

KG
11365
55

A.55

Meridian Circle

1864 July 20th

1864 Sept. 9th

Sold by T. Groom & Co., Stationers, India Building, 82 State St., Boston.

K6-11365.55

for Mean Days (also reduced)

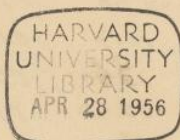
20.05

		Total		Naut.			
$nA' + B'$		$= n.S' + B$				$\Gamma^{\circ} \quad \gamma^{\circ}$	
$- B' - C'$		$- B' - A$					
Reduced to mean		nA'		$- B' - C$			
Ambr + 0.601 for 1864							
+ Pay for 9.6% July	19	+11.37	-18.28	+0.32	-8.60	0.940w	0.907w 220.6 1.027
	29	11.98	16.50	+0.16	11.07	0.695w	1.038w 202.5 1.072
Aug 8	12.54	14.27	-0.02	13.43	0.278w	1.129w	197.3 1.132
18	13.05	11.62	-0.20	13.43	0.155	1.194w	184.8 1.196
28	13.51	8.64	-0.36	16.99	0.687	1.239w	164.3 1.255
Sept 7	13.52	5.40	-0.47	18.09	0.931	1.269w	155.3 1.311
17	+14.31	-1.99	-0.54	-18.67	1.091	1.284w	147.3 1.359

This is different from Γ of heretofore used. This is such that
if δ° be the quantity taken from the "First Table"

$$\delta = \delta^{\circ} + \gamma^{\circ} \sin(\Gamma^{\circ} + \alpha)$$
 nearly nearly.

KG 11365.55



1664phae.proj...555

40 9.9238 0.1157
 30 9.7614 0.0625
 20 9.5611 0.0270
 10 9.2463 0.0066
 0
 -10
 -20
 -30

Instrumental Corrections

	July 27	July 29	Aug 1	Aug 2	Sept 2	Sept 6	Sept 7	Sept 9
n =	+0.158	.102	.060	.110	.141	+.320	+.399	+.328
c =	+0.338	.338	.338	.338	.338	-.360	-.360	-.360
	9.5287	9.5289	9.5281		9.5289	9.5051		
+ 40°	+0.574	+0.577	+0.491	+0.504	+0.562	-0.201	-135	-194
30	0.481	.449	0.425	.454	0.471	-0.230	-184	-225
20	0.418	.392	0.382	.400	0.411	-0.266	-237	-263
+ 10	0.371	.361	0.354	.362	0.369	-0.300	-296	-309
0	0.338	.338	0.338	.338	0.338	-0.360	-360	-360
- 10	0.315	.325	0.332	.316	0.319	-0.422	-436	-423
20	0.302	.323	0.338	.320	0.309	-0.500	-529	-503
30	+0.299	.331	0.355	.326	0.309	-0.600	-646	-605
- 40	+0.308	+0.355	+0.391	+0.348	+0.324	-0.739	-805	-746

Interpolate

K

1864 July 20th W.W. The list reversed to E Sept July 22nd

next page

J.H.S.

" W Sept. 6th
" E Sept. 9th

γ Muscae min	μ Serpentin	μ Serpentin	δ UMa min	δ Scorpis
	42.7	24.0	22.6	10.2
	46.7	27.9	42.3	14.6
	49.2	30.4	54.6	17.2
6.5	53.1	34.1	13.2	21.3
17.3	56.4	37.6	28.7	24.8
	248.1	154.0	161.4	88.1
15-20			281.4	
15-20	15-39 49.62	15-42 30.80	15-48 56.28	15-52 17.62

564 July 20^h 24^h Vent.

746

Arg + 3° 31' 57"

ε Ophiuchi

σ Serpentis

Arg + 0° 35' 11"

Arg + 1° 32' 29"

+ 200° 00' 57"

24.7

0.2

3.7

2.5

33.9

28.6

4.2

7.7

6.2

37.9

31.1

6.7

10.3

9.0

40.3

34.9

10.6

13.7

12.7

44.2

38.2

13.9

17.2

15.8

47.4

152.5

35.6

52.8

46.2

203.7

16 7 31.50

16 11 7.12

16 15- 10.56

16 16 9.24

16 21 40.74

Arg + 2° 3128?

~~Arg + 151~~

P X VI 151

(14 Aphnechis
see end

Σ Mercuris

Start - end

B. 4.6 5625

Arg + 1° 5309

4.4	15.8	0.4	55.3	12.5-
8.1	19.6	5.1	59.2	16.3
10.7	22.1	8.2	1.8	18.8
14.5	25.9	12.5-	5.5-	22.5
17.7	29.3	16.4	8.7	25.8
55.4	112.7	42.6	130.5	95.9

16^h 26^m 11.08

16 34 22.54

16^h 36^m 8.52
12.44

16 40 2.10

16 41 19.18

1864 July 20th EMR int

71.8

Arg + 0°3593

Arg + 0°3654

 α Hercules

Arg + 1°3408

40 optima

0.5	52.6	19.2	30.6	44.4
4.4	54.4	23.2	34.5	48.6
7.0	56.9	26.9	37.0	57.2
10.7	06	29.7	40.8	55.3
14.0	4.0	33.0	44.0	58.8
36.6	166.5	131.0	186.9	259.3

16 46 7.32

17 6 52.20

17 8 26.20
30.16

17 9 37.38

17 12 51.66

not page

θ Ophiuchi	Arg + 0° 31' 36"	by Canall B gr	θ Ophiuchi	Arg + 0° 37' 13"
32.5	0.0	17 17 23.2	30.0	6.5
36.9	4.0	18 20.	34.0	10.2
39.7	6.4	18 46.4	36.5	12.9
43.8	10.1	19 16.7	40.4	17.1
47.4	13.4	20 0.8	43.7	20.4
200.3	22.9	89.1	184.6	67.1
17 13 40.06	17 16 6.78	17 18 41.82	17 28 36.92	17 37 12.42
43.82		5 18 48.96	40.74	

July 29th LUTV cont

H.S.

Ri XII 266

 μ Sagittarii γ Serpentis δ Myio min θ Sagittarii

33.0

31.1

9.6

?

23.2

38.9

35.2

13.5

18 16 28.7

29.5

41.5

38.0

16.0

16 12.2

32.2

45.3

41.8

19.7

17 16.4

36.2

48.5

45.6

23.1

18 10.9

39.8

209.2

191.7

81.9

162.9

17 45 41.84

18 5

38.34

18 14

16.38

18

16 18.18

18 56

32.58

42.06

16 18.20

86°31'28" W 1.22790

A 17.82 - 1 53.08

B 19.04 - 57.36

C 17.91 + 5.71

D 17.93 + 49.23

E 17.93 + 55.46

δ Sagittarii	ω Aquilae	δ Sagittarii	γ Aquilae	α Aquilae
	19.2		14.0	40.7
38.2	23.1		23.6	44.8
40.7	25.5		26.2	47.2
44.8	29.5		30.3	51.1
48.3	32.9		34.1	54.4
	130.2		133.2	236.2
19 1	19 11 26.04	19 28 26.64	19 39 47.64	19 44 8.86
	29.65	30.12	51.40	12.67

A 11.12 7.14
 B 16 3.64
 C 16 0.36
 D 13 3.13

16.7 7.4
 26.6 3.7
 26.6 11.1
 27.0 3.4
 26.5 7.5

14 July 20 LMT out

3 Aquilae

ε Perseus

14 Apheuchi

Star X

31.1

54.6

42.0

27.8

35.1

58.5

48.9

31.8

37.7

1.1

48.5

34.3

41.5

4.7

52.2

38.1

44.7

8.2

58.8

41.4

190.1

127.1

264.1

173.4

14 48

38.02

15 44

7.1

16 34

68.82

16 38 84.68

61.78

15 44

1.42

Finn

Check Errors July 20th

5 Hercules	16 36	-0.37	-4.29	+4.26	-03	
α Hercules	17 9	-0.36	4.32	4.22	-10	✓
δ Ophiuchi	17 14	-0.46	4.22	4.21	-01	
α —	17 29	-0.36	4.18	4.19	+01	✓
μ Sagittarii	18 6	-0.44	4.16	4.16	00	
ω Aquarii	19 11	-0.36	3.97	4.09	+12	
ϵ Sagittarii	19 28	-0.46	3.92	4.07	+15	
γ Aquarii	19 40	-0.36	4.12	4.06	-06	✓
α —	19 44	-0.36	4.17	4.05	-12	✓
β —	19 49	-0.36	4.12	4.05	-07	✓
	18 27		-4.149			

