

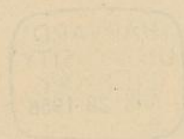
A.38

1862 March 28th - May 7th

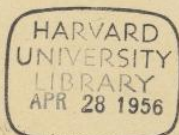
Sold by T. Groom & Co., Stationers, India Building, 82 State St., Boston.

KG 11365, 38

1862 Mich 28 +0.278 +0.074 reduced
 29 0.363 -0.080 } use +0.344 -0.080
 Apr 4 0.316 -0.080 }
 7 0.195 +0.146 reduced
 12 0.289 -0.053
 16-18 0.168 -0.032
~~16 0.128 -0.032~~
 19^a 0.258 +0.029 } reduced
 19^b +0.072 }
 24 +0.098 +0.144
 25 0.216 +0.144 reduced
 26-30 0.197 -0.047 19 reduced
 May 7 0.234 -0.047 reduced



KG 11365.38



1862 March 28th

continued on next page.

M.S.

α Ulysses minor	α Tauri	γ Aurigae	β Orion	β Tauri
1 2 57.7	32.4	320	26.8	6.0
	35.6	35.9	29.9	9.7
4 32.6	39.4	40.9	33.8	14.0
9 33.6	42.8	45.7	36.8	17.4
11 49.1	46.3	47.8	40.3	21.3
	196.5	199.5	167.6	68.4
1 7 23.10	41 27 09.30	41 47 39.90	5 7 33.52	5 17 13.68
BT 1 8 0.04	28 1.63	48 2.24	7 55.66	17 35.96
+ 14.17	+ 0.16	+ 0.27	+ 0.04	+ 0.24
[-22.77]	- 22.19	- 22.07	- 22.10	- 22.04
C.C. index + 22.55	+ 22.19	+ 22.15	+ 22.12	+ 22.10
Sec - 0.22	0.00	+ 0.08	+ 0.02	+ 0.06

1 7 27.5
22.6
22.9
19.4

85 34 39.4 1.0050
1.0057
+ 11.19 1.0490
+ 2.98 0.4243

1862 Nov 28. continued

Leporis		2 Orion		+ Orion		A Aurigae		γ Geminorum	
	10.7		45.4		14.7		50.0		9.3
	14.2		48.5		18.1		52.1		8.7
	18.1		52.3		21.8		58.6		12.8
	21.2		55.3		24.8		2.4		16.0
	24.8		58.8		28.4		7.0		19.8
	89.0		260.3		107.8		172.1		62.6
5 26	17.00	5 28	52.06	5 47	21.56	5 50	58.62	6 6	12.82
26	39.85		14.14	0.7	43.76				
inst. corr.	-0.01		+0.07		+0.11		+0.30		+0.20
clock	-22.06		-22.04		-22.09		+22.04		+22.01
C.C. inter	+22.08		+22.08		+22.04				
Sec.	+0.02		+0.07		-0.05				
App. M						5 51	20.76	6 6	34.73

Continued on next page.

δ Hydrae min	γ Gemmae	δ Cephei Arctis	δ Comae minoris	β Gemmae
6 14 32.3	6 29 17.2	6 32 10.3	38.0	24.9
15 31.3	Break	33 16.2	41.2	28.4
16 21.8		34 33.3	45.1	32.5
17 25.0		35 36.9	48.1	36.1
18 19.4			57.4	40.0
129.6			223.8	161.9
6 16 25.92		6 34 29.08	7 31 44.76	7 36 32.38
AT 41.83		AT [arr] 34 58.34	32 [6.80] AT	52.59
-5.91	+0.18	+7.33	+0.10	+0.24
[-21.82]		[-21.93]	- [21.94]	- 21.97
+22.00	+21.97	+21.97	+21.86	+21.85
+0.18		+0.04	-0.08	-0.12

6 34 30.0
29.0
28.1
29.2
6 34 29.08

98 45
29 15 9.6890
+26.7 1.3279
27 15 58 1.3188
1.3193
+5.79 0.7628
+1.52 0.1865

86 35 50 1.2258
1.2266
-4.67 0.
-1.24

1862 Nov 28 confirmed.

Gr 1359 = 156 (Am. 136)	W. m. S. P.	β lauroi	σ W. m. S. P.	(W. m. S. P.)
42 35.9	7 55 12.0	35.4	13.8	20.4
43 14.3	58 5.9	38.6	20.4	20.4
43 45.4	8 0 43.2	42.5	27.9	26.3
	2 59.3	45.6	34.1	30.7
Probably (2.3.4)	6 44.7	—	41.6	35.9
	165.1		137.8	
7 43 11.87	8 0 57.0	8 8 42.22	8 18 27.56	8 49 25.80
43 37.13	20 1 2.47			[48.13]
Int. loc. +3.62	-17.13	+0.12	+0.66	+0.43
C. S. det. [21.64]	[+23.10]			[-21.85]
C. C. int +21.84	+21.81	+21.79	+21.77	+21.72
See +0.20	-1.29	~~8 9~~		-0.13
My. AR		8 9 4.13	8 18 49.99	
11.06.		C. d. J. -0.04		

Batany meat;
after this star
strengthened with
hot water.

$N 5^{\circ} 54'$	$300^{\circ} 16'$		
46 24	9.8599	230 46	9.8891 _m
+ 39'7"	1.5988	- 42'.5	1.6280 _m
86 26 54.3	1.0123	86 53 33.2	1.7137 _m
SH	1.0143		1.7138 _m 4.30d
+ 2.86	0.4563	- 10.09	1.6837 _m 4.30d 0.0062
+ 0.71	9.8835	- 7.54	0.8782 _m
		A + 6.79	42.79
		B + 3.54	+ 2.14
		C - 0.25	- 0.75
		D - 3.29	- 3.19
		B + 5.28	25.68
		C - 0.38	1.92
		D 4.90	80
		E 10.12	78

finis

K Lami

1 Argus

2 Hydron

Br. 2832 sp

50.2

26.9

22.4

Q 22 59.6

53.4

31.2

28.7

23 31.5

57.4

36.8

29.3

23 58.7

0.3

40.6

32.4

24 31.9

3.7

45.2

35.9

25 1.4

165.0

180.7

145.7

143.1

8 59 57.00

Q

2

36.14

Q

20

29.14

Q

24 0.62

+ 0.13

- 0.16

in con.

50.90

21

24 18.45

+ 21.70

+ 21.69

C.E. dr.

- 21.73

[- 21.01]

+ 21.66

+ 21.66

- 0.07

+ 0.65

Q 0 18.43

Q

2

57.67

Clock Correction

N.

1" 28" + 22.17 ✓

48 22.07

5 18 22.04 ✓

48 22.09 ✓

7 37 21.97 ✓

5 36 + 22.072 ✓

S.

5 4 + 22.10 ✓

5 27 22.06

5 29 22.01

Q 21 21.73 ✓

24° 51

251 35

9.9772

6

21 + 21.975 4

- 52.0

1.7461

5

36 + 22.072 5

83 40 16.0

0.9550

5

56 + 22.029 9

- 2.51

0.9577

Prate 21

- 2.632

- 0.67

0.9990

7th Apr 7

- 2.551

- 0.67

9.8269

Adopted

- 2.59

- 0.108

correct by + 0.009

+ 22.238

136

22.022

21 914

806

698

+ 21.590

Nkhise-50

Derivatives
after adding 0.005
Clock time.

2 Janni +.01

1 Anupin +.09

3 Britanis +.03

3 Janni +.07

2 Seponi +.05

2 Prinin +.08

α — —.04

Crona —.07

Polmer —.11

2 Hydron —.06

311

311

1862.

