KG
11366
v.625

ERROR of FRODSHAM

MARCH 16 1904 to Jan 1, 1905
inclusive

Wednesday, Mar 16, 1904

Level

obs. Mr Garrish
rec. M. F. M.

Time of
beginning
22h 35m
ESMT

Telescope north

	W	E
Zero E	+ 81.5	+ 52.0
	+ ~~81.9~~ 82.3	+ 52.9
Zero W	~~41~~ − 40.0	~~70~~ − 69.6
	− 39.0	− 68.1

Telescope south

Zero W	− 37.0	− 66.3
	− 35.0	− 64.0
Zero E	+ ~~54.0~~ 82.4	+ 54.0
	+ 84.5	+ 55.0

59
.69
128
.64

7.25
06
.4350
135
2175
1305
435
.58725

8.575
.06
.51450
135
25725
15435
5145
.694575

+ 166.8
− 74.0
92.8
24.2
8) 68.6
8.575

+ 164.9
− 77.0
87.9
− 29.9
8) 58.0
7.25

− 135.9
+ 106.0
− 29.9

− 132.1
+ 107.9
24.2

~~E~~

b sec φ = .64

West end high

Thurs Mar 17, 1904

Mer lori

M F M
rather after
7 24

α Gemin +32 6
25 Mono −3 54
24 Lyncis +58 56

+32 6

410
428
27m 51.5 25.25 468
542 49.4
58.9 51.3
2.2 56.2
4.1 58.8
6.7
9.7 3456
7.3 49.37
24.20
1.04 25.17
24.20
25.24
7 28 25.20
7 28 29.69
4.49
15
4.34
64
3.70

−3 54

31 59.0
08
48
75
93
11.1
13.9
464
663
20.55
27.18

7
28.25 40.3
42.2
44.8
47.5
49.5
53.9
55.8
3340
47.71
20.55
27.16

7 32 27.17
7 32 31.47
4.30

+58.56

33 55.8
59.9 50.8
7.4
12.9
16.2
20.1
25.2
77.5
110.7
39.73
5060

16.2
20.0
25.1
30.7
33.8
42.0
45.8
2136
30.51
39.73
50.78

7 34 50.79
55.00
4.21

28.25
31.47
3.22

51.60
55.00
3.20

3.20
64
2.56

430
449
421
100
433
64
369

F rod 1327 is slow

0m 3.69

at 7h 30m

Thurs Mar 17 1904

Time of beginning Level
23 5
ESM 4

M F Mol.

Telescope North

Zero W W E
- 34,1 - 71 2 37,1
4 9
- 35~~8~~ - 71.9 37 0

Zero E

0
+ 87.7 + 5~~4~~.9 36,8
+ 87 5 + 50,4 37,1

Telescope S

Zero W
- 38,0 - 74.8 36,8
- 37,5 - 74.3

Zero E
+ 84,1 + 47,2
+ 84.6 + 47.6

37,5

+ 34.59 + 19 61
- 14 45 - 29 2,2
+ 20 1 4 96,1
- 96 1
1,0 5,3
~~15,66~~
6,58

16)

compute Mar 30 1905
6 5 8
.06
.39 48
.135
19 7 4 0
11 8 4. 4
3 9 4 8
.5 3 2 9 8 0

Thurs Mar 17, 1904

in F M obs

Telescopes

Zero ~~E~~ W   E

− 37.5   − 74.3

~~− 37.5   74.3~~

Zero ~~W~~

+ 85.0   + 48.0

~~+ 85.0   + 48.1~~

Zero ~~E~~ W

− 34.8   − 71.8

~~− 34.8   − 71.9~~

Zero ~~W~~ E

+ 85.0   + 47.9

~~+ 85.8   + 47.4~~

37.0
37.1
37.1
38.4

+ 170.0 + 95.9
~~72.3 ~~
− 72.3 − 146.1
97.7   50.2
50.2
8.) 47.5
5.94
.06
.3564

+ 34.0 8   − 29.3
− 14.46   + 19.4
+ 19.52   − 10.9
− 10.09
16 8.953
.884
5.956

3564
135
17820
10692
3564
.481140

.357 36
.06
135
1785
1071
357
.48195

Fri Mar 18, 1904

Mer Cir — W. 20.20. Obs

δ Cancri +18°30′ last set of wires
ζ Cancri +29°6′ " " " "
(o² Cancri m) +30°56′
ζ Hydrae +6°18′ last set of wires
ι Ursae Maj +48°25′
[Br 1501] +54°39′
Last min. 9ʰ 01ᵐ

+18 30	+29 6	+6 18	+48 25	
39 24.6	4ᵐ 5.7	50 29.5	51 53.5	55.9
26.8	7.7	31.2	55.9	58.5
29.7	11.0	34.0	2.5	2.4
32.4	14.2	36.7	6.6	6.4
34.5	16.3	38.3	9.3	9.6
38.8	21.2	42.9	12.0	16.0
40.8	23.2	45.0	16.0	18.8
227.6	99.3	258.6	35.8	4.7.6
32.51	14.19	36.94	51.3	6.8.0
21.62	23.46	20.63	30.89	30.89
10.89	50.73	16.31	36.00	~~35.62~~
				35.91

8 39 10.89		8 40 50.73		8 50 16.31		8 52 35.96
8 39 15.28		8 40 54.84		8 50 20.65		8 52 40.05
4.39		4.16		4.34		4.09
14		9		20		5
4.25		4.07		4.14		4.14

409
434
13
+1.54 25
204
+.11 102
46
408
52

245

n = 25

414
425
407
414
60

4.15
.48
3.67

Frod 132 7 is ~~fast~~ slow
0ᵐ 3.67
at 8 45

Sun Mar 20, 1904

mer cir

m + M ob

-24 2 wire 15
+76 3
+9 29
+43 30

double tap rattle before (rej 1st half of) 80

+76 3
~~-24 2~~

5 30.3 27~~8~~7 ~~19.8~~
383 218
940 30~~7~~8
60 402
140 530
224 1.2
330 176
257
~~2~~180 370 ~~3~~90
257 52.8~~9~~
8500 8500
27.57 27.8~~9~~90
8 7 27.73
8 7 ~~29~~32.80
~~53~~
5.13
31
4 82

-24 2
~~+76 3~~

3 55.15

14537
00394
1.4931
31.13
24.01

8 3 24.01
8 3 2868
4.67
4.14
4.81

+9 29

10 46.4 15.2 28.6
482 30.8
525 33.0
553 358
573 375
59.~~2~~ 422
18 439
3787 2~~8~~518
54.10 3~~8~~5.~~4~~83
20.79 20.79
14.89 15.04
8 11 14.46
8 11 19.87
4.91 9
7
49.8

+43 30

34.0 13.35 31.1
368 ? 339
39.2 375
422 41.6
46.0 438
48.3 495
51.0 521
55.2
3159 2895
45.13 41.36
2826 2826
13.39 13.10
8 15 13.24
8 16 17.49
4.25
01
4.24

513
+4.03 467
45
-4.48 .46 . 102
448
1200
896
304

n = 1

5.13 × 1 5.13
4.25 × 2 8.50
~~4.25~~
4.91 × 1 4.91
4.81 × 1 81 18.54
4.82 × 2 164 4.635
4.24 × 4 96
4.48 × 2 196 4.59
537 48
4.587 4.11

Frod 1327 is slow
0m 4 11
at 8h 10m

Wed Mar. 23, 1904

Mere bri

MFM
~~rattle before~~
~~7~~ ~~7~~
rattle after
6 14

−17 54
+16 29
+9 59
+25 14 T'
+43 40

−17 54		+16 29
17 54.1	23.7	37.4
55.9	~~27.7~~	39.3
0.2		42.2
3.0		45.2
5.2		47.0
7.0		51.3
9.8		53.8
15.2		316.2
2.17		45.17

6 18 23.67
6 18 28.89

5.23 26
~~43~~
~~5.65~~
5.58

+9 59		+25 14
35m 8.1	36.8 50.2	37 25.6
10.2	52.2	27.8
14.2	55.0	32.2
16.9	57.6	35.2
18.8	59.5	37.3
20.8	3.6	39.4
23.6?	5.8	42.4
112.6	403.9	239.9
16.09	57.70	34.17
		22.67
		56.84

6 35 36.90
6 35 42.27

5.37
.21
5.58

6 37 56.84
6 38 2.45

5.61
13
5.48

+43 40	
39 5.8	44.8 30
8.3	6.7
13.8	9.2
17.7	12.9
20.2	15.5
22.7	21.1
26.6	24.0
115.1	91.4
16.44	13.06

6 39 44.75
6 39 50.34

~~4~~5.59
1
5.58

74
29
666
148
2146
45
29
405
40
13 124
29
1116
248
359
124
35
620
372
4340

559
522
+.095 ~~5~~
.032 .03 7 5 4
1.27
.2
29
~~345~~
~~44~~ 113 1143
428
6~~3~~0

~~n = 35~~
n = 29

558
48
5.10

F rod 1327 is slow
0m 5.s10
at 6h 30m

Thurs Mar 24, 1904

mer cir.

M F M

rattle after
6 17

+16 29
+9 59
+2~~7~~5 14 Latest of T'
[ ] +43 40

+16 29

31m 35.4
37.6
41.8
44.8
46.6
48.5
51.2
305.9
43.70

18.9
52 20.8
23.4
26.6
28.2
32.6
34.8
185.3
26.47

+9 59

35m 7.8
9.8
14.1
16.7
18.8
26.6
23.2
117.0
16.71

36.8 50.2
52.0
54.5
57.3
59.2
3.4
5.4
402.0
57.43

+2~~7~~5 14

37m 35.2
37.2
39.2
42.2
153.8
38.45
1.2203
~~0.0370~~
~~0.0439~~
~~1.2573~~
1.2642
~~1808~~
18.38
~~56.53~~
56.83

[ ] +43 40

39m 5.5
8.4
13.9
17.6
20.3
22.9
26.6
115.2
16.46

44.9 3.1
5.7
9.2
13.0
15.7
21.0
24.0
91.7
13.10

6 32 5.08
6 32 ~~9.94~~
10.76
5.68

6 35 37.07
6 35 42.25
5.18
21
5.39

6 37 56.~~53~~ 83
6 38 2.36
5.53
13
5.66

6 39 44.78
6 39 50.32
5.54
1
5.53

5.39
5.66
5.53
1.58
5.53
48
5.05

Frod 1327 is slow
0m 5.05
at 6 35

Sat Mar 26, 1904 MFM

Mer line

rattle through
8 25

+43 30
−3 35
0 reading +61 2

+43 30
31.9
15ᵐ 34.8 11.2 29.3
40.2 33.8
44.1 35.6
46.5 34.4
49.0 41.9 ~~45.5~~ 38.73
53.0 45.5 ~~47.6~~ 27.1 28.26
50.5 ~~50.5~~ 85 10.47
299.5 27.40 ~~27.93~~ 27 38.73
42.79 39.14 ~~28.26~~ ~~38.73~~
28.26 28.26 ~~3996.387~~
11.05 10.88 11.24
28.26
~~11.98~~
8 16 ~~11.51 11.70~~
11.00
8 16 17.35
6.30
.5
1
634

−3 36
20 18.9 47 10.3
20.8 23
24.9 52
27.4 80
29.8 96
31.3 137
33.9 155
.7 546
37.0 780
26.71 20.55
20.55 47.25
47.26
8 47 20 47.26
8 20 53.08
5.82
39
~~6.21~~
24
6.06

+61 2
58.2 12.2 13.4 40.1
44.0
49.6
55.6
59.3
78
11.8
388.2
55.46
42.33
13.13
8 22 13.13
8 22 19.38
6.25
36
5.89
22
6.03

assumed
~~a = ..~~
n = 25

582
625
604
48
556

6.34
48
5.86

Tues
~~Wed~~ Mar 29, 1904

Merlin

M T M
rattle of try
9 36

ε Leonis +24 13
υ Ursae Maj +59 29
6 Sextantis − 3 48 worse 8 T²
[19 Leon Min] +41 31

+24 13		+59 29		−3 48	+41 31	
39m 48.9	19.95 34.2	~~42m 58.0~~	6.85 32.7	46m 19.5 32.8	51 6.8	44.8 20
51.0	36.5	43 10.8	36.9	34.5	9.2	4.7
55.7	39.5	14.9	41.8	37.2	15.0	8.2
58.2	42.6	22.9	47.4	40.0	18.3	12.2
05	44.4	28.5	50.6	42.0	21.0	14.8
22	48.7	31.8	58.0	45.8	23.3	19.9
55	51.0	35.8	3.0	48.1	27.0	22.6
		40.9				
40 20	29 69	18 56	33 04	28 04	12 06	8 44
57.43	42.41	26 51	47 20	40.06	17.23	12.06
		40.37	40.37	20 55	27.38	27.38
		6.88	6.83	19.51	44.61	44.68

9 40 19.92	9 43 6.86	9 40 19.51	9 51 44.64
9 40 25.74	9 44 12.06	9 46 25 38	9 51 50.08
5.82	5.20	5 87	5.44
18	30	37	1
5 64	5 50	5 50	5.43
5.79) 43	5.59 | 34	5.38 | 44	

47
38
376
141
98
38
784
294
3724

78
38
624
234
2964

n = 5

5 20
.82 .496
6 0
50
1200
11 5
750
750

+ 1.70
+ .45
1,25

+1.70 5.20
− 07 5.87
1.77 .67
531
1390
~~1068~~
1239
1510

.37

n = .38

543
48
4.95

Frod 13 27 is ~~fast~~ slow
5.495
2m ~~5.43~~
at 9h 50m

Wed Mar 30, 1904

Mer 6 ½

mT m
rattle before
6 38

+34 5
~~−11 55~~
+58 33
−28 50

rej double tap (no 7)

moved telescope between T¹ and wire 8
also between wire 8 and T²

+0.9126
−0.5505
−1.46
37
1022
438
5402
72
37
50.4
21.6

24
37
168
72

+34 5

45 48.2 228 387
50.8 409
557 439
590 472
1.0 496
3.2 543
6.6 571
4045 3317
57.79 47.39
24.76 24.76
22.55 22.63
6 46 22.59
6 46 28.60
6.01
9
5.92

−28 50
~~+58~~ 33

4535 55 0.3
2.5
5.5
8.8
10.9
15.5
18.0
615
8.79
23.40
45.39
6 54 45.39
6 54 51.80
6.41
54
5.87

+58 33
~~−28~~ 50

49 5355 49 18.7
22.1
27.6
32.8
36.0
43.8
48.0
2290
32.71
39.30
53.41
6 48 53.41
6 48 59.02
5.61
27
5.88

+1.64 5.61
−5.5641
+2.19 .80
.365
.657
1430
1314
1160
1095

n = .37

588
592
180
5.90
48
5.42

Frod 1327 is slow
0m 5s.42
at 6h 50m

Sat apr 2 1904

M F M

saltz before
10 3 P

+ 14 rej wire 15
+23 41
+ 31 11
+11 3.
+ 34 44

37
111
11 47

24
148
74
888
48
37
336
144
1776

+23 41
37 358 6.8 21.2 39^m
380 232
423 260
456 292
474 312
44.4 357?
524 380?
3109 2045
44.4 2921
10 38 6.81
10 38 13.51
6.70
18
6.52

+31 11
53.6 26.8 42.2
56.0 44.5
0.9 47.3
4.0 56.8
6.1 52.9
8.2 57.8
11.4 0.0
20.2 35.55
2.89 50.79
23.46 23.46
26.83 26.83
10 40 26.84
10 40 33.40
6.76
11
6.65

+11 3

+34 44
47^m 17.3 52.0 8.0
20.0 10.3
24.8 13.4
28.1 16.9
30.5 19.1
32.5 24.1
36.0 26.6
18.92 11.84
27.03 16.91
24.95 24.95
51.98 51.96
10 47 51.97
10 47 58.39
6.42
9
6.33

6.65
6.52
6.33
1.50
6.50
48
6.02

Mon. April 4, 1904

Level

M. F. M.

$3^h 30^m$
ESMT
time of beginning

Telescope S

	W	E
Zero W	− 32.0	$\overset{-}{+}$68.8
	− 32.1	$\overset{-}{+}$68.6
Zero E	+ ~~53~~ 90.1	+53.8
	+91.5	+55.0

mark 4 18

Telescope N.

$3^h 55^m$
ESMT

Zero W	− 32.0	− 68.9
	− 31.4	− 68.1
Zero E	+ 89.7	+ 53.0
	+ 89.4	+ 53.2

− 127.5	− 274.4
+ 360.7	+ 215.0
+ 233.2	− 59.4

59.4

16) 173.8 (10.8625
16
138
128
100
96
40

.06
.649750
135

b sec 4 .88

West end high

64975
135
324875
194925
64975
.8771625

Collimation Mon Apr 4, 1904 M T-M

S coll. on N coll.

43.1
41.8
43.2
44.9
43.9

169
43.38 set at

R A Microm found at 32.001

Telescope on S coll.	Telescope on N coll.
32.786	~~13.30~~ 31.367
746	367
792	366
818	356
795	374
3937	330
32.787	31.366
31.366	012
64153	~~31.378~~
32.076	
012	
set at 32.088	

Mon Apr 4, 1904

M F M.

Mer circ

3 rattles afar
7 1

δ Cambridge −26 14 wire 5 early ~~early~~
+16 43
+22 10
+27 59

−26 14		+16 43		+22 10		+27 59
3 51.0	226 37.3	11 58.6	28.2 41.8	13 46.4	17.0 31.2	
531	393	06	438	48.4	334	
578	42.2	48	468	52.9	362	
08	455	78	494	559	392	
28	475	9.7	51.4	580	41.2	
48	518	11.6	556	598	45.7	
7.9	542	144	580	28	47.8	
4182	3178	475	3468	3842	2747	
59.74	45.40	679	4954	5489	39.24	
22.86	22.86	24.40	21.40	2214	22.14	
22.60	2254	28.19	28.14	17.03	17.10	
7 4	22.57	7 12	28.16	7 14	17.06	
7 4	29.88	7 12	35.36	7 14	24.24	
	7.31		7.20		7.18	
(.144	7.20		9		7	
	7.11		7.11		7.11	

+0.41 7.18
−0.49 7.31
+0.90 .13
90
400
360
40

7.11
7.11
7.11
7.11

n = .14

7.11
88
6.23

Frod 1327 is slow
0^m $6^s.23$
at 7 10

Tuesday apr 5, 1904

M F Mc.

α Aurigae +45 54
β Tauri +28 32
~~ε Orionis −1 16~~

zaltte before
5 0

α Aurigae
$5^{h}9^{m}35^{s}.99$

β Tauri
$5^{h}20^{m}13^{s}.62$

~~ε Orionis~~
~~$5^{h}31^{m}20^{s}.65$~~

α Aurigae
+45 54

8^{m} 46.9 27.8 468
49.8 49.4
55.8 53.2
59.6 57.2 59.8
2.4 58
4.9 8.5
8.8
4082 4007
58.31 57.24

5 9 27.78
5 9 35.99
8.21
04
~~8.19~~
8.17

β Tauri
+28 32

19^{m} 33.2 58.5 20.7
35.5 22.8
40.2 25.8
43.2 29.0
45.3 31.1
47.4 35.7
50.5 38.0
2953 2031
42.19 29.01
2334 23.34
5.53 5.67

5 20 5.60
5 20 13.62
8.02
14
8.16

39
12
.12
.14 .0441
.0168

39
37
273
117

+1.03 8.21
+54 8.02
+.49 .19 .39
147
430
441

n = .39

8.17
8.16
8.16
88
7.28

Frod 1327 is slow
0^{m} 7.28
at $5^{h}15^{m}$

Wed Apr ~~4~~ 6, 1904

Mer Cir W. W. W. Obs.

α Leonis +12° 26′ 3rd or 4th wire 1st set faulty. (Obs good)
Last min. $10^h 05^m$.

Clds thick α Leonis barely visible.

α Leonis +12 26

10^h 2^m 40.1 8.9 22.~~3~~ 7
42.15 24.4
46.0 27.3
29.9
128.25 32.0
42.75 36.2
14.02 38.0
0.0103
0.4205 210.5
26.33 30.07
9.08 20.99
9.08

10 3 9.08
10 3 17.11
8.03
~~.88~~
~~7.15~~

assumed
39
.64
351
234

8.03
.27
8.30
.88
7.42

Frod^{1327} is slow
0^m $7.^s42$
at 10^h 5^m

Sun April 10, 1904 n-w = m
rather before
7 33

Mer. circ.

+28 16
+28 4
+51 47
−24 2 latest 3 of T^2

β Gemin		χ Gemin		27 Lyncis		ι Navis
+28 16		+28 4		+51 47		−24 2
38m 45.6 18.0	32.9	56m 56.8 24.0	43.8	8h 0m 20.0 6.75	27.1	3m 43.7
48.0	35.0	59.0	46.0	23.2	30.2	48.2
52.7	38.3	3.6	49.1	29.8	34.4	50.4
55.8	41.3	6.7	52.1	34.2	38.9	142.3
57.8	43.4	9.0	54.3	37.2	41.9	47.43
59.8	48.0	11.0	59.0	40.2	48.6	1.4100
3.0	50.3	14.0	1.2	44.6	67.9	0.0394
382.7	289.2	40.1	365.5	229.2	273.0	1.4494
54.67	41.31	5.73	52.21	32.74	39.00	28.15
						19.28
7 39	17.99	7 57	28.97	8 1	5.87	8 3 19.28
7 39	27.37	7 57	38.34	8 1	15.38	8 3 28.27
	9.38		9.37		9.51	8.99
7	11	7	11	4	11	41
~~9.31~~	~~9.27~~	~~9.30~~	~~9.26~~	9.45	9.40	9.40
9.45	9.49	9.44	9.48			

38 36
18 18
304 288
38 36
684 648

951
+127 938
+54 .13 .17
73 .173
570
λ = .18 511
590

+127 9.51
45 8.99
−
1.72 .52 .30
.516
400

λ = .3

9.40
9.49
9.48
9.40
17

9.44
.88
8.56

Frod 1327 is slow
0m 8.56s
at 7h 50m

Tues. Apr 12, 1904

Mer. Circle

W. W. W. Allo

ξ Hydrae +6°18'

2 Ursae Maj +48°25'

10 Ursae Maj. +42°09' Last set of wires

χ Ursae Maj. 47°32 " " " "

{Six wires in 1st set} {Seven " " 2nd set}

Last min 9h 01m

ξ Hydrae		2 Ursae Maj		10 Ursae Maj	χ Urs Maj
+6 18		+48 25		+42 9	+47 32
49 42.7 11.35	24.5	51 47.8 30.35	50.7	54 34.7	$56^{m}\,56.8^{s}$ 16.5
44.7	26.3	50.7	53.6	37.2	19.0
48.8	29.3	56.7	56.8	40.8	23.0
51.6	31.8	1.0	1.4	44.3	27.0
53.5	33.8	3.7	4.0	46.8	29.4
55.3	37.8	6.1	10.3	52.7	35.6
	39.8	3460 7	13.4	55.2	38.8
2966	2233	57.60	102	3117	1893
49.43	31.90	13372	1.46	44.53	27.04
1.3372	20.63	0,1780	30.89	27.66	30.37
0026	11,27	1,5152	30,57	16,87	56,67
1,3398	2	32.75	252 349 651		
21.87		30.42			
11.30					
8 50 11.28		8 52 30.50		8 54 16.87	8 56 56.67
8 50 20.29		8 52 34.49		8 54 25.85	8 57 5.75
9.01		8.99		8.98	9.08

b zee 9.00
.88
8.12

Frod 1327 is slow
$0^{m}\ 8.12^{s}$
at $9^{h}\ 00^{m}$

Wed apr 13, 190~~3~~4

M.J. M.

+41 59
+66 3 latest 2 of T²
−16 21

+37 12 wire 15
+56 28 wire 8 T²

in after noon
α Orionis
+7 23

4.9 3.1
49
7.8
10.6
12.4
16.4
18.3

735 8.34
10.50
20.67
49.83
549 58.62

8.79
45
12 18.34
58

968
605

58
60

78
58

624
390

+41 59

51.2 29.75 47.5
54.2 50.1
59.8 53.8
3.4 57.3
5.7 59.8
8.4 52
27 8.2
0.45 401 9
13372 57.41
0.1288 27.57
1.4660 29.84
29.24
29.69

77
29.84

10 16 38.25

~~8.41~~
8.48
1
8.49

+66 3

−16 21

19.75 33.2
35.2
38.0
40.8
42.8
46.9
49.0
2859
40.84
21.36
19.48

19.48
10 21 28.51
9.03
.70
8.33

+37 12

22.80

+56 28

22.8 47.0
50.0
54.8
0.3
3.2
10.8
14.2
0.3
0.04
37.11
22.93

22.93
10 24 30.41
7.98
35
8.33

~~903~~
7.98
+151 9.03
−29 1.05
± .90
1.88 1.50
1.44
60
54

.583

9
8.48
8.314
8.41
.88
7.53

n = .58

Frod 1327 is ~~fast~~ slow

0m 7.53 5

at 10h 20m

Thurs apr 14, 1904

Mer le i

M. F. M.

rattle after
7 25

α Gemin + 32 6 Reg T2
α Can min + 5 28
β Gemin + 28 16

+32 6

2) 46.8 20.6
49.1
53.8
57.1
59.4
1.4
3276
54.60
13372
00721
14093
25.66
20.26

+5 28

33 39.8 8.2 21.5
41.7 23.5
45.8 26.0
48.8 28.8
50.5 30.8
52.3 34.8
37.0
2789 2024
~~39~~
46.48 28.91
20.60
13372 8.31
00020
1.3392
21.84
8.32

+28 16

38 46.3 18.7 33.7
48.8 35.8
53.2 38.7
56.2 41.8
58.2 43.9
0.5 48.5
50.8
3232 2932
53.87 41.89
13372 2328
0.0552 18.61
0.3924
24.68
18.55

427
330
757

37
58
296
185

82
.58
656656
~~+70~~ 410
29
58
23
145
~~assumed~~
~~n = 58~~
assumed
n = 58

7 28 20.26
7 28 29.11
8.85
17
10 8.68
8.75

7 34 8.31
7 34 17.32
9.01
.48
~~4.23~~
27 ~~8.78~~
8.74 8.53

7 39 18.58
7 39 27.29
8.71
21
12 8.50
8.59

8.75×1 75 8.68×1 68
8.74×2 148 8.53×2 106
8.59×2 118 8.50×2 106
208 341 17.1 5)274
8.69 68 57 8.55
88
7.67

Frod 1327 is slow
$0^m\ 7^s.67$
at $7^h 35^m$

Sat. Apr 16, 1904

Ther. Air. no. w. w. clds.

[36 Lyncis] +43°36'
θ Hydrae +2 43' (Least rd of wires
[38 Lyncis] +37°12'
Least min 9h 20m

Sun apr 17, 1904

m F M
rattle thing
11 0

mer lev

−22 18 first 3 of T¹ (ref first Top) wire 8 T²
+21 3
[ ] +50 0 wire 8 T²
+6 33 wire 8 T²
+64 51 latest 2 of T²

Chronograph illeg.

3 rattles
after 11 21

+69 52
−0 18
+67 17
+48 19

+69 52

24ᵐ 15.0 25 37.2 15.2
20.7 20.9
32.0 1.3372 28.8
40.2 04632 36.8
45.6 1.8004 41.9
51.0 53.8
2045 59.9
34.08 2573
63.124 23 6.76
11 37.25 37.2 59.56
11 25 44.94 37.20

~~7.74~~ 7.72
~~1.22~~ 1.14
~~8.96~~ 8.86
(.667)

8.96
9.64
1800
900
.88
8.12

886
886
912
904
3588
8.97
88
8.09

−0 18

258 31 54.2 7.4
28.0 9.3
32.2 12.0
34.8 13372 14.8
36.6 0.0000 16.6
1.3372
38.4 20.7
22.8
1958 1036
32.63 1480
2 14.74 40.50
5 14.37
11 31 54.20 5430
33
11 32 3.77

~~9.57~~
~~.62~~ 58
~~8.95~~
9.44
.58
8.86

+67 17

55 48.1 37 1.6 35.3
53.3 40.2
3.8 47.0
10.9 1.3372 54.3
15.5 04132 59.0
20.2 0.7504 9.8
56.28 14.8
31.8 3804
5.30 1.58 54.34
5.30 53.04
11 37 ~~1.60~~ 1.25
1.40
11 37 9.59

~~7.99~~
~~.98~~
~~8.97~~
8.19
.93
9.12

+48 19

92 40 51.85 11.7
12.2 14.4
18.2 18.5
22.2 1.3372 22.8
25.2 01771 25.2
28.0 1.5143 31.3
1150 34.7
19.17 41586
32.66
51.83
11 40 57.85 2266
11 40 60.75 3083
5183

~~8.40~~
~~.14~~
~~9.04~~
8.91
.13
9.04

Frod 1327 is slow
0ᵐ 8ˢ.09
at 11 30

2.73
1
7.72
9.44
.62
2.74 1.724
1644
760
544
0
2.1012
222
432
33

n = 63

21
67
147
126

348
175
523
40

140
144
284

182
67
1274
1092
12194

147
67
1029
882
9849

92
67
644
552
6164

+2.73
−.01
2.74

7.74
9.57
1.83
1644
1860
1644
2160
1918

~~n~~ .67

Mon Apr 18, 1904

+ 56 5·4
+62 16

+

rather before
10 54

Thurs Apr 21, 1904

M F M
rattle before
10 25

Mer Obs

-1 14
[ ] +23 41
+31 11
+11 3 Eastern 4 of T^2
+34 44

-1 14
35 54.5 (22.8)
56.2
0.5
3.4
4.9
6.8
6.3
1.05
1.3372
0.0001
1.3373
21.74
22.79

+23 41
36.3
38.0
40.5
43.3
45.0
49.2
51.2
30.35
43.36
20.51
22.85

37 32.6
34.6
39.2
42.0
44.2
46.2
23.88
39.80
1.3372
0.0382
1.3754
23.73
3.53

35 17.8
19.9
22.8
25.9
27.9
32.2
34.4
18.10
25.86
22.40
3.46

+31 11
39 50.2
52.6
57.4
0.4
2.8
5.0
34.84
58.07
1.3372
0.0677
1.4049
25.40
23.47

23 43 39.0
41.0
44.0
47.5
49.6
54.2
56.7
33.20
47.43
23.96
23.47

~~+11 3~~

+34 44
47m 14.0
16.5
21.5
24.8
27.0
29.1
13.29
22.15
1.3372
0.0853
1.4225
26.45
48.60

48.65 47
6.9
10.1
13.6
15.8
20.8
23.1
9.50
13.57
24.93
48.64

10 36 22.82
10 36 32.68
31 9.86
~~38~~ 9.41
~~9.48~~ 9.45
~~9.55~~

10 38 3.49
10 38 13.31
16 9.82
~~44~~ 9.21
~~9.63~~ 9.61
~~9.66~~

10 40 23.47
10 40 33.17
10 9.70
~~12~~ 9.14
~~9.58~~ 9.56
~~9.60~~

10 47 48.62
10 47 58.17
9.55
~~79~~ 9.90
~~9.46~~ 9.45
~~9.48~~

+0.69 9.55
-0.02 9.86
+0.71 0.31 .43
284
260
213
470

n = 44

9.61
9.45
9.56
1.62
9.54
b sec φ 88
8.66

Frod 1327 is ~~fast~~ slow
0m 8.66
at 10h 40m
Sid time

Fri apr 22, 1904

Merlin

Mr F Maber
battle after
10 57

+45 1
−22 18
+ 15 57
+ 32 4

+45 1

27.2 $11^h\,4^m\,7^s.2$
29.9
35.6
39.7
42.0
44.8
219.2
36.53
1.3372
0.1506
1.4878
30.75
7.28

26.0
28.6
32.3
36.2
38.9
44.6
47.6
254.2
36.31
29.06
7.31

−22 18

6^m 26.6
28.8
30.8

47.8 20
4.1
6.8
9.8
12.0
16.2
18.6
69.5
9.93
22.16
47.77

+15 57

8^m 33.9
36.0
40.2
43.2
45.2
47.0
245.5
40.92
1.3372
0.0170
1.3542
22.60
~~6.32~~
3.52

35 17.2
19.0
21.9
24.9
26.8
31.0
33.2
174.0
24.86
21.32
3.54

+32 4

12 21.8
24.2
28.9
32.1
34.2
36.4
177.6
29.60
1.3372
0.0719
1.4091
25.65
55.25

55.5 10.8
13.0
16.2
19.6
21.6
26.2
28.8
136.2
19.46
24.19
55.27

11 4 7.30
11 4 17.67
10.37
1
10.36

x assumed = .12½

$11^h\,6^m\,47^s.77$
11 6 58.03
10.26
7
10.33

11 9 3.53
11 9 13.75
10.22
08
10.30

11 12 55.26
11 13 5.35
10.09
4
10.13

~~10.36~~
~~10.33~~
~~10.30~~
~~99~~
~~10.33~~
~~88~~
~~9.45~~

10.36
10.33
10.30
10.13
112
10.28
88
9.40

Frod 1327 is ~~fast~~ slow
0^m 9.4~~5~~0
at $11^h\,5^m$

Sat apr 23 1904

m Fields

3 rattles before 10 54

Mer		bis
F [U Hydrae	−15	41
[46 Leonum]	+ 34	44
β Ursae Maj	+ 56	54

Sun Apr 24, 1904

M F M,
rattle before
9 33

Merlin

[ ] +10 20
+24 13
+59 29
+26 28

+10 20

35
25.1 52.0 5.3
28.9 7.3
31.9 10.0
33.9 12.8
35.8 14.8
18.7
20.9
89.8
12.83
20.84
51.99

9 35 51.99
9 36 2.85
10.86

539
492
1031
74
234
392
626
48

+24 13

39m 43.2 14.45 29.0
45.7 31.0
50.0 33.9
53.0 36.8
55.0 38.8
57.0 43.3
303.9 45.6
50.65 258.4
1.3372 36.91
0.0400 22.48
1.3772 14.43
23.83
14.48

9 40 14.45
9 40 25.36
10.91

+59 29

43m 4.6 0.65 26.5
8.4 30.0
16.7 35.4
21.6 41.0
25.7 44.5
29.0 52.8
105.5 56.3
17.58 286.5
1.3372 40.93
0.2943 40.37
1.6315 0.56
42.81
0.39

9 44 0.48
9 44 11.29
10.81

+26 28

46m 37.1 8.8 23.6
39.4 25.6
43.8 28.4
46.9 31.7
49.0 33.7
51.0 38.3
267.2 40.4
44.53 221.7
1.3372 31.67
0.0481 22.90
1.3853 8.77
24.29
8.82

9 47 8.79
9 47 19.47
10.68

assumed
n = 0

10.86
10.91
10.68
10.81
3.26
10.82
[illegible] .88
9.94

Frod 1327 is slow
~~0m~~ ~~10.~~
0m 9.94s
at 9h 40m

Mon Apr 25, 1904 M F M.

Mer circ

30 H Ursae Maj +66 3 T²

n Hydrae −16 21

31 Leon min +37 12 latest of T²

~~+5~~

36 Ursae Maj +56 28 wire 456 - 8 - 7²

[ρ Leonis] +9 48

[ρ Leonis)
+9 48

6.9 358 49.2
9.0 51.0
13.0 53.8
15.9 56.6
17.8 58.3
19.8 2.5
824 4.6
13.73 3960
1.3372 56.57
0.0064 20.81
1.3436 35.76
22.06
36.79

35.77
10 27 4684

11.07
50
11.57

12.53
10.83
+2.25 1.70 .67
−0.29 1524
2.54) 1760
1778

n = .67

30 H Ursae Maj
+66 3

34.4
38.9
45.2
52.2
56.8
6.9
11.9
5
3663
5233
5050
.1.83

1.83
10 17 14.36
12.53
.89
11.64

11.57
11.50
11.527

11.53
88
10.65

u Hydrae
−16 21

48.0 17.6 31.2
50.0 ? 33.2
54.2 36.0
57.0 38.9
58.9 40.9
10 45.0
3291 47.2
54.85 2724
1.3372 38.91
0.0179 21.36
1.3551 ~~0.27~~
22.66 17.55
17.51

17.53
10 21 28.36
10.83
.81
11.64

31 Leon min
+37 12

28.9
32.2
35.7
37.8
43.1
45.8
2235
37.25
13370
0.0988
1.4358
27.28
9.97

9.97
10 22 21.36
11.39
.11
11.50

36 Ursae Maj
+56 28

18.7 42.6
46.0
50.8
55.8
58.9
6.4
10.0
3905
55.79
37.11
18.68

18.68
10 24 30.60
~~8~~
11.92
40
11.52

Frod 1327 is slow
∴ 0ᵐ 10.65
at 10 20

Sat Apr 30, 1904

Mer. leon

M.F.M.

rattle after
11 1

[ ] +11 3
[ ] −17 9 latest aft 2
+69 52
−0 18

ι Leonis
+ 11 3
18^h 16.8 45.7 (59.2)
18.8 1.1
23.0 3.7
25.7 6.4
27.6 8.5
29.4 12.6
141 3 (14.8)
23.55

~~32.3~~
4.71
7.85

46.3
6.61
4.2088
~~10~~ 3.4573
~~1.514~~
~~2.056~~
44.31

11 18 45.70
11 18 56.74
11.04
29
11.33

λ Draco
+69 52
24^m 9.8 33(11.3)
16.1 16.4
27.9 24.0
35.6 32.0
40.4 37.4
46.5 49.6
176 8 55.0
~~23~~ 214 4
2257
3224
39.56
32.68
29.47
13372
04632
1.8004 63.18
32.65
35 7 3
133.70
0.4632 63.13
1.8002
3260
11 25 32.62
11 25 44.46
11.84
74
11.10

υ Leonis
−0 18
31 24.4 52.7 (58)
26.2 7.8
30.5 10.3
33.0 13.2
34.9 15.1
36.8 18.8
23.1
185 8 8 8.3
30.97
1472
13372
00000
21.74
52.71
9.41
13.44
20.50
52.94
13370
00000
21.73
52.99
11 31 52.84
11 32 3.67
10.73
37
11.10

11.84
+2.73 10.73
− 0.01 1.11
+2.74 ~~822~~
1096
1400
1370
300

.4051

r = .405

11.33
11.10
11.22
b recl 88?
10.34

Mon May 2, 1904
~~Sun apr 30, 1904~~

M F M.