Pro Rate
Folio
Adopted

+0.057

0.073

+0.064

Longitude
(+012)

July 22^d M East
2195

Coronae	α Serpentin	δ Serpentin	μ Serpentin	ϵ Serpentin
41.6	21.3	45.7	27.0	57.0
53.3	32.6	48.9	30.2	0.7
57.3	36.3	52.7	33.9	4.6
0.3	38.9	55.3	36.4	7.1
4.8	42.9	59.3	40.5	11.1
165.3	180.0	261.9	168.0	81.1
				21.1
15-28 57.06 58.42	15-37 36.10 37.27	15-39 57.38	16-42 33.60	15-44 4.22

ξ Norae minor	γ Serpentis	δ Scorpii	ζ F50 sp	β Scorpii
23.7	57	13.1	—	27.6
39.3	85	16.8	—	30.9
56.0	12.4	20.7	15 55 3.2	35.0
10.2	15.2	23.6	55-47.0	37.7
29.8	19.3	27.8	58 27.0	41.9
161.0	60.5	102.0		173.1
281.0				
15-48 56.20	15-50 12.10	15-52 20.10	15-55 7.01	15-57 34.62
			3 55 2.40	35.70

$\delta 85^{\circ} 11' 13.7''$ 10/6/22

A 7.25 19.75
 B 1.55 40.45
 C 7.25 4.03

July 22^d 24 Events

<i>A Draconis</i>	<i>δ Ophiuchi</i>	<i>π Ophiuchi</i>	<i>ε Herculis</i>	<i>2 hrs. min</i>
8.2	8.8	9.3	54.2	
14.4	12.3	12.4	2.8	16 59 133.8
21.7	15.4	16.4	7.3	17 0 0.3
26.4	18.4	18.9	10.2	19.2
34.3	22.5	23.0	14.8	
105.0	77.9	80.0	94.3	
			34.3	
15-59 21.00	16 7 15.58	16 51 16.00	16 58 6.86	16 59 57.64
	16.60			17 11 2.33

 $\delta 82^{\circ}15'31'' 9.12921$
 $\beta [59.00] + 25.20$
 $\gamma 57.77 - 2.57$
 $\delta 57.57 21.63$

next page

α Herminia	δ Ophiurhi	64 Canal Bp	α Ophiurhi	δ XrII 177
22.0	35.3	—	32.7	12.5
25.4	39.0	17 18 21.0	36.2	15.9
29.3	43.2	—	40.0	—
31.9	45.9	—	42.4	—
35.9	50.3	—	46.7	26.3
144.5	213.7		198.2	
17.8 28.90	17 13 42.74		17 28 39.64	17 32
30.15	43.80		40.73	

19.19
19.29
19.47

1864 July 22^d M. E. cont

MS

B. Ophiuchi 61 Ophiuchi pr 61 Ophiuchi folk

41.2

40.4

41.9

44.4

43.7

44.9

48.2

52.7

54.7

54.6

55.3

239.12

17 36 47.84

17 37 47.12

17 37 48.45

47.09

29

17

48.59

29

47

α Coronae	15 29	+0.46	-0.90	-0.87	-03
α Lupantis	15 38	+0.36	-0.91	0.86	-05
β Scorpii	15 58	+0.30	-0.78	0.83	+05
δ Ophiuchi	16 7	+0.33	-0.69	0.82	+13
α Herculis	17 4	+0.39	-0.86	0.75	-11
δ Ophiuchi	17 14	+0.30	-0.76	0.75	-01
α ———	17 29	+0.38	-0.71	+0.73	+02

16 26 -0.801

$\frac{\text{Pratt}}{\text{Jell}}$ + 0.073
 $\frac{\text{Adopted}}{\text{Jell}}$ 0.045
 0.069

Shy 23rd ME

W.A.R.

<i>L Heron</i>	<i>7 Heron</i>	<i>K Ophiuchi</i>	<i>2 Heron</i>	<i>L Heron</i>
4.8	8.3	10.7	0.6	23.5
8.5	12.0	14.2	4.6	26.9
13.0	17.0	17.9	8.8	30.8
16.1	20.7	20.6	11.8	33.5
20.8	25.7	24.5	15.3	36.6
63.2	84.9	87.9	41.1	152.3
16 36 12.64 12.40	18 ⁶ 38 16.98	16 57 17.58 17.21	16 55 8.22	17 8 30.46 30.14

not pag

?

β Draconis	δ Phicini	μ Herminia	ψ Draconis	ψ Draconis
18.7	34.3	4.2	2.2	not obs
19.0	37.6	7.9	12.7	
26.1	41.4	12.2	25.2	
29.3	44.0	15.0	33.4	
36.7	48.1	19.4	46.7	
122.8	205.4	58.7	120.2	
17 27 24.56	17 28 41.08	17 41 11.74	17 44 24.04	
	40.73	11.42		

1864 July 23rd 2

WARR

Reject

4 Hawaii

70 Ophiuchi

41 Deneb

7 Serpens

8 Ursa

19.3

32.4

[40.7]

14.0

24.5

35.6

[59.9]

17.2

30.6

39.3

20.9

18 16 15.5

34.7

40.9

23.6

16 58.6

41.0

46.0

27.5

18 7.0

150.1

19.4.2

103.2

17 53 30.02

17 58 38.84

18 9

18 14 20.64

18 16 10.56

18 16 17.60

8636'288 1.22792

A 1 52.09

B 57.36

C 9.79 5.71

D 10.37 4.23

E 11.53 55.47

fimi

Lyrae

51 Capri H₂

15.2			
19.3	18	34	49.2
24.2		35	44.5
27.3		37	1.0
32.4		38	10.3
118.4			

18	32	23.68	18	35	50.76
		23.37	6	35	39.28

5 Hercules	16	36	+0.50	+0.74	-0.72	+0.2
14 Ophiuchi	16	51	0.37	0.74	0.73	+0.1
2 Hercules	17	9	0.39	0.71	0.75	-0.4
2 Ophiuchi	17	29	0.38	0.73	0.77	-0.4
14 Hercules	17	41	0.47	0.79	0.78	+0.1
2 Lyrae	18	32	+0.56	+0.87	0.83	+0.4
	17	23		0.763		
Pro K				0.065		
304				0.056		
				0.061		

87° 14' 26" 8.68257

A -2	18.99	51.31
B -1	10.50	50.50
C +	7.02	51.52
D +1	0.51	49.71
		50.76

564 July 26th M East
7195

Polaris α			α Virginis			α Bootis			α Coronae			α Serpentis		
13	5	58.7			1.8			26.8			55.2			34.8
	8	35.1			5.1			30.3			58.8			38.2
	10	16.3			9.0			34.3			3.1			41.9
	12	~~58.7~~			11.4			37.0			5.8			44.5
	15	5.0			15.6			41.3			10.4			48.4
					42.9			119.7			133.3			207.6
13	10	33.06	13	18	8.58	14	9	33.94	15	29	2.66	15	37	41.56
	10	5.61			4.34			29.23		28	58.36			37.22