Mar. 29

Ill. West

1862phae.

H.L.		"		"		"		"		"		"		"	
A. W. Maj		74 Draconis		74 Draconis fol.		Anonyma		Anonyma		Anonyma		Anonyma		Anonyma	
	40.9		12.7						8.2				11.9		
	49.1		32.0					+27° 20'	12.1	27° 26'			15.8		+27°
	56.4		55.7		51.0				15.4				19.0		
	5.5		13.4		9.8				19.6				23.3		
8	21	13.1	8	37	34.8	8	38	31.0	8	42	23.2	8	45	26.8	8
	165.0		148.6								78.5		96.8		
8	21	57.00	8	36	53.72		8	42	15.70	8	45	19.36	8		
		20	37	11.20											

Mar. 29

N.H.

Ill. West

Anonyma

6² Mrs. Haj

x Canci

y Canci

9			43.7					52.8		19.7
3	+27° 27'		47.5		48.7			56.2		23.3
0			50.8		56.4			59.4		26.5
3			55.1		6.3			3.2		30.4
3	8 45		58.6	8	58	14.8	9	0	6.4	8 24 34.0
8			255.7					178.0		133.9
6	8 45	51.14	8 57	57.14	9	59	59.60	8	24	26.78
									24	46.07

+203

-19.26

S₁

2 07° 41' 45" 0.3869

for 0.4206

A 57.16 -17.64

B .10 -9.20

C .06 +0.66

D .25 +0.55

1862.

Mar. 29

H.U.

Ill. West

λ Sgr		θ Hydrae		α Hydrae		θ Urs Maj		ν Urs Maj	
	29.6		47.7		25.1		9.7		40.1
	34.2		51.1		28.4		15.4		47.0
	38.4		54.1		31.5		20.2		52.9
	43.6		57.9		35.2		26.4		0.3
9	2	9	7	9	20	9	23	9	41
	48.1		1.1		38.4		31.7		6.7
	193.9		211.9		158.6		103.4		147.0
9	2	9	6	9	20	9	23	9	40
	38.78		54.38		31.72		20.68		53.40
					50.90		[40.21]		

Mar 29

A.H.

M. W. R.

μ Leonis		π Leonis		α Leonis		γ Hydrae		30 Cam. H.	
1			32.0		38.0		28.5		50.7
0		34.5	35.5		41.5		31.9		19.9
9		37.9	38.4		44.6		35.0		45.0
3		42.1	42.3		48.3		38.9		16.8
7	9	44	45.7	9	52	45.5	10	0	51.6
0			193.7			224.0			176.4
10	G	44	38.18	9	52	38.74	10	0	44.80
			57.94			4.05			35.28
									13
									14
									47.30
									8.79

d 26 40 for 0.0488

A .21 -7.49
 B .20 -3.90
 C .18 +0.28
 D 38.13 +3.63

1862.

Mar. 29

N.H.

Ill. West

μ Hydrae			ρ Leonis			ϵ Leonis			34 Ceph. H.			β Urs. Maj.		
		1.8			9.5			37.1			2.7			1.7
		5.4			13.1			40.5			30.5			8.2
		8.5			16.0			43.7			53.5			13.7
		12.4			19.9			47.4			19.9			20.6
10	19	15.7	10	25	23.1	10	41	50.7	10	48		10	53	26.3
		43.8			81.6			219.4						70.5
10	19	8.76	10	25	16.32	10	41	43.88	10	47	28.95	10	53	14.10
					35.65		42	3.03		47	46.19			

3/42 12

2/22 29

- 55"

 δ 82 25 19.4 0.8760 δ

0.8799

 δ 29.2 +26.5 ϵ

28.6

+1.9

 δ

28.9

24.6

 ϵ

29.1

50.8

Mar. 29

AK

M. Per

α Urs Maj				χ Leonis		ψ Urs Maj				δ Leonis		δ Crateris	
		41.2			31.0				28.3		22.6	12	3.7?
		48.9			34.4				33.2		26.3		
		55.5			37.5				37.4		29.5		
		3.5			41.3				42.7		33.7		
10	55	10.4	10	57	44.4	10	1	47.1	10	6	36.9	wind broke	
		159.5			188.6			188.7			149.0		
10	54	55.90	10	57	37.72	10	1	37.74	10	6	29.80		
	55	[15.52]			56.78						49.05		

1862

Mar. 29

AU

Ill. W. Pen

γ Crateris			τ Leonis			202 Cam. B.			39 Cephei H.			ν Leonis		
			bol									bol		
36.6						1.0			24.6					
40.1						25.5			16.4					
43.2						46.2			18.8					
47.1						12.3			8.5					
11	17	50.5				11	22	36.5	11	29	6.0			
217.5						121.5			74.3					
11	17	43.50				11	21	48.30	11	27	14.86			
						22		9.65	23	27	29.37			

Mar. 29

XU

All. West

X Urs Maj			β Leonis			β Virginis			γ Urs Maj			Gr. 4193		
		19.2			38.1			7.7			6.4			1.8
		24.6			41.8			11.3			12.5			46.3
		29.0			44.9			14.3			17.6			39.5
		34.6			48.7			18.0			24.0			21.8
11	38	39.5	11	41	52.1	11	43	21.1	11	46	29.5	11	54	10.2
		146.9			225.6			72.4			90.0			119.6
11	38	29.38	11	41	45.12	11	43	14.48	11	46	18.00	11	52	35.92
			42	4.19		43	33.42		46	37.46	23	52	50.96	

1862

Mar. 29

AH

Ill. West

γ Caroi		γ Virginis		α Leonis		ϵ Leonis	
20.0		28.2		23.6		37.1	
23.7		31.6		27.2		40.7	
26.7		34.6		30.2		44.1	
30.6		38.3		34.0		48.2	
34.0	12 8	41.7	12 12 9	37.4	33 9	51.7	37
135.0		174.4		152.4		221.8	
27.00	12 8	34.88	12 12 9	30.48	33 9	44.36	37
		53.82				3.67	38

9.560
5.9032

+30 +0.112
20 +0.048
10 +0.017
5 0.080
-10 -0.145

114

η Canori	+0.05	-19.24	8 ²⁴ +19.38	+14
α Hydrae	-0.13	19.31	9 21 19.28	-03
ϵ Leonis	+0.08	19.23	9 38 19.25	+02
π —	-0.03	19.23	9 53 19.23	.00
ν —	0.00	19.25	10 1 19.24	-04
ρ —	-0.02	19.15	10 26 19.17	+02
ι —	-0.01	19.16	10 42 19.14	-02
χ —	-0.03	19.09	10 56 19.11	+02
δ —	+0.06	19.19	11 7 19.10	-09
β —	+0.02	19.05	11 42 19.04	-01
β Virginis	-0.06	19.00	11 47 19.03	+03
η —	-0.08	19.02	12 13 +18.98	-04

-19.160 10 31
Per Kap AH +0.107
Jolly +0.102
0.105

1862

Apr. 4.

A.H.