~~rattle before~~
~~22 52~~

+47 32 wire 8 latest 2 of T²
+34 48
−8 15 latest 2 of T' wire 8 T²
+63 29 wire 8 T²
+52 6 T²

rattle after
9 14

rattle after
9 29

+47°.32' +34 48 −~~8 15~~ −8 15 ~~+63 29~~ +63 29 +52 6

259
90
349
39

2
92
12
104
31

510
539
1049
81

56 54.3 16.4
1640
1.1774
01706
13480
22.28
54.12

8 56 54.31
8 57 5.20
10.89
9
10.98

10.78

33.9
36.8
701
3505
1.4378
0.1706
1.6084
40.59
54.46

14m 28.3 (4)
30.8
35.7
38.8
41.3
43.3
2183
3638
1.3372
0.0856
1.4228
26.47
2.85

2.8 18.9
21.2
24.3
27.8
30.2
34.9
37.6
1949
27.84
24.97
2.77

9 15 2.81
9 15 13.38
10.57
11
~~10.68~~
10.47

10.68

22m 24.6
26.3
509
2545
1.2260
~~1.1625~~
0.0046
~~1.1671~~
1.2306
~~14.69~~
1700
~~40.14~~
42.45

423 55.8
57.6
0.2
3.0
4.8
9.1
11.1
216
3.09
20.72
42.37

9 22 42.39
9 22 53.22
10.83
53
10.30

23 48.8 18.4
22.9
28.7
34.8
39.0
40?
52.8
2446
3494
45.93
49.01

9 23 49.01
9 23 58.79
9.78
55
10.33

26m 38.2
41.8
45.9
50.6
53.5
02
3.2
3534
50.44
33.37
17.12

9 26 17.12
9 26 27.24
10.12
18
10.30

+201 9.78
10.83
−0.14
+2.15 1.05
860
1900
1720
1800

488

10.30
10.33
10.30
10.47
~~10.88~~
~~61~~
1435
10.40

30
33
30
9.87
~~68~~
~~259~~
~~65~~
238
48

h = 4.9

10.35
88
9.47

10.73
88
9.85

Tues May 3, 1904

Mer Cir

m J h

+45 1 T2
+ ~~24~~ 21 3
+ 33 37
+ 6 33

ψ Urs Maj

+45 1
24.8
27.5
31.2
35.3
37.8
43.6
46.3
2465 35.21
~~29.00~~ ~~41.08~~
~~55.65~~ 24.00
~~1.3372~~ ~~12.08~~
6.21

+21 3
20.0 50.6
22.3
26.6
29.6
31.6
33.6
1637
27.28
1.3372
00300
1.3672
23.29
50.57

46
6.6
9.6
12.4
14.4
18.8
21.0
874
12.49
21.97
50.52

+33 37
33.9 80
36.2
41.0
44.3
46.8
49.0
251.2
~~35~~
~~41.28~~
~~42.80~~
41.87
13372
0.0795
1.4167
26.10
7.97

23.9
26.2
29.4
32.7
35.0
39.8
42.1
2291
3273
2.461
8.12

+6 33
33.0 1.6
35.1
39.2
41.9
43.8
45.8
2388
39.80
13372
0.0028
1.3400
21.88
1.68

15.0
16.8
19.6
22.4
24.0
28.0
30.3
1561
~~22.04~~ 30
20.64
~~1.37~~
1.66

112
7
~~804~~
784
582
1366
105

6.21
~~55.65~~
11 4 17.48
~~21.83~~
11.27
2
11.25

50.54
11 9 1.66
~~11.62~~
11.12
14
11.26

8.05
11 13 19.12
11.07
8
11.15

1.67
11 16 12.72
11.05
20
11.25

+1.000 11.27
+ 011 11.05
+ 0.89 .22
178 .24
420
356
640

11.2

11.25
11.26
11.15
11.25
1.11

11.28
88
10.40

h = .25

Frod 1327 is ~~fast~~ slow
0m 10.s40
at 11 10

Wed. May 4, 1904

Mer 10½
M.F.M.

g 1771 ? + 64 51
[58 Urs. Maj.] +43 41
υ Leonis −0 18
3 Draconis +67 16
χ Ursae Maj. +48 19

best before
little after?
11 44

−0 18

31ᵐ 24.0 52.7 7.7
26.2 10.2
30.1 13.0
32.8 14.9
34.8 18.9
36.8 20.9
1847 856
30.78 14.27
~~12.23~~

11 31 52.52
11 32 3.63
11.11
25
11.36

+67 17

35ᵐ 43.8 57.3 ~~5.4~~
48.0 ~~10.8~~
59.4? 31.0
6.2 36.0
11.1 42.8
16.0 50.1
~~244.5~~ 54.9
~~364.5~~ 5.4
0.75 10.8

32.00
53.33

40ᵐ 6.6
9.4
15.5
19.7
22.5
25.3
990
16.50

3510
56.70
50.14
53.09
57.05

11 36 57.05
11 37 9.14
12.09
38
11.71

+48 19

49.2 8.9
11.8
15.8
20.0
22.7
28.8
31.8
1398
~~19.69~~
19.97
30.83
49.14

13.09
21.82

11 40 49.14
11 41 0.49
11.35
5
11.30

12.09
11.11

11.36
11.30
11.33
88
10.45

Fri May 6 1904

Mer Cen

MJK
rattle begins
11 29

+69 52
−0 18
+67 17
+48 19

$4\frac{3}{4}$
8
6
32
38
41'

$9\frac{1}{2}$
3

+69 52

10.8 33.35 11.4
16.7
28.5
36.0
41.4
46.9
1808
30.13
13372
6318
33.31

16.8
24.9
33.0
37.9
50.0
558
2184
3640
63.13
33.27
2298
32.83
59.78
33.05

−0 18

24.2 52.8
26.5
30.4
33.0
35.0
36.9
1860
3100
2174
5274

58
7.9
10.5
13.2
15.1
19.1
21.2
928
1326
~~21.73~~
~~51.53~~
20.50
52.76

+67 17

~~[illegible]~~ 58.6
44.7
49.9
0.2
7.4
12.7
17.3
122
2.108
~~1.74~~
13372

32.5
37.7
44.2
51.5
56.3
68
12.0
361
51.57
53.10
5847
32.85
54.73
6.85
32
54.78

+48

72
10.2
16.5
20.6
21.5
26.2
1022
17.03
13372

19

50.1 98
12.8
16.8
20.9
23.7
29.8
33.0
1468
20.97
3083
50.14
1370
22.83

11 33.29
11 25 44.19
10.90

11 52.75
11 32 3.61
10.86

11 58.49
11 37 8.97
10.52
5

49.93
11 ~~50.14~~
11 41 0.45
~~10.31~~
10.52

~~10.90~~
10.86
10.55
10.52
19 3
10.62
88
9.74

Frod 1327 is slow

0m 9.74s

at 11h 30m

Sun May 8, 1904

MFM

Mer z lin

+18 34 mus 8 T²
−0 35
+63 14 latitude of T²
+56 29
+38 50 mire & T²

24 bamen ref

+18 34		−0 55		+56 29		+38 50	
10.40 24.2	10.9	39.2 52.6	49.0	40.30 40		24.00	41.0
26.2	12.8	54.4	52.8	7.8			43.4
29.0	17.0	56.9	0.0	12.7			46.9
32.0	19.8	59.8	4.8	17.4			50.2
33.9	21.5	1.8	8.2	20.9			52.7
38.0	23.4	5.8	11.4	28.3			57.9
40.3	105.4	7.8	6.2	31.8			0.6
2236	17.57	41 9.87	1.03	12 29			35 27
31.94	1.3372	5.44	1.3372	17.56			50 34
21.63	21.74	20.5	0.2579	37.12		24.07	26 32
10.31	39.31	~~7.41~~	1.5951	~~40.30~~ 40.44			24.07

+151 9.81
−02 10.32
153
.51 .33⅓
.454
510

10.31
12 30 20.60
~~10.20~~
10.29
19
10.10

3938 34.37 40.40
~~12 49 50.23~~
3934
12 36 49.66
1032
31 12 49
10.01

9.87
40.42
50.23
9.81
20
10.01

1251 33.98
~~9.98~~
9.91
3
9.88

n = 1/3

10.20
9.87
9.98
30.05
10.02
88
slow 9.14
at 12 40

10.01
10.10
~~10.~~
9.88
10.01
40.00
10.00
88
9.12

Frod 1327 is slow
0m 9.s12
at 12h 40m

Wed May 11, 1904

+67 17 middle wire of T & altle after 11 33
+48 19 wire 8 wires 12-13
+54 14 first 3 of 7'

+67 17

37m 40.0
47.0
54.2
59.0
2002
50.05
~~17774~~
15.047
17.708
20.474
22.314
75503
18.876
1.2760
0.4132
1.6892
4889
1.16

11 37 1.16
11 37 8.78
7.62
.49
8.11

+48 19

40m 52.55 23.2
258
490
24.50
20.474
22.314
42788
21.394
1.3303
0.1772
1.5075
32.18
52.32

11 40 52.32
11 40 60.36
8.04
7
8.11

+54 14

47m 52.0
556
25
1701
56.70
14102
02332
1.6434
4399
40.69

11 48 40.69
11 48 48.45
7.76
15
7.91

8.11
8.11
7.91
2413
8.04
.88
7.16

Mer Cz   Thurs May 12 1904   MFM.

τ Bootis +17 56
+49 48 misse & T?
[ ]+65 12
+18 53 T?

τ Bootis

+17 56		+49 48	+65 12		+18 53
6.2	360 49.8	39.8 0.3	25.1	32.8 4.4	14.8
8.3	51.8	3.2	29.9	8.8	16.8
12.3	54.8	7.2	39.8	14.8	19.6
15.4	57.5	11.6	46.0	21.8	22.4
17.3	59.4	14.5	50.3	26.0	24.2
19.2	38	20.8	54.2	35.8	28.8
	58	24.0		40.7	30.9
787	4029	816	2453	1523	1575
13.12	57.56	11.66	4088	21.76	22.50
1.3372	21.55	31.77	1.33332 0.37773	48.88	21.67
0.0216	36.01	39.89	17145	32.88	0.83
1.3588			51.82		
2284			32.70		
35.96					

420
616
1036
796+

+2.164 7.05
+0.323 7.43
+1.84 .88 .736 .48
1440 13 42
assumed 1492
n = 1/3

35.96	39.89	32.80	0.83
			~~22.50~~
13 42 43.89	47.39	39.85 13 50	8.72
7.93	7.50	7.05	6.22
~~20~~ 28	~~4~~ 13	.44	7.99
~~7.73~~	7.59	7.46	.27
		60	~~19~~
			~~7.80~~
7.65	7.63	7.65	7.72

n = .48

7.65
7.65
7.63
7.72
265
7.66
88
678

Frod (132) is above
0m 6.78s
at 13h 45m
Sid Time

Fri May 13, 1904

MFM

mer cir

rattle after
7 41

+ 5 28
+ 28 16

+5 28				+28 16		
33m	40.8	9.4	22.8	38	47.2	19.3	34.0
	42.8		24.7		49.6		36.5
	46.8		27.2		54.0		39.8
	49.7		30.0		57.1		42.8
	51.8		31.8		59.4		44.8
	534		35.8		15		49.4
	2853		37.9		3288		51.8
	47.55		2102		54.80		249.7
	1.3372		30.03		1.3372		42.81
	0.0020		20.60		0 0552		2328
	1.3392		9.43		1.3924		1953
	21.84				24.68		
	9.39				1948		

7 34 9.41 7 39 19.51
7 34 16.89 7 39 26.81

7.48 7.30
.39 18
7.09 7.12

assumed
r = .48

7.09
7.12
7.10
88
6.22

Frod 1327 is slow
0m 6s.22
at 7h 35m
Sid Time

Mon May 16, 1904

M J Mc

Mer lev
4 H Draco +78 9
*[2 Bamberg] +41 12
η Virginis −0 8

rather after
12 3

44 Draco
+78 9

7 39.85
44.1
53.5
6.3
19.7
28.8
48.0
59.0
~~4794~~ 1.3118
1394 06875
19.91 0.9993
~~99.82~~ 99.84
~~40.09~~ 40.07

14
54
68

364

1516

12 7 40.07
12 7 44.02
3.95
1.52
5.47

3.95
+4.766 5.86
−0.002 1.91
4.768 ~~14304~~ 1.40
~~4796~~
19072
2800

[2 Bamberg]
+41 12

10 37.2 14.8 32.3
39.8 34.8
45.2 38.3
48.8 42.0
51.2 44.4
53.8 49.9
52.8
2760 2945
46.00 42.07
1.3372 27.25
0.1235 14.82
1.4607
2889
14.89

12 11 14.85
12 11 20.55
5.70

00

η Virginis
−0 8

14 27.1 55.5 8.7
29.1 10.6
33.2 13.2
35.8 16.0
37.8 17.8
39.5 21.8
23.9
2025 1120
33.75 16.00
1.3372 20.50
00000 55.50
21.74
55.49

12 14 55.50
12 15 1.36
5.86
.36
5.50

λ = 4

5.47
5.50
5.70
1667
5.56
~~88~~

5.50 × 2
5.70 × 2
5.47 × 1

100
140
47
5)287
5.57
88
469

Found 1327 is slow
0m 4.69s
at 12h 10m.
Sid Time

Tues May 17, 1904

Meri Cir W-W-W-Obs

$^{9}_{5}$ Ursae Maj +55°25′ Comp M & Y.
17 H. Can. Ven +37°40 last 4 wires 2nd set.
τ Bootis +17°56′ 1st 2, 5 & 7 wires last set
Least min 13h 46m

+55 25
19 10.8 0.5 ~~4.5~~
14.2
21.2
29.2
328
1341
22.35
1.3372
0.2460
1.5832
3830
0.65

240
27.1
31.7
36.5
39.8
47.2
50.7
2570
36.~~78~~1
36.12
0.59

+37 40
30 53.2
55.3
08
3.2
23 2 5
58.12
1.3874
0.1016
1.4890
30.83
27.29

+17 56
42 52.45
54.50
53.48
1.1492
0.0216
1.1708
14.82
38.66

43.2.2
8.4

54
35
1890

59
35
245
177

413
390
803
62

35
15
525

13 20 0.62
13 20 5.45
4.83
~~.23~~ 19
5.02

13 30 27.29
13 30 32.39
5.10
5
5.05

13 42 38.66
13 42 43.88
5.22
21
5.01

+1.45 4.83
5.22
+ 0.32
1.13 .39
.339
.345
510
452
580
565

λ = .35

502
505
501
08
503
88
415

Fwd 1327 is slower
0m 4s.15
at 13h 30m

Fri. May 20, 1904

Mer Cir. 10.20.20. Clo.

o Virginis +9°15'
East min. 12h 8m

η Ursae Maj. +49°47'
[ι Draconis] +65°11' 1st set of wires
η Bootis +18°52' 2nd set of wires
τ Virginis +2°0'
East min 14h 0.0m

+9 15

54 47.5 164 29.5
49.3 31.3
533 34.1
56.4 368
58.3 385
0.2 430
325 0 450
~~50~~ 4.17 .83 2582
1.3372 36.89
0.0056 20.77
1.3428 16.12
22.02
~~12.85~~
16.19

651
690
1341
103

54
14
68

210
162
372
29

+49 47

42 59.3 43.35 3.8
22 7.0
88 10.9
13.0 15.7 148
18.6 176
242
576 27.1
960 1054
1.3372 1506
0.1900 31.76
1.5272 43.30
3367
4327

+18 52

50 18.6
20.2
228
258
278
320
342
1814
2.591
21.67
4.24

+2° 0'

56 14.7 43.2 56.2
57.9
167 0.8
208 3.2
235 5 2
254? 9. 2
27.3 11. 6
1284 24.1
21.40 3.44
1.3372 20.51
0 0003 42.93
1.3375
21.75
43.15

+1.18 402
+.03 4.64
+1.15 ~~21~~ 0.62 .539
.575
450
345
1050
1035

12 0 16.15
12 0 20.68
4.53
.41
4.12

13 43 43.29
13 43 47.47 31
4.02
15
4.17

13 50 4.24
13 50 8.71
4.47
31
4.16

13 56 43.03
13 56 ~~51.21~~ 47.67
.18
4.64
48
4.16

h = 54

4.16
4.12
4.16
4.17
61
4.15

4.15
88
3.27

Frod. 1327 is slow
0m 3.27s at 13 0

Sat May 21, 1904

Meridian Circ. W.W.W. Obs.

[20 Can. Ven.]	+41°4'	last set of wires
ζ Ursa Maj	+55°25'	
69 H Ursa Maj	+60°26'	
ζ Virginis	-0°6'	
1716 Can Ven	+37°40'	last 2 wires 2nd set
η Ursa Maj	+49°47'	
Sast min	13h 46m	

+41 4 +55 25 +60 26 -0 6 +37 40 +49 47

Sun, May 22, 1904

Mer Cir — Mit Molz

ε Urs Maj +56 29
12 Can Ven +38 50
+ 11 29

ε Urs Maj 1
+56 29

54.8 46.2 10.0
58.6 13.6
5.8 18.2
-10.6 23.2
14.0 26.5
17.4 34.0
37.5
4.12 16.30
6.87 23.29
1.3372 37.14
0.2579
1.5951 46.15
39.37
46.24

144
105
249
19

12 Can Ven
+38 50

29.8 46.5
49.0
52.2
55.8
58.2
3.4
6.1
39.12
55.89
26.30
29.59

+11 29

52.2 21.2 34.6
54.1 36.5
58.2 39.2
1.0 42.0
2.9 43.9
4.8 48.0
35.32 50.0
58.87 29.42
1.3372 42.03
0.0088 20.92
1.3460 21.11
22.18
21.05

46.19
12 49 49.96
3.77
35
4.12

3.77
+1.51 4.54
+0.20 .77 .587
1.31 655
1150
1048
102

29.59
12 51 33.63
4.24
6
4.18

21.08
12 57 25.62
~~5.46~~
4.54
42
4.12

4.12
4.18
4.15
.88
3.27

λ = .59

Frod 1327 is slow
$0^m\ 3^s.27$
at $12^h\ 50^m$,
Sid Time

Mon May 23, 1904

rattle before
13 10

~~4~~ -5 2
+28 22
+41 5

-5°2'
4 27.6 56.1 9.2
29.7 11.2
33.8 14.1
36.5 16.8
38.2 18.4
40.2 22.7
2060 24.8
3600 4.33 11 7 2 4
1.3372 16 86
0.0017 20.54
1.3389 56.16
21.82
~~5782~~
5615

+28 22
6 48.8 21.1 36.0
51.1 38.0
55.7 41.2
58.8 44.4
1.0 46.4
3.0 51.0
~~3388~~ 84 53.2
~~56.40~~
~~48.23~~ 3102
1.3372 44.31
0.0556 23.30
1.3928 21.01
24.71
~~12.94~~
21.11

+41° 5'
~~11~~ 12 34.2 11.9 32.0
36.8 35.5
42.0 39.1
46.0? 41.5
48.2 46.9
50.8 49.8
2580 2448
43.00 40.80

13 ~~12~~ 13 11.90
13 13 16.01
4.1
.02
409

66
7
73

13 4 56.16
13 4 60.66
4.50
40
410

13 7 21.06
13 7 25.29
4.23
.15
4.08

+0.87 4.11
-0.09 450
98 39 397
294
960
882
78
686

n = .4

410
40~~9~~
409

409
.88
3.21

Frod 1327 is slow
0m 3.s21
at 13h 10m
Sid Time

Tues May 24, 1904

M.F.M. obs.

Mer Cir

43 Comae +28 22
20 Can Ven } +41 5
{ Ursa Maj, +55 26 wire 8 T² cuttle after

13 26

+28 22

6 49.2 21.3 36.3
51.3
56.0
59.0
12
32
3399
5665
24.71
21.36

384
414
446
468
51.3
538
3126
4466
23.30
21.36

13 7 21.36
13 7 25.28
3.92
15
3.77

+41 5

12 34.6 12.2 29.8
372
428
46.2
488
51.0
2606
4343
13372
0.1228
14600
2864
12.27

321
358
394
41.8
47.1
498
2758
39.40
27.19
12.21

13 13 12.24
13 13 16.00
3.76
02
3.74

+55 26

20m 20
25.3
~~30.4~~ 28.3?
332
381
41.4
48.6
52.1
2690.4
38~~44~~
36.14
~~2.30~~ .24
200

21 34
42.68
13627
82462
16089
.4063
2.05
200
~~2.30~~

13 20
13 20 5.33
3.33
22
~~3.25~~
3.55

377 × 2 154
374 × 2 148
355 × 1 55
357
3.71
88
2.83

Frod 1327 is slow
0m 2s.83
at 13h 15m,
sid time

Fri May 27, 1904

Merlein

M.F.M.

rattle after(?)
13 2

+28 22
+41 5
+55 26

+28 22				+41 5				+55 2$\overset{5}{\cancel{6}}$			
6	50.4	2265	37.6	12	35.8	135	31.0	19	13.0	32	$\overset{2}{\cancel{5}}$6.5
	52.6		39.8		38.4		33.5		16.8		29.6
	57.2		42.5		43.8		37.0		23.7		34.3
	0.3		45.8		47.5		40.7		28.6		39.2
	2.4		48.0		49.9		43.2		31.4		42.4
	4.5		52.7		52.3		48.3		35.0		49.8
	3474		55.0				51.1				53.2
			3214		2677		2848		1490		2450
	57.90		45.91		44.62		40.69		24.83		~~39.00~~ 39.29
	24.71		23.30		28.84		27.19		13372		~~36.44~~ 36.14
	22.61		22.61		13.46		13.50		0.2460		~~5886~~ 3.15
									1.5834		
									38.30		
									3.13		

13 7 22.61
13 7 2525
2.64
.21
2.43

13 13 13.48
13 13 15.96
2.48
02
2.46

13 20 3.14
13 20 5.27
2.13
.30
2.43

56
04
224

56
37
39²
168
207²

54
56
32⁴
270

350
~~276~~
276
626
48

2.13
2.64
.51
.455
55
546
4

+.45
+.54
+0.91

.56

2.46
2.43
2.44
88
1.56

Frod 1327 is slow

0m 1.56s
at 13h 15m
sid. Time

Sat. May 28, 1904

Mer. Cir. W. W. W. obs.

α Urs. Maj + 48° 18'
β Leonis + 15° 6'
β Virginis + 2° 18' 2nd set of wires

East Min 11h 45m

+48°18'

40m 15.6
18.6
24.7
28.8
31.7
34.3

42 18.1
20.9
24.9
29.1
32.1
37.9
41.0

153.7
25.62
32.67
58.29

204.0
29.14
30.82
58.32

11 40m 58s.30
11 40 60.03

1s.73
.10
1.83

+15°6'

43 39.5
41.7
45.8
48.6
50 ~~49~~.5
52.4

44 22.7
24.6
27.2
30.2
32.0
36.2
38.4

278.5
46.42
22.52
8.94

211.3
30.19
21.23
~~8.84~~
8.96

11h 44m 8s.95
11 44 11.10

2.15
.29
1.86

+2°~~40~~18'

45m 54.1
56.1
58.7
61.5
63.1
67.2
69.1

429.8
01.40
20.52
45m 40.88

11h 45m 40.88
11h 45m 43.11

2.23
.40
1.83

1.122 1.73
.04 2.23
1.08) .500(.46
.432
680
648

1.83 × 2 = 3.66
1.86 × 2 = 3.72
1.83 × 1 = 1.83
5) 9.21
1.84
.88 b sec
0.96

Frod 1327 is slow 0m 0s.96
at 11h 45m Sid. Time.

Sun. May 29, 1904

Meri Cir. W. W. C. Obs

β Bootes +40°46" missed 1st 3 wires
ψ Bootes +27°19'
δ Bootes +33°40
1 H Urs. Min + 67°42' last set of wires
Local mean 15h 17m

+40°46'		27°19'		33°40'		+67°42'
54.7	38.0	48.7	35.4	4.5	54.6	9.2
57.1	40.3	50.9	37.5	7.0	56.8	13.7
59.7	44.0	55.4	40.3	12.1	59.9	21.0
	47.5	58.5	43.6	15.3	63.3	28.1
	50.1	60.6	45.5	16.3	65.7	32.7
	55.4	62.7	50.2	19.6	70.5	43.7
	58.1		52.4		73.1	49.1
	333.4	336.8	300.9	74.8	443.9	198.5
	47.63	~~48.11~~	42.99	12.47	3.41	28.36
	27.07	56.13	23.09	26.12	24.63	~~54.43~~
	20.56	24.47	1990	38.59	38.78	34.33
		20.60	300.9			
			43.56			
			23.09			
			20.47			

28.316
53.860

1975
28.21
54.03
~~24.18~~
~~74.13~~
34.18

~~15h 0m 20.47~~
~~15 0 21.94~~
~~1.47~~
~~.72~~
~~.75~~

~~15 11 38.68~~
~~15 11 40.04~~
~~1.36~~
~~.45~~
~~.91~~

~~15 13 34.18~~
~~15 13 34.42~~
~~.14~~

15h 0m 20.54
15 0 21.94
1.40
.265
1.145

15 11 38.68
15 11 40.04
1.36
.15
1.21

15 13 34.18
15 13 34.42
0.24
.97
1.21

1.426
.517

0.7
1.36
1.29

~~2.438~~
~~.517~~
~~.921~~

.14
~~1.47~~
1.61 (1.8

2.438
.517
1.921) 0.24
1.40
1.24.00 (.64
1152
880

1.15 × 2 = 2.30
1.21 × 2 = 2.42
1.21 × 1 = 1.21
5) 5.93
1.19
.88 b sec φ
0.31

Frod. 1327 is slow 0m 0s.31 at 15h 0 Sid. Time

Tues May 31, 1904

Mer Cir M. F. M.

[ ] +71 44
+17 56
+49 ~~42~~ 48 min 8 T²
[ ] +65 12
+18 53 T²

suttle after
13 32

28
44
11 2
112
12

28
52
56
140

59
44
236
236
2596

27
52
56
135

59
52
118
295

.57
44
228
228
2508

57
52
114
285

η Ursae Maj. η Bootis

+71 44 +17 56 +49 42 +65 12 +18 53

42ᵐ ~~9.5~~
13.7
15.6
19.8
22.8
24.6
26.6
1231
2052
13372
0 0216
1,3588
22.84
43.36

43.4 57.0
59.1
20
5.0
11.2
13 1
341
4.87
21.55
43.32

43ᵐ 47.3
7.6
10.3
14.5
18.8
21.7
28 0
31.0
131 9
1884
31.7 a
~~47.14~~
47.07

50 22.2
24.2
26.9
29.9
31.8
36.0
38.2
2092
29.89
21.67
8.22

13 42 43.34
13 42 43.81
0.47
~~31~~
~~0.16~~
.26
0.21

13 43 47.~~14~~ 07
13 43 47.16
~~0.00~~
~~0.02~~
~~.14~~
~~0.16~~
0.09
~~12~~
~~0.24~~
0.21

13 50 8.22
13 50 8.65
0.43
~~30~~ 25
~~0.13~~
0.18

9
~~0.0~~
+1.18 0.47
+.32 0.45 52
.86 430
200
172
280

0.16
0.13
0.6
0.45
0.15
Sec φ 88
0.73

0.21
0.18
0.21
0.60
0.20
88
0.68

n = 44
~~n = 52~~

0.09
+1.18 0.47
+.32) 0.38 .44
.86 344
360
344

Frod 1327 is fast
0ᵐ 5.68 ~~0.73~~
at 13 45
Sid Time

Fri. June 3 1904

Mer lets

M F M
rattle after
13 53

+49 48
[ ) +65 12
+18 53 latest 5 of T²
+2 1
+64 50
+25 33

44
44
176
176
1936

w. assumed
= .44

+49 48

43ᵐ 45 48.3 8.8
7.6 11.8
13.9 15.8
18.2 20.0
21.0 23.0
23.8 29.3
32.4
890 1411
1483 20.16
1.3372 31.77
~~[illegible]~~
1.5273 48.39
33.67
48.50

13 43 48.44
13 43 47.11
1.33
12
1.21

1.21
88
2.09

+18 53

+2 1

+25 33

5 32.7 4.2 18.8
34.8 20.7
39.4 23.8
42.4 26.5
44.5 28.8
46.6 33.4
2406 35.6
40.10 1876
1.3372 26.80
0.0447 22.73
1.3819 4.07
24.09
4.19

14
~~13~~ 6 4.13
14 6 3.10
1.03
19
1 22

Frod 1327 is fast
0ᵐ 2.09ˢ
at 13ʰ 50
sid Time

Sat June 4, 1904

meg clear

m 7 m

rather after

14 18

+ 52 18

– ~~+ 48~~

~~+ 38 44~~

Sun June 5 1904

Mer Cir.

M.F.M.
rather after

+ 19 41
+ 52 18
+ 38 44

14 14

+19 41

10m 50.4 20 45 34.5
52.6 36.6
56.8 39.3
59.8 42.2
1.6 44.2
3.5 48.5
34.47 50.6
57.45 29.59
1.3372 42.27
0.0262 21.78
1.3634 20.49
23.09
20.54

+52 18

21 13.3 59.85 21.3
16.7 24.4
23.2 28.8
27.9 33.2
30.8 36.2
33.8 42.9
14.57 46.3
24.28 23.31
1.3372 33.30
6.2136 33.53
1.5508 59.77
~~33.34~~
35.55
~~57.62~~
59.83

+38 44

27 40.1 16 55 33.5
42.6 35.9
47.9 39.4
51.4 42.8
53.7 45.1
56.2 50.4
29.19 53.0
48.65 ~~29.81~~ 30.01 86
1.3372 42.59
0.1079 26.28
1.4451 ~~16.31~~
~~24.49~~ 16.58
27.82
~~13.05~~
16.52

14 11 20.51
14 11 18.78
1.73
34
2.07

14 21 59.80
14 21 57.50
2.30
23
2.07

14 28 16.55
14 28 14.58
1.97
7
2.04

+1.29 2.30
+036 1.73
0.93 .57
.558
120
93
270

.61

r = .61

207
204
206
[illegible] .88
~~1.18~~
2.94

Frod 1327 is fast
0m ~~1.18~~ 2.94
at 14h 20m
Sid. Time

Thurs June 9, 1904

M F M obs
rattle after
14 9

γ Bootis +38 44
A [33 Bootis] + 44 49
F {[ζ Bootis] + 1 4 8 wires 14-15
{109 Virginis + 2 18

44 F

875
44
3500
350.0

875
.6
5250

assumed
n = .6

assumed
n = .44

+38 44
27 42.8 19.2 36.0
45.4
50.4
54.0
56.3
58.8
307.7
51.28
27.87
19.15

38.4
41.8
45.3
47.8
52.9
55.6
317.8
45.40
26.28
19.12

+44 49
42.4 22.7 41.2
45.2
51.8
~~55.5~~
57.5
0.0
311.1
51.85
1.3372
0.1491
1.4863
30.64
22.49

43.3
47.8
51.4
53.8
59.6
2.4
359.5
51.36
28.90
22.46

14 28 19.13
14 28 14.54
4.59
05
~~4.66~~
4.64

07
4.66

14 22.47
14 35 17.74
4.73
~~05~~
~~10~~
04
~~4.63~~
~~4.68~~
4.69

4.68 05

+2 18
41 18 30.1 43.3
3.9 45.2
7.6 47.9
10.5 50.8
12.5 52.6
14.2 56.8
505 58.7
8.42 355.3
1.3372 50.76
0.0004 20.52
1.3376 30.24
21.76
30.18

14 41 30.21
14 41 25.85
4.36
~~52~~
~~4.88~~
38
4.74

52
4.68

4.65
88
5.53

4.66
4.68
4.67
88
5.55

4.64
4.69
4.66

L

4.67
31
4.98

464
469
474
207
4.69

Frod 1327 is fast
0m 5.55s
at 14h 35m
sid time

Fri June 10, 1904

mer circ

m F M
rattle before
14 10

+64 50
+25 33
−9 50
+19 41 latest of T' wire T²

+64° 50'

14 0 47.4 : 54.5 25.5

52.3
01.8
8.2
12.4
17.0
191
31.8
1.3372
0.3713
1.7085
51.11
54.29

30.0
36.0
42.4
46.6
~~54.5~~
56.5
1.1
298.1
42.59
48.21
54.38

122
29
1098
244

109
29
981
218
3161

44
29
346
88

56
29
504
112
1624

14 1 54.34
14 1 48.86
5.48
35
5.13

+25° 33'

5 36.6 8.0 22.6

36.4
43.2
46.2
48.3
50.5
263.7
43.95
1.3372
0.0457
1.38229
24.09
~~8.06~~
8.04

24.5
27.6
30.6
32.8
37.2
39.5
215.0
30.71
22.73
7.98

14 6 8.01
14 6 3.04
4.97
13
5.10

−9° 50'

7 24.8 53.45 6.8"

26.6
30.8
33.4
35.3
37.3
188.2
31.37
1.3372
0.0064
1.3436
22.06
53.43

8.8
11.4
14.2
16.1
20.2
22.2
99.7
14.24
20.81
53.43

14 7 53.43
14 7 48.61
4.81
32
5.13

+19° 41'

23.8 37.8
39.8
42.6
45.4
47.3
51.8
53.9
318.6
45.51
21.78
23.73

14 11 23.73
14 11 18.75
4.98
16
5.14

5.48
+2.13 4.81
17 .67 .291
−
+2.30 .46
21
207
30

n = .29

513
5.14
5.10
5.13
50
5.12
88
~~4.24~~
600

5.12
31
5.43

Fr'd 1327 is fast
0m 65.00 ~~47.24~~
at 14 5
sid Time

Mer C Jr Sat June 11, 1904 M F M.

α Serpen; +6 44

β Serpen, +15 43

χ Serpentis +18 26

+78 5.

Sunday June 12 1904

Mer lo ii

M F M,
3 rattles
after 14 31

+38 44
A [ ]+44 49
−5 14

+38 44

27 44.7 21.15 37.9
46.8 40.2
52.1 43.7
55.8 47.1
58.0 49.4
0.4 54.8
3178 57.6
5297 3307
1.3372 4724
0,1078 26.28
1,4450 20.96
2786
20,83

+44 49

34 44.2 24.0 42.8
46.9 45.3
52.8 49.1
56.3 53.1
59.0 56.0
1.8 1.7 ~~8~~
3210 48
5350 37 29~~0~~6
1.3372 53.2~~7~~
0,1491 2890
1,4863 24.36
30.641
24,14

−5 14

3) 39.7 8,3 21.6
41.8 23.3
45.8 26.0
48.7 28.9
50.5 30.8
52.3 34.0
2788 37.0
~~49.70~~ 2016
46.47 28.80
1.3372 2059
0,0018 8.21
1,3390
2183
8,30

84
252
336
20

498
672
1170
~~585~~
90

14 28 20.90
14 28 14.51
6,39
6
6.45

14 35 24.26
14 35 17.70
6.56
4
6.52

14 38.5 ~~25~~ 8,25
14 38 2.24
6,01
51
6.52

656
+0.99 601
−.09 55 .509
1.08 540
1000
972
28

n = .51

652
6.45
6.48
~~Decl~~ 4 88
~~5.60~~
7.36

648
31
6.79

Frod 1327 is pot
om ~~5.60~~
7.36
at 14 30
Sid Time

Mon June 13 1904

Mer circ

M F K
rattle after
14 23

+44 49
~~[illegible] 14~~
+2 18
−15 39

238
238
2618

176
176

132
56
188
13

426
448
874

698
+94 670
−28 28 ,22
127 ,254
260
254

~~assumed~~
~~n = .5~~

n = 22

+44 49

~~32 56.0~~
~~58.6~~
34 44.7 24.8 43.2
47.4 45.8
53.2 49.7
57.1 53.6
59.8 56.0
2.2 1.8
4.7
32 44
54.07 37 48
30.64 53.54
24.71 28.90
24.64

14 35 24.67
14 35 17 69
6 98
2 .04
6.96 7.02

6.96
6.96
6.96

6.96
.88
7.84

6.96
.31
7.27

+2 18

41 41 32.6 45.8
47.8
6.0
10.2 50.3
13.0 53.1
15.0 55.0
16.6 59.0
1.0
3720
6 49 53.14
20 52
1 0 8 2 ~~7.59~~
1.3372 32.62
0.0004
1.3376
1.21.76
32.58

14 4~~2~~1 32.60
14 41 25 83
6.77
19 44
6.96 7.21

−15 39

45 13.8 43.1 56.8
15.8 58.8
19.9 1.4
22.9 4.4
24.8 6.2
26.7 10.4
12.5
1239 3 0.5
2065 4.36
1.337.2 21.28
0.0164 43.08
1.3536
2257
43.22

14 45 43.13
14 45 36 43
6.70
26 .59
6.96 7.29

Frod 1327 is fast
$0^m\ 7^s.84$
at $14^h\ 40^m$
Sid Time

Tue June 14, 1904

Mer Cir M, F, M,

β Ursae maj +56 54 latest 2 of T' miss & T²
α Ursae Maj +62 16 miss & T2
φ Ursae Maj +45 1
15 Leonis +21 3 miss 15
ν Ursae Maj +33 37 T' miss & latest 4 of T²

+56 54
11.3 35.2
38.8
43.5
48.8
52.0
59.6
3.2
34.11
48.73
37.54
11.19

+62 16
56.5 24.8
28.8
34.4
40.4
44.3
53.2
57.5
28.34
40.49
44.06
56.43

+45 1
44.0 24.2 42.8
46.9 45.6
52.8 49.2
56.5 53.3
59.1 55.9
1.8 1.5
32.11 4.5
53.52 37.28
1.3372 53.30
01506 29.00
1.4878 24.30
30.75
24.27

+33 37
51.8 26.0 50.5
54.2 52.8
59.0 57.6
2.4 0.0
4.7 2.09
6.8 55.22
35.89 13874
69.82 00795
13372 1.4669
00795 29.30
1.4167 25.92
26.10
25.42

assumed n = ~~22~~

10 56 11.19
3.29
7.90
13
7.77
30
7.60

10 57 56.43
48.39
8.04
22
7.82
48
7.56

11 4 24.29
16.65
7.64
2
7.62
4
7.60

11 13 25.92
18.48
7.44
6
7.50
12
7.56

+1.90 8.04
+ 66 7.44
+1.24 60
4.96
10.40
9.92
580

.48

n = 48

7.60
7.56
7.56
1.72
7.57
88
8.45

7.57
31
7.88

Frod 1327 is fast
$0^m\ 8.^s45$
at $11^h\ 10^m$
Sid Time

Mer Cir

Wed June 15, 1904

M J M,
rather after
14 31

+44 49
−5 14
+2 18

+44 49

5 50
34 45.8 248 49.8
484 54.6
54.3 57.2
56.0 3.1
0.6 5.6
3.4
3305 2915
55.08 ~~41.64~~
13372 ~~48.58~~
0.1491 58.30
1,4863 1,3627
30.64 0.1491
25.72 ~~1.2136~~
1.5118
32.49
25.84

14 35 25.76
14 35 17.66
~~8.90~~
8.10
1
8.09

−5 14

37 41.6 10.2 23.3
43.8 25.2
47.8 28.0
50.5 30.8
52.2 32.6
54.2 36.7
38.7
2907 2153
48.35 30.76
21.83 20.54
10.18 10.17

14 38 10.17
14 38 2.22
~~8~~.95
15 50
~~8.45~~
~~8.45~~
15
~~20~~
~~8.15~~
8.10

+2 18

41 5.2 33.8 41.0
7.3 48.8
11.5 57.6
14.2 54.2
16.1 56.1
17.8 0.1
2.2
721 3800
1,2.02 54.29
21.76 20.52
33.78 33.77

14 41 33.77
14 41 25.82
~~8~~.95
13 ~~44~~
~~8.51~~
~~8.39~~
13
8.08

~~h = 12.5~~
assumed
h = .15

8.09
b sec φ 88
8.97

809
31
8.40

Frod 1327 is fast
0m 8.97s
at 14h 40m
Sid time

Thurs June 16, 1904

mer circ

M. F. M.
rather after
15 0

+33 40
+67 43
+59 18
+41 10

35
.0 ~~45~~
47
245
140
.01645

47
25
117 5

54
28
82

77
.47
539
308
3619

+33 40

11 14.6 48.7 4.4
17.1 6.7
21.8 9.9
24.9 13.2
27.2 15.2
29.2 ~~20~~
20.2
22.6
13 48 9 22
22.47 13.17
1.3372 24.63
0.0798 48.54
1.4170
26.12
48.59

+67 43

+59 18

22 3.0 58.6 24.6
6.9 28.1
15.0 33.4
20.2 39.0
23.9 42.6
27.5 50.3
54.2
9.65 27.22
16.08 ~~41~~
1.3372 38.89
0.2920 40.16
1.6292 58.73
.4258
58.66

+41 10

27 20 ~~0~~3 9.8 57.2
4.6 59.7
10.1 3.1
13.8 6.8
16.1 9.3
18.6 14.8
6.52 17.4
10.87 48.3
1.3372 6.90
0.1233 27.21
1.4605 39.66
28.87
39.74

15 11 48.56
15 11 39.93
8.63
12
8.75

15 22 58.70
15 22 49.60
9.10
36
8.74

15 27 3~~8~~9.70
15 27 30.87
8.83
~~36~~
~~47~~
.02
8.85

+1.68
+0.67
.94

9.10
8.63
47
.396
740
693
470

.47

885
875
880
.88
9.68

8.80
.31
9.11

r = .47

Frod 1327 is fast
0m 9s.68
at 15h 20m
Sid Time

Fri, June 17, 1904

M. F. M. obs

Time beginning
0 00
ESMT

Mer Cir
Level

Telescope N.