$88^{\circ} 36' 58''$ 1.60677
 34.62 - 4 30.58
 $[36.96]$ - 2 17.26
 29.97 + 13.67
 32.89 + 1 57.79
 34.98 + 4 36.78

next page

ζ Urae min	γ Serpentis	δ Scorpion	ζ 179 ep	δ Ophiuchi
28.9	10.6	18.7	5.0	14.3
44.7	14.1	22.3	29.0	17.6
32	17.9	26.3	44.1	21.3
15.2	20.6	29.0	7.1	23.9
34.8	24.7	33.3	26.6	27.8
126.9	87.9	129.6	111.8	103.9
6.9			231.8	
15 49 1.38	15 50 17.58	15 52 25.92	16 3 46.36	16 7 20.98
				16.56

1864 July 26th M G

α Scorpii	η Draconis	ζ Optimus	δ Leporis	ζ Herculis
5.4	—	41.6	31.7	—
9.2	7.9	44.9	57.4	—
13.2	15.9	48.8	13.4	17.1
16.1	21.1	51.3	37.5	20.1
20.5	29.5	53.4	—	24.7
64.4		242.0		
16 21 12.88	16 22	16 29 48.40	16 36	16 36 16.68
8.36				12.35

1670 - 0.40
 57 - 3.43
 86 - 8.04

next page

ϵ Serpenti	δ Spittarii	η Serpentis	δ Ursae minoris	α Lyrae
22.5	18.8	18.1		19.2
26.3	22.4	21.4	18 15 16.5	23.4
30.9	26.9	25.1	16 19.1	28.3
33.9	29.8	27.7	17 2.8	31.4
38.7	34.8	31.6	18 9.4	36.5
152.3	132.2	127.9		138.8
16 41 30.46	18 12 26.44	18 14 24.78	18 16 13.69 16.97	18 32 27.76 23.36

Lu 23,

13.86

13.39

13.57

13.93

1

1864 July 26th M G

Wind bot. Limit to. in Down

B Lyrae

o Sagittarii

θ Serpentis pr.

θ Serpentis fol.

50 Draconis

3.5

57.6

29.2

30.6

7.4

53.2

32.5

34.0

38.0

59.5

36.3

37.7

53.2

2.2

38.8

40.3

3.2

6.6

42.8

44.2

18.4

175.1

179.6

186.8

295.1

18 45 11.48
6.94

18 46 59.02

18 49 35.92

18 49 37.36

18 50

11.50

8.00

11.46

4.06

<i>E. Aquilon</i>	<i>o. Sapientarii</i>	<i>ζ. Aquilon</i>	<i>π. Sapientarii</i>	<i>α. Apuloe</i>
28.4	33.8	11.0	42.3	27.6
31.7		14.3	45.4	30.9
35.6		18.2	48.9	34.7
38.2	44.1	20.8	52.5	37.2
42.3	48.4	24.8	~~56.3~~	41.2
176.12		89.1		171.6
18 53 35.24	18 56	18 57 17.82 13.17	14 1	19 11 34.32 29.67

Lahy w

49.48

54

54

37

49.48

5/4 July 28th 212 East end

71.5

 δ Aquilae ϵ Vulpeculae β Cygni pr β Cygni folk κ Sagittarii

40.2

3.7

14.7

17.0

27.6

43.6

7.2

18.5

20.7

31.1

47.3

11.4

22.9

25.0

35.5

49.8

14.2

25.6

27.8

38.4

53.8

16.5

30.1

32.3

42.4

234.7

55.0

111.8

122.8

175.0

19 18 46.94
52.28

14 23 11.00

14 25 22.36

19 25 24.56

19 28 35.00
30.15

next page

θ Cygni	γ Apollon	α Apollon	β Apollon	γ Sagittae
45.3	49.2	10.5	39.8	43.9
50.3	52.5	13.8	43.0	47.2
56.1	56.4	17.7	46.9	51.2
0.0	58.9	20.2	49.4	54.0
6.3	2.9	24.2	53.3	58.1
158.0	219.9	86.4	232.4	254.6
278.0				
19 53 55.60	19 39 55.98	19 44 17.28	19 48 46.48	19 52 50.88
	51.42	12.69	41.82	

1864 July 26th 211 East mt

3795

9 Aquilae

2' Capricorni

2' Capricorni

0.6

8.4

325-

4.1

11.9

358

8.0

15.8

39.7

10.6

18.3

42.3

14.6

22.3

46.3

36.9

71.7

196.6

20 8 7.38

20 10 15.34

20 10 39.32

10.59

34.52

fin

α Virginis	13 18	+0.31	+4.55	-4.69	-1.21
ϵ Bootis	14 9	+0.42	4.63	-4.73	-1.10
δ Monoceros	15 29	+0.43	4.77	-4.79	-0.02
δ Sculptoris	15 38	+0.36	4.70	-4.80	0.00
δ Ophiuchi	16 7	+0.23	4.75	-4.83	-0.08
δ Serpens	16 21	+0.20	4.82	-4.84	-0.02
ζ Hercules	16 36	+0.50	4.83	-4.88	-0.05
α Geminorum	18 32	0.56	4.96	-4.95	+0.01
β —	18 44	0.51	5.05	-4.96	+0.09
ζ Aquarii	18 59	0.39	5.04	-4.97	+0.07
ω —	19 11	0.38	5.03	-4.98	+0.05
δ —	19 19	0.35	5.01	-4.99	+0.02
δ Sagittarii	19 29	0.30	5.15	-5.00	-0.15
γ Aquarii	19 40	0.37	4.93	-5.00	-0.07
δ —	19 44	0.36	4.95	-5.01	-0.06
β —	19 49	0.35	5.01	-5.01	+0.00
δ Capricorni	20 10	0.31	5.06	-5.03	+0.03
δ —	20 11	0.31	5.11	-5.03	+0.08

17 52 +4.914

Pro R +0.056
 July +0.053
 +0.058

864 July 27th M East

α Scorpii	η Draconis	β Herculis	ϵ Scorpii	ζ Ophiuchi
6.6	2.4	23.7	27.5	42.8
10.2	9.0	27.1	31.2	46.0
14.3	16.9	30.2	35.3	49.7
17.2	22.1	33.9	38.2	52.3
21.6	30.8	38.2	42.7	56.3
69.9	80.6	154.1	174.9	247.1
16 21 174.98 8.35	16 22 16.12	16 24 30.82	16 27 34.98	16 29 49.42

min

 ϵ Scorp κ Ophiuchi

23.7

15.9

27.7

19.2

32.3

23.0

35.1

25.6

40.2

29.6

159.0

113.3

16 41 31.80

16 51 22.66

17.17

 ϵ Scorp - 0.30 5.93 κ Ophiuchi + 0.37 5.86

5.895 16 36

1864 July 28th 11th E ast
 H.S.

40 Opimichi		0 Opimichi		L Opimichi		B Opimichi		μ Hermin	
	55.3		43.4		40.9		49.1		10.7
	59.0		47.2		44.3		52.4		14.6
	3.0		51.2		48.0		56.3		18.8
	5.7		54.2		50.6		58.7		21.6
	7.9		58.4		54.7		2.7		26.0
	13 2.9		254.4		238.5		219.2		91.7
	12.9						279.2		
17	13 2.58	17	13 50.88	17	28 117.70	17	36 55.84	17	41 18.34
			43.77		40.70				11.38

next page

ψ' Draconis μ	ψ' Draconis μ	γ Ophiuchi	μ Sagittarii	γ Draconis
8.3	10.1	39.1	42.1	—
18.9	20.6	42.2	45.6	0.4
31.4	33.3	46.0	49.6	—
39.7	41.7	48.5	52.4	37.2
52.8	54.6	52.5	56.6	54.8
151.1	160.3	228.3	246.3	
17 44 30.22	17 44 32.06	17 58 45.66	18 5 49.26 42.06	18 10

1864 July 28th M East

ZHS

41 Draconis	δ Sagittarii	η Serpentis	δ Ursa minor	α Cygni
	21.5	20.6		21.7
7.1	25.2	23.9	18 15 19.6	25.9
28.6	29.5	27.7	16 22.5	30.7
43.3	32.3	30.2	17 4.7	34.0
6.1	36.9	34.1	18 12.4	39.1
	145.4	136.5		151.4
18 9	18 12 29.08	18 14 27.30	18 16 15.54 16.43	18 32 30.28 23.35

16.97 57.77
 16.79 5.71
 15.66 49.24
16.92 151.48

next page

57 April 14	110 Hercules	0 Sagittarii	50 Deneb	2 Aquila
18 33 34.7	52.0	54.0	27.9	30.8
—	53.6	57.8	40.9	34.2
35 50.3	54.6	1.9	55.7	38.1
—	2.2	4.7	5.4	40.7
—	6.4	9.2	20.9	44.8
	175.8	127.6	150.8	188.6
	295.8	7.6	270.8	
18 35 56.96 40.65	18 39 59.16	18 47 1.52	18 50 54.16	18 53 37.77

87° 14' 24" 1.31741

C 07.3 + 7.02

E 51.60 + 2 21.90

5/14 July 28th M. G. ant

H.S.

