24.4 41.8 59.3
	1.6 22.6	24.1	28.0	34.0 1.5 22.5	2.3 34.5 59.3	17.0 45.6 1.8
	2835 761	799	1089	1372 2591 809	1637 1159 1547	971 1907 2840
	56.70 15.22	15.98	21.78	27.44 51.82 16.18	54.57 ~~32.74~~ ~~40.93~~ 23.18 51.57 ~~30.94~~	19.42 38.14 56.80
	1838 .04	3074	2358	2441 .05 2430	2836 .06 2842	1875 .04 1866
	15.28 .26	45.24	58.20	51.85 .87 .88	23.13 .24 23.15	38.17 .18 .14
	$2^{h}\,\overline{58}$ 15.27	$\overline{58}$ 45.24	$\overline{59}$ 58.20	$3^{h}\,\overline{2}$ 51.87	$3^{h}\,\overline{18}$ 23.19	$3^{h}\,\overline{20}$ 38.16
	2 57 4.24	57 34.70	58 47.49	3^{h} 1 41.13	3 17 12.67	3 19 27.24
	1 11.03	1 10.54	1 10.71	1 10.74	1 10.52	1 10.92
	.30	.17	.04	.03	.08	.32
	1 10.73	10.71	10.66	10.71	1 10.60	10.60

1.33
.06
1.27)

$10^{s}.54$
11.03
.51.4

n = .4

δ	s						
+3°	10.73			270	68 × 3	24	② mean 10.67
+8	.60						
+38	.66	68 × 3	= ① 10.65+ mean				
+40	.71						
+49	.60	60 × 2		131	.66 × 2	12	
+53	.71					36	
	401						

③ 10.67

① 10.65
② .67
③ .67
ass. 10.67
.80 lent
$\overline{1}$ 11.47

Frod 1327 is fast

$\overline{1}$ $11^{s}.47$

at $3^{h}\,\overline{10}$ Sid Time

JAD Obs

Feb. 23 α Persei
1900 +49°30
Friday $3^h 17$

46.6	11.4	43.6
50.6	17.0	47.5
54.2	22.8	51.3
58.1	28.5	55.2
1.7	34.2	58.7
2712	1139	2563
54.22	22.78	51.96
28.56	.06	28.42
22.78	22.84	22.84

3^h 18 22.82
3 17 12.60
1 10.22
.10
1 10.32
.80 Corr
1 11.12

Frod 1327 is fast

1^m $11^s.12$

at 3^h 20^m Sid Time

1900
Mar. 3
Saturday

η Aurigae.

8.2 0.4 8.6
1.7 7.3 9.0
4 ~~3~~.9 3.9 8.8
8.2 0.7 8.9
1.5 7.5 9.0
9.6 9.0 8.6
4.5 4.1 8.6

39.5
15) 6.0
5^h 0^m 39^s.40
4 59 32.35
1^m 07^s.05
+ .80 level.
1^m 07^s.85

1900
Mar. 5.
Monday.

ζ Tauri.			o Aurigae.		
2.5	2.8	5.3	# 0.8	3.5	4.3
5.1	0.4	5.5	$\overset{5}{\cancel{4}}.0$	9.6	$\overset{4}{\cancel{3}}.6$
8.0	8.0	6.0	8.6	6.0	4.6
0.6	5.1	5.7	2.6	2.1	4.7
3.1	2.3	5.4	5.5	8.1	3.6
9.9	$\overset{5}{\cancel{6}}.8$	5.7	5.8	8.9	4.7
4.0	1.6	5.6	1.2	3.2	4.4
		47.9			17.1
		15) 12.1			15) 18.0

5	32	$47.8\overset{1}{\cancel{4}}$	5	39	17.20
5	31	42.17	5	38	11.95
−	1	05.64		1	05.25
+		.80			.80
	1	06.44		1	06.05
+		.26		1	
	1	06.18			

− 1 05.64 + .385
− 1 05.25 + 1.182
+ 0.39 − .797

−.797) .3900 (−.5 = n.
3985

ζ 1327 1ᵐ 06.18 fast.

21° 04′

tan δ − tan φ = .528
− .5
+ .2640

1900.
Mar. 7.
Wednesday.

ζ Tauri

6.1 5.8 1.9
9.1 3.1 2.2
1.5 0.6 2.1
8.0 4.0 2.0
2.0 0.0 2.0

46.1
11) 11.3
1.03

5 32 46.03
5 31 42.14
1 03.89
.26
.80
1 04.95

T. 1327 $1^{m}\ 04^{s}.95$ fast.

1900
Mar. 10
Saturday

δ Aurigae.			ν Orionis		
1.0	1.6	2.6	0.9	9.3	0.2
5.8	7.8	$\overset{3}{\cancel{2}}.6$	3.6	6.9	0.5
9.7	3.4	3.1	6.1	4.4	0.5
4.1	9.1	3.2	8.7	1.9	0.6
8.2	5.0	3.2	1.2	9.2	0.4
8.8	4.2	3.0	7.6	2.8	0.4
5.2	8.1	3.3	1.3	9.1	0.4

21.7
15) 8.7
5 53 $21.5\overset{8}{\cancel{7}}$
5 52 20.52
− ~~12~~ 1.06
+ .80
$\alpha - T - b \sec \varphi$ = 1 1.86
$\overset{6}{~~.0\cancel{7}~~}$
~~1 1.92~~

55.1
15) 3.1
6 03 55.21
6 02 53.81
− 1 01.20
+ .80
− 1 02.00
.08
1 1.92

F 1327 $1^{m}\ 1\overset{s}{.}92$ fast.

A. Searle, Asr., since
March 3rd.

March 13
1900

+54°17′ δ Aurigae	+37°12 θ Aurigae w 6 – 15	+14°47′ ν Orionis
$5^h\,5\bar{1}$	$5^h\,53$	$6^h\,2$
40.3 8.0 44.0	47.8 14.1	30.2 46.8 8.5
44.8 14.7 48.4	52.5 17.3	32.8 50.7 11.0
49.1 20.9 52.5	57.1 20.4	35.3 54.5 13.7
53.2 27.1 56.9	1.8 23.5	38.0 58.3 16.2
57.5 33.6 1.0	6.4 26.4	40.6 2.2 18.8
2449 1043 2628	2856 1017	1768 2725 682
48.98 20.86 52.56	57.12 20.34	3536 54.50 13.64
31.77 .06 31.62	.04 23.17	19.19 .04 19.10
2075 20.92 20.94	57.16 57.17	54.55 54.54 54.54
$5^h\,52$ 20.87	$5^h\,5\bar{3}$ 57.16	$6^h\,\bar{2}$ 54.54
5 51 20.43	5 52 56.53	6 1 53.75
1 0.44	1 0.63	1 0.79
.20	.04	.26
1 0.64	1 0.59	1 0.53

n assumed = 4
probably is too large.

Hence assumed n = 3 resulting thus.

assuming
n = 3

1 0.44	1 0.63	1 0.79
.14	.05	.20
1 0.58	1 0.58	1 0.59

mean = $\bar{1}$ 0.58
.80 Cent
1 1.38

Frod 1327 is fast
$\bar{1}$ $1^s.38$
at 5^h $5\bar{5}$
Sid Time

1900
Thursday
March 15
0h 0.
E.S.M.T.

Mer. Circle, J.H.D. Obsr.

Collimation.—

South collimator on North collimator

Telescope Mic. left Feb 2 at 31.975
Telescope found Mar. 15 at 31.975

835
873
865 333 8666
865
875

Telescope on S collimator

32.161
162
163 32.1612
160
160

Telescope on North collimator

Lines of reticule in good adjustment to motion of telescope.

31.750
765 Not in good focus in
754 N. collimator. May
766 be N. collimator in fault
752
287

31.7574
3.9186
31.959
012
Set at 31.971

For March 17
see page 60

Mar. 20
1900

+28° 31'			+21° 04'		
β Tauri.			ζ Tauri.		
2.2	5.5	7.7	5.7	5.9	1.6
5.1	2.9	8.0	8.4	3.3	1.7
8.0	0.0	8.0	1.0	0.7	1.7
0.6	7.2	7.8	3.7	8.0	1.7
3.3	4.4	7.7	6.2	5.3	1.5
0.4	7.3	7.7	3.0	8.8	1.8
4.7	3.1	7~~5~~.8	7.0	4.8	1.8
		59.0			40.9
	15)	13.7		15)	12.7
5	20	58.91	5	32	40.85
5	20	00.05	5	3~~2~~1	41.89
		58.86			58.9~~4~~6
		.11			16
		58.75			58.80
		58.80			
		58.78			
		.80			
		59.58			

.912	.912	n. assumed = 0.3
.543	.385	
.369	.527	
.3	.3	
.1107	.1581	

J. 1372 $59^s.58$ fast at $5^h 26^m$

A. Searle, obs

1900
March 17   ζ Tauri   α Orionis   β Aurigae

$5^h\ 33^m\ 16^s.9$

Note: For March 20 See pge 59

March 24, 1900 A. Searle, obs.

β Aurigae

+44°56

5^{h} 53	36.6	59.4	29.0
	40.2	4.6	32.5
	43.6	10.0	36.0
	47.2	15.0	39.4
	50.6	20.4	42.8
	2182	34.94	1797
	43.64	9.88	35.94
	26.19	05	26.07
	9.83	9.93	9.87

5^{h} $5\overset{3}{\cancel{4}}$ 9.88

5 52 13.89

55.99

μ Gemin.

+22°32

6^{h} 18	27.2	44.8	7.3
	29.9	48.6	10.0
	32.5	52.6	12.5
	35.3	56.6	15.4
	37.9	0.7	18.0
	1628	2633	632
	32.56	5266	12.64
	20.08	.04	19.99
	52.64	52.70	52.65

6 18 52.66

6 16 56.67

55.99

55.99
.80
0 56.79

Frod 1327 is fast

$\bar{0}$ $56^{s}.80$

at 6^{h} 00

Sid Time

1900
March 27
Tuesday

JAD, obsr.

	γ Gem.	ε Gem.	ο Gem.	15 Lyncis
	+16°28′	+25°13′	+34°5′	+58°32
		6m38	6m46	6m48
	6h32 27.8 44.6 6.6	17.2 35.0 58.1	40.0 59.6 24.8	49.3 20.0 0.2
	30.5 48.5 $\overset{9.2}{11.7}$	20.0 39.0 1.0	43.1 4.0 27.9	54.2 27.2 5.2
	33.0 52.4 14.3	22.7 43.2 3.7	46.1 8.5 30.9	58.8 34.3 10.0
	35.6 56.3 16.8	25.5 47.3 6.5	49.0 12.9 33.9	3.5 41.5 14.6
	38.1 0.0	28.2 51.5 9.0	52.0 17.5 36.7	8.0 48.5 19.2
	1650 2618 586	1136 2160 3183	2302 3425 1542	2938 1715 492
	33.00 52.36 11.72	22.72 43.20 3.66	46.04 8.50 30.84	58.76 34.30 9.84
	19.34 .04 19.25	20.49 .04 20.40	22.40 .05 22.29	35.52 .07 35.33
	52.34 52.40 52.47	43.21 43.24 43.26	8.44 8.55 8.55	34.28 34.37 34.51
	6h 32 52s.40	6 38 43.24	6h 47 8.51	6h 49 34.39
	6 31 58.08	6 37 48.91	6 46 14.29	6 48 40.30
	54.32	54.33	54.22	54.09
	.18	.13	.08	.21
assumed n = .3	54.14	54.20	54.14	54.30
	54.32	54.33	54.22	54.09
	.12	.09	.03	.14
Assumed n = .2	54.20	54.24	54.19	54.23

Adopted
n is
n = .2

20
24 } 63 21×3 64
19
23 23 .23×2 46
5 110
.22mm
86
.22

$\bar{0}$ 54.22
80
$\bar{0}$ 55.02

Frod 1327 is fast

$\overset{m}{0}$ 55s.02 at 6h 40 Sid T.

1900
April 1.

+ 24° 13'			+ 8 30 + ~~17~~° ~~14~~'		
ε Leonis.			π ~~η~~ Leonis.		
0·3	1·8	2·1	7·5	4·9	2·4
3·1	9·1	2·2	0·1	2·5	2·6
5·8	6·3	2·1	2·5	0·1	2·6
8·5	3·8	2·3	5·1	7·5	2·6
1·2	1·0	2·2	7·5	5·0	2·5
8·1	4·2	2·3	3·7	8·9	2·6
2·0	0·2	2·2	7·5	5·0	12·5

06·1
15) 1·5
9 41 06·10
9 40 13·43
52·67
·09
52·58
·80
53·38

51·2
15) 4·0
9 5~~6~~ 51·27
~~10~~ ~~01~~ 58·48
9
~~10~~ 5~~4~~ ~~56·82~~
52·79
~~06~~ 15
~~12~~
52·~~73~~ 64
·80
53·~~53~~ 44

1900	+24 13			+8° 30		
Apr. 3.	ε Leonis			π Leonis		
	9.0	0.3	9.3	6.1	3.5	9.6
	1.8	7.8	9.6	8.7	1.1	9.8
	4.6	5.1	9.7	1.2	8.7	9.9
	7.1	2.3	9.4	3.6	6.2	9.8
	9.8	9.6	9.4	6.1	3.7	9.8
	6.5	3.0	9.5	2.3	7.4	9.7
	0.7	8.8	9.5	6.1	3.7	9.8
			04.8			49.9
			(15) 11.2			15) $\overset{73}{\cancel{70}}$.3
	9	41	04.75	9	~~56~~ 55	49.89
	9	40	13.40	9	54	58.46
			51.35			51.43
			.09			.15
			51.26			51.28
			.80			.80
			52.06			52.08

1900
Apr. 5.

ε Leonis			π Leonis		
7.2	8.8	6.0	4.4	2.1	6.5
0.1	6.1	6.2	7.1	9.6	6.7
2.8	3.6	6.4	9.7	7.0	6.7
5.8	0.8	6.6	2.1	4.6	6.7
8.3	8.1	6.4	4.6	2.1	6.7
5.0	1.3	6.3	0.8	6.0	6.8
9.0	7.3	6.3	4.5	2.0	6.5
		03.2			48.3
	15	2.4		15	4.9
9	42	03.16	9	5~~4~~5	48.33
9	4~~8~~1	13.37	9	54	58.43
		49.79			49.90
		.09			.15
		49.70			49.75
		.80			.80
		50.50			50.55

April 9 $\frac{10}{10}$ - 1900

Meridian Circle:-

The whole eye piece end of telescope taken out for the purpose of removing the glass retycule and replacing with spider lines and to put in the declination micrometer which for many years has not been used.

For the present the Russian Transit will be used for time stars.

1900
April 10.0
0h 0
E.S.M.T.
Tuesday

JHD. Asr

Russian Transit

with old Bowditch comet seeker as a collimator determined collimation as follows.

circle ~~Left~~ East
2nd tally from top (approx)

Set tel. micrometer R.A. wire on

2nd tally middle wire

67.0.	66.8
66.5	68.2
66.5	66.0
67.0	66.6
66.5	66.0

66.71

Set mic wire of telescope on collimator wire
2 revolutions backward (i.e. decreasing readings; almost a third

20.0	20.2
19.5	19.7
21.4	22.0
21.8	21.3
19.5	20.5

20.59

66.71
20.59
2 rev + 46.12 micrometer head

April 10 continued

Reversed telescope - ~~tel. no~~
Set on ~~collimator mic~~ tel. mic as before

Circle
now West

65.0 65.5
65.5 64.5
65.7 65.7
65.0 65.6
65.5 65.0
65.30

Set as before on coll. mic
3 Decreasing ~~readings~~ revolutions
of about 4

~~25.2~~
27.0 28.0
28.0 28.0
27.2 27.2
27.0 29.3
26.2 29.2
27.71

65.30
27.71
3 rev + 37.59 micrometer head.

Circle East 2 rev + 46.12
Circle West 3 rev + 37.59
91.47
45.74 divisions
.06
$2^s.744$

1 division = $^s.062$ at δ°

The result is
coll. error = $2^s.74$
which is not to be relied
on considering the shaky
condition of the collimator

Russian Transit Data

Mean of each group to mean of all.

Group 1	+42.554	log. 1.6290	Circle East from Annals Vol XXIX
2	+21.257	1.3274	
3	−0.003	7~~8~~.4771.	
4	−21.277	1.3281	
5	−42.550	1.6289	

R. A. Micrometer value Determined by JAD. } 1 rev. = 6.^{s}1914 } at δ 0°
1 division = ^{s}.0619

Prob. error for above values are for 1 rev. about ^{s}.1
for 1 division about ^{s}.001

Level: 1 division = 0.^{s}154 log 9.1889 : Determined by JAD.

Tuesday, April 10, 1900

Russian Transit
Circle West

JAD. Obs

ν Urs Maj +59° 30 Cent app 3 Tacks

Level

			E	W	
Circle W	Bubble	E	148	156	16.75 13.65 2)3.10 1.55 .15 .23 = b, which circle W
		E	148	156	
		W	120	184	
		W	130	174	
			4)54.6 13.65	4)67.0 16.75	

Reversed Telescope

			E	W	
Circle E	Bubble	E	147	156	17.05 13.38 2)3.67 1.84 .15 .28 = b, which Circle E
		E	150	156	
		W	113	190	
		W	125	180	
			4)53.5 13.38	4)68.2 17.05	

Circle W λ Urs Maj +43° 25 Cent app 4 T.

Cir W γ Hydra −15° 40 Cent 2 Tacks

~~α Urs Maj +62° 17~~

α Urs Maj +62° 17 { Circle E Cent 2 of app (2 T) and last of III
Circle W. app Cent (last 3 ones only)

ψ Urs maj +45 2 ab Cent T. Circle E
δ Leonis +21° 4 Cent 2 T. Circle E

Last one 11h 10

April 10

0h 0
ESMT

Russian Transit

2AD Am

Circle East

Mic. wire on app tally No 2

Observations for reducing ☾ Urs Maj. observed last night.

on 4th wire		on 5th wire	
7,5	decreasing to almost 0.6 rev to	50.0	
7.7		51.5	4th wire } rev. 2.8926 from central wire of tallies
9.5		51.2	
9.5		50.3	
80		51.0	
8.44		50.80	5th wire } rev 2.3162 from central wire of tallies

Decreased reading to 1st wire of app III tally
1 rev. from 4th wire+i-reading
almost 2

37.0
36.3
35.0
34.5
36.0
35.76

rev 1.1658 from central wire of tallies

Decreased reading to Centre wire of III tally
2 rev. } from 4th wire reading
almost 3}

18.7
18.5
19.0
19.7
20.0
19.18

	rev 2.8926	rev 2.3162	rev 1.1658
(6s.191) log 1 rev.	log 0.4613	0.3648	0.0668
	0.7918	0.7918	0.7918
log sec δ+62°17'	0.3327	0.3327	0.3327
	1.5858	1.4893	1.1913
	38s.53	30s.85	15s.53

Russian Transit

Circle West

Mic. wire on app. last tally

Increased 6 revolution from central wire of tally III and almost 7

	Wire 3	Wire 4	Wire 5
		7 rev + the	8 rev + the
	8.0	67.5	23.5
	8.7	67.4	22.8
	8.9	65.7	21.7
	9.0	66.7	23.3
	8.7	66.6	23.3
	8.66	66.78	22.92
from central wire of tallies	6.8948 rev.	7.4760 rev.	8.0374 rev
log	0.8385	0.8737	0.9051
log 1 rev.	0.7918	0.7918	0.7918
log sec δ + 62°17	0.3327	0.3327	0.3327
	1.9630	1.9982	2.0296
	$91^{s}.83$	$99^{s}.59$	$107^{s}.00$

Tuesday
April 10, 1900

2AD.
obs

Russian Transit

ν Urs. Maj.	λ Urs. Maj.	ν Hydrae
+59° 30	+43° 25	−15° 40
Circle West	Circle West	Circle West
App. last 3 tallies	App. last 4 tallies	App. last 2 tallies
$9^h 46^m$	$10^h 11^m$	$10^h 43^m$
9.5 52.0 33.8	21.5 51.0 20.4 49.5	18.5 40.7
16.5 59.4 40.9	26.3 55.6 25.3 54.3?	22.5 44.3
23.9 5.9 47.4	31.5 1.0 30.1 59.6	26.0 48.0
31.1 12.7 54.6	36.0 5.2 34.9? 4.0	29.7 51.8
37.6 20.0 1.7	41.2 10.2 39.8 9.1	33.1 55.3
23.72 6.60 47.68	31.30 0.60 30.10 59.30	25.96 48.02
log 7 8.4771 1.3274m 1.6290m	1.3281 7 8.4771 1.3274m 1.6290m	1.3274m 1.6290m
0.2945 0.2945 0.2945	0.1388 0.1388 0.1388 0.1388	0.0165 0.0165
log 7 8.7716 1.6219m 1.9235m	1.4669 7 8.6159 1.4662m 1.7678m	1.3439m 1.6455m
I +0.06 −41.87 −83.85	+29.30 +0.04 −29.25 −58.58	−22.07 −44.21
23.78³ 24.13 23.83	0.60 0.600 0.85 0.72	3.89 3.81
$9^h 46^m$ 23.90	10^m 12 0.69	10^m 43 $3^s.85$
9 43 56.74	10 11 7.25	10 44 44.18 RA
fast 2 27.16	fast 53.44	slow 1 $40^s.33$

	ν Urs. Maj.	λ Urs. Maj.	ν Hydrae
Log coll. cm	0.3010	0.3010	0.3010
Log sec δ	0.2945	0.1388	0.0165
	0.5955	0.4397	0.3175
Coll corr	$-3^s.94$	$-2^s.75$	$-2^s.08$
m corr.	−1 40.48	−4.22	+2 32.83
b suf.	+.31	+.31	+.31
	−1 44.11	−6.66	+2 31.06
T	9 44 39.80	10 11 54.04	10 45 34.91
α	9 43 56.74	10 11 7.25	10 44 44.18
	0 43.06	46.79	0 50.73

ν Hydrae
5.77
10 44 41.392

0.4701
9.7744 1.756
0.2445

8.2480
0.3054 0.36
8.5534

8.8165
1.2456m 1.153
0.0621

8.3492
0.8488m −.158
9.1980m

2.945
−.158
2.787
41.392
44 44.180

m		tan
λ Urs. Maj.	−2 56.66	+1.90
ν Hyd	+1 42.41	−.28
	4 39.07	2.18

2.4458
0.33835
~~2.7843~~ 2.1073
6085 $128^s.0$ = m

m = $128^s.0$

continued

Russian Transit

α Urs. Maj.
+62° 17
Circle East :- Circle West
Last 2 wires : 1st w of app 2nd tally :- of 3rd tally
Last 3 wires of app 5th tally

10h 59		11h 0	11h 2		
~~52.1~~		14.8	10.0	17.1	26.4
52.1	59.5				
52.1	59.5	14.8	10.0	17.1	26.4
38.53	30.85	15.53	91.83	99.59	107.00
11h 0 30.63	30.35	0 30.33	38.17	37.57	39.40

See pp 72-73 }→

11h 0 30.44
Circle East

11 0 38.36
Circle West

R.A = 10h 57 35.74

38.36
30.44
7.92 → 7.92
3.96
log 0.5977
log cos δ 9.6675
0.2652

Coll. error = 1.842

+ to T when circle is E
− to T when circle is W

~~Independent determination of coll. error from obs of λ Urs Maj +43° 25′ and (Circle W)~~
~~ψ Urs Maj +45° 2′ (Circle E)~~
~~from λ 53.45 fast~~
~~ψ 59.39~~
~~5.94~~
~~2.97 log 0.4728~~
~~log cos mean δ ½ 9.8569~~
~~i.e. 44° 0.3297~~
~~2.137 = coll error~~

Mean = 2.00 = collimation error

ψ Urs. Maj.
+45° 2
Circle East
App 5th tally

11h 5
55.5
0.5
5.7
10.5
15.6
6 5.56
1.6289m
0.1507
1.7796m
− 60.20
11h 5 5.36
11 4 5.95
Fast 59.41

δ Leonis
+21° 4
Circle E
app last 2 tallies

11h 8	
48.0	11.1
52.0	14.8
55.6	18.6
59.5	22.4
3.5	26.4
55.72	18.66
1.3281m	1.6289m
0.0300	0.0300
1.3581m	1.6589m
− 22.81	− 45.59
32.91	33.07

11h 8 32.99
11 8 50.43
Slow 17.44

log c 0.3010
log sec δ 0.1507
0.4517

Collim + 2.83
n corr − 12.03
Level + .38
− 8.83

11 4 56.51
11 4 5.95
50.56

0.3010
0.0300
0.3310

+ 2.14
+T 6.69
+.38
+T 9.21

11 9 42.21 T
11 8 50.43
51.78

over

April 10 continued

The Russian transit from the preceding reductions is evidently about ~~a degree and a half~~ 43'.3 of arc out of the meridian hence the azimuth error is so large ~~that~~ it cannot be determined with very great accuracy by ~~the~~ stars observed as would have been ordinarily the case. From

ν Hydrae	−15° 40	~~Az~~ in clin	50.73	51.25
δ Leonis	+21° 4		51.78	
ψ Ur Maj.	+45° 2		50.56	50.56

Azimuth of Russian Transit Will be adjusted

51.25 × 1   125

50.56 × 3   168

4 | 293

50.73

Hod is fast

$50^s.7$

at 10^h 30^m Sid Time

April 10.4, 1900

☞ This superseded by result on following page.

Further Reduction

April 10.1900.

n from υ Urs Maj. +59°30 and γ Hydrae −15°40

υ Urs Maj +59°30
Circle W b = 23

log sec δ	0.2945	
log .23	9.3617	
	9.6562	+.453 = b sec δ
log sec δ	0.2945	
log 2 (i.e. coll. err.)	0.3010	
	0.5955	−3.941 = coll. corr.

T 9h 46 23.90
+.45 = b sec δ
−3.94 = coll. corr.
9 46 20.41
RA. 9 43 56.74
2m 23.67 fast

γ Hydrae −15°40
Circle W b = 23

log sec δ	0.0165	
log 23	9.3617	
	9.3782	+.239 = b sec δ
log sec δ	0.0165	
log 2	0.3010	
	0.3175	−2.077 coll. corr.

T = 10 43 3.85 = T
+.24 = b sec δ
−2.08 coll. error.
10 43 2.01
10 44 44.18 = RA.
1 42.17 slow

tan δ ~~+1.903 −2m 57.60~~
~~−.280 +1 42.17~~
~~2.186) 279.77~~

tan
+1.70 2m 23.67
−.28 1 42.17
+1.98 4 5.84
1.98) 245.84 (124.16 n

n = 124 ⟶ Using this n we get ~~coll. corrd~~ n corrections as follows: for

+59°30		−97.46
+43°25		− 4.10
−15	40	+148.12
+45	2	− 10.80
+21	4	+ 65.56

Re determination of coll. error.

λ Urs. Maj +43°25, Circle West
ψ Urs Maj +45° 2' Circle East } should give a good determination (other material being absent) of coll. error, when the assumed corrections for n are applied.

Hence

	λ Urs Maj +43°25		ψ Urs. Maj +45°2
T	10 12 0.69	T	11 5 5.36
	+.31	level	+.38
	−4.10	n. corr	−10.80
	10 11 56.90		11 4 54.94
RA.	10 11 7.25		11 4 5.95
	49.65		48.99

49.65
48.99
.66 diff
.33
log 9.5185
log cos 44° 9.8569
9.3754
.237
Coll corr = .24
− when circle is West

We have then

	W +59°30	W +43°25	W −15°40	E +45°2	E +21°4
T	9 46 23.90	10 12 0.69	10 43 3.85	11 5 5.36	11 8 32.99
Coll corr.	−.49	−.35	−.26	+.35	+.27
Level corr.	+.31	+.31	+.31	+.38	+.38
n correction	−1 37.46	−4.10	+2 28.12	−10.80	+1 5.56
	9 44 46.26	10 11 56.55	10 45 32.02	11 4 55.29	11 9 39.20
R.A.	9 43 56.74	10 11 7.25	10 44 44.18	11 4 5.95	11 8 50.43
	49.52	49.30	47.84	49.34	48.77

Using +43°25, +45°2 } we get Frod 1327 is fast 49s.32 } April 10, 1900 at 10h 30 Sid Time

Saturday April 14, 1900

Russian Transit

J.A.D. Obsr

Circle W π Leonis I rej.; II last 3; III, IV, V all +8° 31

Circle W { η Leonis +17° 15 last 3
α Leonis +12° 27 last 3
λ Hydrae −11 51 last 4 }

Circle W χ Urs Maj +43° 25

~~Circle E~~

Circle E μ Urs Maj +42° 0 (last ~~II all~~)
" E 31 Leo Min +37° 13 last 4

Circ E

Circle East

Bubble	E	W
E	13.5	15.3
E	12.0	16.6
W	14.7	14.0
W	14.7	14.2
	4)54.9	4)60.1
	13.73	15.03

15.03 W
13.73 E
)1.30
.65
.15
−.10 = b W high

b sec φ = .14

Circle West

Bubble		
E	14.7	14.0
E	15.2	13.6
W	15.0	13.5
W	16.4	12.0
	4)61.3	4)53.1
	15.33	13.28

13.28 W
15.33 E
2)2.05
1.02
.15
−.15 = b E high

b sec φ = .21

Circle W α Urs. Maj +62° 17

Circle W after I & II
Circle E last 2 wires

Last min 11h 3

April 15 $\frac{10}{10}$

22^h 40 ESMT.

JAS br

Russian Transit

Level

Circle E Bubble

	E	W
W	14.4	14.0
W	14.0	14.4
E	15.0	13.6
E	16.3	12.2
	4)59.7	4)54.2
	14.93	13.55

E 14.93
W 13.55
2)1.38
.69
.15
.10 = b E high
Circle E

Circle W

	E	W
W	13.6	14.6
W	13.9	14.5
E	15.4	13.0
E	15.0	13.6
	4)57.9	4)55.7
	14.48	13.93

E 14.48
W 13.93
2).55
.28
.15
.42 = b E high
Circle W

April 14, 1900

J A Dunne. obsr.

Russian Transit

	Circle W	Circle W	Circle W	Circle W	Circle E
	π Leonis	η Leonis	α Leonis	λ Hydrae	μ Urs. Maj.
	+8° 31	+17° 15'	+12° 27'	−11° 51'	+42° 0'
apparent	III IV V	III IV V	~~III~~ IV V	II III IV V	V
	9h 56	10h 2	10h 4	10h 6	10h 18
	3.6 25.3 46.2	55.1 17.6 43.7	30.0 51.2	39.0 42.9 0.5 21.9 44.0	1.8
	6.7 28.1 49.7	59.1 21.4 47.5	33.6 55.2	46.3 4.3 25.6 47.6	6.6
	10.3 31.6 53.3	2.8 25.0 51.0	37.2 58.5	49.5 8.2 29.8 51.2	11.4
	13.6 35.3 56.3	6.5 28.6 54.6	40.6 2.4	53.5 11.5 33.0 54.8	16.5
	17.3 38.8 .06	10.4 32.5	44.4 5.9	14.8 36.6 58.5	21.0
	515 1591 2661	3139 1251 47.40	1858 2932	2312 393 1469 2561	573
	10.30 31.82 53.22	2.78 25.02	37.16 58.64	46.24 7.86 29.38 51.22	11.46
log i	7.4771 1.3274 1.6290	7.4771 1.3274 1.6290	1.3274 1.6290	1.3281 7.4771 1.3274 1.6290	1.6299
log sec	0.0048 0.0048 0.0048	0.0201 0.0201 0.0201	0.0104 0.0104	0.0094 0.0094 0.0094 0.0094	0.1289
	7.4819 1.3322 1.6338	7.4972 1.3475 1.6491	1.3378 1.6394	1.3375 7.4865 1.3368 1.6384	1.7578
	.00 21.49 43.02	.00 22.26 44.58	21.77 43.59	21.75 .00 21.72 43.49	57.25
	10.30 10.33 10.20	2.78 2.76 2.82	15.39 15.05	7.49 7.86 7.66 7.73	10h 17 14.21
T	9h 56 10.28	10h 3 2.73	10h 4 15.22	10h 7 7.81	10h 17 14.21
				− .20 coll	
				− .15 b sec	
				10h 7 7.46	
				10 5 45.29 R.A.	
				Inst 1 22.17	

b sec φ	~~4~~ −.21	~~4~~ −.21	~~4~~ −.21	~~4~~ −.21	+.14
c sec δ	−.20	−.20	−.20	−.20	+.27
n (tan δ tan φ)	−22.99	−18.84	−20.78	−33.84	−.39
	−23.40	−18.55	−21.19	−34.25	+.02
	9h 55 46.88	10h 2 44.48	10 3 54.03	10h 6 33.56	10h 17 14.23
	9 54 58.33	10 1 55.68	10 3 5.43	10 5 45.29	10 16 25.52
	48.55	48.50	48.60	48.27	48.71

April 14
Continued

Circle W	Circle E	Circle W	Circle E
λ Urs. Maj.	31 Leon. Min.	α Urs. Maj.	
+43°25	+37°13	+62° 17	
I II III IV V	II III IV V	I II	V last 2 wires
10ʰ10	10ʰ22	10ʰ56	10ʰ59

47.0 16.1 45.5 14.5 44.5 | 36.5 ~~45~~ 19.9 47.2 | 10.5 ~~49.0~~ | 35.6
52.4 21.0 50.3 19.5 49.1 | 40.0 53.6 24.1 51.1 | 17.8 56.4 | 42.9
56.3 26.4 55.1 25.0 54.2 | 44.2 57.2 29.0 55.7 | 25.5 3.5
1.7 31.2 0.3 29.4 59.0 | 1.7 33.9 0.2 | 32.7 11.4
6.3 35.8 5.4 34.4 3.9 | 6.5 37.7 4.5 | 40.5 18.8
10.8 | 26.5

2837 1305 2766 1228 807 | 3098 1446 2787 | 1270 3566 | 785
56.74 26.10 55.32 24.56 54.14 | 1.98 28.92 55.74 | 25.40 11.32 | 39.25

red. .. 11.43
27.82 $\frac{t}{V}$ middle wire

1.6289 1.3281 7.4771 1.3274 1.6240 | 7.4771 1.3281 1.6289 | 1.6289 1.3281 | 1.6289
0.1387 0.1387 0.1387 0.1387 0.1387 | 0.0988 0.0988 0.0988 | 0.3324 0.3324 | 0.3324
1.7676 1.4668 7.6158 1.4661 1.7627 | 7.5759 1.4269 1.7277 | 1.9613 1.6605 | 1.9615

58.56 29.30 .00 29.25 58.57 | .00 26.72 53.42 | 91.47 45.76 | 91.52

55.30 55.40 55.32 55.31 55.57 | 1.98 2.20 2.32 | 56.87 57.08 | 7.73

10ʰ 11 55.38ˢ | 10ʰ 23 2.7 | 10ʰ 57 56.97 | 57 56.30 E
coll. −.42 | 57 57.17 W
bi. φ −.32 | 21.87
10ʰ 57 56.23 | .435
RA 10 57 37.64 | Pen δ 9.6385
Fast 18.59 | 9.6675
9.3060
.20 = coll. error
Correction =
+ when Circle E

Determ. of m
+62° 17 & −11° 5.1 δ
+1.90 −18.59ˢ
−.21 − 82.17
+2.11) +63.58 (430.13ˢ = m
633
280
211
690
633
570

δ −11° 5.1 48.27 W
+8° 48.55 W
+12 48.60 W
+17 48.50 W
+37 48.76 E
+42 48.71 E
+43 48.71 W
+62 49.05 E
+62 48.53 W
48.63

$\left.\begin{matrix}48.71\ E\\48.71\ W\end{matrix}\right\}$ 48.71

48.62×2
48.76×1
48.67

Circle W	Circle E	Circle W	Circle E
+ − .21	+.14	± .21	+.14
−.27	+.25	−.42	+.42
+ .99	− 4.64	+29.83	+29.83
+.51	−4.25	+29.20	+30.39
10ʰ 11 55.89	10 22 57.92	10ʰ 58 26.17	10ʰ 58 26.69ˢ
10 11 7.18	10 22 9.16	10 57 37.64	10 57 37.64
48.71	48.76	48.53	49.05

48.63 × 5 315
48.71 × 3 213
48.67 × 5 335
13) 863 (48.66

Frod 1327 is fast 48.66ˢ
at 10ʰ 20, Sid Time

April 15 $\frac{10}{10}$, 1900 JAS

24h 00 ESMT.

