

100-49000-1001, 535

KG
11365
53

A.53

KG 11365.53

A 53 "

KG-11365.53



Ke

		Jan 21	22-27	Feb 28 - July 5 22	
	- 0.324	+0.094	+ 0.032	+0.316	+0.079
	9.5132w	8.973		9.4997	8.898
+40	-0.426	-0.347	-0.399	+0.412	+0.428
30	0.377	0.373	0.359	0.385	0.411
20	0.347	0.313	0.335	0.336	0.364
10	0.331	0.309	0.325	0.321	0.338
0	0.326	0.326	0.326		0.316
-10		0.343	0.337		0.304
20		0.381	0.359		0.308
30		0.431	0.395		0.319
40		-0.505	-0.453	0	0.346
					exp. time July 6

1864 June 21. M.W.

W.A.R.

next page

WAK				548				extra star						
+ Virgins		+ Centauri		20 hrs Min 18		+ Virgins		+ Cassiopeiæ						
13	53	53.1	57	50.2	14	1	22.5	9	53.2	16	52.3			
		57.1		55.0		2	24.0		59.0		0.7			
		59.7		58.2		3	5.1		1.7		10.4			
		3.1		2.8		4	4.0		5.5		17.1			
		6.7		6.8			57.7		9.0		270			
		179.7		173.0			113.5		130.4		107.5			
				293.0					10.4		47.5			
13	53	59.94	13	57	58.60	14	3	10.70	14	9	2.08	14	16	9.50
	54	56.46					52.77							

1864 June 25 M.M.
F.H.S.

Bootes			p Bootis			o Bootis			u Virginis			e Bootis		
19	38.7		25	6.3		28	53.8		35	3.7		38	11.5	
	45.0			10.6			58.4			7.6			15.8	
	9.4			13.9			1.3			10.4			18.7	
	53.5			18.1			5.7			14.0			23.0	
	0.7			21.9			9.5			17.3			26.6	
	149.3			70.8			128.7			53.0			95.6	
	8.9.3						8.7			+				
14 19	17.86		14 25	14.16	14 28	1.74	14 35	10.60	14 38	19.12				
			26	0.74								39	5.57	

next page

a' Librae	a' Librae	57 hrs Min B	37 Librae	a' Comae
42 20.1			25 55.2	28 4.6
24.1	42 35.5	15 20 34.7	59.0	9.1
26.9	38.3	21 40.3	1.7	12.1
30.6	42.2	23 14.8	5.5	16.1
	45.5	24 39.7	8.8	19.8
			130.2	61.7
			10.2	
14 42 27.16	14 42 38.60	15 21 48.67	15 25 2.04	15 28 12.34
43 13.55	43 24.99	22 30.85		58.76

New Intervals

20 33.7
34.5 / 2

27.19 1.40644

27.19
27.12
27.25
27.08

38.52 A 4941 2 50.59
38.65 B 4828 1 26.52
38.68 C 4892 8.12
38.56 D 4836 1 14.26

1864 June 21 M.W.
T.H.S.

1864phae.1

Camelopardalis			Serpentis		a Serpentis		λ Serpentis		μ Serpentis						
15	29	23.1	34	38.6	36	44.3	39	0.6	41	41.8					
		30.4		42.8		48.1		4.6		45.6					
		38.4		45.6		50.7		7.2		48.3					
		44.2		49.5		54.4		10.9		52.0					
		52.5		53.0		57.9		14.4		55.4					
		188.6		229.5		255.4		37.7		243.1					
15	29	37.72	15	34	45.90	15	36	51.08	15	39	7.54	15	41	48.62	15
							37	37.49							

next page

ϵ Serpenti	γ Serpenti	γ 750 Sp	δ Scorp	δ 779 Sp
43 12.3	49 20.0	~~54 41.2~~	56 42.2	16 2 6.0
16.4	24.0	~~53 26.8~~	46.5	26.0
18.8	26.8		49.2	48.5
22.6	30.7	54 41.2	53.1	3 3.6
25.8	34.0	53 26.8	56.6	27.3
95.9	135.5		247.6	111.4
				231.4
15 43 19.18	15 49 27.10	15 54 5.91	15 56 49.52	16 2 46.28
		3 54 55.18	57 35.85	

885° 11' 17" 8 1.07634

δ 1.47 δ 2.73
 Σ 5.35 Σ 8.45

1864 June 21 SUN

H8

α Ophiuchi		ε Ophiuchi		γ Herculis		α Scorpion		η Draconis	
16	6	23.7		15	4.9	20	14.7	21	11.4
		27.5			9.0		19.1		19.7
		30.1	10	24.6	11.7		22.0		25.4
		33.8		28.4	15.7		26.2		33.3
		37.2		31.7	19.5		29.8		40.2
		152.3			60.8		111.8		130.0
16	6	30.46		16	15	16	20	16	21
	7	16.74			12.16		22.36		26.00
							21		8.53

next page

3 Hercules		7 Scorpion		3 Ophiuchi		<u>XIV 182</u>		3 Hercules	
23	320	26	33.6	28	50.8			35	18.3
	361		42.0		54.8				22.9
	38.9		43.0		57.5	32	38.6		26.1
	43.1		47.2		1.2		58.7		30.4
	466		50.8		4.6		16.5		34.2
	196.7		216.6		168.9				131.9
					288.9				
16	23 39.34	16	26 43.32	16	28 57.78			16	35 21.38
								36	12.64

1864 June 21 M W
JHS

1864phae.

Hercules			1 Scorpion		3 Scorpion		3 ² Scorpion		12 Antares	
16	37	21.8	40	37.7	43	34.4	44	11.1	50	34.2
		27.0		36.4		39.5		16.5		28.1
		30.4		39.5		43.1		19.9		30.7
		35.2		44.0		48.1		24.9		34.4
		39.3		48.0		52.6		29.1		37.7
		153.7		199.6		217.7		101.5		155.7

16	37	30.74	16	40	39.92	16	43	43.52	16	44	20.30	16	50	31.02
													51	17.29

next page

ϵ Herulis	η Ophiuchi	α Herulis	γ Herulis	ξ Ophiuchi
54 14.0	17 1 45.5-	7 36.8	9 26.8	12 20
18.6-	49.4	40.8	31.7	6.0
21.6	52.1	43.5	35.0	8.9
26.0	56.0	47.3	39.7	12.9
29.8	59.4	50.7	43.9	16.5-
109.9	262.4	219.1	177.1	46.3
16 54 21.98	17 1 52.44	17 $\frac{7}{8}$ 43.82	17 9 35.42	17 12 9.26
		30.21		

1864 June 21 Mm
54 S

Aphnuchi			64 Camelopard (Bsp)		74 Camel Bsp		3 Draconis		a Aphnuchi	
7	12	50.2	16	36.9			26	27.8		
		54.4	17	14.4	20	34.3		33.7	27	51.3
		57.5		58.5		48.5		38.0		54.0
		1.4	18	29.0		58.6		44.0		58.0
		5.0	19	15.1	21	13.3		49.5		14
		168.5		151.9				192.5		
17	12	57.70	17	17	54.38		17	26	3 8.50	17 27 54.45
	13	43.77	5	18	44.16					40.74

- 1.86 54.56
 - 3.47 53
 + 0.35 35
 + 2.99 29

next page

3	<i>Opheuchis</i>	n	<i>Horendli</i>	4	<i>Dracunis</i> Jan	4	<i>Dracunis</i> Feb	3	<i>Dracunis</i>
35	55.8	40	17.6	43	17.7		19.3	50	15.1
	59.7		21.8		29.9		31.9		22.2
	2.3		24.8		38.7		40.5		26.9
	6.1		29.0		50.9		52.9		33.9
	9.4		32.6		1.7		3.6		40.0
	133.3		125.8		138.9		148.2		138.1
	13.3				198.9		208.2		
17	35 2.66	17	40 25.16	17	43 39.78	17	41.64	17	30 27.62
			41 11.46						

1864 June 21 Sun.
HIS

Ophurichips			n Sagittaria			40 Dracornis *			41 Dracornis *			I lvs Min		
7	57	45.5	18	4	48.5	8	52.6		38.9	18	13	44.1		
		49.3			52.7		14.5		21.3		14	49.3		
		52.1			55.4		28.8		35.8		15	32.6		
		55.8			59.5		51.3		57.4		16	36.2		
		59.1			3.1		10.6		16.5		17	33.7		
		261.8			219.2		157.8		189.9			195.9		
17	57	52.36	18	4	55.84	18	8	31.56	18	37.98	18	15	39.18	
				5	41.88							16	22.09	

13 42.4
43.7
46.014 48.4
49.1
52.515 30.5
32.4
34.916 34.9
36.4
37.417 31.0
34.0
36.0