Ill. West

Lami			" λ Vis Min. s.p.			" β Cancr			" σ Vis Maj			" A Vis Maj		
		49.5						36.0			30.7			55.2
		53.3						38.6			38.2			3.8
		56.2		1	33.3			42.6			44.4			10.9
		0.2		4	1.9			46.4			52.3			20.0
4	28	3.6.8		6	59.7	8	8	49.7	8	18	59.1	8	22	27.6
		162.8						214.3			224.7			117.5
4	27	56.56	4	1	15.00	8	8	42.86	8	18	44.94	8	22	11.50
	24	1.54	20	1	10.47									

$\delta 55^{\circ} 53' 33.0''$ ϵ 1.7137
 or. 1.7136

ϵ 204 + 121
 δ 140 - 247
 ϵ 133 - 547

Apr. 4

AK

M. West

 η Cancri γ^4 Draconis sp ϵ Hydrae ϵ Urs Maj δ^2 Urs Maj

34.2

27.9

19.3

33.0

53.6

37.9

47.3

22.6

38.3

3.4

41.0

10.1

25.7

42.6

17.1

45.1

28.4

29.3

48.4

21.0

8

24

48.3

8

37

50.0

8

39

32.5

8

49

53.2

8

58

29.3

9

20.65

163.7

129.4

215.5

118.4

8

24

41.30

8

37

8.74

8

39

25.88

8

49

43.10

8

58

11.68

9

24

45.93

20

37

11.99

30.35

[47.81]

Apr. 4

A.H.

Ill West

H Cancri		λ Argus		θ Hydrae		83 Cancri		α Hydrae	
6	7.4		44.2		2.3		7.6		39.6
4	10.9		48.9		5.8		11.1		43.0
1	13.9		52.9		8.8		14.3		46.0
0	17.7		58.2		12.5		18.2		49.9
3	9 0 21.0	9 3 2.3	9 7 15.7	9 11 21.6	9 20 53.1				
4	70.9	206.5	45.1	72.8	231.6				
68	9 0 14.18	9 2 53.30	9 7 9.02	9 11 14.56	9 20 46.32				
				49.20	20 50.83				

Apr. 4.

AU

M. West

+ Vis Maj		o Leonis		E. Leonis		v Vis Maj		u Leonis	
	24.1		38.3		51.8		54.6		45.3
	30.0		41.8		55.4		1.6		49.2
	34.7		44.9		58.7		7.6		52.7
	41.0		48.7		2.9		14.8		56.8
9	23	9	33	9	38	9	41	9	45
	46.2		52.0		6.3		21.3		0.4
	176.0		225.7		175.1		99.9		204.4
9	23	9	33	9	37	9	41	9	44
	35.20		45.14		59.02		7.98		52.88
					38				
					3				
					15				

Apr. 4

121

111 West

π Leonis

α Leonis

λ Hydrae

λ Vir Maj

30 Cam. H.

3			46.6				52.6				43.3				35.0			4.2
2			50.2				56.1				46.7				40.0			34.4
2			53.2				59.2				49.7				43.8			59.0
6			56.7				3.1				53.6				49.3			30.9
4	9	53	0.2	10	1		6.3	10	3		56.8	10	8		53.6	10	14	59.1
4			206.9				177.3				250.1				221.7			187.6
88	9	52	53.38	10	0		59.46	10	3		50.02	10	8		44.34	10	14	1.52
			57.58		1		3.99										14	7.96

Apr 4.

A.U.

ell Mer

μ Hydras			ρ Leonis			34 Cephei Hs.p.			β Urs Maj			α Urs Maj		
	16.6			24.1			54.1			16.3			56.1	
	20.0			27.7			18.2			23.0			3.7	
	23.2			30.7			46.8			28.2			9.9	
	27.2			34.5			9.4			35.3			18.2	
10	19	30.4	10	25	37.9	10	48	35.2	10	53	41.2	10	55	28.0
	117.2			154.9			163.7			144.0			112.9	
10	19	23.44	10	25	30.98	10	47	44.74	10	53	28.80	10	55	10.58
				35.44	22	47	46.83						55	15.41

Apr. 4

M

Ill. Wre

2 Leonis

4 Urs Maj

3 Leonis

1 Leonis

45.7

43.0

37.3

51.8

49.2

47.8

41.0

55.3

52.1

52.0

44.1

2.1

55.9

57.5

48.3

5.5

10 57

59.3

11

2

2.0

11

6

51.6

10

41

58.4

262.2

202.3

222.3

173.1

10 57

52.44

11

7

52.46

11

6

44.46

10

41

58.62

51.75

49.02

42

2.99

+ 30°	+0.090
20	+0.031
+10°	-0.025
0	0.080
-10	-0.137

4 Cami

4 28 +.01

-4.97

+5.08

+11

7 Cami

8 25 +.04

4.59

4.66

+0.7

2 Hydra

8 39 -.04

4.51

4.64

+13

83 Cancri

9 11 +.02

4.62

4.58

-0.4

4 Hydra

9 21 -.13

4.64

4.56

-0.8

2 Leonis

9 38 +.06

4.57

4.54

-0.3

11 —

9 53 -.03

4.53

4.51

-0.2

4 —

10 1 -.01

4.54

4.50

-0.4

9 —

10 26 -.02

4.48

4.45

-0.3

10 —

10 42 -.02

4.39

4.42

+0.3

X —

10 58 -.04

4.35

4.40

+0.5

5 —

11 7 +.04

-4.52

+4.38

-1.4

9 25
 -4.558
 +0.102
 +0.108
 0.105

11 3 4

1862 Apr 7. M. E.

<i>W. minor</i>	<i>W. major</i>	<i>A. major</i>	<i>γ Cauri</i>	<i>γ Draconis</i> SP.
3 20.0	39.0	3.0	42.3	36 32.4
5 28.5	45.8	10.9	45.8	58.3
8 1.3	53.7	20.2	49.8	37 17.1
	57.8	27.4	52.9	39.4
12 19.4	6.8	35.8	56.8	59.5
	205.1	97.3	247.6	211.7
1 7 49.95	8 19 53.02	8 22 19.46	8 24 49.52	8 32 18.34
BT 1 8 0.30			45.92	20 37 12.38
+13.73	+0.66	+0.71	+0.23	-2.02
C.E. ch [+3.38]			+3.83	[+3.69]
C.L. ind. -3.02	-3.75	-3.75	-3.76	-3.78
Dev. +0.36			+0.02	+0.11
AR 3.	8 19 49.93	8 22 16.42		

very tremulous and faint

+4 29.6	1 7 49.6
2 9.6	49.1
- 10.0	57.3
- 2 10.6	
- 4 29.6	69.8

86 36 36.5	1.6048	61 10	0.259	65 36.5	0.346
x 1.6049			0.317		0.384
7.85	0.356		+0.47	9.136	
5.84	0.303		+0.29	9.468	

309.14	
237.46	9.9273
- 64.5	1.6859
50 36 10.75	0.7812
20. 0.7871	
- 1.14	0.0712
- 1.59	9.9515

continued on next page.