Zero W Screws E	W	E
	−41.1	−76.8
	−41.6	−76.4
~~Zero~~ E	+82.0	+46.9
	+82.0	+46.9

Marks 118

time end
0 30
ESMT

Telescope S

	−39.0	−74.5
Zero W	~~−38.8~~	~~−74.2~~
	~~−38.1~~	~~−73.9~~
	−38.4	−73.9
	+83.5	+48.0
Zero E	~~+83.0~~	~~+47.1~~
	~~+82.8~~	~~+48.9~~
	+83.6	+48.1

~~61~~
~~48~~
~~130~~
~~4~~
~~112~~
~~180~~

61
48
130
128
20
16
40
32

~~61~~
~~48~~
~~13~~
~~122~~
~~80~~
~~61~~
~~1~~
~~122~~
~~48~~

−82.7	−152.5
−77.4	−148.4
−160.1	−300.9
+164.0	+93.8
+167.1	+97.1
+331.1	+190.9
+171.0	110.0
−110.0	
~~61~~.0	

16) 61.0
~~3.211~~ 2
3.8125

3.8125
06
228750
135
1143750
686250
228750
30881250

h sec φ
= .31
west ending

Fri June 17, 1904

Clear Cir. 20-20-20-Clo.

43 Comae +28°41' (21?) last set of wires
π Hydrae −22°39'
ξ Ursa Maj +55°25'
17 16. Can. Ven. +37°40'
Last wire 13h 33m

+28 41 (21?)
7 49.0
51.2
54.2
57.4
59.6
42
65
4021
57.44 (0?)
23.37
34.~~07~~? .14?

13 7 34.~~07~~ (14?)
13 7 25.00
9.14
13
9.27

−22 39
13 22.3 53.07.3
24.5 9.4
28.9 12.3
31.8 15.3
33.9 17.2
35.9? 21.8
23.9
1773 1072
29.55 15.31
1.3372 2222
00346 53.09
1.3718
28.54
53.09

13 13 53.09
13 13 44.16
8.93
47
9.40

+55 25
19 24.1 14.35 37.7
27.9 40.9
35.1 45.6
39.9 50.3
43.0 53.8
46.3 0.8
4.5
2163 3536
36.05 505.1
1.3372 361.2
02460 1439
1.5832
38.30
14.35

13 20 14.37
13 20 4.78
9.59
19
9.40

+37 40
30h 55 41.2 58.0
8.0 05
13.1 3.8
16.6 7.2
19.0 9.5
21.2 14.7
834 17.2
13.90 509
1.3372 7.27
0.1009 ~~27.4~~
1.4381 25.90
27.43 41.37
41.33

13 30 41.35
13 30 32.02
9.33
~~8~~5
~~9.41~~
9.38

9.59
+1.45 8.93
−.42 .66
1.87 .561
990
935
550

.353

n = .35

9.40 × 2 = 80
9.27 × 1 = 27
9.38 × 2 = 76
9.40 × 2 = 80
263
~~9335~~
9.38
31
9.69

Frod 1327 is fast
0m 9.69s
at 13h 20m
Sid Time.

Sat June 18, 1904

m + cu
rattle through
14 48

Mer Cir

+74 33 near 8 T^2

+40 46 latest of T^1 bud

~~+27 19~~

−19 26 latest of T^2

Sun June 19, 1904

merlin

MJM

3 rattles of the

+59 41

+74 33 mine 8 T³

+40 46

+27 19

14 42

+59 41

48 16.6 12.85 39.0
20.4
28.8
34.0
37.6
41.2
1786
29.77
1.3372
0.2969
1,6341
43.06
12,83

42.6
47.8
53.2
56.9
5.0
9.1
3736
53.37
40.62
12.75

+74 33

51ᵐ 12.6? 40.0
1.6
8.4
18.8
29.2
36.4
51.7
59.0
2051
29.30
7696
12,34

+40 46

57ᵐ 54.8 32.35
57.5
2.7
6.2
8.8
11.2
212
353
1,3372
0,1207
1,4579
~~2557~~
28.10
~~2810~~
32,23

49.6
52.1
55.6
59.2
1.6
7.0
9.6
4147
59.24
27.07
32.17

+27 19

15ʰ 00.3 32.4
2.6
7.1
10.2
12.3
14.4
469
782
1,3372
0.0514
1,3886
24.46
32.28

47.2
49.2
52.2
55.2
58.3
2.0
4.2
3883
55.47
23.08
32.39

14 49 12.79
14 49 1.80
10.99
36
10.63

14 51 12.34
14 51 0.43
11.91
1.24
10.67

14 58 32.20
14 58 21.62
10.58
.02
10.60

15 0 32.34
15 0 21.86
10.48
.18
10.66

11.91
10.48
1.43
1.24
190
186
4

.46

+3.62
+.52
3.12

10.63
10.60
10.62
31
10.93

r = .46

Frod 1327 is fast
0ᵐ 10.ˢ93
at 14ʰ 55ᵐ,
Sid Time

Mon June 20, 1904

Students' Visiting night J.A.D. Obs.

~~β Boötis +40 46~~ not observed

δ Boötis +33 40 observed.
μ Boötis +37 43 observed: single trail, μ_2 feebly visible as 7.0 star, 2'5, on centre wire
ν^1 Boötis +41 10 [ν^2 Boötis 2nd trail]

Break at 15h 32 feebly visible.

June 21, 1904

Students' mtgs:

J.A.D. obsr

γ Boötis +38°43′ { 2nd tack only; 2nd last tack is double, take 1st

δ Boötis +33°40 } 1st tack only
ν¹ Boötis +41°10 }

Break out and rattle after 15h 33

+38 43

14 28m 43.1
45.4
48.9
52.3
54.8
0.0
2.6

367.1
52.44
26.28

26.16

14 28 26.16
14 28 14.41

11.75
6

11.81

1202
11.81
11.94

577
11.93
31

12.24

+33 40

15 11 17.6
20.0
24.9
28.2
30.2
32.7

153.6
25.60
1.3372
0.0797

1.4169
26.11
51.71

15 ~~12~~ 11 51.71
15 11 39.89

11.82
12

11.94

+41°10′

15 27 5.1
7.8
13.2
16.7
19.2
21.7

83.7
13.95
1.3372
0.1233

1.4605
28.87
42.82

15 ~~28~~ 27 42.82
15 27 30.82

12.00
2

12.02

Frod 1327 is fast

0m 12.s24

at 15h 0m,

Sid Time

Thurs June 23, 1904

Mer Cir

-3 27

+76 7
+46 33

M F M,
settle after
15 59

Friday, June 24, 1904

Mer Circle: JAD obsr

Midday observation

α Can. Min +5 28 all. 3 rattles after 7h 32

α Leonis +12 26

3 rattles after 10h 5

μ Urs maj. (Tally 1, last 2 wires & Wire 8
Tally 2, all

815
85
4075
6520
69275

α Can Min
+5 28

7 34 1.7
3.4
7.6
10.4
12.2
14.2
495
8.25
1.3372
0.0020
1.3392
21.84
30.09

43.2
45.0
47.9
50.6
52.5
56.4
58.4
3540
50.57
20.60
29.97

~~40~~ 7 34 30.03
7 34 16.63
13.40
.69
~~12.71~~
33
13.73

16.72
13.40
+0.90 32 .4
+0.10 320
80

677
654
13 33
1 03

1272
1340
~~+27~~
.090 .68
.10 640
+0.80 400

.85

.85

13.72
31
14.03

—

α Leonis
+12 26

10 3 0.6
25
6.7
9.5
11.7
13.2
438
7.30
1.3372
0.0103
1.3475
22.26
29.56

43.0
45.0
47.7
50.6
52.4
56.5
58.7
3539
50.56
20.99
29.57

10 3 29.57
10 3 16.15
13.42
28
13.70

+41 58

10 16 50.7 8.3
11.0
14.3
18.2
20.7
26.2
29.0
1277
18.24
27.57
~~45.067~~
35.067

10 16 50.67
10 16 36.95
13.72
00

F10 of 1327 is fast 0m 14.03s
at 10h 0m

Sun June 26 1904

Mr F ly
3 settles after
16 16

−19 33 wire 8 T²
+61 44 wire 8 T²
+21 42
+68 59 wire 6 wire 5 T²

−19 33
16 0 9.0 22.8
24.9
27.7
30.7
32.5
36.8
39.0
21 44
30.63
21.76
8.87

16 0 8.87
~~16 ~~ ~~7.47~~
15 59 53.99
14.88
.70
15.58

C.54

16.50
+2.60 1488
−0.36
2.96 1.62
~~72~~
1480
1400
1184
2160

n = .55

15.58
15.56
15.51
15.57
22

15.56
.31
15.87

+61 44
22ᵐ 59.9 27.2
31.6
37.0
43.2
46.8
55.6
59.9
30 1 3
43.04
43.29
59.75

16 22 59.75
16 22 43.72
16.03
.52
15.51

+21 42
25 52.6 23.1 37.2
54.8 39.3
59.1 42.2
2.1 45.2
4.0 47.0
6.0 51.6
35 86 53.8
59.77 31 63
1.3372 45.19
0.03.19 220.7
13691 23.12
23.40
23.17

16 26 23.14
16 26 7.86
15.28
.28
15.56

+68 59
~~24ᵐ 6.4~~ 27 11.0
26 29.2 18.5
26.1
31.2
42.8
48.2
18 3 9
26.28
57.13
29.15

16 28 29.15
16 28.265
16.50
.93
15.57

Frod 1327 is fast
0ᵐ 15ˢ.87
~~at~~ ~~[illegible]~~
at 16ʰ 15ᵐ
Sid Time.

Mon June 27, 1904

Mer lein

M.F.M.
rattle before
15 0

−19 26
+33 40
+37 43

	−19		26		+33		40		+37		43
6	33.0	3.1	17.1	11	21.8	55.8	11.4	20m	33.8	9.8	26.4
	35.0		19.2		24.2		13.9		36.4		28.9
	39.2		21.8		29.0		17.1		41.7		32.2
	42.1		24.8		32.2		20.3		45.0		35.7
	44.1		26.7		34.4		22.7		47.3		37.9
	46.2		31.0		36.8		27.4		49.8		43.2
			33.0				30.0				45.8
	2396		1736		1784		1428		2540		2501
	39.93		24.80		29.73		20.40		42.33		35.73
	1.3372		21.74		26.11		24.63		1.3372		25.92
	0.0255		3.06		55.84		55.77		0.1018		9.81
	1.3627								1.4390		
	23.05								27.48		
	2.98								9.81		

15 7 3.02
15 6 47.43
15.59
~~.63~~
~~16.22~~
57
16.16

15 11 55.80
15 11 39.83
15.97
~~+3~~
~~16.10~~
11
16.08

15 21 9.81
15 20 53.70
16.11
~~7~~
~~16.18~~
6
16.17

~~assumed~~
n = .5
assumed
n = 45

16.16
16.08
16.17
41
16.14
31
16.45

Frod 1327 is fast
0m 16.45s
at 15h 15m
Sid Time

Fri ~~July 1, 1904~~

Mer circ

mT M
rattle before
13 16

+11 29
{Ursakyr +28 22 T' good (more & first two later doubtful T')
} +55 26
~~0~~ 6

+11 29 +28 22 +55 26

12 57 15.2 44.2 57.5 13 7 11.6 45.0? 13ʰ 19ᵐ 33.9 24.0 47.2

17.2	59.6	14.0	37.4	50.5
21.3	2.1	18.~~4~~6	44.6	55.2
24.2	5.0	21.5	49.3	0.0
26.1	6.8	23.6	52.8	3.2
27.8	11.0	25.8	55.9	10.5
	13.0		.7	14.0
131.8	35.0	115.1	273.9	0.6
21.97	5.00	19.18	45.65	0.09
1.3372	20.92	1.3372	1.3372	36.14
0.0088	44.08	0.05~~64~~56	0.2462	23.95
1.3460		1.39~~44~~28	1.5834	
22.18		24.78	38.32	
44.15		~~43.96~~	23.97	
		43.89		

90
56
146
11

12	57	44.11	13	7	43.~~96~~84	13	20	23.96
12	57	25.23	13	7	24.67	13	20	4.41
		18.88			19.~~29~~22			19.55
		38			20			29
		19.26			~~19.49~~			19.26
					~~19.42~~			
					19.42			

+145 19.55
18.88
+20
1.25 .67
625
450
375
750
750

n = .54

.536

94
31

19.26×2 52
19.42×1 42
19.26×2 52
5)146
29

19.29
31
19.60

Frod 1327 is fast
0ᵐ 19ˢ.60
at 13ʰ 10ᵐ
Sid Time

Sat July 2, 1904

Mer Cir. 				W. W. W. Obs.

μ Bootis +37°42′
β Cor. Bore. +29°26′

+37 42 		+29 26

38.0 13.8 30.3
40.5
45.6
49.0
51.3
53.9

2783
638
4~~957~~
~~14.~~
27.48
~~17.05~~
13.86

30.3
32.9
36.1
39.6
42.0
47.2
49.8

2779
39.90
25.92
13.98

42.0 14.25 29.3
43.9
48.4
51.8
54.0
56.1

2962
49.37
13372
0.0600
1.3972
24.46
14.33

29.3
31.4
34.4
37.9
39.9
44.6
47.0?

2645
37.79
23.55
14.24

15 		13.92
15 20 	53 63
20.29
5
20.34

15 		14.28
15 23 	54.17
20.11
13
20.24

20.34
20.24
20.29
31
20.60

Frod 1327 is fast
0^m 20.60
at 15^h 20^m
Sid Time

Sun July 3, 1904

MFM

$15^h\ 12^m$

(rattle after)

Mer Cir
μ Bootis +37 43
ι Drac +59 18
ν¹ Bootis +41 10

+37 43

20^m 38.8
41.3
46.4
49.9
52.1
54.3
2828
47.13
1.3372
0.1018
1.4390
2748
14.61
15 21 14.56
15 20 53.62
20.94
5
20.99

147 31.2
33.5
37.0
40.4
42.7
47.8
50.4
2830
40.43
25.92
14.51

+59 18

22 26.8
32.2
35.8
39.1

10.55 36.4
39.9
45.1
50.8
54.0
2.2
6.1
3545
50.64
40.16
10.48

15 23 10.48
15 23^2 ~~54.16~~ 49.21
~~632~~
21.27
.28
20.99

+41 10

27^a 14.1
16.8
22.0
25.6
28.0
30.5
137.0
22.83
1.3372
0.1233
1.4605
2867
57.70

51.8 9.1
11.7
15.0
18.8
21.2
26.8
29.4
1320
18.86
27.23
51.63

15 27 51.66
15 27 30.67
20.99
01
21.00

21.27
+168 20.94
+0.77 .33 37
0.94 273
670
637
33

n = .37

20.99
21.00
20.99
20.99
31
21.30

Frod. 1327 is fast
$0^m\ 21^s.30$
at $15^h\ 25^m$
Sid. Time

Mon Jul 4, 1904

Mer. Cir. 20.20.20. Clo

109 Virg. +2° 17
Gr. 2164 +59°41'
P XIV, 221 +14°50 Missed 1st 2 wires.

+2° 17'			+59° 41'			+14° 50'	
18.9	47.15	0.4	27.7	23.9	49.8	48	18.3
20.9		2.4	31.5		53.4		20.4
24.9		4.9	39.5		58.8		23.1
27.6		7.7	45.0		4.2		25.9
29.5		9.6	48.5		7.7		27.9
31.2		13.6	52.2		16.2		32.1
		15.7			20.0		34.2
1530		543	2444		301		1819
2550		7.76	4073		430		25.99
1.3372		20.52	1.3372		4061		21.20
0.0004		4724	2969		23.69		4.79
1.3376			1.6341				
21.76			4306				
4726			2379				

		47.25			23.74		479
	14 41	2568		14 48	61.38	14 51	43.23
22.46		21.57			22.46		21.56
	44	32		40	.30	32	24
	~~21.13~~	21.89		22.06	22.16	21.88	21.80
	22.01						

assumed

~~n = .37~~
n = .5

22.01
21.88
22.06
6595
21.98
h ang 31
22.29

Frod 1327 is fast
0m 22.29s
at 14h 45m
Sid Time

Wed July 6, 1904

M, F M

3 rather after

24.46 φ Bootis + 27 19 T ~~2~~ 15. 4

~~− 19 26~~

26.11 + 33 40

~~+ 67 43~~

27.48 + 37 43

+ 59 18 latest of T¹ wire & T²

+ 27 19

15^h 0^m 59.8
1.8
4.9
8.0
10.0
14.7
17.0

56.2
8.03
23.09
44.95

15 0 44.95
15 0 21.69
23.26
20
23.46

660
637
1297

23.97
23.26
.71

23.50
23.49
23.50
31
23.81

+ 33 40

11^m 29.0 3.13 19.0
31.5 21.1
36.2 24.2
39.5 27.8
41.8 29.9
44.0 34.8
37.3

222.0
37.00
26.11
3.11

194.1
27.73
24.63
3.10

15 12 3.10
15 11 39.72
23.38
12
23.50

+ 37 43

20^m 41.2 17.1 32.8
44.0 36.1
48.8 39.4
52.2 43.0
54.6 45.2 3
56.9 50.3
53.0

297.7
49.62
27.48
17.10

299.8 3
42.8
25.92
16.89
91

15 21 17.00
15 20 53.58
23.42
07
23.49

+ 59 18

13.0 38.8
42.6
47.9
53.1
56.8
4.8
8.8

372.8
53.26
40.16
13.10

15 13.10
15 22 49.13
23.97
36
23.61

Frod 1327 is fast
0^m 23.^s81
at 15^h 10^m
Sid Time

Fri July 8, 1904

Mer Cir W. W. W. Obs.

109 Virg +2°17

[α Librae −15°38 Missed 1st wires Obs. by Colson.]

Gr. 2164 +59°41 2nd Set of wires.

β Bootis +40°46′

Least min 15h01m

875
61
875
5250
53375

552
553
1105
85

366
447
863
66

+2 17

41m 22.3 50.8 3.8
24.3 5.6
28.~~4~~3 8.4
31.1 11.2
32.9? 13.1
34.8 17.1
19.2
173.7 78.6
28.85 11.23
1.3372 20.52
0.0004
1.3376 50.71
21.76
50.61

~~15~~ 14 41 50.66
14 41 25.65
25.01
~~70~~
53
2554

+59 41

49 53.4
57.2
2.2
8.1
11.3
19.7
23.4
553
7.90
40.61
27.29

~~15~~ 14 49 27.29
14 49 1.26
26.03
.49
25.54

+40 46

58 9.2 46.8 4.2
11.8 6.7
17.2 10.2
20.9 13.8
23.2 16.2
25.8 21.7
108.1 24.2
18.02 97.0
1.3372 13.86
01207 27.07
1.4579 46.79
28.70
46.92

~~15~~ 14 58 46.85
14 58 21.34
25.51
03
25.54

+1.71 26.03
+0.04 2501
1.67 1.02 .61
1002
1.80
1.67
130

λ = .61

25.54
25.54
25.54
2554
31
2585

Frod 1327 is fast

0m 25s.85

at 14h 50m

Sid Time

Sat July 9, 1904

Mer Circ

M.J. Michaelis

+45 11 T'reg wire 6 T^n first reg
-3 27 wire 1.5
-4 28
+46 33

+45° 11'

32.9
35 7
41.8
45 4
480

2038
40.76
1.3600
0.1519

1.5119
+09 32.50
+12 13.26

32.1
34.3
38.5
42 1
450
50 6
53 6

2962
42.31
29.08

13.23

-3° 27'

-4° 28'

14.4
16.5
205
23 3
25 2
27.0

1269
21.15
1.3372
0.0013

1.3385
21.80
42.95

43.0 56.1
580
08
35
52
9.4
11.2

242
3.46
20.56

42.90

+46 33

385
41.4
47.4
51.3
54 1
56.8

2895
48.25
1.3372
0.1626

1.4998
31.61
19.86

19.8

38.8
41.8
45.6
49.8
52.2
58 2
1 2

3476
49.66
29.82

19.84

13.24
16 5 46.67

26.57
5

2652

n assumed
~~.6~~
= .5

26.52
26.53
26.47

2650
31

2681

42.92
16 13 16.94

25.98
57 5

26.53

19.85
16 16 53.31

26.54
8

~~26.46~~
26.47

Frod 1327 is fast
0^m 26.^s 82
at 16^h 10^m
Sid Time

Mon July 11, 1904

Mer Cir

M F M obs.

B rattles before 15^h 27^m

+37 43

+59 18 missed wire!

+27 2

+37 43

20^h 15.9 21.8 38.4
48.4 40.7
53.4 44.1
56.9 47.7
59.2 49.8
1.7 55.0
57.7
3255 3334
54.35 47.63
27.48 25.92
21.83 21.71

15 21 21.77
15 21 53.50
28.27
7
28.34

+59 18

23^m 17.8 43.5
47.1
52.2
57.9
1.2
9.3
13.4
4046
57.80
40.16
17.64

15 23 17.64
15 22 48.98
28.66
39
28.27

+27 2

30 35.5 7.4 22.2
37.8 24.2
42.2 27.2
45.2 30.2
47.4 32.3
49.6 37.2
39.2
2577 2125
42.95 30.36
1.3372 23.02
0.0502 7.34
1.3874
24.40
7.35

15 31 7.34
15 30 39.27
28.07
20
28.27

28.66
+1.68 28.07
+51 59 .50
1.17 .585
500

n = .5

28.27
28.34
28.30
31
28.61

Frod 1327 is fast

0^m 28.61^s

at 15^h 25^s

Sid Time

Tues July 12, 1904 M.F.K.

Mercur rattle before
12 41

+56 29
~~+38 50~~
~~+11 29~~
−10 40

+56 29

12 49m 26.9 18.4 42.2
308 457
380 505
429 554
463 588
49.7 61
99
234.6
39.10 3886
1.3372 5551
0.2579 37.12
1,5951 18.39
39.37
1847

12 50 18.43
12 49 48.59
29.84
30
29.54

−10 40

13 20 9.8 388 520
11.8 539
15.9 567
18.6 596
20.7 1.4
22.5 5.5
7.6
993 416.7
16.55 59.53
1.3372 2086
0.0076 38.67
1.3448
22.12
38.67

13 20 38.67
13 20 9.71
28.96
55
29.51

assumed
n = 5

29.54
29.51
29.52
31
29.83

Frod 1327 is fast
0m 29.83s
at 13h 05m
Sid time

80

July 12.2 Frod 1327 at $13^h\ 37^m$ rem 18 in Sid Time)
load 35 " wed.
note copied, apr 5, 1905.

Wed July 13, 1904

Merlin

M. F. M.

rattle before 13 41

+19 41

~~+2 18~~

+38 44

F [Σ Boötis] +14 8 latest 4 of T²

+2 18

3 rattles before 14 33

+19 41 | +38 44 | +14 8 | +2 18

+19 41		+38 44		+14 8	+2 18	
11m 18.1 48.4	2.2	28m 7.9 44.2	1.1	37 26.5	41 27.0 55.3	8.5
20.2	4.2	10.4	3.7	28.4	28.4	10.6
24.7	7.1	15.7	7.0	32.8	33.1	13.1
27.6	10.1	19.1	10.5	34.8	35.8	15.9
29.6	12.0	21.6	12.8	122.5	37.8	17.7
31.5	16.4	23.8	18.0	30.62	39.5	21.8
151.7	18.6	98.5	20.8	1.3874	202.1	23.8
25.28	70.6	16.42	73.9	0.0134	33.68	111.4
1.3372	10.09	1.3372	105.6	1.4008	1.3372	15.91
0.0262	21.78	0.1079	26.28	25.17	0.0004	20.52
1.3634	48.31	1.4451	44.28	5.45	1.3376	55.39
23.09		27.87			21.76	
48.37		44.29			55.44	

14 11 48.34
14 11 18.40
29.94
~~28~~
31
~~30.22~~
30.25

14 28 44.28
14 28 14.05
30.23
6
30.29

14 37 5.45

14 41 55.41
14 41 25.59
29.82
~~47~~
48
~~30.26~~
30.30

assumed
n = 55

30.30
~~30.22~~
~~30.29~~
~~30.26~~
30.25
30.24
84
30.28
31
30.59

Frod 1327 is fast $0^m\ 30^s.59$ at $14^h\ 25^m$ Sid Time

+
+

Thurs July 14, 1904

Mer Cir

M F M

+49 48
+18 53
+64 50 T^2

+49 48

329 17.0 37.2
360 402
422 443
465 488
495 51.5
522 578
2593 0.9
43.22 3407
1.3372 48.67
0.1901 3177
1.5273 1690
336
16.89

1690
13 43 46.23
30.67
16
30.51

+18 53

8.3 38.45 524
10.6 544
14.8 572
17.8 0.1
19.7 20
21.8 63
930 85
1550 0.9
1.3372 0.13
00240 21.67
1.3612 38.46
2297
3847

~~3846~~

38.46
13 50 8.20
30.26
33
30.59

+64 50

18.8? 49.8
542
04
70
11.4
209
258
495
7.07
48.21
18.86

18.86
14 1 47 56
31 30
70
30.60

31.30
+2.13 3026
+34 1.04
179 ~~1077~~
895
1450
1432
18

~~.5~~ .58

λ = .58

30.51
30.59
30.55
[illegible] 31
30.86

Frod 1327 is fast
~~[illegible]~~ 0m 30s.86
at 13h 50m
Sid time

Fri July 15, 1904

Mer Cir

W. W. W. Obs.

8 Bootis +33°40'
1 H Urs. Min +67°42' last 3 wires
μ Bootis +37°42'

1.3372
.0798
1.4170

1.3372
.1011
1.4383

1.4190
1.4100 .4100
.4190 .4208
1.8290 1.8308

33°40'

	~~40.5~~
36.4	26.3
38.7	28.5
43.6	31.7
46.8	35.1
49.2	37.3
51.3	42.0
	44.6
266.0	245 5
44.29	35.07
26.22	24.63
10.51	10.44

$15^{h}\ 12^{m}$ 10.44
$15^{h}\ 11^{m}$ 39.62
30.82
.22
31.04
.18
31.00

67°42'

3.7
14.7
19.7
38 1
12.70
67.33
~~05~~
4.97

4.97
$15^{h}\ 14$ ~~5.03~~
$15^{h}\ 13$ 32.84
~~32.41~~
~~1~~ 37
31.04
32.13
1.22
30.91

37°42'

48.6	41.0
51.0	43.4
56.1	46.8
59.7	50.4
61.9	52.6
64.2	57.8
	60.4
341 5	352 4
56.92	50.34
27.47	25.87
24.39	24.47

$15^{h}\ 21^{m}$ 24.43
15 20 53.38
31.05
.12
~~31.17~~
10
31.15

2.426 32.41
.666 30.82
1.760) 1.5900 (.90
1584
60

n = .9
1.38
13 98

2.438
0.666
1.772

32.13
2.426 30.82
1.77) 1.3100 (.74
1229
710
708

n = .74

31.00×2 62.00
30.91 30.91
31.15×2 62.30
5 2) 155.21
31.04
bar φ .31
31.35

Frod. 1327 is fast
$0^{m}\ 31^{s}.35$ at
$15^{h}\ 20^{m}$ Sid. Time.

Sat July 16, 1904

Mer Cir. W. W. W. Obs.

κ Serp +18° 26'

ε Serp. + 4° 45' missed 1st 3 or 4 wires 1st set.

ε Coron +27° 9'

θ Draconis +58° 49'

Sastmin. 16h 3m

18° 26'

44m 28.6 55.4 12.3
30.7 14.2
17.0
35.0 19.9
37.8 21.9
39.7 26.2
41.7 28.3
213.5 139.8
35.58 19.97
22.91 21.61
58.49 58.36

15h 44m 58.42
15h 44m 27.12
31.30
.22
31.52

+4° 45'

46m 48.6
35.2 50.3
52.9
55.7
57.6
61.6
63.7
390.4
55.77
20.57

15h 46m 35.20
16h 46m 3.97
31.23
.32
31.55

+27° 9'

53m 38.1 10.3 25.0
40.4 27.0
45.1 30.1
48.0 33.0
50.0 35.1
52.1 39.7
42.2
273.7 232.1
45.62 33.16
24.43 23.04
10.05 10.12

15h 54m 10.05s
15h 53m 38.70
31.35
.15
31.50

+58° 49'

59m 43.9 39.0 1m 4.4
48.1 7.9
50.7 13.2
61.2 18.6
64.7 22.1
68.4 30.0
33.9
342.0 130.1
57.00 18.59
41.98 39.60
38.98 38.99

16h 0m 38.98
16h 0m 7.14
31.84
.28
31.56

~~1.579~~ 31.84
~~1.652~~ 31.23
1.6.) .61 (.38
48
130
128

(31).52 × 2 = 1.04
55 × 1 = .55
50 × 2 = 1.00
56 × 2 = 1.12
7) 3.71
.53

31.53
b recl .31
31.84

1.652
.083
1.579

h = .38

Frod. 1327 is fast

0m 31.84s at

16h 0m Sid. Time.

Sun July 17, 1904

Mer Cir
W. W. W. Obs

Rattle after 17h 8m

π Herculis +36°55'
θ Ophi. −24°54'
β Draconis +52°22'
α Ophiuchi +12°37' last few wires

+36°55'
11m 41.4 33.3
43.0 35.7
48.9 39.0
52.1 42.3
54.5 44.9
57.0 49.7
52.5
2969 2974
49.48 42.49
~~27.29~~ 25.64
~~15.68~~ 16.85
16.67

−24°54'
16m 10.6 56.4
12.7 58.4
17.2 1.3
19.9 4.2
22.1 6.3
24.2 10.7
13.0
106.7 30.3
17.78 4.33
23.96 22.60
41.74 41.73

+52°22'
~~30~~
28m 4.5 12.4
7.7 20.0
14.3 24.4
18.7 27.6
21.9 34.0
25.0 15.5
37.7
92.1 171.6
15.35 24.51
35.61 33.58
50.96 50.93

+12°37'
31m 21.5 21.5
24.5 24.4
27.6 26.2
30.4 30.4
32.4 32.4
136.4 135.9
27.28 27.18
23.62 23.62
03.66 3.56

17h 12m 16.76
17h 11m 44.49
32.27
.07
32.34

17h 16m 41.74
17h 16m 9.86
31.88
.63
32.51

17h 28m 50.94
17h 28m 18.26
32.68
.18
32.50

17h 30m 3.56
17 30 31.20
32.36
.32
~~32.12~~
32.68

0.4642 32.69
1.3970 31.88
−1.76+x) .81 (.46

34 × 2' = .68
51 × 2 = 1.02
50 × 2 = 1.00
68 × 1 = .68
7) ~~3.48~~ 3.38
~~.47~~ .48
.50

32.48
back .31
32.79

n = .46

Frod. 1327 is fast

0m 32s.79 at

17h 30m

Mon July 18, 1904

Mer Cir W. W. W. Obs.

T Draconis +73°10' missed 1st wire.

δ Aquilae +2°55' 2nd set

β Cygni +27°45' dbl star (Y & S Comp.)

Least min 19h 30

73°10'

16m 32.8
46.3
55.5
62.0
68.8
265.4
53.08
70.45
03.53

18m 49.0
56.4
64.5
74.2
80.0
94.4
102.3
520.8
420.0
100.8
14.40
70.81
3.59

2'55'

21m 28.5
30.3
32.7
35.6
37.4
41.6
43.6
249.7
35.67
20.52
15.15

27°45'

26m 54.6
57.0
1.5
4.7
6.7
8.6
373.1
360.0
13.1
2.18
24.56
26.74

41.7
43.7
46.8
50.0
52.0
56.6
58.7
349.5
49.93
23.17
26.76

19h 18m 3.s55
19 17 28.94
34.61
1.22
33.39

19h 21m 15.s15
19h 20 42.34
32.81
.44
33.25

19h 27m 26.75
19 26 53.81
32.94
.19
32.13

~~33~~

.05'
3.305
3.254

34.61
32.94
1.6700(.51
16270
4300

.39 × 2 = .78
13 × 2 = .26
25 × 1 = .25
5) 1.29
.26

33.26
b recll .31
33.57

n = .51

Frod 1327 is fast

0m 33.s57 at

19h 30m.

Tues July 19, 1904

Mer Cir W. W. W. Obs.
v' Bootis +41°9'
α Cor Bor +27°2'
Last min 15h 33m

41°9'
27m 26.4 21.6
29.1 24.1
34.4 27.7
38.0 31.3
40.6 33.7
43.0 39.2
41.9
211.5 219.5
35.25 31.36
28.87 27.22
04.12 4.14

15h 28m 4.13
15h 27m 30.44
33.69
.02
33.71

27°2'
30m 40.7 27.3
43.0 29.4
47.6 32.5
50.7 35.7
52.8 42.3
54.7 37.7
44.4
289.5 249.3
48.25 35.61
24.40 23.02
12.65 12.59

15h 31m 12.62
15h 30 39.19
33.43
.20
33.63

n = .5 assumed

33.71
33.63
67.34
33.67
b sec φ .31
33.98

Frod 1327 is fast
0m 33s.98 at
15h 30m.

Wed July 20, 1904

Mer Cir W. W. W. Obs.

ι Draconis +59°18' 2nd set.
ν' Bootis +41°9'
α Cor. bor +27°2'
α Serp +6°43'
~~Rattle~~ after X $15^{h}\,37^{m}$

59°18
23^{m} 49.6
53.3
58.3
3.8
7.4
15.4
19.5
27.3
3.90
40.16
23.74

$15^{h}\,23^{m}$ 23.74
$15^{h}\,22^{m}$ 48.63
35.11
.48
34.63

41°9'
27^{m} 27.3 22.4
29.9 24.9
35.3 28.6
38.8 32.2
41.4 34.7
43.7 40.0
42.7
216.4 225.5
36.07 32.21
28.87 27.22
04.94 4.99

$15^{h}\,28^{m}$ 4.96
$15^{h}\,22^{m}$ 30.42
34.54
.02
34.56

27°2'
30^{m} 41.6 28.2
43.8 30.4
48.3 33.4
51.4 36.6
53.5 38.5
55.6 42.0
45.4
294.2 254.5
49.03 36.36
24.40 23.02
13.43 13.34

$15^{h}\,31^{m}$ 13.38
$15^{h}\,30^{m}$ 39.18
34.20
.25
34.45

6°43'
39^{m} 40.0 21.8
42.0 23.7
46.0 26.4
48.7 29.2
50.7 31.0
52.7 35.2
37.3
280.1 204.6
46.68 29.23
21.85 20.65
8.53 8.58

$15^{h}\,40^{m}$ 8.56
$15^{h}\,39^{m}$ 34.42
34.14
.50
34.64

1128 35.11
1.684 34.14
1.566) .97 (.62

n = .6n

63 × 1 = .63
56 × 2 = 1.12
45 × 2 = .90
64 × 2 = 1.28
3.93
34.56
bacic .31
34.87

Frod 1327 is fast

$0^{m}\,34.^{s}87$ at

$15^{h}\,30^{m}$ Sid. T.

Obsns. July 21, 1904.

Mer Cir W. W. W. Obs.

(?) [r Bootis +41°9']

α Cor. Bor +27°2' 2nd set.

Rattle after $15^h 35^m$

α Serp +6°43'.

ζ Ursa Min +78°5' Lost 4th tap 1st, Excitement too great.

41°~~9~~'13

28^m 20.0 | 15.1
22.7 | 17.7
28.0 | 21.3
31.7 | 25.1
34.1 | 27.5
36.6 | 32.8
35.6

173.1 / 28.85 / 28.89 / 57.74

~~175.1 / 29.18 / 28.87~~ / 58.05

195.1 / 25.01 / 27.26 / 57.75

22°2'

31^m 29.1
31.3
34.2
37.3
39.3
44.0
46.2

261.4 / 37.34 / 23.02 / 14.32

6°43'

39^m 40.7 | 22.7
42.8 | 24.5
47.0 | 27.3
49.7 | 30.1
50.7 | 31.8
53.5 | 36.0
38.1

285.4 / 47.57 / 21.85 / 9.25 / 9.42

210.5 / 30.07 / 20.65 / 9.42

78°5'

45^m 49.6 | 49^m 10.6
59.0 | 20.1
18.7 | 33.3
41.4 | 46.2
50.3 | 54.9
14.8
24.7

219.0 / ~~43.8~~ / 99.0 / 19.80 / 107.33 / 7.13

~~223.6 / 46.23 / 99.30 / 2.92~~

324.6 / 46.37 / 39.30 / 7.07

333.6 / ~~47.76~~ / 39.30

~~$15^h 29^m$ 57.92~~

~~$15^h 28^m$ 57.76~~

~~27 30.42~~

$15^h 31^m$ 14.32
30^m 39.16
35.16
.28
35.44

15^h ~~39~~ 40^m 9.42
34.41
35.01
.58
35.59

$15^h 45^m$ 7.10
28.69
38.41
2.77
35.84

4.738
0.118
4.620

38.41
35.01
462) 3.40.00 (73
3234
1660

n=.13

$15^h 28^m$ 57.74
$15^h 28^m$ 22.26
35.48
02
35.50
44
59
64
167
56

35.56
.31
35.87

50
44
59
64
4)227
57
31
88

Clock rod 1327 is fast

$0^m 35.8$~~7~~8^s at

15^h ~~30~~ 45^m S.T.

Tues July 5, 1904

Mer Cir — W. W. W. Clos.