23 Camel H Sp a Lyrae

51 Cephe H Sp

111 Herculis

3 Lyrae

21 32.9
 57.1
 11.6
 26.4
 48.2
 170.2
 50.2

31 28.5
 33.3
 36.5
 41.4
 45.6
 165.3

18 32 23.24
 33 33.9
 34 50.1
 35 44.0
 37 3.4
 154.8

38 58.4
 2.8
 5.4
 9.3
 13.0
 89.1
 29.1

44 12.4
 16.7
 20.3
 24.5
 28.5
 102.6

18 21 10.04 18

31 37.06
 32 23.32

18 34 42.96
 6 35 34.22

18 38 5.82

18 44 20.52
 45 6.82

32 21.5
 23.6
 25.2

33 31.7
 34.5
 35.4

34 48.5
 52.0
 51.4

35 43.0
 43.9
 45.1

37 1.4
 3.1
 5.7

1864 June 21 All W

JAS

And

Lynce		Polaris	
8	44 14.5	1	4 23.0
	19.0		7 0.5
	21.9		8 46.3
	26.5		11 15.6
	31.4		13 30.3
	112.3		115.7
18	44 22.46	7	8 59.14
			9 35.30

4 19.3
21.7
24.1
26.8

7 59.4
58.8
0.8
5.0

8 42.3
43.8
46.8
48.4
50.4

11 12.1
15.4
16.7
18.3

13 26.0
28.6
30.3
32.6
34.6

p Bootis	14 26	-0.32	46.90	46.76	-14
ε —	14 39	0.32	46.77	46.76	-01
α1 Drae	14 43	0.36	46.75	46.75	00
α2 —	14 43	0.36	46.75	46.75	00
γ Coronae	15 29	0.32	46.74	46.71	-03
ε Serpentes	15 38	0.31	46.72	46.70	-02
β Scorpis	15 58	0.38	46.71	46.68	-03
δ Ophiuchi	16 7	0.33	46.61	46.62	+06
κ Scorpis	16 21	0.41	46.58	46.66	+08
ζ Herculis	16 36	0.33	46.59	46.65	+06
κ Ophiuchi	16 51	0.31	46.58	46.63	+05
α Herculis	17 8	0.31	46.70	46.62	-08
θ Ophiuchi	17 14	0.40	46.47	46.61	+14
α —	17 29	0.31	46.60	46.60	00
μ Herculis	17 41	0.32	46.62	46.59	-03
μ Sagittarii	18 6	0.39	46.43	46.57	+14
ε Drae	18 32	0.34	46.60	46.54	-06
β —	18 45	-0.35	46.63	46.43	-10
	16 28	—	46.653		
Per R			+0.056		
Toll R			0.053		
			0.054		

End

1864 June 22^d All. tr
MAR

Bootes

P Bootes

Gr 527

u Virginis

ε Bootes*

~~4448~~

14 19 39.9
(46.3)
50.6
56.6
2.0

25 7.4
12.0
13.1
19.3
23.2
79.0

26 (57.3)
27 19.8
27 42.6
57.0
24.2

34 4.8
8.9
11.4
15.2
18.5-
58.9

38 (13.5)
17.0
19.9
24.0
27.7

14 25 15.40
26 0.73

14 27 40.87
2 28 28.88

14 34 11.78 14 38 20.22
39 5.56

- 25.72

60°51'56" 0.79922

A (41.44) +42.45
B 41.18 +21.38
C 40.67 - 2.13
D 40.65 16.35
E 41.17 - 43.03

120.15 9.55
B 20.17 3.83
C 20.28 1.38
D 20.27 3.27
E (20.21) 7.71

MAR

α^2 Librae	ρ^1 XII 217	β Mus Min	γ Scorpion	δ Bootis
42 32.9	47 3.2	49 59.4	53- 18.2	57 47.0
36.8	11.1	50 14.8	22.5-	57.3
39.6	15.9	51 26.4	25.4	54.4
43.4	23.6	52 38.4	29.5-	58.4
46.8	30.0	53 50.8	33.0	2.1
199.5	83.8	187.8	12 8.6	213.2

14 42 39.90	14 47 16.76	14 50 25.56	14 53 25.72	14 57 54.64
63 24.98				58 39.93

$$\begin{array}{r} 49 \quad 59.2 \\ 59.5 - \end{array} / 1$$

$$\begin{array}{r} -24.3 \\ 24.6 \end{array} / 3$$

$$\begin{array}{r} 50.5- \\ 50.8 \\ 57.2 \end{array} / 5-$$

1864 June 22 TLM

MAY

Lee end

c Bootis

B Libran

γ Dra Min

α Leonae

ε Serpentis

15	0	29.7	8	52.8	19	53.5	28	36.0	34	39.4
		34.0		56.8		6.2		10.3		44.1
		37.1		59.5		14.7		13.2		46.9
		41.0		3.2		26.8		17.4		50.8
		44.7		6.5		37.8		21.0		54.2
		186.5		178.8		139.0		67.9		235.9

15	0	37.30	15	8	59.76	15	19	15.80	15	28	12.58	15	34	47.18
				9	44.92						58.76			

See end

See end next page

a Serpentes	c Serpentes *	3 Pro Min	d Serpentes	g 750 *
36 45.5	43 13.8	47 44.5	49 (21.2)	
494	11.6	48 103.4	25.3	15 53 25.7
52.0	20.1	15.8	28.0	54 8.7
53.6	23.7	34.4	31.8	52, 40.8
590	27.0	50.4	35.3	
261.5	10 2.2	148.5		
		88.5		
15 36 52.30	15 43 20.44	15 48 17.70		15 54 5.63
37 37.49				3 51 55.38

53 24.8
23.7
26.1
26.7

54 80
8.6
9.5

40.0
40.6
41.9

85° 11' 17" 1.076133

B 6.16 40.66
C 4.62 4.03
D 6.07 34.73

1864 June 22 Ill W

WAR

3 Scipia			4 Ophuch			2 Ophuchi			3 Ophuchi			3 Herculis		
15	56	43.6	16	6	24.8		10	19.3		28	52.1		35	19.5
		47.8			28.8			23.1			56.2			24.1
		57.5			31.2			25.8						27.2
		54.5			33.0			29.5						31.5
		58.0			38.3			32.8						35.3
		254.4			158.1			130.5						137.6
15	56	50.88	16	6	31.62	16	10	26.10				16	35	27.52
	57	35.86		7	16.74								36	12.64

next page

	α Hercules	α Aphiuchii	ϵ Hercules	ϵ Minae Min	α Hercules
19.5	37 231	50 25.4	54 15.4	31.2	17 7 380
24.1	282	29.3	19.8	0.1	420
27.2	316	31.8	22.8	20.1	447
35	36.4	35.7	27.1	46.9	48.6
33	(445)	39.0	31.0	11.4	57.7
26		161.2	116.1	109.7	225.2
52		16 50 32.24	16 54 23.22	16 59 21.94	17 7 45.04
64		51 17.30		17 10 5.38	8 30.21

58 30.5
31.2
31.9

58 57.6
0.1
0.7

54 19.5
20.1
20.7
~~20.7~~

46.1
46.9
47.6

0 10.3
11.5
12.4

1864 June 22 9.11.11

W. R.

<i>Herculis</i>	<i>B. Geminis</i>	<i>a. Ophiuchi</i>	<i>B. Ophiuchi</i>	<i>n. Herculis</i>
17 9 (36.4)	17 26 28.6		35 56.9	40 18.7
40.8	34.9		0.9	23.2
44.9	39.4		3.5	26.1
	45.2	27 59.2	7.2	30.2
	50.7	2.6	10.4	34.0
	198.8		78.9	132.2
			18.9	
	17 26 39.76	17 27 55.73	17 36 3.78	17 40 26.44
		28 40.75		41 11.47

55.72 - 3.48
55.74 - 6.86

Clock - Errors

ρ Bootis	14 26	-0.36	45.69	45.52	-12		39.8
2 —	14 39	-0.35	45.69	45.56	-13		41.7
γ Librae	14 43	-0.35	45.43	45.56	+13	✓	17 32.5-
δ Boetii	14 59	-0.35	45.64	45.51	-10		34.6
η Librae	15 10	-0.34	45.50	45.53	+03		38.5-
ϵ Coroneae	15 29	-0.35	45.33	45.52	-01	✓	
ζ Serpentis	15 38	-0.33	45.52	45.51	-01	✓	
β Scorpii	15 58	-0.36	45.34	45.49	+15		
δ Ophiuchi	16 7	-0.33	45.65	45.48	+03		
γ Heruli	16 36	-0.37	45.49	45.48	-03		86° 38' 19" 3" 1.22758
ϵ Ophiuchi	16 51	-0.33	45.39	45.44	+05		
α Heruli	17 8	-0.33	45.50	45.43	-07	✓	
α Ophiuchi	17 29	-0.33	45.35	45.41	+06	✓	
μ Heruli	17 41	-0.35	45.38	45.40	+02		
	15 55	-	45.493				A 42.20 1.53.00
			+ 0.053				B 41.48 57.32
			+ 0.051				
			0.052				

Bro R
Joly
✓

A	42.20	1.53.00
B	41.48	57.32

Printed
in Serpentes.