δ Hydra	δ Ursa major	δ^2 Ursa major	α Cancri	α Hydrae
27.3	41.1		15.6	10.4
30.5	46.0		18.8	13.6
34.1	51.6	20.1	22.6	17.4
37.2	56.1	28.0	25.6	20.3
40.7	1.4	37.3	29.2	23.9
169.8	196.2		111.8	85.6
8 3g 33.96	8 4g 51.24	8 58 19.52	9 0 22.36	9 7 17.12
30.33	[47.90]			
inst. corr. + 0.17	+ 0.44	+ 0.86	+ 0.19	+ 0.16
clock error + 3.80	[+3.78]			
-3.78	-3.80	- 3.41	- 3.82	- 3.83
+0.02	-0.02	16.5		
		8 58 16.57	9 0 18.73	9 7 13.45

δ 4.5 5 0.3620
 hr. 0.4207
 + 0.475 9.677
 + 0.585 9.585

C 19.44 9.8169
 X 19.45 9.9719
 F 19.66 1.2465

1862 Apr. 7 continued $n = +0.125$ $c = +0.161$
9.242 9.202

83 Carori	2 Cephei S.P.	2 Hydra	Abn. 2032 SP	o Feornai
15.7	6.3	47.9	23 27.7	26.4
19.1	13.6	51.0	58.5	49.8
23.1	20.0	54.8	24 25.2	53.6
26.2	28.6	57.9	59.5	56.6
29.8	35.3	64.	25 28.0	0.0
113.9	103.8	213.0	198.9	206.4
9 11 22.75	9 15 20.76	9 20 54.60	9 24 27.78	9 33 53.28
19.15	16.52	50.79	21 24 20.16	
inst. cor. +0.22	inst. cor. -0.18	+0.12	-3.04	+0.19
clock corr. +3.85	[+3.50]	+3.95	[+4.54]	
C. int. -3.64	-3.64	-3.45	-3.66	-3.87
Sw. +0.01	-0.28	+0.10	+0.18	
				9 33 19.60

hr 599 sp 0.2743
0.3286
- 0.367 9.514
- 0.711 9.493

21 5
249 33 9.9718
-53.6 1.7304
83 40 14.24 0.9550
or 0.9577
-1.76 0.245
-1.35 0.122

continued on next page

ϵ Leonis	ϵ Ursa majoris	α Leonis	δ Hydrae	ζ Capricorni S.P.
59.8	2.9		57.2	53.5
3.3	9.2		58.5	2.0
7.5	16.7		58.4	7.5
10.8	22.6		1.4	14.7
14.6	29.1		5.0	20.4
96.0	80.5		170.5	100.1
9 38 7.20	9 41 16.10		10 3 58.10	10 6 8.92
3.61				
+0.25	+0.62		+0.11	-0.58
(3.84)				
-3.88	-3.88		-3.93	-3.83
-0.04				
	9 41 12.84		10 3 56.28	10 6 3.61

The signal to this
star is on the sheet,
but nothing else.
I suspect the wires
~~connected~~ touched
and thus
the circuit could not
be broken.

59 41 0.233
9 41 0.297
0.33 9.523
0.29 9.461

57 30.6 0.196
0.270
-0.31 9.486
-0.27 9.434

MS. A. 9. 2. 7. continued

1862 phase	1 Mya major	2 Loomis	30 Loomis 1 Rev.	1 Loomis	3 1/2 Loomis No. 8 P
	43.3	21.1 foll.	13 11.5		47 2.7
	47.9	24.7	13 37.4	3.2	29.5
	52.9	28.4	14 10.3	7.1	57.7
	57.1	31.9	14 35.7	10.0	68 20.0
	7.0	35.4	15 4.9	13.7	64.8
	203.2	141.5	99.6		148.7
		preceding			
	10 8 52.64	10 12 [28.20]	10 14 9.96	10 42 6.79	10 47 53.74
		24.53	14 7.62	2.97	22 47 47.10
	+ 0.39	+ 7.16	+ 2.90	+ 0.19	- 2.58
C.E. ob	- 0.26	+ 3.90	[+ 3.24]	+ 3.91	[+ 4.06]
Clal	- 3.93	- 7.15	- 3.94	- 3.99	- 4.00
to	49.10	- 0.04	- 0.70	- 0.056	+ 0.06
AP 10 8 49.10					
				+ 3.56	6.74
				- 0.25	.85
				- 3.31	.69
				- 6.83	- .87

[illegible]

Continued on next page

β Maenioria	α Ursa majoris	χ Leonis	δ Gracilis	γ Gracilis
24.4	4.1	53.9	26.6	59.4
30.6	11.2	57.0	29.8	2.7
37.5	19.3	0.8	33.7	6.6
42.9	26.0	4.0	36.8	9.8
49.3	33.3	7.4	40.4	13.4
186.7	93.9	123.1	167.3	91.9
10 53 36.94	10 55 18.75	10 57 0.62	11 12 33.46	11 18 6.38
	[15.34]	51.74	29.53	
+ 0.57	+ 0.69	+ 0.18	+ 0.18	+ 0.09
- 4.01	[+ 4.13]	+ 4.06	+ 4.03	
	- 4.01	- 4.02	- 4.04	- 4.05
	+ 0.12	+ 0.04	- 0.07	
10 53 33.50				11 18 2.42
C.d.J - 0.26				

57 75	0.1895	62 29.6	0.183
hr.	0.2652		0.335
+ 0.30	9.479	+ 0.374	9.873
+ 0.37	9.420	+ 0.315	9.499

862 Apr 7 continued

MS.

T Linn

202 Cincyp. Bodie

39 Cephei Havelin 512

 β Linn β Virgin

50.5

13.8

57.5

0.5

3.8

166.1

21 44.9

22 11.9

22 33.2

26 46.6

27 35.1

28 37.6

11.4

15.1

30.7

34.0

37.7

40.7

44.0

187.1

11 20 57.22

11 22 19.99

22 9.03

+0.16

-4.05

Dec.

11 20 53.33

11 27 39.78

23 27 30.90

-5.67

[+3.21]

-4.07

-0.86

11 42 8.09

OBT. 4.18

+0.21

+4.12

-4.09

+0.03

11 43 37.62

33.62

+0.15

+4.15

-4.10

+0.05

The battery was
 believed to be so
 that the above may
 be correct. They
 were not of 1874.

12 9.64

10.14

18.32

27 40.5

30.4

39.6

-3.37

-6.95

190 32

99 0

+56.7

81 53

8.3

+ 1.37

+ 104

A

B

C

D

E

9.9946

1.7532

0.8459

0.8503

0.136

0.015

9.63 +24.73

10.14 +1.76

10.21 +22.99

351 52

280 20

-56.25

88 32

48.8

-3.24

-2.43

39.62

39.23

40.66

9.9929

1.7575

0.2194

1.2202

0.509

0.755

-57.98

+4.13

+53.88

Ser 2

0.0161

8.03

8.15

-3.37

-1.45

Continued on next page

γ Ufae majori	Gr 4193 SP	γ Corvi	BH 4150	BH 4165
29.4	11 51 26.0			12 10 49.5
34.9	52 15.0	46.3	46.3	12 48.6
41.6	58.0	50.1	50.1	15 7.3
46.5	53 49.9	53.3	14 16.9	16 57.7
52.7	54 35.4	56.9		16 8.6
205.1	186.3			171.7
$\bar{v}$				
11 46 41.02	11 53 0.86	12 8 49.90	12 13 10.68	12 14 58.34
37.61	20 52 52.01		13 13.51	15 5.81
+0.52	-4.80	+0.09	+6.97	+12.48
[+4.13]	[+4.05]		[+4.14]	[+5.01]
-4.10	-4.11	-4.14	-4.14	-4.15
+0.03	-0.06		+0.00	+0.86
		12 8 45.85		

	358 13		183 18		183 46
	286 41	9.9814	111 46	9.9679	112 14
	-55.0	1.7400	+53.3	1.7265	+53.4
56.27	85 58 22.0	1.1458	87 12 4.1	0.3808	88 26 0.9
sa. 0.235		1.1498		1.3113	
+0.17	-2.74	+0.4388	+3.99	0.6008	+7.43
+0.25	-2.06	0.3142	+2.98	0.4747	+5.35
			49.95	+3.65	13 10.90
			.84	-0.26	
			.91	-3.79	10.45
			.91	-6.99	-16.45