Adjustment of Russian Transit to meridian

At observation of April 10, 1900 the telescope was at azimuth mark 30.0. The resulting n value was $-124^{s}.16$ (see page 77). Moved next day the telescope to mark 25.0, five divisions.

Next observation was April 14, 1900 The resulting value of n was $+ 29^{s}.8$. Hence

5 divisions azimuth mark = $\left\{\begin{matrix}-124.16 \\ +29.8\end{matrix}\right\} = 15\overset{s}{3}.96$

Value 1 division Azimuth mark ☞ Hence $\underline{1 \text{ division}} = 30^{s}.792 = \underline{\underline{30^{s}.8}}$ in affect on constant n

Set telescope at collimation mark 26.0

~~Tuesday~~ Monday April 16, 1900

Russian Transit

JAD obsr

Circle W
- η Virgin m. −0°54 obs. III last & IV; V were obs
- ε Maj +56°30 lst 3
- ~~12 Can Ven seq +38°51~~
- ε Virginis +11°30 all

Circle W Bubble	E	W
E	16.0	11.6
E	16.0	11.7
W	15.0	13.7
W	15.0	13.7
	4)62.0	4)50.7
	15.5	12.68

15.5 E
12.68 W
2)2.82
1.41
.15
.21 = b E high
Circl W

Circle W →
- α Virginis −10°38 lst 2
- ~~8~~ 5 Ursi maj. pr. +55°27; IV last 4. V

Lead for Records

Circle E

Bubble	E	W
E	16.5	11.1
E	16.5	11.2
W	12.2	15.6
W	13.2	14.5
	4)58.4	4)52.4
	14.60	13.10

Last min. 13h 31

14.60
13.10
2)1.50
.75
.15
.11 = b E high
Circle E

Russian Transit J.A.D. obsr.

April 16, 1900
Monday

	Circle W	Circle W	Circle W	Circle W	Circle W
	γ Virginis	ε Maj.	ε Virginis	α Virginis	ζ Urs. Maj.
	$-0°54'$	$+56°30'$	$+11°30$	$-10°38$	$+55°27'$
	III	I II III	I II III IV V	I II	IV last 4; V:
	$12^h 37$	$12^h 48$	$12^h 57$	$13^h 20$	$13^h 21$
	25.5	56.1 34.6 13.5	16.6 38.6 5.4 21.6 43.9	28 24.5	× 45.6 51.7 583
	29.5	2.7 41.0 20.2	19.9 42.0 3.6 25.6 47.4	6.4 ×	14.4 59
	33.0	9.4 47.9 26.3	24.1 45.8 7.5 29.1 50.9	10.2 31.8	20.6 11.1
	36.8	15.7 54.3 32.3	27.6 49.6 10.9 33.0 54.5	14.0 35.5	26.5
	40.3	22.0 0.5 39.2	31.4 53.0 14.6 36.4 58.0	17.4 39.3	33.2
	1651	3459 2383 1315	1196 2290 370 1457 2547	508 956	615 2928
	3302	9.18 47.66 26.30	2392 4580 7.40 29.14 5094	10.16 31.87	20.50 58.56
b sec δ	0.0001	0.2581 0.2581 0.2581	0.0088 0.0088 0.0088 0.0088 0.0088	0.0075 0.0075	0.2463 0.2463
log i	7.4721	1.6289 1.3281 7.4721	1.6289 1.3281 7.4771 1.3274 1.6290	1.6289 1.3281	1.3274 1.6290
	7.4772	1.8870 1.5862 7.7352	1.6377 1.3369 7.4859 1.3362 1.6378	1.6364 1.3356	1.5737 1.8753
I	.00	77.09 38.57 .01	43.42 21.73 .00 21.69 43.43	43.29 21.66	37.47 75.05
	33.02	26.27 26.23 26.31	7.34 7.53 7.40 7.45 7.51	53.45 53.53	43.03 43.51
T	$12^h 37$ 33.02	$12^h 50$ 26.27	$12^h 58$ 7.45	$13^h 20$ 53.48	13 20 43.33
coll. corr.	−.20	−.36	−.20	−.20	−.36
b sec δ	−.20	−.36		−.20	−.36
	12 37 32.62	12 50 25.55		13 20 53.08	13 20 42.61
R.A.	12 36 38.67	12 49 41.42		13 19 58.60	13 19 57.46
	fast 53.95	fast 44.13		fast 54.48	fast 45.15

ε Maj ~~+56°30~~
+56°30

tan +56.5 +1.51   −44.13
tan −0.9 −.02   −53.95
1.53) + 9.82 (6.42 = n (no 1)
9.18
640
612
028

tan +55.45 = 1.452   −45.15
tan −10.62 −.187   −54.48
1.64) 9.33 (5.8 = n (no 2)
8 4 0
1 1 3 0
1 1 4 8

n from +56°30 and −10°38

−44.13 + 1.51
−54.48 −.19
10.35 1.70 (no 3)
1.70) 10.35 (6.09
10 20
1 5 0 0

Assumed n = $6^s.00$

tan δ	−.0157	+1.511	+.2035	−.1871	+1.453
tan φ	+.913	+.913	+.913	+.913	+.913
	+.929	+.598	−.710	−1.100	+.540
n corr =	$-5^s.57$	$+3^s.59$	$-4^s.26$	$-6^s.6$	$+3^s.24$
T	12 37 33.02	$12^h 50$ 26.27	12 58 7.45	13 20 53.48	13 20 43.33
coll. corr.	−.20	−.36	−.20	−.20	−.36
b sec φ	−.27	−.27	−.27	−.27	−.27
n correction	−5.57	+3.59	−4.26	−6.60	+3.24
	12 37 26.98	$12^h 50$ 29.23	12 58 2.72	13 20 46.41	13 20 45.94
RA.	12 36 38.67	12 49 41.42	12 57 14.97	13 19 58.60	13 19 57.46
	48.31	47.81	47.75	47.81	48.48

Means
48.03 Simple
47.96 weighted by [illegible]
47.99 arrangement
48.05 N term value
48.01

Trod 1327 is fast 0^m $48^s.00$ at 13^h 0^m Sid Time

Friday, April 20, 1900
Russian Transit J.A.D. obr

Circle W	ζ Virginis	−0°5	obs: first 3
Circle W	η Urs Maj.	+49°49	app I
Circle E	" "	"	app IV last 2 w: all 4 V
Circle W	η Boötes	+18°54	all
" W	τ Virginis	+2°2	first 2: last 2
" ~~E~~ W	α Draco	+64°51	first 2
E	" "	"	app IV last 2 w: V if more obs put the last rev. in 1st w. & last in 5th wire

Level

Circle East

	E	W
Bubble W	12.4	14.0
W	12.0	14.5
E	16.0	10.6
E	16.2	10.3
	4)56.6	4)49.4
	14.15	12.35

E 14.15
W 12.35
2)1.80
.90 East
.15
.13 = b
E high, Circle E

Circle West

W	13.8	13.3
W	12.0	14.6
E	16.7	9.6
E	17.3	9.2
	4)59.8	4)46.7
	14.95	11.68

14.95 E
11.68 W
2)3.27
1.63
.15
815
1.63
.2445
.24 = b
E high Circle W

Last min
−14 18

Russian Transit. JAD. obsr

Friday
April 20, 1900

	Circle W	Circle W	Circle E	Circle W	Circle W	Circle W	Circle E
	ζ Virginis	η Urs Maj.	η Urs. Maj.	η Bootis	τ Virgin.	α Drac	α Drac
	−0°5'	+49°49'	+49°49'	+18°54	+2°2	+64°51	+64°51
	I II III	I	III/2w. V	I II III IV V	I II–IV V	I II	V V
	13h29	13h43	45m	13h49	13h56 13h57	14h0	last 2 14h 3m ; 14h 3
	366 57.7 19.0 40.2 13 22.5 43.8 47 25.9 47.2 84 29.6 50.5 11.9 33.0	10.0 15.3 20.6 26.5 31.7	x 20.9 x 26.5 x 32.0 4.8 37.6 10.1 43.0	52.5 15.6 38.0 0.3 22.7 56.9 19.0 41.5 4.1 26.6 0.6 23.0 45.2 7.8 30.0 4.5 27.0 49.0 11.4 33.7 8.0 30.4 52.6 15.0 37.6	33.0 55.0 37.4 58.3 37.3 58.1 41.4 2.0 40.4 2.2 44.6 5.5 44.4 5.3 48.2 9.0 47.7 9.0 51.2 12.9	35.6 25.7 44.1 33.3 (54.0) 42.5 09 50.2 9.0 59.5	x x x 30.4 39.0	54.5 3.5 12.0 x lost 27.9
	2183 3240 1300 4366 480 2600	1041 2082	1600 3200	3025 11.50 2263 386 1506 0.50 2300 4526 7.72 30.12	2034 0296 2228 4068 1.98 4456	5342 63 ; 5272 5240	2112 4224	m.43 11.47
log i	1.6289 1.3281	1.6289	1.6289	1.6289 1.3281 1.3274 1.6290	1.6289 1.3281 1.3274 1.6290	1.6289 1.3281		1.6289
log sec δ	0 0	0.1902	0.1902	0.0241 0.0241 0.0241 0.0241	.0003 .0003 .0003 .0003	0.3716 0.3716		0.3716
		1.8191	1.8191	1.6530 1.3522 1.3515 1.6531	1.6292 1.3284 1.3277 1.6293	2.0005 1.6997		2.0005
	42.55 21.28	65.93	65.93	44.98 22.50 22.47 44.98	42.58 21.30 21.77 42.59	100.1 50.08		100.1
	26.21 26.08 26.00	26.75	26.07	45.48 45.50 45.26 s25, s14		14h2 32.81 b corr. .56 32.25		31.37 .31 31.06
	13h 30 26.09	13h 44 26.75	13 44 26.07	13h 50 45s.33	13h 57 23.05			

Circle West find
+64°51 +49°49 −0°5
2 32.81 44 26.75 30 26.09
−.47 (c and) −.30 (c and) −.20
2 32.34 44 26.45 30 25.89
1 44.60 43 39.37 29 38.92
−47.74 −47.08 −46.97

−47.74 47.13
−46.97 or
.77 2.13).77(.36 = m
639
1310

+1.2 47.08
or 46.97
+1.2 1.2).11(.1 = m
m = .3
assumed

Coll.
computation.

26.75 W 26.39
26.07 E 25.87
2)1.68 2)1.52
.34 .26
log 9.5315 9.4150
log sec δ 9.8099 9.8097
9.3412 9.2247
.2195 coll .168 = coll

weights from dec.
.16 × 5 85
.26 × 3 78
8)163
.20
ass. coll = .20

W 32.25
E 31.06
2)1.19
.60
log 9.7782
log cos δ 9.6284
9.4066
.255 = coll

Coll = .20, + to T, circle E

determination
~~+64°51, +49°49, −0°5'~~
~~2 31.66 44 26.13 30 26.09~~
~~−.24 b and δ~~
~~−.20 c and δ~~
~~2 31.66 44 26.13 30 25.65 = T + red'd~~
~~1 44.60 43 39.37 29 38.92 = R.A.~~
~~−47.06 −46.76 −46.73~~
~~+2.13 +1.08 0.00 c and~~
~~−47.06 +2.13~~
~~−46.73 or~~
~~2.13).33(.15 = n~~
~~213~~
~~1170~~
~~from~~
~~+49°49 } n = .00~~
~~−0°5~~
assumed
m = .1

n unsatisfactory

−0°5 W	+49°49 W	E	+18°54 W	+2°2 W	+64°51 W	E Circle
13h30 26.09	13 44 26.75	26.07	13h 50 45.33	13h 57 23.05	14h 2 32.81	31.37 = T
−.24	−.37	−.20	−.25	−.24	−.56	−.30 = b sec φ
−.20	−.30	+.30	−.21	−.20	−.27	+.27 = c sec δ
+.27	−.08	−.08	+.18	+.27	−.36	−.36 = n con.
−.17	−.75	+.02	+.68	−.17	−1.19	−.39
13h 30 25.92	13 44 26.00	26.09	13 50 [illegible]	13h 57 22.88	14h 2 31.62	30.98
13 29 38.92	13 43 39.37	39.37	1349 58.45	13 56 36.50	14h 1 44.60	44.60
47.00	46.63	46.72	46.86	46.38	47.02	46.38

Frod 1327 is fast 0m 46s.80
at 13h 45m Sid Time

Russian Transit, April 24, 1910 LLD. obsr

Circle W	ε Virginis	+11°30	all tables
" W	43 Comae	+28°23	all "
" W	γ Hydrae	−22°39	1st 2 tables
" W	5 Urs Maj pr	+58°27	1st table
" E	"	"	IV last 3 w; V; also following

further star 4th wire on IV th. 1st 15th wire good.

Level

Circle East

Bubble	E	W
W	13.0	16.0
W	12.3	16.7
E	18.0	11.0
E	18.3	10.6
	4)61.6	4)54.3
	15.40	13.58

E 15.40
w 13.58
2)1.82
.91 East
.15
.13 = b
E high, Circle E

Circle West

Bubble		
W	12.0	16.8
W	12.1	16.8
~~W~~E	18.8	10.2
E	18.6	10.5
	4)61.5	4)54.3
	15.38	13.58

E 15.38
w 13.58
2)1.80
.90 East
.15
.13 = b
E high Circle W

Circle W η Urs Maj. +49°49 all tables.

Last minute 13m 47

Russian Transit: JAD. Obsr.

April 24 1900

	ε Virginis	43 Comae	γ Hydrae	ζ Urs. Maj.		Fnd. st	η Urs. Maj.
	+11° 30′	+28° 23′	−22° 39′	+55° 27		+55° ~~27~~ 21 4th mag	+49° 49
	I II III IV V	I II III IV V	I II	I ; IV V		IV	I II III IV V
Circle	W	W	W	W	E	E	W
	12h ~~56~~ 57	13h ~~6~~ 7	13h ~~12~~ 13	13h ~~18~~ 19	; ~~20~~ 21	13h ~~21~~ 22	13 ~~42~~ 43
	9.0 30.5 52.2 14.2 35.6	4.0 28.3 52.0 16.3 40.5	22.6 45.5	15.1	+ 45.0	26.6	8.0 40.3 13.0 46.3 19.4
	13.0 34.4 56.0 17.6 39.3	7.8 32.4 56.5 20.8 44.7	26.4 49.3	22.0	12.7 51.0	32.6	12.8 45.9 19.3 52.0 25.3
	16.5 38.0 59.6 21.4 43.0	12.1 36.6 0.5 24.6 48.9	30.3 53.3	28.0	19.7 57.0	37.8	18.8 51.5 24.2 57.1 30.5
	20.0 41.4 3.2 24.9 46.7	16.2 40.2 4.5 28.4 52.7	34.4 57.0	34.2	26.0 3.7	42.6	24.2 56.8 30.3 2.5 35.9
	23.4 45.0 6.8 28.2 50.3	19.9 43.6 8.1 33.0 56.6	38.0 1.0	40.3	31.9 9.6	51.8	29.7 2.2 35.5 8.2 41.7
	819 1893 2978 1063 2149	600 1811 3016 1231 2434	1517 2661	1396	584 2863	3828	935 2567 1223 2861 1528
	16.38 37.86 59.56 21.26 42.98	12.00 36.22 0.32 24.62 48.68	30.34 53.22	27.92	19.47 57.26		18.70 51.34 24.46 57.32 30.56
log i	1.6289 1.3281 1.3274 1.6290	1.6289 1.3281 1.3274 1.6290	1.6289 1.3281	1.6289	1.3281 1.6289	1.3281	1.6289 1.3281 1.3274 1.6290
log sec δ	0.0088 0.0088 0.0088 0.0088	0.0557 0.0557 0.0557 0.0557	0.0349 0.0349	0.2463	0.2463 0.2463	0.2463	0.1903 0.1903 0.1903 0.1903
	1.6377 1.3369 1.3362 1.6378	1.6846 1.3838 1.3831 1.6847	1.6638 1.3630	1.8752	1.5744 1.8752	1.5744	1.8192 1.5184 1.5177 1.8193
I =	43.42 21.73 21.69 43.43	48.38 24.20 24.16 48.39	46.11 23.07	75.02	37.53 75.02	37.53	65.95 32.99 32.94 65.97
	59.80 59.59 59.56 59.57 59.55	0.38 0.42 0.32 0.46 0.29	16.45 16.29	42.94	41.94 42.24	21 0.75	24.65 24.33 24.46 24.38 24.59
T =	12h ~~56~~ 57 59.61	13h ~~7~~ 8 0.37	13h ~~13~~ 14 16.37	42.94	42.14	~~21~~ 22 0.75	13 ~~43~~ 44 24.48

Remark: The times should be increased by one minute

Collimation corr.

42.94 West
42.14 East
2) 1.80
.40
log 9.6021
9.7536
9.3557 C = .22
− when W (circle)

Level same { 2d. / 28 w

n Determination

	+55° 27 Circle W	γ Hydrae Circle W
T =	13h ~~19~~ 20 42.94	13h ~~13~~ 14 16.37
c sec δ =	− .39	− .24
	13 ~~19~~ 20 42.55	13 ~~13~~ 14 16.13
R.A.	13 19 57.44	13 13 32.31
	− 45.11	− 43.82

tan δ +1.45 −45.11 0.1106
−.42 −43.82 0.2718
+1.87 −1.29 9.8388
.69
n = .7

	ε Virginis	43 Comae	γ Hydrae	ζ Urs. Maj. W	ζ Urs. Maj. E	Fnd. st	η Urs. Maj.
b sec φ	− .18	−.18	−.18	−.18	−.18	−.18	−.18
c sec δ	− .22	− .24	− .24	− .38	+.39	+.38	− .33
n(tan δ tan φ)	+ .49	+ .28	+ .94	−.37	−.37	−.37	− .19
	+.09	−.14	+.52	−.94	−.16	−.17	−.70
	12h 57 59.70	13h 8 0.23	13h 14 16.89	20 42.00	20 41.98	22 0.58	13h 44 23.78
R.A.	12 57 14.98	13 7 15.52	13 13 32.31	19 57.44	57.44	—	13 43 39.37
	44.72	44.71	44.58	44.56	44.54		44.41

δ	fast		
−22°	44.58	58	67×2 134
+11	.72	72	
+28	.71	71	← 71
+49	.41	41	← 41 } .56
+55	.56	55	.48×3 144
+55	.54		5) 278
	59	.59	.56

Mean 44.57

Frod 1327 is fast 44.57s

at 13h 20m Sid Time

Russian Transit

April 27, 1900 — J.A.D. obsr.

Rattle before 12h 22m

Circle E W κ Draconis +70°20′ II
" E W β Corvi −22°50 IV
Circle ~~W~~ E κ Draconis +70°20 V last 2 wires; doubtful.
" E W [γ Virg. mean] −0°54 V
" E W ε Ursa Maj. +56°30 1st lacks ~~IV~~? (Five? in Reading)
" E W 12 Canum venat. +38°52 last 3 wires
" E W ε Virginis +11°30 all latter

Level:

Circle ~~E~~W

Bubble	E	W
E	20.9	8.6
E	20.9	8.5
W	11.7	17.8
W	11.9	17.6
	4)65.4	52.5
	16.35	13.13

E 16.35
W 13.13
2)3.22
1.61 East
.15
.24 = b

Circle ~~E~~W 43 Comae +28°23 all latter; lessen weight

Circle ~~W~~ E; Bubble

	E	W
E	22.6	7.1
E	21.2	8.4
W	9.9	19.5
W	9.8	18.7
	4)63.5	4)53.7
	15.88	13.43

E 15.88
W 13.43
2)2.45
1.23 East
.15
.18 b

~~Last minute~~

Rattle after 13h 18

Russian Transit

JAD. obs.

April 27. 1900
Friday.

	x Draconis		β Corvi	[γ Virginis ...]
	+70°20		−22°50	−0°54′
	Cir E W	Cir ~~W~~ E	Cir E W	~~Cir W~~ E W
	II	Flat 2w.	IV	V
	12ʰ28	12ʰ ~~30~~ 32ᵐ	12ʰ30	12ʰ37
	39.7	~~10.6~~ ×	10.6	58.6
	49.2	~~14.5~~ ×	14.5	2.2
	0.5	~~18.3~~ ×	18.3	5.6
	11.0	~~21.9~~ 20.6	21.9	9.0
	21.6	~~25.8~~ 30.1	25.8	12.6
	3020	25.35	911	3280
	0.40		18.22	5.60
log i	1.3281	1.6799	1.3274	1.6290
log sec δ	0.4729	0.4729	0.0354	0.0001
	1.8010	2.1528	1.3628	1.6291
	6.324	142.1	23.06	42.57
T	12ʰ30ᵐ3ˢ.64	30 3.25	12ʰ29ᵐ55ˢ.16	12ʰ37ᵐ23.03

Coll. Determination:

+ .99 b sec δ   + .74
~~2.92~~   3.99
4.63

2.64
.32
log 9.5051
l sec δ 9.6278
9.0322 = .11 = c, − to Cir W

2.93
2.21
2|1.21 1
.10

463
3.49
.64 = 2c sec δ +70°20

l sec δ
log .10 = 9.9278 ~~[illegible]~~ 8.5278 .03 = coll. corr.

Will retain
old value c = ˢ.20
− when circle W

n Determination

Circle W		Circle W			
+70−20		−22−50			
T. 12 30 3.64		12ʰ 29 55.16	+2.797	−45.73	0.2788 −
c. sec δ	−.60	−.22	−421	−43.83	0.5076
12 30 3.04		12 29 54.94	+3.218	−1.90	9.7712 n
R.A. 12 29 17.31		12 29 11.11			.5905
4573		43.83			

rejected this value n = −.6 see −

b sec φ	−.32	−.24	−.32	−.32
c sec δ	−.60	+.60	−.22	−.20
n(tan δ − tan φ)	~~−.38~~ −1.73	~~−1.38~~ −1.73	~~+1.27~~ +1.21	~~+1.22~~ (Mean value) +.86
	~~−1.30~~ −2.65	~~−.02~~ 1.37	~~−.27~~ +.67	~~−.33~~ +.34
	12ʰ 30 0.99 ~~2.34~~	12ʰ 30 1.88 ~~3.23~~	12ʰ 29 55.83 ~~54.89~~	12ʰ 37 23.32 ~~22.70~~
R.A.	12 29 17.31	12 29 17.31	12 29 11.11	12 36 38.66
	~~45.03~~	~~45.92~~	~~43.78~~	~~44.04~~
	43.68	44.57	44.72	44.71

−22°	44.72	
−0	44.71	
+11	44.62	} 70×3 0
+28	44.70	}
+38	44.78	
+56	44.74	} 74+2 8
+70	.71	5 ⟌44.72

Continued.

ε Urs maj.	12 Can Ven seq.	ε Virginis	43 Comae
+56°30′	+38°52	+11°30′	+28°23
I II III ~~IV~~	Cir E W	I II III IV ~~V~~	cir. ~~E~~ W
Cir ~~E~~. W	V last 3 wires	Cir ~~E~~ W	I II III IV V
12h 48m	12h 53	12h 57m	13h 7m
57.5 35.7 14.2	x	8.6 30.5 52.2 13.8 35.5	3.6 28.4 52.5 16.7 40.7
4.0 42.1 20.8	x	12.4 34.0 55.8 17.5 39.4	8.0 32.5 56.5 20.4 44.6
10.8 lost 27.2	4.0	16.0 37.9 59.7 21.1 42.9	12.0 36.5 0.3 24.5 48.8
16.4 53.4 33.5	8.6	19.5 41.4 3.4 24.7 46.5	16.1 39.8 4.7 29.0 x
23.3 1.4 x	13.0	23.5 45.0 6.7 28.5 50.0	19.9 44.4 9.0 32.3 56.5
35.20 19.46 81.5	25.6	80.0 188.8 297.8 105.6 214.3	59.6 181.6 303.0 122.9 146.0
10.40 ~~38.92~~ 48.65 27.17	8.54	16.00 37.76 59.56 21.12 42.86	11.92 36.32 0.60 24.58 48.67
1.6289 1.3281 ~~7+~~	1.6630	1.6289 1.3281 – 1.3274 1.6290	1.6289 1.3281 – 1.3274 1.6290
0.2581 0.2581	0.1087	0.0088 0.0088 0.0088 0.0088	0.0556 0.0556 0.0556 0.0556
1.8870 1.5862	1.7717	1.6377 1.3369 1.3362 1.6378	1.6845 1.3837 1.3830 1.6846
	59.12		
77.09 38.57	– 52 9.42	43.42 21.73 21.69 43.43	48.37 24.19 24.15 48.38
29.49 27.22 27.17		59.42 59.49 59.56 59.43 49.43	0.29 0.51 0.60 0.43 0.29
12h 50m 27.29s	12h 52m 9.42	12h 57m 59.47	13h 8m 0.42

n from

+56°30

δ −22°50

Circle W

+56°30

12 50 27.29

– 36 cand 1.51 – .421 1.93) 45.61 43.83 1.78

12 50 26.93

12 49 41.37

45.64

0.2504

0.2836

9.9648

.92 = n

Used

n = .92

ε Urs maj.	12 Can Ven seq.	ε Virginis	43 Comae
–.32	–.32	–.32	–.32
–.36	–.26	–.20	–.22
+ ~~.x5~~	~~+.02~~ +.10	~~+.14~~ +.65	~~+.08~~ +.34
~~–.55~~			
~~–.84~~ –1.23	~~–.56~~ –.48	~~–.38~~ +.13	~~–.46~~ –.20
12h 50 ~~26.49~~ 26.06	12h 52 ~~8.86~~ 8.94	12h 57 ~~59.09~~ 59.60	13h 7 ~~59.96~~ 60.22
12 49 41.32	12 51 24.16	12 57 14.98	13 7 15.52
~~45.17~~ 44.74	44.78	~~44.11~~ 44.62	~~44.44~~ 44.70

Frod 1327 is fast 0m 44.72s

at 12h 50m Sid Time

Azimuth: Remark: ~~off~~ Adjusted azimuth Russian Transit. April 29 $\frac{10}{10}$, 23^h 40 E.S.M.T.
by turning azimuth screw $\frac{1}{40}$th of one revolution. JAD.

Russian Transit

Monday, April 30, 1900 JAD obsr

Rattle before 13^h ~~34~~ 30^m

Circle W τ Boötis +17°57 1st 3 tallies
Circle W η Urs. Maj. +49°49 last 3 tallies
Circle W η Boötis +18°34 all tallies
Circle W τ Virginis +2°2 1st 4 tallies
Circle W α Draconis 1st tally
Circle E " " " IVth last 3 w; all of Vth
Circle E λ Boötis +46°33 all tallies; obs. difficult.

Rattle after 14^h 15

Level:–

Circle East ✓

Bubble	E	W
~~E~~ W	2.9	240
~~E~~ W	2.5	24.3
~~W~~ E	23.7	2.9
~~W~~ E	23.7	3.0
	4⌊52.8 13.20	4⌊54.2 13.55

E 13.20
W 13.55
2⌊.35
.18 West
.15
.03 = b

Circle West ✓

Bubble		
W	2.7	24.0.
W	3.0	23.6
E	24.1	2.6
E	24.3	2.4
	4⌊54.1 13.53	4⌊52.6 13.15

E 13.53
W 13.15
2⌊.38 East
.19
.15
.03 = b

Russian Transit: J.A.D. obsr.

Monday, April 30-1900

τ Bootis	η Urs. Maj.	η Bootis	τ Virginis	α Drac.	α Drac	λ Bootis
+17°57	+49°49	+18°54	+2°2	+64°51	+64°51	+46°33
Cir. W	Cir. W	Cir. W	Cir. W	Cir. W	Cir. E	Cir. E
App. I II III	~~II~~ III IV V	I II III IV V	I II III IV ~~V~~	app I	app V	I II III IV V
13h 42	13h 44	13h 49	13 56	14h 0	3	14h 12
25.5 48.1 10.4	19.0 46.5 19.5	50.1 12.5 57.5 20.3	30.8 52.2 13.3 34.5	33.4	52.6	9.9 41.0 12.1 42.6 13.8
29.6 52.1 14.0	24.2 51.8 24.9	54.0 16.4 15 23.9	34.3 55.5 16.9 38.0	41.6	1.5	15.1 46.4 17.2 48.6 18.9
33.4 55.6 17.8	29.9 57.5 30.4	58.0 20.1 5.3 27.6	38.2 59.0 20.5 41.7	50.2	9.8	20.0 51.5 22.5 53.4 24.2
37.2 59.5 21.5	35.3 2.9 36.0	1.5 24.0 9.0 31.5	41.6 2.7 23.9 45.2	58.2	18.2	25.6 56.6 27.6 58.5 29.3
40.5 3.0 25.3	13.5 8.3 41.4	5.2 27.5 12.8 35.2	45.1 6.3 27.5 48.9	6.9	26.0	30.4 1.3 32.5 4.0 34.3
1662 2783 890	1219 2870 1522	2888 1005 3261 1385	1900 2957 1021 2083	2503	3481	1010 2568 1119 2671 1205
33.24 55.76 17.60	24.38 57.40 30.44	57.76 20.10 5.22 27.70	38.00 59.14 20.42 41.66	50.06	9.62	20.20 51.36 22.38 53.42 24.10
0.0218 0.0218 0.0218	0.1903 0.1903 0.1903	0.0241 0.0241 0.0241 0.0241		0.3716	0.3716	0.1626 0.1626 0.1626 0.1626 0.1626 ~~log i~~ log sec δ
1.6289 1.3281 –	– 1.3274 1.6290	1.6289 1.3281 1.3274 1.6290		1.6289	1.6289	1.6290 1.3274 – 1.3281 1.6289 log i
1.6507 1.3499	1.5177 1.8193	1.6530 1.3522 1.3515 1.6531		2.0005	2.0005	1.7916 1.4908 1.4907 1.7915
44.74 22.38 0	0 32.94 65.97	44.98 22.50 22.47 44.99	42.53 21.28 – 0 21.26	100.1	100.1	61.89 30.90 30.95 61.87
17.98 18.14 17.60	24.38 24.46 24.47	42.74 42.60 42.75 42.71	20.55 20.42 20.42 20.40	2 30.16	2 29.52	22.09 22.26 22.38 22.47 22.23
13h 43 17.91	13h 44 24.44	13h 50 42.70	13h 57 20.45	14h 2 30.16	2 29.52	14h 13 22.29 = T

Collimation determination:-

from α Drac
Cir W 30s.16 −.07 = 30.09
Cir E 29s.52 +.07 = 29.59 b sec δ
50 diff

log .50 = 9.6990
l cos δ 9.6276
9.3266 = .21 = 2c.
∴ .11 = coll. corr.
− when Cir. is W.