15 41	43.0
	46.9
	49.5-
	53.1
	<u>56.5</u>
	249.0
15 41	49.80.

Amitted
J Scorpion
15 51. 27.2
33.6
36.3
40.4
43.9
183.4
15 51 36.68

1864 June 23 M M

MAR

1864phae.

Polaris γ^* a Virginis			3 Virginis			2 Mus Maj.			2 Boos					
13	4	9.8	13	17	13.7	26	578	41	18.4					
	6	23.2			17.8		16		24.2					
	8	52.0			20.4		44		28.4	47	30.7			
	10	40.2			24.1		79		34.1		34.6			
	13	18.4			27.4		113		39.1		38.0			
		143.6			103.4		230		141.2					
13	8	40.72	13	17	20.68	13	27	4.60	13	41	28.8	13	17	31.00
	9	36.49		18	4.72			48.64					18	15.16

4 1.2
9.6
10.8

17.4

6 22.0
23.2
24.5

8 46.4
50.5
57.4
52.7
57.0

10 37.4
38.3
39.7
45.3

13 10.2
17.0
18.8
21.9
24.0

A -7.08
B -3.59
C +0.36

30.92
31.01
31.06

next page

AM			JH8		
λ Virginis	δ Centauri		α Bootis	λ Virginis	δ Bootis
53 53.7	57 52.7	14	8 39.0	10 57.6	19 41.2
59.4	57.7		43.2	1.6	49.9
2.1	58 0.7		45.8	4.3	57.9
5.9	5.2		49.8	8.0	58.0
9.2	9.4		53.3	11.5	3.4
132.3	125.7		231.1	83.0	202.4
	5.7			23.0	262.4
13 54 2.46	13 58 1.14	14	8 46.22	14 10 4.60	14 19 52.48
46.44			9 30.16		

1864 June 23 Mm

FAS

Bootes		u Sagittarii		40 Draconis		41 Draconis		δ Sagittarii	
14	25-8.8	18 ^c	4	570	8	56.0	2.0	11	30.8
	13.3			55.2		18.4	24.9		34.7
	16.5-			58.0	9	34.1	39.4		38.0
	20.7			2.0		54.4	0.6		42.1
	24.5-			5.5	10	13.5-	14.6		45.7
	83.8			171.7		176.4	86.5		191.0
							206.5		
14	25 16.76	18	4.	58.34	18	9	35.28	18	41.30
	26 0.72		5	41.91				18	11 38.20

End

2 hrs Min	23 Leandroph	a Lyrae	51 Lept	4 Sp
18 13 47.2		31 30.9	18 32 24.1	
14 53.8	21 53.5	35.7	33 33.8	
15 37.6	140	39.3	34 32.1	
16 40.4	28.8	44.0	35 44.0	
17 35.5	52.8	48.4	37 7.0	
214.5		198.5	159.0	

18 15 42.90	18 31 39.90	18 34 43.80
16 21.99	32 23.34	6 35 34.33

13 468
14 47.5
15 53.5
16 53.5

16 47.5
47.5
4

32 21.1
25.0
26.3

Clock - Errors

xAR				
xVir	-0.18	-0.34	-44.38	+ 44.41
A—	13.28	-0.33	44.37	44.40
γ Boot	13.68	-0.35	44.51	44.38
z Vir	13.55	-0.33	44.31	44.38
	13.37		-44.392	
Pro R			+ 0.057	
Jolly			0.093	
x Boot	44.10	-0.33	-44.27	+ 44.25 -02
P—	14.26	-0.36	44.32	44.23
x Sag. Major	18.6	-0.36	42.93	44.04
x Lyrae	18.32	-0.39	44.03	44.92 -01
	16.18		44.137	
			0.052	

34

1864 June 24 Ill m

748

a Bootes			1 Virginus			4 Bootes			2 Bootes			6 Bootes		
4	8	40.3		11	58.8				25 100			28 57.6		
		44.4			12.7				14.6			2.1		
		47.2			5.6	19	53.2		17.7			5.0		
		51.0			9.4		59.3		22.0			9.3		
		54.5			12.7		4.6		25.7			13.2		
		237.4			29.4				90.0			87.2		
					29.4							27.2		
14	8	47.48	14	11	5.88			14	25	15.00	14	28	5.44	
	9	30.15							26	0.71				

Next page

	ϵ Bootis	α^1 Librae	α^2 Librae	APM	β Vir Min	γ Scorpii
7.6	38 15.1	42 24.0		50 2.1	55 (20.7)	
2.1	19.6	28.0	39.4	16.9		249
0	22.6	30.6	42.1	26.7		271
3	26.6	34.5	46.0	41.7		318
2	30.4		49.3	53.0		354
2	114.3			139.4		
2						
14	36 22.86	42 31.01	42 42.43	14 50 27.88		
39	5.54	43 13.53	43 24.97			

31.09

.02

30.95

30.98

42.42

42.45

42.48

42.36

1864 June 24 SLLW

AM

4	Bootes	e Bootes	B Librae	u Bootes	y Leo Minor
57	494	15 0. 320	8 55.4	18 32.7	19 (56.0)
	538	36.7	59.3	37.6	(87)
	56.6	37.3	20	408	171
	0.7	436	5.7	45.5	28.9
	4.7	47.3	8.7	48.6	40.1
	165.2	198.9	131.3	206.2	
14	57 57.04	15 0 39.78	15 9 2.26	15 18 41.24	
	58 39.92		9 44.91		

next page

37 Libra	a Leonis	a Serpentis	a Serpentis	a Serpentis
25 58.7	28 8.3	34 42.3	36 47.8	39 4.2
2.8	12.7	46.4	52.0	8.2
5.5	15.7	49.2	54.4	11.0
9.1	19.7	53.1	58.2	14.5
12.4	23.4	56.7	1.3	17.9
88.5	79.8	24 7.7	213.7	55.8
28.5				
15 25 5.70	15 28 15.96	15 34 49.54	15 36 54.74	15 39 11.16
	58.74		37 37.49	

564 June 24 M W

AM

<i>Serpentes</i>	<i>Serpentes</i>	<i>Gr 779 Sp</i>	<i>S. Ophurelin</i>	<i>S. Ophurelin</i>	
41 45.3	4.3 16.0	16 2 9.5	6 27.2	10 21.5	
49.4	20.0	28.9	31.1	25.8	
57.8	22.6	51.9	33.7	28.1	
55.6	26.3		37.5	31.9	
(58.7)	29.6	3 31.0	40.8	35.1	
	11 4.5		170.3	14 2.1	
	15 43 22.90		16 6 34.06	16 10 28.42	
			7 16.74		
		4.2 8.5-4			

next page

Am		JH8	
γ Herculis	α Scorpis	γ Draconis	β Herculis
15 8.4	20 18.1	21 15.2	23 35.7
12.6	22.7	23.6	39.8
15.5	25.5	29.0	42.6
19.5	29.6	36.9	46.7
22.8	33.4	43.8	50.2
79.8	129.3	148.5	215.0
16 15 15.76	16 20 25.86	16 21 29.70	16 23 43.00
	21 8.53		16 26 47.02

29.0
21.1/3

1864 June 24 SUN
H.S.

3 Aphurichi		P. 80 182		30 depth H. 1/2 *		2 Hercules		8 Scorpion						
16	28	54.5	32	8.1	33	37.2	37	25.7	40	35.6				
		58.6		29.4		57.5		30.7		40.3				
		1.2		42.3	34	21.6		34.1		43.3				
		4.8		2.8		37.7		38.9		47.7				
		8.3		20.0	35	2.6		43.1		51.9				
		127.4		102.6		156.6		172.5		218.8				
		7.4		222.6		216.6								
16	28	1.48	16	32	44.52	16	34	43.32	16	37	34.50	16	40	43.76

33
15
21.6
37.7
35

κ Ophiuchi	ϵ Herculis	ϵ Mus	64 Camelopardalis	β Draconis
50 27.9	54 17.8	58 33.5	17 17.2	26 31.4
31.8	22.4	2.9	17 18.4	
34.4	25.4	22.5	18 32.4	
38.3	29.7		18 32.8	48.3
41.6	33.7	60 12.4	19 19.3	53.6
174.0	129.0			

16 50 34.80	16 54 25.80	16 59 24.24	17 17 58.60
51 17.31		17 11 5.26	5 18 44.49

62°15'49 0.87061 85°0'82 1.06967

A 23.23	49.67	A 2	+ 1 18.55
C 25.01	2.67	B 58.25	+ 39.85
D 24.52	21.62	C 58.64	- 3.96
E 24.22	50.72	D 58.60	34.20
		E 59.09	- 1 20.21

1864 June 24 Sun

H.S.