1862 Apr. 7 continued

e. pr

Paris

1862phase

L. Cassinifera SP	V. Virginia	E. majora	L. Capri. Humili	Polaris 519
34.0 m — fall. 40.6		52.2	49 0.8 / 3	3 51.0
40.3 43.7 —		58.0	45.2	6 8.0
45.7 — 47.5		4.8	50 24.0	8 6.1
52.4 50.4 —		10.2	51 12.4	10 39.0
58.0 — 53.9		16.5	52.7	12 46.4
230.4 236.1		141.7	135.1	150.5
	47.21			
12 32 46.08 12 34 [47.21]	12 48 4.94 12 50 27.02	13 8 18.10		
41.54 43.24	0 50 14.55	0.31		
-0.55 +.14	+0.56	-4.45		-13.73
C. of [+3.99]	+4.14	[+4.02]		[+4.06]
Cl. int -4.18	-4.14	-4.20	-4.20	-4.23
Plu. -0.19	0.00		-0.18	-0.17
	12 48 0.70			
	C.d.J -0.16			

Rev. to the care

Check Correction

North

South

8 25 -3.83

9 21 -3.95

8 39 3.89

11 12 4.03

9 11 3.85

12 35 4.18

9 38 3.84

10 12 3.90

10 42 3.91

10 58 4.06

11 42 4.12

11 44 4.15

N	10 8	-3.923	9 11 3	-4.053	3
---	------	--------	--------	--------	---

S	11 3	4.053	3		
---	------	-------	---	--	--

	10 22	-3.958	12		
--	-------	--------	----	--	--

-2.551

2.308

Rate. Proceeding Apr 28
Following Apr 19

Adopted -2.448

- .112

8 -3.715

9 3.417

10 3.719

11 4.021

12 4.113

13 -4.225-

Deviations

 η Cassio +.07 ϵ Hydra +.02 δ Cassio +.01 δ Hydra +.10 ϵ Cassio -.04 γ Cassio -.04 δ — -.08 χ — +.04 δ Cassio -.01 β Cassio +.03 ✓ β Hydra +.05 ✓ γ — .00W₃ S₄

Apr. 12. 1862

Ill. West

1862phae. p

Atl.		" "		" "		" "		30 Cam. H.		" "		μ Hydrae	
Leonis		Hydrae		Urs. Maj.		" "		30 Cam. H.		" "		μ Hydrae	
	13.2		3.8		55.7				24.2				37.1
	16.8		7.3		0.5				53.7				40.8
	19.9		10.3		4.5				18.8				43.9
	23.7		14.2		9.9				51.3				47.9
10	1	27.0	10 4	17.4	10 9	14.2	10 15	17.9	10 19	51.2	10		
	100.6		53.0		84.8			165.9		220.9			
10	1	20.12	10 4	10.60	10 9	4.96	10 14	21.18	10 19	44.18	10		
	1	3.90						7.01					

153° 32'

21 1

9.9946

8 03" 15.814 6 0.9274

2 0.9304

Apr. 12.

Ill. West

M			L Leonis			3.p. 34 Cephei. H.			β Urs Maj			α Urs Maj		
		44.8			12.4			15.4			37.8			16.7
		48.3			16.0			39.2			43.4			24.3
		51.4			19.0			7.4			49.0			30.8
		55.3			22.8			30.4			55.8			38.9
10	25	58.4	10	42	26.0	10	48	56.6	10	54	1.6	10	55	45.9
		258.2			96.2			149.0			186.9			156.6
10	25	57.64	10	42	19.24	10	48	5.80	10	53	49.38	10	55	31.32
		35.38			3.00		47	47.64						[5.23]

34° 57'

269 26

82° 25' 15" 9 by 0.8760 m

m. 0.8798 m

Apr. 12. 1862

M. West

H			V Ues Maj			S Louis			S Crateris			y Crateris		
K Louis						Done by Pen								
		6.3			3.6						39.1			11.9
		9.8			8.6						42.4			15.4
		12.9			12.9						45.7			18.6
		16.7			18.1						49.6			22.5
10	56	19.8	10	2	22.7				10	12	52.7	10	18	25.9
		65.5			65.9						229.5			94.3
10	58	13.10	10	2	13.18				10	12	45.90	10	18	18.86
	57	56.71								12	29.50			

Apr 12

M. Weir

H

Lionis

39

Cephei sp.

Spr. Gov. Steppud

β Lionis

γ UMa Maj

Gr. 4193 S.p.

3.1

6.4

9.6

13.3

16.5

48.9

13.7

17.2

20.2

24.2

27.5

102.8

41.8

47.8

52.9

59.4

4.9

206.8

38.2

22.9

15.4

57.7

46.6

180.8

10 21

10 29

43.0

11

42

11

47

11

54

46.6

10 21

9.78

11 27

51.80

11

42

20.56

11

46

53.36

11

53

12.16

23 27

31.74

4.16

37.35

23

52

52.49

20° +0.049

10 -0.003

0 -0.053

-10 -0.105

-20 -0.161

Lionis

p —

L —

X —

δ Crateri

β Lionis

10 1

+16.23

-16.22

+0.01

✓

10 26

16.26

16.26

0.00

10 42

16.24

16.29

-0.05

10 58

16.38

16.31

+0.07

11 12

16.37

16.34

-0.07

11 42

16.42

-16.39

+0.03

✓

10 50

16.300

Pro R

+0.108

Jilly

+5.090

Adopted

1.099

N. 4

357° 53'

279° 22'

9.9942

1.7627

δ. 56° 32' 43" 5

1.2194

or 1.2202

358° 13'

285° 42'

9.9875

-56° 5'

1.7520

85° 56' 20.5 5

1.1488

or 1.1498

E

+ 51.2

1862. Apr. 16

M. West

A.L.		"		"		"		"		"		"		"	
Leonis		Hydrae		Maj		Cam. H.		Hydrae							
	22.0		12.3		4.5		33.1		49.3						
	25.5		15.8		9.2		2.4		45.7						
	28.5		19.0		13.1		28.2		52.3						
	32.3		22.8		18.5		0.0		56.3						
10	35.5	10	26.0	10	9	22.8	10	15	27.0	10	19	59.7.		10	
	143.8		95.9		68.1		90.7		263.3						
10	28.76	10	19.18	10	9	13.62	10	14	30.14	10	19	52.66		10	
	3.85							14	6.35						

* The Spr. Gov. stopped once during the work this evening, and came near stopping several times so that the clock error may come out different for some stars. The last part of the reading from 12 21 to 13 31 is right.

Apr. 16.