α Sagittarii	π Sagittarii	γ Aquilae	δ Capricorni	δ Capricorni
56.3	44.8	51.8	11.9	34.9
39.7	48.3	55.0	14.3	38.2
43.8	52.3	59.0	18.1	42.0
46.5	55.0	11.5	20.7	44.8
50.8	58.3	5.5	24.8	48.7
237.1	259.7	172.8	86.9	208.4
177.1				
18 56 35.42	19 1 51.94	19 ³⁹ ~~38~~ 58.56 51.43	20 10 17.78 10.60	20 10 41.68 53.53

fins

July 28th Uick - Erong

<i>A. Ophionis</i>	-0.30	7.41	17.14	-7.38	+03
<i>a</i>	0.38	7.38	17.29	7.39	-01
<i>u. Herules</i>	0.47	7.43	17.11	7.40	+03
<i>u. Sagittarii</i>	0.30	7.52	18.6	7.53	+09
<i>e. gran</i>	0.56	7.49	18.32	7.46	-03
<i>v. Aquilae</i>	0.37	7.50	19.40	7.52	-02
<i>a. lapivom</i>	0.31	7.49	20.10	7.55	-16
<i>v</i>	0.31	7.46	20.11	7.55	-19
+7.460 18.37					
+0.010 Bu R					
0.010 Full					
+0.010 Release					

1864 July 29th M.E.

74.5

+ Ophiuchi		γ Aquilae		α Aquilae		β Aquilae		Aldebaran B	
42.2		53.1		14.6		43.7	19	54	35.5
45.7		56.5		17.7		47.0		57	26.7
48.6		0.4		21.5		50.8	20	0	43.0
52.2		2.9		24.1		53.3		2	36.2
56.2		7.0		26.2		57.3		6	20.9
265.9		119.9		106.1		252.3			162.3
17 28 49.18	19 39 59.98	19 44 21.22	19 48 50.46	20 0 27.46					
50.69	51.43	12.70	41.83	38.58					

next page

	δ Aquilae	δ^1 Capricorni	δ^2 Capricorni	γ Cygni	α Cygni
8.5	4.5	12.4	364		50.8
6.7	7.9	15.6	39.7	[28.4]	53.3
3.0	11.8	19.5	43.6	[33.5]	0.5
6.2	14.5	22.2	46.3	36.7	4.2
9	18.4	26.2	50.2	42.0	9.6
3	57.1	95.9	216.2		120.4
46	20 8 11.42	20 10 19.14	20 10 12.24	20 17	20 37 0.08
8		10.61	34.54		36 51.63

1864 July 29th M.E.
 7 H.S.

32 Wilpenstar	61 Lygni pr	61 Lygni fork	5 Lygni
.508	52.3	53.8	13.8
57.4	56.4	58.0	17.5
58.7	1.3	2.8	21.8
1.3	4.4	5.7	24.8
6.0	9.4	10.9	29.4
171.4	255.2	131.4	107.3
	Medium	11.4	
20 48 58.28	21 1 1.52	21 1 2.28	21 7 21.46
49.69	0 52.94		12.79

finis

α <i>Ophiuchi</i>	+0.37	8.86	17	29	-8.82	+04
γ <i>Antares</i>	0.36	8.91	19	40	8.95	-04
δ —	0.35	8.87		44	8.96	-09
ρ —	0.35	8.98		49	8.96	+02
ϵ <i>Capricorni</i>	0.32	8.89	20	10	8.99	+10
ν —	0.32	9.02		11	8.99	+03
κ <i>Lyrae</i>	0.38	9.03		37	9.01	+02
32 <i>Therapsid</i>	0.53	9.02		49	9.02	00
01 <i>Lyrae</i>	0.51	9.09	21	1	9.04	+05
ζ —	0.45	9.12		7	9.04	+08
		- 8.979	20	4		
<i>Pro R</i>		+0.060				
		+0.062				
		0.061				

564 July 30th ME

46

ζ Hermin	ϵ Scorp	ζ^2 Scorp	ϵ Ursae minor	η Ophiuchi
14.3	27.9	7.3	19.0	41.8
15.0	31.8	11.7	42.9	45.1
22.6	36.3	16.6	11.0	49.1
25.5	39.5	20.1	29.9	51.6
30.1	44.2	25.2	59.2	54.8
110.5	179.7	80.9	162.0	243.6
16 36 22.10	35.94	16 45 16.16	17 0 8.40	17 2 48.68
12.29			1.20	

Apert.

8.69
8.10
8.49
8.27
8.46
8.40

δ Herminis	π Herminis	64 Laurel Bp	δ Opimicus	61 Opimicus pr
33.1	22.9	17 17 48.1	438	57.3
36.4	27.0	18 33.7	47.1	54.4
40.3	31.7	19 2.8	51.0	58.2
42.9	34.9	19 47.2	53.6	0.8
46.9	39.9	20 25.8	57.6	4.7
179.6	156.4	157.6	253.1	169.4
				289.4
17 8 39.92	17 10 31.28	17 19 7.52	17 28 50.62	17 37 57.88
30.08		18 51.34	40.68	

1864 July 30th M Edm^t

JHS

61 Ophiuchus foll	γ Draconis	μ Sagittarii	40 Draconis	41 Draconis
52.6	28.7	45.0	44.8	51.0
56.1	34.0	48.3	3.4	9.6
59.7	40.0	52.5	25.3	31.6
2.2	44.0	53.1	39.3	45.8
6.3	50.4	59.5	2.4	9.0
126.9	197.1	260.4	115.2	147.0
296.9				
17 37 59.38	17 53 39.42	18 5 52.08 42.03	18 10 23.04	18 10 29.10

next page

δ Sagittarii	η Serpentis	δ Ursa minoris	α Lyrae	51 Capri
24.2	23.5		24.4	18 33 38.2
27.9	26.8	18 15 21.3	28.9	34 59.9
32.4	30.5	16 24.1		35 53.9
35.2	33.1	17 7.3	41.1	37 11.0
39.8	37.1	18 14.6	41.9	38 19.7
159.5	151.0			
18 12 31.90	18 14 30.20	18 16 18.56 15.84	18 32 33.20 23.33	36 0.54 35 41.37

Lar 28

18.67

18.39

18.06

19.11

33.19 8.59

33.25 6.35

33.15 8.75

1864 July 30th M.E. cont

7/145

6.1 gpm hr 6.1 gpm / all 5 gpm

—

—

16.4

—

—

19.0

—

—

23.3

—

7.5

26.3

10.9

12.3

30.7

114.7

21 1 2.96
0 52.95

21 1

21 7 22.94
12.80

1.70

8.66

2.22

3.80

3.62

fini

ζ Herminia	0.65	+10.26	16 36	-10.26	00
α Herminia	0.38	+10.22	17 8	10.30	-08
α oprianti	0.37	10.37	29	10.32	-01
μ Sagitt	0.32	10.37	18 6	10.35	+02
α Grae	0.51	10.38	32	10.38	00
61 Cygni	0.51	10.52	21 1	10.52	00
ζ —	0.65	<u>10.59</u>	7	10.53	+06
			<u>129.57</u>		
		+10.379	18 34		
		+0.062	Pro Rate		
		<u>0.053</u>			
		+0.058			