End

α Ophiuchi

27 55.3
58.2

17 27 58.42
28 40.76

~~14~~ <i>α Bootis</i>	14 10	-0.33	42.00	42.96	-0.6	✓
<i>ρ</i> —	14 26	0.36	42.07	42.95	-12	
<i>ε</i> —	14 39	0.35	42.03	42.94	-0.9	
<i>α Librae</i>	14 43	0.35	42.87	42.94	+0.7	✓
<i>α</i> —	14 43	0.35	42.89	42.94	+0.5	✓
<i>α Ophiuchi</i>	16 57	0.32	42.63	42.84	+0.1	
<i>α</i> —	17 29	0.33	42.67	42.81	+1.4	✓
	15 17		42.909			

Procyon 0.013
Jolly 0.060
0.046

<i>ADM</i>						
<i>α Bootis</i>	14 59	-0.35	43.23	43.11	-12	
<i>α Librae</i>	15 10	-0.36	42.99	43.06	+0.7	
<i>α Coronae</i>	15 29	-0.35	43.13	43.09	-0.4	
<i>α Lepis</i>	15 38	-0.33	43.08	43.08	.00	
<i>α Ophiuchi</i>	16 7	-0.33	43.07	43.06	+0.5	
<i>α Scorp</i>	16 21	-0.38	43.05	43.05	.00	
	15 37		43.082			

58.55 c 0.35
58.29 15 2.99

H64 June 26 M M
M A R

End

B Herulis			3 Ophiuchi			3 Herulis			2 Herulis		
			16	28	56.6		35	24.1		37	27.5
16	3	41.7		29	0.6			28.6			32.7
		44.6			3.1			31.6			36.0
		48.6			6.9			36.0			34.6
		52.2			10.4			39.7			45.7
					77.6			160.0			175.9
					17.6						
			16	29	3.52	16	35	32.00	16	37	35.18
							36	12.13			

June

1864 June 27 M W

MNR

Polaris	sp	a Virginis	Bootes	Bootes	gr 527
13	4	17.6	13	17	18.5
	6	27.4		19	45.7
				25	13.3
11	10	1.6			18.0
	10	44.2			20.8
	13	29.5			25.6
		120.3			29.3
					107.0
					45.3
13	8	48.06	13	17	25.34
	9	39.85		18	4.68
				14	25
				26	0.62
				14	27
				2	38
					47.29
					29.50

486
525

4

10.0
17.3
18.3
25.0

7

6

22.3
26.8
33.1

2

10

33.0
43.4
46.0
52.5

4

13

187
206
22.9
25.3
28.5
31.4

5-

50° 41' 65" 0.79924

13	46.78	21.38
1	47.47	2.13
19	47.65	18.35
2	47.27	43.13

next page

<i>n</i> Virginis	<i>z</i> Bootis	<i>Pi</i> XIV	<i>z</i> Librae	<i>y</i> Pors Min
35-10.8	38 18.4	47 8.6	15-8 58.6	20 11.8
14.7	23.0	16.5	.28	11.8
17.4	25.9	21.7	5.3	20.9
21.2	30.0	29.1	9.4	32.7
24.3	33.8	35.8	12.6	43.8
88.4	131.1	111.7	88.7	
⁺⁷				
14 35 17.68	14 38 26.22	14 47 22.34	15 8 6.74	
	39 5.51		9 44.90	

1864 June 27. M W

W A R

57 Ins. Min. S

37 Librae

a Coronae

6 Camel H

i Serpenti

15 25 2.4

28 11.8

29

34 45.7

6.4

16.1

37.5

58.1

8.8

18.9

52.8

15 23 22.7

12.6

23.1

51.3

56.7

24 47.3

15.9

26.9

59.8

01

46.1

96.8

205.4

15 21 50.42

15 25 9.2

15 28 19.36

15 34 53.08

22 28.43

58.71

265.4

29 29.8
30.1
30.623 19.6
23 22.5
23 26.024 43.2
46.4
52.345.7
46.0

87° 55' 7" 1.40647

A 56.20 - 2 51.60

B 56.17 - 1 26.53

End

a Serpentis *Polaris*

36 51.6

55.7

58.0

1.8

5.7

172.2

15 36 58.44

37 37.48

<i>a Virginis</i>	13 18	-0.32	39.68
<i>B Librae</i>	15 10	-0.34	39.50
<i>a Coronae</i>	15 27	-0.35	39.10
<i>a Serpentis</i>	15 38	-0.33	39.37

14 54

14 48

Rate per

- full

- 39.543

- 39.543

+ 0.048

1864 June 28 All East
548

Polaris			a Virginis			♂ Bootis			♂ Bootis			♂ Bootis		
13	4	44.7	13	17	20.1	14	19	46.9	25	14.9		28	2.3	
	7	23.7			23.6			52.5		18.5			6.1	
	9	6.6			27.2			58.5		23.0			10.5	
	11	37.1			29.9			2.7		25.7			13.4	
					33.8			9.3		30.5			18.0	
					134.5			169.9		11 2.6			50.3	
								289.9						
13	9	20.62	13	17	26.90	14	19	57.98	14	25	22.52	14	28	10.06
	9	40.82		18	4.67									

4
43.4
44.7
46.0

7
19.1
21.7
25.0
28.2

9
3.3
4.8
6.7
8.4
10.6

12
34.9
36.4
39.9

♂ 58° 34' 56" 160656

- 4 30.62
20.93 2 17.17
20.26 12.66
21.44 1 57.74
20.85 4 36.15

mut page

last year	Smithy see and	548				
n Virgin	a' Librae	a" Librae	Pc XIV 217	B. V. Min		
35 12.3	42 29.0		47 102	50 6.0		
15.6	32.4	47.7	16.9	17.6		
19.4	36.2	50.3	24.4	32.2		
21.8	38.8	54.4	29.3	42.3		
26.0			37.3	57.0		
9 5.1			118.1	155.1		

14	35	19.02	14	42	35.87	14	42	47.31	14	47	23.62	14	50	31.02
			43	13.50			43	24.94						

3594

52

85

78

47.35

38

31

1864 June 28 Ill. S.

J.H.S.

γ Upsilon ² Scorpii			223 Canmel B			e Bootis			3 Librae			u Bootis		
14	55	25.6	14	58	9.6				15	9	0.4	18	37.6	
		29.1			36.6						3.7		41.9	
		33.3			7.3						7.6		46.5	
		36.2			29.1	15	0	47.9			10.1		49.9	
		40.4	15	0	1.9			52.2			14.1		54.8	
		164.6			84.5						35.9		230.7	
					24.5									
14	55	32.92	14	59	4.90				15	9	7.18	15	18	46.14
											44.89			

see next

57 Mrs Min B	37 Librae	a Coronae	a Serpentis	a Serpentis
20 12.0	26 4.0	28 13.4	34 47.5	36 52.0
21 50.1	17.2	17.1	37.0	56.4
22 54.9	11.0	21.4	54.9	0.2
24 34.0	13.7	24.2	57.7	2.6
	17.6	28.6	1.8	6.6
	53.5	104.7	212.9	118.8
			272.9	
15 24 40.11	15 26 10.70	15 28 20.94	15 34 54.58	15 36 59.76
22 27.95		58.71		37 37.47

20 11.0
12.0
13.0

21 49.2
50.0
57.0

22 54.6
55.2

24 33.1
34.0
34.8

230°37'

249.43

120 20 1.3671

δ 87°45'8" 1.40649

B 38.56 1 20.54
C 41.48 8.62
D 40.63 1 14.37
E 39.60 2 54.20

1864 June 28 M. E.
JWS

δ Serpentes	α Serpentes	ϵ Serpentes	γ Serpentes	δ Scorpii
15-39 9.5-	41 30.6	43 21.2	49 28.9	57 37.0
12.7	53.1	24.5-	32.3	40.5-
16.5-	57.7	28.3	36.1	44.6
19.2	0.2	30.8	38.8	47.3
23.2	4.0	34.7	42.9	51.6
81.1	166.4	139.5	199.0	57 221.0
	286.4			
15-39 16.22	15-41 57.28	15-43 27.90	15-49 35.80	15-57 44.20

β Scorpii	δ Draconis	δ Mus Min	γ Camel H Sp	α Lyrae
56 51.1	58 32.4	18 16 28.1	18 21 44.6	31 37.2
54.6	38.7		7.2	41.4
58.5	46.0		21.0	46.3
1.3	51.0	18 16 28.1	42.2	49.7
5.5	58.7	17 33.5	23 1.0	54.5
171.0	226.8		116.0	229.1
15 56 58.20	15 58 45.36	18 15 38.32	18 22 23.20	18 31 45.82
57 35.85		16 21.76		32 23.37