From +49°49 and +46°33
Cir W 13 44 24.44 −.04 = 13 44 24.40
13 43 39.37
45.03
Cir E 14 13 22.29 = T +.04 b sec δ = 14 13 22.33
14 12 38.09 R.A
44.24
diff .79 = 2c

log .40 = 9.6021
l cos 48° = 9.8255
9.4276 = .27 = c

−.11
−.27
.38
−.19 Assumed
Mean = −.20

collimation correction = 0s.20, minus to T when Circle is West

n Determination

α Drac +64°51 Cir W
14h 2 30.16
− .47
14 2 29.69
14 1 44.59
45.10

τ Virginis +2°2 Cir E
13h 57 20.45 = T
− .20 = c sec δ
13 57 20.25
13 56 36.55 RA.
43.70

tan δ
+2.135
+ .035
2.100

45s.10
43.70
) 1.40 (.666
1.26
140

n = 2s/3
n = s.666

13h 43 17.91	13 44 24.44	13h 50 42.70	13h 57 20.45	14h 2 30.16	2 29.52	14h 13 22.29 = T
− 04	− 04	− 04	− .04	− .04	+ 04	+.04 = b sec φ
+ .40	− .18	+ .38	+ .54	− .84	− .84	− .09 = n(tan δ − tan φ)
− .21	− .31	− .21	− .20	− .47	+ .47	+ .29 = c sec δ
+ .15	− .53	+ .13	+ .35	− 1.35	− .33	+ .24
13h 43 18.06	13 44 23.91	13 50 42.83	13h 57 20.80	14h 2 28.81	2 29.19	14h 13 22.53
13 42 33.69	13 43 39.37	13 49 58.49	13 56 36.55	14 1 44.59	44.59	14 12 38.09 R.A.
				44.22	44.60	
44.37	44.54	44.44	44.25	44s.41		44.44

δ	
+2°	44s.25
+17	.37
+18°	.44
+46	.44
+49	.54
+64	.41
	24 5
	44.41

.44 .54 } .49

} ~~.2~~.106 .35 × 1 = .35
} .49 × 2 = .98
3) 1.33
.44

.41
.49
.44
Gen mean 44.44

Frod 1327 is 44s.44 fast

at 14h 00 Sid Time

Russian Transit

May 4-1900

Friday night

Circle ~~E~~

Level JAD. obsr

Circle E West

	E	W
Bubble ~~W~~ E	244	21
~~W~~ E	257	07
~~E~~ W	23	243
~~E~~ W	23	243
	4)547 13.68	4)514 12.85

E 13.68
w 12.85
2)83
.41 = East high
.15
.06 = b
~~1.35~~
~~5.68 = b [illegible]~~

~~Circle~~ E
Circle West

γ Urs. maj.	+54 15	all t's	4th obs
β Virginis	+2 20	last 4 t	3rd obs
β Leonis	+15 8	1st 3 t	2nd obs
χ Urs. maj.	+48° 20	1st 3 i [illegible]	1st obs

E W
13.68 12.85
13.18 ~~13.55~~
13.43 13.20
13.20
2)23
.11
.15
.02 E high
b =

Circ ~~E~~ West

Level	E	W
Bubble W	25	243
W	26	240
E	240	29
E	236	30
	4)527 13.18	4)542 13.55

E 13.18
w 13.55
2).37
.19 West high
.15
.03 = b

Long rattle through 11ʰ 56 min (beginning)

Level observation May 4 $\frac{10}{10}$ at 2 5" 05 E.S.M.T

Circle W - Bubble	E	W
E	268	07
E	24.5	3.1
W	3.0	24.5
W	17	258
	4)560 14.00	4)541 13.53

Bubble	E	W
W	20	255
W	30	244
E	245	30
E	245	30
	4)540 13.50	4)559 13.98

E 13.50
w 13.98
.48
.24
.15
.04 West high

E 14.00
w 13.53
2).47
.24
.15
b = .04 East high

Circle West:-
Russian Transit:-

May 4
1900

Friday May 4-1900 J.A.D. Ser

	χ Urs. maj. +48°20′	β Leonis +15°8′	β Virginis +2°20′	γ Urs. maj. +54°15′
	I II III	I II III	II III IV V	
	11h 40	11h 43	11h 45	11h 47
	x		±	
	17.3 55.7 21.6	51.0 16.6 35.0	44.9 6.5 x 49.1	53.6 32.1 8.5 44.9 21.8
	20.7 59.8 27.0	54.5 20.4 38.5	48.5 9.9 x 52.5	1.5 38.0 14.6 50.9 x
	28.3 5.6 32.6	58.2 x 41.9	51.9 13.5 34.4 56.3	7.8 44.6 20.8 57.3 ~~*~~ x
	32.9 10.8 37.5	2.1 x 46.0	53.5 17.2 38.5 0.0	14.5 50.8 27.2 3.4 39.4
	38.6 ~~21.6~~ 43.0	5.5 x 49.5	59.0 20.8 42.0 3.5	20.5 56.4 32.6 8.8 45.2
	842 1378 1811 1617	2913 2109	2598 679 2814	3399 2219 1037 2853
	28.07 27.56 60.37 32.34	58.26 42.18	51.96 13.58 56.28	7.98 44.38 20.74 57.06
log c	1.6289 1.3281	1.6289	1.3281 1.6290	1.6289 1.3281 1.3274
log sec δ	0.1773 0.1773	0.0153	0.0003 0.0003	0.2334 0.2334 0.2334
	1.8062 1.5054	1.6442	1.3284 1.6293	1.8623 1.5615 1.5608
	64.00 32.02	44.08	21.30 42.59	72.83 36.43 36.37
	32.07 32.39 32.34	42.34 42.18	13.26 13.58 13.69	20.81 20.81 20.74 20.69
	11h 41 32.27	11h 44 42.26	11 46 13.51	~~28.79 5.19~~ 11 49 20.76 = T

11 46 13.51
− 02
11 46 13.49
11 45 31.97
41.52

11 49 20.76 = T
− 03 sec δ
11 49 20.73
11 48 37.64 = R.A.
43.09

1.4] 1.57 [1.1
1.4
.17 n = 1.1

Used n = 1.1 ~~[illegible] n =~~ .666

−.03	−.03	−.03	−.03	b sec φ
−.30	−.21	−.20	−.31	c sec δ
−.25	+.70	+.97	−.53	n correction
−.58	+.46	+.74	−.87	
11h 41 31.69	11 44 42.72	11 46 14.25	11 49 19.89	
11 40 49.42	11 44 0.34	11 45 31.97	11 48 37.64	
~~42.38~~ 42.27	~~42.10~~ 42.38	~~41.89~~ 42.28	~~42.42~~ 42.25	

δ
~~+2~~ ~~41.89~~
~~+15~~ ~~42.10~~
+48 ~~38~~
+54 42

δ
+2° 42.28 } 33
+15 42.38 }
+48 42.27 } 29 ②
+54 42.25 } 27 ③
1.18
.30 ①

① 30
② 29
③ 27
86
42.29

Frod 1327 is fast

0m 42.29s

at 11h 45

Sid Time

Monday, May 7-1900 JPDobson

Russian Transit

Circle W ε Urs Maj +56°30 I II III

" W 12 Can Venat. +38°52 cut but lost wire

	E	W
Bubble W	27.1	0.1
W	24.5	2.7

Last wire 13ʰ 2

Chronograph defective.

Level:

Circle West

	E	W
Bubble W	27.1	0.2
W	24.5	2.7
E	3.0	24.4
E	0.5	26.6
E	0.0	27.0
E	2.8	24.5
W		
W		
	8)109.5 13.69	8)108.2 13.53

E 13.69
W 13.53
2)1.16
.08
.15
.01 = h
E high

May 7
1900
Monday

+56°30
ε Urs. Maj.
Circle W

	I	II	III
12ʰ48	54.0	32.3	10.7
	0.0	38.6	17.3
	6.7	45.1	23.7
	13.0	51.7	30.4
	19.4	57.8	36.7
	33.1	225.5	118.8
	6.62	45.10	23.76

fuge
log red

1.6289 1.3281
0.2581 0.2581
1.8870 1.5862
77.09 38.57

23.71 23.67 23.76

12ʰ 50ᵐ 23ˢ.71
12 49 41.18
42.53

+38°52
12 Can Ven seq.
Circle W

J A Dunne
observer,

12ᵐ51	×	28.8	56.5	23.9	51.5
	7.0	33.9	1.3	28.5	55.9
	11.4	38.3	5.7	33.0	0.3
	16.1	43.0	10.5	37.6	5.0
	20.6	47.4	15.0	42.4	9.6
		191.4	3290	165.4	302.3
		38.28	5.80	33.08	0.46

1.3281 1.3274 1.6290
0.1086 0.1086 0.1086
1.4367 1.4360 1.7376
27.33 27.29 54.66

5.61 5.80 5.79 5.80

12ʰ 52ᵐ 5ˢ.75
12 51 24.09
41.66

- - - - — —

c used

c = 0ˢ.20
— when circle is W

12 50 23.71
— .01
— .36
— .66
— 1.03

12 52 5.75 — T
— .01 6 sec φ
— .25 c sec δ
+ .11 m corr.
— .15

m used
= 1ˢ.1
— North of Z

12 50 22.68
12 49 41.18
41.50

12 52 5.60
12 51 24.09 R.A.
41.51

Frod 1327 is fast

0ᵐ 41ˢ.50

at 12ʰ 50ᵐ Sid Time

Russian Transit. JAD [illegible]

May 15.0

Transit of Sun:-

Level;

Circle W Bubble

	E	W
W	-2.3	+27.7
W	-1.4	+26.8
E	+24.5	+ 0.7
E	+ 26.7	- 1.5
4	+47.5	+53.7
	11.88	13.43

E 11.88
W 13.43
2 | 1.55
.77 W high
.15
.12 = b

Observed prec and foll. edges of sun each on 5 tallies.

Level immediately after

Circle W Bubble

		E	W
W	E	+22.2	-1.1
W	E	+22.7	-1.5
E	W	+1.1	+19.8
E	W	-0.8	+22.0
	4	45.2	39.2
		11.30	9.80

E 11.30
W 9.80
1.50
.75 E high
.15
.11 = b

Last minute 3^h 37

Adopted level zero:

May 15-1900 Russian Transit. J.A.D. obsr.

Transit of Sun :- Circle West:-

Preceding edge

Suns δ
+18° 52'.5

$3^h 26$	37.4	59.9	22.2	44.8	7.4
	41.1	3.3	26.2	48.7	11.3
	44.9	7.5	29.8	52.3	14.7
	48.7	11.1	33.6	56.3	18.5
	52.5	14.8	37.6	59.7	22.4
	2246	3366	1494	2618	743
	44.92	7.32	29.88	52.36	14.86

Following edge

$3^h 28^m$	51.0	13.6	36.5	58.7	21.5
	55.0	17.5	40.0	2.5	25.3
	59.0	21.3	43.8	6.4	29.0
	2.5	25.1	47.8	10.2	32.6
	x	28.5	51.2	14.0	36.4
	1765	1060	2193	3318	1448
	58.84	21.20	43.86	6.36	28.96

log 2	0.0240	0.0240	0.0240	0.0240
log sec δ	1.6289	1.3281	1.3274	1.6290
	1.6529	1.3521	1.3514	1.6530
log I	44.97	22.50	22.46	44.98

29.89	29.82	29.88	29.90	29.88

44.97	22.50		22.46	44.98
43.81	43.70	43.86	43.90	43.98

Prec:- 3^h 27 29.874
$\bar{1}$ 7.12
3 28 36.994

Fol:- 3 29 43.850
$\bar{1}$ 7.12 Time Transit Semi-diameter
3 28 36.730

Used
$n = 1^s.1$
$c = -.20$ Circle W

Mean $3^h 28^m$ 36.86 = T
.50 b sec ϕ
− .21 c sec δ
+.63 n corr
3^h 28 37.28
3 27 58.46 R.A.
$38^s.82$

R.A. app noon Washington
april 15- $3^h 28^m 2^s.41$

Diff long. Wash & Camb.} = $23^m.745$
= .3957 hour
Suns hourly motion
= $+9^s.87$

$9^s.87 \times .40 = +3^s.95$
Correction Wash to Camb $-3^s.95$
3^h 27^m 58.46

Suns transit at
Cambridge occurs
May 15 at
$3^h 27^m 58'.46$
Cambridge Sid Time

Frod 1327 is fast

$\bar{0}$ $38^s.80$ at

May 15.0

$3^h 30^m$ Sid Time

1900
May 17.0

Russian Transit. – J.A.D. Jr

Transit of Sun:–

		E	W
Level:	Bubble W	1.0	24.3
	W	13	24.0
Circle W	E	27.5	– 2.0
	E	26.3	– 1.0
		4 | 56.1	| 45.3
		14.03	11.33

E 14.03
W 11.33
2 | 2.70
1.35
.15
.20 = b
E high

Observed sun: both edges; all tallies

3 39 Last min

Cloudy:

Immediately after observation.

		E	W
Level:	E	24.4	– 1.0
	E	24.6	– 1.7
Circle W.	W	2.0	21.5
	W	0.4	23.3
		4 | 51.4	| 42.6
		12.85	10.65

E 12.85
W 10.65
2 | 2.20
1.10
.15
.17 = b
E high

b before observation .20
b after " .17
.19 = mean
E high

May 17-1900 Russian Transit:- J.A.D.- obsr.

Transit of Sun:- circle West

Suns δ
+19°20

Preceding edge

$3^h 34^m$	30.3	53.3	15.6	38.4	1.0
	34.8	56.8	19.6	42.3	4.9
	lost	0.7	23.1	46.0	8.5
	41.8	4.6	27.0	49.6	12.5
	45.5	8.3	30.6	53.4	15.9
	152.4	303.7	115.9	229.7	42.8
	38.10	0.74	23.18	45.94	8.56

Following edge

$3^h 36^m$	45.1	7.6	30.5	53.1	15.5
	48.7	11.5	34.3	56.6	19.3
	52.6	15.3	x lost	0.4	23.1
	56.4	18.9	x lost	4.1	27.0
	0.0	22.9	45.1	7.6	30.6
	262.8	76.2	75.6	301.8	115.5
	52.56	15.24	37.80	0.36	23.10

log i	1.6289	1.3281	1.3274	1.6290
log sec δ	0.0252	0.0252	0.0252	0.0252
	1.6541	1.3533	1.3526	1.6542
	45.09	22.56	22.52	45.10

Preceding edge:

23.19	23.30	23.18	23.42	23.46

Following edge:

45.09	22.56		22.52	45.10
37.65	37.80	37.80	37.84	38.00

Used
$m = 1^s.10$
$c = -^s.20$ Circle W

$3^h\ 35^m\ 23.32$ $3^h\ 37^m\ 37^s.82$

Suns movement. omitted as it is eliminated in mean } Mean $3^h\ 36^m\ 30^s.57$ = Transit by clock

−.26 = b sec φ
−.21 = c sec δ
+.62 = m correction

3	36	30.72	
3	35	53.34	RA.
		$37^s.38$	

Washington May 17-1900
R.A. app. noon = $3^h\ 35\ 57.31$.
Hourly rate of sun
$+9^s.917$
Diff long Wash & Camb.
= $23^s.745$, Camb. east
= .3957 hrs
$.4 \times 9^s.917 = +3.97$ $-3^s.97$
Suns transit $3^h\ 35\ 53.34$
at Cambridge, May 17.0, 1900

Clock 1327 is fast

$0^m\ 37^s.38$

at $3^h\ 30^m$

Sid Time

Sunday, May 20-1900

Russian Transit:— J.A.D. obs

Circle W	ε Corvi	−22°4	all tallies
" W	δ Urs Maj	+57° 35	last 4 tallies
" W	η Virginis	−0°7	1st tallies; last 3 tallies are middle 3 of V; give small weight to obs: faint

		E	W
Circle W	Bubble W	+2.6	+24.4
	W	+1.0	+26.0
	E	+27.2	0.0
	E	+28.0	−1.0
		58.8	49.4
		14.70	12.35

14.70 E.
12.35 W
2.35
1.18
.15
.18 = b
E high

Circle W	δ Corvi	−15°58	all tallies
W	κ Drac	+70°20	2, 3 & 4 T.; obs. difficult 2nd tallies generally late

Chronograph stopped; Last minute on sheet 12h 32

		E	W
Circle W	Bubble E	27.2	0.0
	E	27.3	0.0
	W	+3.0	24.4
	W	+0.5	26.6
		58.0	51.0
		14.50	12.75

E 14.50
W 12.75
1.75
.88
.15
.13 = b
E high

Mean s.15 = b
E end high

Sunday - May 20 - 1900
~~Saturday~~

JAD obsr.

Russian Transit.

Circle West for all stars observed.

ε Corvi
−22°4′
12h ~~32~~ 4m

43.6 6.8 29.6 52.6 15.6
47.7 10.6 34.0 56.4 19.5
51.5 14.2 37.5 0.5 23.5
54.8 18.4 41.5 4.2 27.2
59.2 22.2 45.2 8.2 31.0
2568 722 1878 3019 1168
51.36 14.44 37.56 0.38 23.36

1.6289 1.3281 1.3274 1.6290
0.0330 0.0330 0.0330 0.0330
1.6619 1.3611 1.3604 1.6620
45.91 22.97 22.93 45.92

37.27 37.41 37.56 37.45 37.44
12h 5 37.43

δ Urs. Maj.
+57°35′
last 4 tallies
12h 10m

16.0 55.7 35.6 15.2
22.5 2.5 42.4 22.0
29.6 9.3 49.2 x
36.5 16.0 55.5 x
43.0 22.5 2.3 41.8
1476 3460 2450 570
29.52 9.20 49.00 28.50

1.3281 1.3274 1.6290
0.2709 0.2709 0.2709
1.5990 1.5983 1.8999
39.72 39.66 79.41

9.24 9.20 9.34 9.09
12h 11 9.24

η Virginis
−0°7′
1st tallies
12h 14

36.6 57.6 x x x
40.3 1.4 x x 4.8
43.8 5.0 x x 8.7
47.4 8.5 x x 12.2
50.6 12.2 x x x
2187 3247 257
43.74 4.94 8.567

1.6289 1.3281 1.6290
— — —
1.6289 1.3281 1.6290
42.55 21.28 42.56

26.29 26.22 26.01
12 15 26.20

δ Corvi
−15°58′
12h 24m

28.4 50.5 12.5 34.8 57.0
31.8 54.3 16.4 38.5 0.7
35.5 57.7 20.0 42.2 4.4
39.5 1.5 23.6 45.7 7.9
43.2 5.3 27.4 49.6 11.5
1784 2893 999 2108 3215
35.68 57.86 19.98 42.16 4.30

1.6289 1.3281 1.3274 1.6290
0.0172 0.0172 0.0172 0.0172
1.6461 1.3453 1.3446 1.6462
44.27 22.15 22.11 44.28

19.95 20.01 19.98 20.05 20.02
12 25 20.00

κ Drac
+70°20′ {3 taps to wire)
2nd: 3rd: & 4th

28m 28 28 29 29 29 30 30 30
29.2 30.7 32.2 33.5 35.0 36.5 37.0 38.3 39.6
40.7 41.6 42.7 44.3 45.4 46.7 47.5 48.9 50.5
50.7 52.0 54.0 53.7 55.3 56.8 58.3 0.0 1.3
2.3 3.4 5.1 4.7 6.7 8.3 8.6 9.7 11.0
10.8 13.2 15.6 15.2 16.9 18.8 18.5 20.5 22.0
2537 2609 2696 2714 2793 2871 2899 2974 3044
50.74 52.18 53.92 54.28 55.96 57.42 57.98 59.48 0.88

52.28 55.89 59.45

1.3281 1.3274
0.4729 0.4729
1.8010 1.8003
6324 6374

55.52 55.89 56.31
12h 29m 55.90 = T

Determination of n

κ Drac +70°20 | ε Corvi −22°4
29 55.90 | 5 37.43
29 16.40 | 5 1.75
39.50 | 35.68
+2.80 39.50
−.41 35.68 n = 1.19
3.21 3.82

δ Urs Maj +57°35 | ε Corvi −22°4
11 9.24
10 31.81
37.43
1.58 37.43 n = .88
−.41 35.68
1.99 1.75

κ Drac +70°20 | δ Corvi −15°58
25 20.00
24 44.38
35.62
+2.80 39.50
−.29 35.62 n = 1.22
3.19 3.88

δ Urs Maj +57°20 | δ Corvi −15°58
+1.58 37.43
−.29 35.62
1.87) 1.81(
n = .97

Used n = 1.10

−.20
−.21
+ 1.45
+1.04
12h 5 38.47
12 5 1.75
36.72

−.20
−.37
−.74
−1.31
12h 11 7.93
12 10 31.81
36.12

−.20
−.20
+1.01
+.61
12h 15 26.81
12 14 50.17
36.64

b sec φ −.20
c sec δ −.21
n correction +1.32
+.91
12h 25 20.91
R.A. 12 24 44.38
36.53

−.20
−.59
−2.08
−2.87
12h 29 53.03
12 29 16.40
36.63

δ
−22 .72 0
−15 .53 0
−0 .64 0
+57 .12 2
+70 .63 3
}63 }52 }40
.53
omitting +57°35
.52
.63

36.52

Frod 1327 is fast

36.60

at 12h 15m Sid Time

Russian Transit [illegible]

Sun: - May 22.0 - 1900

Adjusted level before observing.

Bubble	E	W
E	+1.0	+25.8
E	-2.6	+29.5
W		
W		

Circle W

Observed sun: Preceding edge on 1st 3 wires
Following edge on all five wires

Last minute $3^h 59^{mt}$

the bubble contact observed, not extremities

Bubble	E	W
W	-6.6	+30.5
W	-6.6	+30.5
E	+21.5	+2.5
E	+21.4	+2.7

+42.9
-13.2
4 | +29.7
+7.43

4 | 66.2
16.55

E 7.43
W 16.55
2 | 9.12
4.56
.15
68 = b

West end high

Again

2
30 min. after

Bubble	E	W
E	+21.4	+3.0
E	+21.5	+30
W	-5.5	+31.0
W	-6.0	+31.3

+42.9
-11.5
4 | 31.4
7.85

4 | 68.3
17.08

E 7.85
W 17.08
2 | 9.23
4.61
.15
.69 = b

W high

May 22 - 1900 - Russian Transit

0h 30m Adjusted ~~bubble~~ the level of the instrument by screw -

Circle W

Bubble

	E	W
W	1.5	24.4
W	1.5	24.4
E	28.4	-2.5
E	28.5	-2.5
4	59.9	43.8
	15.00	10.95

W 10.95
E 15.00
14.05
2.02
.15
.30 = b E high

Bubble extremities observed as usual

Adjusted again

	E	W
W	3.2	22.9
W	3.0	23.0
E	31.5	-5.5
E	31.5	5.5
4	69.2	34.9
E	17.30	8.73

W 8.73
2 | 8.57
4.28 b = 64 E

Adjusted again

	E	W
W	0.0	26.1
W	1.5	24.5
E	28.0	-2.0
E	29.0	-3.0
4	58.5	45.6
E	14.63	11.40

W 11.40
2 | 3.23
1.61 b = 24 E

Adjusted again

	E	W
W	-1.0	27.3
W	-1.6	27.8
E	28.5	-2.2
E	28.5	-2.3
	54.4	50.6
E	13.60	12.65

W 12.65
2 | .95
.47 b = 07 E

Adjusted again

	E	W
W	-3.4	29.5
W	-3.4	29.5
E	24.5	+1.8
E	24.6	+1.8
4	42.2	62.6
E	10.53	15.65

W 15.65
2 | 5.10
2.50 .37 = b W

Adj. Again

	E	W
W	-2.0	28.4
W	-2.0	28.4
E	29.0	-3.0
E	29.7	-2.8
E	54.7	51.0

W 51.0
2 | 3.7
1.85

E	13.68	12.75
W	12.75	

2 | .93
.46 b = 07 East high

Left at b = .07 East end high

1900
May 22.0

Transit of Sun:

Russian Transit:- J.A.D. Asr.

Circle West:- see page 104

δ
+20°24′

Preceding Edge:	I	II	III
$3^h 54^m$	24.7	47.5	10.0
	28.4	51.4	14.0
	32.2	54.8	17.9
	35.8	58.9	21.4
	39.5	2.6	25.5
	160.6	275.2	88.8
	32.12	55.04	17.76
C. sec δ ~~0.0281~~	0.0281	0.0281	
log i	1.6289	1.3281	
	1.6570	1.3562	
	45.39	22.71	
	17.51	17.75	17.76

3^h 55^m $17^s.67$

Following edge	I	II	III	IV	V
$3^h 56$	39.8	2.4	25.4	48.3	11.1
	43.8	7.5	29.0	52.0	15.0
	47.4	10.5	33.2	55.4	18.5
	51.5	14.2	36.7	59.6	22.6
	55.0	17.9	40.4	3.5	26.3
	237.5	52.5	164.7	278.8	93.5
	47.50	10.50	32.94	55.76	18.70
	0.0281	0.0281		0.0281	0.0281
	1.6289	1.3281		1.3274	1.6290
	1.6570	1.3562		1.3555	1.6571
	45.39	22.71		22.68	45.40
	32.89	33.21	32.94	33.08	33.30

3 57 33.08
3 55 17.67
50.75
3 56 25.37 = T
+.92 b sec φ
-.21 c sec δ
+.59 n correction
3 56 26.67
3 55 50.50 RA
36.17

May 22.0
Wash. transit 3^h 55 54.51
Corr to Camb. -4.01
Tran. at Camb. 3 55 50.50

Frod 1327 is fast

0^m 36.17

at 4^h 0 Sid Time

May 22.0

Tuesday May 22-1900

Russian Transit - JAD. obsr

Circle W	β Urs Min	+74° 34	last 2 tables
W	δ Bootis	+33° 41	1st 3 tables
W	β Librae	−9° 1	beam prevents obs.
W	μ Bootis	+37° 43	~~last~~ 1st 3 or more
W	2 Drac.	+59° 19	2, 3rd & 4th
W	β Coronae	+29° 27	5th table
W	α Coronae	+27° 3	all tables

Circle W Bubble

	E	W
E	29.2	− 2.6
E	28.3	− 1.7
W	+2.1	24.4
W	+2.0	24.3
	4)61.6	4)44.4
	15.40	11.10

E 15.40
W 11.10
2)4.30
2.15
.15
.32 = b

E end high

Last minute 15^h 39

J.A.D. obs.
Russian Transit

Tuesday, May 22 - 1900

Circle West for

	B Urs. Min.	δ Bootis	μ Bootis
	+74°34	+33°41	+37°43
	~~III~~ IV V	I II III	I II III
	14h52 36.6 56.5	15h11 8.7 34.4 59.7	15h20 20.1 47.4 14.0
	49.6 10.1	13.0 38.3 4.3	24.9 51.7 18.5
	3.5 22.8	17.5 42.8 8.2	28.9 53.8 22.8
	16.2 35.7	22.0 51.2 12.5	33.8 58 27.4
	29.4 49.0	25.9 . 17.1	38.1 5.2 31.8
	3153 4141	871 1284 41.8	1458 2809 1145
	30.6 22.82	17.42 42.80 8.36	29.16 56.18 22.90
log i	1.3274 1.6290	1.6289 1.3281	1.6289 1.3281
log sec δ	0.5750 0.5750	0.0799 0.0799	0.1018 0.1018
	1.9024 2.2040	1.7088 1.4080	1.7307 1.4299
	79.87 160.00	51.15 25.59	53.79 26.91
	43.19 42.82	8.57 8.39 8.36	22.95 23.09 22.90
	14h 51 43.00	15h 12 8.35	15h 21 22.98
	− .75	− .24	− .25
	− .45	− .45	− .45
	− 2.72	+ .24	+ .14
	14 51 39.08	15 12 7.90	15 21 22.42
	14 51 3.57	15 11 31.43	15 20 45.81
	35.51	36.47	36.61

δ	
+27	36.37
+29	.56
+33	.47
+37	.61
+59	.10
	211

Mean 36.42

50×6 300
10×1 10
7)310
36.44

36.43

Assumed a change in level from −.07 at 14h40 to −.45 at 15h40

	δ			~~tr~~ sec φ	correction		by δ	
hence	+74	1/6	.06	.16	+.29	35.80	+27	36.42
	+33	1/2	.17	.27	+.18	36.65	+29	64
	+37	2/3	.25	.35	+.10	36.71	+33	65
	+59	3/4	.27	.37	+.08	36.~~1~~8	+37	.71
	+29	3/4	.27	.37	+.08	36.64	+59	.18
	+27	5/6	.30	.40	+.05	36.42		

60 ×6
.18 ×1
7
260
.52

.53

36.43
36.53
36.48

May 22
continued

all stars observed:–

ι Drac +59° 19

II	III	IV
15ʰ 22ᵐ 27.6	9.5	50.7
34.3	16.2	58.0
41.3	23.2	5.0
48.4	30.0	11.9
55.3	36.8	19.1
206.9	115.7	324.7
41.38	23.14	4.94
1.3281		1.3274
0.2922		0.2922
1.6203		1.6196
41.72		41.65
23.10	23.14	23.29

15ʰ 23 23.18
− .39
− .45
− .77
15ʰ 23 21.57
15ʰ 22 45.47
36.10

β Coron. bor. +29° 27′

V
15ʰ 25ᵐ 3.1
7.3
11.3
15.5
19.3
56.5
11.30
1.6290
0.0601
1.6891
48.87
22.43

15ʰ 24ᵐ 22.43
− .23
− .45
+ .35
15 24 22.10
15 23 45.54
36.56

α Corон. bor. +27° 3

I	II	III	IV	V
15ʰ 30ᵐ 11.3	35.3	59.4	22.8	46.7
15.3	39.3	3.0	27.0	50.8
19.3	43.3	7.0	31.0	54.6
23.4	47.2	11.0	34.9	58.5
27.5	51.0	14.9	38.8	2.6
96.8	216.1	35.3	154.5	273.2
19.36	43.22	7.06	30.90	54.64
1.6289	1.3281		1.3274	1.6290
0.0503	0.0503		0.0503	0.0503
1.6792	1.3784		1.3777	1.6793
47.77	23.90		23.86	47.78
7.13	7.12	7.06	7.04	6.86

15ʰ 31ᵐ 7.04ˢ = T
− .22 = a sec δ
− .45 = b sec φ
+ .40 = n correction
15ʰ 31 6.77
15 30 30.40
36.37

m

+74° 34   +27° 3
51 43.00   31 7.04
51 3.57   30 30.40
39.43   36.64

3.63   39.43
.51   36.64
3.12) 2.79 (.9
2.79

n = 1.00

60 ×6 360
18 ×1 18
378
54
.53

Frod 1327 is fast
36.43
at 15ʰ 15ᵐ
Sid Time

May 22-1900

Friday, May 25-1900

Russian Transit. J.A.D. obs.

Circle West

[ζ Cor. bor. seq.] +36 58 Last hitch; very poor obs. rej.?
α Serpentis +6 44 } last hitches
β Serpentis +15 44 }
μ Serpentis −3 7 last 3
ε Serpentis +4 47 last 2
ζ Urs. min. +78 6 Last hitch; chron. failed
δ Scorpii −22 20 Some 4.5 stars on IV & V
θ Drac. +38 50 all; last hit of hitches
[φ Herculis] +45 12 all.

Last minute 16 8

Circle West

Bubble

	E	W
E	28.0	+0.3
E	28.3	0.0
W	+2.4	26.1
W	+1.3	27.3
W	+1.5	27.0
E	27.8	+0.5
	6)89.3	6)81.2
	14.88	13.53

E 14.88
W 13.53
2)1.35
.68
.15
.10 = b
E high

Over

Friday, May 25 - 1900

Russian Transit

[5 Cor. bor. seq.]	α Serpentis				β Serpentis				μ Serpentis		
+36° 58	+6° 44				+15° 44				−3° 7		
Observation	15^{h} 39				15^{h} 4.1				15^{h} 44		
	II	III	IV	V	~~II~~	II ~~III~~	III ~~IV~~	~~IV~~ V	III	IV	V
rejected:	31.4	53.0	14.5	36.3	×	44.7	6.8	28.8	~~8~~ ~~×~~ 56.5	×	39.4
	35.2	56.8	18.2	39.5	×	48.4	10.6	32.3	0.0	×	42.8
	38.7	0.2	21.6	43.1	29.9	52.2	14.0	36.3	3.7	×	46.3
	42.2	3.7	×	46.5	33.1	55.6	18.0	40.0	×	×	50.0
	45.7	7.3	28.6	50.3	37.5	59.5	21.7	~~43.8~~	×	×	53.7
	193.2	301.0	64.7	215.7		260.4	71.1	181.2			232.2
	38.64	0.20	21.57	43.14		52.08	14.22	36.24			46.44
log i	1.3281		1.3274	1.6290			1.3274	1.6290			1.6290
	0.0030		0.0030	0.0030			0.0166	0.0166			0.0006
	1.3311		1.3304	1.6320			1.3440	1.6456			1.6296
	21.43		21.40	42.85			22.08	~~44.22~~			42.62
						14.18	14.22	14.16			
	0.07	0.20	0.17	0.29		52~~.08~~	~~52.14~~	~~52.02~~			3.82

15^{h} 40 0^{s}.18
~~+ .64~~ 32
− .14
− .20
15 40 ~~0.48~~ 0.16
15 39 23.87
36.29

15^{h} 42 ^{s}~~52.08~~ 14.19
~~+ .50~~ 25
$\overset{+}{-}$ .14
− .20
15^{h} 42 ~~14.24~~ 14.25 .10
15 41 37.55
36.55

15^{h} 45 3^{s}.82 = T
~~+ .77~~ + .40 = n tan
− .14 b sec φ
− .20 c sec δ
15^{h} 45 ~~4.25~~ 3.88
15 44 27.52
36.36

n

+58°50 −3°7
0 4.22 44 27.52
0 41.65 45 3.82 = T
37.43 36.30
37.43
+1.653 1.13
05
1.20) 1.13 (

n = .7
Use n = .8

−22°20
55 4.44 = T
54 29.11
35.33
37.43 + 1.65 tan
35.33 −.41
2.10 2.06
2.06) 2.10 (1.02
~~1854~~
246
206
400
n = 1

Rejected these values and finally used n = ^{s}.4

Over

May 25 continued from page 111

ε Serpentis
+4°47
IV V
lost on sheet

δ Urs. Min
+78°6
V
lost on sheet

δ Scorpii?
−22°20 ± apparently
4.5 mag.
15h 55m

IV	V
19.3	42.5
24.0	46.4
27.4	50.5
31.4	54.2
35.4	58.3
137.5	251.9
27.50	50.38

log i

1.3274	1.6290
0.0339	0.0339
1.3613	1.6629
22.98	46.02
4.52	4.36

15h 55m 4.44
~~+1.05~~ +.53
−.14
−.22
15h 55m ~~5.13~~ 4.61
15 54 29.11
35.50

θ Drac
+58°50
~~15~~16h 59m

II	III	IV	V
46.5	27.4	9.6	50.1
53.5	34.5	16.5	56.5
0.5	41.2	23.5	3.8
7.3	49.7	30.3	10.4
14.0	53.6	35.6 ✓	17.2
301.8	208.4	115.5	318.0
0.36	41.68	23.10	3.60

1.3281	1.3274	1.6290
0.2860	0.2860	0.2860
1.6141	1.6134	1.9150
41.12	41.06	82.22

41.48 41.68 42.04 41.38

16h 0 41.65
~~−.59~~ −.30
−.14
−.39
16h 0 40.82
16 0 4.22
36.60

[φ Herculis]
+45°12′
16h 5m
~~II III IV V~~

7.3	36.5	6.8	37.6	7.4
11.7	42.0	11.8	42.6	12.5
16.5	47.2	16.8	47.5	17.2
21.7	52.0	22.5	52.6	22.4
27.1	56.7	27.3	57.0	27.5
84.3	234.4	85.2	237.3	87.0
16.86	46.88	17.04	47.46	17.40

1.3281	1.3274	1.6290
0.1520	0.1520	0.1520
1.4801	1.4794	1.7810
30.21	30.16	60.39

60.38

17.24 17.09 17.04 17.30 17.01
~~47.07 46.88 46.88 47.07~~

16h ~~6~~ 5 ~~46.98~~ 17.14 = T
~~−.08~~ −.04 = y correction
−.14 = b corr
−.28 = c corr
16h ~~6~~ 5 ~~46.48~~ 16.68
16 5 40.27
36.41

−3° 7	36s.36
+6°	.29
+15	.55
+45	.41
+58	.60
	221
	.441

40 × 2 80
50 × 3 150
5 230
.46

40
60

50 × 2 = 100
40 × 1 40
3) 140
.47

44 × 3 12
46 × 2 12
47 × 1 7
31
6
~~36~~ 36.45

Frod 1327 is fast

36s.45

at 15h 50m

Sid Time

May 28 1900

Monday

Russian Transit: – JAD obsr

Circle W
δ Bootis +33° 41 bt 3
μ Bootis +37° 43; probably all but part of 1st
ι Draconis +59° 19 3rd last 3; & 4th blurred
β Cor. bor. +29° 27 part of 4th; & all of 5th
α Cor. bor +27° 3 bt 3
α Serpentis +6° 44 bt 3

Circle West

Bubble	E	W
E	284	+07
E	286	+05
W	+20	273
W	+19	273
	4)609	4)558
	15.23	13.95

E 15.23
W 13.95
11.28
.64
.15
.09

b = .09
E high

15ʰ 40

Last min

Monday.