1864 Aug 1st ME

7145

 δ Serpenti μ Serpenti γ Serpenti β Serpi α Scorpi

42.8

40.3

186

40.9

0.3

46.0

43.6

21.9

44.4

3.7

49.8

47.5

25.8

48.4

7.8

52.4

50.0

28.5

51.1

10.4

56.4

53.9

32.6

55.2

14.7

247.4

235.3

127.4

240.0

36.9

15 37 49.48
37.15

15 42 47.06

15 50 25.48

15 57 48.00

15 59 7.38

net mag

σ Serpenti	BK 5493	α Scorpii	Optimist 2113	δ Optimist
20.1	8.2	13.4	—	97 12.4
23.5	11.3	17.1	—	156
27.2	15.2	21.2	54.4	19.3
29.7	17.7	24.0	56.9	21.8
33.7	21.6	28.3	0.8	77 25.8
134.2	74.0	104.0		949
16 15-26.84	16 20 14.80	16 21 20.80 8.29	16 21	16 24 18.98

54.06

53.99

.97

1864 Aug 1st M^t cont

T Scorp

S Ophiuchi

50 Alpha Hy

19 Ophiuchi

E Scorp

		49.5	16	34	40.2		27.5		30.3
37.9		52.9		35	5.2		30.7		34.2
42.1		56.7			21.5		34.7		38.7
45.0		59.1			45.5		37.1		41.8
49.4		3.2		36	6.0		41.0		46.6
		221.4			118.4		171.0		191.6
		281.4							
16 27	16 29	56.28	16	35	23.68	16 40	34.20	16 41	38.32

α Herculi	δ optici	η Serpenti	δ Annae omion	α Grae
35.6	0.7	26.2		27.2
39.0	4.2	29.3	18 15 24.0	31.4
42.8	8.2	33.1	16 26.6	36.1
45.5	10.9	35.7	17 10.1	39.5
49.5	15.2	39.6	18 16.0	44.5
212.4	39.2	163.9		178.7
17 8 42.48	17 13 7.84	18 14 32.78	18 16 20.91	18 32 35.74
30.05			15.23	23.31

86°36'31" 1.22800

B 21.37 57.37
 C 20.69 5.71
 D 20.86 49.24
 E 20.51 1 55.47

1864 Aug 1 Star Chart

945

51 Aphro Hg

110 Accurati

5 Sagittarii

2 Aquilae

3 Aquilae
actual

d' Capriani

18	33	41.3		57.5		59.5		18.6		16.5				
	35	3.6		0.9		3.1		21.9		19.7				
	35	55.7		5.7		7.3		25.6		23.6				
	37	14.2		7.6		10.1		~~28.3~~		26.2				
	38	21.6		11.9		14.5		32.1		30.2				
		136.4		83.0		94.5				116.2				
				23.0		34.5								
18	36	3.28	18	40	4.60	18	47	6.90	19	44	25.29	20	10	23.24
	35	42.10									12.70			10.50

13

25.29 + 6.77
30 + 3.43
26 - 0.54
- 2.94
- 19 - 6.91
25.29

next page

α Capricorni	α Cygni	32 Vulpeculae	76 Draconis	5 Cygni
40.3	54.9	54.8	20 51 44.4	17.8
43.6		58.4	52 8.1	21.5
47.6	4.6	2.7	35.6	25.9
50.2	8.1	5.6	53.2	28.7
54.3	13.7	10.1	53 22.6	33.3
236.0		131.6	163.5	127.2
20 10 47.20	20 37 4.13	20 49 2.32	20 52 32.70	21 7 25.46
34.56	57.64	58 49.71		12.72

Mixed up with
Equatorial observations

4.33 9.43
4.78
4.12 0.48
4.00 4.10
4.07 9.63

1864 Aug 24 E cont

1145

2 Apr 74	1 Dec 14 Apr	119 Apr 13	13 Aquilae
22.5	21 16 48.8	21 23 40.7	47.6
24.5	17 17.3	24 10.4	57.0
37.6	34.8	44.2	54.9
42.8	18 1.8	25 7.4	57.3
51.2	25.1	42.7	1.3
183.6	127.8	145.4	212.1
21 15-36.72	21 17 37.56	21 24 41.08	19 48 54.42
	9 17 21.78	24 30.98	41.83

~~11 = +0.050~~ ~~12 = +0.020~~

α Lupulii	15 38	+0.35	⁹ 12.68	-12.72	-0.04
α Scorpis	16 21	0.35	12.86	12.79	+0.07
α Herculis	17 8	0.37	12.80	12.84	-0.04
α Draconis	18 32	0.48	12.99	12.88	+0.11
α Aquilae	19 44	0.35	12.94	12.97	-0.03
β Aquilae	19 49	0.35	12.94	12.98	-0.04
α Capricorni	20 10	0.33	12.94	13.00	-0.06
α Capricorni	20 11	0.33	12.97	13.00	-0.03
α Cygni	20 37	0.54	13.03	13.03	.00
β Cygni	20 49	0.41	13.02	13.04	-0.02
γ Cygni	21 7	+0.42	+13.14	13.06	+0.08

19 6 +12.936

Rate Per 0.152
 Fr 11 0.072
 11.062

1864 Aug 5th 216 E

195

α Serpentis	μ Serpentis	β Scorpii	δ Ophiuchi	ϵ Scorpii
49.6	47.2	47.8	28.8	20.2
52.9	52.3		32.3	23.9
56.6	54.0	53.2	36.0	26.0
59.3	56.6	58.0	38.7	30.9
3.2	0.5	2.3	42.6	35.2
221.6	208.6		178.6	138.2
	268.6			
15 37 56.32	15 42 53.72	15 57 54.93	16 7 35.88	16 21 27.64
37.09		35.55	16.45	8.24

15 38 19.59
 16 21 19.72
 + 19.655

0.0255
 $A + \frac{7.09}{3.7} = 54.89$
 $B + \frac{3.60}{3.7} =$
 $C - 0.24 = .86$
 $D - 3.09 = .91$
 $E - 7.24 = 55.06$
 54.93

fines

η Draconis	η Camelopardis
15.5	41.2
22.2	50.5
30.1	57.2
35.8	6.2
43.9	14.3
147.5	169.4
	289.4
16 22 29.50	16 40 57.88

Clock-Error

15 38	+0.25	19.65	-0.1
58	0.33	19.73	+0.6
16 7	0.32	19.58	-10
21	0.05	19.75	+0.5
16 1		+19.675	+11
Pre R		+0.072	-11
Tolly		+0.057	00
		+0.015	

1864 Aug 5	16 1	5	Clock Correction	N	$\Sigma \Delta \alpha$
			-19.675	4	00

1864 August 8th M E

7115

ϵ Scorp	η Draconis	β Herminis	ζ Optimis	ζ Herminis
24.2	19.4	41.4	0.5	27.7
27.9	26.3	44.8	3.7	31.5
31.9	34.6	48.7	7.5	35.7
34.9	39.6	51.6	10.0	38.8
37.3	42.9	53.8	14.2	43.5
158.2	167.2	242.3	35.9	177.2
16 21 31.64 8.20	16 22 33.44	16 24 48.46	16 30 7.14	16 36 35.44 06 12.14