Errors
 Chk - ~~Corrections~~

				$\Delta\alpha$	$\Delta\delta$
α Virginis	13 18	-37.47	+37.507 +0.04		
δ Bootis	14 39	37.36	37.401	+0.04	+0.02
γ Librae	14 43	37.32	37.397 +0.08		
α —	14 43	37.32	37.397 +0.08		
β —	15 9	37.41	37.362	-0.05	-0.07
α Corvinae	15 29	37.37	37.336 -0.03		
α Serpentin	15 32	37.38	37.325 -0.06		
β Scorpis	15 58	37.34	37.298	-0.04	-0.06
α Grae	18 32	37.08	37.099 +0.02		
Raw	15 27	-37.334	Corr		
		+0.078	-0.020		

δ 86.361212 1.22765

δ 38.51 49.59
 δ 38.14 1.55.36

1864 June 28 S.M.E.

End

57 Ceph H			6 Camel H			Polaris		
18	32	46.4	14	38	20.2	15	29	33.7
	34	4.8			23.9			42.5
	35	58.2			28.1			48.0
18	36	18.5			31.0			56.4
	37	26.0			35.5			3.6
		153.9			138.7			184.4
								244.4
18	35	57.8	14	38	27.74	15	29	48.88
6	35	31.33	~~14~~	39	5.50			

32 44.8
45.5
47.3
48.1

34 3.4
58

35 57.8
58.5

37 25.1
25.8
27.0

4 12.4
17.7
26.0

6 24.3
31.1
32.6
33.9
39.5

8 58.3
3.4
4.7
9.2
~~10~~

10 36.2
41.5
43.3
44.7
46.1
52.7

13 16.0
17.7
24.1
25.1
30.6

1864 June 29. M.E.

748

out page

Polaris			a Virginis			n Procy			n Boötis			a Boötis		
13	4	45.4	13	17	218	41	25.3		47	31.7	14	8	465	
	2	25.5			250		30.7			35.7			57.9	
	9	10.2			28.7		36.6			39.0			54.0	
	11	39.9			31.4		40.3			41.7			56.6	
	13	52.3			35.3		46.6			45.7			61.0	
	17	3.3			142.2		179.9			193.2			268.1	
13	9	22.66	13	17	28.44	13	41	35.98	13	47	38.64	14	8	53.62
	9	41.81		18	4.66					15.10				

4 40.6
43.6
46.6
48.6

7 21.2
24.4
26.6
29.4

9 5.4
10.0
11.8
13.7

11 35.7
37.7
45.0

13 47.7
52.1
53.5
55.4

1864 June 29 Ill. E

AM

Virginis

♂ Bootis

♂ Bootis

HAB

♂ Bootis

u Virginis

14 19 48.6

25 16.5

28 4.0

35 14.1

53.8

20.4

7.9

17.4

(0.1)

24.8

12.3

21.1

45

27.8

15.1

23.3

10.8

32.4

19.8

27.7

121.9

59.1

103.8

14 11 15.0
19.3

14 19 59.52

14 25 24.38
26 0.65

14 28 11.82 14 35 20.76

next page

e Bootis		a' Librae		a ² Librae		Aug 1 ^o 3 0 18		4 Bootis			
38	21.8	42	36.5			56	47.8	57	36.2		
	25.3		33.9	42	45.4		57.0		39.8		
	29.7		37.9		49.1		54.7		4.1		
	32.5		40.6		57.8		57.1		7.0		
	37.1				56.0		1.2		11.4		
	146.6						211.8		138.5		
14	38	29.32	14	42	37.50	14	42	48.84	14	58	3.70
	39	51.49		43	13.50		43	26.94			39.82

37.44

52

55

58

48.92

75

78

91

1864 June 29. Ill East
JHS

3 Libra	Aug 10 3058	Aug 11 3074	37 Pro Min B	37 Libra
15 4 20	10 47.7	17 (32.8)	18 51.3	26 5.5
54	50.9	(35.3)	20 14.0	8.8
90	54.8	(39.6)	21 48.6	12.6
11.7	57.3	(42.4)	22 55.3	15.3
15.8	1.3		24 35.3	19.3
43.9	212.0		204.5	61.5
15 9 8.78	15 10 54.40		15 21 40.90	15 26 12.30
44.89			22 27.44	

20 13.5
14.022 54.4
55.4
56.024 34.0
36.6

39.49

38.89

39.26

39.49

40.56

39.96

40.03

41.10

next page

α Coronae		6 Gemmuli H 97		ϵ Serpentis		α Serpentis		λ Serpentis	
28	15.2	27	33.9	34	49.0	36	54.7		
	18.7		44.2		52.6		58.1		
	23.0		49.9		56.5		1.8	39	18.1
	25.8		58.1		59.2		4.3		20.6
	30.3		5.2		3.6		8.3		24.7
	113.0		193.3		220.9		127.2		
			253.3		280.9				
15 28	22.60	15 29	50.66	15 34	56.18	15 37	1.44		
	58.70						37.47		

1864 June 29 M.E.

J.H.S.

<i>Lupantis</i>		<i>ε Lupantis</i>		<i>γ Lupantis</i>		<i>β Scorpis</i> or <i>α Draconis</i>	
15	41 52.1	43	228	47	30.4	56	52.7
	53.3		26.1		33.9		56.2
	59.1		30.0		37.7		5.2
	1.8		32.4		40.4		29
	5.8		36.4		44.5		7.1
	174.1		147.7		186.9		119.1
	294.1						
15	41 58.82	15	43 29.54	15	47 37.38	15	56 59.82
						57	55.85

End

Amittet
c Bootis

15 0 39.0
42.6
46.7
49.0
53.9
231.8

15 0 46.36

					$\Delta\alpha$	$\Delta\delta$
α Virginis	+0.30	-35.92	13 18	35.860	-04	
ρ Bootis	0.42	35.85	14 26	35.803	-05	-07
ϵ —	0.40	35.77	14 39	35.788	+02	00
α' Librae	0.31	35.69	14 43	35.783	+09	
α'' —	0.31	35.79	14 43	35.783	-01	
ϕ Bootis	0.40	35.77	14 59	35.765	.00	-02
β Librae	0.31	35.80	15 10	35.753	-05	-07
α Coronae	0.40	35.70	15 29	35.731	+03	
α Serpentis	0.33	35.70	15 38	35.721	+02	
β Scorpii	+0.31	-35.72	15 58	35.698	-02	-04
		-35.771	14 54		Corr -020	
				Rate .068		
				True +.067		
				Toll +.071		
				.069		

1864 June 30 M18
JH8

Bootes		Bootes		u Virginis		e Bootes		d Librae	
14	25-183	28	235	35	15.7	38	235	42	32.2
	22.1		27.1		19.1		27.1		35.6
	26.5		31.3		22.9		31.2		39.4
	29.5		34.4		25.5		34.3		42.2
	34.2		38.9		29.4		38.9		
	150.6		155.2		112.6		155.0		
14	25 26.92	14	28 31.04	14	35 22.52	14	36 31.00	14	42 39.12
	26 0.63						39 5.48		49 12.49

39.14

39.12

39.05

39.18

see end *Wdk*

α^2 Librae	β Librae	μ Boötis	α Leoninae	ϵ Serpentinae
	15-9 3.7	18 40.8	28 16.8	34 50.6
42 47.1	7.1	45.0	20.4	57.3
51.0	10.9	49.6	24.5	58.3
53.6	13.6	52.8	27.5	1.0
57.7	17.3	57.8	32.0	57
	52.6	246.0	121.2	169.3
				289.3
14 42 50.62	15 9 10.52	15 18 49.20	15 28 24.24	15 34 57.86
43 24.97	44.88		58.69	

50.62

.65

.58

.61

1864 June 30 ILL E
~~W A R~~

second

Serpentes!	n	Serpentes	3	W A R	γ	Serpentes	γ	750
5 38 2.3		41 53.9				49 32.1		53 53.3
5.6		57.2		4 8 8.3		353-		54 23.6
9.4		0.9		26.6		395-		55 7.9
120		3.6		39.3		42.1		55 46.4
(15.7)		(7.5)		58.4		46.2		
						195.4		