May 28-1900

Russian Transit - Circle West

J.A.D. obsr.

δ Bootis	μ Bootis	ι Drac	β Cor. bor	α Cor. bor	α Serpentis
+33°41	+37°43	+59°19	+29°27	+27°3	+6°44
let 3		Cut ~~3~~ 1st : 4th	4th part : 5th	lt 3	lt 3
15h 11	15h 20	16h 23	15h 24	15h 30	15h 39
86 34.3 0.0	x 470 146 408 80	x 513	x 3.3	11.5 35.3 59.3	10.3 31.9 52.7
13.2 384 4.3	x 51.3 185 454 125	16.2 580	43.0 7.0	15.5 39.4 3.2	13.7 35.3 56.8
17.3 43.2 8.4	294 565 232 505 172	23.1 4.9	46.9 11.5	19.3 43.0 7.2	17.5 39.0 0.4
21.4 47.3 13.0	340 07 280 544 215	302 116	51.1 15.6	23.4 47.2 11.0	21.3 42.4 3.8
25.5 51.6 17.0	380 49 320 585 266	375 185	55.1 19.6	27.6 51.4 15.2	24.8 46.1 7.3
860 2148 427	2804 1163 2496 858	695 3243	1410 570	973 2165 3359	876 1947 3010
1720 4296 8.54	5608 2326 4992 17.16	2317 486	4700 11.40	19.46 43.30 7.18	17.52 38.94 0.20
1.6289 1.3281	1.3281 1.3274 1.6290	1.3274	1.3274 1.6290	1.6289 1.3281	1.6289 1.3281
0.0799 0.0799	0.1018 0.1018 0.1018	0.2922	0.0601 0.0601	0.0501 0.0501	0.0030 0.0030
1.7088 1.4080	1.4299 1.4292 1.7308	1.6196	1.3875 1.6891	1.6790 1.3782	1.6319 1.3311
5115 2559 0	26.91 2686 5380	4165	2441 4888	4775 2389	4284 21.43
8.35 8.55 8.54	22.99 23.26 23.06 23.36	23.17 23.21	22.59 22.52	7.21 7.19 7.18	0.36 0.37 0.20
15 12 8.48	15 21 23.17	23 23.19	24 22.55	15h 31 7.19	15h 40 0.31

23 23.19
22 45.43
37.76

40 0.31
39 23.89
36.42

1.68
.12
1.56

37.76
36.42
1.56) 1.34 (.86 = n
1248
920

	δ Bootis	μ Bootis	ι Drac	β Cor. bor	α Cor. bor	α Serpentis
b sec φ	-.13	-.13	-.13	-.13	-.13	-.13
c sec δ	-.24	-.25	-.39	-.23	-.22	-.20
	-.37	-.38	-.52	-.36	-.35	-.33
	15 12 8.11	15 21 22.79	23 22.67	24 22.19	31 6.74	39 59.98
R.A.	15 11 31.43	15 20 45.81	22 45.43	23 45.56	30 30.42	39 23.89
	36.68	36.98	37.24	36.63	36.32	36.09
	+.22	+.12	-.66	+.30	+.34	+.68
Using n=.86	36.90	37.10	36.58	36.93	36.66	36.77
	+.12	+.06	-.37	+.18	+.20	+.40
Using n=.5	36.80	37.04	36.87	36.81	36.52	36.49
Using n=1.0	36.92	37.10	36.87	36.99	36.72	36.89
n=1.1	36.94	37.11	36.40	37.03	36.76	36.97

Adopted n = 1.00

+6	36.89	36.92 × 5	460
+27	36.72		
+29	36.99		
+33	36.92		
+37	37.10	36.87 × 3	261
+59	36.87		8 121
	36.92		.90

Mean 36.91

Frod 1327 is fast 00m 36s.91 at 15h 30m Sid time

June 1-1900 J.A.D. Asr.

Russian Transit

circle W Bubble

	E	W
W	-1.1	24.4
W	-2.0	25.2
E	27.0	-4.3
E	27.0	-4.0
E	27.6	-4.5
W	-1.3	24.6
	6) 77.2	6) 61.4
	12.87	10.23

E 12.87
W 10.23
2) 2.64
1.32
.15
.20 = b
E high

Observed Sun over ~~[illegible]~~ all tallies both limbs
Last minute 4h 40

Level ~~immediately~~ 15m after after

Bubble

W	-2.5	23.3
W	-2.5	23.5
E	24.4	-3.5
E	27.3	-6.0
	4) 46.7	4) 37.3
	11.67	9.33

E 11.67
W 9.33
2) 2.34
1.17
.15
.17 = b
E high

b = .20 adopted
for observation
E end high.

June 1
1900

Russian Transit.

JAD. Jr

Transit of Sun:

Preceding limb:- Following limb:-

$4^h\ 34^m$ 57.6 20.9 44.0 6.7 29.6 $4^h\ 37^m$ 14.5 37.2 0.5 23.4 46.6

$\delta = +22° 4'$

1.3 24.7 47.3 10.8 ↓37.4 ↙22.3 41.2 3.8 27.3 50.4
5.2 28.5 51.4 14.3 41.5 26.0 45.2 7.8 30.6 54.0
9.3 32.0 55.2 18.0 45.3 30.0 49.0 11.9 34.9 57.6
13.0 36.3 59.0 22.1 ↑33.6 ↖18.0 52.9 15.8 38.5 1.6

32.64 142.4 256.9 71.9 187.4 110.8 225.5 39.8 154.7 270.2
5.28 28.48 51.38 14.38 37.48 22.16 45.10 7.96 30.94 54.02

1.6289 1.3281 1.3274 1.6290 1.6289 1.3281 1.3274 1.6290
0.0330 0.0330 0.0330 0.0330 0.0330 0.0330 0.0330 0.0330
1.6619 1.3611 1.3604 1.6620 1.6619 1.3611 1.3604 1.6620

45.91 22.97 22.93 45.92 45.91 22.97 22.93 45.92

51.19 51.45 51.38 51.45 51.56 8.07 8.07 7.96 8.01 8.10

$4^h\ 35^m\ 51^s.41$ $4^h\ 38^m\ 8^s.04$
1 8.32 1 8.32
4 36 59.73 4 36 59.72

$4^h\ 36^m\ 59^s.72$
−.27 b sec φ
− 22 c sec δ
+ 50 n tan
4 36 59.73
4 36 24.17 R.A.
35.56

Transit at Wash } 4^h 36 28.26
Reduction to Camb } −4.09
4 36 24.17

Hourly motion
+10.23
4
+4.09

Frod 1327 is last

$0^m\ 35^s.56$

at $4^h\ 30^m$
Sid Time

June 1.° Noon

Russian Transit

June 4, 1900

Circle W
ε w
ε 29.6 −1.6
ε 30.0 −1.8
w 0.0 27.5
w 0.0 27.5
59.6 55.0
34
15.16
12.40 12.90 w
12.40 ε
.50
.25
.15
.03.6
west high

β Drac
+52°23

	$\overline{30}$	
38.8	14.3	48.8
45.0	19.6	54.6
50.7	25.6	0.5
56.1	31.0	6.2
2.1	37.5	11.7
	128.0	30.18
	256.0	0.36

ι Herculis	μ Herculis					p Drac	o Herculis
+46°4	+27°47					~~+51°30~~	+28°45
$17^{h}38$ 5th	$17^{h}42$						3rd:4th:
						18^{h} 4	
10.6	16.0	39.9	3.9	27.7	51.6	9.7	34.0
14.6	19.7	44.1	6.6	32.0	55.8	13.8	37.8
20.5	23.7	48.0	12.1	35.7	59.5	17.5	41.5
24.7	27.7	51.7	16.2	39.7	3.5	21.7	46.2
30.0	32.4	56.8	19.2	43.8	9.0	25.7	50.8
100.4	119.5	240.5	58.0	178.9	299.4	88.4	210.3
20.08	23.90	48.10	11.60	35.78	59.98	17.68	42.06
0.1588	0.0529	0.0529		0.0529	0.0529	0.0570	0.0570
1.6290	1.6289	1.3281		1.3274	1.6290		1.3274
1.7878	1.6818	1.3810		1.3803	1.6819		1.3844
61.35	48.06	24.04		24.01	48.07		24.23
18.73	11.96	12.14	11.60	11.77	11.91	17.68	17.83

	ι Herculis	μ Herculis	o Herculis
	17^{h} 37 18.73	17^{h} 43 $11^{s}.88$	18^{h} 4 17.75
n corr.	−.12	+.39	+.37
c sec δ	−.29	−.23	−.23
b sec φ	+04	+04	+.04
	17 37 18.36	17^{h} 43 12.08	18 4 17.93
	17 36 41.79	17 42 35.93	18 3 41.70
	36.57	36.15	36.23

Observation rejected

Frod 1327 is fast $36^{s}.25$
at $17^{h}50^{m}$
Sid Time

~~July~~ June 6 $\frac{10}{10}$

Meridian Circle:-

Level- Clark Level- Buff & Berger Mfgrs J.A.D. obsr.

1180

23h 30 E.S.M.T.

Note: Loosened bearings.

		E	W	E	W
Screw ~~E~~ ~~Bubble~~	E	~~-56.0~~	~~-[illegible]~~	-58.3	-27.0
	E	-62.7	-30.0	-57.0	-25.5
	E	-61.7	-29.0	-57.0	-26.0
	E	~~-64.0~~	~~-28.6~~	-57.0	-26.0
Telescope South	W			+51.5	+83.0
	W			+51.5	+82.7
	W			+51.4	+82.5
	W			+51.5	+82.5
Screw	W			+48.0	+79.0
	W			+48.6	+79.6
	W			+48.0	+79.0
Telescope North:-	W			+49.5	+80.6
	E			-76.4	-45.4
	E			-76.0	-45.0
	E			-76.0	-45.0
	E			-77.0	-46.0

+205.9 +330.7
+194.1 +318.2
-229.3 -104.5
-305.4 -181.4

+400.0 +648.9
-534.7 -285.9

-134.7 +363.0 W
-134.7 E

32 | +228.3 W
224 | 7.13
43
32
110

7.13^d W high
.06
.4278
1.35
.58 = b sec φ

West end high

Observation of June 6-1900

with Meridian Circle (See page 86. Mic. both 15; Zone −9°30' to 74°

JAD. obsr.

New Reticle

Hair lines:- First night of observation.

θ Böotis

+52°19

14^h 21^m 39.1	22^m 25.5	47.0
42.4		50.1
—		54.3
49.0		59.0
53.5		2.0
56.5		8.5
59.5		11.9
3.8		
363.8		412.8
51.97		58.97

T = 14^h 22^m $25^s.47$

−.10

14 22 25.37

RA. 14 21 50.48

34.89

γ Bootis

+38°45

14^h 28^m 4.5	28^m 41.0	28^m 57.7
7.1		0.2
12.3		3.6
15.8		7.1
18.3		9.6
20.6		14.8
24.1		17.3
102.7		470.3
14.67		67.19

14 28 40.93

+.03

14 28 40.96

14 28 6.06

34.90

μ Virginis

−5°13

14^h 37^m 57.0	38^m 25.4	38 38.7
58.9		40.5
2.9		43.2
5.6		46.0
7.6		47.9
9.3		51.9
12.3		54.0
453.6		322.2
64.80		46.03

14^h 38^m 25.42

R.A. 14 37 50.76

34.66

B Urs min

+74°34

14^h 49^m 51.8	51^m 38.8	52 27.8
59.0		35.1
14.8		45.1
25.0		53.7
32.0		2.6
38.8		17.8
49.2		25.6
570.6		389.7
81.52		55.67

14^h 51 38.61

RA. 14 51 3.02

35.59

34.66

.93 ∟.25

.74

1.90

+3.63

−.04

3.72

$n = {}^s.25$

Correction − to T, north of Zenith

T = 14 38 25.42

+.25

14 38 25.67

RA. 14 37 50.76

34.91

14^h 51 38.61 = T

−.68

14 51 37.93

14 51 3.02

34.91

β Bootis

+40°47

14^h 58^m 11.1	58^m 48.6	59^m 6.0
13.8		8.6
19.1		11.7
22.7		15.6
25.1		18.1
27.6		23.5
31.4		26.1
150.8		109.5
21.54		15.64

T = 14^h 58^m $48^s.59$

+.01

14 58 48.60

14 58 13.80

34.80

ψ Bootis

+27°20

15^h 0^m 15.6	0^m 47.5	1^m 2.4
17.8		4.4
22.5		7.4
25.4		10.5
27.5		12.5
29.6		17.2
32.8		19.6
171.2		74.0
24.46		10.57

T = 15^h 0^m $47^s.52$

+.10

15 0 47.62

15 0 12.74

34.88

−5°	34.91
+27	34.88
+38	34.90
+40	34.80
+52	34.89
+74	34.91
	529
	34.88

86 ×5 30

.89 ×3 27

8 | 5.7

.87

Gen Mean

$34^s.88$

.58

35.46

Frod 1327 is fast

$35^s.46$

at 14^h 50^m Sid Time

June 6-1900

Meridian Circle:-

JAD. Asr.

June 10
1900

	d Boötis	x Virginis	α Boötis	λ Boötis	θ Boötis
	+25°33	−9°48	+19°42	+46°32	+52°19
	14h5	14h7	14h11	14h12	14h21
	58.0 29.4 46.0 (44.0)	44.1 12.8 26.3	14.8 45.0 59.0	x $\boxed{14.0}$	40.2 26.85 48.1
	0.3 49.1	46.2 28.3	16.8 1.0	35.7 33.3	43.6 51.3
	4.7 52.2	50.4 31.0	21.2 3.8	41.6 36.1	50.2 53.6
	7.6 54.2	53.2 33.8	24.2 6.9	45.5 39.8	54.7 0.2
	9.6 58.7	55.1 35.5	26.2 8.8	48.4 44.0	57.6 3.0
	11.8 1.0	56.9 39.7	28.3 13.0	51.2 46.5	0.5 9.8
	14.7	59.5 41.8	31.0 15.3	55.1 52.6 55.6	5.3 13.2
	4697 3652	3654 2364	1625 4678	2775 2523	3721 4212
	~~334~~ 66.67 52.17	52.20 33.77	23.21 66.83	46.25 42.05	53.16 60.17
	14h 6 29.42	14h 8 12.99	14h 11 45.02	14h 13 14.15	14h 22 26.66
	+.11	+.27	+.14	−.03	−.10
	6 29.53	8 13.26	11 45.16	13 14.12	22 26.56
	14 5 53.29	14 7 36.99	14 11 8.97	14 12 37.79	14 21 50.42
	36.24	36.27	36.19	36.33	36.14
used n as before = .25, finally used n = .17	n corr = +.07	+.18	+.09	−.02	−.06
	36.20	36.18	36.14	36.34	36.18

+52°19 −9°48
22 26.66 8 12.99
21 50.42 7 36.99
36.24 36.00

1.29
.15
1.44) .24 (.17 = n
1.44
960

Using n = .25

−9°	.27
+19	.19
+25	.24
+46	.33
+52	.14
	117
	.23

Rejected the use of n = .25
and used n = .17 as computed

−9°	.18	.17 × 2 34
+19	.14	
+25	.20	
+46	.34	.26 × 3 84
+52	.18	5) 1.18
	104	.22
	.21	

Mean 36.22
.45 level corr.
36.67

Frod 1327 is fast

0m 36.67

at 14h 10m Sid Time

June 11
1900
0h 5
E.S.M.T.

Meridian Circle: — J.A.D. obsr.

Level:-

Telescope South:

118.0

	E	W
Bubble East	−~~[illegible]~~	−~~[illegible]~~
E	−63.3	−31.5
E	−62.0	−30.0
E	−64.0	−32.0
	−62.1	−30.4
W	+47.8	+79.6
W	+51.0	+83.0
W	+50.0	+82.0
W	+52.0	+84.0
	+200.8	+328.6
	−251.4	−123.9

Telescope North

Bubble West	+48.0	+79.2
W	+48.0	+79.0
W	+47.7	+79.0
W	+48.0	+79.0
E	−77.4	−46.2
E	−78.0	−47.0
E	−79.4	−48.3
E	−78.1	−42.2
	+191.7	+316.2
	−312.9	−183.7
	+392.5	+644.8
	−564.3	−307.6
	−1778	+337.2 W
		−171.8 E

32)165.4(5.17 W high
160
54
32
220

.06
.3102
1.35
.42

Last Ls June 7.0 .58 West high
Present value June 10 .42
3).16
2/3 of .05
=.03
corr to Ls of June 10 +.03
.42
+.45

Adopted value for time of Ls. June 10
is .45s
West end high

Observed value
West end high
[illegible] = .42

June 13 - 1900

Meridian Circle: J.A.D. obs.

α Cor. Bor.		Not μ Virgin.		+74°34 β Urs. Min.	β Boötis		1H Urs. Min.	μ Boötis		β Cor. Bor.		ι Boötis	
+27°3'		~~5°13~~ but fil 109lling			+40°47		+67°44'	+37°44		+29°27		+41°10	
15h30		14h42	4.2	Some of the tapes lost, on 2 sheet: star not read.	14h58	59	15h14 last 7	15h20		15h23		15h27	
35.2 7.0	21.9	33.5	15.0		13.0 50.5	8.0	44.6	46.6 22.6	39.1	49.6 22.1	57.3	22.5 0.1	7.6
37.5	24.0	35.4	16.9		15.6	10.3	49.5	49.2	41.6	51.9	39.5	25.0	20.1
42.0	27.0	39.6	19.6		20.9	14.0	56.3	54.2		56.6	42.6	30.4	23.5
45.0	30.1	42.2	22.3		24.6	17.5	3.6	57.8	2X	59.7	X	34.0	27.4
47.1	32.1	44.1	24.0		27.1	20.0	8.8	0.0		1.9	X	36.6	29.8
49.3	36.6	46.0	28.2		29.5	25.4	19.3	2.5	53.9	3.9	X	38.9	35.2
52.3	39.0	48.6	30.2		33.1	28.2	24.6	5.9	58.8	7.0	X	42.5	37.8
308.4	210.7	289.4	156.2		163.8	123.4	446.7	396.2		410.5		229.4	191.4
44.06	30.10	41.34	22.32		23.40	17.63	63.82	56.60		58.64		32.77	27.34
15h31	7.08	14h43	1.83		14h58	50.51	20503	20.503		20.503		15h28	0.06
							log 1.3119	log 1.3119		log 1.3119			
							sec 0.4214	0.1019		0.0601			
							1.7333	1.4138		1.3720			
							54.12	25.93		23.55			
							14m 9.70	21m 22.53		24m 22.19			
15 30	30.42	14 37	50.73		14 58	13.74	13 32.30	20 45.75		23 45.53		27	23.32
	36.66		1.10			36.77	37.40	36.78		36.66			36.64

μ Virg.
−5°13
Centre wire

14 38 27.25
14 37 50.73
65.2

+27°	36.66
+29	.66
+37	.78
+40	.77
41	.64
	35.1
	36.20
	.50 b sup
	37.20

Frod 1327 is fast

0m 37.20

at 15h 20m Sid Time

June 14-1900 Meridian Circle J.A.D. obsr

Level

Tel. ~~Circle~~ South

0h 45
E.S.M.T.

E w

Bubble W ~~-625 -26.0~~ E
-57.5 -21.0
W -580 -21.5 E
W -575 -21.0 E
E +480 +84.5 W
E +472 +840 W
E +485 +850 W

Telescope North Bubble E W +420 +78.2
E W +420 +78.5
W +460 +82.6
W E -80.0 -43.3
W E -83.0 -46.8
E -83.2 -46.2
E

-173.0 -63.5
-246.2 -136.3
+1437 +2535
+1300 +2393

+2737 +4928
-4192 -1998
-1455 +2930
-1455
24)1475 (6.15
144 .06
35 .3690
24 1.35
1.0
b sec φ = .49 West high

Use b sec φ = .50
West end high

Meridian Circle

JHD - obsr.

Friday
June 15
1900

λ Bootis		θ Bootis		μ Virginis		109 Virginis	
+46°33		+52°19		−5°13		+2°19′	
$14^h 12^m$ 34.2 15.6	34.7	$14^h 21^m$ 41.6 28.2	49.6	$14^h 37^m$ 59.6 28.1	41.4	$14^h 41^m$ 23.7 52.5	5.5
37.0	37.4	45.0	52.8	$\overset{4.6}{5.6}$	43.2	25.8	7.5
42.9	41.1	51.6	57.1	8.4	45.9	29.9	10.1
46.9	45.1	56.0	1.7	10.2	48.6	32.7	12.8
49.7	48.0	59.0	4.6	12.1	50.5	34.6	14.8
52.2	53.8	2.1	11.2	14.9	54.5	36.4	18.7
56.3	56.8	6.6	14.5	~~28.1~~	56.5	39.0	20.7
3192	3169	3819	4315	~~4999~~ 152.4	3406	2221	901
45.60	45.27	54.56	61.64	~~71.41~~ 7.49	48.66	31.73	12.87
$14^h 13^m$	15.43	$14^h 22^m$	28.10	$14^h 38^m$	28.08	$14^h 41^m$	52.30
14 12	37.71	14 21	50.33	14 37	50.74	14 41	14.83
	37.72		37.77		37.34		37.47
	−.04		−.10		+.26		+.22
	37.68		37.67		37.60		37.69

+52° −5°

+1.295 37.77

−091 37.41

1.386) .36 (.26

28

80

n = .26

37.68

.50

38.18

Frod 1327 is fast

$38^s.18$

at $14^h 30^m$ Sid time

1900
June 18
Monday

June 18th – 1900

Meridian Circle — J.A.D. obs.

β Boötis		ψ Boötis	ψ Boötis	ι Librae		
+40°47		+27°20	+27°20	−19° 24		592
		Preceding	last ~~4~~ 5			15h 6 31.172
14h 58		6.5 star	15h 1	15h 6		9.895-8 0.5334 0.4292 +2.686
15.1 52.9	10.2	7′ north	11.6	43.6	13.9 27.7	0.5477 8.2078 8.7555 +0.057
17.8	12.6	observed:	14.7	45.8	29.6	
		not reduced				0.0443m
23.0	16.2	Obs. on	16.6	50.1	32.6	8.6861m 8.7304 +0.054
26.8	19.9	last 7	21.6	53.0	35.6	1.3098m
29.2	22.4		23.8	54.9	37.5	8.7108m 0.0206 +1.048
32.0	27.7			56.8	41.9	+3.845
35.4	30.5			59.6	44.1	15 6 35.02
179.3	139.5		88.3	363.8	249.0	
25.61	19.93		17.66	51.97	35.57	
14h 58 52.77				15h 7 13.77		

log 23.06
= 1.3628
0.0514
1.4142
25.95
15h 0 51.71

14 58 13.70	15 0 12.68	15 6 35.02
39.07	39.03	38.75
+.01	+.10	+.32
39.08	39.13	39.07

−19° 39.07 } 10
+27° .13 }
+40° .08 .08 .09

39.09
.50
39.59

Frod 1327 is fast

0 39.59

at 15h 00

Tues June ~~19~~ 20, 1900 - Mer Circle
J.A.D. obs

~~15° 38~~

Prof list → +59 42 { Give err eighths 2 to Cen 7
+40° 47 obs. — " " 1 to 1st 5
+27° 20 obs.

Route through $16^h 4^m$

Tuesday June ~~19~~ 20 - 1900
Meridian Circle.

β Böotis +40° 47			ψ Böotis +27° 20		
$14^h 58$	164	537 113	$15^h 0$	208	528 7.5
	18.8	13.7		27.6	9.6
	24.3	17.2		30.6	12.7
	27.7	20.8		32.7	15.8
	30.2	23.3		35.0	17.8
	32.7	28.6		38.0	22.4
	36.4	31.3		23.0	24.7
	1865	1462		2077	1105
	26.64	20.89		29.67	15.79
	$14^h 58^m$	53.76		$15^h 0$	52.73
	14 58	13.68		15 0	12.67
		40.08			40.06
		.01			.04
		40.09			40.10
	level corr =	.50			
		40.59			

Used
m = .1

Chrod 1327 is fast

0^m 40.59

at $15^h 0^m$

June 20-1900 2nd Time

June 21-1900
Meridian Circle - Level -
J.A.D. obs

E W

Telescope S
~~Buff~~
Screw E -61.4 -32.0
E -63.0 -32.7
E -64.5 -35.0
E -64.3 -35.0
W +53.0 +82.2
W +52.5 +82.0
W +53.0 +82.3
W +52.7 +82.0
-253.2 -134.7
+211.2 +328.5

Telescope N
Screw w ~~+47.0 +75.5~~
w +19.5 +48.2
w +18.0 +47.0
w +19.0 +47.5
W +19.0 +47.8
E -40.0 -11.3
E -40.5 -12.0
E -40.5 -11.8
E -40.5 -11.7
+75.5 +190.5
-161.5 -46.8

+211.2 -253.2 | +328.5 -134.7
+ 75.5 -161.5 | +190.5 -46.8
+286.7 -414.7 +519.0 -181.5
+286.7 -181.5
-128.0 +337.5
-128.0
+209.5 West

Ended at 4^h 0 E.S.M.T.

32)209.5(6.55 West (d)
192
175
160
150
.06
.3930
1.35
.53

b sec φ = .53 (s)
West high

June 21-1900

Mer. Circle J. R. D.-obs

13h 45 after rate

η Boötis +18°54 last 4 taps
11 Boötis +27°52 all 10
α Drac. +64°51 obs lst 7
d Boötis +25°34 all
x Virgin. −9°49 missed wire 1
4 Urs. Min. +78°1 wires 9, 10, 11, 12, 13

June 21

η Boötis +18°54	11 Boötis +27°52	α Drac. +64°51	d Boötis +25°34	x Virgin. −9°49	4 Urs. Min. +78°1
13h51	13h56	14h1	14h6	14h7	14h11
0.3	49.6 21.7 36.7	17.5	2.0 33.7 48.2	x 17.2 30.5	1.1
2.2	51.9 38.8	22.2	4.3 50.3	50.5 32.5	10.8
6.5	56.4 41.7	31.8	8.8 53.3	54.5 35.0	23.3
8.7	59.6 44.9	38.0	11.8 56.3	57.2 38.0	36.5
	1.7 47.0	42.5	13.9 58.4	59.2 39.7	45.4
	3.8 51.5	46.9	x 19.0 2.9	1.0 44.0	
	6.7 53.7	53.4	5.2	3.8 46.0	
17 7	8097 3143	2523	39 46	2657	11.71
4.425	58.53 44.90	36.04	56.37	37.96	23.42
25.87	57 21.71	1.3118 .3716 1.6834 48.23	1.3118 .0449 1.3567 22.73	1.3118 64 1.3182 20.81 17.15	85.39
50 38.55		2 24.27	6 33.64		9 58.03
13h 49 58.27	56 41.26	1 43.35	5 53.19	7 36.82	9 16.16
40.28	40.45	40.92	40.45	40.83	41.87
−.17	−.12	+.36	−.13	−.33	1.13
40.11	40.33	41.28	40.32	39.90	

24.42
1.3887
0.0241
1.4128
25.87

17.757
1.2493
0.6821
1.9314
85.39

+2.13
−.17
2.3

40.92
41.28
.69
.46
.23

m = .3

+18 .11
+27 .33
+25 .32
.76
40.26
.53 barf
40.79

Fl. 1327 is fast

0m 40s.80

at 14h 0 Sid Time

Sat. June 23, 1900

Meridian J. A. D. obs.

θ Boötis +52°19 ds. [illegible]

ρ Boötis +30°48 wt 7

γ Boötis +38°45 [illegible]

Last [illegible] 14h 30

θ Boötis	ρ Boötis	γ Boötis
+52°19	+30°48	+38°45
14h 21 44.9 31.6 53.0	14h 27 42.0	~~42.0~~ 14h 28 10.7 46.7 4.0
48.2 56.1	44.5	13.2 6.3
54.9 0.4	49.1	18.3 9.6
59.4 4.8	52.3	21.8 13.2
2.6 7.8	54.4	24.0 15.5
5.5 14.5	56.5	26.6 20.8
9.8 17.8	59.7	30.2 23.5
4053 4544	3585	1448 929
~~2100~~ 57.90 64.92	51.22	20.69 13.27
	1.3118 0.0660	
14h 22 31.41	1.3778 23.87	14h 28 46.98
	14h 28 ~~27.35~~ 15.09	
14 21 50.66	14 27 34.10	14 28 5.87
41.25	40.99	41.11
− .11	+ .09	+ .03
~~4 36~~ 41.14	41.08	41.14

+30° .08 }
+38 .14 }
+52 .14 }
.36
41.12
b sec .53
41.65

11 × 3 33
14 × 2 28
5 | 61
.12

Frod 1327 is fast

Ō 41.65

at 14h 25 Sid Time

June 23 – 1900

Sun June 24, 1900

Mer. Cir. J.A.D. obs

α Librae	−15°37	last 7.
Gr. 2164	+59°42	last 7
P. XIV, 221	+14°51	last 7
β Urs. min.	+74°34	last 5 ~~thr~~ mic which leaves 2 tabs fewer wt tab which is .2s early.
β Bootis	+40°47	all
ψ Bootis	+27°20	all

Last mirr 5h 2

α Librae		Gr. 2164		P. XIV, 221		β Urs. min		β Bootis		ψ Bootis	
−15°37		+59°42		+14°51		+74°34		+40°47		+27°20	
14h46	19.2	14h48	42.2	14h51	45.2	14h52	x	14h58 17.7	55.2 12.5	15h0 22.2	54.2 8.9
	21.1		46.3		47.3		x	20.4	15.0	24.5	11.1
	24.0		54.4		51.5		50.9	25.8	18.6	29.0	14.1
	26.8		59.7	20.50	54.3		1.4	29.3	22.1	32.2	17.3
1.3118	28.7	1.3118	3.4	1.3118	56.3		8.2	31.8	24.4	34.2	19.3
0.0163	33.0	0.2971	7.0	0.0148	58.1	23.074	23.6	34.3	30.1	36.4	23.8
1.3281	35.2	1.6089	12.5	1.3266	0.9	1.3631 0.5750 1.9381	31.2	37.9	32.6	39.5	26.2
	188.0		405.5		373.6	86.72	355.3	197.2	155.3	218.0	120.7
	26.86		57.94		53.37		11.06	28.17	22.19	31.14	17.24
	21.28		40.63		21.21		86.72	14h58	55.18	15h 0	54.19
14h46	5.58	49	38.57	52	14.58	51	44.34	14 58	13.61	15 0	12.63
14 45	24.27	48	56.69	51	33.79	51	2.03		41.57		41.53
	41.31		41.88		41.39		42.31		+.01		+.10
Using n = 26	+.31		−.21		+.17		−.70		41.58		41.63
	41.62		41.67		41.56		41.61				
Using n = 20	+.24		−.16		+.13		−.64		.00		+.08
	41.55		41.72		41.52		41.77		41.57		41.61
n = 30	+.36		−.24		+.19		−.81		.02		+.12
	41.67		41.64		41.58		41.50		41.59		41.65

−15°37 +74°34 +59°42
−2.80 +3.62 +1.71
−.28 −.28
3.90 2.99
41.31s 42.31 41.88
1.00 .57
0.000 9.7559
0.5911 0.4771
9.4089 9.2788
.26 .20

	n=20	n=26	n=30	n=28	
−15	.55	.62	.67	.65	
+14	.52	.56	.58	.57	.60
+27	.61	.63	.65	.64	
+40	.57	.58	.59	.58	
+59	.72	.67	.64	.66	.66
+74	.77	.61	.50	.56	
	2.42	2.44	2.46	2.45	
	.60	.61	.61	.61	

63×3 189
.58×2 116
5)305
.61

Gen m. 41.61
bank .53
42.14

Use n = 30

June 24-1900

Frod 1327 is fast

0 42.14s

at 14h50

Sid. time

Monday, June 25-1900

Mer Circle J.A.D. obs.

β Leonis +15°8' all
γ Urs Maj. +54°15' all
Last min. 11^h 51

β Leonis

+15°8

11^h44 12.6 42.0 55.6
14.6 57.6
18.8 0.4
21.6 3.2
23.5 5.0
25.5 9.3
28.4 11.5

145.0 442.6
20.72 63.23

11 44 41.98
11 43 59.79

42.19
+ .19

42.38

γ Urs. Maj.