Rattle at 15h 49m

ε Cor. bor +27°9'

θ Draconis +58°49'

[θ Herc] +45°11'

δ Ophi −3°26'

27°9'

53m 45.6 32.3
47.7 34.3
52.4 37.3
57.6 40.4
55.4 42.4
59.5 47.0
49.4

3182 2831
53.03 40.44
24.43 23.04
17.46 17.40

58°49'

59m 51.4 11.5
56.2 15.2
2.9 20.3
8.2 25.6
11.7 29.1
15.5 37.0
41.1

25.9 1798
4.32 25.69
~~33.34~~ 39.61
~~37.66~~ 46.08
41.98
46.30

45°11'

5m 45.1 44.1
48.0 46.8
53.7 50.5
57.5 54.4
60.3 57.0
62.9 2.7
5.7

3275 3812
54.58 54.46
30.84 29.08
25.42 25.38

−3°26'

9m 31.4 13.0
33.4 15.0
37.5 17.4
40.2 20.3
42.0 26.3
44.0 22.1
28.3

2285 1424
38.08 20.34
21.28 20.54
59.86 59.80

15h 54m 17.43
15 53m 38.58
38.85
.16
39.01

16h 0m 46.19
16h 0 6.86
39.33
29
~~40~~.04
39

16h 6m 25.40
16h 5m 45.97
39.43

16h 9m 59.83
16h 9m 21.16
38.67
.38
39.05

39.33
38.67
1.652
.060
1.712) .66 (.39
51
159
153

39.01
39.04
39.05
39.03
.31
39.34

q=.39

Trod. 1327 is fast

0m 39s.34 at

16h 10m S.T.

Tues July 26, 1904

Mer Cir W. W. W. Obs

K Serp. +18° 26' missed 1st wire
e Serp +4°45' 2nd Set.
ξ Ursa Min +78°5' 2nd set
ε Cor. Bor. +27°,9'
Rattle before $15^h 56^m$

18°26'
44^m 38.7 20.5
42.2 22.5
45.9 25.3
47.9 28.3
49.9 30.2
34.5
36.5
~~2246~~ 1978
~~44.92~~ 28.26
~~21.510~~ 21.61
6.42 06.65

225.6
45.12
21.50
06.62

$15^h 45^m$ $6^s.64$
$15^h 44^m$ 27.00
39.64
.42
40.06

4°45'
46^m 56.7
58.6
1.3
4.0
5.9
10.0
12.0
28.5
4.07
20.57
43.50
$15^h 46^m$ 43.50
$15^h 46$ 3.86
39.64
.58
40.22

28°5'
49^m 14.2
23.3
36.2
50.0
58.6
78.5
88.4
3492
49.89
1^m 39.29
10.60
$15^h 48^m$ 10.60
15 47 27.61
42.99
2.74
40.25

27°9'
53^m 46.4 33.2
48.7 35.3
53.4 38.1
56.3 41.3
58.4 43.3
60.5 47.9
50.1
3237 2892
53.82 41.31
24.43 23.04
18.25 18.27
$15^h 54^m$ 18.26
15 53 38.56
39.70
29
39.99

4.738
.083
4.655

~~4.738~~ 42.99
39.64
4.65) 3.35,00 (.72
3255
950

n = .72

.06 × 2 = .12
22 × 1 = .22
25 × 1 = .25
-.01 × 2 = -.02
.57
.095

40.10
break .31
40.41

Frod 1327 is fast
0^m $40^s.41$ at
$16^h 00^m$ S. T.

Wed July 27, 1904

Mer Cir [illegible] Obs.

K Serp +18°26' Last 4 wires 2nd set.

Rattle after 15h 51m

ε Cor bor +27°9'

ι Drac +58°49' Wires 5 & 6, 1st set & 2nd set comp.

18°26'
45m 29.3
31.2
35.3
37.5
133.3
33.32
25.72
~~8~~7.60

27°9'
53m 47.4 34.0
49.6 36.2
54.2 39.3
57.3 42.3
59.4 44.4
61.5 49.0
51.3
329.4 296.5
54.90 42.36
24.42 23.04
19.32 19.32

58°49'
0m 13.9 13.5
17.2 17.0
22.1
27.6
31.0
38.8
42.7
31.1 192.7
15.55 27.53
32.48 39.60
48.03 47.93

15h 45m 7.60
15 44 26.99
40.61
.28
40.89

15h 54m 19.32
38.55
40.77
.19
40.96

16h 0m 47.95
16 0 6.70
41.25
.35
40.90

1.652 41.25
.329 40.61
1.323 .6400(.48
5292
11080
10474

96 × 3 = 2.88
90 × 2 = 1.80
89 × 1 = .89
5.57
.93

40.93
brace .31
41.24

n = .48

Frod. 1327 is fast

0m 41.s24 at

16h 0m S.T.

Fri July 29, 1904

Mer Cir — W. W. W.

Rattle before 15^h 56^m
θ Drac +58°49'
δ Oph −3°26'
τ Herc. +46°32
τ Herc +19°22' last 2 wires

58° 49'		−3° 26'		46°32		19° 22'
59^m 54.7	1^m 14.7	9^m 34.7	16.3	16^m 54.3	54.7	19^m 53.3
58.5	18.6	36.7	18.3	57.1	57.5	55.4
6.5	23.7	40.8	20.9	3.3	1.3	
11.7	29.2	43.5	23.7	7.0	5.3	
15.3	32.7	45.3	25.6	9.7	8.0	
18.7	40.6	47.3	29.7	12.4	13.8	
	44.5		31.8		16.9	
454	2040	2483	1663	238	375	
7 57	29.14	41.38	23.76	3.97	5.36	
41.98	39.60	21.78	20.54	31.60	29.81	
49.55	49.54	3.16	3.22	35.57	35.55	

16^h 0 49.54
16 0 6.73
42.81
.32
42.49

16^h 10^m 3^s.19
16 9 21.12
42.07
.42
42.49

16^h 17 35.56
16 16 52.79
42.77
.06
42.71

1.652
.060
1.712
42.81
42.07
~~1.719~~ 1.71) .744.43
.684
560

.71
.49
.49
169
~~53~~
56

42.56
brace .31
42.87

Frod 1327 is fast
0^m 42^s.87 at
16^h 20^m S. T.

Sat July 30, 1904

Clear Cir. W. W. 20. Cls

π Herc. +36°55' Last 2 wires.

Rattle after 17h 19m

β Lyrae. 52°22'

α Oph. 12°37'

ι Herculis +46°3'

52°22'
28m 15.0 23.0
18.3 26.0
24.9 30.6
29.3 35.0
32.4 38.1
35.5 44.8
48.0
155.4 245.5
25.90 35.07
35.60 33.58
01.50 1.49

17h 29m 1.50
28 ~~17.76~~
18.01
43.49
.19
43.39

~~).33~~

n = .4 assumed.

1.07) .33 (.30
321
90

n = .3

12°37'
30m 45.4 27.7
47.4 29.7
51.3 32.5
54.1 35.2
56.0 37.0
58.0 41.3
43.4
312.2 246.8
52.03 ~~51.87~~ 35.26
22.27 ~~22.27~~ 21.01
14.30 14.14 14.25

17h 31m 14.28
17 30 31.12
43.16
.21
43.37

43.37
b. reel .31
43.68

46°3'
36m 50.0 50.1
53.0 52.7
2.8 56.5
5.6 0.6
3.0
8.0 8.9
58.7 12.0
368.1 38.9
59.68 0.54
31.32 29.54
31.00 31.00

17h 37m 31.00
17 36 47.61
43.39
.04
43.35

Frod 1327 is fast

0m 43s.68 at

17h 40m.

Sun. July 31, 1904

Mer Cir

Rattle after 17h 03m

20-40-40 Cls

ξ Draconis +65°49'

α Herculis +14°29' 2nd set

π Herculis +36°55' 2nd set

65°49'

8m 7.6
12.7
22.5
29.2
33.7
38.2
143.9
23.98
53.07
17.05

9m 49.3
54.1
0.4
7.2
11.6
21.6
26.7
509
7.27
50.05
17.22

17h 9m 17.14s
32.37
44.77
.56
44.21

36°55'
~~14°29'~~

12m 44.8
47.1
50.3
53.9
56.3
1.4
3.9
377.7
53.96
25.64
28.32

17h 12m 28.32
44.31
44.01
.07
44.08

14°29'
~~36°55'~~

11m 16.1
18.0
20.6
23.6
25.5
29.7
31.7
165.2
23.60
21.18
2.42

17h 11m 2.42
18.52
43.90
.28
43.18

2.227
.258
1.969

44.77
43.90
.87
.43

.21
.08
.18
.47
.16

44.16
b&ell .31
44.47

Frod 1327 is fast
0m 44.47s at
17h 10m S.T.

Mon Aug 1, 1904

MFM ok
rattle before
18 15

Mer Circ
+21 44
+58 45 Latest 3 of T^2 (very bad)
+38 42

+21 44

19h 53.0 2351 37.8
55.2 39.8
59.7 42.6
2.5 45.4
4.3 47.5
6.3 52.0
1.0 54.1
0.17 3192
13372 45.60
0.0320 22.07
1.3692 23.53
23.40
23.57

464
342
811
62

18 20 23.55
18 19 39.02
44.53
22
44.75

assumed
n = .43

44.76
44.75
44.76
31
45.07

+58 45

+38 42

33m 52.4 28.8 45.6
54.8 47.9
0.0 51.3
3.6 55.0
6.0 57.2
8.2 2.4
5.0 5.2
0.71 3846
13372 54.94
0.1077 26.27
1.4449 28.67
27.86
28.57

18 34 28.62
18 33 43.91
44.71
5
44.76

Frod 1327 is fast
0m 45.07s
at 18h 30m
Sid. Time

Tues Aug 2, 1904

Mer Cir W. W. W. Obs.

Rattles before 18^{h} 49^{m}

R Lyrae +43°49' 1st set uncertain

γ Lyrae +32°33'

ζ Aquilae +13°43'

δ Draconis +67°29' 2nd set. Difficulty in seeing stars.

+43 49

$5\overset{2}{3}$ 34.2?
368
425
461
488
51.8
2602
43.37
1.3372
0.1417
1.4789
30.[illegible]2
13.49

134 31.7
342
378
418
44.2
50.0
52.8
2925
41.79
28.42
13.37

+32 33

55^{m} 358 9.65
382
431
462
48.3
50.6
2622
43.70
1.3372
00742
1.4114
25.78
9.48

25.2
272
305
337
359
409
431
2365
33.79
24.32
9.47

+13 43

19 1 18.8
208
252
278
298
318
1542
25.70
1.3372
00125
1.3497
2238
48.08

+67 29

48.014
34
62
90
109
15.0
17.2
631
9.01
21.10
47.91

18 $5\overset{3}{4}$ 13.37
18 52 27.62
45.75
02
45.73

18 56 9.47
18 55 23.88
45.59
12
45.71

19 1 47.99
19 1 2.63
45.36
29
45.65

assumed

n = 43

45.73
45.71
45.65
~~1.99~~
~~45.66~~
2.09
45.69+

45.70
31
46.01

Frod 1327 is fast

0^{m} $46^{s}.01$

at 18^{h} 55^{m}

Sid. Time

Thursday, Aug 4, 1904

Mr Cox

Mr F M
rattle after
17 17

β Drac +52 22
α Ophiu +12 38
ξ Serpen −15 20
ι Herculis +46 3

39
38
312
117

69
38
552
207

119
38
952
357

38
12
456

47.58
46.99

+1.30
−27
1.57

59 . 376
471
1190
1099
910
942

n = 38

+ 52 22

18.9 5.95 27.1
224 301
289 347
333 39.0
362 41.8
39.2 488
520
1789 2735
~~25.56~~ 39.07
29.82 33.58
~~3~~
1.3372 ~~1~~5.49
02143
15515
3560
5.42

+12 38

39.2
41.0
45.3
47.3
1728
43.20
13874
00107
1,3981
2501
1819

ξ Serpentis
−15 20

552 8.8
10 8
135
163
18.5
22.1
248
1148
16.40
21.25
55.15

ι Herculis
+46 3

54.1 35.0 54.0
57.0 568
28 06
69 46
9.5 72
122 130
160
225 322
~~32~~1 4.60
375 29.54
133.72 35.06
01586
1,4958
31.32
3507

5.46
17 28 17.88
47.58
15
47.43

18.19
1730 31.06
47.13
26
47.39

55.15
17 32 8.16
46.99
45
47.44

35.06
17 36 47.45
47.61
05
47.56

47.43 × 2 = 86
47.39 × 1 39
47.44 × 1 44
47.56 × 2 112
6 281
47

47.47
+ sec φ 31
47.78

F 3rd 1327 is fast
0.5 47.78
at 17h 30m

Sat Aug 6, 1904

Mer Cir — To W. W. Ells

Rattle before 16h 24m — ~~rattle through~~ ~~14 44~~

β Herculis +21°42′

A Draconis +68° 58′ 2nd set

σ Herculis +42°38′ missed 1st 2 wires.

+21 42		+68 58	+42 38
26m 27.4	58.0	29m 38.3	31 52.0
29.6	14.0	43.3	9.8
34.0	17.0	50.8	12.2
36.8	24.0	58.6	15.8
38.8	22.0	3.8	19.8
40.8	28.4	15.0	22.2
	28.5	20.9	27.8
			30.4
2014	1330	4207	1380
33.90	19.00	58.67	19.71
1.3372	22.07	57.13	27.87
~~0.5676~~	56.93	1.54	51.84
~~00219~~			
~~1.9048~~			
~~8~~			
1.3691			
.2340			
~~57.30~~			

130
6
780
651
1431
1.10

16 26 56.93	16 29 1.54	16 31 51.84
16 26 7.47	16 28 10.88	16 31 2.13
49.46	50.66	49.71
28	~~1.01~~	
~~49.75~~	1.00	
49.74	~~49.65~~	
	49.65	

50.66
+2.60 49.46
.40 1.20
+2.20 1.100
1000
880
1200

.545

~~n = .55~~

n = .545

49.71
h sec φ .31
50.02

Frod 1327 is fast
0m 50.02
at 16h 30m
Sid Time

+0
–
0

Mon Aug 8, 1904

mer cir

W F M
3 rattles at
18 13

+28 45
-21° 5'
- 2 55
+21 44 latest 2 of T

+28 45 -21 5 ~~-2 55~~ -2 55 ~~+21 44~~ +21 44

4m 9.8 42.2 57.2 8 25.5 58.0 10.0 16 46.5 15.0 28.2 20 49.9
11.8 59.2 27.8 12.1 48.4 30.0 52.8
16.7 2.2 31.9 14.8 52.3 32.7 54.8
19.8 5.5 34.9 18.0 55.2 35.5 59.2
21.8 7.7 36.9 19.9 57.2 37.2 1.4
24.0 12.2 38.8 24.2 59.0 41.3 2781
1039 14.7 1958 26.3 3186 43.2 55.62
17.32 387 32.63 1253 53.10 2481 1.3627
13372 5.53 13372 17.90 13372 35.44 00321
00571 23.38 00300 21.98 0006 20.53 1,3948
1,3943 42.15 1,3672 55.92 1,3378 1491 24.82
24.79 23.29 21.76
42.11 55.92 14.86 30.80

18 4 42 1.3 18 8 55.92 18 17 14.89 18 20 30.80
18 3 50.25 18 8 4.35 18 16 23.24 18 19 38.963

51.88 51.57 51.65 51.84
12 43 32 17
~~51.76~~ 52.00 51.97 52.01
52.00

+055 51.88
- 39 51.57
0.44 .31 .33
282
280

λ = .33

52.00
52.00
51.97
52.01
7.98
51.995

52.00
+ sec φ 31
52.31

Frod 1327 is fast
0m 52.31s
at 18h 10m
Sid. Time

Tues aug 9, 1904

m F M.

Merlin

β Draco +5 2 22

+ 12 38

+ 46 3

+52 22			+12 38			+46 3		
24.4	10.93	32.5	54.8	23.9	37.2	59.6	40.7	~~58.6~~
27.6		35.8	56.8		39.2	25		2.1
34.3		39.8	0.8		41.9	8.3		6.0
38.9		44.4	3.8		44.8	12.1		9.9
41.8		47.5	5.8		46.7	14.8		12.5
44.9		54.2	7.7		50.8	17.5		18.4
211.9		57.8	9.7		53.0	54.8		21.3
35.32		312.0	1.62		313.6	9.13		68.8
1.3372		44.57	1.3372		44.80	1.3372		9.83
35.60		33.58	~~2501~~		~~2336~~	31.32		29.54
10.92		10.99	22.28		~~2101~~	40.45		40.29
			23.88		~~21.44~~			
					23.79			
		10.96			23.79 21.44			40.36
17 28		17.75	17 30		31.01	17 36		47.35
		53.21			~~50.43~~			53.06
16		~~43~~			52.78	5		~~1~~ ~~5~~
53.05		~~53.08~~	28		~~22~~	53.06		~~53.05~~
			53.06		~~52.94~~			

270
203
)473
36

$n = \frac{1}{3}$

assumed

$n = 0.40$

53.06
53.06
53.05
5306
31
53.37

Fixed 1327 is fast
0m 53.37s
at 17h 30m
Sid time.

Thurs
~~Wed~~ Aug 19, 1904

Mer [illegible]

[illegible], [illegible] at
18 6

m Sagit, −21 5 wire 8 T² (rej latest of T')
[Br 2533] +42 8
η Serpentis −2 55
109 Herculis +21 44

−21 5

18^h 8^m $59^s.0$
13.1
15.0
17.8
20.8
22.8
27.0
29.4
1459
20.84
21.98
58.86

85.55
88.5

−2 55

16 49.5
51.7
55.8
58.2
0.1
2.0
33 73
56.22
21.76
17.98

18.0 31.2
33.1
35.8
38.6
40.2
44.2
46.3
2694
38.49
20.53
17.96

+21 44

20 32
5.2
9.8
12.8
14.8
16.7
625
10.42
1.3372
0.0321
1.3693
23.40
33.82

33.8 47.9
50.1
52.9
55.9
57.8
2.2
4.2
39 1 0
55.86
22.07
33.79

18 8 58.86
18 8 4.32
54.54
52
55.06

18 17 17.97
18 16 23.21
54.76
38
55.14

18 20 33.80
18 19 38.92
54.88
21
55.09

.4

55.06
55.14
55.09
.29
55.10
31
55.41

Frod 1327 is fast
0^m $55^s.41$
at $18^h 15^m$
Sid. Time

Fri. August 12, 1904

M F M

very rattle through

17 21

Mer Ci

+ 52° 22′

+ 12° 38′ T′

+ 46° 3′

chron kept stopping.

+ 52 22

27.2 14.0 35.4
30.4 ~~38.2~~ 38.2
37.2 42.8
41.8 47.4?
44.8 50.2
47.8 56.9
2292 0.5
38.20 33.54
35.60 ~~46.49~~
13.80 47.34
33.58
13.76

+ 12 38

57.8
59.8
3.9
6.8
8.6
10.5
27.4
4.57
1.3372
00107
1.3479
2228
26.85

+ 46 3

37 2.3 43.2 22
5.3 5.0
11.4 8.8
15.2 12.8
17.8 15.48
20.5 21.2
725 24.5
12.08 899
31.32 12.84
43.40 29.54
43.30

rattle after 17 40 at close of obs

17 13.78 17 26.85 17 37 43.35
17 28 17.67 17 30 30.97 17 36 47.28

5661
~~26~~
~~56.75~~
56.11
~~8.12~~8
~~55.99~~
56.03

.5588
~~21.28~~ ~~14~~ 47 14
~~56.16~~ ~~56.35~~
56.09
56.02

56.07
~~41~~ ~~8~~
~~56.02~~ ~~55.99~~
56.04 3
56.04

n = .21
4
1

+1.30 56.11
+22 55.88
1.08 .23
.216 .21
~~1.22~~

1.40
56.61 1.08
+1.30 55.88 320
+22 .73
1.08 648 .67
820
756
640

n = ~~.68~~

assumed

n = ~~.3~~

56.02
56.04
56.03
9
56.03
~~4.4931~~
56.34

Frod 1327 is fast

0m 56s.34

at 17h 30m

Sid time

Sun Aug. 14, 1904

m, F, h

rattle at

17 48

Mer Cir

+72 12 T^2
+56 53
+37 16 T^2
+51 30 wire 8 and T^2

+72 12	+56 53		+37 16	+51 30
45 22.0	52 0.5	52.2 16.5	54 14 3	55 23.6 44.0
28.2	4.2	19.9	16.8	47.0
37.0	11.8	24.8	20.0	51.2
46.2	16.7	29.9	23.4	55.9
52.2	19.9	33.2	25.8	58.8
5.4	23.2	40.8	30.8	5.1
12.6	963	44.4	33.6	8.4
32.36	16.05	2095	1647	38 8.64
46.23		29.93	23.53	55.~~66~~
67.07		37.52	25.76	32.94
39.16		52.41	57.77	~~22.72~~
				22.83

~~n = 2~~

assumed
n = .33⅓

17 44 39.16	17 52 52.41	17 53 57.77	17 55 22.~~72~~ 83
17 43 40.34	17 51 54.16	17 52 59.80	17 54 24.64
58.82	58.25	57.97	~~58.03~~
~~44~~	~~.12~~	.05	58.14
73	21		11
~~58.38~~	~~58.13~~	~~58.00~~	
58.09	58.04	58.02	58.03

58.09
58.04
58.02
58.03
.18

58.04
h sec φ 31
58.35

Frod 1327 is fast
0m 58.35s
at 17h 50m Sid Time

Mon Aug

~~Mon Aug 15~~
Sun Aug 14, 1904

(note entered Thurs. Mar. 30, 1905)

"Aug 14.9

at 8h 56m 1g removed from Frad 1327 by M.F. Michaelis. load 2g"

(copied from clock book.)

Mon Aug 15 1904

Mer Cir

M F M
rather before
17 47

+27 47
+56 53
+37 16
+51 30
+2 56

+27 47
17 43 43.15
57.8
0.1
2.8
6.0
8.4
12.5
15.0
42.6
6.09
23.18
42.91

+56 53
52 1.2
4.8
12.4
17.3
20.8
24.0
80.5
13.42
~~16.05~~

53 45 17.4
20.8
25.9
30.9
34.2
41.5
45.2
215.9
30.84
37.52
53.32

+37 16
54 15.0
17.5
20.9
24.2
26.7
31.6
34.4
170.3
24.33
25.76
58.57

+51 30
55 44.9
47.8
52.0
56.5
59.5
6.1
9.2
396.0
56.57
32.94
23.63

+2 56
57 4.2
6.2
8.9
11.8
13.6
17.6?
19.5
81.8
11.69
20.81
50.88

17 43 42.91	17 52 53.32	17 53 58.57	17 55 23.63	17 56 50.88
17 42 44.20	17 51 54.1~~6~~3	17 52 59.78	17 54 24.6~~4~~	17 55 52.71
58.61	59.19	58.79	58.96	58.17
29 ~~13~~	31 ~~27~~	8 ~~05~~	17 ~~11~~	43 ~~29~~
58.90 ~~58.74~~	58.88 ~~58.98~~	58.87 ~~58.84~~	59.13 ~~58.85~~	58.60 ~~58.46~~

n assumed
= .5

58.46
58.74
58.88
58.84
58.85
3.77
58.75

58.60
58.90
58.87
59.13
58.88
4.38
58.876

58.88
31
59.19

Frod 1327 is fast
0 ~~m~~ $59^{s}.19$
at $17^{h}\ 50^{m}$
sid Time

Wed Aug 17, 1904

Mer. Cir.

M. F. M.
rubber after
18
~~17~~ 7

+28 45
−21 5
−2 55
+21 44

+28 45

4ᵐ 16.6 48.6 38
18.8 6.0
23.4 8.8
26.5 12.2
28.6 14.2
30.8 18.6
21.1

14 24.7
24.12
~~23.~~18
1.3372
0 0571
1.3943
~~24~~.79
~~48.57~~
48.91

849
12.13
23.38
48.75

18
~~17~~ 4 48.82
18 3 50.12
58.70
12 ~~18~~
58.82 ~~58.88~~

−21 5

8ᵐ 32.3 2.8 16.8
34.6 19.1
38.8 21.8
41.8 24.8
43.7 26.8
45.8 31.1
33.1

2370
39.50
1.3372
0.0300
1.3672
23.29
2.79

1735
24.79
21.98
2.81

18
~~17~~ 9 2.80
18 8 4.26
58.54
43 ~~65~~
58.97 ~~59.19~~

−2 55

16
~~78~~ᵐ 53.2 21.75 34.9
55.2 36.8
59.2 39.4
2.2 42.2
4.0 44.1
5.8 48.1
50.1

359 6
59.93
1.3372
0006
1.3378
21.77
21.70

2956
42.23
2053
21.70

18 16
~~17~~ ~~19~~ 21.70
18 16 23.15
58.55
31 ~~48~~
58.86 ~~59.03~~

+21 44

20 6.9 37.6 51.8
9.2 53.8
13.2 56.6
16.3 59.7
18.5 1.5
20.5 5.8
8.1

8 ~~8~~63
14.~~48~~
1.3372
0.0320
1.3692
23.40
~~37.83~~
37.50

41 7 3
59.61
22.07
37.54

18
~~17~~ 20 37.52
18 19 38.85
58.67
17 ~~26~~
58.84 ~~58.93~~

546
525
1071
82

assumed
$n = .33\frac{1}{3}$

58.97
58.86
58.84
58.82
349
58.87
.31
59.18

Error 1327 is fast
0ʰ 59.ˢ18
at 18ʰ 10ᵐ
Sid Time

Thurs Aug 18 1904

Mer Cir

M.F.M.

+33 15
+59 16
+4 5
+43 49
+32 33

+33 15		+59 16		+4 5	+32 33		
33.5	49.2	L 49.1	14.8		48.9	22.6	381
	51.3		18.5		51.2		403
	548		238		562		43.4
	58.1		29.3		59.3		46.8
	0.0		328		1.6		49.0
	5.1		41.0		3.8		54.0
	76		44.7		3410		56.2
	4061		2049		56.83		3278
	58.01		29.27		25.78		46.83
	24.52		40.12		22.61		24.32
	33.49		49.15				2251

	18	33.49	18	49.15	18 22.56
	18 46	~~44~~	18 49	49.75	18 55 23.72
		34.65		59.40	58.84
assumed		58.84	38	~~26~~	14 9
~~n = 33 1/3~~	13	9		~~5.66~~	58.93
n = .5	58.97	58.93	59.02	~~59.14~~	58.98

58.97
59.02
58.97
58.98
297
~~58.74~~
58.99

58.99
31
59.30

Frod 1327 is fast 0m 59.30 at 18h 50m, Sid Time

Fri Aug 19, 1904

Mer Cir W. W. W. Ob

ι Herculis +46°3′ missed 1st 2 wires 2nd set

β Oph +4°36′

μ Herculis +27°46′

Rattle after 17h 45m.

ι Hercules
+46 3

37 5.2 11.8
8.2 15.8
14.0 18.3
18.0 24.4
20.8 27.2
23.5 97.5
897 19.50
14.95 1.3627
13372 0.1586
0.1586 1.5213
1.4958 33.21
31.32 46.29
46.27

17 37 46.28
17 36 47.11
59.17
4
59.13

β Oph.
+4 36

39 45.0 58.2
0.1
2.8
5.7
7.3
11.6
13.7
39.4
5.63
20.57
45.06

17 39 45.06
17 38 46.14
58.42
28
59.20

μ Herculis
+27 46

43h 11.0 43.0 58.0
13.2 0.1
17.8 3.0
20.8 6.2
23.0 8.3
25.2 13.0
15.2
13372 111.0 ~~37.6~~
0.0532 18.50 43.8
1.3904 43.07 ~~6.22~~
24.57 6.26
~~17~~ ~~43~~ ~~41.72~~
23.17
~~42.38~~
43.09

~~13370~~
0.0532
1.3902
2.455

17 43 43.08
17 42 44.13
58.95
13
59.08

h assumed = .33⅓

59.13 × 2 26
59.08 × 2 16
59.20 × 1 20
5)62
12

59.12
31
59.43

Frod 1327 is fast
0m 59s.43
at 17h 40m.
sid time

Sun Aug 21, 1904

M. F. M.

Mer. Cir.

β Lyrae +37 5·8
κ Cygni +53 11
τ Draco. +73 11
δ Aquilae +2 5·5

+37 58

28.2 4.4 20.9
31.0
360
39.3
41.9
44.2
2206
36.77
1.3372
0.1033
1.4405
~~82~~
27.57
4.34

20.9
233
269
303
328
379
405
2126
30.37
2601
4.36

+53 11

55.65 17.6
20.8
25.2
29.8
32.9
39.8
43.0
2091
219.87
~~34.85~~
3422
0.63
55.65

+73 11

28.5 13.9
20.4
298
39.8
458
~~565~~
0.2
~~68~~
67
27 ~~7.7~~
~~20.87~~ 39.53
70.87
~~16.80~~
28.66

+2 55

13.2 41.8
15.1
19.1
21.9
238
258
1189
19.82
21.77
41.59

54.8
568
59.4
20
40
80
10.1
151
2.16
20.53
41.63

52
43
156
208

52
24
208
104

86
53
172
430

19 4.35
19 13 4.80
59.55
7
59.62

55.65
19 ~~0.63~~
19 14 55.85
59.80
22
59.58

19 28.66
19 17 27.66
61.00
1.25
59.75

19 41.61
19 20 42.30
59.31
45
59.76

3.31 6100
05 59.31
3.26 1.69 .52
1630
600

59.62
59.58
59.60
31
59.91

n = .52

Frod 1327 is fast
0m 59s.91
at 19h 15m
Sid Time.

Mon Aug 22, 190~~5~~4

M.F.M.
settles before
18 59

+ 43 49
+ 32 33
+ 13 43

+43 49		+32 33		+13 43	
52 48.0	27.2 45.6	55 49.9	23.65 39.1	19 1 33.0	22 15.8
50.8	481	521	41.2	35.1	17.8
564	578	56.8	44.5	39.2	20.3
0.2	558	0.2	478	41.9	23.2
2.7	58.1	2.5	50.1	43.9	25.2
52	3.8	4.7	548	458	29.2
34 33	6.7	3462	57.1	2389	31.3
57.22	3899	57.70	33 46	39.82	1628
1.3372	55.70	1.3372	47.80	1.3372	23.29
0.1417	28.42	-0.0742	24.32	00125	21.10
14789	27.28	1.4114	23.48	1,3497	2.19
30.12		25.78		2238	
27.34		23.48		2.20	

18 53 27.31
18 52 27.31
60.00
2
5998

1 5999

18 56 23.48
18 56 23.65
59.93
9 11 11
60.04

59 60.02

19 2 2.19
19 1 2.49
59.70
22 27 27
~~60.03~~
59.97

59.92

n assumed = .4

59.47
60.04
59.98
179.99
59.997

60.00
31
60.31

47
60.47

Frod 1327 is fast 1m 0.31s at 19h 0m Sid Time

Tues Aug 23 1904

M.F.M

mer bar
+27 47
+56 53
+37 16
+51 30

+27 47

12.2 44.45 ~~54.0~~
14.5 4.2
19.0 7.3
22.0 9.8
24.1 14.2
26.2 16.7
11 80 522
19.67 10.44
13372 1.3627
0.0532 ~~1.2494~~
1.3904 0.0532
2457 ~~1.4159~~
44.24 ~~1.3026~~
3605
~~2007~~
~~50.37~~
44.39

+56 53

2.7 54.5 18.3
6.2 21.8
13.3 27.0
18.6 31.8
21.8 35.2
25.2 42.8
878 46.1
14.63 2230
13372 31.86
.12625 37.52
~~10~~ 58.34
1.5997
39.78
54.41

+37 16

16.6
18.9
22.2
25.8
28.1
33.2
35.8
18 06
25.80
25.76
0.04

+51 30

25.2 46.2
49.3
53.8
58.1
0.4
7.2
10.7
40 62
58.03
32.44
25.09

0.04
17 52 59.62
60.42
8
5 60.50
60.47

25.04
17 54 24.45
60.64
17
11 60.47
60.53

44.31
17 42 44.06
60.25
19
13 60.44
60.38

54.37
17 51 53.86
60.51
31
21 60.20
60.30

60.44
60.50
60.47
60.20
1.61
60.40

38
47
53
30
168
.42

25
51
42
64
182
.455

~~60.44~~
~~31~~
~~60.75~~

60.41
31
60.72

47
60.88

Frod 1327 is fast
1m ~~0m~~ 0.572
at 17 54 sid Time

Wed, Aug 24, 1904

mer lon

M F M

rattle before
18 13

η Serpen. −2 55
109 Herculis +21 44
~~+38 45~~
α Lyrae +38 42

−2 65

16 55.0 23.7 36.8
57.2 38.7
1.2 41.2
44.2
40 46.0
5.9 50.0
7.8 52.0
11.1 30.89
1.85 44.13
21.76 20.53
23.61 23.60

+21 44

20 8.2 (8) 39.3 53.6
11.0 55.5
15.2 58.3
18.1 1.3
20.2 3.2
22.2 7.8
9.55 9.9
15.92 9.6
23.40 1.37
39.32 22.07
39.30

+38 42

34 8.0 (6) 44.4 ~~8.0~~ 13
~~10.7~~ 6 ~~10.6~~ 38
15.8 ~~15.8~~ 7.1
19.2 ~~26.9~~ 10.8
21.7 ~~22.8~~ 13.0
24.0 18.1
9.93 20.9
16.55 7.50
27.86 10.71
44.41 26.27
44.44

18 17 23.60
18 16 23.06
60.54
38 31
60.92 ~~60.85~~

18 20 39.31
18 19 38.74
60.57
21 14
60.78 ~~60.71~~

18 34 44.43
18 33 43.56
60.87
5 4
60.92 ~~60.91~~

assumed
n = .4

60.92
60.78
60.92
2.68
~~60.89~~
2.62
60.87

60.87
~~31~~ 47
~~61.18~~ 61.34

Frod 1327 is fast
1m 1.s ~~18~~ 34
at 18h 25m
Sid Time

Wed Aug 24, 1904

W.F.M. obs

Time of beginning 23h 03 ESMT

mark 118

Level

Telescope N,	W	E
Zero W	− 38.3	− 74.4
	− 38.8	− 74.9
Zero E	+ 83.8	+ 47.0
	+ 84.8	+ 48.0

Telescope S

Zero W	− 35.8	− 72.8
	− 36.5	− 74.1
Zero E	+ 88.7	+ 51.4
	+ 86.9	+ 48.7
	− 149.4	− 296.2
	+ 344.2	+ 195.1
	+ 194.8	− 101.1
	− 101.1	

16) 93.7

5.85625
06
.3513750
135
1756875
1054125
351375
.47435625

$b \sec \varphi = .47$

Thurs Aug 25, 1904

M. F. M.,
rattle after
18 14

74
35
370
222

~~7~~2 55
+ 21 44
+58 45

96
43
28 8
38 4

96
35
480
288

515
35
2575
1545

.102
.85
.09.35
.058
151

600
798
1398
108

−2 55		+21 44		+58 45	
16^m 55.5	23 9 2 37.1	20 9.2	39.8 54.0	22 39.2	34.0 59.8
57.6	39.0	11.2	560	43.3	3.2
1.6	41.8	15.7	588	50.9?	8.2
4.2	44.4	18.8	18	56.1	13.6
61	46.3	207	39	59.8?	17.0
80	50.3	22.7	8.1	3.3?	25.0
130	52.4	983	102	3126	288
2.17	311 3	16.38	128	52.10	956
21.76	44 47	23.40	1.83	1.3372	13.66
23.93	20.53	39.78	22.07	0.2850	39.52
	23.94		39.76	16222	34.14
				41.90	
				34.00	

18 17 23.94
18 16 23.05
60.89
34 ~~47~~ ~~38~~
61.23 61.27

18 20 39.77
18 19 38.73
61.04
18 ~~21~~
61.22 ~~61.25~~

18 23 34.08
18 22 32.58
61.50
26 ~~29~~
61.24 ~~61.21~~

n assumed
= .4
= .35

61.23
61.22
61.24
61.23
& sec φ 47
61.70

Frod 1327 is fast
~~0 hm~~ 1^m 1.^s70
at 18^h 20^m
Sid Time

Thurs Aug 25, 1904
1 -

Level

MFM

Time of beginning 22^h 45^m E.S.M.T.

Telescope N

	W	E	
Zero W	− 35.9	− 74.5	38.6
	− 35.8	− 74.4	38.6
	+84.6	+45.8	
Zero E	~~+45.8~~	~~+84.6~~	38.8
	~~+46.0~~	+ 84.9	
	+84.9	+46.0	

mark 118

Telescope S

Zero W	− 33.4	− 72.3	
	− 33.9	− 72.8	
Zero E	+ 84.8 ~~82.1~~	+ 45.9 ~~48.0~~	38.9 ~~34.1~~
	+ 85.8	+ 46.9	

Time of ending 23^h 10^m E.S.M.T.