15 ~~38~~ 9.04
37 37.46

15 49 39.08

53 57.8
53.2
54.8

54 22.3
23.6
24.8

55 6.3
7.7
8.0
9.6

55 44.9
46.9
48.6

9.04 6.74
.02 3.62
.06 0.34
.07 2.93
(8.92) 6.88

Bleupier Jr + Disacornis Jr Gr 779

5 Ophimachi

8 Ophimachi

56 545-

58 35.7

22.5 16

6 35.7

10 30.3

580

41.8

45.6

38.8

33.5-

1.9

49.2

1.2

42.8

37.2

45-

540

23.9

45.4

39.7

8.7

1.8

43.5

49.4

43.7

127.6

182.7

106.7

212.1

164.4

242.7

15 57 1.52

16 3 3.34

16 6 42.42

10 10 36.88

35.85

15 58 48.54

7 16.74

2

21.5-

22.3

22.9

23.3

44.6

45.3-

46.7

0.1

1.2

2.4

23.0

23.9

24.7

42.5-

43.5-

44.5-

3

42.5-

73.6

44.5-

1864 June 30

NAIR

HLS

Omitted 748

Omitted

Herculis

a Scorpion

2 Draconis

P. 814 217 3 No Min

16 15 16.9

20. 26.9

21 23.2

14 47 23.5-14 50 9.0

20.4

30.5

30.1

20.1

21.7

24.5

34.6

37.8

27.3

35.6

27.2

37.6

43.4

32.6

45.2

31.2

42.0

51.8

40.3

0.3

120.2

171.6

186.3

133.8

111.8

171.8

16 15 24.04

16 20 34.32

16 21 37.26

14 47 26.76 14 50 34.36

21 8.53

Amthot

e Serpentis

15-43 245-

278

31.6

342

381

156.2

15-43 31.24

Ann 30 Nov

					Δ	Δ'
ρ Bootis	14 26	+0.42	-34.09	+34.102	+0.01	+0.02
ϵ —	14 39	0.40	34.08	34.086	+0.01	+0.01
δ Libra	14 43	0.31	34.06	34.060	-0.09	
κ —	14 43	0.21	34.08	34.080	+0.02	
α Scorpii	16 21	0.31	33.90	33.950	+0.05	
	14 58		34.060		+0.07	
W.M.				0.080		
ρ Libra	15 9	+0.31	34.05	+34.085	+0.03	+0.05
α Coronae	15 29	0.40	34.05	34.068	+0.02	
α Serpentis	15 38	0.33	34.09	34.039	-0.05	
ρ Scorpii	15 58	0.31	34.02	34.020	0.00	+0.02
δ Ophiuchi	16 7	0.31	34.01	+34.088	+0.00	+0.01
	15 40		-34.044		+0.16	
S-R			+0.40			

1864 July 3 M18
WDR

Polaris	a Virginis	3 hrs Min	γ Scorpii	δ Bootis
13 5 0.5	13 17 28.6	14 49 136	55 34.0	58 2.4
7 36.4	31.1	262	37.6	6.7
9 23.1	35.8	40.8	41.9	11.0
11 50.9	38.3	50.2	44.5	13.4
14 4.7	42.3	4.6	48.1	18.3
117.6	176.9	13 5.4	209.1	52.8
		195.1		
13 9 35.52	13 17 35.38	14 49 39.08	14 55 41.42	14 58 10.56
1 19 45.74	18 4.61			

13	4	54.0
		58.3
		59.8
5		1.3
		2.6
		6.9
7		32.0
		36.4
		38.6
		40.3
		45.4
7		20.0
		22.3
		26.7
11		46.7
		49.7
		57.3
		58.9
13		57.7
		2.7
		4.0
		13.5
		17.8

1864 July 3 Ill E
WAP

Clear Boreal 6 Canine H

c Serpentes

a Serpentes

λ Serpentes

5 28 22.0

34 56.1

37 1.7

39 21.4

25.6

29 57.1

59.8

4.8

25.2

29.9

36.8

3.5-

8.8

27.7

32.8

4.9

6.3

11.4

31.9

36.9

12.5

10.3

15.3

147.2

13 6.0

62.08

16.0

15 28 29.44

15 34 3.20

15 37 8.40

58.66

37.45

next page

~~<i>u Serpentes</i>~~	<i>u Serpentes</i>	<i>8 Serpentes</i>	<i>3 Per Min</i>	<i>y Serpentes</i>
	41 59.2	43 30.0	47 37.8	49 37.3
	2.5-	33.1	48 14.0	41.0
	6.2	36.9	32.0	44.7
	8.7	39.5-	44.5-	47.5-
	12.6	43.3	49 3.6	57.4
	49.2	182.8	151.9	221.9
	29.2			
15 41	5.84	15 43 36.56	15 48 30.38	15 49 44.38

1864 July 3 Ills
WARR

1864phae.

Gr 750	Dracenis	Ophiuchi	Ophiuchi & Herentia
15 32 12.5	58 40.5	16 6 40.9	10 35.5 15 22.2
	471	442	38.6 25.7
53 28.8	543	480	42.5 29.8
56 14.2	(57.5)	52.5	45.1 32.5
54 52.9	(7.3)	546	49.1 36.5
		238.2	210.8 146.7
15 53 33.41		16 6 17.64	16 10 42.16 16 15 29.34
3 54 57.69		7 16.73	

53 27.8
28.7
29.7

54 11.9
14.5
16.1

50.1
53.3
55.4

- 22" 13.44
85° 11' 15" 1.07628

A 33.14 - 19.76
B 32.74 - 40.46
C 32.83 + 4.03
D + 34.72
E 33.94 + 21.44

next page

α Scorpii	η Draconis	β Herculis	τ Scorpii	ζ Orionis
20 32.0		23 49.3	26 52.8	29 8.3
35.7	21 34.9	52.9	56.7	11.7
39.7	42.9	56.8	27 0.9	15.5
42.6	48.9	59.7	3.7	18.0
47.1	56.7	4.0	8.2	22.0
197.1		222.7	122.3	75.5
		282.7	2.3	
16 20 39.42		16 23 56.54	16 27 0.46	16 29 15.10
21 8.52				

1864 July 3 M E
W. A. R.

* 16	33	33	* 16	34	30	η Heroulis	9 Canulop	3 Scorpis
16	32	18.5				37 39.2	39 50.5	43 57.6
		33.6		33	18.9	43.5	0.3	56.4
		56.3			35.4	48.2	6.1	44. 0.8
33		10.0			59.4	57.5	15.3	45
		31.3		34	20.7	58.6	23.9	9.7
		151.7				239.0	96.1	123.0
		271.7					36.1	3.0
16	32	54.34				16 37 47.50	16 39 7.22	16 44 0.60
						~~46 12.57~~		

33 18.3
18.9
19.534 3
35.4
36.4

see end

See below next page

32 Scorp	E hrs Min	22 Ophiuchi	2 Hercules	11 Hercules
28.0	16 58 43.4	17 2 2.8	7. 54.2	9 44.3
32.7	59 8.1	6.3	57.6	48.4
37.8	35.8	10.0	1.4	53.1
40.2	55.0	12.8	4.1	56.2
46.6	17 0 24.0	17.0	8.1	1.2
18 5.3	166.3	18.9	125.4	205.2
16 37.06	16 59 33.26	17 2 9.79	17 8 1.08	263.2
	17 0 4.50		30.23	52.61
	16 58 41.8			
	43.4			
	44.7			
	57 6.9			
	8.0			
	9.5			
	34.9			
	35.7			
	36.8			
	53.7			
	54.5			
	55.2			
	56.4			
0	22.8			
	23.6			
	24.5			
			11 Hercules full	
			56.6	
			58.0	
			1.8	
			4.4	
			8.6	

1864 July 3 M.E.
MAR

α Persei	64 Camel	* ~~Persei~~	β Draconis	α Persei
17 13 74	17 0.8	~~27~~	17 26 44.5	28 4.9
113	56.0		498	83
15.3	18 16.0		56.2	122
18.1	19 0.7		0.1	146
22.5	39.9		6.7	188
74.6	103.4		157.3	59.0
			277.3	
17 13 14.92	17 18 20.68		17 26 55.46	17 28 11.80
13 43.83	5 18 45.75			40.78

16 59.4
17 0.4
1.4
2.2

1 44.5
45.8
47.6

13.2
15.9
18.9

58.2
08
3.0

38.0
39.8
41.8

next page

<i>S. Aphrodisia</i>		<i>♀ Draconis</i>		<i>♂ Draconis</i>		<i>♀ Draconis</i>		<i>♂ Aphrodisia</i>			
36	164	43	385	43	385.2	52	302	58	3.0		
	20.3		442		46.0		35.6		6.3		
	228		56.7		58.4	53	1.5		10.0		
	268	44	4.7		6.7		5.7		12.6		
			17.8		19.3		11.9		16.5		
			156.9		165.6		125.0		48.4		
			276.9		285.6		5.0				
17	43	55.38	17	43	57.12	17	52	1.00	17	54	9.68

43 385.2

1864 July 3 MLE

NAR

Sagittarii			41 Draconis			22 Draconis			2 Mrs Min			23 Canis (H)		
18	4	6.0	4	8.2	4	14.6	21	53.5						
		9.4		27.0		33.2		15.1						
		13.5		48.8		54.8	18	15	54.1				29.3	
		16.3		3.0		9.1		16	36.1				50.2	
		20.4		25.6		31.6								
		65.6		112.6		143.3								
				232.6		263.3								
18	5	13.12	18	9	46.52	18	9	52.66	18	15	47.64			
	5	42.00								16	21.15			

15 51.5
54.3
56.6

34.1
36.0
38.1

66°31' 23" 0 17772

C 5839 5.71
D 46.89 49.21

next page

~~See below.~~

a Lynce		31. Cupreus p.		110. Peromyscus		3 Lynce		5 Sagittarius	
31	45.7	18	32 57.4	39	19.5	44	30.4	46	179
	51.0		34 13.4		23.6		34.0		21.5
	54.8		35 4.8		26.3		38.5		25.8
	58.0		36 24.3		30.4		41.6		28.6
	3.1		37 31.8				46.3		33.0
	211.6		125.7		115.8		190.4		186.8

34 9.4
11.7
15.5-
16.9

35- 05-
4.2
5.7
8.8

36 200
244
284

37 280
31.5-
32.8
34.9

Com. of B. & C.