Ill. West

1862phae.pr

All				" "				" "				" "				" "			
p Leonis				l Leonis				34 Cephei Hs. p.				β Urs Maj.				α Urs Maj.			
3			53.5				21.0				23.8				45.9				25.3
7			57.0				24.6				47.9				52.0				33.0
3			6.0				27.7				16.4				57.4				39.3
3			3.8				31.5				38.5				4.5				47.4
7.	10	26	7.1	10	42		34.7	10	49		5.1	10	54		10.3	10	55		54.3
3			121.4				139.5				131.7				170.1				199.3
6	10	26	0.28	10	42		27.90	10	48		14.34	10	53		58.02	10	55		39.86
		25	35.33				2.89		47		48.19								15.13

1862 Apr. 16

All		Ill. West													
Louis		4 Vis Maj		(S Lewis)		S Crateris		γ Crateris							
	14.9		12.3				49.7		22.5						
	18.4		17.2		wine broke		53.3		26.0						
	21.4		21.5				56.2		29.2						
	25.3		26.8				0.2		33.2						
10	58	28.4	10	2	31.3	11	13	3.5	11	18	36.4	11			
	108.4		109.1				162.9		147.3						
							- 28		- 27						
10	58	21.68	10	2	21.82	11	12	56.58	11	18	29.46	11			
	52	56.68					12	29.47							

Apr. 16

All

Ill. West

♂ Leonis				39 Cephæi s.p.				X Mus Maj				♂ Leonis				♂ Virginis			
			13.8				11.9				5.4				24.3				53.8
			17.1				3.4				10.7				27.8				57.3
			20.1				4.5				15.1				30.9				0.2
			23.8				55.3				20.8				34.8				4.0
11	21	27.0	11	29	52.0	11	39	25.6	11	42	38.1	11	44	7.2					
		101.8			127.1			77.6			155.9			122.5					
		-21			-21			-21			-21			-21					
11	21	20.36	11	29	1.42	11	39	15.52	11	42	31.18	11	44	0.50					
				27	32.36						4.14		43	33.39					

1862. Apr. 16

Ill. West

H		"		"		"		"		"		"		"	
γ Usc Maj		B. A. C. 4150		δ Corvi		γ Corvi		γ Virginis							
	52.4		16.9		05.2		19.2		1.8						
	58.5		28.1		08.5		22.7		5.2						
	3.6		28.1		11.7		25.8		8.2						
	10.1		46.3		15.7		29.7		12.0						
11	47	15.7	12 15	50.7	12 23	18.9	12 25	33.0	12 35	15.1	12				
	140.3		170.1		160.0		130.4		42.3						
	-2'														
11	47	4.06	12 13	34.02	12 23	12.00	12 25	26.08	12 35	8.46	12				
	46	[77.30]	13	11.36					34	43.26					

Apr. 16

A.U.

M. Paul

E Ues Maj			12 Canum.			E Virginis			α Ues Min S. p.			α Virginis		
		13.4			53.8			39.9	4	1.2				17.4
		19.9			58.2			43.5	6	10.0				20.7
		25.2			1.9			46.4	8	41.0				23.8
		32.0			6.8			50.3	10	41.0				27.7
12	48	37.8	12	50	10.9	12	55	53.6	13	13	-0.3	13	18	30.9
		128.3			131.6			233.7			93.5			120.5
12.	48	25.66	12	50	2.32	12	55	46.74	13	8	30.70	13	18	24.10
				49	37.40				1	8	1.59		17	58.84

8 58 34 32.1 5 1.6045_m
 or 1.6046_m

1862. Apr. 16

A.H.

M. West

B.A.C. 4498

5 Virginis

—	1.6
16.8	5.0
54.0	8.0
41.8	11.8
13 22 22.5	13 28 14.9
	41.3

20	57.54	13	28	8.26
13	20	34.82	27	42.98

+0.168	-0.032	+4.0	+0.099
9.225	30	0.059	
	20	+0.026	
	10	-0.002	
	0	-0.032	
	-10	-0.063	
	-20	-0.094	
	-30	-0.133	

α Leonis	+0.01	10 1	+24.92	-24.90	+0.02
β —	0.00	10 26	24.95	24.94	+0.01
γ —	+0.00	10 42	25.01	24.96	+0.05
δ Leonis	-0.01	10 58	24.99	24.99	.00
ε Crateri	-0.08	11 12	25.03	25.01	+0.02
φ Leonis	+0.01	11 42	25.05	25.06	-0.01
β Virginis	-0.02	11 44	25.09	25.06	+0.03
γ —	-0.03	12 35	25.17	25.14	[+0.03]
η Leonis	+0.10	12 50	25.02	25.16	-0.14
α Virginis	-0.06	13 18	25.20	25.21	-0.01
ε Virginis	-0.03	13 28	+25.25	25.22	+0.03
		1138	+25.051		
			0.090		
			0.096		
			0.093		

Pro Kate
Jolly* Omitted. It does not appear what
point W. Hall observed

Assumed that W. Hall observed the middle

N₄

200 4	
126 76	9.9046
8 55° 28' 24" 1.5	1.1019
4	1.1033
A. 57 54	-124.96
B. 57	-44.29
C. 15	+3.15
D. 96	+41.16

1862. Apr. 18

Ill. Wren

Alt		λ Hydræ		λ Vir Maj		30 Cam. H.		μ Hydræ		
α Leonis										
	26.4		6.8		9.0	1 ✓	38.4		50.3	
	29.9		20.3		13.7	3 ✓	33.0		57.0	
	33.0		23.4		17.9	2 ✓	7.3		0.8	
	36.8		27.2		23.0	4 ✓	5.0		53.8	
10	.1	40.0	10 4	30.5	10 9	27.4	10 515 ✓	32.2	10 20	4.1
	166.1		108.2		91.2		115.9		166.0	
10	1	33.22	10 4	21.64	10 9	18.24	10 14	35.18	10 19	57.20
	3.83						14	6.06		

1862, Apr. 18

Ill. West

All p Leonis			1 Leonis			34 Cephri H. sp.			β Urs Maj			α Urs Maj			
		58.0			25.6			27.9			50.4			30.1	
		1.3			29.1			52.1			56.6			37.6	
		4.4			32.1	10	48	21.1			2.0			44.0	
		8.2			36.0		clouds	—			8.8			52.0	
10	26	11.6	10	42	39.3			—	10	54	14.8	10	55	59.1	10
		83.5			162.1						132.6			222.8	
10	26	4.70	10	42	32.42	40	48	18.83	10	54	2.52	10	55	44.58	10
	25	35.31			2.88	22	47	48.18						[15.07]	

31° 57'

267 56

δ 62 25 14.6 h 0.8760w

hr. 0.8798w

A 18.7 +20.8

M 18.6 +26.5

C 19.2 -1.9

Apr. 18

M. W. W.

X L. L. L.

19.5
 22.9
 26.0
 29.8
 10 58 33.0
 131.2
 10 58 26.24
 57 56.66

10 1	X L. L. L.	+ .01	29.40	-29.43	M, S
10 26	P —	.00	29.39	29.47	
10 42	P —	.00	29.54	29.49	
10 58	X	- .01	29.57	29.52	
10 31			29.475		
Pro R			0.096		

Apr 19 M. East

1 Draconis Kev.	2 Hydrea	12 2832 s.p	0 Leonis	2 Leonis
9 16 57.7	15.5	9 23 55.8	14.1	27.6
17 20.1	18.6	24 27.4	17.6	30.9
17 47.5	22.4	54.0	21.3	35.1
18 8.2	25.4	25 29.3	24.3	38.4
18 32.5	28.9	57.7	27.8	42.2
166.0	110.4	274.2	105.1	174.2
9 17 45.20	9 21 22.16	9 24 56.54	9 24 21.02	9 28 34.84
17 15.54	20 50.62	24 22.35		3.44
inst. cor + 2.03	-0.01	-2.59	+0.04	+ .14
Clark and by [+31.69]	31.53	[+31.90]		+ 31.54
C. inst. - 31.56	- 31.56	- 31.57	- 31.59	- 31.59
Exo. (+ 0.13)	+ 0.03	+ 0.33		- 0.05
AR obs			9 33 49.51	

189 19
 65 25 9.9587
 + 51.4 1.7357
 81 56 0.8 4 1.8185
 54 0.8519
 1.82 0.260
 0.4 9.314

3 6
 207 12 9.9647
 - 55.2 1.7417
 83 10 12.9 4 0.9550
 5P 9.9677
 - 2.32 0.367
 - 4.26 9.420

Continued on next page

<i>Anonyma</i>	Number 2979	<i>Anonyma</i>	B _N . 280	26 Leonis
49.3	51.6	51.6	52.4	8.42
52.5	54.9	54.7	55.8	11.9
54.6	58.9	58.6	59.5	15.9
59.7	2.0	1.8	2.6	19.0
3.4	5.23	5.5	6.3	22.4
229.5	172.7	172.0	176.6	77.9
9 41 56.30	9 45 58.54	9 46 58.40	9 47 59.32	9 51 15.54
+ 10	+ 10	+ 10	+ 10	+ 10
- 31.60	See also Apr. 25 th - 31.61	- 31.60	- 31.61	- 31.62
9 41 24.80	9 45 27.03	9 46 26.90	9 47 27.31	9 51 44.06

Stars for Calypso
1855.0

9 40 58.7
+ 16 13.9

9 45 0.9
+ 16 14.5

9 46 0.7
+ 16 8.3
Observed at
Bonn.