− 139.0
+ 340.1
+ 201.1
− 109.4
16) 91.7
5.73125
.06
.3438750
135
1719375
1031625
343875
.46423125

−29.40
+184.6
109.4

~~Fao d 1327~~

b sec φ = .46
West end high

Thurs to Aug 25, 1904
Fri Aug 26, 1904

Collimation

M. F. M

Time of beginning
23h 40 ~~15~~ m
E S M. T

S Coll on N Coll
60.1
55.6
558
54.3
56 3
2821
alt at 56.42

Time of ending
0h 15m

R. A Microm found at 31.943

Tel. on S coll
~~32.313~~
32.351
32 349
32 38.3
32 38.7
32 37.5
1845
32.369

Tel on N. Coll
31.979
31.994
31.997
31.975
32.002
4947
31.9890
32.3694
643784
32.1892
012
32.201

Fri Aug 26, 1904

Mr Bi MFM

o Draco + 59 16
R Lyrae +43 49
γ Lyrae +32 33

+59 16

55.5 51.0 ~~20.4~~
59.8 25.5
7.7 31.2
12.8 34.5
16.5 42.7
20.1 46.9
52.4 ~~51.0~~
8.73 ~~25.5~~ 22
1.3372 ~~36.03~~
0.2916 20.12
1.6288 33.53 ~~31.20~~
42.54 13370
51.27 02916 ~~52.68~~
1.62886 51.01
4252

18 51.~~96~~ 14
18 49 49.49
~~62.47~~
61.65
26 31
61.39 61.34

h assumed = .33 1/3

+43 49

49.4 28.8 46.9
52.1 49.6
57.8 53.2
1.7 57.0
4.2 59.6
6.8 5.5
35.2 ~~26.0~~ 8.0
58.67 ~~46.7~~ 39.98
30.12 57.11
~~34.79~~ 26.42
28.79 28.69

18 28.74
18 52 27.23
61.~~7~~51
01 ~~02~~
~~61.89~~
61.50

+32 33

51.5 25.0 40.7
53.7 43.0
58.5 46.0
1.8 49.4
3.9 51.6
6.0 56.3
35.54 58.8
59.23 34.48
25.78 49.26
25.01 24.32
24.94 8

18 24.97
18 55 23.59
61.38
9 ~~11~~
61.47 ~~61.49~~

61.47
61.50
61.39
1.36
61.45

61.45
p sec φ 46
61.91

Frod 1327 is fast $0^h\ 1^m\ 1^s.91$ at $18^h 50^m$ Sid Time

Sat Aug 27, 1904

MFW

mer 6 4

rather after
16 59

EFS [ ] +31 47
+39 6 wire 8 T²
+9 31
+31 4

+31 47

38 10.3
12.6
17.4
20.5
22.8
24.9
1085
18.08
1.3372
0.0705
1.4077
25.57
43.65

43.7 59.2
1.3
4.6
7.8
9.9
14.7
17.0
545
7.79
24.12
43.67

+39 6

40 39.8
56.8
59.1
2.4
6.2
8.5
13.8
16.3
437
6.16
26.41
39.75

+9 31

53 42.7
44.8
48.6
51.4
53.4
55.2
2961
49.35
1.3372
0.0060
1.3432
22.04
11.39

+31 4

57ᵐ 7.7
10.0
14.5
17.8
20.0
22.1
921
15.35
1.3372
0.0673
1.4045
25.38
40.73

56.1
58.3
1.5
4.8
6.8
11.5
13.9
329
4.70
23.94
40.76

16 38 43.66
16 37 4.45
62.21
.10
62.31

16 40 39.75
16 39 37.56
62.19
3
62.22

16 53 11.39
16 53 9.31
62.08
25
62.33

16 57 40.75
16 56 38.56
62.19
10
~~26~~
62.29

assumed
~~n = 13~~
n = 133 1/3

62.33 × 1 33
62.29 × 2 58
62.31 × 2 62
62.22 × 1 22
775
62.29

62.29
46
62.75

F rod 1327 is fast
1ᵐ 2.ˢ75
at 16ʰ 45ᵐ
Sid Time

Sun Aug 28, 1904

rather after
20 57

32 Vul + 27 42
ν Cygni +40 48
61 Cygni +38 17

+27 42

20 51ᵐ 1.9	34.0	48.8
4.1		51.0
8.9		53.8? 57.0
11.8		59.0
13.8		3.8
15.9		6.0
564		3994
9.40		57.06
1.3372		23.16
.0529		33.90
1.3901		
2456		
33.96		

+40 48

54 4.1	41.8	59.1
6.8		1.8
12.2		5.1
15.8		8.9
18.2		~~10.~~
20.8		11.2
779		16.6
12.98		19.3
1.3372		620
0.1204		8.86
1.4581		27.08
28.72		41.78
41.70		

+38 17

21ʰ 3ᵐ 5.7ˢ	42.2	58.8
8.2		1.0
13.4		4.4
17.0		7.8
19.2		10.2
21.8		15.7
853		18.1
14.22		560
1.3372		8.00
0.1052		26.12
1.4424		41.88
27.70		
41.92		

20 51 33.93
20 50 31.~~7~~
18
62.75
13
62.88

20 54 41.74
20 53 38.90
62.84
2
62.86

21 3 41.90
21 2 39.09
62.81
4
62.85

n assumed
= .33⅓

62.88
62.85
62.86
19
62.86
~~37~~
~~63.17~~

6286
46
6332

Frod 1327 is fast
1ᵐ 3.~~17~~ 3.2
at 20ʰ 55ᵐ
Sid Time.

Mon Aug 29, 1904

Mer circ

M T M,

[illegible] before

~~20~~ 18 59

γ Lyrae +32 33
ζ Aquilae + 13 43
A [ι Lyrae] + 35 57

	+32 33			+13 43			+35 57		
18h 55m	53.0	26.8	42.2	19 1 36.2	57	19.1	4m 23.2	58.2	14.7
	55.2		44.7	38.2		21.0	25.7		16.8
	0.2		47.8	42.6		23.8	30.8		20.1
	3.6		51.1	45.4		26.6	34.0		23.7
	5.8		53.2	47.4		28.6	36.2		25.7
	7.8		58.0	49.2		32.8	38.8		30.8
	5.6		0.5	2590		34.7	1887		33.1
	0.93		357.5	43.17		1866	31.45		1649
	25.78		51.07	22.38		26.66	1.3372		23.56
	26.71		24.32	5.55		21.10	00918		25.32
			26.75			5.56	1.4290		58.24
							2685		
							58.30		

18	56	26.74	19	2	5.56	19	4	58.27
18	55	23.54	19	0	62.40	19	3	55.04
		63.20			63.16			63.23
	5	4		13	~~22~~			4
	63.25	63.24		63.29	~~63.38~~			63.27

assumed

n = .2

63.25
63.29
54
63.27
46
63.73

Frod 1327 is fast
~~±~~ 1m 3.73
at 19h 0m

Tues Aug 30, 1904

Mer b in

M. F. M.,
rattle after
16^h 16^m

η Draco +61 44
β Herc. +21 42
~~ξ Ophi −10 22~~
E [ξ Hercules] +31 47

516
17
36/12
516

294
17
20/5/8
294

420
282
702
54

95
17
66 5
95

+61 44

16 22 45.4 45.65 13.2
49.6 17.2
58.6 22.9
41 28.8
7.9 32.8
11.8 41.5
~~47.8~~ 51.8
3574 20~~4~~22
59.57 28.89
1.3372 43.29
0.3246 ~~45.88~~
1.6618 45.60
45.90
45.47
16 23 45.54
16 22 41.42
64.12
19
63.93
24
~~64.36~~
63.88

+21 42

26^m 40.1 10.8 25.0
424 27.0
46.8 29.8
49.6 32.9
51.8 34.8
53.7 39.2
2844 41.4
47.40 2301
2340 32.87
10.80 22.07
1080
16 27 10.80
16 26 7.64
63.76
19
63.86
13
63.89

+31 47

38 11.8 45.208
14.1 2.8
18.8 6.0
22.0 9.2
24.2 11.2
26.5 16.1
1174 18.5
19.57 646
13372 9.23
0.0705 2412
1.4077 45.11
25.57
45.14
16 38 45.12
16 37 41.39
63.73
9
63.7[illegible]
11
63.80

n assumed
= .25

63.88
63.80
63.89
257
63.85
.46
64.31

Frod 1327 is fast
1^m 4.31^s
at 16^h 20^m
Sid Time

Wed Aug 31, 1904

α Lyrae + 38 42
110 Herc. + 20 27
β Lyrae + 33 15

m F M, [illegible] through
18 37

+38 42

33
11.6 47.8
13.9
19.2
22.7
25.1
27.3
119.8
19.97
27.86
47.83

47
7.2
10.7
14.2
16.7
21.8
24.3
996
14.23
2627
47.96

+20 27

42m 8.2 38.52
10.5
14.8
17.7
19.8
21.6
926
15.43
13372
00282
1.3654
2319
38.62

52.7
54.6
57.4
02
2.2
6.7
8.8
2.6
0.37
21.68
38.49

+33 15

47m
48
7.1
12.2
15.2
17.5
19.8
766
12.77
1.3372
0.0776
1.4148
25.99
38.76

38.83 54.7
56.8
59.8
3.2
5.5
10.4
12.8
23.2
3.31
2452
38.79

18 33 47.90
18 33 43.42
64.48
3
64.51

assumed
n = 125

18 42 38.55
18 41 34.16
64.39
14
64.53

18 47 38.78
18 46 34.43
64.35
6
64.41

6451
64.53
64.41
145
64.48
46
64.94

Frod 1327 is fast
1m 4.s94
at 18.h 40m
Sid Time

Friday Sept 2, 1904

Mer Cir [illegible]

η Serp −2°55′
109 Herc +21°43′
3 Drac. +58°44′ Last 5 wires.
Rattle after 18h 29m

−2 55
~~15~~ 17m 0.4 28.43
2.1
6.1
8.9
10.7
12.4
402
6.70
21.76
28.46

41.7
43.6
46.2
48.9
50.8
54.8
56.9
3429
48.99
20.53
28.46

18 ~~15~~ 17 28.46
18 16 22.93
65.53
~~24~~
~~65.77~~
19
65.72

+21 43
~~18~~ 20 13.6
15.8
20.3
~~25~~ 23.2
25.2
27.2
1253
20.88
23.40
44.28

44.3 58.5
0.4
3.3
6.3
8.2
12.6
14.8
441
6.30
22.07
44.23

18 ~~18~~ 20 44.25
18 19 38.59
65.66
~~13~~
~~65.79~~
10
65.76

+58 44
24 11.9
17.7
21.2
29.1
33.0
1129
22.58
1.3627
~~28.~~48
~~54.10~~

13627
02848
16475
44.41
38.17

18 ~~21~~ 23 38.17 ~~54.10~~
18 22 32.29
~~1.81~~
65.88
~~18~~
~~65.70~~
15
65.73

n ~~assumed~~ = .25

n assumed = .2

65.76
65.72
65.74
46
66.20

Frod 1327 is fast
1m 6.20s
at 18h 20m
sid time.

Sat Sep 3, 1904

Mer. Circle W. W. W. Obs.

Rattle before 18h 27m

α Lyrae	+38° 41'	
110 Herculis	+20° 27'	
β Lyrae	+33° 15'	
o Drac	+59° 16'	1st set of wires. (Thick clds prevented 2nd set)

mer cir Sun Sept 4, 1904 M. F. M.

β Cygni +27 45 latest 4
ι Cygni +51 31
−25 6
+50 0

+27 45

28.4 0.78 15.8
30.9 17.8
35.4 20.9
38.2 24.0
40.7 26.0
42.8 30.8
2164 32.9
~~30~~ 1682
36.07 24.03
24.57 23.17
50.64 0.86
~~23.77~~
37.~~69~~

1.3372
00531
1.3903
.2497

0.76
19 26 53.51
67.25
~~54~~
15
67.40

384
602
986
76

875
594
1469
1.13

−25 6

~~18.0~~ 2.0
30.7
32.8
37.3
40.2
42.3
44.3
2276
37.93
13372
00431
1.3803
.2401
1.94

16.8
18.8
21.7
24.7
26.5
31.1
33.2
1728
24.69
22.64
2.05

2.00
19 30 55.03
66.97
54
67.51

+50 0

18.0 2.0 22.7
20.9 25.6
27.3 29.7
31.4 34.2
34.4 37.0
37.0 43.4
1690 46.4
28.17 2390
1.3372 34.14
01919 31.89
1.5291 2.25
.3382
1.99

2.13
19 35 54.51
67.62
11
67.51

67.40
67.51
67.46
46
67.92

+1.19 67.62
−.47 66.97
+1.66 .65
498
1520
1494
260

.39

h = .39

Frod 13 27 is fast
~~[illegible]~~ $1^m 7^s.92$
at $19^h 30^m$
sid time

Tues, Sept 6, 1904.

rattle after
15 53

Mer. Cir.

#
η Draconis +61 44
β Herculis + 21 42
EF [ξ Herculis] +31 47

[ξ Herculis]

+61 44

22 49.8
54.0
2.8
8.4
12.2
16.1
2 33
3.88
45.90
49.78

49.8
6.57
21.90
1.1848
0.3246
1.5094
3231
49.59

17.6
21.1
27.0
37.0
45.34
49.8
13 2 2
~~22.03~~
44.07
0.3246
14100
1.7346
~~54.28~~
~~5 .. 78~~
49.79

+21 42

26 44.8 15.25
46.9
51.2
54.1
56.2
58.2
31 14
51.90
23.40
15.30

29.5 38
31.5
34.2
37.2
39.1
43.7
45.9
26 11
37.30
22.07
15.23

+31 47

16.2 49.7
18.6
23.4
26.6
28.8
31.0
144 6
24.10
25.57
49.67

50
7.3
10.2
13.8
15.9
20.7
22.9
9 58
13.69
24.12
49.57

16 23 49.78
16 ~~23~~ 22 ~~33.37~~ 41.09
68.69
21 ~~38~~
68.48 ~~68.31~~

16 27 15.26
16 26 6.90
68 36
~~27~~
11 ~~68.37~~
68.47

16 38 49.62
16 37 41.23
68.39
6 12
~~68.51~~
68.45

~~assumed~~
~~n = 4~~
assumed
n = 22

68.48
68.45
68.47
1.40
68.46
46
68.92

Frod 1327 is fast
1m 8.92s
at 16h 30m
Sid time

Wed Sept 7, 1904

M F M
rattle before
19 58

Mer loir

−1° 6' 69.01
+6° 10' 68.96
+24° 23' 69.05
+46° 27' 68.98
+52° 11' 69.01
45.01
69.00
~~f~~ 42
+1.29 69.07 69.42
− 02 68.87
.131 .20 .1526+
.131
69
685
350
262
880

β Aquilae + 6 10
δ Cygni + 52 11
θ Aquilae − 1 6
+46 27
+24 23
−15 5
+39 57
−18 8
+62 40
+14 16
+44 56

rattle
before 20 27

−1 6

20h 7m 44 3281 460
6.5 480
10.5 505
13.2 532
14.9 551
17.0 592
665 1.2
11.08 373 2
13372 53.31
0001 2051
1.3373 3280
2174
32.82

20 7 3281
20 6 23.44
68.87
.14
69.01

+6 10
51 18.8
209
250
278
29.5
31.4
1534
25.57
1.3372
0.0025
1.3397
21.86
47.43

52 11
47.35-08
2.6
51
80
98
140
160
56.3
804
2062
47.42

53 34.4
37.8
44.2
48.8
51.8
54.8
2718
45.30
1.3372
02124
1.5496
35.45
20.75

− ~~1 6~~
20.7 42.1
45.0
49.7
54.0
57.0
38
71
3787
54.10
33.44
20.66

+46 27
11m 7.0
9.9
16.0
19.9
22.7
25.2
10 07
~~16.78~~
16.78
13372
0.1618
1.4990
31.55
48.33

48.25 7.6
10.2
14.2
18.2
20.8
26.8
29.7
1275
18.21
29.76
48.45

+24 23
13h 21.1
23.4
28.0
30.8
33.0
34.9
1712
28.53
1.3372
0.0406
1.3778
2386
52.39

52.26.8
8.8
11.8
14.8
16.9
21.3
23.3
1039
14.84
2251
5233

x assumed
1.2
~~x assumed~~
x = .153

69.03
~~68.99~~
69.01

19 51 47.42
19 50 38.58
68.84
~~16~~
~~69.00~~
12 ~~8~~
68.96
~~68.92~~
~~68.98~~

69.0~~1~~4
.46
69.4~~7~~4

19 54 20.~~60~~ 70
19 53 11.63
~~68.97~~ 69.07
7 .6
~~68.90~~ 69.01
~~4~~
~~68.93~~

20 11 48.39
20 10 39.39
69.00
3
~~68.97~~ 69.05
2 ~~7~~
~~68.99~~
68.98

20 13 52.36
20 12 43.38
68.98
4
7 ~~5~~
~~69.07~~
~~69.03~~

~~F~~rod 1327, is fast
~~0~~ m 9.4~~7~~4 sid T.
at 20h 0m

Wed Sept 7, 1904 continued

mer. bir
m.T-m

-15 5
T² T¹
20 17 28 16 48.85 16 19.6
4.7 21.8
7.3 258
10.2 287
12.0 305
16.3 32.4
18.4 1588
717 26.47
10.24 ~~21.23~~
21.23 1.3372 3
16 49.01 0.0153
1.3525
22.52
48.99

20 16 49.00
20 15 40.17
68.83
17
69.00

+39 57
19m 21.8 59.0 15.9
244 18.4
29.7 21.9
332 256
358 28.0
380 33.2
1829 359
3048 1789
1.3372 25.56
01154 26.74
1.4526 58.82
28.35 20 19 58.82
58.83 20 18 49.83
68.99
1
69.00

+18 8
24m 50 35.1 49.0
7.1 50.9
11.8 53.7
145 568
162 58.6
182 29
728 50
12.13 3969
1.3372 56.~~4~~70
0.0221 21.57
1.3593 35.33
22.88 13
35.01 35.07
20 24 2625
20 23 68.82
9
~~68.91~~

+62 40
28 9.0 10.45 39.~~8~~7
13.5 438
22.0 4~~8~~9.5
28.2 558
32.0 59.7
36.1 8.4
~~3~~ 13.0
101408 3849
2347 55.~~27~~70
1.3372 44.65
0.3380 1105
1.6752
4734
10.81

20 29 10.94
20 28 1.79
69.15
15
69.00

69.15
+193 68.83
-.27
.32 .145
2.2~~8~~ 22
100
88
120
110
10
x
=.145

735
486
1221
94

x = .145

+14 16
33 45.3 14.75 28.2
47.5 301
51.8 328
54.4 358
56.4 ~~33.7~~ 42.0
58.1 43.9
3135 2505
53.25 35.79
1.3372 21.15
0.0136 14.64
1.3508
2243
1468

20 34 14.66
20 33 5.71
68.95
10
69.05

+44 56
20 38 41.4 21.8 40.2
44.4 429
50.1 467
53.8 507
56.5 532
59.0 59.0
3052 1.8
50.87 ~~38~~
1.3372 3545
0.1500 50.64
1.4872 2896
30.70 21.68
21.57

20 34 21.63
20 38 12.64
68.99
1
68.98

-15 69.00
+14 69.05
+18 68.91
+39 69.00
+44 68.98
+62 69.00
5394
68.99

+39 69.00
+44 ~~68.98~~
68.99

68.99
+ sec φ 4~~2~~4
69.4~~7~~3

Frod 1327 is fast
1m 9.4s +3
at 20h 30m
Sid Time

Thurs Sept 8, 1904

Time of beginning
0h 0m
E.S.M.T.

marks 118

Level

Telescope North.

	W	E	
Zero W	− 36.6	− 72.1	35.5
	− 38.1	− 73.7	35.6
	− 38.2	− 73.8	35.6
	− 38.3	− 73.9	35.6
~~Zero E +~~	−151.2	~~+~~ −293.5	
	+	+	

Zero E

+ 83.4	+ 48.0	35.4
+ 84.1	+ 48.8	35.3
+ 82.8	+ 47.3	35.5
+ 82.4	+ 47.0	35.4
+332.7	+191.1	

Time of ending
0h 32m
E.S.M.T.

Telescope South

Zero W − 36.8	− 71.4	34.6
− 36.3	− 71.2	34.9
− 36.0	− 70.8	34.8
− 37.2	− 72.1	
−146.3	−285.5	

Zero E

+ 82.9	+ 48.0	34.9
+ 82.1	+ 47.2	34.9
+ 82.9	+ 48.0	
+ 81.9	+ 47.0	
+329.8	+190.2	

+332.7	+191.1
+329.8	+190.2
−151.2	−293.5
−146.3	−285.5
+662.5	+381.3
− 297.5	−579.0
+365.0	−197.7
− 197.7	

32) + 167.3
160
73
64
90
64
260

(5.2281
.06
.313686

.313686
135
1568430
941058
313686
.42347610

f sec φ = .42
West ending

Thurs Sept 8, 1904

M J M

Time of beginning
3h 20m
ESMT

Collimation Cir. North 6.
South ~~North 6. on South~~

~~564~~ 51.9
~~525~~ 52.8
50.4
56.5
56.8
53.7
52.0
54.7
52.9
53.9

53.56

RA Micro found at 32,189

Telescope on South 6

~~32,384~~ 3
~~477~~
32.433
32.435
46.2
47.3
43.7
46.1
44.3
45.6
46.4
44.7

324531

32,180
012

Set at 32.192

Telescope on N. 6

31,896
900
913
91.7
91.7
89.4
92.3
90.4
89.9
91.0

31,9073
32,4531

643604
32,1802

Thurs Sept 8, 1904

M F M.

~~[illegible]~~
Level

Time of beginning
23h 0m
E.S.M.T.
mark 118

Telescope North

	W	E	
Zero W.	−36.5	−70.8	34.3
	−36.8	−71.0	34.2
	−37.9	−72.0	34.1
	−37.0	−71.1	
	−148.2	−284.9	

dark day
almost impossible
to distinguish ends
of bubble.

	W	E
~~Set~~ Zero E	+80.9	+46.7
	+81.2	+47.8
	+82.3	+48.4
	+83.9	+50.0
	+328.3	+192.9

Time of ending
23 55
ESMT

Telescope S

	W	E
Zero W	−39.2	−72.8
	−39.0	−72.7
	−39.0	−72.6
	−40.2	−73.4
	−157.4	−291.5

	W	E
Zero E	+84.7	+51.9
	+84.9	+52.0
	+84.8	+51.9
	+85.0	+52.0
	+339.4	+207.8

F $b \sec\varphi = .47$

West end high

−148.2
−157.4
+328.3
+339.4
+667.7
−305.6
362.1
175.7
32) 186.4 .5825
160
264
~~224~~
2~~5~~6
80
64
160

−284.9
−291.5
+192.9
+207.8
−576.4
+400.7
175.7

5.825
.06
.34950
135
17475
10485
3495
.471825

Sat Sept 10, 1904

Mer 6 i

M F M,

β Cygni +27 45

η Sagitt, −25 6

+50 0

δ Cygni +44 54

+18 18 T²

+8 37 +

+70 1 latest of T¹ wrm 8 T²

+52 11

rattle after 19 21

rattle after 19h 58m

+27
385
102
770
385

−25
138
102
276
138

+50
.102
28
816
204

+44
102
9
918

+27 45

27 318 40 19.0
340 21.0
387 24.0
.102 41.9 27.1
43.8 29.1
45.9 33.8
2361 36.0
39.35 1900
1.3372 27.14
0.0531 23.17
1.3903 3.97
2457
3.92

10.62
+1.19 10.45
−.47 .17
1.66 .166
400
332
68

−25 6

31 34.0 55.1
36.2
40.7
43.8
48.0
2485
41.42
1.3372
0.0431
1.3803
2401
5.43

20.0
22.0
25.0
27.8
30.0
34.5
36.8
1961
28.01
2264
5.37

+50.0

34 20.9 5.15 25.6
24.0 28.4
30.4 32.8
34.6 36.9
37.5
40.2 39.7
1876 46.0
31.27 49.2
1.3372 2586
0.1919 36.94
1.5291 31.89
3382 5.05
5.09

+44 54

42m 31.8 11.7 30.3
34.4 33.0
40.1 36.8
44.0 40.8
46.8 43.1
49.3 49.0
2464 51.8
41.07 2848
1.3372 40.69
0.1498 2895
1.4870 11.74
30.69
11.76

11.62
+1.19 10.45
−.47 1.17
1.66 1162
800
.70

19 28 3.95
19 26 53.41
1 10.54
04
1 10.58

.16706
110.60

19 32 5.40
19 30 54.95
1 10.45
~~14~~ 15
1 10.59
60

.16723
1 10.68

19 35 5.07
19 33 54.45
1 10.62
3
1 10.59

.1675
110.57

19 43 11.75
19 42 1.00
1 10.75
.1
1 10.74

.1672
110.73

1. 10.58
44
1 11.02

at 19 30

Sat. Sept 10, 1904

1080
10.61
129
.15
1.14
.19
.114
760
684
760
.1666

1.29
.33
.96
10.80
10.57
0.23

280
162
442
35

+18 18
44 33.5
35.5
38.2
41.1
43.0
47.3
49.5
28 81
4.1.16
21.59
19.57

+8 37
46 50.6
52.7
56.7
59.4
1.2
3.0
34 36
57.27
1.3372
0.0049
1.3421
21.99
19.26

19.15 32.5
34.4
37.0
40.0
42.0
45.9
48.0
27 98
39.97
20.74
19.23

+70 1
49 44.2 22.5
27.8
35.9
43.8
49.4
1.1
7.1
30 76
43.94
59.99
43.95

+52 11
53 36.0
34.0
45.9
50.3
53.3
56.4
28 09
46.82
1.3372
0.2124
1.5496
35.45
22.27

22.3 44.0
46.9
51.3
56.0
58.8
5.2
8.7
39 09
55.84
33 ~~36~~
.44
~~22.48~~
22.40

+2.75
+ 15
+2.60
10.90
10.61
0.29
26
30
26
40
26
140
130

19 44 19.57
19 43 9.06
.1115 1 10.57
.06
1 10.63
.167 10
1 10.67

19 47 19.24
19 46 8.63
1 10.61
.08
1 10.69
.167 13
1 10.74

19 49 43.95
19 48 33.05
1 10.90 (102)
20 (19)
1 10.70
31
1 10.59

19 54 22.35
19 53 11.55
1 10.80
4
1 10.76
6
1 10.74

x = .11

+27	1 10.58	1 10.60 × 2	1.20
−25	1 10.60	1 10.68 × 2	1.36
+50	1 10.59	1 10.57 + 2	114
+44	1 10.74	1 10.73 + 2	146
+18	1 10.63	1 10.67 × 1	67
+8	1 10.69	1 10.74 × 2	148
+70	1 10.70	1 10.59 × 1	59
+52	1 10.76	1 10.74 × 2	14.8
	5.29	5.32 14	9.38 .67
	.681	.686	8.4
			98
			98

1 10.67
44
1 11.11

~~10.6~~

Frod 1327 is fast
1m 11.11s
at 19h ~~30~~ 40m
Sid Time

Thurs Sept 15, 1904

mer cir

M F M
rutter after
17 23

β Draco +52 22
α Ophi. + 12 38
ψ Draco + 72 12 wire 8 T²
θ Herculis + 37 16

+3.115
+0 224
289

1265
~~1256~~
0.29

154
0.1.9
13.5
82
21 7

69
06
41 4

16
06
.0108

2.20
06
13 20

39
06
234

h = !

assumed
h = 06

~~assumed~~
h = ~~0.06~~ 7

1 12.68
~~44~~
1 ~~13.12~~
1 13 11

+52 22

!

31m 34.0 56 24.0
36.2 22.0
40.7 25.0
43.8 27.8
45.8 30.0
48.0 34.5
36.8

28m 42.8 29.15 50.9
46.0 54.0
52.7 58.2
57.0 2.8
0.2 5.7
3.2 12.5
32.19 15.7
53.65 19.8
1.3372 2.83
0.2143 33.58
1.5515 29.25
35.60
29.25

17 29 29.25
17 28 16.56
4 1 12.69
2
12.67
~~12.66~~
1 12.65

+12 38

34m 20.9 5.2 25.6
24.0 28.4
30.4 32.8
34.6 37.0
37.5 39.7
40.2 46.0
49.2

140
31m ~~14.0~~ 15.9 42.97 56.4
20.1 58.3
22.8 1.0
24.8 4.0
26.7 5.8
1243 10.0
20.72 12.1
1.3372 27.6
0.0107 3.94
1.3479 21.01
22.28 42.93
43.00 1 12.63
1 ~~12.66~~

17 31 42.96
17 30 30.40
1 12.56
7 4
12.63 1 12.60
~~12.63~~

+72 12

44m 47s 45m 34.0
51.0 40.0
48.8
57.9
4.1
17.2
23.8
~~40~~
~~38 58~~
55.47
~~55.11~~
67.07
~~48.04~~
50.40

17 44 50.90
17 43 38.05
1 1 24.85
22
~~19~~
1 12.72

+37 16

53 35.9 11.8 28.2
38.6 30.7
43.8 33.9
47.0 37.5
49.5 39.8
51.8 44.9
2666 43.4
44.43 2624
~~7~~ 37.49
1.3372 25.76
0.0992 11.73
1.4364
27.32
11.75

17 53 11.74
17 52 59.07
1 12.97
02
1 1269 1 12.68

Frod 1327 is fast
1m 13s.11 ~~12~~
at 17h 40m

Fri Sept 16 1904

Mer C¼

M.F.M

settle after
20 45

+62 40
+14 16
+44 56
+33 37

25
06
,0130

,0054

+62 40

20h 28m 12.8 148 43.2
17.2 47.3
26.0 53.0
32.0 59.5
36.0 3.2
40.1 12.2
16.5
1641 4149
27.35 59.27
~~44.65~~ 44.65
1.3372 14.62
0.3380
1.6752
47.34
14.69

+14 16

33m 49.3 18.8 32.2
51.5 34.0
55.8 37.0
58.4 39.8
0.2 41.8
2.2 46.0
47.9
3374 2787
56.23 ~~46.45~~
1.3372 39.81
0.0136 21.15
1.3508 18.66
22.43
18.66

+44 56

38m 45.6 25.8 44.0
48.3 47.0
54.0 50.8
57.9 54.7
06 57.0
3.1 2.8
5.8
3295 3821
54.92 54.59
1.3372 28.96
0.1500 25.63
1.4872
30.70
25.62

+33 37

43m 1.5 35.65 51.4
4.0 53.8
8.8 56.8
12.0 0.2
14.1 2.3
16.4 7.2
9.8
568
9.47 1.5
1.3372 0.21
0.0795 24.62
1.4167 35.59
26.10
35.57

103
06
,0618

655
,06
,03930

14
54
68

13.15
+1.93 13.05
+0.25
1.68 ,1000 ,1008 1,06

20 29 14.65
20 28 1.50
1 13.15
06
~~1 13.14~~
1 13.09

20 34 18.66
20 33 5.61
1 13.05
04
1 13.09

20 39 25.63
20 38 12.48
1 13.15
1
1 13.14

20 43 35.58
20 42 22.48
1 13.10
01
1 13.11

1 13.14
1 13.11
1 13.12
44
1 13.56

Frod 1327 is fast
1m 13.56
at 20h 35m
Sid Time

Sat Sept 17, 1904

MFM

rattle before 20 4

+44 56
+33 37
+36 8
+27 42
+40 48

+44° 56'

39 26.1 44.7
47.2
51.0
55.0
57.6
3.~~4~~3
6.3
38 5 1
55.01
28.96
~~26.05~~
26.05

+33° 37'

43 1.9 36.0 51.9
4.4 54.1
9.0 57.3
12.4 0.7
14.8 2.8
17.0 7.8
59 5 10.2
9.92 4 8
26.10 0.69
36.02 24.62
36.07

+36° 8'

56 8 13.0
15.2
18.5
22.0
24.2
29.2
31.8
15 3 9
21.99
25.38
56.61

+40° 48'

54 14.8 52.35 9.8
17.4 12.1
22.8 15.8
26.4 19.2
28.9 21.7
31.1 27.0
141 4 29.8
23.57 135 4
1.3372 19.34
0.1209 27.08
1.4581 52.26
26.72
52.29

20 39 26.05
20 38 12.46
1 13.59

20 43 36.05
20 42 22.47
1 13.58

20 56.61
20 43 42.97
1 13.64

20 54 52.27
20 53 38.64
1 13.53

64 × 1 64
59 × 1 59
58 × 2 116
53 × 2 106
6 345
575

1 13.58
back 44
1 14 02

Frod 1327 is fast
1^m $14^s.02$
at 20^h 45^m
Sid Time

San Sept 18, 1904

m F M.
rattle after
20 30

+14 16?
+15 34
+44 56
+33 37

+15 34

35^m 57.8 27.8 41.0
0.0 43.0
4.0 45.8
7.0 48.8?
8.9 50.6
10.8 54.8
28.5 56.8
4.75 34.08
1.3372 48.69
00163 21.28
1.3535 27.41
2257
27.32

20 36 27.37
20 35 13.50
1 13.87
~~03~~
4
~~1 13.93~~ ~~1 13.90~~
1 13.96

n assumed
=.14
=.05
6
+

+44 56

38^m 46.2 26.35 45.0
49.1 47.8
54.9 51.4
58.8 55.2
58.0
1.2 3.8
4.0 6.6
33.42 38.78
55.70 55.40
30.70 28.96
~~00~~
26.40 26.44

20 39 26.42
20 38 12.44
1 13.98
~~00~~
~~00~~
01
1 13.97

+33 37

43^m 7.3 36.35 52.1
4.8 54.4
9.6 57.7
12.8 1.0
15.0 3.1
17.2 8.0
61.7 10.5
10.28 6.8
~~26.0~~ 0.97
26.10 24.62
36.38 36.35

20 43 36.36
20 42 22.45
1 13.91
4
+2
~~1 13.92~~
~~1 13.93~~
1 13.95

13.96
13.95
13.97
13.96
+ sec 4 44
1 14 40

Frod 13 27 is fast
1^m 14.40
at 20^h 40^m
Sid Time

Mon. Sept 19, 1904

Mercur Level, M. F. M. obs

Time of beginning $0^h\ 0^m$ E.S.M.T.

Telescope N.

W E

Zero W, ∓40.0 −75.8

−40.0 −75.8

mark 118

Zero E +85.7 +49.9

+84.9 +49.1

−80.0 −151.6

+170.6 +99.0

Telescope South

Zero W −36.5 −72.4

−37.3 −73.1

Time of ending $0^h\ 20^m$ E S M T

Zero E +84.7 +49.0

+84.0 +48.3

−73.8 −145.5

+168.7 +97.3

+339.3 −297.1

−153.8 +196.3

185.5

100.8 100.8

16) 84.7 (5.294

80

47

32

150

144

60

64

5.294

.06

.31764

135

158820

95292

31764

42881.40

b. sec φ = .43

West end high

Mon Sept 19, 1904

Ver cir, Collimation

M.F., In obs

S. coll. on N. coll

53.0
53.4
53.3
55.2
52.2

267.1
53.42 set at

Time of beginning
0h 25m
ESMT

R.A Micr found at 32.189

Telescope on S, coll	Telescope on N coll
32.424	31.924
32.322	.924
.394	.933
36.8	.931
.421	.930
.390	.922
.428	.948
.407	.933
.427	.940
.413	.936
32.3996	31.9321

Time of ending
0h 50m
ESMT.

32.3996
31.9321

64.3317
32.16585
012

R.A. Microm set at 32.178

Mon Sept 19, 1904

M F M

rattle in rattler
after 20 47

mer 6 in

+33 37
+36 8
+27 42
+40 48

+33 37

43 2.8 36.75 52.5
50
9.9
13.2
15.5
17.8
64.2
10.70
26.10
36.80

54.8
57.8
1.3
3.4
8.2
10.8
8.8
1.26
24.62
36.64

+36 8

44 57.8 13.8
16.2
19.2
22.5
24.8
30.0
32.4
15 8 9
22.70
25 3 8
57.32

+27 42

+40 48

54^m 15.7 530 104
18.2 12.9
23.4 16.4
27.0 20.0
29.7 22.5
31.8 27.8
30.6
1458 1406
24.30 20.09
28.72 23.43
5302 27.08
~~5035~~
5301

20 43 36.72
20 42 22.43
1 14.29
~~24~~
8
1 14.37
1 ~~14.33~~ 14.41

20 44 57.32
20 43 42.97
1 14.35
3
6
1 14.38

20 54 53.01
20 53 38.60
1 14.41
~~1~~
1
1 ~~14.42~~
1 14.42

~~x = .15~~
assumed
x = .30

14.37 × 2 74
14.41 × 1 41
14.42 × 2 84
199
1 14.40
6 sec 4 43
1 14.83

Frod 1327 is fast
~~[illegible]~~ 1^m 14.83^s
at 20^h 50^m
sid time

Wed Sept 21, 1904

M.F.M
rattle after
20 57

Mer 6½

+40 48

+38 17

−11 46

+29 50 noise 8 T² very faint (

+40 48		+38 17		−11 46	+29 50
20h 54m 16.6	53.8 11.1	21 3m 11.7	54.15 11.2	21h 5m 53.6	
19.0	138	134	134	55.2	
242	172	179	170	582	
279	21.2	20.8	207	10	
30.3	235	258	227	30	
33.0	287	292	279	69	
1510	314	315	30.2	90	
25.17	146.9	338	1431	6.9	
28.72	20.99	1590	20.44	0.77	
53.89	27.08	26.50	2613	20.94	
	53.91	1.3372	5431	39.83	
		0.1052	~~27~~		
		1.4424			
		27.70			
		54.20			

217
120
337
26

20 54 53.90
20 53 38.56
1 15.34
1
1 15.35

21 3 54.26
21 2 38.53 81
1 15.73
45
4
1 15.49

21 5 39.83
21 4 24.90
1 14.93 36
~~1 15.27~~
1 15.29

assumed
n = 33⅓

15.29
15.49
15.35
1.13
1 15.36
[illegible] 43
1 15.79

Frod 1327 is fast
1 in 15.^{5}79
at 21h 0m.
Sid Time

Mer Cir — Thurs Sept 22, 1904 — M F K

α Aquilae −1° 6'
o' Cygni +46° 27'
24 Vulpec. +24 22
EF [B Capri] −15 5

−1° 6'		+46 27		+24 22		−15 5	
10.9	39.7 52.8	13.3 54.8	13.8	27.8 59.0	13.2	26.0	55.65 9.0
13.0	54.2	16.7	16.7	29.9	15.3	28.1	11.0
17.1	57.0	22.0	20.2	34.2	18.1	32.5	13.8
19.7	59.8	26.0	24.2	37.2	21.2	35.1	16.6
21.8	1.7	28.8	27.0	39.2	23.0	37.0	18.4
23.7	5.8	31.7	32.8	41.2	27.5	39.0	22.8
1062	7.8	1381	35.8	2095	30.1	1977	25.0
17.70	4191	23.02	1705	34.92	1484	32.95	1166
1.3372	59.87	1.3372	24.36	1.3372	21.20	1.3372	16.66
0.0001	2051	0.1618	29.76	0.0405	2251	0.0153	21.23
1.3373	39.36	14990	54.60	1.3777	58.69	13525	55.43
21.74		31.55		2386		2252	
39.44		54.57		58.78		55.47	

483
468
951
93
73

20		39.40	20		54.59	20		58.73	20		55.45
20	6	23.73	20	10	39.04	20	12	43.15	20	15	39.98
	(1)	15.67		(1)	15.55		(1)	15.58		(1)	15.47
		6			01			02			7
		1573			15.54			15.60			15.54

1555
15.47
0.08
.06

+1.05
−.27
1.32
792

15.54
15.73
15.60
15.54
241
15.60
b sec φ 43
1 16.03

Frod 1327 is fast
1m 16s.03
at 20h 10m
Sid Time

Fri Sept 23, 1904

Mer. Cir.