32.0
36.0
40.5
53.5
48.2

18 44

1864 July 3 M E

W AR

1864	Supernovae	50 Dracenis	18 49	52.8	18 52 54.8	58 37.3	19 1 8.6
53.6	57.1			5.7	58.2	40.8	12.1
59.0	0.4				53 2.0	44.6	16.1
28	4.1	50	20.3		4.7	47.3	18.9
5.2	6.8		30.1		8.8	57.4	23.2
9.2	10.6		43.8				
			154.7		128.5	221.4	78.9
			94.7		8.5		
		18 50	18.94	18 53	1.70	18 58 44.28	19 1 15.78
						59 13.07	

End

Admitted	Admitted	Admitted	Admitted	Admitted
μ Bootis	κ Ophiuchi	ϵ Hercules	γ Draconis	α Serpens
15 18 46.1	16 50 41.6	16 54 31.5	17 50 32.5	18 13 44.6
50.5	44.9	35.3	38.5	47.8
53.7	48.6	39.8	45.3	54.7
58.3	57.2	42.4	52.0	59.3
3.3	53.3	47.4	57.1	58.0
213.3	241.6	196.4	223.4	256.4
273.3				
15 18 54.66	16 50 48.32	16 54 39.28	17 50 44.68	18 13 51.28
	51 17.30			

July 3^d N.A.R.

					$\Delta\alpha$	
α Virginis	13 18	0.30	-28.93	+28.935	+00	
β Librae	15 10	0.30	28.79	28.800	+01	+05
γ Corvinae	15 29	0.40	28.82	28.778	-04	
δ Serpentis	15 38	0.33	28.72	28.767	+05	
ϵ Ophiuchi	16 7	0.31	28.78	28.732	-05	-01
ζ Serpini	16 21	0.31	28.79	28.715	-08	-1
η Hercules	16 36	0.32	28.72	28.722	+00	
κ Ophiuchi	16 51	0.34	28.64	28.679	+04	+08
λ Hercules	17 8	0.35	28.60	28.659	-14	
θ Ophiuchi	17 14	0.31	28.60	28.652	+05	+09
ι —	17 29	0.34	28.64	28.634	-01	
μ Sagittarii	18 6	0.31	28.57	28.589	+02	+06
ν Lyrae	18 32	0.42	28.61	28.559	-05	
ρ Lyrae	18 45	0.43	28.43	28.563	+11	+15
σ Aquilae	18 59	0.35	-28.44	28.526	+09	+12
	16 48		-28.683	Cor	-028	
			0.072			

1864 July 4 ME

MAR

HAB

Pelagis	a Virginis	2 Bootes	a Bootes	4 Bootes
3 51.8	13 17 30.0	18 47 40.0	14 8 53.3	14 19 54.0
7 36.4	33.3	43.7	58.7	2.5
9 22.8	37.1	47.6	2.7	20 8.6
11 55.6	39.7	50.3	5.4	12.8
14 6.7	43.7	54.5	9.5	19.3
182.3	183.8	236.1	131.6	100.2
				40.2
13 9 36.46	13 12 36.76	13 47 47.22	14 9 23.2	14 20 8.04
46.61	18 4.60	58 15.03	9 30.04	

5 53.7
57.8
59.2
4.4

7 37.7
39.1

9 18.6
22.2
23.2
27.3

11 53.9
54.7
55.8
57.8

13 59.4
4.7
5.7
8.0
15.6

next page

α Bootis	σ Bootis	μ Virgo	ϵ Bootis	δ Librae
25- 25.7	28 125-	35 22.5-	38 30.2	42 38.9
28.8	163	25.8	33.9	42.4
33.2	20.6	29.5-	38.0	46.1
36.2	23.6	32.1	40.9	48.8
40.8	28.1	36.0	45.5-	52.9
164.1	101.1	145.9	188.5	229.1-
14 25 32.82	14 28 20.22	14 35 29.18	14 38 37.70	14 42 45.82
26 0.55			39 5.42	43 13.46

1864 July 4 ME

TAS

 α^2 Librae γ Scorpii ψ Bootis ϵ Bootis

Arg 10° 33' 22"

14	55	35.8	58	4.5	15	0	47.3	8	22.4		
		39.3		8.3			51.0		25.8		
		43.3		12.4			55.1		29.4		
		46.3		15.3			58.0		32.0		
		50.7		19.7			2.3		36.0		
		215.4		60.2			213.7		145.6		
							273.7				
14	55	43.08	14	58	12.04	15	0	54.74	15	8	29.12
					39.80						

57.75

18

31

next page

Aug + 10 3058	Aug + 10 3074	y Mass Min	57 Mass Min B	37 Libras
10 561				26 140
54.4	17 44.1	20 20.0		17.3
3.2	480	32.3	22 56.4	21.1
5.7	507	(40.9)	23 1.3	23.7
9.6	544	54.0	24 43.1	27.7
134.0				103.8

15 11 2.80 15 17 17.63

15 22 47.89 15 26 20.76
22 24.78

24 42.7
42.5

1.40654

47.49
.66
79
.57

c 47.78 8.62
d 47.02 174.78
e 48.88 254.22

1864 July 4 M E
748

1864phae.

Cerv Boreas		Arg +1° 31 10		a Serpentes		Arg +1° 31 23		Arg +1° 31 31						
15	28	23.3	32	57.1	37	20	38	13.5	40	25				
		27.2		0.6		6.4		16.6		3.8				
		31.3		4.3		10.2		20.4		9.5				
		34.3		6.7		12.7		23.0		12.0				
		38.7		10.6		16.7		26.9		16.0				
		155.0		79.3		49.0		100.4		45.8				
15	28	31.00	15	33	3.86	15	37	9.80	15	38	20.08	15	40	9.16
		58.65						37.44						

next page

Arg + 2° 30 01	α Perseus	γ Aur Min	δ Scorp	σ Scorp
40 47.0	42 54.7	47 39.2	51 47.0	57 1.3
50.3	58.0	48 15.7	50.6	4.7
54.0	43 1.7	33.7	54.4	8.7
56.5	4.4	46.2	57.3	11.4
04	8.3	5.5	1.5	13.6
208.2	127.1	160.3	210.7	41.7
			270.7	
15 40 53.64	15 43 1.42	15 48 3.2.06	15 51 54.14	15 52 8.34
				35.83

1864 July 4 ME

TAS

+ Isaacus

15-58 42.4

48.7

56.0

Sheet came to its end

J Ophurshi

16 6 42.4

45.7

49.5

52.0

56.0

245.6

e Ophurshi

10 36.9

40.3

44.0

46.6

50.6

218.4

y Hercules

15 23.8

27.2

31.2

33.9

38.0

154.1

16 6 49.12

7 16.72

16 10 43.68 16 15 30.82

$\Delta + 203106$
~~203106~~

a. Scorpion

B Hercules

T Scorpion

3. Antares

19 28.4

20 33.6

23 50.9

26 54.5

29 9.8

31.8

37.3

54.4

58.2

13.1

33.4

41.4

58.3

2.5

16.9

38.0

44.3

1.2

5.3

19.6

41.9

48.7

5.3

9.7

22.6

175.5

205.3

170.1

130.2

83.0

290.1

10.2

16 19 35.10 16 20 41.06 16 23 58.02 16 26 2.04 16 29 16.6
 21 8.52

1864 July 4 MLE
548

1864phae. p

P. XVI 182		3 Hercules		2 Hercules		ε Scorpion		γ Scorpion		
16	32	20.3	35	37.2	37	40.8	40	50.6	43	52.9
		37.7		40.9		44.9		57.5		57.0
		57.7		45.4		49.9		54.0		2.3
		11.5		48.5		53.1		2.1		5.7
		32.7		53.1		58.3		7.0		10.9
		159.9		225.1		247.0		173.2		128.8
		279.9						293.2		8.8
16	32	55.98	16	35 45.02	16	37 49.40	16	40 58.64	16	43 1.76
				36 12.59						