+54°15

11^h48 30.3 19.0 41.3
33.7 44.6
40.6 49.2
45.3 54.0
48.5 57.1
51.7 4.0
56.4 7.5

306.5 377.7
43.78 53.96

11 49 18.87
11 48 36.35

42.52
− .15

42.37

42.38
$b \sec \varphi$ .53

42.91

Frod 1327 is fast
ō $42^s.91$

at $11^h 45^m$ Sid Time

June 25-1900

June 26-1900

Mer Circle: J.A.Dixon

μ Bootis +37°44 all comp. 2″ ~~Smyth~~ 6.5 mag. foll ob. on last wire
ι Drac. +59°19 last 7; also central wire
β Coron. bor. +29°27 last 4!
ν¹ Bootis +41°10 all
γ Librae −14°27 all
Last wire 15h 33

μ Bootis	ι Drac.	β Cor. bor.	ν¹ Bootis	γ Librae
+37°44	+59°19	+29°27	+41°10	−14°27
15h20	15h23	15h24 last 4	15h27	15h30 lst 6 · la 4 plus
53.0 29.0 45.7 55.6 48.0 08 51.5 4.3 55.0 6.4 57.4 9.0 2.5 12.4 5.0	285 54.4 58.0 3.3 8.8 12.3 20.3 24.3	52.3 54.4 59.0 1.4	288 6.6 24.1 31.5 26.4 37.0 40.7 30.0 42.9 33.7 45.5 36.2 49.1 41.6 44.3	13.4 56.1 15.4 58.1 19.6 1.0 22.5 3.6 24.2 26.4 x
441.5 385.1 63.02 55.02	481.4 68.77	227.1 56.78	275.5 236.3 39.36 33.76	121.5 238.8 20.25 59.70
15h 20 29.02	20.52 1.3122 0.2924 1.6046 40.24	24.42 1.3881 0.0601 1.4482 28.06	15h 28 6.56	21.72 16.61 1.3369 1.2204 00140 0.0140 1.3509 1.2344 2243 1716 42.68 42.54
15h 20 29.02 15 20 45.64 43.38 + 05 43.43	23 28.53 22 44.95 43.58 − .29 43.29	24 28.72 23 45.45 43.27 + .12 43.39	28 6.56 27 23.20 43.36 + .01 43.37	15h 30 42.62 29 59.69 42.93 + .39 43.32
Using n=.3 +.04 43.42	−.22 43.36	+.10 43.37	+.01 43.37	+.35 43.28
Using n=.4 +.05 43.43	−.31 43.27	+.14 43.41	+.02 43.38	+.46 43.39

+59°19	43.58	+1.69
−14 27	42.93	−.26
	.65	1.95

n = .33

Using

	n=.3	n=.33	n=.4
−14°	43.28	.32	.39
+29	43.37	.39	.41
+37	43.42	.43	.43
+41	43.37	.37	.37
+59	43.36	.29	.27
		.36	.37

} .40 / 43.40
Frod .53

Adopted as above computed
n = .33

Frod 1327 is fast
0m 43s.93 at 15h 25 Sid Time

June 26-1900

June 29-1900

Mer Circle: Level. J.A.D. obsr

Telescope South

	E	W	
Screw E	~~−49.9~~	~~−14.4~~	
E	−54.0	−20.3	+33.7
E	−55.5	−21.7	33.8
E	−54.3	−20.5	33.8
E	−56.0	−22.0	34.0
W	+61.0	+94.7	33.7
W	+64.0	+97.7	33.7
W	+62.0	+96.0	34.0
W	+63.8	+97.5	33.7

4h 30
E.S.M.T.

Telescope North

W	+42.5	+75.7	33.2
W	+43.0	+76.1	33.1
W	+42.0	+75.8	33.8
W	+40.6	+74.3	33.7
E	−36.0	−2.4	33.6
E	−34.5	−1.0	33.5
E	−35.8	−2.0	33.8
E	−35.7	−2.0	33.7
	+250.8	+385.9	
	+168.1	+301.9	
	−219.8	−84.5	
	−142.0	−7.4	
	+418.9	+687.8	
	−361.8	−91.9	
	+57.1	+595.9	
		57.1	

~~32)653.0(20.4~~
~~64~~
~~130~~
~~128~~

~~06~~
~~1.224~~
~~1.35~~
~~1.22~~
~~35~~
~~08~~
~~1.65~~

Used last

Not accepted

e	w
+250.8	+385.9
−219.8	−84.5
+31.0	301.4

Used
last value

June 29
1900

Mer. Circle - J A D obs

β Leonis +15° 8 all
γ Urs Maj +54° 15 all } by day light observation
Last min $11^h 54$

β Leon.

+15° 8

$11^h 44$ (lost 15.0) 45.0 58.5
17.5 0.5
21.7 3.1
24.5 6.0
26.5 8.0
28.4 12.2
31.2 14.3
164.8 46.26
23.54 66.09

11 44 44.81
+.21 n corr

11 44 45.02
11 43 59.75
45.27

used n=.33

γ Urs. Maj.

+54° 15

$11^h 48$ 33.2 22.0 44.4
36.6 47.5
43.6 52.0
48.3 56.8
51.4 59.9
54.6 [X7.1]
59.2 10.4
326.9 398.1
46.70 56.87

11 49 21.79
−.16 n corr

11 49 21.63
11 48 36.25
45.38

45.32
.53 = b and q
45.85

Frod 1327 is fast

$45^s.38$

at $11^h 45^m$

Sid Time

June 29

June 29 $\frac{8}{10}$
1900

Mer Circle

I.A.D. obs

morning observation

α Persei
+49°30

δ Persei
+47°28′
rej. lt tab 48th wire

ε Persei
+39°43

Cent min
3h 53

α Persei		δ Persei		ε Persei	
3h 17 15.2	38.7 19.0	3h 35 57.0 (54.0)	36.0 55.5	3h 57 19.3	56.1 13.1 (15.7)
18.4	22.0	2.9	58.4	22.0	19.2
24.6	26.2	7.0	2.3	27.1	22.8
28.6	30.2	9.8	6.3	30.8	25.1
31.6	33.2	12.5	9.0	33.0	30.4
34.2	39.5	16.5	15.0	35.5	33.0
38.7	42.5		18.1	39.0	
191.3	212.6	45.97	46.46	206.7	159.3
27.33	30.37	65.67	66.37	29.53	22.76
1.3120	1.3120	1.3120	1.3120	1.3120	1.3120
0.1875	0.1875	0.1701	0.1701	0.1139	0.1139
1.4995	1.4995	1.4821	1.4821	1.4259	1.4259
31.59		30.35		26.66	
58.92	58.78	96.02	36.02	56.19	56.10

3h 17 58.85
3 17 13.15
45.70
−.08
45.62

3h 36 36.02
3 35 50.34
45.68
−.05
45.63

3h 51 56.14
3 51 10.52
46.62
+.02
46.64

45.63
.53 b sec φ
46.16

Prod 1327 is fast
0m 46s.16
at 3h 40
Sid Time
June 29 $\frac{8}{10}$

Sunday, July 1, 1900

Mer Circle J.A.D. obsr

[2 [Libra] −19°25 all

δ Bootis +33°41 fel 7.0; ~~Smith~~ affhdin 3/4; obs on 8th & 15th

1 H Urs. Min +67°44 obs on 8th & lent 5 7

μ Bootis +37°44 obs (2 1/2 s & 5 1/2 mag obs on mic 15

2 Drac +59°19 all (apth wh

Last min 15h 26

Remark; the ~~comp~~ star observed with δ Bootis is

Bessel 1825] & Lalande, 1800] call the mag. 8.0 ~~Dm~~ +33° 2562 Dm mag 8.5; the star is certainly very much brighter.

[2 [Libra]	δ Bootis	1H. Urs. Min	μ Bootis	2 Drac	
−19°25	+33°41	+67°44	+37°44	+59°19	
15h 6m	15h 11	15h 14	15h 20	15h 25	
51.2 21.4 35.2	~~8~~ 43.8 17.8 33.6	8.6 53.7	56.3 32.3 48.9	31.6 57.5	
53.2 37.2	46.0 35.9	58.3	58.8 51.3	0.9	
57.5 40.0	51.0 39.2	5.6 1.3120	4.0 54.7	6.4	
0.6 43.0	54.2 42.4	12.7 0.4214	7.4 58.0	11.6	
2.5 45.0	56.4 44.6	17.6 1.7334	9.9 0.5	15.8	1.3120
4.5 49.2	58.7 49.3	28.6	12.0 5.8	23.2	0.2922
7.4 51.4	2.0 51.8	34.0	15.4 8.3	27.4	1.6042
4169 3010	3721 2968	5105	4638 4075	5025	
59.56 43.00	53.16 42.40	72.93	66.26 58.22	71.79	
7 21.28	12 17.78	54.13	21 32.24	40.20	
		18.80	20 45.58	23 31.59	
	11 31.22	13 31.66		22 44.82	
	46.56	47.14	46.66	46.77	
	+.08	−.50	+.04	−.26	
	46.64	46.64	46.70	46.51	

46.65
.53 Bond
47.18

Frod 1327 is fast

0m 47.20

at 15h 15 Sid Time

Sun. July 1, 1900

Monday, July 2-1900

Mer Circle; — J.A.D. obsr

Prec star north +36°28'40 }

π Herculis +36°56': last 7: also prec. 8.5 star on 8th: 8'.9 South

θ Ophiuchi -24°54 last 7:

[χ Herculis] +48°21 last but 2 wires { also 8.5 star on la 2 w: 1' North (prec star
also 9.0 star on lst 2 w: ½' South (foll star

+52°22 last but ~~4~~ 5 wires

α Ophiuchi +12°38 last 7 also foll star on lst 3 & 4 partially: 9.0 mag ~~[illegible]~~ ½' south

this 7.5 star not in Durchm Bac → { foll star 3' South: last 2 w: 7.5 mag: seen easily full illum.

~~No stars~~

+46°4 all

17h 40m last min

π Hercul.
+36°53'
last 7
prec star 8th w
17h 11 15.5
17 12
40.9
43.4
46.6
50.2
52.5
57.5
0.2
35 1.3
~~43.99~~
50.19
1.3120
0.0972
1.4092
2565
12 24.54
17h 11 37.08
47.46
+~~.98~~
.5

θ Ophiuchi
-24°54
last 7
17h 16
58.0
0.1
3.0
6.1
8.2
12.6
14.7
42.7
6.10
1.3120
0.0424
1.3544
2261
5 43.49
15 56.49
47.00
+~~.48~~
.46

+52°22
last 7
17h 29 22.4
25.4
30.0
34.5
37.5
44.2
47.5
241.5
34.50
1.3120
0.2143
1.5263
33.59
29 0.91
28 13.59
47.32
-~~1.13~~
.49

α Ophiuchi
+12°38
last 7
17h 31 22.0
24.0
26.6
29.3
31.2
35.5
37.5
206.1
29.44
1.3120
0.0107
1.3227
21.03
31 8.41
30 21.14
47.27
+~~1.24~~
.51

+12°38
foll star
7.5 mag
33 3.0
5.3 } last 2 w

+46°4'
17h 36 48.2 | 29.4 | 48.3
51.2 | 51.0
57.0 | 54.8
6.9 | 58.6
3.5 | 1.2
6.2 | 7.5
10.4 | 10.4
417.4 | 411.8
59.63 | 58.83
17h 37 29.23
17 37 29.23
17 36 41.81
47.42
-~~1.09~~
.38

+52 .32 }
+36 .46 } .39 } ×3 117
+46 .42 } ×2 84
5)204
.40

+52 .32 32 × 1 32
+36 46 }
+46 42 } .44 × 3 132
5)164
.40
120
.40

47.40
.53
47.93

Frod 1327 w fast
0m 47.93
at 17h 25m
Sid Time
July 2-1900

July 5-1900

Mer Circle J.A.D. obsr

+12°38
α Ophiuchi
S 4'; 7.5 mag prec. etc (preceding α Ophiuchi
α Oph on last 7 wires. α Ophiuchi
(fol. α Oph.) 7.4 foll 2' S (on 1st 7)
(fol. α Oph.) 7.3 4' or 5" N (all but 1st 2 or 3 w)

μ Herculis +27 47 / three 8: normal pos. RA.
last 2 w 11.400 RA mic

RA. mic replaced to 32.228

ξ Drac +56 53 all
γ Drac +51 30 all

17h 58

Clear during obs. of α Ophiuchi
& foll stars & μ Herculis
Cloudy during obs of ξ Drac & γ Drac

July 5 – 1900

mag 7.5 or fntr. star Preceding α Ophiuchi and 4' S of α Oph. Observed on all wires	α Ophiuchi +12° 38' Observed on last 7 w.	Star Following α Oph 7.4 mag. or fntr. 2' S of α Oph. On 1st 7 wires	Star Following α Ophiuchi mag 7.3 or fntr. 4' or 5' N of α Oph Obs. on all but 1st 2 or 3 w.
$17^h 29^m$ 46.8 16.2 29.6	$17^h 31$ 23.4	$17^h 33$ 10.6: Wire 1	$17^h 34$ x 40.5 54.3
48.9 31.5	25.4	x	x 56.0
53.2 34.3	28.0	x	17.8 59.0
56.0 37.1	31.0 33.0	x	20.6 1.7
57.8 38.8	37.2	x	22.6 3.6
59.7 43.0	39.3	x	24.4 7.7
2.5 45.1		x	27.2 9.9
384.9 259.4	217.3		43.22
54.99 37.06	31.04	1.4533	61.75
	1.3120	0.0106	1.3120
	0.0107	1.4639	0.0108
	1.3227	+29.10	1.3228
	21.03	39.7	21.03
$17^h 30$ 16.03	$17^h 31$ 10.01	$17^h 33$ 39.70	$17^h 34$ $40^s.72$
Star is Dm+12° 3248 Dm mag 8.2	Star is Dm+12° 3252	Star is Dm+12° 3264 Dm mag is 8.6	Star is probably Dm 3267 (+12°) Dm mag 7.5

Note The foll. star (near α Ophiuchi) called 7.5 mag July 2, 3' South (probably 3' North) observed on July 2 was not seen though the above stars were. Mr. Wendell, however did see it and called it 9.1 mag, on July 5th.

JAD - obs

1900

July & 5

	α Ophiuchi	ξ Drac.	γ Drac.
	+12°38	+56°53′	+51°30′
	~~17ʰ 51 48.4~~ c	17 51 48.4 40.6 4.4	17ʰ 54 23.9 9.5 30.9
	~~52.2~~	52.2 8.0	27.3 33.6
Prec.	~~59.5~~	59.5 13.0	33.6 38.1
	~~4.6~~	4.5 18.0	38.2 42.3
Page	~~7.9~~	7.9 21.5	41.2 45.3
	~~11.5~~	11.5 28.7	44.1 52.0
	16.5	16.5 32.6	48.4 55.4
		4405 1262	2567 2976
		62.93 18.03	36.67 42.52
	17ʰ 31 10.01	17 52 40.48	17 55 9.60
	17 30 21.15	17 51 51.46	17 54 20.28
	48.86	49.02	49.32
	.21	.23	.10
	.07	.79	.23

01 × 3 3
.07 × 2 9
5 12
.02

02
32 } 17 × 3 + 51
.86 × 2 − 28
23
.04

49.04
30 ~~33~~ See Card p146
49.~~57~~ 34

Frod 1327 is fast

5 34
0ᵐ 49.~~57~~

at 17ʰ 45ᵐ

Sid Time

Saturday July 7, 1900

Mer Circle J.A.D. obsr

111 Herculis +20°27' Cast 7

" also probably 9'N an 8.5 to 9.0 star Cast +

β Lyrae +33°15' Not ds: probably 3' North, 8th wire Cast 7
{ 8.0 mag ds.

ο Draconis +59°15' Cast 7. { also 7.5, 1/2' N on last 7
prec. star

~~+20°3'49~~

γ Lyrae +32°33' Cast 7 { also prec. 8.7, on 12th wire
4 1/2 S.

18^h 58 Cast wire

Mer. Circle

JAD.

1900
July 7

	110 Herculis	Foll. 110 Her	Foll (β Lyrae +33°15')	o Drac.	Prec o Drac	Prec γ Lyrae	γ Lyrae
	+20°27'	perhaps 9'N	3'N, 8.0^m	+59°15'	½'N, 7.5	4½'S, 8.7	+32°33
	last 7	8.3 to 9.0 last 7	wire 8	last 7	last 7	Wire 12	last 7
	18^h 42 29.4	18 43 28.5	18^h 49 29.4	18^h 51 3.2	18^h 51 1.5	18^h 56 6.0	17^h 56 ~~16.7~~
	31.5	31.0		6.8	~~6~~ 5.4		21.4
	34.3	35.2		12.1	10.9		23.7
	37.3	38.0		17.6	16.0		26.9
	39.2	40.0		21.3	19.5		30.3
	43.5	42.0		29.1	27.5		32.5
	45.7	44.9		33.3	31.4		37.1
							39.8
	260.9	259.6		123.4	112.2		211.7
	37.27	37.09		17.63	16.03	-0.48	30.25
	1.3120			1.3120		1.3114	1.3120
	0.0282			0.2914		0.0742	0.0742
	1.3402			1.6034		1.3856	1.3862
	21.99	21.99		40.13	40.13	24.30	24.33
	18^h 42 15.28	18^h 43 57.08	18^h 49 29.4	18^h 50 37.50	50 35.90	55 41.70	56 5.92
	18 41 25.10	Probably is	May be	18 49 47.03	Not in Dm	Star is	55 15.68
	50.18	Dm +20°	possibly	50.47	Star is in	perhaps?	50.24
		3934	Dm +33°		Cat. der	Dm	
			3246?		Ast. Gesell-	+32°3281	
n used = .33	.18		8.3 mag	.27	schaft.	mag 9.5	.09
	50.36			50.20	+55° to +65°		50.33
					No 10032		
					mag 8.6		
n used = .25	.13			.19			.07
	50.31			50.28			50.31

η used
= .25

+20 50.31 } 31 × 3 93
+32 50.31 }
+59 50.28 28 × 2 56
40 5) 149
50.30 .30
~~.53~~ .30 corr. for level k.14t
50.~~83~~ .60

Frod 1327 is fast

0^m 50.~~83~~ 60

at 18^h 45

Sid Time

Mm.
July 9
1900

Mer Circle — J.A.D. – Obs
Day light Observations

ε Virginis +11°30 all.
43 Comae +28°23 all
5 Urs Maj pr. +55°27 1st 7
α Virgin −10°38 last 7

13^h 23 last min

	ε Virgin.	43 Comae	5 Urs. maj. pr.	α Virgin.
	+11°30	+28°23	+55°27	−10°38′
			1st 7	last 7
	12^{h}57 36.5 5.5 18.9	13^{h}7 33.7 6.0 23.1	13^{h}19 57.4	13^{h}27 2.5
	38.6 20.9	36.0 (21.0	0.8	4.5
	42.7 23.6	40.6 26.2	8.2	7.2
	45.5 26.4	43.7 29.3	13.0 16.1	10.0
	47.5 28.3	(48.0 31.4	19.4	11.8 16.0
	49.2 32.5	51.0 36.0	24.3	18.1
	52.0 34.5	46.0 38.3		
	31.20 18.51	29.90 20.53	49.92	7.01
	44.57 26.44	42.72 29.33	71.32	10.02
	12^h 58 5.50	13^h 8 6.02	1.3120	1.3120
			0.2463	0.0075
			1.5583	1.3195
			36.16	20.86
			13^h 20 47.48	13 20 49.16
	12 57 14.42	13 7 14.80	13 19 55.90	13 19 58.23
	51.08	51.22	51.58	50.93
Used n=.25	.18	.09	.13	.27
	51.26	51.31	51.35	50.20
Used n=.30	.22	.11	.16	.33
	51.30	51.33	51.42	50.26
Used n=.4	.28	.15	.21	.44
	51.36	51.37	51.37	51.37

5 Urs Maj. α Virg.
51.58 +1.45
50.93 −.19
.65 1.74
$\frac{23.8}{13.20}$ 1.39
n = .4

−10° 51.37
+11 36
+28 37
+55 .37
51.37
~~.53~~ .30 See bot p 146
51.~~90~~
.67

Frod 1327 is fast
0^m 51.~~90~~67
at 13^h 10^m
Sid Time
July 9-1900

Tues
July 10
1900

Mer. Circle J.A.D. obsr

Daylight obs

ε Virginis +11°30 all
43 Comae +28°23 last 7 & 8th wire
ζ Urs Maj pr +55°27 last 3, & 8th & last 7
~~α Virginis −10 38~~ not obs.

Last wire 13m 25

ε Virgin		43 Comae		ζ Urs. maj. pr.	
+11°30		+28°23		+55°27	
		last 7		leftonly: 8th last 7 last 82	
12h57 37.0 6.0	19.5	13h8 6.6	21.6	13h20 x 48.1	11.1
39.0	21.4		23.6	x	14.5
43.2	24.2		26.6	x x	19.1
46.0	27.0		29.8	x	24.1
48.0	28.9		31.9	20.0	27.2
49.9	33.0		36.5	24.7	34.5
52.6	35.0		38.9		38.0
315.7	189.0		208.9		168.5
45.10	27.00		29.84		24.07
			1.3120		1.3120
			0.0557		0.2463
			1.3677		1.5583
			23.31		36.16
12h 58 6.05		13 8 6.53		13 20 47.91	
12 57 14.41		13 7 14.79		13 19 55.87	
51.64		51.74		52.04	
Used n=.45 .32		.17		.24	
51.96		51.91		51.80	
Used n=.35 .25		.13		.18	
51.89		51.87		51.86	

Used n=.35

[illegible] 51.87
.53
52.40
.17

Mod 1327 is fast 0m 52s.40 17

at 13h 10m

Sid Time

July 11
1900

Mer Circle J.A.D. obs.
Day light obs

β Urs. Maj. +56°55 all
α Urs. Maj. +62°17 wires 8 & last 7.
γ Urs. Maj. +33°38' all but 1st 2 or 3 w.
Last mira 11ʰ19

β Urs. Maj.		α Urs. Maj.		γ Urs. Maj.	
+56°55		+62°17		+33°38	
		last 7			
10ʰ 55 50.5 42.6	57 6.6	10ʰ 58 27.7	58 55.9	11ʰ 13 × 59.0	14 14.7
54.3	10.2		0.0	×	17.1
1.8	15.0		5.8	32.1	20.2
6.6	20.1		12.0	35.4	23.5
10.2	23.4		15.6	37.6	25.9
13.5	31.2		24.4	40.0	30.6
18.5	34.6		28.6	43.0	33.1
455.4	140.9		502.3		165.1
65.06	20.13		71.76		23.59
0.2629	0.2629		0.3325		0.0794
1.3120	1.3120		1.3120		1.3120
1.5749	1.5749		1.6445		1.3914
37.57	37.57		44.11		24.62
42.63	42.56				
10 56	42.59	10 58 27.65		11 13 58.97	
10 55	50.01	10 57 34.83		11 13 6.76	
	52.58		52.82		52.21
N used = 35	.22		.34		.09
	52.36		52.48		52.30
					.11
N used = 40	.26		.41		
	52.32		52.41		52.41

58
82 } 70 × 3 210

.21 .21 × 2 41
5) 251
.50

36
48 } 43 × 3 129

30 30 × 2 60
5) 189
.38

32
41 } 36 × 3 108

41 41 × 2 82
5) 190
.38

52.38
.30 by eq. 4
52.68

Frod 1327 is fast

0ᵐ 52ˢ.68

at 11ʰ 0

Sid Time

July 11 10/10

22h 50
E.S.M.T.

Level:- mer. circle:- J A Dickson

Tel. South ~~Buffle~~

	ε	w
Screw E	− 64.0	− 29.4
E	− 65.5	− 30.4
E	− 65.0	− 30.0
E	− 65.0	− 30.0
Screw W	+ 46.4	+ 81.5
W	+ 46.8	+ 82.0
W	+ 45.2	+ 80.7
W	+ 46.8	+ 82.0

Tel North

Screw W	+ 5.7	+ 41.0
W	+ 5.7	+ 40.8
W	+ 3.0	+ 37.4
W	+ 5.4	+ 40.3
E	− 41.5	− 6.6
E	− 43.0	− 8.0
E	− 41.5	− 6.7
E	− 41.5	− 6.6

− 259.5	− 119.8
− 167.5	− 27.9
− 427.0	− 147.7
+ 185.2	+ 326.2
+ 19.8	+ 159.5
+ 205.0	+ 485.5

− 427.0	− 147.7
+ 205.0	+ 485.5
− 222.0	+ 337.8 W
	− 222.0 E

32) 115.8 (3.62 W high
96
198
192
60

.06
.2172
1.35
b sec φ .30 West end high

July 11 14/10 Collimation, Mer. Circle J.A.D. obs

$23^h 10$ E.S.M.T.

S. coll. on N. coll.

82.7
83.5
82.5 15.2
82.0 30.4 (83.0 Set at)
84.5

Tel. on S. coll.

R.A. Micrometer found at 32.231

31.885
877
880 401 802 31.8802
879
880

Tel on N. coll.

32.560
545
552 255 510 32.5510
550 4.4312
548 32.216
12

Set at 32.228

Central Lines well adjusted to motion of telescope. As before remarked there is a very slight deviation at both extremes of wire.

July 12 10/10

Mer Circle J A Dickson

Daylight observations

γ Gem. +16°29

α Canis maj −16°35

6h 32	21.3	4.6		6h 41	8.9	38.5	52.2
	23.3	6.6			10.8		54.0
	27.6	9.3			15.2		56.7
	30.5	12.2			18.0		59.9
	32.6	14.2			20.0		1.6
	34.5	18.5			21.8		5.9
	37.3	20.6			24.6		8.0
	207.1	86.0			119.3		418.3
	29.59	12.29			17.04		59.76

Used n = .4

6h 32 50.94
6 31 57.75
53.19
.25
53.44

6h 41 38.40
6 40 45.46
52.94
.48
53.42

53.43
.30 on band
53.73

Frod 1327 is fast

0m 53.s73

at 6h 40m Sid Time

July 12.95

July 14.0
1900

Mer-Circle J A D obs

mid-day observations.

α Can Min +5° 29

8^h 22 Last min

$7^h 34^m$ 30.7	59.15 12.3
32.7	14.3
36.7	16.9
39.5	19.7
41.4	21.6
43.3	25.6
46.0	27.6
270.3	138.0
38.62	19.72

7^h 34 59.17
7 34 5.52
53.65
33
53.98
30 = barf
54.28

Frod. 1327 is fast

$\bar{0}$ $54^s.28$

at $7^h 35^m$ Sid time

at July 14.0

-14'42
15 57

Sat 40th July 14,0, 1900 Mer Cir. J.A.D. olsr

γ Serpent. +15°59 lat 2. all but lat w.
ε Cor bor +27°10 lat T
δ Scorp -22°20 lat T
{Jupiter 7.0 (star?) H on lat T. Sat. on lat 2. Jup prec on lat.
then Jup (foll.) on 2nd 7
θ Drac +58°50 8th of last 7

Last min 16 3

	γ Serpent. +15°59 Last 6 w. of lat 7	ε Cor bor. +27°10 lat 7	-22°20 δ Scorp lat T.	Jupiter (~~Satellites~~ not reduced) Prec. limb	Foll. limb	θ Drac +58°50 Last 7
	15h 52 X	15h 53 52.1	15h 54 52.4	57 46.2	58 33.4	16h 0 58.0' 23.2
	19.9	54.3	54.5	48.4	35.2	26.9
	24.1	59.0	59.0	52.7	38.1	32.2
	27.0	2.0	1.9	53.5	41.1 43.0	37.5
	29.0	4.0	3.8	57.5	47.3	41.1
	30.6	6.2	5.8	59.4	49.5	48.9
	33.6	9.5	8.7	2.5		52.7
	164.2	427.1	426.1	382.2	287.6	262.5
	27.37	61.01	60.87	54.60	41.09	37.50
	1.2833	1.3120	1.3120	1.3120	1.3120	1.3120
	0.0172	0.0508	0.0339	0.0262	0.0262	0.2860
	1.3005	1.3628	1.3459	1.3382	1.3382	1.5980
	19.97	23.06	22.17	21.79	21.79	39.63
	15h 52 47.34	54 24.07	55 23.04	58 16.39	19.30	16h 0 57.87
		53 29.84	54 29.17	58m 17.84		0 3.48
		54.23	53.87			54.39
Using n=26		.10	.33			.16
		54.33	54.20			54.23
						.30
Using n=40		.16	.52			54.09
		54.39	54.39			54.17
Using n=.30		54.37	54.27			

54.39 +1.65
53.87 -41
.52 2.06

n = .26

n=26
-22 .26 }26×3 78
+27 .33
+58 .23 ×2 46
.76 5)124
.28 .25

n=30
.27 }32×3 96
.37
.17 ×2 34
.84 5)130
.28 .26
.27

n=.40
.39 }39×3 117
.39
.09 ×3 18
135
.31

54.27
.30 - bag
54.57

Trod 1327 is fast
0m 54.57s

July 14.3 at 16h 0 Sid Time

Monday, July 16-1900

Mer. Circle J.A.D. observer

Daylight observation

γ Hydrae -22 39 all

ξ Urs. Maj. pr. +55° 27 all

ζ Virginis -0° 5 all

η Urs. Maj. +49° 49 all

Last min 13ʰ 46

γ Hydrae	ξ Urs. Maj. pr.	ζ Virgin.	η Urs. Maj
-22°39	+55°27	-0°5'	+49°49
13ʰ 13 56.3 27.2 41.5	13ʰ 20 18 52.0 15.0	13ʰ 30 56 34.0 47.1	13ʰ 43 50.0 34.0 54.4
58.6 43.4	5.5 18.5	7.6 49.0	53.0 57.3
3.0 46.3	12.5 23.0	11.6 51.6	59.3 1.4
5.8 49.4	17.4 28.0	14.4 54.4	3.5 5.7
7.9 51.4	20.5 31.2	16.3 56.4	6.5 8.6
10.0 55.6	23.8 38.3	18.0 0.5	9.3
12.9 57.9	28.6 41.9	20.8 2.4	13.5 14.8
			18.0
4545 3455	1101 1959	943 381.4	435.1 460.2
64.93 49.36	15.73 27.99	13.47 54.49	62.16 65.74
13ʰ 14 27.15	13ʰ 20 51.86	13 30 33.86	13ʰ 44 33.95
13 13 31.77	13 19 55.70	13 29 38.48	13 43 38.08
55.38	56.16	55.38	55.87
Used n=4 +.52 55.90	-.23 55.93	+.36 55.74	-.11 55.76
Used n=.3 +39 55.77	-.17 55.99	+27 +55.65	-.08 +55.79
Used n=.35 +.45 55.83	-.20 55.96	+31 +55.69	-10 +55.77
Used n=.25 +.33 55.71	-.13 56.03	+.23 55.61	-.07 55.80

56.16 +1.45
55.38 -.42
187 | .78 | 187
748 .42
320

n = .42

n=4	n=3	n=.35	n=.25
-22° .90	.77	.83	.71
-0 .74	.65	69	.61
+49 .76	79	77	.80
+55 .93	.99	96	1.03
333	320	325	3.15
83	.80	.81	.79

55.81
.30 bacc
56.11

Adopted n=.3

Frod 1327 is fast
0ˢ 56.10
at 13ʰ 30
Sid Time

Tues. July 17-1900

Mer. Circle. J. A. D. obsr

δ ~~Corvi −15°38~~ not obs

x Drac +70°20 last 5 with R.A. Mic at 13.157; replaced the RA. mic. to 32.228

~~[γ Virginis] −0 54~~ not obs.

ε Urs. maj +56°30 1st 7

δ Virginis +3°56 all but 1st 2 w

12 Canum venat. +38°52 last 7.

ε Virginis +11°30 all

Last min 13^h 3

	x Drac	ε Urs. maj.	δ Virgin.	12 Canum venatic.	ε Virgin
	+70°20	+56°30	+3°56′	+38°52	+11°30
	RA Mic at 13.157	first 7		last 7	
	~~$12^h 49$~~	$12^h 49$ 44.3	$12^h 51$ × 32.0 45.1	$12^h 52$ 35.9	$12^h 57$ 41.0 10.0 23.4
	~~44.2~~	48.0	× 47.0	38.4	43.0 25.4
		53.4	9.6 12.3 49.7	41.6	47.2 28.0
		0.0	14.1 52.5	45.3	50.0 30.8
		3.6	16.0 54.3	47.6	51.9 32.7
		7.0	18.8 58.4	52.9	53.7 36.8
		11.8	0.5	55.5	56.5 39.0
		410.1	367.5	317.2	343.3 216.1
		58.59	52.50	45.32	49.04 30.87
		1.3120	1.3120	1.3120	20.92 20.92
		0.2581	0.0010	0.1087	9.96 9.95
		1.5701	1.3130	1.4207	$12^h 58$ 9.96
		37.16	20.56	26.34	
		$12^h 50$ $33^s.75$	$12^h 52$ 31.94	$12^h 52$ $18^s.98$	
		12 49 39.37	12 50 36.32	12 51 23.04	12 57 14.32
		56.38	55.62	55.94	55.64
Used n = .3		.18	.25	.03	.21
		56.20	55.87	55.97	55.87
Used n = .4		.24	.34	.04	.28
		56.14	55.96	55.98	55.92
Used n = .45		.27	.38	.05	.32
		56.11	56.00	55.99	55.96
Used n = .5		.30	.43	.05	.35
		56.08	56.05	55.99	55.99

Adopted n = 5

+3 +.05 } .02 × 3 6 | [illegible] = .03
+11 −.01 } | [illegible] = .04
+38 −.01
+56 .08 8+2 5) .23 (.04 | [illegible] = .01
.11 | .08
.03 | .03 addition

56.03
.30 = band
56.33

Frod 1327 is fast 0^m $56^s.33$ at $12^h 50^m$ Sid Time

Jul 17 - 1900

Thursday, July 19-1900

Day-light obs. Mer-Circle:- J.A.D. observer

~~β Corvi -15°58~~ not obs.

β Corvi -22°51. Observed; greater wt. to last 7;

ε Urs. maj +56°30 all

12 Can Ven seq +38°52 8th cr. & last 7

ε Virgini +11°30 all

Last num 12h 59

β Corvi		ε Urs. maj.		12 Can Ven seq.	ε Virgini	
-22°51		+56°30		+38°52	+11°30'	
12h29		12h49		12h52 last 7	12h57	
35.0	20.2	44.3	59.5	35.9	41.0	110 23.5
37.1	22.2	48.0	3.0	38.4	43.0	25.4
41.7	25.0	55.2	7.8	41.8	47.3	28.2
44.7	28.2	0.0	12.9	45.6	50.0	31.0
46.9	30.1	3.6	16.3	47.6	52.0	32.8
48.6	34.6	7.0	23.5	53.0	54.0	37.0
51.5	36.8	11.7	27.2	55.6	56.6	39.0
305.5	197.1	409.8	90.2	317.8	343.9	216.9
43.64	28.16	58.54	12.89	45.40	49.13	30.99
22.25	22.25	37.14	37.14	26.33	20.92	20.92
5.89	5.91	35.68	35.75	19.07	10.05	10.07

β Corvi	ε Urs. maj.	12 Can Ven seq.	ε Virgini
12h 30 5.90	50 35.71	52 19.07	12h 58 10.06 = T
12 29 10.34	49 39.31	51 23.01	12 57 14.30 = RA
55.56	56.40	56.06	- 55.76
+.58	-.26	+.04	+.31
56.14	56.18	56.10	56.07 = final individual result

n determ.