M. F. M.

η Serpen. −2 55

109 Hercules +21 44

b Draco +58 45

−2 55			+21 44			+58 45		
10.0	38.5	51.6	23.3	54.0	8.2	52.5	47.25	12.7
12.0		53.5	256		10.2	56.3		16.2
16.0		56.2	29.9		13.0	42		21.3
18.8		59.0	328 9		16.0	95		268
208		6.9 50	34~~8~~		179	130		30.1
225		69	37.0		224	167		38.0
1001		413 1	18 ~~20~~3~~4~~5		247	322		42.0
16.68		59.01	0 58 3~~190~~		1124	53.7		1871
21.76		2053	2340		16.06	41.90		26.73
38.44		38.48	~~5730~~		22.07	47.27		39.52
			53.98		53.99			47.21

172
11
161
58
22

18		38.46	18		53.99	18		47.24
18	16	22.57	18	19	37.96	18	22	31.41
	(1)	15.89		(1)	16.03			15.83
					2			3
					~~1605~~			~~15.80~~

1589
16.03
15.83
4775
15.92
h sec φ 43
1m 16.s35

Fred 1327 is fast
1m 16.s35
at 18h 20m
Sid Time

Sun Sept ~~22~~ 25, 1904

Mer Cir

m FCr,

α Cygni + 44 56
ε Cygni + 33 37
λ Cygni + 36 8

+44 56		+33 37		+36 8
28.8	47.2	45	38.8 54.4	39.3 59.12 15.5
	~~50.0~~ 49.9	7.0	56.7	17.8
	53.6	11.8	59.8	21.0
	57.5	15.0	3.2	24.6
	0.1	17.2	5.5	~~26.8~~ 31.9
	5.9	19.5	10.4	34.4
	8.8	7 50	12.8	17 20
	40 30	12 50	22.8	24.57
	57.57	26.10	3.26	25.38
	28.96	~~46.40~~	24.62	59.19
	28.61	38.60	38.64	

28.61	38.62	59.19
20 38 12.24	20 42 22.31	20 43 42.76
(1) 16.37	(1) 16.31	(1) 16.43

37 × 1 37
31 × 2 62
43 × 1 43
111 142
37 355

1 16.36
prec'n 43
1 16.79

Frod 1327 is fast
1m 16.79s
at 20h 40m
Sid Time

Times Sept 27, 1904

M F Lu

+51 45
+49 47
−0 37

Level before
21 58

Level after
22 17

+51	45	+49	47	−0	37
20 22.0	29.0	27ᵐ 56.7	40.8 1.2	31 16.8	45.0 58.4
25.0	31.8	59.7	4.3	18.8	0.2
31.6	36.2	6.2	8.2	22.9	3.0
35.8	40.8	10.4	12.6	25.4	5.9
38.9	43.8	13.3	15.5	27.2	7.5
42.2	50.5	16.2	21.7	29.3	11.5
195.5	53.7		24.8		13.4
32.58	2858	42.5	883	1404	39.9
1.3372	40.83	7.08	12.61	23.40	5.70
0.2082	33.12	1.3372	31.76	1.3372	20.52
1.5454	~~14.51~~	0.1900	40.85	21.74	45.18
35.11	7.71	1.5272		45.14	
7.69		33.67			
		40.75			

595
450
1045

22 31 45.16
22 30 28.52
1 16.64
5
1ᵐ 16.73 ~~1 16.69~~

22 21 7.70
22 19 50.93
1 16.77
~~02~~
~~1 16.75~~

22 28 40.80
22 27 24.02
1 16.78
~~04~~
~~1 16.77~~

~~n assumed~~
= .05
assumed 1ᵐ 16.73 1ᵐ 16.75
n = .1

16.73
16.75
16.73
221
16.74
1 17.17

F Rod 1327 is fast
1ᵐ 17.17
at 22ʰ 25ᵐ
Sid Time.

Wed Sept 28, 1904

Mer. lin

[illegible]

rather after
20 47
(perhaps before also)

+36 8
+27 42
+40 47

+36 8

44m 59.7
supplied

16.0
18.0 ?
21.6
25.0
27.2
32.2
34.8

~~14 8~~8 14 0
28.86
1.3627
0.0928
1.4555
28.54
~~53.34~~
~~56.26~~
59.62

174.8
24.97
25.38
59.59

20 44 59.60
20 43 42.83
1 16.77

+27 42

51m 15.6 47.65

18.0
22.4
25.5
27.5
29.6
138.6
23.10
1.3372
0.0529
1.3901
24.56
47.66

25
4.6
7.6
10.8
13.0
38.5
7.70
1.2490
0.0529
1.3019
20.04
47.66

20 51 47.66
20 50 30.82
1 16.84

+40 47

54 55.25

12.6
15.0
18.7
22.4
24.8
30.1
32.8
156.4
22.34
27.08
55.26

20 54 55.26
20 53 38.45
1 16.81

1 16.77
1 16.84
1 16.81
242
1 16.81
+ acc 4.43
1 17.24

Frod 1327 is fast
1m 17.s24
at 20h 50m.
Sid Time

Fri Sept 30, 1904

Mer Cir

m F [illegible]
rattle after
17 34

+52 22
+12 38
+46 3
+4 36 mit T^2

+52 22		+12 38		+46 3		+4 36	
17 28 47.1	33.8 55.2	32^m T^2 1.1	31^m 18.6	37 22.6	3.55 22.4	40 3.0	16.1
50.5	58.3	3.0	47.8 20.7	25.5	25.2		18.0
57.1	~~2.8~~	5.8	24.8	31.2	29.0		20.7
1.6	2.8	8.8	27.5	35.3	33.0		23.5
4.6	7.3	10.5	29.4	38.0	35.8		25.3
7.7	10.2	14.8	31.3	40.6	41.5		29.4
	17.0	16.8			44.5		31.3
3486	20.2	608	1523	1932	2314		1643
58.10	51.0	8.69	25.38	32.20	33.06		23.47
35.60	7.43	~~22.28~~ 21.01	~~24.28~~ ~~21.01~~	31.32	29.54		20.57
33.70	33.58	47.68	~~4.37~~	3.52	3.52		2.90
	33.85		48.66				

λ = .194
1776 .194
55 .18
130 21
.22 ~~276~~ ~~108~~
108 102 ~~864~~
~~156~~ 972
480
595
420
1015
78

17 29 33.78	17 3~~2~~1 47.67	17 38 3.52	17 40 2.90
17 28 16.02	17 30 30.12	17 36 45.89	17 38 45.42
1 17.76	1 17.55	1 17.63	1 17.48
08 .09	13 .16	02 3	.16 .19
1 17.68 1 17.67	1 17.68 1 17.71	1 17.61 1 17.60	1 17.64 17.67

1 17.76
1 17.48
+1.30
+09
1.21

28 ~~λ = .23~~
242
36

1 17.68
17.61
17.68
17.64
201
.65

1 17.67
17.60
17.71
17.67
265
1 17.66

1 17.65
43
1 18.08
1 ~~17.66~~

Frod 1327 is fast
1^m $18^s.08$
at $17^h 35^m$
Sid Time.

148

Sat Oct 1, 1904

M F M
rather after
21 55

+48 52
+25 28
+5 44

+48 52

44ᵘ 53.2 56.2 2.3 36.4 56.6
6.7
9.2
12.2

198
3.30
1.3372
0 18.19
1.5191
33.05
36.35

59.5
3.4
7.8
10.5
16.6
19.5

539
7.70
31.17
36.53

+25 28

49 31.5 2.8 17.4
33.6
38.2
41.1
43.2
45.2

2328
38.80
1.3372
0.0444
1.3816
24.07
2.87

19.4
22.4
25.6
27.7
32.0
34.4

1789
25.56
22.71
2.85

+5 44

22 6ᵐ 14.2 42.8 56.0
16.2
20.2
23.0
24.8
26.8

1252
20.86
1.3372
0022
1.3344
21.85
42.71

57.8
06
3.1
5.0
9.2
11.2

229
3.27
20.69
42.58

21 44 36.44
21 43 18.~~54~~ 13
1 18.31
21
1 18.~~27~~
.27

21^h 50^m $2^s.86$
21 48 44.65
1 18.21
~~47~~
1 18.~~25~~
.28

22 6 42.64
22 5 24.46
1 18.18
~~8~~
11
1 18.~~26~~
29

n assumed
= .15

18.27
18.28
18.29
84
18.28
n .004 43
18.71

Frod 1327 is fast
1^m $18^s.71$

at 21^h 55^m
Sid Time

Sun Oct 2, 1904 MFK

Merlin

rather after 22 41

+23 4 wires T²
−16 20 latest of +1 wires T²
+41 49

+23 4

43 168 31.0
33.0
35.8
39.0
40.8
45.3
47.6

2725
38.93
22.28

16.65

−16 20
wires T¹ T²
57 ~~56~~ 55.4 50 28.0 57 9.0
32.1 11.1
35.0 13.8
37.0 16.8
38.8 18.8
23.0
25.1

1176
16.80
21.36

55.44

+41 49

58 14.8 53.0 10.6
17.5 13.1
23.0 16.7
26.6 20.5
29.2 23.0
31.7 26.4
31.1

1428
23.80
1.3372
0.1276

1.4648
29.16 52.96
~~54.64~~

1434
20.49
27.51

52.98
~~13.47~~
.57

22 43 16.65
22 41 57.66

1 18.99
~~.70~~
.05
.02
1 19.04

22 50 55.44
22 49 36.45

1 18.99
+.06

1 19.05

22 58 52.97
22 57 33.94

1 19.03
60

~~assumed~~
~~n = .2~~

assumed
n = 0.05

19.01
19.05
1903

19.03
43

19.46

Fred 1327 is fast
1m 19.46s
at 22h 50m
Sid Time

~~Thur~~ Tues. Oct 4, 1904

M.F.M.

Mer lin

zutte before
17 4

FE [ξ Herculis + 31 47]
η Ophi - −15 36
ξ Draco + 65 50

+31 47

38 27.0 0.36 15.8
29.2 18.0
34.1 21.2
37.3 24.7
39.7 26.5
41.6 31.4
2089 34.0
34.82 1716
~~43.65~~ 24.51
25.57 24.12
0.37 0.39

−15 36

6 13.8 27.3
29.3
32.0
35.0
37.0
41.0
43.1
244.7
34.96
21.28
13.68

+65 50

8 39.4 48.8 27.0
44.3 25.5
54.2 32.1
$5.9^{0.8}$ 38.8
*10.0 43.1
~~0~~ 53.3
3338 58.2
55.63 2720
1.3372 38.86
038.79 50.08
1.7251 48.78
53.10
48.7^3

1 19.77
19.65
1
227
.28
+2.5
.12 .048
100
200
200

16 38 0.36
16 37 40.68
1 19.75
1
1 19.76

17 6 13.68
17 4 54.04^3
1 19.64
.65
6
1 19.71

17 9 48.76
17 9 28.99
1 19.77
7
1 19.70

n = .05

$19.\overset{70}{\cancel{77}}$
19.76
146
19.73

19.73
43
2016

Frod 1327 is fast ~~0m~~ 1m 20.16s
at 17h 0m
Sid Time

Wed Oct 5, 1904

Mer Cir W.W.W. Obs.

ξ Cygni +28°49′ missed 1st wire

α Cephei +62°10′

ξ Capric −22°49′ missed 1st few wires

Rattle after 21h 24m.

Thurs Oct 6, 1904

Mer Corr

MJKr
rather after
22 16

+51 45
+49 47
−0 37

20.72
20.47
+1.27
−0.01
1.28
.25
.128
1.22
1152
680
640
.195

350
450
800
62

n = .2

~~assumed~~
~~n =~~ 1

+51 45

20 25.2 11.6 32.8
28.7
35.6
39.8
42.8
45.9
21 82
36.37
1.3372
0.20~~73~~ 82
1 54~~45~~ 54
35.~~03~~ 11
~~11.40~~
~~36~~.48 11

32.8
35.9
40.2
44.7
47.6
54.0
57.3
31 25
44.64
33.12
11.52

22 21 11.~~46~~ 50
22 19 50.78
1 20.~~66~~ 72
.08~~2~~ ~~7~~
1. 20 64

+49 47

28~~5~~ 4 0.5 450 4.8
4.0
10.2
14 4
17.~~2~~ 3
20.0
66~~8~~ 4 7
11.08
1.3372
0.1900
1 527 2
33.67
44.75

4.8
8.0
12.0
16.6
19.0
25.1
28.3
11 38
16.26
31.76
44.50

22 28 44.62
22 27 23.90
1 20.72
~~07~~
6
1 20.66

−0 37

31 ^m 20.4 ~~55.7~~ 48.9 2.1
22.5
2~~4~~ 6.5
29.2
31.4
32.9
16 ~~0~~ 2 9
~~27.62~~ 27.15
1.3372
21.74
~~48.66~~
48.89

2.1
4.0
6.8
9.4
11.2
15.3
17.4
66 2
9.46
20 50
48.96

22 31 48.93
22 30 28.46
1 20.47
18 ~~54~~
1 20.65

1 20.65
1 20.66
1 20.64
1 20.65
Lacu 4 43
1 21.08

Frod 1327 is fast
1 ^m 21.08 ^s
at 22 ^h 25 ^m
Sid Time

Fri October 7, 1904

M F M.

Mer 6½

rattle through

+72 41
+38 42
18 18

+20 27

+72 41

22h 31.6
38.3
52.2
1.6
7.9
14.0

32.56
54.27
1.3372
05263
18635
73.03
7.30

73 52.0
57.2
7.2
16.2
22.7
36.1
43.0

1144
16.34
68.51 84
~~7.83~~
7.45

1.3118
0.5263
.18381
68.89

+38 42

34m 26.8
29.2
34.5
38.0
40.4
42.8

2117
35.28
27.86
3.14

3.2 19.9
22.7
26.0
29.5
32.0
37.1
39.4

2066
29.51
26.27
3.24

+20 27

42 23.8
25.9
30.2
33.2
35.0
37.1

1852
30.87
23.19
54.06

5 40 8.1
10.2
12.9
16.0
17.8
22.2
24.5

1118
1.5.97
21.88
54.09

1 21.36
1 20.65
+3.21
+.37
2.84

.71 .25
568
1420
1420

18 2~~4~~ 7.38
18 22 46.02
1 21.36
.58
~~.77~~
+ ~~20.59~~
1 20.78

18 35 3.19
18 33 42.47
1 20.72
3
1 20.75

18 42 5~~4~~.08
18 41 33.43
1 20.65
13
1 20.78

n = .25

1m 20s.78
1 20s.75
1 20.7~~6~~
43
1 21.20

Frod 1327 is fast
1m 21s.20
at 18h 30m
Sid Time

Mon Oct 10, 1904

Mer 6 in M.F.M.

σ Sagit. − 26 25
R Lyrae + 43 49 T^2
γ Lyrae + 32 33
ξ Aquilae + 13 43

~~+13~~ 43
+32 33

10.0 43.75 59.2
12.5 16
17.2 48
20.4 80
22.8 10.1
24.9 15.0
1078 17.4
17.83 561
25.78 8.01
43.61 24.32
43.69

43.65
~~18 49 21.03~~
~~(1) 22.62~~
18 55 22.61
(1) 21.04
07
21.11

− 26 25

10.0 42.0 56.5
12.5 58.6
17.0 1.7
19.8 4.7
22.0 6.8
24.1 11.3
1054 13.7
~~15.01~~ 333
17.57 13372 4.76~~90~~
0.0478 22.~~64~~ ~~90~~
~~24.01~~ ~~7.40~~
41.58 13850 42.14
2427 ~~22.90~~
41.84 ~~19.24~~
41.86

4185
18 49 2703
(1) 2082
35
(1) 21.17

+43 49

5.3
8.0
11.8?
15.6
18.0
23.8
26.7
1092
15.60
28.42
47.18

47.18
18 52 26.02
(1) 21.18
1
(1) 21.17

+13 43
~~+32~~ 3

53.4 22.8 36.2
55.6 38.1
59.7 40.8
2.3 43.8
4.4 45.6
6.2 49.8
1.6 52.0
0.27 3063
22.38 43.76
22.65 21.10
22.66

22.66
19 0 61.65
(1) 21.01
17
(1) 21.18

+1.6
+
+1.

21.17
21.17
21.18
21.11
63
21.16
43
(1) 21.59

Frod 1327 is fast
1m 21.59s
at 18h 55m
Sid Time.

Thurs Oct 13 1904

m J M

Mer b i

rattle after 23 58

−15 5 wire 8 late
+67 16 latest 3 best of T²
+6 20
+28 34
+58 37 T²

+67 16
43^m 33.0
38.3
49.5
55.8
1.0
5.8
30 34
50.57
1.3372
0.4129
1.7501
56.24
46.81
23 44 ~~56.23~~ 46.80
23 43 25.12
~~1 21.18~~
1 21.51
29
~~1 21.22~~
1 21.39

25.4
32.2
39.7
45.0
55.1
0.7
258
43.08
1.3370
0.4129
1.7499
56.22
~~46.46~~
46.80

1588
1.5360
1.4100
4124
18229
6651
47.09

+6 20
55^m 18.9
20.8
25.1
27.8
29.5
31.3
534
25.57
1.3372
0.0026
1.3398
2187
47.44
23 55 47.40
23 54 26.15
1 21.25
16
1 21.41

47.70.6
2.2
5.2
8.0
10.0
14.0
16.0
560
8.00
20.63
47.37

+28 34
$0^h 4^m$ ~~18.2~~ 18.2
20.3
25.1
28.0
30.2
32.5
1543
25.72
1.3372
0.0564
1.3936
2475
50.47
0 4 50.51
0 3 29.15
1 21.36
7
1 21 43

50.9 5.5
7.7
10.8
13.8
16.0
20.5
22.9
972
13.89
23.34
50.55

+58 37
5^m 55.2
58.8
3.8
9.2
12.8
20.8
24.5
651
9.30
39.38
29.92
0 5 29.92
0 4 8.37
1 21.55
15
1 21.40

1^m 21^s55
1^m 21^s.25
+1.64
+.11
+1.53
.30
.153
147
1377
930
918
12
.196

n = .2

1^m 21^s.41
21.43
21.40
21.34
1.63

1 21.41
43
1 21 84

Frod 1327 is fast
1^m 21^s.84
at 23^h 55^m.
sid Time

Saturday, October 15, 1904

Mer. Circle:- J.A.D. Obsr

θ Lyrae	+37°58	last tally only
κ Cygni	+53°11	last tally only
β Cygni	+27°45	1st & 2nd tally

Last min 19^h 35

Sunday Oct 16 1904   M F M.

Mer Lag

δ Lyrae +37 58
+53 11
τ Draco +73 11
+2 55

+37 58
49.1 25.15 41.8
51.7 44.2
57.0 47.7
0.3 51.2
2.6 53.5
5.0 58.6
34 57 1.2
57.62 3582
27.57 51.17
25.19 26.01
25.18

8.2
2.05
.0615
.047
.0145

+53 11
318 15.8 37.8
385 40.8
430 45.3
46.1 50.0
49.1 53.0
59.8
3.2
3499
49.99
34.22
15.77

+73 11
45.65 31.7
37.6
47.0
56.8
3.0
17.0
23.9
3970
56.71
70.87
45.84

+2 55
34.5 29 16.0
36.5 17.9
40.4 20.5
43.1 23.4
45.0 25.2
46.8 29.2
2463 31.2
41.05 1634
21.76 23.34
2.81 20.53
2.81

25.18
19 13 3.54
(1) 21.64
~~00~~
04
21.68

15.77
19 14 54.04
(1) 21.73
.12
1 21.61

45.84
57
19 17 ~~23.76~~
(1) ~~23.06~~
22.27
66
1 21.61

2.81
19 20 41.44
(1) 21.37
24
1 21.61

22.27
~~2308~~
1 21.37
331 ~~1.71~~
0.05
3.26
(.276
.90
.652
2480
2282
1980
1956
24

21.61
21.68
21.61
21.61
251
21.63
Lacc 6 43
(1) 22.06

n = .276

Frod 1327 is fast
1m 22s.06
at 19h 15m
Sid time

Monday Oct 17, 1904
Mer. Circle
J A D obs
o' seq. Cygni +46'27 Last of Tuely 2
γ Cygni +39'57' Fullers 1 & 2 : missed 1st wire

Last min $20^h 22$

	+46 27		+39 57
12	25.5	20	27.5
	29.5		30.0
	32.0		33.4
	38.0		37.0
	41.0		39.2
	1660		44.9
	33.20		47.5
	1.3627		2595
	0.1618		37.07
	1.5245		26.74
	3346		10.33
	59.74		

20	11	59.74	20	20	10.33
20	10	38.36	20	18	48.94
	1	21.38		1	21.39

1 21.38
43
$1^m 21.^s81$

Frod 1327 is fast
$1^m 21.^s81$
at $20^h 15^m$
Sid Time

Tues Oct 18, 1904

M.F.M obs

(rattle after? 1825)

β Cygni +27 45 (vizey obs)
δ Cygni +50 0
δ? Aquilae −1 6
starpole. +46 27

rattle before 2010

β Cygni
+27 45

19 27 42.0 14 28.8
44.4 31.1
48.8 34.2
51.8 37.2
54.0 39.3
56.2 44.1
297.2 46.5
49.53 261.2
1.3372 37.31
0.0531 23.17
1.3903 14.14
24.57
14.10

22.28
21.51
.69 .64
6.42
4.80
4.28
52

+1.05
−.02
1.07

21.20
+1.05 21.51
−.62 .289
1.07
31
214
960
856
104
963
77

19 28 14.12
19 ~~27~~ ~~18.27~~
26 ~~52.61~~
~~55.85~~

1 21.51
~~11~~ 10

1 ~~21.40~~

1 ~~21.76~~

~~λ = .29~~

λ = .64

assumed
n = .25

1 21.61
21.67
1 21.64
43
1 22.07

δ Cygni
+50 0

1 21.61
1 21.67
1 21.64
43
1 22.07

δ Aquilae
−1 6

20 7 16.2 44.8 58.0
18.4 59.8
22.4 2.4
25.2 5.2
27.2 7.0
28.9 11.0
138.3 13.2
23.05 36.6
1.3372 5.23
0.0001 20.51
1.3373 44.72
21.74
44.79

20 7 44.75
20 6 23.31
1 21.44
23
1 21.67

+46 27

20 10 59.2 40.6 59.8
2.2 2.5
8.1 6.0
12.0 10.2
14.8 13.0
17.5 18.8
53.8 21.8
8.97 ~~7.30~~ ~~7.21~~
1.3372 ~~2.40~~
0.1618 ~~9.61~~
1.4990 ~~13.8~~
31.55 ~~13.73~~
~~38.85~~ 10.30
40.52 29.76
40.54

20 11 40.53
20 10 38.33
1 02.20
9
1 ~~21.16~~

F rod 1327 is just
= 1m 22.07s
at 19h 45m
sid time

160

~~Wed~~ Thurs Oct 20, 1904

Mr Chr

m F M

rather after

20 10

F [illegible]

-1 6
+46 27
-12 48
+39 57

-1° 6'		+46 27		-12 48	+39 57	
7 16.2 44.7	57.8	11 18.7 0.0	19.0	14 7.2	19 33.3 10.6	27.7
18.2	59.7	21.7	21.8	20.9	36.0	30.0
22.4	25	27.4	25.8	22.8	41.3	33.7
25.0	5.2	31.4	29.8	25.6	44.9	37.2
26.9	6.9	34.0	32.3	28.3	47.4	39.6
28.8	11.0	36.9	38.2	30.2	49.8	45.0
137.5	13.1	170.1	41.2	34.4	252.7	47.7
22.92	36.2	28.35	208.1	36.4	42.12	260.9
21.74	5.17	31.55	29.73	~~205.6~~ 19 8	28.35	37.27
44.66	20.51	59.90	29.76	~~29.40~~	10.47	26.74
	24.66		59.97	28.37		10.53
				21.02		
				7.35		

20 7 44.66
20 6 23.27
1 21.39
36
1 21.69

20 ~~17~~ 11 59.94
20 10 38.27
1 21.67
04
1 21.63

20 14 7.35
20 ~~15~~ 12 46.09
1 21.26
36
1 21.62

20 20 10.50
20 18 48.87
1 21.63
2
1 21.65

1m 21.67
1m 21s.26
0.41
384
260
256
40

+105
23
1.28

320

62
69
65
63
259
65

n = 32

1 21.69
1 21.62
1 21.65
1.96

1 21.65
43
1 22.08

Frod 1327 is fast
1m 22s.08
at 20h 10m
Sid. Time

Fri Oct 21, 1904

M F M
rattle before
23 59

α Androm +28 34
* [22 Androm] +45 32
+14 39

α Androm
+28 34

4 18.4 50.8 58
20.8 80
25.3 11.0
28.5 14.1
30.5 16.0
32.4 20.8
1564 23.2
26.07 989
24.75 14.13
50.84 23.34
50.79

0 4 50.81
0 3 29.12
1 21.69
06
~~1 21.80~~
1 21.75

[22 Androm]
+45 32.

6 5.2 45 64.8
8.2 7.1
14.0 11.0
17.8 15.0
20.4 17.7
23.2 23.6
888 26.2
14.80 1054
1.3372 15.06
0.1546 29.27
1.4918 45.79
31.03
45.83

0 6 45.81
0 5 24.06
1 21.75
.02
1 21.73

+14 39

9 13.2 42.8 56.1
15.2 58.0
19.4 08
22.2 3.7
24.1 5.4
26.2 9.8
1203 12.0
20.05 25.8
1.3372 3.69
0.0144 21.18
1.3516 42.51
22.47
42.52

0 9 42.51
0 8 20.90
1 21.61
~~11~~ 11
~~1 21.82~~
1 21.71

assumed
~~n = .32~~
n = .16

1 21.71
1 21.75
1 21.73
2.19
$1^m 21.73^s$
43
1 22.16

Frod 1327 is fast
1m 22.16 ~~21.73~~
at $0^h 5^m$
Sid. Time

Sat Oct 22 1904

W. W. W. Obs.

Aner Cir

Rattle before 19h 25(?)m

ι Cygni +51°31′

δ Cygni +44°53′

α Aquilae +8°36′

+51°31′		+44°53′		8°36′	
28 54.8	1.3	43m 50.1	218 40.6	48m 1.0	43.1
57.9	4.5	56.8	43.0	3.0	44.9
4.7	8.7	41.85	46.8	7.0	47.6
11.8	13.3	44.5	50.7	9.7	52.3
14.8	16.4	54.1	51.4	11.6	56.4
9.0	22.7	59.65	59.1	13.4	58.5
	25.9		62.1		50.5
330	928	306.94	3537	457	3533
5.50	13.26	51.15	~~58.9~~	7.62	50.47
34.943	32.95	30.689	50.53	21.99	20.74
40.443	40.31	21.83	28.94	29.61	29.73
			21.59		

498
413
911
70

19h	28m	40.37	19h	43m	21.70	19h	47m	29.67
19	27	18.18	19	41	59.88	19	46	7.94
	1	$\overset{2}{\cancel{1}}$2.18		1m	$\overset{2}{\cancel{1}}$1.82		1	$\overset{2}{\cancel{1}}$1.73
		.14			.04		–	.31
	1	$\overset{2}{\cancel{1}}$2.05		1	~~11.77~~		1	+2.04
				~~1~~	~~11.80~~			2
				1	$\overset{2}{\cancel{1}}$1.78			

1.258
.151
1.107

12.19
11.72
) ~~.48~~ (.41
.46

1 $\overset{2}{\cancel{1}}$2.05
$\overset{2}{\cancel{1}}$1.79
$\overset{2}{\cancel{1}}$2.04
6 35.88
2 1.96
43 bsec
2 12.39

Frod. 1327 is fast
1(?)m $\overset{2}{\cancel{1}}\overset{3}{2}$.39 at 19h 46m
Sid T.

Mon Oct 24, 1904

M. F. M
rattle before
19 31

+53 11 T^2
+2 55 wires T^2
+27 45
+50 0

+53 11
16 37.8
41.1
45.3
49.9
53.0
59.8
3.0
3499
49.99
34 22
15.77

13) 96
7

19 16 15.77
19 14 53.76
1 22.01
.10
1 21.91

n assumed
= .25

+2 55
22 31 16.1
18.0
20.7
23.7
25.4
29.4
31.6
~~13 5 5~~
1 6 4 9
~~19.36~~
23 56
20.53
3.03

19 22 3.03
19 20 41.30
1 21.73
27
1 21.94

+27 45
27 42.2 14 8 29.2
44.3 31.4
49.0 34.4
52.2 37.6
54.3 39.6
56.2 44.2
29 8 2 46 8
49.70 26 3 2
24.57 37.60
1 4.27 23.17
1 4.43

19 28 14 36
19 26 52 48
1 21.88
10
1 21.98

+50 0
34 30.8 15.3 35.3
34.1 38.1
40.6 42.8
47.0
44.8 50.0
56.2
47.8 59.4
50.4
24 8 5 32 8 8
41.42 46.97
33.82 31.89
15.24 15.08

19 35 15.15
19 33 53.07
1 22.08
7
1 22.01

21.91 × 1 91
22.01 × 2 202
21.98 × 2 196
21.94 × 1 94
7.84 583
21.96 21.97
43
1 22.30

Trod 1327 is fast
1m 22s.30
at 19h 25m
sid time

Tues Oct 25, 1904

M F M

rather before
19 39

Mr Lois

Cygni +50 0
+44 54
+8 37
+6 10

+50 0

34 31.0 15.1 35.5
34.0 38.3
40.3 42.5
46.8
44.6 49.8
47.1 56.2
50.0 59.3

2470 3284
41.17 46.91
33.82 31.89
14.99 15.01

+44 54

42 41.3 21.8 40.1
44.3 42.8
50.1 46.5
54.0 50.5
56.6 53.0
59.0 56.8

3053
50.88
30.69
21.57

1.8
3735
50.50
28.95
21,55

+8 37

47 0.8
2.8
6.8
104
3.47
1.4102
0.0049
1,4151
2601
29.48

428
446
47.2
50.0
51.9
560
58.1
3506
50.09
20.74
29.35

+6 10

57 30.5 59.2 12.6
32.8 14.4
36.8 17.0
39.5 19.9
41.3 21.7
43.2 25.8
2241 27.9
37.35 1393
21.86 19.90
59.21 20.62
59.28

245
144
389

.58
725
.05075
0.36
147 5

19 35 15.00
19 33 53.04
1 21.96
9
13
~~1 21,87~~
1 21,83

19 43 21.56
19 41 59.75
1 21,81
3
4
~~1 21,78~~
1 21.77

19 47 29.39
19 46 7.87
1 21.52
35
14
26
~~1 21.71~~
.77
1 21.87

19 51 59.25
19 50 37.79
1 21.46
37
33
~~1 21.73~~
1 21,83

assumed
~~n = .33~~ 1/3

+1.19 21.96
+0.11 21.46
1.08 .50
.432
680
648
320

.46

n = .46

.83
.77
.87
.83
33 0
1 21,82
43
1 22,25

n = .4
85
77
82
78
322
81

21.82
19
22.01

Frod 1327 is fast
1m 22.25s
at 19h 40m
Sid Time

Wed Oct 26, 1904

ζ Pegasi +10 20 T' partly missing
η " +29 43
+23 4
−14 6

427
456
883
68

+10 20

4.65 18.2
20.0
22.8
25.6
27.5
31.4
33.8
1793
25.61
2084
4.77

4.77
22 36 43.34
(1) 21,43
34
(1) 21,77

+29 43

22.0
24.4
29.0
32.2
34.3
36.5
1784
29.73
1.3372
00613
1,3985
2503
54.76

54.8 9.8
12.0
15.0
18.2
20.3
25.0
27.2
1275
18 ~~50~~ 21
23.60
54.61

54,68
22 38 33.16
(1) 21,52
.16
(1) 21,68

+23 4

48.1 18.9 33.2
50.2
54.8
57.7
59.7
1.8
3323
55.38
13372
0.0362
1,3734
2362
19.00

35.2
38.1
41.1
43.2
47.4
49.9
7.9
2881
41,16
22.28
~~3,44~~
18.88

18.94
22 41 57.42
(1) 21,52 3
~~24~~
(1) 21,7~~8~~ 5

−14 6

25.3 54.75
27.2
31.7
34.5
36.5
38.2
1934
32.23
1.3372
0.0133
1,3505
2242
54.65

8.2
10.1
12.8
15.8
17.8
22.0
24.0
11 07
15.81
21.13
54.68

54.67
33.44
22 44 ~~27.70~~
~~6.97~~
1 21.23
53
1 21.76

η assumed
.46

21.7~~4~~ 5
21.77
21.76
21.68
~~5~~ 6
2,9~~7~~
~~21.69~~
21.74
43
22.17

21.74
19
21.93

Frod 1327 is fast
1m 22.17s
at 22h 40m
Sid Time

Thurs Oct 27, 1904

Level

M. F. M.

$0^h\ 0^m$
ESMT

Telescope north W E

mark 118

Zero E +79.8 ~~79.9~~ +46.0 ~~47.0~~ 33.8 ~~33.9~~

Zero E +81.7 +47.8 33.9

+161.5 +93.8

Zero W −41.4 −75.1 33.7

Zero W −39.9 −73.4 33.5

−81.3 −148.5

$0^h\ 25^m$
ESMT
time of ending

Telescope South

Zero W 41.4 −74.8 33.4

Zero W 42.7 −75.8 33.1

−84.1 −150.6

Zero E +79.2 +46.1 33.1

Zero E +78.2 +45.1 33.1

+157.4 +91.2

+318.9 +185.0

−165.4 −299.1

+153.5 114.1

−114.1

16) 39.4

2.4625

.06

.137750

135

68875

41325

13775

.1859625

$h \sec\varphi = .19$
west end high

Thurs, Oct 27, 1904

(See Microscope Book 17
Page 160)

Mrs. Dunne obs.

str foll. 8 Cygni
+46 7

27 47.3
50.2
54 0
57.9
06
6.5
9.4
40 59
~~59.27~~
57.99
~~24.58~~
28.41
28.41
21 25 6.11
(1) 22.30 6
~~72~~
(1) 22.~~18~~
24

assumed
n = 46

74 Cygni
+39 5

34 47.6
49.9
53 3
57 0
59.2
4 8
7.3
399.1
57.01
26 40
20.61
20.61
~~5~~7.01
21 33 8.58
~~48.43~~
(1) 22.0 3
5
22.08

22.18 × 1 18
22.08 × 2 16
3) 34
22.11 2211
43 19
22.54 22.30

high

Fri Oct 28, 1904

0h 0m ES.M.T. Time of beginning

Level M, I M

Telescope N W E

Zero W −42.0 −75.8 (33.8

Zero W −42.6 −76.4 33.8)

−84.6 −152.2

Zero E +77.7 +43.8 (33.9

mark 118

Zero E +78.9 +45.0 33.9)

+156.6 +86.8

0h 30m E.S.M.T. Time of ending

Telescope S

7

Zero W −42.2 −45.2 33.0

Zero W −41.1 −74.2 33.1

−83.3 −149.4

1.10625
.06
.0663750
135

331875
199125
66375

.0896062.5

Zero E +77.4 +44.3 33.1

Zero E +76.6 +43.5 33.1

+154.0 +87.8

b sec φ = .09

+310.6 −301.6
−167.9 +176.6

142.7 −125.0

West end high

125.0

16) 17.7

1.10625

Friday, October 28, 1904

o' seq. Cygni +46°27 Ind tally all
24 Vulpec. +24°22
~~χ Cygni +39°57~~

J A D obsr

Relay out of order
Rattle after 20h 22m

+46 27

12 19.0
21.7
25.4
29.4
32.0
38.0
41.0
2065
29.50
29.76
59.74

20 11 59.74
n assumed 20 10 38.03
~~46~~ 1 21.71 ~~6~~ 3
assumed 1 ~~21.65~~
n = 25 1 21.68

+24 22

3m 32.8 18.5
35.0 20.6
39.5 23.3
42.5 26.5
44.5 28.4
46.6 33.0 ?
35.2
2409 1855
~~40.22~~ 26.50
40.15 22.51
23.86 3.99
4.01

20 14 4.00
20 12 42.45
1 21.55
12
~~21~~
~~1 21.76~~
1 21.67

21.68
21.67
21.68
sec 4 19
1 21.87

Frod 1327 is fast
1m 21.87
at 20h 15m
Sid Time

Sat Oct 29, 1904

Mer Cir. W. W. W. Obs.

Rattle after 1h 04m

υ Piscium +26°45 missed 1st 2, 2nd set.

δ Cassiop. +59°44′

η Pisc. +14°51

(Bothered by red light in field)

miscell taps on Jupiter & set.

+17′ 22.33
+27 21.75
1.44 .58 .40
.576
40

762
1270
2434
37.04

175
90
265
20

34
8
3)42
14

+26°45′

10 15 5.4 37.3
7.3
~~10.2~~
12.0
15.0
17.3
~~19.2~~
67.2
~~71.4~~
~~11.90~~
~~11.90~~
11.20
1.3372
0.0492
1.3864
~~24.34~~
~~36.24~~
~~35.54~~
37.04

57.0
0.1
2.1
6.7
9.0
14.9
2.98
1.3627
0.0492
1.4119
25.81
37.17

+59 44

20m 3.7 0.4 26.4
7.8
16.0
21.1
24.9
28.7
1022
17.03
1.3372
0.2975
1.6347
43.12
0.15

30.1
33.3
41.0
44.6
52.7
56.2
28 63
40.90
40.65
~~0.54~~
0.25
3

+14 51

27 16.8 46.2 59.8
18.8
~~20.9~~
22.9
25.8
27.9
29.7
1419
23.65
1.3372
0.0148
1.3520
22.49
46.14

1.8
4.5
7.1
9.2
13.2
15.3
509
7.27
21.20
46.07

~~n=25~~

~~n=3.50~~

n = .4

1 15 37.14
1 14 15.21
1 21.93
10 16
~~22.03~~
~~1 22.13~~
1 22.09

22.01
22.09
22.05
14
1 22.24

1 21 0.20
1 19 37.87
1 22.33
20 40 32
~~1 22.53~~
~~1 21.93~~
1 22.01
5

1 27m 46.10
1 26 24.35
1 21.75
16 26
~~1 21.91~~
~~1 22.07~~
1 22.01

(Find 1327 is fast
1m 22s.24
at 1h 20m Sid Time

Sun Oct 30, 1904

Mer obs

+2 45
+23 13
+22 53
+0 44
+12 14

M. F. K.
rattle after
23 19

+2 45

13ᵐ 7.7 36.0 49.2
9.8 51.2
13.8 54.0
16.4 56.8
18.2 58.3
20.0 2.4
85.9 4.4
14.32 396.3
1.3372 56.61
0.0005 20.52
1.3377 36.09
21.76
36.08

+23 13

1647.2 18.1 32.4
49.5 34.2
53.9 37.6
56.8 40.2
58.9 42.6
0.9 46.9
327.2 49.3
54.53 283.2
1.3372 40.46
0.0366 22.30
1.3738 18.16
2364
18.17

+22 53

21ᵐ 29.5 0.2 14.3
31.5 16.6
36.0 19.2
39.0
41.0 22.7
42.9 24.7
2199 29.0
36.65 31.2
1.3372 157.7
0.0356 22.53
1.3728 22.26
2359 0.27
0.24

+0 44

23 25.5 38.7
40.7
43.1
46.0
47.8
51.8
53.9
322.0
46.00
20.50
25.50

+12 14
~~+12 14~~

25ᵐ 13.8 42.8 56.2
15.8 58.0
20.0 1.0
22.8 3.8
24.8 5.8
26.5 9.8
123.7 11.8
20.62 26.4
3.77
1.3372 20.97
0.0100 42.80
1.3472
23.24
42.86

+12 14
23 25 42.83
23 24 21.07
1 21.76
~~23~~
28
1 ~~21.99~~
22.04

23 13 36.09
23 12 14.38
1 21.71
~~25~~
35
1 ~~21.96~~
22.06

23 17 18.16
23 15 56.29
1 21.87
~~16~~
20
1 ~~22.03~~
22.07

23 22 0.26
38.50
(1) 21.76
~~17~~
20
1 ~~21.93~~
96

23 23 25.50
23 22 3.70
1 21.80
~~30~~
36
1 22.~~10~~
.16

assumed
n = 33 1/3
22.10
21.96
21.99
21.93
22.03

assumed
n = 4

22.16
22.06
22.04
21.96
22.07
0.29
22.06

22.06
19
22.25

Frod 1327 is fast
1ᵐ 22.ˢ25
at 23ʰ 20ᵐ
Sid Time

Mon Oct 3, 1904

~~Net~~
Level

M it M obz

$0^h 15^m$
ESMT

Telescope north ~~W~~ E

~~Zero W 369 70.9~~
W −37.6 +72.6
W −38.4 +73.4

0 40
ESMT

Zero E +81.8 +46.8
E +78.9 +44.0

−76.0 −146.0
+160.7 +90.8

Telescopes

Zero W −41.0 −75.2
Zero W −40.7 −75.0

−81.7 −150.2

Zero E + 44.7 +79.1
Zero E + 44.9 +79.4

+89.6 +158.5

−157.7 −296.2
+250.3 +249.3

+92.6 46.9
−46.9
~~3~~16) +45.7
2.85625
06
.17.13750

.171375
135
856875
514125
171375
2.3135625

b sec φ = 2.3
westend hub

Mon Oct 31 1904

Mer Ca 4

M F M
rattle before
21 15

+29 50 T^2
+37 38
+62 11
−22 50

22.15
+190 21.63
−.42 .52
2.32 .464
560
464
960
928
32

.224

+29 50

10m 30.2
32.2
35.4
38.7
40.8
45.4
47.7
27.04
38.63
23.63
15.00

h = .224

+37 38

11m 45.7
48.0
53.5
56.8
59.0
1.5
32.45
54.08
1.3372
0.1013
1.4385
27.45
21.53

21.4 ~~38.1~~
43.8
47.6
49.8
54.8
57.5
25.35
50.70
1.3627
0.1013
1.4630
29.04
21.66

+62 11

16 40.8
45.0
54.0
59.8
3.8
7.5
33.09
55.15
1.3372
0.3310
1.6682
46.58
41.73

41.8 10.4
14.2
19.9
25.7
29.2
38.6
42.8
18.08
25.83
43.94
41.87

−22 50

22 4.5
6.7
11.1
14.0
16.0
18.0
7.03
11.72
1.3372
0.0354
1.3726
2358
35.30

35.4 49.5
51.2
54.4
57.4
59.5
4.0
5.9
40.19
57.41
~~21.44~~ 22.25
~~35.47~~
35.16

21 10 15.00
21 8 53.26
1 21.74
~~22~~
08
1 21.82
.655

21 12 21.60
21 10 59.80
21.80
~~09~~
.03
21.83
1

21 17 41.80
21 16 19.65
1 22.15
.22
~~65~~
1 21.93

21 22 35.39
21 21 13.76
1 21.63
~~88~~
30
1 21.93

22.15
21.63
+190 1.52
−42 1.392
+2.32
1280
1160
1.20
1.160
40

1m 21s.83
t racy .23
1 22.06

Ford 1327 is fast
1m 22s.06
at 21h 15m
Sid Time

~~h~~
~~h = .66~~ .63
.19
.02

1 21.83
19
1 22 02

Tues Nov. 1, 1904

Mer. Cir. 20. 20. 20. Obs.