9 47 1.6
+ 16 14.1

After this time
the wires were
disturbed & the
collimation changed.

Next time observed
[in Leonis] is to be
rejected.

Dec. 19 M East continued

γ Leonis	30 Camel H.	ϵ Leonis	β Hydrae majoris	ϕ Hydrae maj
m. 48.9		27.8	52.1	18.8
ph. 82.3	14 5.3	30.9	57.8	23.2
m. 56.1	36.9	34.7	5.2	28.8
ph. 59.5	15 3.1	37.8		33.0
m. 3.0		41.4	J. G. Rapp.	37.4
		172.6		141.6
<u>Dr.</u>				
10 12 55.89	10 14 35.03	10 42 36.52	10 52 4.47	11 2 28.32
12 24.55	14 5.95	2.97		
inst. cor. + 0.13	+2.79	+0.13	+0.53	+0.36
C.E. cor. +31.67	[+31.87]	+31.78		
C.C. int. -31.65	-31.66	-31.70	-31.72	-31.73
Rev. + 0.02	+0.21	+0.08	~~14 53 33.28~~	~~11 1 56.95~~
ARob.			10 53 33.28	11 1 56.95
			C.d.J. - 0.33	

153° 21'

79 37 9.1928

+58" 3 1.7694

883 15 32.1 0.9274

0.9304

140 +2.18 0.339

140 +0.61 9.787

A 56.03 +13

56.07 3.72 B 35.4 +20.5

C 55.99 -0.31 C 34.4 -2.5

55.99 1.49 D 35.3 -27.9

E 55.85 -7.15

7 7 5 0.1895 0.004

4 0.2652 0.153

60 9.601 240 +0.26

13 9.122 240 +0.10

4.46 12.36

30 +6.50

60 -0.57

d Luni

13.3

16.8

20.7

23.9

27.7

102.4

11 7 20.48

6 48.91

+ 17

+ 31.74

- 31.75

- 0.01

*Clock correction**Returned - Mr. Rake - 0.103*

9 21 - 31.53 - 31.617

9 39 - 31.54 - 31.597

10 12 - 31.62 - 31.602

10 42 - 31.78 - 31.729

11 7 - 31.74 - 31.645

10 12 - 31.692

9^h - 31.528

10 .631

11 .734

12 - 31.837

Deviations

21/42ae +.03

Elevin +.05

V — +.02

L — +.08

J — +.01

Mr. S₄*Clouded up*

1862 Apr. 23 Miscellaneous stars

			6.7	13.9	~~2~~	Comp. Star Plant
			9.8	17.3		32.3
24.5			13.8	21.3		35.7
28.7			17.1	24.1		39.7
32.0			20.4	27.5		42.3
			67.8	104.1		45.9
						195.9

11	14	25.32	11	19	13.56	11	22	20.82	11	36	39.18
Antares		+0.14			+0.14						
Antares		+0.14			+0.14			+0.14			+0.14
C.E. ob											
Clint		-42.62			-42.62			-42.63			-42.65
AR 11	17	12.54	11	18	31.04	11	21	38.33	11	35	51.67

Star A.

^m 5.0	Per. 1855.0	9.3 [rather faint]	^m 8.7		
11 17	18.3 + 253.4	11 18	6.2 + 248.7	11 21	14.3 + 241.0

11 36 23
37 18

309 20
S. 2.57.0
2.53.5

H 28.5
L 8.3
F 6.2
E 23.5

add 0.0005

A	+6.72	13.22	20.62
B	+3.53	.33	.83
C	-0.29	.51	21.01
D	3.27	.83	20.83
E	1.60	.21	.81

39.02
39.23
39.41
39.63
39.81

Or. 24.5

1862 Apr 24 Star for (73)

745.

α Leonis	Star α .	Star β	Star γ	β Leonis
36.2	22.3	19.9	35.2	
39.4	25.5	23.4	adw. ? [26.8]	
43.2	29.4	26.9	42.4	
46.3	32.4	30.2	45.1	52.4
49.6	35.7	33.4	48.4	56.3
214.7	145.3	133.8	209.9	
Read off 1.5 too large	Read off 1.5 too large			
10 58 41.94	11 14 28.06	11 31 26.76	11 36 41.88	11 42 49.44
1 57 56.60				42 4.08
2nd Cor + 0.16	+ 0.14	+ 0.14	+ 0.14	+ 0.14
3rd Cor + 45.50				+ 45.55
4th Cor - 45.46	- 45.49	- 45.51	- 45.53	- 45.53
5th Cor + 0.04				+ 0.02
App App	11 17 42.71	11 30 41.39	11 35 56.49	
10 58 17	11 18 9	11 31 3	11 36 16	
58 59	18 47	32 4	36 59	
309 5	309 20	309 15	309 20	
+ 1 898	- 1 32.5	+ 2 92.8	+ 2 79.2	
866	+ 29.2	- 2 89.0	772	
14 22.6	20.0	32.0	24.0	
9 58.6	56.6	10.8	59.4	
4 1.0	0.5	11.1	3.3	
8 13.7	14.0	25.6	17.4	And 0.016
	Bar. 30.077			
	47h 43.5			
	57h 38.8			
	After this star			
				47.57 - 3.39
				47.57 - 0.53
				47.57 - 0.94

β Virgin

10 Virgin

 η Virgin

12.1

18.7

32.7

Interpol. $\alpha = +0.23$

15.2

21.9

35.9

 $\alpha = +0.10$

19.0

25.9

39.8

21.9

28.9

42.6

25.6

32.2

46.0

93.8

127.6

197.0

Clock Error

10 58 45.50

11 42 45.55

11 55 45.55

12 14 45.57

11 40 45.53

Rate

Apr 23-24 +2.97 gaining

24-25 +2.04

Adopted +2.46

C. C.

11 00 45.462

12 0 51.5

13 0 66.7

 $\frac{W}{2}$ App. Star
+2° 40' 2" 0

11 43 58

12 3 6

12 13 18

Star A- β Vir -7 36.88 + 16.40.74 + 3.02
Rate +0.81 +0.5

44 43

3 58

13 56

Star η -10 Vir+0 58.6 - 2.02
+ 0.17

309 35

309 30

312 5

Star α -10 Vir

-15'

+5 72
72+0 80.73
77.0-0 +49.6
+47.3

-2' +122

+12.52

23.5

20.0

22.7

58.8

57.0

0.0

1.4

59.4

1.8

15.1

13.0

15.9

-14 47.48

-1 4.2

+15 51.68 in v

Bar [30.092 HPT]

A. J. H. [40]

Index 37.3

Star β -10 Vir

+20'

+ 7' +189

-10" 17 -

1862. Apr. 24

M.