	3 <i>Scorpii</i>	<i>α Ophiuchi</i>	<i>ε Herculis</i>	* <i>ε Perseus</i>	<i>α Ophiuchi</i>
2.9	44 29.8	50 42.9	54 33.1	58 44.8	17 2 4.2
0	34.0	46.3	36.8	95-	7.5-
3	39.0	50.2	41.1	37.7	11.5-
7	42.6	52.7	44.0	56.4	14.2
1	47.9	56.6	48.8	25.4	18.3
8	19 3.3	248.7	203.8	173.8	55.7
8					
26	16.44 38.66	16 50 49.74	16 50 40.76	16 59 34.76	17 2 11.14
		51 17.30		17 0 4.39	

1864 July 4 M E
TAS

MS

a Hercules		H. Hercules		40 Aphruchi		4 Aphruchi		64 Camel B 13	
7	55.7	9	45.9	12	21.0	13	9.1		
7	59.1		49.9		24.4		12.7	17	42.5
	30		54.6		28.4		16.7	18	20.0
	5.7		57.8		31.2		19.6	19	2.9
	9.7		2.8		35.3		23.8	19	42.3
	133.2		211.0		140.3		81.9		
			271.0						
17	8	17	9	17	12	17	13	5	18
	26.4		54.20		28.06		16.38		23.62
	30.22						13	5	18
							43.83		45.93

19 26/4
3.2

fr

85° 11' 46" 1.06959

A - 78.54	23.76
B - 39.84	23.06
C + 3.96	23.96
D + 34.19	23.69
E + 80.19	—

a Optinuchi

28 65-

9.8

13.6

16.3

20.2

66.4

17 28 13.28
10.78

July 4

					Δt	Δt
γ Bootis	13 48	+0.36	27.45	27.378	-07	-07
δ —	14 10	0.36	27.36	27.355	+00	
ρ —	14 26	0.42	27.31	27.339	+03	+03
ϵ —	14 39	0.41	27.31	27.326	+02	+02
ζ Librae	14 43	0.31	27.33	27.327	-01	
ν —	14 43	0.31	27.31	27.322	+01	
ϕ Bootis	14 59	0.41	27.35	27.306	-04	-04
ι Coronae	15 29	0.41	27.24	27.275	+05	
κ Serpentes	15 38	0.33	27.31	27.266	-04	
β Scorpis	15 58	0.31	27.18	27.246	+07	+06
δ Optinuchi	16 7	0.31	27.29	27.236	-05	-06
κ Scorpis	16 21	0.31	27.15	27.222	+07	
ζ Herculis	16 36	0.42	27.15	27.207	+06	+06
κ Optinuchi	16 57	0.34	27.22	27.192	-03	-03
κ Herculis	17 9	0.35	27.23	27.182	-06	
δ Optinuchi	17 14	0.31	27.14	27.169	+03	+03
κ —	17 29	0.35	27.15	27.183	+00	
	15 40		27.264			
Rule		0.061				

1864 July 5 MIE
1848

Planets	Bootes	6 Bootes	n Virgo	a Librae
13 5 3.3	14 25 26.5	28 14.0		42 41.4
7 41.6	30.3	17.7	35 27.3	43.7
9 26.6	34.5	22.0	30.9	47.7
11 56.4	37.3	25.0	33.6	52.3
14 9.4	42.2	29.6	37.6	54.4
137.3	171.0	108.3		236.5
13 9 39.46	14 25 34.20	14 28 21.66		14 1.2 17.30
19 17.45	26 0.56			13 13.45

5 0.4
2.4
3.7
6.5-

39.8
40.6
42.5
43.7

9 22.6
26.8
30.3
11

11 52.7
56.3
0.1

14 6.4
8.8
13.0

1864phae.p

	α^2 Librae		β Procyon		γ Scoopii		ϵ Bootis		β Librae				
14			50	16.8	55	37.1	15-0	48.8	9	11.9			
37				29.1		40.7		52.4		15.3			
7	42	5-9.1		43.1		44.7		56.5		18.8			
3		1.7		52.8		47.6		59.3		21.7			
4		5-8		7.9		52.0		3.7		25.7			
5				149.7		222.1		220.7		93.4			
				209.7				280.7					
30	14	42 58.7	14	50	41.94	14	55	44.42	15-0	56.14	15	9	18.68
45		43 24.89											44.76

58.75
18
.71

1864 July 5 Ill 18

FAS

7	Ans Min B	37 Libra	a Cor Borealis	a Serpenti	5 Scorpii	40
18	56.1	15 26 154	28 24.9	37 4.6	51 48.4	
20	19.2	18.7	28.6	7.9	520	
21	55.1	223	32.7	11.6	580	
23	0.0	257	35.6	14.2	586	
24	40.8	29.1	40.1	18.2	2.9	
	171.2	110.8	161.9	56.5	21 7.9	
					277.9	
15	21 48.24	15 26 22.16	15 28 32.38	15 37 11.30	15 51 55.58	18
	22 24.30		58.64	37.43		

18 54.7
53.5
56.8
57.8

20 18.1
20.3

21 53.2
54.6
57.3

22 59.3
0.0
0.8

24 39.2
40.0
43.1

40 Deneb	41 Draconis	8 Sagittarii	8 hr Min	α Lyrae
18 9 10.5-	16.5-	11 48.2	18 13 56.7	18 31 48.8
29.5-	35.9	51.9	14 52.2	53.1
9 52.8	57.2	36.2	15 54.6	57.7
35.5-	11.9	59.2	16 38.0	1.1
28.0	34.9	3.7	17 44.4	6.1
124.3	156.4	21 9.2	246.1	166.8
244.3	276.4	27 9.2		
18 9 48.86	18 55.28	18 11 55.84	15 15 49.22	18 31 59.36
			16 20.84	32 23.41

13 54.8
56.5
59.3

14 50.5
57.4
54.7

15 52.7
54.0
57.0

16 363
380
398

17 430
439
46.4

864 July 5 ME
TAS

1 Cephei	110 Hercules	B Lyrae	α Sagittarii	δ Serpentis Jr
34 17.6	18 39 18.6	44 33.0		48 58.5
35 11.4	22.5	36.8		49 1.9
36 28.2	26.5	41.3	46 28.7	5.7
37 35.7	29.2	44.4		8.2
	33.4	48.1		12.1
	131.2	204.6		86.4
18 35 17.72	18 39 26.24	18 44 40.92		26.4
6 35 35.59		115 6.95	18 49	5.24

33 16.0
17.9
18.9 / 235 9.8
10.9
11.9
13.236 27.1
27.8
28.1
30.937 34.8
35.7
36.7
38~~38~~

2 67° 4' 35" 1.31771

A 16.6 - 2 19.06

B 17.6 - 1 10.54

C 18.4 - 7.02

D 18.14 - 1 0.52

E + 2 21.99

	δ Serpenti	50 Draconis	ϵ Aquilae	ζ Aquilae	π Sagittarii
49	0.0		52 57.7	58 40.3	19 1 118
	3.4	50 8.4	53 1.1	43.7	15.2
	7.1	23.2	4.9	47.6	19.1
	97	33.0	7.6	50.1	21.9
	13.6	48.7	11.7	54.2	260
	33.8		83.0	235.9	94.0
			23.0		
18 49	6.76		18 53 4.60	18 58 47.18	19 ~~1~~ 18.80
				59 13.09	

1864 July 5 - M8

JH8

α Aquilae			δ Aquilae		κ^2 Sagittarii		γ Aquilae	
19	10	56.8	18	9.6	27	36.7		18.5
	11	0.2		12.8		0.4		21.9
		4.0		16.5		45		25.7
		6.6		19.1		7.3		29.4
		10.6		23.1		11.7		32.3
		78.2		51.1		80.6		126.8
19	11	3.64	19	18	16.22	19	28	4.12
		29.55			42.15			29.96
							19	39
								25.36
								57.76

End

July 5^m

					Δx	Δx
ρ Bootis	14 26	0.42	-25.94	+25.878	-06	-06
δ Librae	14 43	0.31	25.84	25.860	+02	
γ —	14 43	0.31	25.87	25.860	-01	
β —	15 10	0.31	25.77	25.831	+06	+06
α Coronae	15 29	0.40	25.86	25.842	-05	
δ Scorpionis	15 38	0.33	25.80	25.801	00	
ϵ Cyrae	18 32	0.47	25.58	25.616	+03	
β —	18 45	0.43	25.60	25.602	00	00
ζ Aquilae	18 59	0.35	25.56	25.587	+02	+03
ω —	19 11	0.34	25.57	25.574	00	+01
δ —	19 19	0.32	25.61	25.565	-04	-04
α Sagittarii	19 28	0.31	25.53	25.556	+03	+03
γ Aquilae	19 40	0.34	25.56	25.543	-02	
	17 14		-25.699		Cor	
	Rati		+0.064		+0.03	

18664phae.proj...53S