Rattle before 22^h 13^m

γ Aquarii −1° 52′

7 Lacertae +49° 47′

−1 52

17^m 38.0 62 19.2
39.7 21.3
43.8
46.6 24.0
26.7
48.4 28.3
50.4 32.8
34.6

266.9 186.9
44.48 26.70
1.3372 20.51
0.0002 6.19
1
1.3374
21.75
6.23

+49 47

28 1.4 45.25 5.9
4.5 ~~55.0~~ 8.6
10.8 12.9
14.9
17.8 17.0
20.8 20.0
~~26.3~~ 26.3
29.4
70.2
11.70 120.1
1.3372 17.16
0.1900 31.76
1.5272 45.40
33.67
45.37

22 18 6.21
22 16 44.57

1 21.64
~~19~~ 21

1 21.~~83~~
85

22 28 45.39
22 27 23.47

1 21.96 2
~~6~~

1 21.~~87~~
86

assumed
n = 224

1 21.86
23
1 22.09

Frod 1327 is fast
1^m $22^s.09$
at $22^h 25^m$
Sid Time

Wed Nov 2, 1904

M F M
settle before
20 55

Mer Cir

+38 17
−11 46 wires T²
~~+29 40~~
A F [+37 38 T²
+62 11 r' slightly irreg.

17.2
11
16.1
25
19

	+38 17		−11 46	+37 38	+62 11	
21	3ᵐ 23.9 59.75	17.0	5 46.1 59.3	12 38.2	16 40.8 41.6	9.8
	26.2	19.0	1.3	40.7	45.2	14.3
	31.3	22.4	4.0	43.8	53.9	19.8
	34.8	26.0	6.8	47.4	59.3	26.0
	37.0	28.2	8.7	49.9	3.6	29.4
	39.6	33.4	12.8	54.8	7.8	38.4
		35.9	15.0	57.2		42.8
595	19 28		4 79		33 06	
408	32.13	18 1 9	6.84	33 20	55.10	18 05
1003	27.70	25.99	20.94	47.43	46.58	25.79
77	59.83	26.13	45.90	25.88	41.68	43.94
		59.86		21.55		41.85

21	3	59.85	21 5	45.90	21	12	21.55	21	17	41.77
21	2	37.95	21 4	24.29	21	10	59.74	21	16	19.57
	1	21.90	1	21.61		1	21.81		−1	22.20
		04		31			.04			27
	1	21 94	1	21.92		1	21.85		1	21.93

+.190 22.20
−.21 21.61
2.11 59 .279
4 2²
1670
1477
193
1899
31

n = 28

1 21.92
1 21.94
1 21.93
1 21.93²
pauly 23
1 22.1~~6~~ 5

92 × 1 92
85 × 1 85
94 × 2 188
93 × 2 186
364 551
91 92

Frod 1327 is fast
1ᵐ 22.1~~6~~ˢ
at 21ʰ 10ᵐ
Sid Time.

Thurs Nov 3, 1904

Mer Circ

M T M
rattle before
21 37

−6 0
+39 59 missed wire 1
+9 26
+48 52

−6° 0′		+39° 59′	+9° 26′		+48° 52′	
27 25.8	49.2 78	34m 30.4 47.4	40m 23.6	5.5	43 56.2	39 55 59.6
27.8	9.6	50.1	25.7	7.6	59.3	2.4
32.0	12.2	(53.6)	29.8	10.1 13.1	5.4	6.2
34.7	15.0	57.2	32.4	15.0	9.8	10.7
36.4	16.8	59.4	34.3	19.1	12.4	13.2
38.4	21.0	5.0	36.2	21.1	15.3	19.8
	23.0	7.5				22.7
1951	1054	4002	1820	915	384	746
32.52	15.06	57.17	30.33	13.07	6.40	1.066
1.3372	20.67	26.76	1.3372	20.78	33.05	31.17
0.0024	54.39	30.41	.0059	52.29	39.45	39.49
1.3396			1.3431			
21.86			22.04			
54.38			52.37			

+114 22.14
−.11 21.66 .38
1.25 .48
.375
1.050
1000
500

.081
.00675
1
.07475
.1049
25

21 27 54.39	21 34 30.41	21 40 52.33	21 44 39.47
21 26 32.73	21 33 8.42	21 39 30.70	21 43 17.33
1 21.66	1 21.99	1 21.63	1 22.14
39	3	29	9
~~1 21.77~~	1 22.02	1 21.92	1 22.05
1 22.05			

h = .38

1 22.05
1 22.02
1 21.92
5.99
21.997

1 22.00
.23
1 22.23

Frod 1327 is fast
1m 22s.23
at 21h 35m
Sid Time

~~Fri~~ Sat Nov 5, 1904

M F M

short rattle after

+49 47 missed earliest wire 22 34
−0 37
+38 33
+10 20 wire 8 T

+49 47

28 11.0
15.2
18.0
21.0

45.8 ~~58~~

58
40
13.2
17.6
20.2
26.7
30.0
142.5
~~20.36~~
17.50
31.76
45.74

−0 37
T2

32 32
50
80
10.8
12.6
16.3
18.4
743
10.61
20.50
50.11

31 3 50.1
31 3 21.8
23.5
27.7
30.2
32.2
34.1
1695
28.25
21.74
49.99

+38 33

35 42.2
48.6
54.0
57.4
59.8
22
324.2
54.03

224 39.3
41.8
45.0
48.8
61.4
56.2
58.8
341.3
48.76
26.22
22.54

?

+10 20

38 5.1
18.2
20.6
23.1
26.0
27.8
32.0
34.0
181.7
25.99
20.84
5.15

assumed
n = 4

22 28 45.74
22 27 23.26
1 22.48
11
1 22.37

22 31 50.05
22 30 28.12
21.93
37
1 22.30

22 36 22.54
22 34 60.19
1 22.35
5
1 22.30

22 38 5.15
22 36 43.21
1 21.94
29
1 21.23

1 22.30
23
1 22.53

Frod 1327 is fast
1m 22.s53
at 22h 35
Sid Time

Mon Nov 7, 1904

Mr Le [illegible]

M F W
rattle after
1953

δ Cygni +44 54
α Aquilae +8 37
ε Draconis +70 1
γ Sagittae +19 14

latest two wires rather bad

+44 54

42^m ~~41.8~~ 41.8 21.95 40.6
44.4 43.2
50.2 46.9
54.2 50.8
56.8 53.1
59.5 59.1
20
~~30~~ ~~26~~ 6 9.9 355.7
51.15 50.81
~~44.98~~ 28.95
30.69 21.86
~~15.67~~
21.84

+8 37

47 1.0 30.0 43.1
3.1 45.0
7.2 47.8
10.0 50.8
12.0 52.6
13.8 56.3
47.1 58.6
7.85 354.2
21.99 50.60
29.84 20.74
29.86

+19 14

55 23.1 53.1 70
25.2 9.0
29.4 12.0
32.4 15.0
34.3 16.8
36.4 21.1
18 08 23.3
30.13 104.2
1.3372 14.89
0.0250 21.71
1.3622 53.18
.2302
53.15

19 43 21.85
19 41 59.40
1 22.45
~~4~~ 3
1 22.42

19 47 29.85
19 46 7.66
1 22.19 ~~23~~ ~~31~~
1 22.50
.42

19 55 53.17
19 54 30.85
1 22.32
~~13~~ 13
1 22.55
.49

assumed
~~n = .4~~
n = .3

1 22.42
1 22.49
1 22.42
1.31
1 22.44
for rate 23
1 22.67

Frod 1327 is fast
1^m 22^s.67
at 19^h 50^m
Sid Time

+2
+
+

Tues Nov 8, 1904

Mr Bir

MTM
rattle before
19 53

+8 37
+70 1 wires T2
+19 4
~~-1 6~~

+8 37

47 1,5 3035 43 4
3.3 45 2
7.4 47.9
10 3 50.8
12 2 52 6
14.2 56 8
58.8

489 3555
8.15 50.77
21.99 26.74
30,14 30,03

19 47 30.08
19 46 7.64
1 22,44
23
1 2267

23.23
+275 22.44
+ 15
+2,60 .79 303
780
1000
780
220

22,67
22.72
1,39
22,69
23
1 22,92

n = .3

+70 1

49 52,2 30.7
367
44.4
52 5
57.7
98
15.8 ?

3676
52.51
59.99
52.52

19 49 52.52
19 48 29.29
1 23.23
55
1 22,68

+19 14

55 23.5 534 7.2
254 9.3
29.8 12.2
32.6 15 0
34.5 17 0
364 21.3
23,6

1822 1056
30.37 15.09
23.02 21.71
~~5339~~ ~~53.18~~
5339 ~~21.71~~
~~21.91~~
~~51.47~~
53.38

19 55 53.38
19 54 30.83
1 22,55
17
1 22,72

Frod 1327 is fast
1m 22.s92
at 19h 50m
Sid Time

Wed. Nov 9, 1904

M F M

Mr Lem

+ 59 44
+ 48 9?
+ 5.0
+8 40

AFES

2.96
~~3~~

1.71
15
~~1.86~~
+ 1.56
1.12
09
1.03

23 40
22.85
55
55 35
468
23.10 820 780
22.55 400
0.55
515
35
309
410

.53

1 32 10.76
1 30.49
1 30 40.27

n = .53

~~n = .30~~

+8 40 n = .35

+59 44

17.0	45.6	59.1	58 (21) 2		28.2
19.0		0.9	9.8		32.1
23.0		3.8	17.9		37.4
25.8		6.6	23.3		43.1
27.9		8.2	27.0		46.4
29.8		12.4	30.8		54.3
		14.8			58.8
1425		458	11 46		3003
23.75		6.54	1 9.10		42.90
21.99		20.74	1.3372		40.67
45.74		45.80	0.2975		2.23
			1.6347		
			43.12		
			2.22		

1 (41) 45.77
1 40 22.92
1 ~~49~~ ~~16.73~~

~~2.904~~
1 22.85
27 40
n = ~~1.14~~ 23 25

1 (21) 1 22
1 19 ~~32.82~~
1 ~~28.40~~
24.40
28 43
~~24~~
1 22.97
23.12 ~~23.16~~

1 23.12
24.40
+1.71 22.55
09 1.85
+ ~~1.62~~ 1.62
23
162
680
648
32
1.14

n = .35
n = .53

+48 9
~~+5 0~~

20.6	32 3.2	23.4	23.8	52.25	5.2
23.8		26.0	25.8	~~560~~	7.4
29.8		30.0	29.9		10.0
34.0		34.0	32.6		12.8
36.4		36.9	34.5		14.5
39.7		42.9	36.2		18.8
		46.0			21.0
1843		2392	1828		897
30.72		34.17	30.47		12.81
1.3372		36.77	1.3372		20.74
0.0017		~~20.58~~	0.0050		52.07
~~1.3389~~ 1.3310		~~1.359~~	1.3422		52.23
21.82		3.44	21.77		
52.54			~~52.46~~		
32.58			52.29		
3.30					

+5 0
+8 40

1 ~~2~~ (37) 52.26
1 36 29.61
1 22.55
43
29
1 22.84 1 22.98

1 32 ~~40.27~~ 3.37
1 ~~32~~ 30 ~~10.76~~
~~52.61~~
~~7.39~~
1 23.10
7 11 6
1 22.99
1 23.03 1 ~~23.04~~

22.98
23.25
22.99
22.97
23.19

22.84
23.12
23.03
23.12
0.11
23.03

23.04
23
23.27

Frod 1327 is fast
1m 23.27
at 1h ~~23~~ 30m sid. time

Fri Nov 11, 1904

Mr b in

M F M,
rattle after
20 45?

+15 $3\overset{5}{4}$
+44 56
+33 37

+15 35		+44 56		+33 37	
36 58	35,2 46.7	38 54.1	34.0 52.3	43 98	44.2 59.8
7.9	51.0	56.9	55.1	12.2	1.9
12.2	53.8	2.5_4	58.9	17.2	5.1
15.0	56.7	$6\cancel{5}$	2.9	20.2	8.4
16.8	58.5	9.2	5.6	22.7	10.9
18.8	2.9	11.4	11.4	25.0	15.8
	4.9		14.0	107.1	18 ~~18.2~~
76.5	396.5	$20\cancel{6}^{5}_{2}$	20.2	17.85	60.1
12.75	56.64	$3.4\cancel{8}$	2.89	26.10	8.59
22.57	21.28	30.70	28.96	43.95	24.62
35.32	35.36	$34.1\cancel{8}^{2}$	33.93		43.97

93
7
65 1
67 $\cancel{8}$ 2
1323
102

20	36	35.34	20	39	34.02	20	43	43.96_{35}
20	35	12.59	20	38	11.05	20	42	21.~~44~~
	1	22.75		1	22.97_3		1	~~22.52~~
		~~25~~ 22			.04			22.61
	1	~~23.00~~			~~1 22.93~~			~~7~~ 9
		22.97		1	22.94		~~1~~	~~22.71~~
							1	22.70

assumed
~~n = .4~~
~~= n~~
n = .35

122.97
122.70
122.94
2.61
122.87

1 22.87
23
1 23.10

Frod 1327 is fast
$1^m\ 23^s.10$
at $20^h\ 40^m$ Sid Time

Sat Nov 12, 1904

Mer Cir

Mr F.M.
and
W.W.W.
a little before
21 15

+29 49 (W.W.W.)
+37 38 ⊤²
+62 11
−22 50
−6 0

+37 38

.2 38.2
40.8
44.1
47.7
50.0
54.8
57.8

33 3⁴

47.63
25.88

21.75

21 12 21.75
21 10 59.52

1 22.23
4

2.97

1 22.27

+62 11.

16 40.9
45.2
53.8
0.0
4.0
7.8

33 17

55.28
46.58

41.86

42.1 9.8
14.0
19.7
26.0
29.7
38.2
42.1

17 95

25.64
43.94

41.70

21 ~~17~~ 16 41.78
21 16 19.08

1 32.70
29

1 22.41

−22 50

22 4.9
7.0
11.2
14.2
16.2
18.4

71.9

11.98
23.58

35.56

35.5 49.9
51.9
54.8
57.9
59.8
4.2
6.2

40.47

57.86
22.25
~~21.94~~

~~35.67~~
35.56

21 22 35.56
21 21 13.55

1 22.01
40

1 22.41

−6 0

27ʰ 26.1
28.0
32.1
34.8
36.8
38.6

19.64
32.73
21.86

54.59

54.8 8.0
9.7
12.2
15.2
17.0
21.1
23.2

10.64
15.20
20.67

54.53

21 27 54.56
21 26 32.60

1 21.96
30

1 22.26

1 22.70
1 22.01

.69

+190
42

2.32

.464
2.26
2088
1720
1624
.96

n = .3

1 22.27
1 22.26

1 22.27
23

1 22.50

27
26
41

94
31
23
64

Frod. 1327 is fast
1ᵐ 22.50ˢ ⁴
at 21ʰ 20ᵐ
Sid Time

Mon Nov 14, 1904

'rattle after
21 46

+ 9 26
+ 48 52
+ 25 28
− 0 47
+ 24 53

+ 25 28

49m 34.8
36.9
41.3
44.4
46.7
49.4
2535
42.15
1.3372
0.0444
1.3816
24.07
6.22

− 0 47
15.8 28.9
30.9
33.4
36.0
37.9
42.2
44.0
2533
36.19
20.50
15.69

~~15~~

+ 46 52

39.65

15.69
22 0 53.62
(1) 22.07
~~54~~
46
1 22.53

+1.14 22.63
− .01 22.07
+1.15 .56
575
850
805
45
56
460
100
1035

4.9
~~.57~~

39.65
21 43 17.02
(1) 22.63
~~.14~~
12
1 22.51

21 50 6.22
21 48 43.45
1 22.27
22
1 22.49

122.49
122.53
1 22.51
23
1 22.74

Frod 1327 is fast
1m 22.74
at 21 55

Tues Nov 15, 1904

Nor bir

M + M
rattlefore
2036

+14 16
+44 56
+33 37
+36 8 72

+14 16

33m 5.71 26.22 40.1
59.5
3.6
6.3
8.2
10.1
2 4 8
4.13
1,3372
0.0136
1,3508
22.43
26,56

42.3
45.0
47.9
49.7
53.7
55.8
3345
47.79
21.15
26.64

+44 56

38 530
39m 5 60
1.8
54
8.1
10.8
15.1
252
30.70
33.22

33.1 51.8
54.8
58 4
2.0
4.6
10.4
13 4
154
220
2846
33,24

+33 37

43m 9.2 43.4
11.5
16.8
19.8
22.0
24.4
1037
17.28
26.10
43,38

59.2
1.2
45
7.8
10.0
15.0
17.8
555
7.93
24.62
43,31

+36°8′

45m 20.2
22.8
25.7
29.3
31.5
36.3
39.0
2048
29.26
25.38
3.88

1 22.29
+1.00 ~~1 21.98~~
.25
.75
.31 .41
300
100
75
25

20 34 26.60
20 33 4.62
1 21.98
~~33~~ 27
1 22.~~25~~

1 22.31

20 39 33.23
20 38 10.94
1 22.29
04
1 22.25

20 43 43.34
20 42 21.27
2 2.07
10
1 22.19 1 22.17

20 45 3.88
20 43 41.76
1 22.12
10 8
1 22.22 1 22.20

n = .41

~~22.25~~

assumed
n = .5

22.31
22.25
22.19
22.22
1.07
22.27

25
25
17
20
87
22.22

22.22
23
1 22.45

Frod 1327 is fast
1m 22s.45
at 20h 40m
Sid Time

+158
−0
+1

Wed Nov 16, 1904

met. M., rattle after 21 58

α Aquarii −0 47
E [ι Pegasi] +24 53
E [27 Pegasi] +32 42 T¹ wire 8
π₁ Pegasi +32 42
ξ Cephei +57 44 T²

−0 47

22 1 46.6 15.1 28.1
48.8 30.1
52.8 32.9
55.4 35.8
57.3 37.2
59.2 41.7
320.1 43.6
53.35 249.4
1.3372 35.63
21.74 2050
15.09 15.13

+24 53

+32 42

6ʰ 33.8 7.8 23.2
36.2 25.6
41.0 28.5
44.2 32.0
46.5 34.0
48.8 39.0
2505 41.2
41.75 2235
1.3372 31.93
0.0744 24.36
1.4121 7.57
25.83
7.58

+57 44

9ʰ 20.5
24.0
29.1
34.4
37.7
45.7
49.4
2408
34.40
38.41
55.99

22 2 15.11
22 0 53.58
1 21.53
28
1 21 81

1 22.00
1 21.53
.47 .295
318
+158
−.01
+1.59
152
1431
890
~~777~~
795
95
n = .3

22 7 7.57
22 5 45.85
1 21.72
8
1 21.80

22 8 55.99
22 7 33.99
1 22.00
20
1 21.80

121.81
1 21.80
1 21.80
1 21.80
23
1 22.03

Frod 1327 is fast
1ᵐ 22ˢ.03
at 22ʰ 5ᵐ.4 Sid Time

Thurs Nov 17, 1904

mer cir

M+H

ν Piscium + 26 46 rej. wires

~~θ Ceti − 8 41~~

δ Cassiop. + 59 44

η Piscium + 14 51

scatter after 1h 10m

+26 46		+59 44		+14 51	
15h 4.8	51.2	20 2.8	59.6 25.6	27h 16.2	45.3 59.0
7.0	53.5	7.0	.29.6	18.6	0.9
11.7	56.2	14.9	34.8	22.5	3.8
14.5	59.6	20.1	40.0	~~23.4~~	6.8
16.7	1.8	24.2	43.5	25.4	8.4
18.8	6.0	28.0	51.9	27.1	12.9
	8.0		55.6	28.9	14.9
73.5	42.63	97.0	281.0	138.7	46.7
	~~60.90~~	16.17	40.14	23.12	6.67
12.25	59.47	43.12	40.65	22.49	21.20
24.34	22.46	59.29	59.47	45.61	45.47
36.59	36.51				

1 15 36.55
1 14 ~~15.17~~ 15.17
1 21.38
12
1 21.50
1 21.38
1 21.44
23
1 21.67

1 20 59.38
1 19 37.75
1 21.63
24
1 21.39

1 27 45.54
1 26 24.35
1 21.19
19
1 21.38

Ford 1347 is fast
1m 21.67s
at 1h 20m
Sid. Time.

assumed
n = .3
1 21.38
1 21.50
1 21.39
127
1 21.42

Fri Nov 18, 1904

m 17 pe

putting before

21 6

Mer lein

~~+ 38~~

~~–11~~

☉ [ ] +43 33

–11 46

+29 50

A [ ] +37 38

49 2
72 8
1220
96

–11 46

5
~~4~~ 15.8 44.8 58.2
18.0 0.2
22.0 2.8
24.8 5.7
26.6 7.3
28.7 11.9
13.5

1359 396
22.65 5.66
1.3372 20.94
0.0092 44.72
1.3464
2220
44.85

21 ~~4~~ 5 44.78
21 4 24.05
1 20.73
33
1 21.06

+29 50

9
~~10~~ 41.1 13.85 29.4
43.3 31.5
48.2 34.5
51.2 37.7
53.3 39.6
55.5 44.3
46.7

2926 2637
48.77 37.67
~~23.6~~ 23.63
1.3372 14.04
.00617
1.3989
25.05
13.82

21 ~~18~~ 10 13.96
21 8 52.89
1 21.07
10
1 21.17

+37 38

12
~~20~~ 20.5 37.1
39.5
42.8
46.4
48.8
53.9
56.4

3249
46.41
25.88
20.53

21 ~~20~~ 12 20.53
21 10 59.39
1 21.14
4
1 21.18

assumed

n = 3

1 21.06
1 21.17
1 21.18
41
1 21.14
23
1 21.37

Frod 1327 is fast

1m 21.37s

21h 10m Sid. Time.

Mer Cir Sat Nov 19 1904 M F M

y Androm +41 52
+23 1
+34 32

+41 52

~~33.65~~ 47.2 25.8 43.5
50.2
55.6
59.2
1.8
4.2
3382
56.37
1.3372
0.1280
1.4652
29.18
25.55

46.0
49.8
53.2
55.6
1.2
3.8
3731
53.30
27.53
25.77

+23 1

39.2 10.2 24.6
41.7
45.9
48.8
50.9
53.0
2795
46.58
1.3372
0.0360
1.3732
23.61
10.19

26.7
29.7
32.7
34.3
38.9
40.9
2278
32.54
22.27
10.27

+34 32

40.2 14.9 30.8
42.8
47.8
51.0
53.2
55.4
2904
48.40
1.3372
0.0842
1.4214
26.38
14.78

33.0
36.4
39.8
41.9
46.8
49.2
277.9
39.70
24.89
14.81

25.66
1 57 64.97
(1) 20.69
00

10.23
2 1 49.61
(1) 20.62
12
20.74

14.80
2 3 54.16
(1) 20.64
5
1 20.69

n assumed = .25

1 20.69
1 20.69
1 20.74
212
1 20.70
23
1 20.93

(F and 1327 is first
1m 20s.93
at 2h 0m
Sid Time

Sun Nov 20, 1904

M. F. M.

+ 40 48

o [ ] + 43 33

v Aquarii + 11 46

+ 29 50

+40 48

20.0 57.8 15.0
22.9 17.7
28.2 21.1
31.8 24.8
34.0 27.3
36.8 32.7
17.37 35.2
28.95 17.38
~~24.82~~ 24.83
1.3372 27.08
0.1209 57.75
1.4581 ~~7.08~~
28.72
~~53.54~~
57.67

57.71
20 53 37.21
(1) 20.50
1
(1) 20.51

h assumed = .25

+ 29 50

40.6 13.4 28.5
42.9 30.7
47.7 33.7
50.8 36.9
52.8 39.0
55.0 43.7
28.98 46.0
48.30 25.85
1.3372 36.93
0.0617 23.63
1.3989 13.30
25.05
13.35

13.32
21 8 52.88
(1) 20.44
8
(1) 20.52

(1) 20.51
(1) 20.52
(1) 20.51
23
(1) 20.74

Frod. 1327 is fast
$1^m\ 20.^s74$
at $21^h\,0^m$

Tues, Nov 22, 1904

~~Mar~~
M. FM
rattle after
.20 5~~8~~9?

+38 17
−11 46 T²
+29 50
A.? F[ ]+37 38 were 8 T²

+38° 17'

3m 21.7 58.0 14.3
24.2 17.0
29.5 20.4
33.0 24.0
35.2 26.2
37.7 31.4
34.0
18 13 167 3
30.22
27.70 23.90
26.13
57.92 57.77

21 3 57.84
21 2 37 53
1 20.31
4
1 20.35

−11° 46'

5 57.3
59.5
2.2
4.8
6.8
11.0
13.0
34 6
4.94
20.94
44.00

21 5 44.00
21 4 23.99
1 20.01
34
1 20.35

+29 50

9 40.2 12 9.5 28.1
42.6 30.2
47.2 33.3
50.5 36.4
52.4 38.6
54.6 43.3
287 5 45.8
47.92 255 7
25.05 36.53
12 97 23.63
12 90

21 10 12 9.5
21 8 52.82
1 20.13
10
1 20.23

+37 38

12m 19.4 36.0
38.5
41.9
45.3
47.8
52.9
55.3
31 77
46.39
25.88
19.51

21 12 19.51
21 10 59.30
2 20.21
3
2 20.24

h assumed
= .3

1 20.35
1 20.23
1 20.24
1 20.35
117
1 20.29
23
1 20.52

Frod 1327 is fast
1m 20.52s
at 21h 5m,
Sid Time

Wed Nov 23, 1904

Mer Circ

Mm ± Mr,
rattle after
21h 25m

+29 50
+37 58 latitude of T2
+62 11
+19 20 mire & T2
−22 50 very faint

+29 50

9m 40.0 12.9 28.0
42.5 30.2
47.1 33.2
50.3 36.7
52.5 38.6
54.6 43.2
2870 45.8
47.83 2557
25.05 36.53
12.88 23.63
12.90

26
2
28

+62 11

16 38.0 $\overset{3}{7}$.2 7.6
$\overset{3}{47}$.0 11.6
51.1 17.0
57.0 22.8
1.4 27.0
5.2 36.0
5 40.0
3187 1620
52.$\overset{62}{\cancel{28}}$
46.58 23.14
~~38.86~~ 43.94
39.20 39.20

+19 20

19 0.8 14.8
16.8
19.6
22.6
24.5
28.2
30.9
1574
22.49
21.73
0.76

−22 50

22m 27 33.15 47.2
4.8 49.3
9.0 52.2
11.8 55.2
13.9 57.1
15.9 1.8
~~15.8~~ 4.0
58.1 3868
9.68 55.26
23.58 22.25
~~46.10~~
33.26 33.01

20.59
+1.89 19.71
− 42
2.31 .88 .38
693
1870
1848
220

21 10 12.89
21 8 52.80
1 20.09
.13
1 20.22

21 17 39.20
21 16 18.61
1 20.59
.37
1 20.2$\overset{}{\cancel{6}}$2

21 19 0.76
21 17 40.76
1 20.00
21
1 20.21

21 22 33.16
21 21 13.34
1 19.71
.51
1 20.22

n = .38

1 20.21
1 20.22
1 20.22
1 20.22
1 20.22
23
1 20.45

Frod 1327 is fast
1m 20.45s
at 21h 15m
Sid Time

Thurs. Nov. 24, 1904 W 20.20 - Cl.
Mer. Cir.
Rattle before $0^h 21^m$.
12 Ceti −4°29′
π And. +33°11′
α Cass. +56°0′ (Use second tap on W^5 2nd set)

−4°29′

26^m 2.4 31.1 43.9
4.8 ~~45.9~~ 46.0
8.6 48.5
11.4 51.1
13.4 53.3
15.1 57.0
55.4 59.3
9.23 359.1
1.3372 51.30
0.0013 20.56
1.3385 30.74
21.80
31.03

+33° 11′

32^m 34.8 8.7 24.7
37.4 26.9
41.8 29.9
45.4 33.1
47.5 35.2
49.9 40.2
2568 42.7
42.80 2327
1.3372 33.24
0.0773 24.50
1.4145 8.74
25.97
~~21.47~~
8.77

+56° 0′

35^m 37.4 52.0
41.0 55.5
45.5 05
53.2 4.9
56.6 8.4
59.7 15.7
2964 19.3
49.40 363.9
1.3372 5.20
0.2524 36.66
1.5896 ~~28.54~~
38.87 28.53
28.27

16 2
37 1
53 3
41

618
518
1136
87

20.24
19.46
+1.48
−.08
+1.56
.78 .5
.780 good but not used

n = 5

used
n = .38

0 26 30.87
0 25 11.41
1 19.46
50
38 1 ~~19.96~~
1 19.84

0 33 8.75
0 31 48.83
1 19.92
10 +3
1 20.02 1 ~~20.05~~

0 36 28.41
0 35 8.17
1 20.24
22 28
1 20.02 1 ~~19.96~~

1 20.02
23
1 20.25

Frod 1327 is fast
1^m 20.25^s
at $0^h 30^m$

Fri Nov 25, 1904

Mer Cir

M F M
rather after
23 46

+22 53
+12 14
[ ] +30 48
+45 56

+22 53		+12 14		+30 48		+45 56	
21m 27.0	57.8 12.4	25m 11.4	40.3 54.0	30m 1.2	34.2 49.6	33 34.4	15.1 34.2
29.3	14.2	13.6	55.9	3.6	52.0	37.4	37.0
33.8	17.1	17.6	58.6	8.2	54.8	43.0	40.2
36.8	20.2	20.4	1.4	11.3	58.0	47.0	44.8
38.8 40.7	22.1	22.3	3.2	13.6	0.2	49.8 5	47.2
2064	26.7	24.2	7.5	15.7	5.0	52.	52.8
34.40	28.0	1095	9.5	53.6	7.2	264.1	56.0
1.3372	1307	18.25	10.1	8.93	406.8	44.02	3122
0.0356	20.10	1.3372	1.44	1.3372	58.11	1.3372	4460
1.3728	22.26	0.0099	20.47	0.0660	23.86	0.1576	29.47
2359	57.84	1.3471	40.47	1.4032	34.25	1.4948	15.13
57.99		22.24		2530		31.25	
		40.49		34.23		15.27	

assumed
n = 1.38

+1.03
+ .22
+ .81) 19.89
19.70
+81) 19
.162
280
243
37
.23
11.984

23	21	57.91	23	25	40.48	23h	30m 34.24s	23	34	15.20
23	20	38.18	23	24	20.78	23	29 14.47	23	32	55.31
	1	19.73		1	19.70 ~~16~~		1 19.77		1	19.89
	11	~~19~~			~~28~~		~~13~~ 7			3 ~~5~~
	~~1~~	~~19.92~~		1	~~19.98~~		1 19.~~00~~ 84		1	19.8~~4~~ 6
				1	19.86					

n = 23

1 ~~19.86~~
1 19.84
1 19.84
1 19.86

1 19.85
23
1 20.08

Frod 1327 is fast
1m 20.08s at 23h 25m Sid Time

Sat Nov 26, 1904

Mer le Jr

M. F. M.

rattle tdrwaft

22 24

+51 45
+49 47
−0 37
+38 33

+51 45

21 9.8
30.8 9
338
381
424
452
52.0
553
29 ~~7.67~~
42.~~60~~ 59
33.12
~~9.68~~
9.41

29.77
42.53

+49 47

27 58.4
1.7
80
12.0
150
17.6
527
8.78
33.67
42.35

42.8 3.0
5.9
10.0
14.4
17.2
23.5
26.5
1005
14.36
31.76
42.60

3. 18.8
208
250
27.7
29.4
31.4
1531
2552
21.74
47.26

−0 37

47.35 07
2.2
4.8
7.5
9.7
13.5
15.8
542
774
20.50
47.24

+38 33

35 43.1
45.8
51.0
54.4
56.8
59.2
3503
1.72
58.38
13372
010681 19.52
1.4440 ~~.18~~
2780

19.7 36.0
38.7
420
456
480
530
555
318.8
45.54
26.22
19.32

~~22 36 19.42~~

22 21 9.~~68~~ 41
22 19 49.49
~~1 20.19~~
1 19.92
10
1 19.82

22 28 42.53
22 27 22.72
1 19.81
9 7
~~1 19.74~~
1 19.72

22 47.25
22 30 27.84
(1) 19.41
~~43~~
31 ~~23~~
~~(1) 19.64~~
1 19.72

22 36 19.42
22 34 59.78
1 19.64
4 3
~~1 19.67~~
1 19.68

~~assumed~~
~~n = .25~~

assumed
~~n = .25~~
n = .33 1/3

1 19.72
1 19.68
1 19.73
212
1 19.71

1 19.72
23
1 19.95

19.82 × 1 82
19.72 × 2 144
19.72 × 2 144
19.68 × 2 136
506 72

Fwd 1327 is fast
1m 19.s95
at 22h 30m
Sid time

Sun Nov 27, 1904

Mer Cir

M. F. M.
Rattle through
1h 18m

+59 44
+14 51
+48 9

+59 44
20 57.2 23.5
27.0
32.8
38.0
41.5
49.8
53.8
266.4
38.06
40.67
57.39

1 20 57.39
1 19 37.62
1 19.77
~~30~~ 28
1 19.49

+14°51'
27 43.6 57.1
59.1
20
4.8
6.7
9.7
1.94
1.2490
0.0148
1.2638
18.35
43.59

1 27 43.59
1 26 24.31
1 19.28
18
1 19.46

+48 9
32 47.5 30.22 50.0
50.7 52.8
57.0 56.8.
0.8 0.7
3.4 3.8
6.4 28.41
34.58 56.82
57.63 12490
1.3372 01758
0.1758 1.4248
1.5130 26.60
32.58 30.22
30.21

1 33 30.22
1 32 10.67
1 19.55
8
1 19.47

n assumed
= .4

1 19.49
1 19.47
1 19.46
1.42
1 19.47

1 19.47
23
1 19.70

Frod 1327 is fast
1m 19s.70 at 1h 25m

Mon. Nov 28, 1904

Mer Cir

M. T. M
rattle through

22 53

-8 5 Latest of T^2
-16 20
+41 49
+27 34 T' mag

-8 5	-16 20		+41	49	+27	34
49 18.3	50 24.7	54.4 7.6	58m 14.0	52.0 9.9	59 56.7	28.8 43.7
201	268	10.2	168	12.2	59.1	45.8
24.3	31.0	13.1	222	16.1	3.7	48.8
26.2	348	15.8	26.0	19.2	6.7	52.0
889	362	17.8	284	22.2	8.8	54.0
22.22	37.8	21.8	31.0	27.4	10.8	58.5
13674	1913	24.0	1384	30.1	258	0.9
0 0044	31.88	11 0.3	23.07	1377	4.30	.1
13910	13372	~~9.45~~	29.16	19.59	13372	3637
24.60	0.0179	1~~3.50~~	52.23	27.51	0.0526	51.96
57.62	13551	15.76		52.08	13898	23.16
	2266	21.36			24.53	28.83
	54.54	54.40			28.83	

22 48 57.62	22 50 54.47	22 56 52.15	23 0 28.83
22 47 38.85	22 49 35.80	22 57 33.03	22 59 9.92
1 18.77	1 18.87	1 19.12	18.91
42	48	00	16
1 19.19	~~1 18.85~~		19.07
	1 19.05		

n assumed
= .4

1	19.05 × 2	10	
1	19.19 × 1	19	
1	19.07 × 2	14	1 19.10
1	19.12 × 2	24	23
	43	67 16	1 19.33
1	19.11		

Frod 1327 is fast
1m 19.s33
at 22h 55m
Sid Time

Wed Nov 30, 1904 [illegible]

[illegible] rattler after 1h 44m

+71 57 double tap by first

+23 0

~~A [γ Triang] +33 24~~

+71 57

~~1 86~~

1 55 10.6 41.8 ~~7.2~~

17.1 24.3

29.7 30.9

38.9 39.3

44.4 47.8

50.4 53.9

1911 7.0

31.85 13.8

1.3372 3330

0.5088 47.57

1.8460 1.3118

287 70.15 0.5088

600 4200 1.8206

887 66.16

68 41.41

assumed 4 56 41.68

x = .4 1 55 22.28

1 19 40

.86

1 18.55 1 18.54

23

1 18.78

+23 0

2 2 37.0 8.0 22.2

39.2 24.2

43.7 27.1

46.7 30.2

48.8 32.1

50.6 36.5

2660 38.8

~~44.5~~ 2111

44.33 30.16

1.3372 2227

0.0360 7.89

1.3732

23.61

7.94

2 3 7.91

2 1 49.58

1 18.33

20

1 18.55

Frod 1327 is fast 1h 18s.78 at 2h 0m sid time

Thurs-Dec 1, 1904

Over Cir 20.20.20. Obs.