+1.51 56.40
-.42 55.56
+1.93 | .84 (4.3
2.71
6.80
n = .43

Used n = .43

-22 .14
+11 .07 } .10 × 3 30 } 11 × 3 33
④ +38 .10
+56 .18 16 × 2 32 18 × 2 36
.49 5) 162 5) 70
.12 .13 .14
① ② ③

① 12 × 4 48
② 13 × 3 39
③ 14 × 2 28
④ 10 × 1 10
.12 10) 125
12
Gen. mean 56.12
b. corr = .30
56.42

Trod 1327 is fast
0m 56s.42
at 12h 45m Sid Time
July 19.

Sat. July 21-1900
~~Mer Circle~~ J.A.D. Obsr

ι Herculis +46°3 8th w & last 7; false tap before 15th w
β Ophiuchi +4°36 lost the first 3 w
μ Herculis +27°47 1st 7
[γ Ophiuchi] +2°45 8th w & last 7
last min 17h45

ι Her.			β Ophiuchi			μ Herculis	
+46°3′			+4°36			+27°47	
	1st 7			45.7		1st 7	
17h37 38.6	57.6	17h39	×	32.3	47.4	17h43	06
	0.3		×		50.1		30
	4.1		×				7.5
	8.3		12.6		52.9		10.6
	10.8		14.5		54.8		12.6
3 mj	~~13.0~~		16.3		58.8		14.9
	16.7		19.1		1.0		17.9
	19.6						
~~17 37~~	~~47.74~~				38.07		67.11
47.67	~~68.20~~				52.96		09.59
29.54	29.54				20.57		23.18
37 ~~38.48~~	38.66			39	32.39		~~46.41~~
						43	32.77
36 ~~41.66~~	41.66			38	35.68	42	36.08
~~56.47~~	57.00				56.71		56.69
~~.05~~	.05				38		.18
42	56.95				57.09		56.87
	.03				.26		.12
	56.97				56.97		56.81

Used n = -.45

Used n = -.3

n = -.45 ~~n = .30~~ | n = -.30

+4 57.09
+27 56.87 56.99 × 3 = 27
+46 56.95 56.95 × 2 10
291 5 | 37
56.97 56.97

97 } 89 × 3 = 267
81 }
97 97 × 2 194
275 5 | 461
92 92
56.92
.50
Θ 57.42

Used n = -.3

Frod 1327 is fast
Θ 57s.42
at 17h 40
Sid Time

Sun July 22-1900

Mer Circle L.A.D. obsr

δ Sagitt. +18°18 8th of last 7, also 80th mag, 9′N on 1406
α Aquilae +8°36 all
β Aquilae +6°9 all
φ Cygni +52°10 lst 7
γ Sagitt. +19°13 lst 7

Last min 19h56

Seeing exceedingly bad.

80 div fol δ Sagitt 9′N, 14615 turns
19h45 29.5
31.7

δ Sagitt.	α Aquil.	β Aquilae	φ Cygni	γ Sagittae
+18°18′	+8°36	+6°9	+52°10	+19°13
last			lst 7	lst 7
19h44 106	19h46 265 55.0 8.7	19h50 566 249 385	19h53 17.3	19h54 49.5
12.6	28.6 10.5	58.5 40.3	20.8	51.6
15.3	32.9 13.2	29 43.0	27.4	56.1
18.3	35.5 16.0	5.1 45.8	31.8	58.8
20.3	37.5 18.0	7.2 47.6	37.8	1.0
24.4	39.2 21.9	9.0 51.5	42.3	2.9
26.7	41.9 24.0	12.0 53.9		5.9
1282	2421 1123	4513 3206	1774	4058
18.32	34.59 16.04	64.47 45.80	25.34	57.97
21.59	20.74 2074	2062 2062	33.43	21.71
19h43 56.73	55.33 55.30	25.09 25.18	58.77	
	19 46 55.31	19h51 25.14	53 58.77	55 19.68
19h42 59.52	45 58.22	19 50 28.03	53 6.36	54 22.41
57.21	57.09	57.11	52.41	57.27

	δ Sagitt.	α Aquil.	β Aquilae	φ Cygni	γ Sagittae
Used n = 45	.26	.34	.36	.17	.26
	57.47	57.43	57.47	52.24	57.53
Used n = .40	.23	.30	.32	.05	.23
	57.44	57.39	57.43	52.26	57.50
Used n = .30	.17	.23	.24	.11	.17
	57.38	57.32	57.35	52.30	57.44

Adopted n = .30

+6 .35
+8 .32 } 37×3 21
+18 .38
+19 .44
+52 .30 30×1 21
179
.36 35

57.36
50 = [illegible]
57.86

Frod 1327 is fast 0m 57.86s

at 19h50m Sid Time

July 22 9/10
22h 30
E.S.M.T.

Mer. Circle: E.A.D. obsr

Level:—

Telescope South

		E	W
Screw	E	-645	-295
	E	-63.5	-285
	E	-62.0	-268
	E	-625	-27.0
	W	+49.0	+845
	W	+48.0	+83.7
	W	+46.0	+82.0
	W	+49.7	+85.5

Telescope North

Screw	W	+50.0	+85.2
	W	+47.8	+82.7
	W	+46.8	+81.7
	W	+47.3	+82.5
	~~E~~	~~-41.2~~	~~-62~~
	E	-33.0	+2.03
	E	-33.0	+2.0
	E	-33.0	+2.0
	E	32.7	+23

Obs. Rejected see page 158

Am not satisfied with behavior of bubble again!

Telescope North E W

Screw E - 57.0 - 23.0
E - 53.0 - 18.5
E - 51.0 - 16.7
E - 50.0 - 16.4
W
W Adjusted level to centre bubble.
W
W

Level, continued

Tel. N.

E . W

Screw E ~~-91.6 - 57.3~~
E ~~-91.0 - 57.0~~
E ~~-89.0 . 55.0~~
E ~~-91.0 . 57.0~~ = Adjusted level
WE - 71.5 - 38.0
WE - 72.0 - 38.7
WE - 69.5 - 36.0 - 282.7 - 148.7
WE - 69.7 - 36.0
W + 37.0 + 70.5
W + 39.0 + 72.3
W + 38.0 + 71.3 + 152.0 + 285.5
W + 38.0 + 71.4

Tel S.

Screw W + ~~70.0 + 105.0~~
W + 64.0 + 99.0
W + 62.0 + 97.0 + 252.0 + 392.0
W + 64.0 + 99.0
W + 62.0 + 97.0
E - 73.0 - 37.5
E - 74.0 - 38.7 - 291.0 - 149.1
E - 73.0 - 37.4
E - 71.0 - 35.5

E W
-282.7 -148.7
-291.0 -149.1
-573.7 -297.8

+152.0 +285.5
+252.0 +392.0
+404.0 +677.5

-169.7

+379.9 West
-169.7 East

32) 210.0 West (6.6 div
192 .06
180 .396
1.35
.52 = b sec φ

~~50~~ b sec. φ = 50
West end high

1900
July 23d   Mer. Circle, - Collimation - JAD. Asst

0h 15m
Sid Time

S. coll. on N. coll.

80.5
83.4
82.5   154   Set at
84.5   308   83.1
84.5

Tel. on S. coll.
R.A. Mic. found at 32.225

31.901
910
902   23 040   31.9040
900
900

Tel. on N. coll.

32.510
510   52
505   104   32.5104
507   4414
520   32.207
.012
32.219

Wire 8 (central line) is well adjusted to motion of telescope.

Set at 32.219

McCrigle Tuesday, July 24-1900
J A Dobson α Aquilae +8°36 Cast 4
β Aquilae +6°9
ψ Cygni +52°10 obs only; this star appears double; comp (close) is south and perhaps 9.0 mag or fainter.
Also a 9.2 star follows perhaps 15 to 20s and about 3' North
γ Sagittae; +19°13 all
Cast min. 20h 0m

α Aquilae
+8°36
Cast 4m.

19h 47m
16.6
18.4
22.6
24.7
82.3
20.58
24.34
46 56.24
19h 45 58.23
58.01
.23
58.24
.31
58.32

18 47
46.18
20.4
25.78
1.4113
9.9751
1.3864
24.34

β Aquilae
+6°9

19h 50m 57.2 25.9 39.0
59.3 40.9
3.3 43.7
6.2 46.5
8.6 9.9 48.3
12.6 52.3
54.5
45.66 325.2
~~76.10~~ ~~542~~
65.23 46.46
19h 51m 25.84
19 50 28.04
57.80
.24
58.04
.32
58.12

ψ Cygni
+52°10

19h 53m 18.3
21.5
28.2
32.6
36.0
38.8
43.3
218.7
31.24
1.3120
0.2123
1.5243
33.44
54 ~~57.80~~ 14.68
53 6.36
58.32
.11
58.21
.15
58.17

γ Sagittae
+19°13

19h 54m 50.2 20.4 34.3
52.2 36.2
56.6 39.0
59.5 42.0
1.6 43.9
3.5 48.3
6.3 50.5
409.9 294.2
58.56 42.03
19h 55m 20.30
19 54 22.42
57.88
.17
58.05
.23
58.11

Used n=5

Used n=4

~~Used~~
Adopted n=4

mag. 3
+6° 04
+19 05 4+3 12
+52 21 21×2 42
5)54
30 11
.10

mag. 4
+6° .12
+19 .11 } 11×3 3
+52 .17 17+2 14
40 5)17
.17 .13

58.14
.50: Benf
58.64

Sid 1327 is fast 0m 58s.64
at 19h 50m Sid Time
July 24-1900

Mer. Circle ~~Friday, July 27-1900~~ J.A.D. obsr

ε Urs. Maj. +56°30 all
ζ Urs. Maj. pr +55°27 1st 7
α Virginis −10°38 last 7
η Urs. Maj. +49°49 all

Last min 13h48 after rattle

ε Urs. maj.		ζ Urs. maj.	α Virginis	η Urs. Maj.	
+56°30		+55°27	−10°38	+49°49	
		1st 7	last 7		
					57.0
12h49 46.5 38.1	1.7	13h20 4.0	13h21 9.7	13h43 52.4 36.5	59.7
50.1	5.3	7.6	11.5	55.5	3.9
57.6	10.1	14.8	14.3	1.8	8.1
2.6	14.9	19.6	17.0	6.0	11.0
5.8	18.3	22.9	19.0	9.0	17.5
9.3	25.9	26.1	23.1	11.9	20.5
14.1	29.5	31.0	25.2	16.0	
4260	1057	1260	1198	4526	4777
60.86	15.10	18.00	17.12	64.66	68.25
37.14	37.14	36.15	20.85	31.78	31.78
38.00	37.96	54.15	56.27	36.44	36.47
12h50 38.98		13h20 54.15	13h20 56.27	13h44 36.46	
12 49 39.09		13 19 55.39	13 19 58.02	13 43 37.81	
58.89		58.76	58.25	58.65	
Used n=.40 .24		.21	.44	.11	
58.65		58.54	58.69	58.54	
Used n=.33 .20		.17	.36	.09	
58.69		58.59	58.61	58.56	
Used n=.30 .18		.16	.35	.08	
58.71		58.60	58.60	58.57	
Used n=.50 .30		.27	.53	.14	
58.59		58.49	58.80	58.51	

Adopted n=.33

	n as .30		n as .33		n as .40		n as .50	
−10°	.60	.60 .60	.61	.61 .60	.69	.68 .69	.80	.80 .80
+49	.57		.56		.54		.51	
+55	.60	.63 252	.59	.61 245	.54	.64 256	.49	.53 212
+56	.71	5)312 .60	.69	5)305 .61	.65	5)325 .65	.59	5)292 .58
	248		245		242		234	
	.62		.61		.61		.60	
	.61		.61		.63		.69	

58.61
.50
59.11

Frod 1327 is fast 0m 59.11s at 13h20m Sid Time July 27-1900

July 28 1900

~~Saturday, July 28 1900.~~

Merid. Circle. J.A.D. obs.

ε Urs Maj +56° 30 all
ζ Urs Maj pr +55° 27 1st 7 w.
α Virgin −10° 38 last 7 w
η Urs Maj +49° 49

Last min.
13h 46 before rattle

	ε Urs. Maj. +56° 30'		ζ Urs. Maj. +55° 27' (first 7)	α Virginis −10° 38' (last 7)	η Urs Maj. +49° 49'	36.8
	12 49 46.7	38.1 2.0	13 20 4.3	13 21 9.9	13 43 52.7	~~52.7~~ 7.0
	50.4	5.4	7.9	11.9	55.8	~~55.8~~ 0.0
	57.6	10.3	15.1	14.6	2.0	~~2.0~~ 4.1
	2.6	15.3	19.8	17.4	6.3	~~6.4~~ 8.4
	6.0	18.6	23.2	19.3	9.1	~~9.1~~ 11.3
	9.4	26.9	26.5	23.4	12.0	~~12.0~~ 17.5
	14.3	29.6	31.2	25.6	16.2	~~17.5~~ 20.7
	427.0	107.1	128.1	122.5	454.1	479.0
	61.00	15.30	18.30	17.50	64.87	68.50
	37.14	37.14	36.15	20.85	31.78	31.78
+1.51 59.06	38.14	38.16	54.45	56.65	36.65	36.72
−0.19 58.63	12 50 38.15		13 20 54.45	13 20 56.65	13 44 36.68	
1.70 .43	12 49 39.09		13 19 55.36	13 19 58.02	13 43 37.~~84~~78	
	59.08		59.09	58.63	58.94	
Used n=.2	.12		.10	22	.05	
	58.96		58.99	58.85	58.~~89~~ 85 9	
n = .25 Used n=.25	.15		.14	.28	.07	
	58.93		58.95	58.91	58.~~82~~ 88 7	
Used n=.3	.18		.16	.23	.080	
	58.~~86~~ 90		58.93	58.96	58.~~79~~ 88 6	

Adopted n = .3

−10 96
+49 ~~84~~ 86
+55 ~~78~~ 93
+56 ~~84~~ 90
365
.901

58.90
50
59.40

Frod. 1327 is fast
0m 59s.40
at 13h 20m Sid. Time
July 28, 1900

Mer. Circle
IAD. obs for Monday July 30-1900

The double star is DM+10.4307 (6.5 mag)

2nd Obs.) — Tried for ε Delphini] +10°58 {Observed double each 7.0 mag alike Gr. perhaps 1/4' apart
[No 4th mag seen: perhaps missed it.

1st Obs) 2 stars +14°15' 9.1 mag 2' N. on 1st 2: also 4' S on 1st 2 8.0 mag
3rd Obs β Delph. 1st only +14°15 ...... (?) prec star on last 2 of 1st, 1/2' N
4th Obs ν Capricorni −18°30 1st only 1st
5th α Delph +15°34 2nd Obs 4' S, 6.0 mag ~~also~~ than α Delphini
6th α Cygni +44°55 last 7
7th ε Cygni +33°36 all

Last mins 20h 48 before rattle

	ν Capricorni	α Delphini	α Cygni	ε Cygni	
	−18°30	+15°34'	+44°55 last 7	+33°36	
	1st	2nd			
	20h 34 55.0	20h 36 16.1	20h 39 (25.7	20h 42 38.9 12.9	28.8
	57.0	18.3	23.0	41.3	31.0
	1.3	21.0	29.5	46.2	34.3
	4.1	24.0	33.5	49.5	37.6
	6.1	26.0	36.0	51.8	39.9
	8.0	30.1	41.8	54.0	44.7
	11.0	32.3	44.7	57.2	47.2
	442.5	167.8	234.2	338.9	263.5
	63.22	23.97	33.46	48.42	37.64
	21.62	21.28	28.96	24.61	24.61
	20h 35 24.84	20h 36 2.69	20h 39 4.50	13.03	13.03
	20 34 25.96	20 34 3.54	20 38 5.26		20h 43 13.03
	58.88	59.15	59.24		20 42 13.80
					59.23
Used n=.3	.37	.19	.03		.07
	59.25	59.34	59.21		59.30
Used n=.25	.31	.16	.02		.06
	59.19	59.31	59.22		59.17
Used n=.33	.41	.21	.03		.08
	59.29	59.36	59.21		59.31
Used n=.4	.50	.25	.04		.10
	59.38	59.40	59.16		59.33

Adopted n=.3

n as .25 as .30 as .33
+18 .19 .25 .29
+15 .31 22 .34 30 .36 32 75 164
+33 .17 .30 45 150 .31
+44 .22 .21 2 42 .21 x2 42
89 110 41 117 202
.22 .28 .29 .20
19
.22 .24 .24

59.24
.50 = [illegible]
59.74

Frod 1327 is fast

0 5~~8~~9s.74 at 20h 40
Sid Time

July 30 1900

July 3~~0~~1 - 1900 - Tuesday

Mer. Circle - J.A.D. obsr. - Daylight obs.

η Urs. maj. +49°49 Wire 8 of. last 7 w.
η Bootis +18°54 all
θ Bootis +52°18 all
ρ Bootis +30°49 1st 7
γ Bootis +38°44 all, ~~Last [illegible]~~
Rattle through 14h 37

	η Urs. Maj.	η Bootis	θ Bootis	ρ Bootis	γ Bootis
	+49°49	+18°54	+52°18	+30°49	+38°44
	last 7			1st 7	
	13h44 37 57.7	13h50 27.0 57 11.0	14h22 25 49.0 10.5	27 59.8	28 28.3 47 21.6
	0.6	29.2 13.0	5.8 13.6	2.3	30.9 24.0
	4.7	33.5 15.8	12.4 18.0	7.0	36.1 27.5
	9.0	36.3 18.7	16.7 22.5	10.2	39.6 31.0
	11.9	38.4 20.7	19.8 25.4	12.3	42.0 33.3
	18.2	40.4 25.0	22.8 32.0	14.5	44.4 38.5
	21.3	43.2 27.2	27.3 35.4	17.6	47.8 41.2
	48.34	248.0 131.4	107.3 157.4	63.7	269.1 217.1
	69.06	35.43 18.77	15.33 22.49	9.10	38.44 31.02
	31.28	21.67 21.67	33.53 33.53	23.87	26.28 26.28
	13h44 37.28	57.10 57.10	48.86 48.96	32.97	4.72 4.74
		13h50 57.10	14h22 48.91	28 32.97	28 4.73
	13 43 37.74	13 49 57.787	14 21 49.20	27 33.55	28 5.220
	59.54	59.31	59.71	59.42	59.51
Used n = .25	.07	.14	.09	.08	.03
	59.47	59.45	59.62	59.50	59.54
Used n = .30	.08	.17	.11	.09	.03
	59.46	59.48	59.60	59.51	59.54
Used n = .2	.05	.12	.07	.06	.02
	59.49	59.43	59.62	59.48	59.53
Used n = .33	.09	.19	.13	.10	.04
	59.45	59.50	59.58	59.52	59.55

See left for correction for error of 1 day in taking R.A. from alman.

Continued

	n as .2	n as .3	n as .25
+18°	.43	.48	.45
+30	.48	51	50
+38	.53	54	54
+49	.49	.46	47
+52	.63	.60	.62
	255	259	258
	.51	.52	52

Adopted n = .3

	59.52
	.50 = brecd
	60.02
Correction for 1 day (see sph)	−02
	60.00

Frod 1327 is fast

0^m $60^s.00$

at 14^h 10^m Sid Time

July 31-1900

August 1 – 1900

~~July 1 – 1900~~

Mer Circle J.A.D. Obs

η Boötis +18°54 all.

α ~~Boötis~~ Draconis +64°52 all wires; the first tap is for the 1st wire; the second, which is preceded by a rattle and also followed by one is an estimate of the middle point between wires 1 & 2; similarly for all wires and half way points except the half way points btw 7-8 and 8-9.

α Boötis: +19°42 Same experiment 1st tap is wire.

λ Boötis +46°33; Wire 8 & last 7; of last 7, 1st tap is wire; same experiment

Last minute 14h 15

	η Boötis			α Draconis ~~Boötis~~			α Boötis			λ Boötis	
	+18°54			+64°52			+19°42,			+46°33	last 7
	13h 50 27.3	57.4	11.3	14h 1 35.0	42.0	12.8	14h 11 37.8	8.0	22.0	14h 13 36.6	55.8
	29.5		13.3	39.8		17.4	40.0		24.0		58.5
	33.8		16.0	49.5		23.5	44.2		26.8		2.4
	36.6		19.0	53.6		30.0	47.1		29.7		6.3
	38.6		20.9	0.1		34.5	49.1		31.7		9.1
	40.6		25.2	4.5		~~39.1~~ 44.0	51.1		36.0		15.0
	43.5		27.4	10.9		~~46.5~~	54.0		38.1		17.9
						~~48.6~~ 48.8					
	249.9		133.1	375.4		211.0	323.3		208.3		46.80
	35.70		19.02	53.63		30.14	46.19		29.76		66.43
	21.67		21.67	48.28		48.28	21.78		21.78		29.81
	57.37		57.35	41.91		41.86	7.97		7.98		36.62
						.88					
	13 50 57.36			14h 2		41.88	14h 12 7.98				14h 13 36.62
	13 49 57.76			14 1		41.62	14 11 8.37				14 12 36.72
	59.60					60.26	59.61				59.90
Mar 1.3	.17					.37	.16				.04
	59.77					59.89	59.77				59.86
Mar .4	.23					.49	.22				.05
	59.83					59.77	59.83				59.85
M = .35	.20					.43	.19				.04
	59.80					59.83	59.80				59.86

+64°52
+19°42

+2.13 60.26
.36 59.61
(1.77) .65 [.37
.531
1.200

n = .37

Adopted
n = .35

~~+17~~	
+18	.80
+19	80
+46	86
+64	.83
	.82

0 59.82
.50 = barcl
0 60.32

Frod 1327 is fast 0m 60s.32 at 14h 0m Sid Time August 1 – 1900

Aug 1 - continued

Reduction of experimental observations (see notes p.1.)

α ~~Bootis~~ Draconis +64° 52

~~14h 1 37.3 44.5~~

14h 1m	37.3	44.5	~~49.3~~ 52.7	57.8	2.4	7.6	— 15.0	20.6	26.7	32.2	~~43.0~~ 39.1	46.5
	1.4378	1.3869	1.3218	1.2714	1.2260	1.1625	1.1492	1.2142	1.2808	1.3302	1.3864	1.4378
	0.3719	0.3719	0.3719	0.3719	0.3719	0.3719	0.3719	0.3719	0.3719	0.3719	0.3719	0.3719
	1.8097	1.7588	1.6937	1.6433	1.5979	1.5344	1.5211	1.5861	1.6527	1.7021	1.7583	1.8097
	64.52	57.38	49.40	43.98	39.62	34.23	33.20	38.56	44.95	50.36	57.32	64.52
	41.82	41.88	42.10	41.78	42.02	41.83	41.80	42.04	41.75	41.84	41.78	41.98

Mean = 14h 2m 41s.88

Obs. of wires give 14 2 41.88

diff. = 0s.00

-.06
00
+.22 -10
+14 -05
+.16 -08
+.10 -13
-04
-10
-10
+.62 -.66

+.62
-.66
12)1.28
.11 = Av. dev.

α Bootis +19° 42

14h 11m	38.9	42.1	45.8	48.2	50.2	52.5	- 23.0	25.5	28.3	30.7	33.7	37.0
	1.4378	1.3869	1.3218	1.2714	1.2260	1.1625	1.1492	1.2142	1.2808	1.3302	1.3864	1.4378
	0.0262	0.0262	0.0262	0.0262	0.0262	0.0262	0.0262	0.0262	0.0262	0.0262	0.0262	0.0262
	1.4640	1.4131	1.3480	1.2976	1.2522	1.1887	1.1754	1.2404	1.3070	1.3564	1.4126	1.4640
	29.11	25.89	22.28	19.85	17.87	15.44	14.97	17.40	20.28	22.72	25.86	29.11
	8.01	7.99	8.08	8.05	8.07	7.94	8.03	8.10	8.02	7.98	7.84	7.89

Mean = 14h 12 8.00

Obs. of wires give 14 12 7.98

diff = -0s.02

+.03 -.04
+.01 00
+10 -14
+07 -09
+09
+.05 -27
+.12
+.04
+51

+51
-27
12)78 (.06 = Av. dev.

λ Bootis +46° 33

Cant Talley

14h 13	57s.1	0.3	4.3	7.7	11.9	16.4
	1.1492	1.2142	1.2808	1.3302	1.3864	1.4378
	0.1626	0.1626	0.1626	0.1626	0.1626	0.1626
	1.3118	1.3768	1.4434	1.4928	1.5490	1.6004
	20.50	23.81	27.76	31.11	35.40	39.85
	36.60	36.49	36.54	36.59	36.50	36.55

Mean = 14h 13 36.54

Obs. of wires give 14h 13 36.62

diff = + 0s.08

-02
-13
-08
-03
-12
-07
6)45
.08 = Av. Dev.

Remark by J.A.D. {Note; The above reductions show that observations of the estimated half way place between the wires give remarkable good results, even with individual observations, the mean being about as accurate as wire observation

August 3-1900

Mer Circle J A [illegible]

ε Urs Maj +56°30 last tally

ζ Urs Maj [illegible] on last tally as missed by one lady

+55°27 [illegible] ordered by other visiting lady

η Urs Maj +49°49 last 6 of 7

Last min $13^{h}56$

last tally
ε Urs. maj.
+56°30
$12^{h}51$ 3.4
6.6
11.5
16.5
19.7
27.2
30.6
11.45
16.36
37.14
$12^{h}50$ 39.22
12 49 38.91
60.31
[illegible] .33 20
60.11

last 6 of last 7
η Urs Maj.
+49°49 1.1
$13^{h}45$ 5.3
9.7
12.6
18.9
21.0
68.6
11.43
33.67
$13^{h}44$ 37.76
13 43 37.64
60.12
.59
60.03

1.3370
0.1903
1.5273
33.67

60.07

60.07
.50 back
60.57

Frod 1327 is fast
1^{m} 0.57
at $13^{h}20$ Sid Time
Aug 3-1900

August 4-1900 JAD obs.

Meridian Circle - Level Determination

Telescope South

		E	W
Screw	E	-74.8	-44.0
	E	-73.0	-42.5
	E	-75.0	-44.0
	E	-72.3	-42.0
	W	+68.0	+98.0
	W	+70.4	+100.4
	W	+70.0	+100.0
	W	+68.0	+98.0

Telescope North

Screw	W	+33.0	+63.2
	W	+33.0	+63.0
	W	+30.3	+60.3
	W	+31.0	+61.0
	E	-78.0	-47.8
	E	-76.0	-46.0
	E	-75.0	-45.0
	E	-75.0	-45.0
		+276.4	+396.4
		+127.3	+247.5
		-295.1	-172.5
		-304.0	-183.8
		+403.7	+643.9
		-599.1	-356.3
			+287.6
		-195.4	-195.4

32) 92.2 (2.9
64
282
278
40

.06
.174
1.35
.23 b=.23

Use b sec φ = .3 West end high.

16 36 at 12

August 8 1900

Mr Curtis J A D. obs

Gap in clouds –

ζ Herculis +31°47 all but last $\overset{2}{3}$ w.

η Herculis +39°7 all

last min $16^h 48$

ζ Herculis

+31°47

16^h38 9.0 354 50.9
12.2 53.1
14.5 56.2
16.7 59.6
20.0 1.6
6.5
8.8

72.4 416.7
14.48 59.53

1.2494
0.0706
1.3200
20.89 24.12
35.37 35.41

16^h38 35.40
16 37 33.72
1 1.68
.10
1.78

Used was .33

η Herculis

+39°7

16^h39 55.7 323 49.3
58.3 51.8
3.6 55.2
7.0 58.8
9.5 1.1
11.8 6.4
15.4 9.0

46.13 41.16
65.90 58.80

26.42 26.42
32.32 32.38

16^h40 32.35
16 39 30.70
1 1.65
.03
1.68

1 1.73
.30 = base
1 2.00

Frod 1327 is fast

$1^m 2^s.03$

at $16^h 45^m$ Sid Time Aug 8 1900

Tuesday August 14-1900

Mer. Circle JAD obs

δ Bootis +33°41 at T and between wires

α Coron bor +27°3 all; 4 between wires

Last wire 15h 47

δ Bootis

α Coron. bor. +27°3

+33°41 at Tally	between wires
15h 11 59.2	0.4
1.6	4.0
6.4	8.1
9.7	11.8
12.0	13.0
14.1	15.8
17.4	
48.04	53.1
68.63	8.85
24.64	
33.27	1.3110
	0.0799
	1.3909
15h 12 33.27	24.59
	33.44

15 11 30.48
1 2.79
08
1 2.87

		between wires	
15h 31 0.6	32 5 47.2	1.6	48.3
3.8	49.3	5.0	50.9
7.4	52.3	9.0	53.9
10.5	55.3	11.6	56.5
12.5	57.5	13.6	59.7
14.6	2.1	16.1	3.2
17.7	4.2		
67.1	387.9	56.9	432.5
9.59	55.42	9.42	55.42
23.02	23.02	1.3110	1.3107
32.61	32.40	0.0503	0.0503
15h 31 32.50		1.3613	1.3610
		22.98	22.96
		32.40	32.46
			32.43

15 30 29.68
1 2.82
.13
1 2.95

1 2.91
30 = [illegible]
1 3.21

Frod 1327 is fast 1m 3.20

at 15h 20m Sid Time
on Aug 14-1900

Aug. 16-1900 - Thursday

Mer. Circle - J.A.D. obsr

ξ Cygni +43°32 all

61 Cygni pr. +38°15 Last 7

ν Aquarii -11°47 all

Last min 21ʰ 7

ξ Cygni	61 Cygni pr.	ν Aquarii
+43°32	+38°15 Last 7	-11°47

21 1 17.625
301

0.3384
9.9834
0.3218 +2.10

8.6535
0.5259 +.15
9.1794

8.8155
1.1799
9.9954 +.06
8.8106m
1.0820m .28
9.8926
+3.09
20 1 20.72

ξ Cygni:

21ʰ 1 46.0 25.3 43.5
48.6 46.0
54.5 49.7
58.3 53.5
07 56.0
3.3 1.6
7.0 4.5
3983 3748
56.90 53.54
28.26 28.26
25.16 25.28
21 2 25.22
21 1 20.72
1 4.50
.00
4.50

61 Cygni pr.:

21ʰ 3 32.7 49.6
51.7
55.2
58.8
1.1
6.5
9.0
4119
58.84
26.11
21 3 32.73
21 2 28.90
1 3.83
.04
3.87

ν Aquarii:

21ʰ 4 47.5 16.5 30.0
49.7 32.0
53.5 34.6
56.4 37.6
58.3 39.4
0.4 43.5
3.1 45.5
3889 2626
55.56 37.52
20.94 20.94
16.50 16.58
21ʰ 5 16.54
21 4 13.26
1 3.28
.37
3.65

Used 61 Cygni pr.

1 3.87
.30
1 3.90

Frod 1327 is fast
1 3.90
at 21ʰ 0 Sid Time
Aug 16-1900

20-47 at 58

Sunday, Aug 19-1900

J.A.D., Sr.
Mer. Circle

32 Vulpec. +27°41 last 2nd wire
90 prec 3' N 1st w
90 prec ½' N 1st w
90 foll ½' N 15th w
& 80 foll 2' N 15th wire

γ Cygni +40°47 prec 8.5 star 6' N on central wire
→ γ Cygg. on last 7

61 Cygni pr +38°15 last wires 9 & 10
γ Aquarii −11°46 all Last wire 21h8 before rattle

32 Vulpec.	γ Cygni	61 Cygni	γ Aquarii
+27°41	+40°47	+38°15	−11°46'
	last 7		
20h50 54.0 41.1	54 52.5	21h2 57.2 ×	21h4 48.5
× 48.3	55.0	00 ×	50.5
0.9 46.2	58.6	5.0 56.2	54.6
4.1 49.2	2.2	8.5 59.5	57.4
6.1 51.5	4.5	11.0 1.9	59.3
8.2 56.1	10.0	13.2 7.1	1.2
11.5 58.5	12.6	16.8 9.8	4.0
308 345.9	435.4	471.7 314.5	395.5
6.16 49.42	62.20	67.39 62.90	56.50
23.16	27.08	26.09	20.94
26.26	35.12	33.48	~~35.56~~ 17.44
20 50 21.87	30.65	28.90	13.27
1 4.39	4.47	4.58	~~22.29~~ 4.17
.13	.01	.04	.38
4.52	4.48	4.62	4.55

−11	4.55	573
+27	4.52	
+38	4.62	85
+40	4.48	
	21.7	
	4.54	
	30	
1	4.84	

Frod. 1327 is fast 1m 4s.84

at 21h0

Sid Time

Aug 19-1900

4 45 = 15 [illegible]

Tues. Aug ~~[illegible]~~ 21st, 1900
Mer Circle
JAD [illegible]

ι Drac. +59°19 ad
α Cor bor. +27°3

$15^{h} 57^{m}$

ι Drac
+59°19

$15^{h} 22^{m}$ 52.6 48.3 14.0
56.6 17.8
4.5 23.0
9.9 28.4
13.5 32.0
17.1 39.9
22.5 44.0

47 67 19 91
68.1 28.44
40.16 40.16

(~~46.97~~ 48.26) 48.28

15^{h} 23 48.28
15 22 43.04
1 5.24
.25
4.99

α Cor. bor.
+27°3

$15^{h} 31^{m}$ 26 ~~34.5~~ 34.5
48 49.3
9.5 51.5
12.6 54.4
14.5 57.5
16.6 59.5
19.6 4.1
6.4

80 2 40 27
11.46 57.53
23.02 23.02
34 48 34.51

$15^{h} 31^{m}$ 34.50
15 30 29.56
1 4.94
.13
1 5.07

1 5.03
.30 band
1 5.33

Frod 1327 is fast
$1^{m} 5^{s}.33$
at $15^{h} 30^{m}$ Sid Time
Aug. 21-1900

Thursday, Aug 23-1900

Mer Circle J.A.D. [illegible]

β Cephei (seen double; pr. star closest foll.) but observed on wt. 4w following star 6.5 mag 2½ fields above facing north

−17°7 γ Capricorni on wt

+57°2 13 H Cephei on wt : this is a triple star

ε Pegasi +9 25 wt 9.0 3' N obs on [illegible]

[χ Pegasi] +25°11 least 3 or 4 of trs and last]

π² Cygni +48°51 wt tak on for prec 8.5 st. 3' S on edge of field ; ~~of~~ during regular obs. the star π² itself was obs. on edge of field otherwise & half way between 13 & 14th wires to reduce the first tr.