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next page

η Herulis	ϵ Herulis	ϵ Ursae min	δ Herulis	δ Optivimbi
31.1	23.5		46.5	57.2
35.3	27.3	53.5	49.8	0.5
40.0	31.6	22.5	53.6	4.3
43.5	34.8	42.1	56.4	7.9
47.5	39.2	11.0	0.4	11.0
19 7.4	156.4		206.7	80.0
16 38 39.48	16 53 31.28	17 0 20.36	17 8 53.34	17 29 4.00
		16 59 59.86	29.97	28 40.58

52°15'39"6 9.12924

A 49.69
 B 20.70 25.20
 C 19.99 2.51
 D 20.97 21.63
 E 20.26 50.74

8th Aug. 8th M E cont

145

α Herulis	ψ' Draconis pr	ψ' Draconis foll	γ Draconis	γ Draconis	γ Draconis
27.1	24.3	26.2	42.1	53.7	
30.7	34.9	36.7	47.4	58.6	
34.9	47.0	48.9	53.4	2.3	
37.9	55.5	57.6	57.6	4.9	
42.3	84	10.2	3.8	8.8	
172.9	170.1	179.6	204.3	130.0	
	230.1	239.6	264.3	10.0	
17 41 34.58	17 44 46.02	17 44 47.92	17 53 52.86	17 57 2.00	
11.24					

next page

	40 Draconis	41 Draconis	η Serpentis	δ Aras minor	α Grae
7	57.4	44.0	37.1		38.2
6	15.8	24.9	40.3	18 15 33.3	42.3
3	37.3	43.6	43.9	16 33.9	47.1
9	52.5	38.1	46.6	17 18.9	50.4
8	15.0	21.3	50.5	18 [25.2]	53.3
0	178.0	148.9	216.4		233.3
0		208.9			
0	18 10 35.60	18 10 41.78	18 14 43.68	18 16 29.51 13.30	18 32 46.66 23.23

30.68

57.38

28.19

29.65

864 Aug 8th M. E. mt

51 Capan H. m

1101 Herminia

O. Sagittarii

O. Sagittarii

O. Sagittarii

18 33 54.8
35 16.7
36 11.5
37 28.9

8.4
11.9
15.8
18.6
22.7

77.4

19.4
14.2
18.3
21.2
25.3

89.6

48.0
57.3
55.1
57.8
1.6

214.8

274.8

49.7
52.9
56.6
59.3
3.1

221.6

281.6

18 36 17.70
6 35 44.30

18 40 15.48

18 47 17.92

18 49 54.96

18 49 56.32

87° 41' 21" 1.31730

B 18.93 1 10.47
C 18.62 7.02
D 17.18 1 0.98
E 16.66 2 21.86

Next page
Revised

ϵ Aquilae	δ Aquilae	25 Canell H γ	β Cygni	L Sagittarii
47.1	29.8	—	33.8	46.5
50.5	33.2	21.9	37.5	—
54.4	36.9	42.4	41.4	54.5
57.1	39.6	10.7	44.6	—
1.2	43.6	37.2	48.9	1.3
210.3	183.1	—	206.4	—
270.3	—	—	—	—
18 53 54.06	18 59 36.62	19 2 44.66	19 23 41.28	19 28
	13.13	7 2 17.54		

813913 0.89340
 A 44.85 52.35
 B 44.84 26.56
 C 45.04 2.64
 D 44.69 22.79
 E 53.45

564 Aug 8th 24th 6 cont

γ Aquila	β Aquila	γ Sagittae	ρ Aquila	δ Capricorn
8.2	58.6	2.7	19.7	27.6
11.6	2.0	6.2	23.0	30.8
15.3	5.7	10.1	26.8	34.7
18.0	8.4	12.9	29.5	37.5
21.9	12.3	17.0	33.6	41.5
75.0	87.0	48.9	132.6	172.1
19 40 15.00	19 49 5.40	19 53 9.78	20 8 26.52	20 10 34.42
39 51.43	58 51.84			14.65

Clock work not pay-

α Capricorni	ρ Capricorni	γ Delphinii	ϵ Cygni	32 Vulpeculae
57.5	27.1	39.7	—	5.8
54.9	30.5	43.2	—	9.5
58.6	34.4	47.0	10.2	13.6
13	37.2	49.8	13.3	16.6
5.3	41.2	53.8	16.0	21.0
171.6	170.4	233.5		66.5
20 10 58.32	20 21 34.08	20 33 46.70	20 41	20 49 13.30
34.58	10.29			48 49.74

1864 Aug 8th MCG

Clock - Counting

1864 Sept 1
x Scorpii

		C. E. 5	C. 10	
α Scorpii	+32	23.76	16 21	-23.76 .00
γ Mensuris	47	.77	16 36	23.77 .00
α —	38	.75	17 8	23.81 -.06
α Ophiuchi	37	.79	17 29	23.83 -.04
μ Mensuris	44	.78	17 41	23.84 -.06
α Grae	52	.95	18 32	23.89 +.06
γ Aquilae	35	.84	18 59	23.92 -.08
δ Capricorni	32			
γ Aquilae	36	.93	19 40	23.96 -.03
δ —	35	.91	19 49	23.97 -.06
α Capri	32	24.09	20 10	23.99 +.10
α —	32	.06	20 11	23.99 +.07
ρ —	32	.11	20 21	24.00 +.11
ρ 32 Vulpeculae	44	24.00	20 49	24.03 -.03
Mean	+	23.903	18 45	
Per R		+0.057		
Roll		+0.061		
		+0.059		

1864 Sept 2 2nd E

rest of page

7.14.5

2 Grae

57 Cepheid sp

110 Hercules

Arg + 1° 3855?

a Sagittarii

14.1	18	34	46.2	44.7	28.0	29.1
18.4		36	3.8	48.2	31.3	32.7
23.1			58.7	52.1	36.2	36.7
26.4	38		15.1	54.9	37.6	39.5
31.4	39		24.2	59.2	41.3	43.6
113.4			148.0	259.1	173.3	181.6

18	33	22.68	18	37	5.60	18	40	51.82	18	54	34.66	18	57	36.32
	32	22.76		6	35	55.13								

1864 Sept 2 Mercur.

145

Aquila			Ti Sapi Nauti			Ay + 0° 41' 22"			Ay + 0° 41' 58"			as Aquila		
					37.8			9.3			11.7			23.0
	9.6				41.2			12.6			15.2			26.3
	13.5				45.4			16.3			18.7			30.1
	16.3				48.0			19.0			21.3			32.7
	20.2				52.2			23.0			25.7			36.7
					224.6			80.2			92.0			148.8
19	0	13.18	19	2	44.92	19	4	16.04	19	11	18.40	19	12	29.76
18	59	12.86											11	29.40

1.89
 3.09 3.49
 .15 -0.35
 .30 -3.00
 .17 -7.03

<u>B Sagittarii</u>	<u>δ Aquilae</u>	<u>ϵ Vulpeculae</u>	<u>β Cygni</u>	<u>ϵ Sagittarii</u>
	35.7	39.0	10.2	23.1
57.7	39.0	2.7	13.9	26.7
56.4	42.7	6.9	18.1	30.8
0.7	45.3	9.7	21.1	33.8
6.0	49.3	14.0	25.6	38.0
	212.0	92.3	88.9	152.4
		32.3		
19 13	19 19 42.40	19 24 6.46	19 26 17.78	19 29 30.48
	18 42.07			28 29.98

by Sept 2 M E cont

1885

1864phae. p

α Aquila	δ Aquila	β Aquila	γ Sagitta	δ Ursa minoris
44.8	6.2	35.2	39.3	—
48.2	9.4	38.5	42.7	19 57 55.0
57.7	13.2	42.3	46.9	20 1 7.7
54.5	15.9	45.0	49.4	3 25.6
58.5	19.9	48.9	53.6	6 45.8
257.9	64.6	209.9	231.9	
19 40 51.58	19 45 12.92	19 49 41.98	19 53 46.38	20 0 50.52
39 51.25	44 12.55	48 41.69		15.46