ξ Cephei +57°43′ 4 missed 1st 2 wires
ϑ Aqua −8°15′
(0) [31 Peg.] +11°43′
3 Lac +51°44′ 5 missed 1st wire 1st set, 1st, 2nd set faulty
Rattle after 22h 24m

+57 44

8 52.6 16.9
20.5
25.8
30.6
33.9
41.4
45.5
2146
3066
38.~~39~~
.46
52.26

−8 15

12 37.6
39.8
43.1
46.4
48.5
50.3
2657
44.28
1.3372
0.0046
1.3418
21.97
6.25

6.4 19.8
21.7
24.2
27.1
29.0
33.0
34.8
1896
27.09
20.72
6.37

+11 43

17m 39.0
41.0
45.2
47.9
50.0
51.9
2750
45.83
1.3372
0.0091
1.3463
22.20
8.03

21.3
23.2
26.0
28.6
30.6
34.6
37.0
2015
28.79
20.94
7.85

+51 45

21 8.1 ~~32.5~~
~~36.4~~
~~41.1~~
~~44.0~~
~~154.0~~
~~38.50~~
~~1.3874~~
~~0.2081~~
~~1.5955~~
~~39.41~~
~~59.09~~

r assumed = .5

22 8 52.27 6
22 7 33.47
1 18.79
~~27~~
34
1852
1 18.43

22 13 6.31
22 11 48.36
1 17.95
~~42~~
53
1 ~~18.37~~
1 18.48

22 18 7.94
22 16 49.84
1 18.10
~~28~~
35
1 ~~18.38~~
1 18.45

~~22 21 59.09~~
~~22 19 49.35~~
~~1 19.74~~

−8 1 18.48
+11 1 18.45
+57 1 18.43

18.45
23
1 18.68

Frod 1327 is fast
1m 18s.68
at 22h 15m

Fri Dec 2, 1904

M. F M,

−21 42
+56 38 T' faint
EFS [ ]+ 2 45
+23 13

rattle (short) (last 23h) after 15m

[ ]

−21 42

23 5m 9.2 39.7 54.0
11.0 56.0
15.7 58.8
18.4 1.8
20.4 3.8
22.6 8.0
97.3 10.6
~~13.~~ 13.0
16.22 1.86
1.3372 22.07
0.0319 39.79
1.3691
Σ 23.40
39.62

23 5 39.71
23 ~~5~~ 4 22.~~30~~ 16
~~4 17.41~~
.58 1 17.55
.76
1 18.31

+.056
−.0035
.0525
−.028
+.0245

504
320
824

1 18.67
1 17.55
+1.52 1.12
−.40 ~~5.0~~
1.92 9 6 0
1600
1536
64

+56 38

9 9.8 0.52 25.7
13.2 29.2
21.0 33.8
26.7 38.2
29.1 42.0
32.8 49.3
132.6 53.4
22.10 27[illegible]
1.3372 38.80
0.2597 37.28
1.5969 1.53
39.53
1.63

23 10 1.58
23 8 42.91
1 18.67
35
1 18.32

+2 45

13 3.3 44.8
5.3 46.7
9.0 49.3
11.8 52.0
13.9 54.0
43.3 58.0
8.66 0.1
1.3600 364.9
0.0005 52.13
1.3605 20.52
22.94 31.61
31.60

23 13 31.61
23 12 ~~14.30~~ 13.99
1 ~~17.61~~ 17.62
.50
1 18.12

+23 13

16 43.0 138 28.1
45.2 29.9
49.8 —
52.5 36.0
54.3 38.0
56.4 42.6
301.2 44.8
50.20 161.4
23.64 40.35
13.84 22.30
~~18.05~~
1.3874
0.0366
1.4240
26.55
13.80

23 17 13.82
23 15 55.85
1 17.97
28
1 18.2~~7~~5

n = 58

18.31
18.25
18.12
.68
18.23

18.25
[illegible]23
1 18.48

Frod 1327 is fast
1m 18.48s ?
at 23h 10m
sid time

Sat Dec 3, 1904

Mer Cir W. W. + W. Obs.

Rattle after $0^h 41^m$

γ Cass. +60° 11' 2nd set Wires.

ε Pisc. +7° 22' missed 1st W 2nd set.

β And +35° 6'

Above stars observed without use of pen in chronograph.

Rattle after $1^h 12^m$

ν Pisc +26° 45'

δ Cass +59° 44'

η Pisc +14° 51'

1 17.81
1 17.32
+1.71
+0.27
+1.44
49
4 32
580
576
4
34

+59 44
~~+26~~ 45

19 58.7
2.0
10.9
16.2
19.7
24.0
715
11.92
1.3372
0.2975
1.6347
43.12
55.04

5585
~~5~~475
9.50
1.3600
0.2975
1.6575
2001
45.44
54.94

21.8
25.5
30.4
35.9
39.5
47.0
33.35
12829
02975
15804
3806
55.29

+26 45
~~+59 44~~

15^m 0.8
3.1
7.12
10.0
12.5
14.5
48.0
~~13.0~~
8.0
13372
00492
1.3864
24.35
32.35

32.35
11.0
3.67
1.4102
0.0492
1.4594
28.80
3247

46.5
49.4
52.7
55.4
57.5
1.9
4.1
38 75
55.36
22.96
32.40

+14 51

27 12.1
14.4
18.6
21.1
23.3
25.0
11 45
19.08
1.3372
0.0148
1.3520
22.49
41.57

41.8
2998
59.96
12490
00148
1.2638
1835
41.61

55.3
57.2
0.0
2.8
4.5
7/0 ?
0/9
1.9 →
~~32.8~~
~~21.20~~
42.08

1 17.81
1 17.32
+1.71
27
+1.98
0.49
3.96
9.40
7.92
148
~~λ = .25~~
λ = .34
24

1 20 55.29
1 19 37.48
1 17.81
~~20~~
27
~~1 17.61~~
17.54

1 15 32.40
1 14 15.07
1 17.33
~~10~~ 11
1 17.44
14
1 17.58

17.54
17.58
17.56
23
1 17.79

1 27 41.59
1 26 24.27
1 17.32
~~16~~ 22
~~1 17.48~~
1 17.54

Frod 1327 is fast ~~17.79~~ 1^m 17.79 at $1^h 20^m$ Sid. Time

Sun Dec 4, 1904

M F M
rattle after
21 37

Tues Dec 6, 1904

with Mr
[illegible]

22 12

Mer Cir.

−1 52
+51 45
+49 47
−0 37

−1 52
17 31.4 0.2
33.5
37.6
40.2
42.0
44.0
228.7
38.12
~~20.51~~
1.3372
0002
1.3374
21.75
59.87

+51 45
13.0
15.0
17.8
20.3
22.1
26.6
28.3
143.1
20.44
20.51
59.93

21m T2
27.2
30.0
34.3
39.1
41.8
48.4
51.7
272.5
38.93
~~41.79~~
33.12
~~8.67~~
5.71

7.0 20
19.9
22.9
29.8
34.0
37.1
40.1
183.8
30.63
1.3372
~~0.2081~~
35.11
5.74

+49 47
27 55.0 38.8 59.1
57.9
4.2
8.5
11.3
14.1
31.0
5.17
~~1.3372~~
33.67
38.84

20
6.0
10.5
13.0
19.6
23.0
73.2
10.46
31.76
38.70

−0 37
31m 15.0 43.8 56.9
17.2
~~19.0~~ 21.0
24.0
25.9
27.6
138.7 30
~~21.45~~ 21.78
~~1.3372~~
21.74
~~43.19~~
43.52

59.0
1.5
4.4
6.0
10.1
12.1
30.0
4.29
20.50
43.79

553
312
865
665

n = ~~3~~4
= 1 16.25
23
1 16.48
1 16.51
+1.27 1 15.80
−.03 0.71
+1.30 .546

22 18 59.90
22 16 44.10
1 15.80
~~.59~~ .52
32 ~~1 16.29~~
1 16.12 1 16.32 16.39

22 21 5.72
22 19 49.21
1 16.51
12 20
1 16.31

22 28 38.77
22 27 22.45
1 16.32
9 15
1 16.23 1 16.17

22 31 ~~43.79~~ 67
22 30 27.71
~~1 16.08~~
1 16.96
31 51
1 16.27 1 16.47

+2.77
−.30
+3.0

n = .55

1 15.80 1 16.29
1 16.51 1 16.47
1 16.12 1 16.17
1 15.96 1 16.29
9 122
31

1 16.32
23
1 16.55

1 16.25
23
1 16.48

Frod 1327 is past
1m 16s.55? 48?
at 22h 25m.
Sid Time

Wed Dec 7, 1904

Mer Ci

M.T. M.
rattle after
21 25

+70 8 latest of T^2
+9 26
−16 34 latest of T^1 ... T^2
−0 47
+24 53

22 2 34.63

+24 53 50
19.2 50.65 7.1
21.5 ~~56.6~~ 10.1
26.0 13.0
29.0 15.0
31.0 19.8
33.2 21.8
1599 918
26.65 13.11
13372 22.60
00423 50.51
1.3795
23.96
~~2.69~~
58.61

22 3 50.56
22 2 34.63
1 15.93
14
1 16.07

+70 8
29m 43.0
47.8
0.3
59
~~2270~~
21 7 0
54.25
56.17
1.3874
0.4687
1.8561
7180
24.37
42.45

21 28 42.45
21 27 25.77
1 16.68
57
1 16.11

+9 26
40m ~~12.5~~ 46.0 59.2
17.3 1.2
19.2 3.8
23.2 6.7
26.1 8.8
~~28.0~~ 12.7
~~30.0~~ 14.8
~~8~~
~~128~~
.14383
~~21.05~~ 47.2
23.97
22.04 6.74
20.78
~~43.09~~ 45.96
43.42
46.01

21 40 45.98
21 39 30.23
1 15.75
23
1 15.98

−16 34
42 22 16.0
17.9
20.8
23.8
25.8
29.9
32.0
1662
23.84
21.39
235

21 42 2.35
21 41 46.62
1 15.73
37
1 16.11

−0 47
22 1 40.9 9.2
42.7 22.4
46.8 24.2
49.4 27.0
51.4 29.8
53.3 31.4
35.7
2845 37.6
47.42 2081
~~15.09~~ 29.73
~~21.74~~ 20.50
~~2.51~~ 9.23
9.16

22 2 9.20
22 0 53.38
1 15.87
29
1 16.16

~~+24 53~~

+2.77 1 16.68
−30 1 15.73
95 .309
+3.07 .921
2900
2763
137

n = .31

1 16.16
1 15.98
1 16.07
21
1 16.07
23
1 16.30

J sid. 1327 is fast
1m 16s.30
at 21h 45m
Sid. Time

Thurs Dec 8, 1904

M F M,
rattle after

+48 9 latest of T' mm 87² + 31

4 EFS [

+5 0
−16 27
+63 12

1 16.47
(1570
).77
.687
830
687
1430
1374
560

.336

+499
−30
+229

749
318
1067
82

637
822
1469
112

+48 9		+50'		−16 27		+63 12	
33^m 26.8	46.2	37^m 17.2 45.8	58.9	40 27.7 54.85	84	47^m 49.1 52.0	21.1
	49.2	18.7	0.7	27.5	10.5	52.8	25.1
	53.5	231	3.1	31.4	13.5	2.4	30.8
	57.8	258	55	346	16.2	7.5	37.0
	1.3	27.7	7.8	368	180	12.0	41.1
	6.5	30.0	12.3	382	22.5	16.2	51.8
	9.1	1425	13.8	1962	24.9	200	558
	4 80 36	23.75	421	32.70	11 40	3.33	26 27
	~~43.37~~	21.82	6.01	1.3372	1 ~~4.86~~ 6.29	1.3372	37.53
	57.66	45.57	20.58	0.0182	21.38	0.3459	45.46
	30.73		45.43	1.3554	54.91	1.6831	52.07
	26.93			22.67		4820	
				55.37		51.53	

(.54

1 16.72
1 15.49
1.23
11 65
950
916
340

+1.99
−.30
+2.29

1 33 26.93
1 32 10.53
1 16.40
11
1 16.33 1 ~~16.29~~

1 37 45.50
1 36 29.50
16.00
27 44
1 16.27 ~~16.44~~

55.12
1 40 ~~54.91~~
1 39 39.42
70
1 15.~~49~~
40 ~~65~~
1 16.10 ~~1 16.14~~

57.82
1 48 ~~52.07~~
1 47 35.35
47
1 16.~~72~~
35 58
~~1 16.14~~
1 16.12

~~h = .54~~
(h = .336)
assumed
h = .33 1/3

1 16.33
1 16.27
1 16.30
23
1 16.53

1 16.23
23
1 16.46

16 33
16 27
16.10
70
23

Frod 1327 is past
1^m 16.53 546
at 1^h 40^m
Sid Time

Fri Dec 9, 1904

rattle after
23 8

~~+74 52~~ Prob 56° 38'

+23 13

+22 53

+0 44 T

+12 14

+56 38

~~+74~~ 52

10 7.1 58.8 23.0
11.2 26.2
17.8 31.0
23.4 35.7
26.8 39.2
30.1 47.0
1164 50.7
19.40 2528
1.3372 36.11 3
02597 ~~78.54~~
1,5969 ~~37.28~~
39.53 ~~17.57~~
58.93 17.58
58.83

+23 13

17 40.7 11.5 25.8
42.5 27.8
47.2 30.8
50.1 31.8 ?
52.2 36.0
54.2 ? 40.4
2869 42.6
47.82 2352
23.64 33.60 ?
11.46 22.30
11.30

23 18 11.38
23 15 55.76
2? 15.62
18
(1) 15.80

+22 53

22 22.5 54.0 8.0
25.2 10.2
29.4 13.0
32.2 16.1
34.4 18.0
36.6 22.2
1803 24.8
3005 1123
23.59 16.04
53.63 22.26
53.78

23 22 53.71
23 20 37.98
(2) 15.73
.18
(2) 15.91

+0 44

24 32.0
34.0
36.3
39.7
41.4
45.2
47.0
2756
39.37
20.50
18.87

23 24 18.87
23 22 3.24
2 15.63
.33
(1) 15.96

+12 14

26 ~~27 3.4~~ 36.4
~~5.2~~
7.5
9.4
13.4
16.2
18.2
20.0
847
14.12
1.3372
00100
1.3472
2224
3636

59.0
3.1
5.2
7.3
2.43
1.4100
00100
1.4200
26.30
36.13

~~23 27 36.4~~
23 26 36.24
23 24 20.60
2? 15.64
25
1 15.89

+1.52 16.18
-01 15.63
+1.53 .55
459
910
765
1450

35.23 10 58.88
23 8 42.70
2? 16.18
22
(1) 15.96

15.91
15.89
15.90
.23
(1) 16.13

h = 3.6

Frod 13.27 6 fast
(1) 16.13
at 23 15
Sid. Time

Sun Dec 11, 190~~2~~ ④

rather after Prob ½ 44?, double after Prob ½ 45

+8 40
+63 12
+20 20 +2
+41 52

+8 40

41m 9.6 38.22
11.5
15.7
18.3
20.4
22.2

~~9~~77.6 28
1~~4~~.62
1.3372
0 0050
1 3422
.2199
~~36.61~~
38.27

51.6
53.2
56.2
59.2
1.0
5.2
7.3

4137
59.10
20.74
38.36
~~20.74~~
~~17.62~~

+63 12

47 47.7 49.8
52.1
1.0
7.3
11.2
15.6

149
2.48
48.20
50.68

199
24.1
30.0
35.9
40.0
49.0
53.8

252.7
3.6.10
45.46
50.64

+41 52
~~+20 20~~

58m 41.9 20.2 37.2
44.7
49.7
53.5
56.2
58.5

3045
50.75
29.18
19.93

40.0
43.8
47.1
49.7
55.3
58.0

331.1
47.30
27.53
19.77
~~27.53~~
~~52.24~~

+20 20
~~+41 52~~

58 ~~41.9~~
~~44.8~~
~~49.8~~
~~53.5~~
~~56.2~~

~~49~~ 24.1
50m 34.1
53.1
55.0
58.0
08
30
71
92
6.2
0.189
21.86
39.03

~~19.9~~
~~24.2~~
~~30.0~~
~~35.9~~
~~40.0~~
~~49.0~~
~~54.8~~
~~250.8~~
~~35.83~~
~~21.86~~
~~13.97~~

1536
+199 15.47
15
+ ~~219~~ 0.09
1.84

796 p48
1640
1472
168

$\lambda = \breve{.}05$

λ assumed
= .36

1 × 2 2
12 × 1 12
24
~~26~~
.14
1805

1	41	38.31
1	40	22.84
	1	15.47
		4

1 15.43

1	48	50.66
1	47	35.28
	1	15.38
		~~38~~

5
1 15.43 1 ~~15.00~~

1	59	19.84
1	56	4.84
	1	15.00
		0

15.01

1	50	39.03
1	49	23.88
	1	15.15

1 15.12

1 15.05
~~Loc~~ sec 9 23
1 15 28

1 15.05
.05
1 15.10.

Frod 1327 is fast

1m 15.28s

at 2h 0m

Sid Time.

Thes. Dec. 13, 1904

+6 20 T¹ uncertain T² nearer 12,13 h.
+58 37
+14 39

M. F. K.
rattle after
23 51

+ 6 20
55^m 11.3 40.2 53.1
13.2
19.2
22.2
24.2
55.2
57.8
1.4
3.6
6.8
9.0
6.9
0.99
20.63
40.36
0.0026
23 55 40.36?

+ 58 37
4^m 27.1 21.7 46.8
30.8
38.9
44.0
47.5
51.0
239.3
39.88
13372
0.2834
1.6206
41.75
21.63
50.8
55.8
1.3
4.9
12.2
16.0
7.8
1.11
39.38
21.73
0 5 21.68
0 4 7.10
1 14.58 ~~24~~ ~~26~~
~~1 14.34~~
18
1 14.40

+ 14 39
9^h 5.3 34.8 48.1
7.7
11.6
14.2
16.2
18.4
73.4
12.23
~~42.52~~
~~22.47~~
~~4.75~~
34.70
50.1
52.7
56.0
57.7
2.0
4.0
396.6
55.93
21.18
34.75
0 9 34.72
0 8 20.44
1 14.28
~~27~~
~~1 14.49~~
16
1 14.44

assumed
~~n = .36~~
n = .33⅓

1 14.40
1 14.44
1 14.42
+ sec φ 23
1^m $14^s.65$

(1 14.42
5)
(1 14.47).

Frod 1327 is fast
1^m $14^s.65$
at 0^h 5^m
sid time.

Wed Dec 14, 1904

Time of beginning
0h 0m
ESMT

Level

M. F. M.

Telescope North

	W	E
Zero W	− 42.3	− 76.0
	− 46.9	− 80.2
	− 45.0	− 78.2
	− 134.2	− 234.4
Zero E	+ 78.9	+ 45.4
	+ 79.0	+ 45.8
	+ 78.0	+ 44.6
	+ 235.9	+ 135.8

mark 118

Time of ending
0 40
ESMT

Telescope South

Zero	− 45.0	− 77.3
	− 43.3	− 75.9
	− 42.8	− 75.1
	− 131.1	− 228.3
Zero	+ 78.0	+ 45.4
	+ 78.0	+ 45.4
	+ 79.0	+ 46.7
	+ 235.0	+ 137.5
	+ 470.9	− 462.7
	− 265.3	+ 273.3
	+ 205.6	− 189.4
	− 189.4	
	16.2	

b sec φ = .05
west end high

.675
24) 16.2
144
180
168
120
120

.675
.06
.04050
1.35
2025
1215
405
.054675

Wed Dec 14, 1904

M. F. M.,

+41° 49′
+14° 41′
− 21 42 missed 1st part of T
+ 56 38 very faint

rattle before 22 54
2 short rattles after 22 54

+41 49
85
58 11.2
17.0
20.4
23.0
25.7
1058
17.63
29.16
~~46.79~~
46.80

46.9 44
7.0
11.1
15.1
17.1
22.0
25.0
101.7
14.53
27.52
47.01

+14 41
23 0 45.4
47.7
51.8
55.0
56.8
58.9
3156
52.60
~~21.19~~
1.3372
.00145
1.3517
.2248
15.08

15 1 28.8
30.8
33.5
36.4
38.0
42.2
44.2
253.9
36.27
21.19
15.08

−21 42
5m 35.8 49.7
52.0
54.9
57.8
59.7
41
62
40
~~38~~ 4.4
7.77
5~~4~~.41
22.07
~~32.84~~
35.70

+56 38

707
480
1187
.91

22 58 46.91
22 57 32.71
1 14.21
− 01
1 14.20

23 1 15.08
23 0 1.14
1 13.94
23 +.23
1 14.1~~5~~
7

23 5 35.76
23 4 22.00
1 13.70
48 48
1 14.18

assumed
x = .36

14.20
14.17
14.18
55
1 14.18
+ ang 05
1 14.23

Frod (327) is fast
1m 14.23s
at 23h 0m
Sid Time

Fri Dec 16, 1904.

Mer. Cir. 90-20-20. Obs

α Peg. +14° ~~2~~ 4 1'

π Cephei +74° 52' (missed couple wires 1st set

Rattle after 23h 12m)

τ Pegasi +23° 1~~7~~ 3'

+14	~~2~~ 41'	+7 4 52			+23 1~~7~~ 3	
0 44.8	13.9 27.5	4m 18.5	7.2 55.0	16	37.6 8.8	22.8
46.4	29.4	25.2	~~4~~.0		39.8	24.5
50.2	32.2	41.6	~~7.2~~		44.2	27.3
53.5	34.8	58.2	14.3		47.1	30.8
55.5	36.8	~~5.8~~	24.0		49.2	32.8
57.3	41.2	209 3	31.9		51.2	36.9
~~8~~	43.0	41.86	47.9		2691	39.2
3077	2449	1.3600	55.4		44.85	2143
51.28	34.99	0.5633	1725		1.3372	30.61
1.3372	21.19	1.9433	24.64		0 0366	22.30
0.01~~36~~ 45	~~+3.83~~	87.76	78.54		13738	8.31
~~1.3510~~	13.80	9.62	6.10		23.64	
1.3617					8.49	
~~22.44~~						
22.48						
~~+3.72~~						
13.76						

23	1	13.78	23	5	6.10	23	~~16~~ 17	8.40
23	0	1.11	23	4	53.76	23	15	55.66
	1	12.67			12.34		1	12.74

1 12.70

05

1 12.75

Ford 1327 is fast

1m 12.75

at 23h 10m

Sid Time

Sun Dec 18, 1904

M. F. M. obs
rather before
3 6

+19 22
+77 23 +2
+49 31
+8 41

+19 22
3 6 54.8 ~~32.5~~ 38.8
57.0 24.8
1.1
4.0
5.8
8.0
10.7
1.78
1.3372
0.0253
1.3625
23.04
24.82

38.8
40.8
43.7
46.7
48.2
52.8
54.8
32 58
4654
21.73
24.81

+77 23
10 32.6
42.2
55.2
6.3
14.2
33.8
43.9
~~47~~ 4 82
~~8.31~~
6.03
93.87
32.16

+49 31
18 2.2 46.0 6.8
5.6
11.8
16.0
19.0
21.8
764
12.73
1.3372
01876
1.5248
33.48
46.21

6.8
7.7
13.9
17.8
21.0
27.2
30.0
124.4
17.77
31.58
46.19

+8 41
20 26.5 55.0 8.3
28.3
32.4
35.0
37.0
39.0
1982
33.03
1.3372
0.0050
1.3422
21.99
55.02

8.3
10.1
12.8
15.7
17.7
21.6
23.8
1100
15.71
20.74
54.97

3 7 24.81
3 6 12.41
1 12.40

3 9 32.16
3 8 19.99
12.17

3 18 46.20
3 17 33.64
1 12.56

3 20 54.99
3 19 42.65
1 12.34

1 12.56 × 2 112
1 12.40 × 1 40
1 12.34 × 1 34
186
1 12.47 466
.05
1 12.52

Frod 1327 is fast
$1^{m}\ 12^{s}52$
at $3^{h}\ 15^{m}$
Sid. Time.

Tues Dec 20, 1904

mer le in

rattle after
23 10

+2 45

+23 13

~~+22 53~~ wire 14?

~~+42 44~~

~~+45~~

+42 44 latest 2 dubious all faint

+77 6 T² wire

+245

23h 12m 57.3 26.0 34.0
41.0
59.5 43.6
3.4 46.3
6.0 48.0
7.9 52.2
10.0 54.1
241 3242
4.02
13372 46.31
00005 20.52
13377 25.79
2176
25.78

23 13 25.79
23 12 13.78
1 12.01

+23 13

16m 36.8 7.8 21.9
39.0 24.0
27.0
43.5 29.6
46.3 31.8
48.2 36.4
50.2 38.8
2640 2095
4406 29.93
23.64 22.30
7.64 7.63

23 17 7.63
23 15 55.60
1 12.03

.+42 44

33 59.1 40.75 58.6
2.2 1.0
5.8 4.4
10.0 8.4
14.1 11.1
16.6 (17.7)
18.6 (21.6)
~~21.01~~
664 235
1.197 4.70
13372 12490
01340 01340
14712 13830
29.59 2415
40.66 40.55

23 34 40.61
23 33 28.44
1 12.17

+77 6

37m 37.1
49.0
58.6
12.8
21.8
38.0
49.2
865
12.37
91.83
40.54

23 36 40.54
23 35 28.40
1 12.14

12.01
12.03
12.17
12.14
35
12.09

1 12.11
+ sec φ .05
1 12.16

(Frod 1327 is fast
1m 12.s16
at 23h 25m.
Sid time

Wed Dec 21, 1904

M. F. M. obs

Mer Cir

rather flue

23 5-4

+6 20

+28 34 (latest of T²)

+45 32

+14 39

+6 20		+28 34		+45 32		+14 39	
23ʰ 55ᵐ 8.8	37.3 50.8	6ʰ 4ᵐ 8.1	10	5 54.6	34.95 54.0	9 29	32.2 45.7
11.0	52.6	10.2	3.8	57.5	56.2 0.3 ? 4.1	4.8	47.9
14.8	55.2	15.0	5.8	3.1	7.0	9.0	50.2
17.8	58.2	18.0	10.6	7.4		11.9	53.3
19.7	59.8	20.0	12.8	10.8	13.0	13.9	57.3
2~~1~~2.2	3.9	22.2	34.0	12.9	15.6	15.8	59.4
93.3	6.0	93.5	6.80	26.3	30.2	58.3	1.8
15.55	406.5	15.58	0.0564	4.38	4.31	9.72	37.56
~~1.3372~~ 0.0026	58.07	24.75	1.3627	31.03	29.27	22.47	53.66
21.87	20.63	~~.83~~	1.4191	35.41	35.04	~~22~~	21.18
37.42	~~.70~~	40.33	2625			32.19	32.48
	37.44		40.55				

	23 55 37.43	0 4 40.44	0 6 35.22	0 9 32.34
1 12.12	23 54 25.54	0 3 28.44	0 5 23.10	0 8 20.34
1 11.89	1 11.89	1 12.00	1 12.12	1 12.00
.23	.16 ~~+.08~~	~~+.04~~ +.07	− .07	~~+.06~~ ~~+.13~~
	~~1 11.97~~	~~1 12.04~~	~~1 12.11~~	~~1 12.06~~
+0.11	1 12.05	1 12.07	1 12.09	1 12.13

1 12.05
1 12.13
1 12.07
1 12.09
34

1 12.08
.05
1 12.13

Frod 1327 is fast
1ᵐ 12.13ˢ
at 0ʰ 0ᵐ
Sid Time.

Sat Dec 24, 1904

M.F.M.S
subtle
before 12 36
34?

Mars 6 in

−0 55
+56 29 T¹ wire 8
+38 50 first of T² wire 15
+11 29 latest of T¹ wire 8 T²

11.70
11.03
67
655
1512
131
190
131
59

+151
−20
+131
+

511 −0 55
37? 32.0 0 3 138
34.2 15.7
38.0 17.8
41.0 20.8
42.4 22.7
44.6 26.8
23 22 28.9
38.70 1465
~~37.74~~
~~39.51~~
~~18.01~~ 2093
0.44 20.51
0.42
12 38 0.43
12 36 50.20
1 10.23
47
1 10.50

86
.50
1.36
27

+56 29
50? 10.0 12
13.3 24.45
20.6
25.7
29.0
32.3
1309
2182
39.37
1.19
12 51 1.19
12 49 49.49
1 11.70
~~26~~
.31
1 ~~11.44~~
1 11.39

+38 50
53ᵐ? 2.5 22.00
5.1 14537
7.5 01085
11.1 1.5622
26.2 3650
45.50
6.55
1.2201
~~1.3836~~
0.1085
~~1.4921~~ 3286
~~3.106~~ 21.31
~~35.49~~
45.24
12 ~~54~~ 52 45.28
12 51 33.98
1 1130
.04 5
1 ~~11.34~~
1 11.35

+11 29
58ᵐ? 37.35 50.6
52.4
55.2
58.2
59.8
40
3402 (68?)
56.70 407.0
1.2829 58.14
0.0088 20.92
1.2917 37.12
19.57
37.13
12 58 37.12
12 57 26.09
1 11.03
.36
1 ~~11.34~~
1 11.39

1 11.70
+1.52 11.03
~~.02~~ 0.67
~~+1.54~~ 616
540
462
780
770

.435

11.35
05
11.40

From 1327 is fast
1ᵐ 11ˢ40 ~~11.39~~
at 12ʰ 50ᵐ
sid time

n = .44
λ = 5′

Wed Dec 28 1904

Mer Cir M.F.M.

+ 59 44
+ 14 51 (before 24?)
+ 48 9 Latest of 7' more 87²
[ ) + 5 0

+ 59 44

19 51.4 47.8 17.5
55.5
22.8
3.3
28.2
31.9
88
39.9
12.4
7.1
16.0
43.9
274
~~45.9~~ .7
457
~~19.82~~ 1.842
~~33.03~~
123
399
522
1.3372
0.2975
1.6347
30.70
1.3370
0.2975
1.6345
43.12
47.69
4310
~~48.80~~ 47.60

+ 14 51

27 5.1 34.6 48.1
7.1
50.0
11.2
53.8
23.4
55.5
7.80
57.5
1.4102
18
0.0148
1.4250
39
2661
3441
3896
55.77
21.20
34.57

+ 48 9

33 20.8 40.7
43.4
47.5
51.5
54.2
04
33
3610
51.57
~~31.34~~
~~30.73~~
~~20.23~~
20.84

+ 5 ~~10~~ 0

37 11.1 39.7 528
13.2
54.6
17.1
57.2
19.8
00
21.6
20
23.7
6.1
8.1
1065
0.8
17.75
0.118
13372
0.0018
20.58
1.3390
21882
39.52
39.587

1 20 47.64
1 19 36.83
1 10.81
16 29
1 10.52

1 27 34.52
1 26 24.02
1 10.50
13 23
1 10.73

1 33 20.~~23~~ 84
1 32 10.17
1 ~~10.06~~
10.67
4 07
1 10.60

1 37 39.55
1 36 29.32
1 10.23
16 30
1 10.53

1 10.65
1 10.63
1 10.63
1 10.49
2.40
15.60
10.81
1 10.23

1 10.65
1 10.63
1 10.631
1 10.49

.358
1.71
+09
+1.62
.58
.486
9400
810
1300
1296
n = .36

1 10.52
1 10.60
1 10.73
1 10.53
2.38
1 10.60
05
1 10.65

F rod 1327 is fast
1ᵐ 10ˢ.65
at 1ʰ 30ᵐ
sid time

Thurs Dec 29, 1904

mer bx. MFH

rattle before

0 48

+60 12 lost first 2 of T²
+ 7 22
− 10 41
+ 35 7 latest 5 of T²

+60 12

0 51ᵐ 12ˢ5 98 = L 58423 11.0
16.8
24 8
30.3
33 8
37.8
1560
26.00
1.3372
03037
1,6409
43.74
9.74

45.5
509
54.6
2.9
69
280.8
56.16
~~1.2494~~
13627
0.3037
1.6664
4638
~~4.2.54~~
9.78

+7 22

44.2
48.2
51.0
52.9
548
293.4
48.90
1.3372
00036
1.3408
21.92
10.82

24.0 1ʰ 4ᵐ
26.0
28.0
31.5
33.6
37.3
39.5
220.6
31.51
20.67
10.84

−10 41

296
~~31.0~~
~~31.9~~
~~31.8~~
35.9
36.8
408
42.3
219.2
36.53
1.3372
0.0076
1,3448
22.12
58,65

58.9 11.9
140
16.8
19 5
21.2
254
27.5
136.3
19.47
20.86
58.61

+35 7

1ʰ 5ᵐ 57.0
0.2
29
78
100
17.9
358
1.3627
0,0873
1,4500
28.18
3540

0 59 10.83
0 57 60.57
1 10.26
22
1 10.48

1 4 58.63
1 3 48.44
1 10,19
31
1 10,50

1 5 35.40
1 4 24.90
1 10.50
.06
1 10.56

1 10.73
1 10.19
+.75
− 19
1,94
0,540 .278
388
1570
1358
162
1552

0 52 9.76
0 50 59.03
1 10.73
.23
1 10.50

Frod 1327 is fast
1ᵐ 10ˢ.56
at 1ʰ 0ᵐ.
Sid Time

1 10.50
1 10.48
1 10.56
1 10.50
204 51

1 10.51
05
1 10.56

n = .28

Fri Dec 30, 1904

Level

M F Mdz

Time of beginning
$0^h 0^m$
E S M T

Mark 118

Time of ending
0 35

Telescope North

W E
Zero W −39.0 −77.4
W −38.0 −76.5
77.0 153.9

Zero E +82.6 +44.0
E +81.7 +42.9
164.3 +86.9

Telescope South

Zero W −38.0 −76.8
W −38.0 −76.6
76.0 153.4

2.9750
8
23.8000

Zero E +78.1 +39.4
E +77.0 +38.4
155.1 +77.8

+319.4 +164.7
−153.0 −307.3
+166.4 −142.6
−142.6
16 23.8
1.4875
.06
~~1.8~~ .089250

.08925
.135
44625
26775
8925
.1204875

f sec φ = .12

West end high

Fri Dec 30, 1904

Collimation

McF Ck

Time of beginning
0h 35m
G S M T

Time of ending
1h 0m
G S M T

S Coll. on N. Coll.

488
50.1
48.2
51.5
49.6
248.2
49.64

Telescope of S. Coll.

32.689
.702
.697
.700
.688
3476
32.6952

Telescope on N Coll

31.479
487
487
495
499
2447
31.4894
32.6952
64.1846
32.0923
012

R A Micrometer found at 32.152

R A Micrometer 32.104 set at

Fri Dec 30, 1904

M.F.M. dr

+31 36
+39 ~~3~~44
+35 31 now 8 T²
+12 13
+5 44 missed first of T1≡
+47 27

+5 10.32 1
+12 10.47 2
+31 10.31 2
+39 10.27 2
+35 10.37 ~~1~~
+47 10.47 2
221
37

+5 10.20 (1)T
+12 10.37 (2T)
+31 10.26 2T
+35 10.34 1T
+39 10.27 2T
+47 10.49 2T
193
1 10.32

good
1 10.37
each 1 ~~1~~
1 10.4 $\frac{5}{3}$

+5° 1 10.44
+12° 1 10.58
+32° 1 10.35
+35 1 10.40
+39 1 10.29
+47 1 10.44
250
1 ~~10.42~~

47 +10.4 10.54
12 + 22 10.20
67 .34
.39
20.70

n = 39

20.73
3 48 10.54
(1) 10.19
~~7 16~~
(1) 10.35
(1) 10.26

10.54
10.00
+10.9
+10
99
.54
.495
450
396
54
545

n = .55

used
n = 25

+31 36
47.2 208 36.1
49.7 38.5
544 41.7
578 45.0
598 46.9
22 51.6
331.1 54.0
55.18 313.8
1.3372 4~~4~~.80
0.0697 24.07
1.4069 20.76
25.521

+5 44
16.95
32.0
34.7
37.4
39.2
43.3
45.4
2~~4~~2.067 (3)
38.67
~~40.33~~
1.3370
0022
1.3392
2184,1683
~~1849~~,1683
0.51 ~~1849~~
3 58 6.83
(1) 10.00
20 ~~44~~
~~(1) 10.44~~
1 10.2~~0~~

+39 44 ~~34~~
28 40.1 57.2
57 59.9
11.0 31
14.6 66
17.0 90
19.7 14.3
70.8 17.3
11.80 47.4
1.3372 6.77
0.11~~40~~ 26.60
1.45~~0~~12 40.11~~7~~
28.2~~6~~ ~~40.08~~
~~39.99~~
40.06 40.0~~7~~8
3 51 29.74
(1) 10.24
2 ~~05~~
(1) 10.29
(1) 10.26

+35 31
59.1 15.6
17.7
20.6
24.4
27.2
31.9
3 40.7
171.4
24.49
25.20
59.29
3 52 49.00
(1) 10.29
2 5~~1~~
10.40

+47 (1)
(1) 10.34
15.1 57.6 17.0
18.3 20.0
24.8 23.8
28.8 27.8
31.8 30.3
34.3 ~~31.8~~
153.1 ~~34.3~~
25.52 36.9
1.3372 39.9
0.1699 195.7
1.5071 27.96
32.15 30.32
57.67 57.64

57.66
4 1 47.12
(1) 10.54
5 ~~10~~
(1) 10.44
(1) 10.49

+12 13
71 35.9 49.2
90 51.3
131 54.0
156 56.8
180 58.4
198 29
82.6 4.9
13.77 .9
1.3372 3975
0.0099 56.79
1.3471 20.97
22.24 35.82
36.01
35.91
3 55 25.71
(1) 10.20
17 ~~38~~
(1) 10.58

1 10.37

Frod 1327 is fast
1m 10.4~~4~~3s
at 3h 55m
Sid. Time

5

mer lo in Sat Dec 31, 1904 M. F. M.

rattle through

ι Aurigae +33 1 irreg wire 8 wire 15 4 40

α Aurigae + 45 54

+28 32 first 2 of T; latest 2 of T;

+7 23 ; first 2 T²

+45 54

10ᵐ 11.3 52.2 11.2

200 17.7

11.30 238 21.4

1.4534 264 24.2

0.1574

1.6108 29.1 29.8

40.82

52.12 33.5

11 06 99.3

22.12 24.82 126.6 137.8

1.3181 1.2765 25.32 22.97

1574 0.1574 1.3627 1.3306

1.4755 1.4339 0.1574 0.1574

29.88 27.16 1.5201 1.4880

52.00 51.98 33.12 30.76

52.20 ~~52.73~~

52.21

11

5 10 52.20

5 9 41.65

assumed

r = 4

1 10.55

10.46

05

1 10.41

1 10.50

1 10.41

.11

1 10.52

1 10.50

.11

1 10.61

Sun Jan 1 1904

M.F.M.,

3 rattles after
1 43

AEFS

+ 48 8
+ 5 0
− 16 27
+63 12
+20 20 were 8 +2

(for reduction see following book
Error of Frodsham)

Frod 1327 is fast
1m 10.s27
at 1h 40m
Sid Time