Last min. 21 49 before end of ratt

γ Cap	13 H Cephei	ε Peg	π² Cygni
−17°7	+57°2	+9°25	+48°51
21^h35	21^h36 9.6	21^h39 57.3	21^h43 33.0
13.6	13.4	59.7	36.0
15.8	21.0	3.5	42.0
19.9	26.0	6.4	46.3
22.7	29.4	8.3	49.0
24.6	32.6	10.3	52.0
26.6	37.6	13.0	56.1
29.5			
152.7	169.6	45.85	31.44
~~34~~ 21.82	24.23	65.50	44.92
21.45	37.64	20.78	31.16
35 43.27	37 1.87	40 26.28	44 16.08
		21 39 20.67	21 43 10.24
		5.61	5.84
		.23	07
		5.85	5.91

1 5.87
.30
1 6.17

Fr. 1327 is fast 1^m 6.17^s
at 21^h40 Sid Time
Aug 23-1900

Monday, Aug 27-1900

Mr Cook J.A.D. [illegible]

[γ Serpentis] +15°59 lost 1st 2 wires; Is rest,
δ Scorpii −22°20 all but 1st 2 or 3.
Last num. 16h 6 Clouds come on.

γ Serpentis
+15°59

```
15h52  36.0   59.2  13.0
       38.9         15.0
       40.6         17.6
       42.6         20.5
       45.5         22.5
                    26.6
                    28.7
       ----------------
       203.6        143.9
        40.72        20.56
                     21.33
1.2494
0.0172
1.2666
 1848
----------------------
        59.20        59.23
     15h 52  59.21
     15  51  52.62
     ---------------
          1   6.59
Usual n = 33     .21
     ---------------
          1   6.80
```

δ Scorpii
−22°20

```
15h53   10.7  35.0  49.2
        13.7        51.3
        15.8        54.1
        17.7        57.1
        20.7        59.1
                     3.5
                     5.7
        ----------------
        78.6       ~~39.8~~
        15.72       40.00
                    57.15
1.2494              22.17
0.0338
1.2832
        19.20
        ----------------
        34.92       34.99
     15h 55  34.95
     15  54  28.60
     -------------
          1   6.35
                .44
     -------------
          1   6.79
```

```
1  6.80
    .30 = fair
-------
1  7.10
```

Frod 1327 is fast $1^m\ 7^s.10$

at 15h 55m Sid Time

Aug 27-1900

Thursday, August 30-1900

Mer Circle J.A.D. obsr

14h 48m first min.

β Urs. Min +74°34 last 7
β Bootis +40°47 all
δ Bootis +33°41' at
β Librae −9° 1 last
ι Drac +59°19 last
α Cor. bor +27°3

β Urs Min	β Bootis		δ Bootis	β Librae	ι Drac	α Cor bor.	
+74°34	+40°47		+33°4'	−9° 1	+59°19	+27°3'	
last 7	all						
14 52 54.9	58 42.2	199 37.0	12 34	0.7	22 54.8	31 48 36.6	51.5
1.9	45.0	39.6	58	27	58.6	2.1	53.6
11.6	50.3	43.0	10.6	55	6.6	11.6	56.6
22.3	53.8	46.7	140	83	12.0	14.6	59.6
29.3	56.3	49.1	16.1	100	15.6	16.8	1.7
44.1	58.6	54.6	18.5	14.2	19.3	18.9	6.4
52.0	2.3	57.3	21.6	16.2	24.5	22.0	8.6
5761	3685	3273	900	576	4914	958	4180
82.30	52.64	46.76	12.86	82.29	70.20	13.69	59.72
77.06	27.08	27.08	~~20.76~~ 24.64	20.76	40.18	23.02	23.02
5.24	19.72	19.68	~~33.62~~ 37.50	47.47	2, 50.38	36.71	36.70
14 52 5.24	59 19.70				23 50.38	31 36.70	
14 50 56.98	58 12.27		11 30.15	11 40.32	22 42.68	30 29.37	
1 8.26	1 7.43		1 7.35	1 7.15	1 7.70	1 7.33	
− .81	+ .01		+ .07	+ .32	− .22	+ .12	
1 7.45	1 7.44		1 7.42	1 7.47	1 7.48	1 7.45	

+74 34   −9 1
+3.68   −0.16
8.26   7.35
3.79) .91 (.3 =

+59 19 − 9 1
1.68   −.16
7.70   7.15

1.84) .55 (3
   56

m = .3

−9	7.42
+27	.45
+40	.44
+59	.48
+74	.45
	24
	1 7.45
	30s bauf
	1 7.75

Sid 1327 is fast
1m 7.75s

at 15h 10m

Sid Time
Aug 30-1900

Monday, Sept. 3-1900 Mer circle

ε Lyrae mean; 9th some other Do not use. D.A.S. obs

110 Herculis +20°27 last 3 wires

β Lyrae and companion { 1'S on middle wire 8.0 mag / 2'N last wire 9.0 / 1½ N 1st tab 9.0 }

σ Sagitt. −26°25 last 3

last tally o Draco +59°15 { Large 8.5 1' North / obs on 15th }

R Lyrae +43°49 last 5 · 19h 31 before zenith

γ Lyrae +32°33

19 28
19 0

110 Herculis +20°27 last 3 wires	β Lyrae +33°14	σ Sagitt. −26°25 last 4	+59°15 o Draco.	R Lyrae +43°49	γ Lyrae +32°33
42 56.5	47 0.3 50.0	50 38.9	57 20.0	53 53.0	55 49.6 235 39.0
1.0	3.0 52.3	41.0	23.6	56.9	52.0 41.1
3.1	7.6 55.6	45.5	28.8	59.2	56.8 44.3
	11.0 58.8	47.9	34.2	5.0	0.0 47.5
	13.0 1.0		39.4	8.0	2.3 49.7
	15.4 5.7		46.0		4.5 54.6
	18.7 8.4		50.0		7.6 57.0
1806	690 4118	1723	2410	3021	4128 3332
60.20	9.857 5883	43.08	34.43	60.42	58.97 47.60
	24.51 24.51		40.10		24.33 24.33
	34.37 34.32		50 54.33	1.3627	23.30 23.27
				0.1417	
	47 34.34			1.5044	56 23.28
	46 26.32		49 45.85	31.95	55 15.27
	1 8.02		1 8.48	53 28.47	1 8.01
	.08		.22	52 20.37	.09
	1 8.10		1 8.26	1 8.10	1 8.10

1 8.10
bumps .30
1 8.40

Frod 1327 is fast
1m 8.40
at 18h 50m Sid time

Wednesday, ~~Sept. 5 1900~~
Sept 4 $\frac{10}{10}$, 1900

Meridian Circle - Level:-

23^h 00
E.S.M.T.

Telescope south

	E	W
Screw east	- 74.0	- 39.5
E	- 74.0	- 39.5
E	- 72.5	- 38.0
E	- 74.5	- 40.0
W	+ 68.5	+ 102.0
W	+ 69.0	+ 103.8
W	+ 68.0	+ 102.0
W	+ 67.3	+ 102.5

Telescope north

W	+ 29.0	+ 63.0
W	+ 31.7	+ 66.2
W	+ 32.5	+ 67.0
W	+ 31.7	+ 66.0
E	- 74.7	- 40.0
E	- 76.0	- 41.3
E	- 74.0	- 40.0
E	- 73.8	- 39.4
	+ 272.8	+ 410.3
	+ 124.9	+ 262.2
	- 295.0	- 157.0
	- 298.5	- 160.7
	+ 397.7	+ 672.5
	- 593.5	- 317.7
	- 195.8	+ 354.8
		- 195.8

32) 159.0 (5
160
5.06
.30 = b
1.35
.40

1.35

32) 154. (4.97
128
310
288
220
.06
298

b_{φ} = .40

Use b^{sec}_{φ} = ^{s}.40

23h 20
E.S.M.T.

Sep 4 60/10. 1900

Mer. Circle – Collimation: – JAD. hr

78,1
79,5
78,5 431 7862
78,0 set at 786
79,0

Tel. on S. coll.

Found R.A. Micrometer 32,216

32.010
007
014
015
005
051 .0102

Tel. on N. coll.

32.385
386
375
378
387
1911

During these observations noticed for the first time a lateral movement of N. coll. wires; always has been up & down due to passing teams. the up & down movement is considerable

.3822
3924
.196
.012 above
208

No 8
Lines of reticule
is well adjusted
the motion of telescope

Set R.A. Mic. at 32.208

17 40
6 46

Friday, Sept 7-1900 JAD [illegible]
outer limb

M Herculis +27°46 last 7
ξ Draco 1st 4. +56·53
γ Sagitt. −30°26
72 Ophi +9°33 1st
o Herculis +28°45 and ✗ Last [illegible] 18'7 before [illegible]

M Herculis	+9°33	o Herculis
+27°46	1st	+28°45
last 7		

$\bar{4}$3 59.0	$\bar{3}$ 18.8	$\bar{4}$ 18.0	50.3 5.3
1.3	22.0	20.2	7.4
4.4	26.8	24.7	10.4
7.5	28.8	28.0	13.7
9.5	30.7	30.0	15.7
14.0	32.6	32.1	20.5
16.5	35.3	35.3	22.8
47.22	19.84	18.83	9.58
67.46	27.89	26.90	13.69
23.18	20.80	23.38	23.38
43 44.28	48.69	50.28	50.31
17 42 35.36	$\bar{2}$ 39.73		$\bar{4}$ 50.30
			3 41.28
1 8.92	1 8.96		1 9.02
.12	.23		.11
1 9.04	1 9.19		1 9.13

04
19
13
36
9.12
40

1 9.12
.40=[illegible]
1 9.52

Sid 1327 is fast

$1^m\ 9.52^s$

at $18^h 00$

Sid Time

16-44
37

Monday, Sept, 10-1900

Mer Circle –

J.A.D. obsr

α Scorpii -26°13 all
β Herculis +21°42 Wire 7, 8 & last 7
ζ Ophiuchi -10°22
η Herculis +39°07

Last min Seattle through 16h 43

	α Scorpii	β Herculis	ζ Ophiuchi	η Herculis
	-26°13	+21°42 Wire 7, 8 & last 7	-10°22	+39°7′
	16h 23 58.1 29.8 44.5	26 53.4 7.5 21.6	32 23.2 5.4	40 39.9 57.0
	04 46.5	23.8	25.2 7.4	59.5
	48 49.6 52.5	26.6	29.5 10.0	2.9
	7.9 54.6	29.6	32.2 13.0	6.3
	10.0 59.2	31.5	34.1 14.7	8.7
	12.0 7.5	36.0	36.0 19.0	~~11.0~~
	15.0	38.2	38.7 21.0	14.0
				16.5
	468.2 368.4	207.3	218.9 90.5	~~459.4~~ 464.9
	66.89 52.63	29.62	31.27 12.93	~~65.63~~ 66.42
	22.85 22.85	22.07	20.84 20.84	26.41
	29.74 29.78	7.55	52.11 52.09	40 40.01
	16h 24 29.76	27 7.55	33 52.10	
	16 23 19.97	25 57.54	31 42.24	39 29.91
	1 9.79	1 10.01	1 9.86	1 10.10
Used n = .3	.42	.15	.33	.03
	1 10.21	1 10.16	1 10.19	1 10.13
Used n = .25	.35	.12	.27	.03
	1 10.14	1 10.13	1 10.13	1 10.13

δ	s
-26	.21
-10	.19
+21	.16
+39	.13

n = .25

1 10.13
bend = .40
1 10.53

Frod 1327 is fast 1m 10.53s

at 16h 30m Sid Time

Thursday, Sept, 13, 1900

Mer-Circle - JSD. obs

These stars with others recorded under same date in book mic 15" of zone -9°50 to -14°10, page 166.

α Cygni
+44°35

20^h38 36.0 16.1 34.9
38.7 37.5
44.5 41.1
48.4 45.2
51.0 47.6
54.0 53.3
57.6 56.3
330.2 315.9
47.17 45.13
28.96 28.96
16.13 16.17

20 39 16.15
20 38 4.94
1 11.21
.01
1 11.22

ε Cygni
+33°36

20^h42 50.6 24.9 40.5
53.0 42.8
58.1 46.0
1.4 49.4
3.6 51.5
5.9 56.5
9.0 59.0
421.6 345.7
60.23 49.39
24.61 24.61
24.84 24.78

20^h43 24.81
20 42 13.62
1 11.19
.06
1 11.25

32 Vulpec.
+27°41

20^h51 0.8 32.9 47.7
3.0 49.8
7.7 52.7
10.8 55.9
12.8 58.0
15.0 2.7
18.0 5.0
68.1 391.8
9.73 55.97
23.16 23.16
32.89 32.81

20^h51 32.85
20 50 21.69
1 11.16
.10
1 11.26

Used
n = .25

1 11.24
b read = 40
1 11 64

Frod 1327 is fast
$\tilde{1}$ $11^s.64$

at 20^h40 Sid Time

Sept. 18, 1900 — Mer. Circle — J. A. D. obsr.

These observations recorded on page 177, Mic 15, zone −9°50′ to −14°10.

	π Pegasi	θ Aquarii	η Lacertae
	+32°41	−8°17	+49°46
	22h6 17.5 6.8	22h12 23.2 5.3	22h27 45.3 28 49.8
	20.0 9.0	25.3 7.2	48.5 52.7
	24.6 12.2	29.3 10.0	54.8 56.9
	15.5	32.3 12.8	59.0 1.2
	17.8	34.1 14.6	2.0 4.1
	22.6	36.0 18.7	4.9 10.4
	25.2	38.7 20.8	9.1 13.6
	1091	2189 894	4036 4287
	15.59	31.27 12.77	57.66 61.24
	24.36	20.72 20.72	31.75 31.75
	22h 6 51.23	51.99 52.05	29.41 29.49
		22h 12 52.02	22h 28 29.45
	22 5 36.94	22 11 37.83	22 27 14.81
+1.483 −.146 1.33) .45 (.34 .40 .50	1 14.29	1 14.19	1 14.64
Used m as .33	+.09	+.35	−.09
	1 14.38	1 14.54	1 14.55
Used m − .4	~~+.10~~	~~+.42~~	~~−.10~~
	~~1 14.39~~	~~1 14.61~~	~~1 14.54~~
Used m − .2	~~+.05~~	~~+.21~~	~~−.05~~
	~~1 14.34~~	~~1 14.40~~	~~1 14.59~~
Used m − .25	~~+.07~~	~~+.26~~	~~−.07~~
	~~1 14.36~~	~~1 14.45*~~	~~14.57~~

.67 corr. for err of coll. −.74

1 13.77 13.81

−.2	−.25	−.33	−.4
34	36	38	39
59	57	55	54
.47	.47	47	.47
40	48	54	61
+28	+8	−28	−56
+6	+2	−6	−11
.46	.47	.48	.50

1 14.47
40 = [illegible]
1 14.87

Frod 1327 is fast ~~14.87~~ 1h 13.80

at 22h 15m Sid Time

corrected for coll. on Sept 28

18 22
6 0

Sat. Sept, 22, 1900

J.A.D. obs. Mer. Circle

α Lyrae +38°41 obs.
~~+65°24~~ not obs
5 Lyrae m. +39°30
110 Herculis +20°27 1st 5 w. of 2nd [illegible]

Last min. 18h 45m

α Lyrae		5 Lyrae m.	110 Hercul.
+38°41		+39°30	+20°27
			1st 5 w. of 2nd T.
18h34m 14.4	50.8 7.7	18h41m 44.8	
17.0	10.2	47.5	18h42m 53.7
22.1	13.5	52.8	55.7
25.7	17.0	56.5	58.5
28.0	19.5	58.8	1.6
30.4	24.6	1.2	3.4
33.8	27.3	4.8	
171.4	119.8	386.4	292.9
24.49	17.12	55.20	58.58
			18.93 ~~24.60~~
26.27	26.27	26.57	~~33.98~~ 39.65
50.76	50.85	~~28.63~~	
18h34m 50.80s		18 42 ~~28.63~~ 21.77	18 42 ~~37.98~~ 39.65
18 33 35.53		41 6.35	18 41 24.38
1 15.27		1 15.42	1 ~~9.60~~ 15.27
.04		.03	.18
.31		1 15.47	.45
.04		.04	.22
.31		.46	.49
.02		−.02	−.11
.29		.44	.38
Corr. for coll.		−.72	−.60
		1 14.75	−.14.85

1.2490
0.0283
1.2773

1.3627
0.0283
1.39 10 ~~2460~~

18.93

262
18 41 3.950

0.2984
0.0167
0.3151 2.065

7.9911
0.5040
8.4951 .031
8.1875
1.2731 .289
9.4606

8.9296n
9.1688n .012
8.0984 6.347

m 33

.4

2

31	31	29
47	46	44
45	49	38
123	126	111
.41	.42	.37

1 15.40
.40 = [illegible]
1 15.80

Frod 1327 is fast
1m ~~15.80~~s 14.80
at 18h 40m Sid Time

corrected for collimation Sept 28

Sep 24-1900

mer. Circle - J.A.D. obs

Record in zone book - 9·½·14' marked "mic 15"

ρ Persei	δ Arietis
+38°27	+19°21
last 4 of II	last 5 of I
3h 0 33.5	3h 6 51.4
36.1	53.9
40.9	56.0
43.5	58.2
	0.9
1540	2804
38.50	56.08
1.3874 -	1.2494
0.1062	0.0253
1.4936 31.66	1.2747 1883
3h 0 7.34	3h 7 14.91
2 58 51.21	3 5 57.08
1 16.13	1 15.83
03	.17
1 16.16	1 16.00
-73	-59. corr. for collimation
1 15.43	1 15.41

~~1 16.16~~
~~.40~~
~~1 16.56~~

15.42
.40 fast
15.82

Frod 1327 is fast

~~1 16s56~~
1h 15.82
at 3h 0 Sid Time

corrected for collimation Sep 28

Sep. 26–1900

Mer Circle J.A.D. Obs

η Serpent. −2°55 8th & last T

109 Hercul. last 2 f 2

b Drac +58°44 8 & last T

Chronograph defective 18h 26 last min

α Lyrae +38°41 observed also later & recorded.

η Serpent.		109 Her.	b Drac		α Lyrae		
−2°55′			+58°44		+38°41		
27.5	40.6	13.5	44.5	9.8	15.2	51.9	8.5
	42.6	15.7		13.6	18.0		11.0
	45.2			19.0	23.0		14.4
	47.9			24.4	26.5		18.0
	49.8			27.6	29.0		20.4
	54.0			35.7	31.3		25.5
	56.0			39.6	35.0		28.0
	3361	14.60		1697	1780		1258
	48.02			24.24	25.43		17.97
	20.53			39.50	26.27		26.27
	27.49			44.74	51.70		57.70
	18 16 11.31			18h 22 28.02			51.70
							18 33 35.43
	1 16.18			1 16.72			16.27
	.32			.23			.04
	1 16.50			.49			16.31

1.64
.05
1.29) .54 (31
.5
.30

m = 33

50
49 = 50 } ,40
.31 = 31
130
.43

.41
Mean .40
1 16.81

Frod 1327 is fast

1 16.81

at 18h 20

Sid Time

Oct 2 - 1900

Rattle through first min 19^{h}40
Mer Circle - J.A.D. obsr

δ Cygni +44°53
α Aquilae +8°36 wt. 1/2 on account of brightness
ε Drac +70° Wire 8
β Aquilae last 4 +6°9
ψ Cygni +52°10, 1st last 3 or 4 ; II last 4 5
γ Sag. +19°13 II all
Rattle after 19^{h}57

δ Cygni	α Aquilae	ε Drac Wire 8	β Aquilae	ψ Cygni	γ Sag.
+44°53	+8°36	+70°	+6°9	+52°10	+19°13
19^{h}43	19^{h}46	49^m	52	I	55 52.8
29.2	46.1 14.8 28.0	49.2	5.3	53 53.4 54 51.0	54.6
31.8	48.2 29.9		7.1	56.2 63.6	57.5
35.5	52.0 32.7		11.2	08 58.5	0.6
39.6	55.0 35.5		this end Wires 12	5.5	2.5
42.0	56.7 37.4		13	85	6.8
47.8	58.6 41.5		14		9.0
50.8	14 Lost				
27 67	37 80			17 04 29 91	42 38
39.53	54.00			56.80 59.82	60.54
28.95	20.74			1.4102 1.3627	21.71
43 10.58	47 14.74	49 49.2		0.2123 0.2123	55 38.83
				1.6225 1.5750	
				41.43 37.58	
				38.73 22.24	
				Not used.	
19^h 41 53.54	19 45 57.69	48 31.89			54 21.84
1 17.04	1 17.05	1 17.31			1 16.99
.00	08	18			.06
1 17.04	1 17.13	1 17.13			1 17.05

2.75
15
2.60).26 (.1

8 13 } 04 } 06
19 05 } 04 }
44 .04
22
.07

17.06
1 17.40
17.46

Chr. 1327 is fast 1^m 17^s.46
at 19^{h}50 Sid Time

October 5-1900

$0^h 40$
E.S.M.T.

Level: Meridian Circle –

S.S.D., Obsr

		E	W
Telescope S - Screw	W	+64.5	+103.0
	W	+66.0	+105.0
	W	+65.5	+104.5
	W	+68.0	+107.0
	E	–76.0	–37.0
	E	–75.7	–37.0
	E	–71.0	–32.5
	E	–72.5	–33.7
Telescope N, Screw	E	–78.0	–40.4
	E	–78.0	–40.5
	E	–78.3	–41.0
	E	–77.5	–40.0
	~~W~~	~~+32.0~~	~~+70.0~~
	W	+27.0	+64.0
	W	+28.0	+66.0
	W	+25.0	+63.0
	W	+24.5	+62.2

+264.0	+419.5
+104.5	+255.2
–295.2	–140.2
–311.8	–161.9
+368.5	+674.7
–607.0	–302.1
–239.5	+372.6

+372.6
–239.5

32)133.1(4.1
128
5.1

.306
4
1.224 6
1.35
.33

b sec φ = .33, W. end high

Collimation:-

of Meridian circle will
be found in book marked
'Mer. 15' & following, of zone
-9°50' -14°10 of mer. circle.

Oct 5, 1900

October 5-1900

Mer. Circle ---   J.A.D. obs.

These stars taken from list recorded on page 188, book marked "Mic 15", of zone -9°50 to -14°10'

θ Lyrae		x Cygni		β Cygni		θ Cygni	
+37°57		~~+53° 11~~		+27°45		+49°59	
		~~h+T Cloud 6~~					
38.0 14.1	30.8	~~23.2~~		29.8 2.0	16.8	21.5 5.8	26.1
40.6	33.2	~~30.0~~		32.2	19.0	24.6	29.1
45.8	36.6	~~34.6~~		36.8	22.0		33.3
49.5	40.1	~~37.6~~		40.0	25.1	31.1	37.5
51.6	42.5	~~40.8~~		42.0	27.4	35.2	40.4
54.1	47.6	~~45.2~~		44.1	31.8	38.0	46.8
57.5	50.2			47.1	34.2	41.0	49.9
					~~36.4~~	45.2	
337 1	281 0	~~211 4~~	1.2833	272 0	176 3	236 6	263 1
48.16	40.14	~~35.23~~	0.2226	38.86	25.19	33.80	37.59
26.02	26.02	~~32.05~~	1.5059	23.17	23.17	31.89	31.89
14.18	14.12	~~3.18~~		2.03	2.02	5.69	5.70
	14.15				2.02		5.70
19 12	56.13	~~19 14 49.30~~			44.09		47.75
	18.02	~~13 88~~			17.93		17.95
	.01				.04		.03
ʌ	18.03			ʌ	17.97	ʌ	17.92

Used mean!

18.03
17.97
17.92
18.00
.33 = b sec φ
1 18.33

Frod 1327 is fast

1^m 18.33

at 19^h 20^m Sid Time

Oct. 11–1900

Mer Circle

ε Cygni +33°36 W8 & 2nd T.
λ Cygni +36° 7 2nd T.
32 Vulpec +27°40 1st T
γ Cygni +40°47 1st T, 20h55 before rattle

ε Cygni	λ Cygni	32 Vulpec.	γ Cygni
+33°36	+36°7	+27°40	+40°47
W8 : 2nd T.	2nd T.	1st T	1st T
20h43 325 48.3	45 9.7	51 8.6	54 11.9
50.6	12.0	10.9	14.4
53.9	15.3	15.6	19.9
57.0	18.8	18.6	23.5
59.5	21.0	20.8	25.9
4.2	26.0	22.7x	28.4
6.7	28.6	25.8	32.0
4002	1314	1230	1560
57.17	18.77	17.57	22.29
24.61	25.37	23.15	27.08
20h 43 32.56	44 53.40	51 40.72	54 49.37
20 42 13.13	43 33.94	50 21.26	53 29.90
1 19.43	1 19.46	1 19.46	1 19.47

m assumed = 0

1 19.46
33
1 19.79

Frod 1327 is fast

1m 19s.79

at 20h50 Sid Time

Monday, October 15 1900

Mer Circle

J.A.D. [illegible]

θ Cygni +49°59 1st Cat 2: Wu 8; III among [illegible] of [illegible]
is 1 tick fol by rattle. for wire 15 for star
6.0 mag, 2½′ North

δ Cygni +44°5 3 1st (I) 1st tick foll by short rattle is for 1st or
6.0 mag star ±10′ S

δ Sagitt, +18°17 ad 19h 46 before rattle

θ Cygni
+49°59
2nd Tally

17 35 27.6
30.5
34.6 } 1st 5
39.0
41.9

1736
34.72

1.3449~~0~~
1919
1.4409

27.60

19 35 7.12
19 33 47.43
1 19.69
.02
1 19.71

δ Cygni
+44°55

19s42 32.7
35.8 1st 3
41.5 7 [illegible]

1100
36.67

1.4102
0.1498
1.5600
36.31

19 43 12.98
19 41 53.18
1 19.80
01
1 19.81

~~δ Sagitt. +18°17~~
~~[illegible] 5w~~
~~Cast 7~~

~~19s43 53.0 32.4~~
~~58.0 34.4~~
~~59.7~~
~~1.7 37.1 ~~4~~ 57~~
~~4.6 40.0 2nd~~
~~42.0~~

~~2990 185.9 1449~~
~~59.80 ~~37.18~~ 36.23~~

~~1.3444 4~~
~~0.0222 5~~
~~1.35 79~~

~~17.76 [illegible]~~
~~2 [illegible]~~

~~19 44 17.56~~
~~19 42 58.65~~
~~1 18.91~~
~~.06~~
~~1 18.85~~

1.2204
0.0222
1.2426

~~17~~48
18.50
18.75

1 19.75
.33
1 20.08

Frod 1327 is fast
1 20s.08
at 19h 40 Sid Time

October 19-1900

Mercurite

J.A.D. ~~obs~~

Note:- 45s break of Clock Frod 1327 is almost a second in duration

x Androm. +43°47 last tally
ω² Aquarii −15°6′ all
41H Cephei +67°15 wt
φ Pegasi +18°34 Star faint especially over 2nd tally
Rattle after 23h52 : Clouds

x Androm.	ω² Aquarii		+67°15	φ Pegasi	
+43°47′	−15°6		41H Cephei	+18°34	
II	I	II	I	I	II
23h37 12.0	23h38 27.7 ~~37.0~~ 57.0	11.0	23h43 20.0	23h48 18.9	2.8
14.5	29.6	12.8	25.7	21.1	5.0
18.5	34.0	15.4	36.1	25.4	8.0
22.3	36.9	18.0	43.3	28.4	10.5
24.8	38.9	20.2	48.2	30.1	12.7
30.6	40.7	24.5	53.2	32.1	16.8
33.1	43.5	26.6	0.2	35.0	18.8
155.8	251.3	128.5	286.7	191.0	74.6
22.26	35.90	18.36	40.96	27.29	10.66
28.41	21.23	21.23	53.02	21.63	21.63
~~23h37 50.67~~	57.13	57.13	44 33.98	48.92	49.03
				2	1 wts
23 36 53.85	23h 38 57.13			48 48.95	
23 35 33.75	23h 37 36.62		45 13.83	23h 47 28.47	
1 20.10	1 20.51		1 20.15	1 20.48	
.00	.16		.19	.08	
1 20.10	1 20.35		1 20.34	1 20.40	

probably 57.0

335
x And.
23h35 28s.862

0.4678
0.0375
0.5053 +3.201

8.8029
0.5595
9.3624 +0.230

8.9629
1.2262
0.1891 +1.545

7.9938n
0.9550
8.9488n −0.089

+4.976
−.089
+4.887

23 35 33.749

n

2.385 | 20.15
−.270 | 20.51
2.655 | .36
9.5563
0.4240
9.1323

−15°	.35	} 37	} 33
+18	.40		
+43	.10		
+67	.34	34	
	1.19		
	.30		

1 20.33
.33 = band
1 20.66

Frod 1327 is fast
1 20s.66
at 23h45 Sid T

October 21-1900 — EAD. obs

Mer. Circle: - (Record in Mic Book No 15 zone 9 52-4″10)

~~τ Persei~~

β Triang +34°31	ξ Ceti +8°1′	τ Persei +52°21	γ Persei +53°7
I	I	II 56.8	II
2h 4m 25.2	2h 23m 45.2	2h 48m 59.9	2h 59m 20.5
27.5	47.1	4.3	23.8
32.4	51.5	8.8	28.0
35.7	54.0	11.9	32.6
38.0	56.0	18.4	35.8
40.3	57.9	21.8	42.5
43.6	06	26.1	45.9
2427	3723	912	2281
34.67	53.19	~~1303~~	32.59
		-3.2	
		880	
		261	
		619	
		8.8.43	
		~~28.43~~	
24.88	20.70	33.55	34.65
2h 4m 59.55	24 13.89	48 35.29	58 58.44
2 3 41.04	22 55.22	47 16.71	57 40.00
1 18.51	1 18 67	1 18.58	1 18.44
.03	.10	.05	.05
.48	.57	.63	.49

m = 13

67 } 59 + 2 18
51

58 } 51 + 3 — 3
44 — 5 131
— .56
226 — .56
.55

57 } 52
48

63 .53
49 — .53

217
54

1 18.54
.33 = band
1 18.87

Frod 1327 is fast

1m 18s.87

at 2h 30m Sid Time

October 22-1902
meridian circle: -
these stars reduced for "time" as Fr 1327 has changed its rate

A. S. obsr.
(recorded in Mic book
no 15 of zone)

R 538

φ Pegasi

+18° 34

23h 48m I

last 5	last 4
13.6	58.9
16.4	1.9
18.4	.5.1
20.3	7.3
23.2	
91.9	253.2
18.38	63.30
1.2494	1.3874
0.0233	0.0233
1.2727	1.4107
18.74	25.74
37.12	37.56

23h 48m 37.34
23 47 28.46
1 18.88
.08
1 18.80
.33 = b sec φ
1 19.13

this star
not used:

J.A.D. obsr
(recorded in Mic book
no 15 of zone)

γ Triang.

+33° 23

2h 12 11.4	1.1
13.8	3.4
18.6	6.6
21.9	10.0
24.3	12.1
26.4	17.0
29.6	19.5
20.86	9.96
24.56	24.56
45.42	45.40

2 12 45.41
2 11 27.59
1 17.82
- 03
1 17.79
33 = b sec φ
1 18.12

Fr. 1327 is fast

1 18s.10

at 2h 10m Sid Time
Oct 22

October 23-1900

Mer. Circle - Record in Mic. book of zone No 15 J.A.D. Asr.

12 Ceti x
-4°31
W15
0h 26 45.9
1.4537
0.0013
1.4550
28.51
0 26 17.39
0 25 06.0
1 16.79

ξ Cass	π Androm	δ Androm	α Cass
+53°21	+33°10	+30°19	+55°59
I	II	II	II l. wires
0h 31 38.6	0h 33 9.9	0h 35 35.7	0h 36 35.7 39.8
22	12.2	38.0	~~39.8~~
9.0	15.4	41.0	38.0 44.4
13.5	18.7	44.3	41.0 49.4
16.6	20.8	46.3	44.3 52.6
19.8	25.6	51.0	55.7
24.5	28.0	53.5	3.5
842	1306	3098	3094
1 2.03	18.66	44.26	51.57 ~~54.57~~ ~~44.26~~
34.33	24.49	23.74	3886 3 ~~8.86~~
			36.66 ~~36.66~~
0 32 46.36	32 54.17	35 20.52	36 ~~7.54~~ 7.34
0 31 29.75	31 37.29	34 3.76	34 53.85
			~~1 11.69~~
1 16.61	1 16.88	1 16.76	1 16.86

~~1.3627~~
~~0.2524~~
~~1.6151~~
1.3370
0.2524
1.5894
38.86
41.22
12.71

(R 3) in book
γ Pegasi
+14°38
A.S obs.
0h 9 40.3
42.3
45.0
2nd 47.8
wts 49.8
225.2
45.04
1.2490
.0143
1.2633
1833 18.33
0 9 26.71
0 8 9.70
1 17.01
.33
1 17.34
from A. Searle

m comp.
+55 59 16.86 +1.48
-4 31 16.79 -.08
1.6) .07 (.00 = m

-4 -16.79
+30 ~~78~~ 86 82
+33 88 } 78
+53 61 73
+55 86.
390
.78

1 16.78
temp - .33
1 17.11

Frod 1327 is fast
1m 17s.11
at 0h 30m
sid time

Oct. 24-1900

Recorded in book no 15 mic, book of zone -9·62 to +4·

	α Persei	ν Persei	δ Persei
	+49·30	+42·16	+47·28
	25 17 49.8	2~~3~~ 39 7.8	2~~3~~ 36 29.0
	528	10.5	31.9
	590	16.1	37.8
	63.0	19.7	41.9
	66.1	22.1	44.7
	69.1	24.9	47.4
	73.3	28.5	51.5
	4333	1296	2842
	6190	1852	4060
	31.57	27.70	30.34
	2~~3~~ 18 33.47	2~~3~~ 40 46.22	2~~3~~ 37 00.94
	2~~3~~ 17 17.58	2~~3~~ 38 30.10	2~~3~~ 35 54.71
	1 1589	1 16.12	1 ·16.23
Used n=2	+.05	00	+.03
	1 15.94	1 16.12	1 16.26

δ
+42 + 12 } 12 × 2 4
+47 + 26 }
+49 − .06 } 10 + 3
32
.10

1 16.10
.33 = brng
1 16.43

Frod 1327 is fast

$1^m\ 16^s.43$

at ~~3~~ $2^h\ 30^m$ Sid T.

cloudy spell

Nov 2-1900

Stars recorded in Mer 16" book & Zone.