88° 54' 32" 5 8.27967
1.72033

A 5 51.46
B 53.26 2 58.26
C 49.25 17.75
D 52.60 2 33.00
E 46.97 5 58.83

*p Aquila**α Capricorni**δ Capricorni*

56.1

4.2

28.3

57.6

7.5

31.4

3.3

11.3

35.3

6.1

13.9

38.0

10.4

17.9

42.0

135.2

54.8

175.0

15.2

20 9 3.04

20

11

10.96

20 11 35.00

10

10.55

10 34.39

~~Computation given~~

Clock - Corrections

		C. Sun	C. Mer		Det
<i>α Cygnae</i>	+0.55	1 0.47	-1 0.64	18 32	-0.17
<i>ζ Aquila</i>	0.38	0.70	0.67	19 0	+0.03
<i>ω —</i>	0.37	0.73	0.72	12	+0.01
<i>δ —</i>	0.35	0.68	0.69	20	-0.01
<i>h Sagittarii</i>	0.31	0.81	0.70	30	+0.11
<i>γ Aquila</i>	0.37	0.70	0.71	40	-0.01
<i>κ —</i>	0.36	0.73	0.72	44	+0.01
<i>ρ —</i>	0.36	0.65	0.72	49	-0.07
<i>14 Capri</i>	0.32	0.73	0.75	20 10	-0.02
<i>24 Capri</i>	0.32	0.83	0.75	11	+0.08
		+1 0.703		19 31	
Pro. R		0.064			
Int.		0.0			
W		0.067			

W +0.030

±0.16

1864 Sept 6th M West α Scorpii

7.9

12.3

15.1

19.2

22.9

77.4

 ζ Herculis

10.9

13.3

18.3

22.9

26.8

94.6

 δ Mus minoris

18

17

4.8

18

8.0

19

4.6

 α Lyrae

21.4

26.4

29.7

34.5

38.8

150.8

51 Cephei

18

34

45.7

35

52.3

37

11.1

38

4.4

39

25.3

136.4

16 22 15.48
21 7.6916 37 18.92
36 11.5318 17 10.65
16 2.8318 33 30.16
32 22.6716 37 3.68
6 35 56.97

86°36'38"0 1.22825

A 10.83 - 53.17

B 10.59 - 57.41

C 10.52 + 5.72

net p.p.

110 Herula	β Lyrae	α Sagittarii	δ Serp't m	α Serpentis foll
52.0	5.9	54.4	32.0	33.3
56.2	10.6	58.6	35.8	37.3
58.8	13.6	1.6	38.3	39.7
2.8	18.1	5.8	42.1	43.7
6.4	22.0	9.4	45.7	46.8
176.2	70.2	129.8	1.9 3.6	200.8
296.2		9.8		
18 40 59.24	18 46 14.04	18 48 1.96	18 50 38.72	18 50 40.16
	45 6.38			

864 Sept 1st M. W. cont

DD Draconis	ε Aquilae	ο Sagittarii	γ Aquilae	π Sagittarii
27.1	30.9	36.3	13.4	45.0
41.9	34.8	40.7	17.5	49.2
57.7	37.6	43.2	20.2	52.1
6.9	41.4	47.3	23.8	56.0
19.4	44.7	50.8	27.4	59.5
147.0	189.4	218.3	102.3	261.8
267.0				
18 51 53.40	18 54 37.88	18 57 43.66	19 0 20.46	19 2 52.36
		18 59 12.80		

mt. Fuji

<i>α Aquilae</i>	<i>κ Viri b7 or</i>	<i>δ Aquilae</i>	<i>6 Vulpeculae</i>	<i>β Cygni</i>	<i>γ</i>
30.2	34.4	43.0	6.2	17.4	
34.1	43.6	46.9	10.5	21.7*	
36.6	53.6	49.4	13.2	24.7	
40.5	1.1	53.1	17.5	28.9	
43.9	12.1	56.5	21.0	32.6	
185.3	144.8	248.9	68.4	125.3	
	261.8				
19 12 37.03	79 17 52.96	19 19 49.78	19 24 13.68	19 26 25.06	
11 29.34		18 52.02			

* Record doubtful

864 Sept 1st 2M W Cont

YHS

h Sagittarii			h Orion			h Antares			156 Camelopardalis			h Antares		
30.4			47.7			52.0	19	43	56.8			42.5		
34.6			53.8			53.9		44	31.1			46.5		
37.5			57.7			58.5		45	9.9			48.9		
41.7			3.6			2.4		45	33.9			52.7		
45.2			8.3			5.7		46	15.5			56.0		
189.4			171.3			174.5			149.2			246.6		
			291.3											
19 29 37.88	19	33 58.26	19 40 58.90	19	45 58.4	19 49 49.32								
28 29.93			39 51.20		43 58.74	48 4.1.64								

next page

γ Lacitae	Mass in 10^3	P in days	1σ Lapicorum	2σ Lapicorum	
46.5	19 55	23.0	3.6	11.4	35.3
50.6	19 58	46.9	7.4	15.3	39.3
53.4	20 7	6.0	10.0	18.0	41.9
57.4	4	19.3	13.9	21.8	45.8
0.8	20 7	11.7	17.4	25.2	49.3
208.7		~~42.9~~	52.3	91.7	211.6
268.7		106.9			
19 53 53.74	1 27.58	20 9 10.46	20 11 18.34	20 11 42.28	
	0 21.38		10 10.52	10 34.45	
	0 12.07				

1864 Sept 10th 2nd W cont.

4.5

γ Cygni	δ Cassiopeiae	γ Capricorni	δ Orionis	δ Leporis
23.0	52.2	11.2	167	142
28.2	54.9	15.2	24.7	224
31.4	6.7	17.8	33.9	28.1
36.5	11.8	21.8	39.9	36.3
40.7	20.2	25.3	49.5	43.5
159.8	149.8	91.3	164.7	144.5
	29.8			
20 18 31.96	20 19 5.96	20 22 18.26 21 10.18	20 23 32.94	20 28 28.90

next page

40 Cephei B

 α Delphinii γ Draconis ϵ Cygni η Cephei

23.8

20

37

42.5

45.7

28.4

36.6

27.9

38

6.2

50.3

36.5

44.7

30.4

21.8

53.3

41.7

57.1

34.5

44.7

57.9

49.6

7.7

37.8

39

3.1

1.9

56.6

154.4

120.3

209.1

212.8

269.1

20 31

20 33 30.88

20

38

24.06

20 41

53.82

20

43 42.56

1864 Lys 6th 2nd W. cont

45	61 Lysm 1 st	61 Lysm 2 nd	76 Diaconis	32 Vesperula	61 Lysm 1 st	61 Lysm 2 nd
490	51.3	52.5	20 52 38.5	498	51.3	52.5
566	56.2	57.7	53 7.3	570	56.2	57.7
576	57.4	0.9	25.2	569	57.4	0.9
11.6	4.3	5.7	52.5	1.2	4.3	5.7
20.8	8.5	10.0	54 16.4	4.8	8.5	10.0
153.6	179.7	127.1	139.9	166.7	179.7	127.1
23.6	299.7	7.1		286.7	299.7	7.1
20 45 4.72	~~2 59.94~~	~~1.48~~	20 53 27.98	20 49 57.34	2 59.94	1.48
	2 6.68			48 49.63	2 6.68	
	8 52.93				8 52.93	

ζ Cygni	β Aquarii	β Cephei	ϵ Persei
12.7	29.1	46.5-	35.7
17.1	33.0	58.1	39.4
20.1	35.5-	53.	42.0
24.4	39.2	16.2	45.8
28.2	42.5-	26.0	49.4
102.5	179.3	152.1	212.3
		32.1	
21 8 20.50	21 25 35.86	21 28 6.42	21 38 42.46
7 12.81	24 27.93		37 36.41