2R.D. [illegible]

	ν Persei	δ Cass	γ Androm
	+48°7	+59°43	+41°51
	I	II	II
			read 1s too much
	1h 32 25.1	1h 20 59.6	1h 59 20.6
	28.1	35	23.2
	34.4	8.9	26.7
	38.4	14.0	30.7
	41.2	18.0	33.1
	44.0	26.0	38.5
	48.0	30.3	41.1
	259.2	100.3	213.9
	37.03	14.33	~~30~~ 29 .56
	30.71	40.66	27.52
	1 33 7.74	1 20 33.67	1 59 2.04
	1 31 57.24	1 19 23.35	1 57 51.46
	1 10.50	1 10.32	1 10.58
Used n = 2	+.04	+.15	−.01
	1 10.54	1 10.47	1 10.57
n as 3	1 10.56	1 10.54	1 10.57

δ
+41 57 ×3 21 57 ×3 21
48 54 ×2 8 56 ×2 12
59 47 ×1 −3 54 ×1 4
158 6)26 17 6)37
.53 .54 56 .56

Gen mean = .55

1 10.55
33 = Frod
1 10.88

Frod 1327 is fast

1m 10.88s

at 1h 40m

Sid Time

Monday Nov 5 - 1900 - Mer Circle
Recorded in Mer 16-zone.
J.A.D. Lee

	δ Cas +58°43	φ Persei	2 Cas +63°11
	I	I	I
	1h 19 36.0	+50°11	1h 47 26.0
	40.0	1h 37 54.8	30.4
	48.0	57.9	39.5
	53.4	4.4	45.5
		8.5	49.6
	57.4	11.5	53.7
	10	14.4	57.6
	6.3	18.6	
	3621	4701	3043
	51.73	67.16	43.47
	40.67	32.03	45.42
		1 38 39.19	1 48 28.89
	1 20 32.40	1 37 29.74	1 47 19.74
	1 19 23.33	1 9.45	1 9.15
	1 9.07	.04	.17
na 15	.12		
	1 9.19	1 9.49	1 9.32
ar. 30	.24	.08	.34
	1 9.31	1 9.53	1 9.49
	.14	.03	.10
a 1	.21	1 9.48	1 9.25

m

47 H Ceph.	12 Erid.
+79°1	−29°23
Wire 7	Wire 1
2 53 3.0	8 48.1
1.1197	1.1197
0.7201	0.0599
1.8398	1.1796
69.15	15.13
54 12.15	9 3.23
53 3.40	7 53.64
1 8.75	9.59
1 9.59	5.15
.84	56
	5.71

9.9243
0.7566
~~0.6809~~
9.1677
.15 = m

.40 1.47
56
2.53

2.53) 140 (.10
25
150

.3	.15	.30
48	49	53
21	19	31
25	.32	.49
94	100	133
31	.33	.44

.26 × 1 −4
.31 × 2 +2
.33 × 2 +6
4
.30

.45 1.05 : .450
.07 .75 : 56
.15 .28 : 45
21) 551 (26
42
131

1 9.30
.33 = Pers φ
1 9.63

Frod 1327 is fast
1m 9s.63
at 1h 30m Sid time

Nov 9-1900

mer Cir.

Rattle through 23 18

70 Peg, +12°12   T²
[72 Peg.] +30°46 In clouds: faint object (in clouds) obs
on wb 6 of T²; object about 6 or 7' N of 72 Peg
72 Peg. on all wires

ι Androm +42°43
[x Androm +43°46] Wires 7, 8, & T²
All stars in cloud :- Rattle after 23h 38

ι Androm
+42°43

23 33 49.2   27.9 45.7
52.0   48.5
57.5   52.0
1.1   55.8
3.7   58.4
6.2   3.8
10.0   6.7
41.97   39.09
59.96   55.84
27.91   27.91
27.87   27.93

23 34 27.90
23 33 18.39
1 9.51
-33 - Corr
1 9.84

70 Peg +12°12

23 25 33.0
35.0
37.7
40.6
42.5
46.6
48.6
284.0
40.57
20.97
23 25 19.60
23 24 9.95
w. ar. 2   1 9.65
1-4
51

Frod 1327 is fast
1m 9s.84
at 23h 30m
Sid T

Nov 12 - 1900

JAD obs

12 Ceti −4°30 all
ζ Cass +53°20 all
+30°20 all

Rutt after 0h40

ζ Cass

δ Androm

25 ~~[illegible]~~
42.8 24.3
44.8 26.0
48.8 29.0
51.4 31.9
53.5 33.7
55.3
58.0 37.5
40.0
35 46 22 24
50.66 31.77
20 53 20 53
11.21 11.22
26 11.22
25 0.51
1 10.71
n = 2 .20
1 10.51
n = 3 .27
1 10.44

31 52.3 40 12.0
55.6 5.1
2.5 $\overset{9.5}{14.2}$
7.0 17.0
10.0 24.1
13.4 27.5
17.8
45 86 994
6552 14.20
34 33 34 33
39.85 39.87
32 39 86
31 29.58
1 10.28
.08
1 10.36
.12
1 10.44

34 41.3 44.2 29.8
43.5 31.6
48.3
51.3 34.8
53.5 38.0
55.8 40.0
58.9 44.8
47.2
35 26 26.59
50.37 38.00
23 75 23.75
14.12 14.25
35 .14 18
34 3.68
1 14.50
.07
1 10.43
.10
1 10.40

Use
n = 3

1 10.42
.33 = bench
1 10.75

Sid 1327 is fast
1m 10.75s
at 0h 30m Sid Time

15 wires each

Nov 14-1900

A. S. obsr.

λ Cygni	ν Cygni	Br. 2777	α Cephei	ζ Cap.	β Aquarii	74 Cygni
+36°7′	+40°47′	+77°43′	+62°10′	−22°51	−6°1	+39°58′
I	I					I
20ʰ44 9.4	20ʰ54 2.9					21ʰ33 33.5
11.9	5.6					36.0
17.0	10.7					41.5
20.1	14.4					45.0
22.5	16.9					47.2
24.9	19.4		18ʰ 80	1	27 53 1	49.6
28.3	22.9		43 92		− 20 62	53.3
134 1	92 8		17 24 08		27 32 48	306 1
19.16	13.26		16 13.40		26 21.23	43 73
25 38	27.08		1 10.62		1 11 25	26.76
44 445 4	54 40 34		+1.90			34 10.49
43 33.20	53 29.11		−10			32 59.34
1 11.34	11.23		2.3 .63			1 11.15
.06	.02		.3 = m			.02
1 11.28	1 11.21					1 11.13

28
21
13
62
1 11.21
33 = [illegible]
1 11.54

Kr. 1327 is fast

$\overset{m}{1}$ $\overset{s}{11.54}$

at 21ʰ 00 Sid Time

Nov 16 - 1900 J.A.D. obs.

stars recorded in Mic. book no 16:-

	δ Persei	φ Persei
	+48°7'	+50°11'
	I	II
	1ʰ 32 25.9	1ʰ 39 1.6
	29.0	4.6
	35.2	8.9
	39.1	13.0
	42.0	15.9
	44.6	22.2
	48.9	25.3
	264.7	91.5
	37.82	13.04
	30.70	32.01
	1 33 8.52	38 41.03
	31 57.23	37 29.73
	1 11.29	1 11.30
	.06	.08
n = 3	1 11.35	1 11.38

1ᵐ 11.36

.33 = b sec φ

1 11.69

Frod 1327 is fast

1ᵐ 11.69ˢ

at 1ʰ 30ᵐ Sid Time

Nov. 21-1900

mer. cir. [illegible]

Recorded in book mer 16 - of zone.

	θ Persei	+52°21	α Ceti
	+48°48	τ Persei	+3°41
	II		
	1.2	51.0	33.5
	4.1	54.0	35.5
	8.0	58.4	38.1
	12.4	3.0	41.0
	15.1	6.0	42.8
	21.1	12.7	47.0
	24.3	16.0	49.0
	88.2	44.11	286.9
	12.31	63.01	40.99
	31.13	33.56	20.55
	41.18	29.45	20.44
	2 37 28.88	2 47 17.12	2 57 7.95
	1 12.30	1 12.33	1 12.49
	07	.11	.25
mm .30	1 12.37	1 .44	1 12.24
mm .25	06	.09	.21
	12.36	12.42	12.28
mas 2	.05	.07	.17
	12.35	12.40	12.32
mm .1	12.32	12.36	12.41
mm .15	12.33	12.38	12.36

36 (×1)
33 } 5 ×"
38 }
1 12.35
.50 = [illegible]
1 12.85

Frod 1327 is fast

$1^m\ 12^s.85$

at $2^h 50^m$ Sid Time

Nov 22-1900

Meridian Circle

Level - - - - [illegible]

~~$0^h 45$~~

$1^h 15$ E.S.M.T.

Telescope S.

$118^{\circ}.0$

Screw	E	W
E	+76.0	+107.7
E	+77.7	+109.0
E	+77.7	+109.0
E	+78.0	+109.1
W	−68.3	−37.4
W	−66.0	−35.0
W	−~~66.5~~ 67.0	−36.0
W	−66.0	−35.0

Telescope N, Screw

Screw		
W	−75.6	−45.2
W	−75.0	−45.0
W	−77.0	−47.0
W	−77.0	−47.0
	~~+35.0~~	~~+65.0~~
E	+30.2	+60.2
E	+31.0	+61.3
E	+29.8	+60.0
E	+27.7	+58.0

+310.0	+434.8
+118.7	+239.5
−267.5	−143.4
−304.6	−184.2
+428.7	+674.3
−572.1	−327.6
−143.4	+346.7
	−143.4

32) 203.3 (6.36
192
113
96
170

6.36
.06
.3816
1.35
5"1: [illegible]

$0^s.50$ = corr f b

West end high

Dec 1-1900

Clouds:-

Me. Curl JAD Am

74 Cygni +39°57 all, 1st T. wire
[γ Capri] -17°7 last T
[13 H Cephei] +57°1 last 2 W.

1st 3 stars observed with eye piece focussed for eyes of A.S.

ε Peg. +9°25 all
π^2 Cygni +48°50 all
16 Peg +25°27 all
20 ~~Peg +12°38~~ not obs.

Rattle through 21h 5.8

θ Aquarii -8°17 all
[31 Pegasi] +11°42 all
faint in clds, 3 Lacertae +51°43 1st tally past ; 8 wire 8; reject all.
7 Lacertae +49°46 all
η Aquarii -0°38 T' 8 wires only obs
10 Lacertae +38°31 all
η Pegasi +29°41 all
λ ~~Pegasi +23°2~~ not obs; clouds

Thick Clouds Rattle through 22h 57

Recorded on b16 (Muenster) Nov 23-1900 JAD Son

	θ Persei +48°48 T²	η Persei +55°29 T² → τ Persei +52°2' T²	→ η Eridani −9°18' T²	T²
	2h 38 0.6	2h 45 6.6	2h 48 50.5	2h 53 25
	3.5	10.0	53.8	4.5
	7.6	14.8	58.0	7.3
	11.9	19.3	2.6	10.0
	14.7	22.6	5.5	11.9
	21.0	29.8	12.2	16.0
	24.0	33.5	15.5	18.0
	833	1366	4381	702
	11.90	19.52	62.60	1003
	31.13	36.19	33.56	20.77
	2 38 40.77	2 44 43.33	2 48 29.04	52 49.26
	2 37 28.89		2 47 17.13	51 37.16
	1 11.88		1 11.91	1 12.10
m a .15	+.03	.07	+05	−.15
	1 11.91		.96	11.95

−9° .95 .5 × 1   5
+48 .91
+52 .96 } .3 × 3   9
.94   4 | 14
.94

1 11.94
.50
1 12.44

Frod 1327 is fast

1m 12.44s

at 2h 45m Sid Time

Nov 28, 1900

Recorded in Misc b 16 A.S. Asr.

R320

η Aquarii

−0° 38'

$22^h 31^m$ 7.0 40.0
8.9 41.9
10.9 44.4
13.5 47.1
49.0

403 2224
10.08 44.48

1.2203 1.2490
16.61 17.74

26.69 26.74

22 31 26.72

22 30 16.72

1 10.00

.13

1 9.87

50 = b sec φ

1 10.37

R529

π Cephei +74° 51'

Tally 2

$23^h 5^m$ 14.7
21.9
32.5
43.0
50.1

162.2
23 5 32.44
1 7.89
23 4 24.55

1.2490
0.5828
1.8318
67.87

Prec. Star

$23^h 4^m$ 9.1
16.0

Not reduced

Wires?

23 4 47.09

~~37.46~~

−22.54

A Preceding star

Frod 1327 is fast

~~1 12~~

1 $10^s.37$

at $22^h 30$

Sid Time

Dec 1-1900

	74 Cygni	π Cygni	η Aquarii	10 Lacertae
	+39°57	+48°50	−0°38	+38°31
	T′		T	T′
	21^h 33 30.2	21^h 43 33.1	22^h 30 56.6	22^h 35 21.5
	32.9	36.2	58.6	24.0
	38.0	42.4	2.8	29.5
	41.5	46.5	5.3	32.7
	44.0	49.3	7.3	35.2
	46.5	52.2	9.2	37.6
	50.0	56.3	12.0	41.0
	2831	3160	4518	2215
	40.45	45.14	64.54	31.64
	26.76	31.15	20.50	26.21
	21 34 7.21	44 16.29	31 25.04	35 57.85
	21 32 58.99	21 43 8.37	30 16.68	34 49.81
	1 8.22	1 7.92	1 08.36	1 8.04
m ar .3	−.02	+.07	−.27	−.04
	1 8.20	1 7.99	1 8.09	1 8.00
m ar .25	−.02	+.07	−.23	−.03
	1 8.20	1 7.99	1 8.13	1 8.01
m ar .33	−.02	+.08	−.30	−.04
	1 8.20	1 8.00	−1 8.06	1 8.00

−0 −1 8.02 } 1 6
+38 8.00 } ×10 100
+39 .20
+48 .00 × 3
.07 14) 102 (.07; 0; 98; 8

1 8.07
.50 - band

Fast 1 8.57

Frod 1327 is fast

~~1 1.857~~

$\tilde{1}$ $8^s.57$

at 22^h $3\bar{0}$

Dec 1-1900

[illegible] Time stars observed and for wire intervals

Recorded on page 207

Dec 8 - 1900

Noon: Day light observation

Mer Circle

β Drac. +52°23 : Rattle after 17h 35

~~17h 28 30.3~~

β Drac.

+52°23

17h 28 30.3	17.0 38.8
33.8	41.6
40.0	45.8
44.7	50.6
48.0	53.5
51.0	0.1
55.0	3.5
302.8	353.9
43.26	50.56
33.59	33.59
16.85	16.97

17 29 16.91

17 28 9.78

1 7.13

50

1 7.63

Hod 1327 is fast

1m 7s.63

at 17h 30m Sid Time

Dec 8-1900 (recorded on Eros sheet)

	β Androm	ν Piscium	δ Cass
	+35 5	+26 44	+59 43
	I	I	I
	1h 4m 44.9	1h 14m 38.4	1h 20 53.8
	47.6	40.6	59.0
	52.5	45.1	4.6
	55.8	48.1	1 0.1
	58.2	49.9	13.6
	04	52.0	22.0
	3.6	55.1	26.0
	38 3 0	32 9 2	49 11
	54.72	~~44 17~~	1 21 10.16
	25.05	47.03	40.65
		22.96	
	1h 5 19.77	1h 15 9.99	1 20 29.51
	1 4 13.00	1 14 3.04	1 19 22.92
	1 6.77	1 6.95	1 6.60
Mar 33	−.07	−.13	+.28
	1 6.70	1 6.82	1 6.88
Mar. 25	−.05	−.10	+.20
	1 6.70	1 6.85	1 6.80
Mar.1	−.02	−.04	+.08
	1 6.75	1 6.91	1 6.68
Mar .2	−.04	−.08	+.16
	1 6.73	−1 6.87	1 6.76

	T	1	-2	.25	33
+26	87	91	87	85	82
+35	73	75	73	70	70
+59	72	68	76	80	~~88~~
		234	236	235	240

1 6.79
50 : 6 m 4
1 7.29

Frod 1327 is fast

1m 7.29

at 1h 15m Sid Time

Dec 12-1900 Wed.

Mer Circle

JAD obsr

η Aquarii −0°38 all bright wires; all
10 Lacertae +38°32 all
η Pegasi +29°42 all
λ Pegasi +23°2   Rattle after 22h 44

η Aquarii		10 Lacertae		η Pegasi		λ Pegasi	
−0°38′		+38°32		+29°42		+23°2	
22h30 53.5 21.8	34.8	22h35 18.0 54.5	11.3	22h38 54.3 27.0	42.2	22h42 20.2 57.3	5.5
55.4	36.9	20.7	13.7	56.6	44.4	22.4	7.5
59.6	39.5	25.8	17.0	1.2	47.4	26.8	10.5
2.3	42.3	29.4	20.6	4.8	50.6	30.0	13.4
4.1	44.0	31.6	22.8	6.5	52.8	31.9	15.4
5.9	48.3	34.0	28.2	8.8	57.5	34.0	19.8
8.8	50.2	37.6	30.9	12.0	59.7	37.0	22.0
4296	2960	1971	1445	4442	3546	2023	941
61.37	42.29	28.16	20.64	63.46	50.66	2890	13.44
20.50	20.50	26.21	26.21	2360	23.60	22.27	2227
21.87	21.79	54.37	54.43	2706	2706	51.17	51.17

	η Aquarii	10 Lacertae	η Pegasi	λ Pegasi
	22h31 21.83	22h35 54.40	22h39 27.06	22h42 51.17
	22 30 16.55	22 34 49.60	22 38 22.17	22 41 46.27
	1 5.28	1 4.80	1 4.89	1 4.90
n ms .25	−.23	−+.03	−*.08	−*.12
	1 5.05	1 4.77	1 4.81	1 4.78
			−*.12	−*16
n ms .33	−.31	−*.04	1 4.77	1 4.74
	1 4.97	1 4.76		
				−*.15
n ms .3	−.27	−*.04	−*.10	1 4.75
	1 5.01	1 4.76	1 4.79	−*17
n ms 4	−.37	−*.05	−*14	4.71
	1 4.91	1 4.75	4.75	

∫	.25	.3	.33	.36	.4
−0	5.05	5.01	4.97	4.94	4.91
+23	5.02	5.05	5.06	5.07	5.09
+29	4.97	4.99	4.91	4.97	5.03
+38	4.83	4.84	4.84	4.84	4.83
	1987	1989	1978	1982	1988
	4.97	4.97	4.79	4.95	4.97

	.25	.3	.33	.36	.4
−0	5.05	5.01	4.97		4.91
+23	4.78	4.75	4.74		4.71
+29	4.81	4.79	4.77		4.75
+38	4.77	4.76	4.76		4.75
			324		312
			.81		.78

4.97	5.02	4.98	5.02	5.06
4.83	4.84	4.84	4.84	4.85
4.91	4.92	4.91	4.93	4.95

1 4.95
.50
1 5.45

1 4.78
.50
1 5.28

Frod 1327 is fast
~~1 5.45~~
1 5.28 fast
at 22h 30m
Sid Time

Dec 14 - 1902

Mer Circle A.S. obs (Stars recorded in Mic b. no 16)

~~R~~ R 327

o Androm

+41°47

II

$22^h 58^m$ 43.6

46.5

50.0

53.8

56.2

486 2.2

3123

52.05

1.2829

0.1275

1.4104 25.72

22 58 26.33

22 57 22.56

1 3.77

R 332

ι Androm

+42°43'

$23^h 33^m$	51.0	39.3
	54.6	42.0
	57.1	45.6
	59.6	49.3
	3.5	51.8
	285.8	228.0
	57.16	45.60
	1.2494	1.2490
	0.1341	0.1341
	1.3835	1.3831
	24.18	24.16
	21.34	21.44

23 34 21.39

23 33 17.78

1 3.61

n ac 33

1 3.68

.50 - brup

1 4.18

Frod 1327 is fast

$4^s.18$

at $23^h 15^m$

Sid Time

Dec 17-1900

δ Aquæ +16 21 tally 2 ? } Miss M.
α Peg. +14 40 all } Miss Michaelis obs
τ Peg. +23 12 T²
4 Cam +61 44 all }

---

72 Peg. +30 46 J.A.D. obsr
Lac 8 Sculpt +28 41 1st of free star on wire 8
~~+67 15~~
ρ Pegas. +18 34 W 84 T²
(φ Cam) +58 56 bn Cant 2 wires; follow 6' S by a 6½ mag on T².
Rattle after 23^h54

τ Peg.		4 Cam			
+23 12		+61 44			
T²					
23^h17	1.6	23^h20	28.2	28.2	57.7
	4.0		32.7		0.8
	6.2		41.0		5.8
	9.4		46.8		12.0
	11.2		51.1		15.6
	15.6		54.8		24.2
	17.7		0.5		28.2
	65.7		315.1		504.3
	9.39		45.02		72.04
	22.30		43.28		43.28
	~~2.03~~		28.30		28.76
23 16	47.09	23 21	28.53		
23 15	44.87	23 20	27.24		
1	2.22	1	1.29		
	−.26		+ .49		
	~~1 2.06~~	1	1.61		
1	1.96	1	1.78		

1 1.87
.50 = bauf
1 2.37

Miss Michaelis' obs. make Fund 1327 fast 1 $\overset{s}{2}$.37 at 23^h20^m

Dec 17-1900

Mer Circle - JAD - obsr.

72 Peg	Lac 8 Sculpt	ρ Peg		ρ Cass	foll star
+30°46	−28°41	+18°34		+56°56	6.5 mag and 5½ South
23h20	23h29	23 44	23h48	23h51 last 2	T2
28.2 28.2 57.7	32.0 53 20.8	17.0	44.0		23h52 02.5
32.7 0.8	34.6 22.8	19.3	45.9	17.2	6.2
41.0 5.8	39.2 25.9	23.9	48.6	21.0	11.0
46.8 12.0	42.5 29.3	27.0	51.6		16.3
51.1 15.6	31.3	29.1	53.6		19.4
54.8 24.2	44.7 36.0	31.3	58.0		27.0
0.5 28.2	46.8 38.4	34.3	00		30.9
	50.0				
	289.8 204.5	181.9	361.7	19.10	11 33
	414.0 29.22	25.99	51.67	1.4378	16.19
				0.2631	
	23.85 23.85	23.37	21.63	1.7009	37.56
	5.25 5.37	44m 49.36	48 30.04	50.22	51 38.63
	23h30 5.31	43 46.73	47 27.90	50 28.88	
	~~46.73~~	~~1 2.63~~	1 2.14	49 27.34	
	23 29 32.04	~~+.47~~	~~+.20~~	1 1.54	
	~~33.27~~	~~3.10~~	~~2.34~~		
	1 2.11				
	−.16	.74	−.30	+.30	
	1 1.95	1 1.89	~~2.04~~ 1.84	1 1.84	

1.534
−.548
2.082

1.54
2.63
1.09 1.52
1.040 = n
50

~~M m 5.3~~

M = .52

Star is
Dm.+56°3115
Dm mag = 7.5 mag

	mag
Bradley (1750±)	6½ 7
Piazzi (1800±)	6½ 7
Lalande (1800±)	8
Argelander (1842)	7
(Johnson Radcliffe) 1845	6.6
Dm 1865	7.5
Krüger 1870	6.7
Pickering 1900	6.1

72 Peg
536
22 28 59.389

ρ Cass
539
23 49 23.034

0.4720
0.0982
0.5702 3.717

8.5948
0.7010
9.2958 .198

8.8858
0.1686
9.0544 .113

8.0198n
1.3093
9.3291n −.213

4.028
.213
3.815
29 32.04

0.4739
0.0982
0.5721 3.733

9.0100
0.7010
9.7110 .514

9.0867
0.1686
9.2553 .180

7.7528n
1.3093
9.0621n −.115

4.427
−.115
+4.312
23 49 27.346

−28° .84
+18 ~~1.04~~ .84
+30 .95
56 .84
3.52 } 10 × 3 70

.93
.88

80 2 160
5 | 430
.86

1. 1.92 87
.50 = [illegible]
2.42
.37

Frod 1327 is fast
1m 2.~~42~~ 37s

at 23h40 Sid Time

Dec 20-1900 Thursday

J A Dixon

4 Cass all +61°44 — a fut stair (prob. clouds). hs. on T² 7+ 10–15, 4½ S

70 Pegas +12°12 not hs — star at +12°13 on W wi 15
[72 Peg] +30°46 T².

2 Androm +42°43 ← then < { 3' N on 7 last (8.5? mag)
[x And] 43°46 last 6 — 8.5 3½ N on 8th (first star)
[Lac & Sculpt −28°41 all — prec 9.0 star ½ N on W 1
last point for first star out in δ (S?)
41 H Ceph +67°15 — 2 last w of 41 H, then w 8 fr 80? st ⅓ S
1st last is ρ Cass
ρ Cass +56°56 { which I ~~estimate~~ 6.0 mag — Last tick probably reads is +56°31.15
Last min 23h 56

4 Cass +61°44

26.1 26.2 54.0
30.2 58.0
39.1 3.6
44.8 9.4
48.6 13.3
52.6 22.0
58.1 26.3

29.95 48.66
42.99 69.52
43.28 43.28
26.07 26.24

26.15
23 20 27.14
0 59.01
49
0 59.50

4 × 2 = 80
5 × 1 50
3 | 130
59.43
~~57.5~~ 6 sec
59.93

2 And. +42°43

46.6 35.0
50.2 37.6
52.9 41.1
53.5 45.0
59.0 47.5
52.9
55.6

31.49
44.99
27.91
17.08

23 33 17.68
0 59.40

Trad 1327 is fast
0m 59.93s
at 23h 30m
Sid Time

December 24-1900

Mer. Circle ---- Level -

J.A.D. obser

Dec 24.0
minus
1/2 hr ESMT

Telescope South :-

		E	W		E	W
Screw	W	~~+69.2~~	~~+105.0~~	Scr E	~~-57.0~~	~~-22.2~~
	W	~~+67.8~~	~~+103.3~~	E	~~-58.0~~	~~-23.5~~
	W	~~+67.8~~	~~+103.4~~	E	~~-56.0~~	~~-21.3~~
	W	~~+64.8~~	~~+100.3~~	E	~~-57.5~~	~~-23.0~~
	E	~~-56.8~~	~~-21.0~~	W		
	E	~~-57.0~~	~~-19.0~~	W		
	E	~~-58.5~~	~~-23.3~~	W		
	E	~~-60.5~~	~~-26.0~~	W		
	E	~~-57.3~~	~~-22.5~~			

Plane of level tube not vertical obs. rejected :-

35 8
35 5
35 6
35 5
35 5
35 0
35 2
~~45~~
34 8
34 8
34 5
34 7
34 5

Adjusted level-tube by depressing west end of tube when screw end was west :-

Telescope south

		E	W
Screw	E	-39.0	-4.6
	E	-40.3	-5.6
	E	-40.3	-5.7
	E	-37.0	-2.2
	W	+64.3	+98.7
	W	+69.0	+103.0
	W	+64.0	+100.2
	W	69.0	+103.5

Circle dimension
1180

0^h 0
ESMT

Telescope North

Screw W	+41.4	+76.2
W	+39.8	+74.4
W	+41.0	+76.0
W	+40.2	+75.5
E	-99.2	-64.2
E	-100.2	-65.2
E	-100.8	-65.7
E	-98.2	-62.8
	+266.3	+405.4
	+162.2	+302.1
	-156.6	-18.1
	-398.4	-257.9
	+428.5	+707.5
	-555.0	-276.0
	-126.5	+431.5
		-126.5
		+305.0

+266.3	+405.4
-156.6	-18.1
+109.7	+387.3
+162.2	+302.1
-398.4	-257.9
-236.2	+44.2

32) 305.0 (9.53 d
288
170
160
100

.06
.5718
1.35
.57
.17
.03
.77

$b \sec \phi = .77$

West end high

1899pnae.proj.1636D

Dec 24-1900

ζ Ceph +57°42 all

~~γ~~ γ Aquarii −1°53   T¹, δ¹ δ² T², δ³

δ¹ 51.645
δ² 51.625
δ³ 51.685

H 0−0−29.5   Z 0−0−31.0

η Aquarii −0°38   T¹, δ¹, δ², T²

δ¹ 51.695
δ¹ 51.705

In leaving telescope probably bumped it, affecting measures? 40−5−0.5 40−5−1.0

η Pegasi +29°42 all
λ Peg. +23°2 all

22ʰ53 before noon

Dark wires

Daylight obs.

ζ Ceph +57°42		η Peg. +29°42		λ Peg +23°2	
28.5 21.6	46.3	46.2 19.0	34.2	12.2 43.1	57.4
32.2	49.8	48.6	36.3	14.5	59.5
39.9	54.8	53.2	39.4	18.9	2.3
45.0	59.8	56.4	42.6	21.9	5.4
48.4	3.4	58.5	44.6	23.9	7.4
51.9	11.0	0.6	49.4	25.8	11.8
57.0	14.8	3.8	51.6	28.8	14.0
302.9	419.9	387.3	298.1	146.0	457.8
43.27	59.99	55.33	42.59	20.86	65.40
38.37	38.37	23.60	23.60	22.28	22.28
21.64	21.62	18.93	18.99	43.14	43.12
	21.63		18.96		43.13
22 7	24.81	22 38	22.00	22 41	46.10
	56.82		56.96		57.03
Mas .52	+.36		−.17		−.26
	57.18		56.79		56.77
Mar .33	+.23		−.11		−.16
	57.05		56.85		56.87
Ma .30	56.97		56.89		56.92
Ma .25	57.00		56.89		56.90

56.93
.77 temp
57.70

JAD. obs.

γ Aquar −1°53

1.6
3.5
7.6
10.0
12.3
14.0
16.8
66.2
9.457
2.051
29.47
22ʰ16 32.78
57.19

+1.58
.03
+1.61)

56.82
57.19
.37
.32
30
.23

n = 23

Frod 1327 is fast 0ᵐ 57ˢ.70 at 22ʰ20 Sid Time Dec 24-1900

Dec, 26-1900

~~Mer Circle~~

β And. +35 5' Wire 81 T² — [illegible] obs

τ Pis. +29 33 Seen, not obs. Ob. foll star 5½ mag 2' S

on T'l.4 wire 8. T² l.12

υ Pis. +26 44 all

δ Cass +59 43 all Rattled after 1h 22

β And +35 5'

T² l.15

1h 5 8.5 24.4

26.8

30.2

33.6

36.0

151 0

30.20

1,24 90

0,0871

1,33 61

21.68

1h 5 8.52

1-4 12.76

55.76

-.05

Nar. 23 55.71

Nar. 33 -.07

55.69

star foll

τ Pis +29 33

T'l3

7-9.9 | 8 9.1 29.6 T'l.2 44.8

11.1 47.0

14.4

1 8 29.6

0 53.8

1 7 33.8

1 6 16

foll 1 18

Star is

Dec +29 19.5

Dec mag 6.5

υ Piscium

+26 44

1h 14 27.0 58.8 13.5

29.2 15.5

33.8 18.5

36.8 21.6

39.0 23.6

41.0 28.5

44.0 30.6

25 08 15 18

35.83 21.69

22.96 22.96

58.79 58.73

1 14 58.76

1 14 2.84

55.92

-.10

55.82

-13

55.79

δ Cass

+59 43

1h ~~20~~ 19 ~~7.8~~ 20 17.8 43.8

21.3 47.7

25.5 53.0

33.4 58.6

39.0 2.1

42.7 10.1

46.4 14.3

51.8

260 1 409 6

37.16 58.52

40.66 40.66

17.82 17.86

1h 20 17.84

1 19 22.47

55.37

+.18

55.55

+28

55.65

+26 55.79 } 74×3 ×27

+35 .69 }

+59 .65 65×2

.71 5 | 125

+5

.70

55.71

77 = b corr

56.48

Sid 1327 is fast 0m 56.48s

at 1h 15m Sid Time

Dec 26-1900

.82

19

37 | .23

32

50

.3

Dec. 28-1900

Mer Circle — J.A.D. obsr.

Lac δ Sculpt. -28°41 at

φ Peg. +18°34' T^2

[β Cass] +~~56~~ 56 Wire 7-8 of T^2 — { δ micrometer
48.675 β Cas
57.100 = foll sh 6.7 star South ~~6'3~~ 5¼'s

ω Piscium +6°19 Not obs. but { foll 18.5 (17.0) by 8.0m star 1½' North
2 wires taps wheel

α And. +28°32 T'

β Cas +58°36 T^2, then 9.1 str. wire 24 T^2 2½'s. afterward 8.2 foll 8½ S wire 12 W

Last min. 0h 12

Lac δ Sculpt. -28°41		φ Peg. +18°34 T^2	α And. +28°32 (T')	β Cass +58°36 (T^2)	Foll β Cas 2½ S	Foll β Cas 8½ S
23h44 9.1	42.6 56.8	48m 36.4	0h 3m 39.3	0h 5 14.0	lat 2.7 T^2	lat 2 w T'
11.6	58.8	38.5	41.5	17.5	9.1 str.	8.2 mag
16.7	20	41.2	46.2	22.9	0h 6m 2.5	8m 43.5
19.4	5.2	44.1	49.3	28.1	6.0	47.8
21.5	7.2	46.0	51.5	31.6	4.25	45.65
23.5	11.9	50.4	53.7	39.6	~~1.4378~~	1.4378
26.8	14.1	52.5	56.7	43.5	1.1492	0.2832
1281	4560	3091	3382	1972	0.2832	1.7210
1830	65.14	44.16	48.31	28.17	1.4324	5260
23.37	23.37	21.63	23.34	39.36	27.07	9m 38.25s
41.67	41.77	48m 22.53	4m 11.65	0h 4m 48.81	~~37.32~~	foll.
23h 44m 41.72					0h 5m - 37.18	4m 49.4
23 43 46.57		47 27.76	3 17.06	3 54.71	Foll. 48.4s	is apparently,
55.15		54.77	54.59	54.10	No dm DM.	DM +58°15
-.70		-4.28	-4.18	+ .35		DM mag = 9.0
54.45		54.49	54.47	54.45		

8.0m str foll ω Pis. +6°19
17s and 1½' North

Star apparently is DM +6°5229
DM mag = 9.3

+1.64 54.10
-.55 55.15
2.19) 1.05 [.48
876
1740

n = .48

-28 .45
+18 .49 } 3 16
+28 .47
+58 .45 } 2 10
26
.47
54.46
.77 : brace
55.23

Frod 1327 is fast 0m 55.23s
at 0h 0m 0 Sid Time