1864 Sept 1st 211 W cont

pm

45

x pnc & Cygnus

17.2

23.5

27.4

33.2

38.3

139.6

19

33 27.92

16 21	-0.56	+	1 7.23	7.17	+06
37	-0.22		7.17	7.20	-03
18 32	-0.20		7.29	7.34	-05
46	-0.22		7.44	7.36	+08
19 0	-0.29		7.37	7.37	00
13	-0.29		7.43	7.39	+04
20	-0.34		7.42	7.40	+02
30	-0.55		7.40	7.41	-01
1 40	-0.31		7.39	7.42	-03
49	-0.33		7.35	7.43	-08
20 10	-0.45		7.37	7.46	-09
11	-0.45		7.38	7.46	-08
21	-0.49		7.59	7.47	+12
49	-0.74		7.47	7.51	-04
21 1	-0.21		7.52	7.52	+02
	-0.22		7.47	7.53	-06
25	-0.40		7.53	7.55	-02
38	-0.31		7.74	7.57	+17

19 38

Ref

+ 1 7.421 (18) ±017

0.075

1864 Sept 7th EW

next page

WAS

L Scorpi

ζ Herculis

δ Ursa minor

1 Dra Hy

β Aquarii

9.7	12.6		21 17	45.4	30.9
14.0	17.3	18 17	18	8.9	34.8
16.9	20.3	18	18	35.7	37.3
21.1	24.6		18	53.7	41.1
24.6	28.5	20	19	21.2	44.3
86.3	103.3			164.9	188.4

16 22	17.26	16 37	20.66	18 18	11.61	21 18	32.98	21 25	37.65
21	7.68	36	11.51	16	2.41				27.93

δ 86°36'38" 1.22825

A 153.17 11.73
 L 5.72 10.82
 D 49.37 12.27

366 p. 7th M. W. ant
115

3 Eplu		γ Capricorn		ε Pegasi		δ Capricorn		β Ursa major	
48.3		40.0		37.1		38.9		14.7	
57.7		44.0		41.0		43.0		21.3	
6.9		46.6		43.6		45.6		28.8	
18.1		50.7		47.6		49.6		33.8	
27.6		54.2		51.0		53.0		41.4	
160.6		235.5		220.3		230.7		140.0	
40.6									
21 28 8.12	21 33 47.10	21 38 44.06	21 40 46.02	21 42 28.00					
		37 36.41							

fms

24 min -

16 Regulus

a Aquarii

58.8

58.1

-3.1

58.7

5.9

1.5

10.1

5.3

13.6

8.6

91.5

129.2

31.5

21 47 6.30

22 0 1.84

56 51.59

21 58 51.98

16	21	-60	1	8.98	8.99	-.01
36	-17			8.98	9.01	-.03
21	25	-41		9.34	9.39	-.05
38	-30			9.35	9.41	-.06
46	-21			9.50	9.52	+.02
58	-37			9.49	9.43	+.06
19	57		+1	9.273		±.045

Rate 0.078

564 sp 9th 2011

11.5

S Sagittarii

 η Serpentis

D Wm min

Arg #1 3712

Arg #1 2982

27.0	26.2		49.6	24.7
31.3	30.1	18 15 25.4	53.3	28.3
34.3	32.7	16 8.4	56.0	31.0
38.6	36.4	17 12.7	59.8	34.8
42.4	40.7	18 8.4	13.0	38.2
173.6	166.1		221.7	167.2

18 13 31.72	18 15 33.22	18 17 14.83	18 27 56.34	18 32 31.44
		18 16 1.53		

1.22824.

A	15.23	1 53.17
B	15.29	57.41
C	14.12	5.72
D	14.67	49.27

26.10
30
114
33

1864 Sept. 9th 2014

45

Aug + 20 3724

Aug + 20 3730

XVIII 241

Aug + 20 3738

64 Lupanti

Aug + 10 3840

Aug + 10 3854

44.1

44.7

36.1

38.0

31.2

48.0

48.7

39.9

0.6

35.1

50.4

51.2

42.4

4.2

37.7

54.1

54.9

46.1

7.6

41.6

57.4

58.2

49.5

44.7

254.0

297.7

214.0

190.9

18 49 50.80

18 50 57.54

18 51 42.80

18 53 11.89

18 55 38.06

0.90

0.80

0.94

0.92

Next Page

$\Delta \alpha + 1^\circ 38' 65''$
 Aperta 3013

 ζ Aperta

Ti sapit Haru

 ω Aperta

Pi rE 07 or

2	49.4	19.0	50.5	33.6	40.1
1	53.2	23.0	54.7	39.6	48.9
7	53.8	25.7	57.5	42.2	59.3
6	59.6	29.5	1.5	46.0	6.4
7	2.7	32.9	5.1	49.3	17.1
9	220.7	130.11	169.3	212.7	171.8
			289.3		291.8
18 57	56.14	19 0 26.02	19 2 57.86	19 12 42.54	19 17 58.38
		18 59 12.75		11 29.29	

1864 Aug 9th 2A W

45

Aquila

48.8

52.4

54.9

58.7

2.0

216.8

276.8

19 19 55.36

18 41.98

Cloud
b Vulturinae

19 24

Cloud
β Cygni

19 26

α Aquila

19 45 25.64

44 12.46

β Aquila

19 49 54.88

48.41.60

22.9

27.3

22.9

26.5

38.1

18.8

22.7

25.3

29.1

32.3

128.2

48.8

57.9

54.8

58.3

1.6

214.4

4 Sagittari

Klm m¹³

p Apulm

14 Sagittari

24 Capri

52.0

19 5.5- 23.4
19 5.8 53.0

8.9

40.8

56.1

20 1 5.1

12.8

44.9

58.8

4 23.0

15.5

47.5

2.8

7 14.9

19.5

51.3

6.2

22.7

54.7

175.9

121.4

79.4

239.2

295.9

19 53.5-9.18

20 1 24.28

20 9 15.88

20 11. 47.84

0 8.94

10 34.42

864 Sept 9th 20 W. W. W.

19.5

Lysini

74 Draconis

28.7 20 37 47.2

33.7 38 11.4

36.9 38 26.7

41.8 38 50.2

46.2 39 9.7

18 7.3 145.2

20 18 37.46 20 38 29.04

J. W. S.

α Serpentis
 α Ser

			Clock Error		
18	32	-20	1	12.80	-12.86 -06
	59	-29		12.98	12.89 +09
19	12	-30		12.95	12.91 +04
	19	-34		13.04	12.91 +13
	44	-37 ³²		12.85	12.94 -13
	49	-39 ³³		12.85	12.92 -18
20	11	-55		12.97	12.98 -01
19	24		+1	12.920	± 0.020
Rate 0.071					

	glapri	ε gpi	32 klp	61 gpi	ε gpi	β gpi	cky	16 kg	α Aquarii
July 29		+02	00	+05	+08				
30				(^{3m} 00)+16					
Aug 1		00	-02	+08					
8	+11		-03						
Sept 6	+12		-04	+02	-06	-02	+12		
7						-05	-06	+08	+06
10				+11	+12		-10	-06	-02
16	+06		-08	+05	-03		-05	+02	.00
17					-08		+03		+02
26									-14
30			-01	+16					
Oct 5	+13								
7			-10	+06	+10	+09	-02	-08	-04
10	+16	-06	-06	+01	-01	+06	-05	-01	-01
11								-02	+02
17				+02	-06	+12	00	+09	+20
27	+12	-06							
26	+09								
Nov 1	+11	-03		+03					
2	+07								
3	+10	-04	-02	-06		-03			
4		-02							
10	+05	-05		00		-01	^{Am} -08	+01	-08
11				+03	-06	+02	^{Am} -13	-08	+02
14									+03
16									-12
19				+06					
25						-05			-02
29						+04			-04
30								+06	-03
Dec 1									-01
8		+01			-11	+13		-05	+01
9								-09	+02
20		+08				+22			

1864phae.proj...55S

1864phae.proj...553