M. Ear

2" Virginis			12" Can. Ven			Polaris s.p.			Spica			5" Virginis		
		21.9			14.0	4	31.2			37.6				21.8
		25.1			18.2	6	47.3			40.8				25.0
		29.0			23.1	8	46.7			44.7				28.8
		32.0			26.9	11	20.2			47.8				31.9
12	35	35.3	12	50	31.4	13	29.2	13	18	51.2	13	28	35.3	
		143.3			103.6		174.6			222.1			142.8	
12	35	28.66	12	50	22.72	8	58.92	13	18	44.42	13	28	28.56	
	34	43.26		49	37.38	8	3.72		17	58.87		27	42.99	

γ Virgin	+0.14	45.54	12 35	-45.58	-04
κ Lac	+0.27	45.61	12 50	45.61	00
Spica	+0.13	45.68	13 18	45.66	+02
δ Virgin	+0.14	<u>45.71</u>	<u>13 28</u>	<u>45.68</u>	+23
		45.635	13 3		

Pro R,

+ 0.120 from obs. MTS Apr 23/24

+ 0.003

0.107

M, S₃

continued on next page

Punch 2779	Box 280. (mob)	Hydrom	2 Leonis	Hydrom
7.4	8.0	38.0	—	36.4
10.7	10.6	41.3	—	37.7
14.5	15.1	45.1	-0.28	41.7
17.8	17.9	48.3	-3.7	44.7
21.1	21.7	51.6	-6.46	48.2
77.5	73.5	224.3		206.7
9 46 14.30	9 46 14.70	9 53 44.86	10 1 50.93	10 4 41.34
		57.63	1 3.74	
+0.21	+0.21	+0.18	+0.20	+0.10
-47.39	-47.39	+47.61	+47.39	
		-47.40	-47.41	-47.42
		+0.01	-0.02	
9 45 27.12	9 47 27.52		10 3 54.02	

203° 40'
-3 86.4
22.5

Sub. same as previous star.

303° 30'
-3 56.6
+52.5

Circle : A
H 29.2
G 1.3
F 3.1
E 16.6

Ext. Int. 41° 2' 2nd 0.0106

57.00 -0.30
57.85 3.35
57.95 6.85

1862 Apr 25th continued M. 2.

45.

gkoni ad finem
μ Hydraz

<i>Urtica majoris</i>	30 April. N.			β Urtica uni.	X Leonis
	13	53.0		7.9	37.2
31.1	14	20.0		11.3	40.4
36.3	14	53.0		15.2	44.3
40.2	15	17.8		18.1	47.2
44.9	15	47.4		21.8	50.6
		191.2		74.3	219.7
10 9 3581	10 14 50.24		10 20 14.86	10 54 20.01	10 58 43.94
	14 5.12				57 56.59
inst. cor. + 0.41	+ 3.05		+ 0.09	+ 0.60	+ 0.18
C.C. obs	[+ 48.17]				Q + 47.53
C.C. - 47.42	- 47.49		- 47.45	- 47.57	- 47.52
Sec. -	+ 0.73				+ 0.01
10 8 458.79	10 19 27.50		10 53 33.10		

~~10 59 58~~
~~11 + 0~~

2.9095
7.7026
= 19.15
+ 0.02
+ 4.76
153.21
1756 9.9903 + 0.10
+ 58.8 1.7767 + 0.04
83 15 33.1
0.9274
0.9303
+ 1.82 0.261
+ 1.23 0.088

A.
13 35.58 + 1.88
C 90 - 0.40
D 69 4.57
E 07 0.23
20.00 + 6.50
16 - 0.54
19.98 6.02
20 12.30

Continued on next page

δ Leonis	δ Leonis	δ Crateri	Star α	~~83 Leonis pr.~~
55.2	28.8	9.9	23.4	rept.
38.4	32.3	13.2	26.6	
42.2	36.4	17.2	30.2	
45.2	39.7	20.3	33.3	
48.7	43.2	23.4	36.7	
209.7	180.4	84.4	150.2	
11 0 41.94	11 7 36.08	11 13 16.88	11 18 30.14	
	48.86	29.41		
+0.15	+0.24	+0.09	+0.15	
-47.52	+47.46	+47.56	-47.55	y
	-47.53	-47.54		transit lat.
	-0.07	+0.02		
10 59 54.57			11 17 42.64	
10 59 58			11 18 6	
11 1 0			18 44	
309.30			309.29	Apr 14 11:44 AM
-3.5 + 0.72			-2 + 90.6	308.25
			-2 + 90.5 1/2 ash	-7 43.6
N 25.5			35.6	
E 1.8			13.1	
7 6.0			12.9	
E 20.6			29.8	

continued on next page

γ Corvi	α 4150	δ Corvi	η Corvi	γ Virgin
26.4	11 32.7	27.3	41.5	N.Star 24.1 S.Star —
29.7	12 38.2	30.7	44.7	— 27.3
33.6	13 54.7	34.7	49.7	31.2 —
36.8	14 55.8	37.8	51.8	— 34.2
40.4	15 5.4	41.4	55.4	37.4 —
166.9	167.2	171.5	242.1	30.55
12 9 33.38	12 13 49.44	12 23 24.30	12 25 48.42	12 35 [34.85]
	13 10.10			43.26
+ .09	+ 7.37	+ 0.09	+ 0.09	+ 0.14
- 47.64	[+46.74]	- 47.67	- 47.67	+47.73
	- 47.65			30.50 - 47.69
	+ 0.94			30.93 + 0.04
12 40 45.83	- 47.65	12 22 46.72	12 25 0.84	30.71
	- 47.65	C.D.T. - 0.17		30.8
	+ 5.16			

9	+0.10	(0.1621)	- 3.65
- 0.043	+0.11	0.	+0.06
5	+0.11	0.1621	+20.78
7	+0.11	0.1621	+0.91
8	+0.11	0.1621	- 0.91
9	+0.11	0.1621	+0.11
10	+0.11	0.1621	+0.11
11	+0.11	0.1621	+0.11
12	+0.11	0.1621	+0.11
13	+0.11	0.1621	+0.11
14	+0.11	0.1621	+0.11
15	+0.11	0.1621	+0.11
16	+0.11	0.1621	+0.11
17	+0.11	0.1621	+0.11
18	+0.11	0.1621	+0.11
19	+0.11	0.1621	+0.11
20	+0.11	0.1621	+0.11
21	+0.11	0.1621	+0.11
22	+0.11	0.1621	+0.11
23	+0.11	0.1621	+0.11
24	+0.11	0.1621	+0.11
25	+0.11	0.1621	+0.11
26	+0.11	0.1621	+0.11
27	+0.11	0.1621	+0.11
28	+0.11	0.1621	+0.11
29	+0.11	0.1621	+0.11
30	+0.11	0.1621	+0.11
31	+0.11	0.1621	+0.11
32	+0.11	0.1621	+0.11
33	+0.11	0.1621	+0.11
34	+0.11	0.1621	+0.11
35	+0.11	0.1621	+0.11
36	+0.11	0.1621	+0.11
37	+0.11	0.1621	+0.11
38	+0.11	0.1621	+0.11
39	+0.11	0.1621	+0.11
40	+0.11	0.1621	+0.11
41	+0.11	0.1621	+0.11
42	+0.11	0.1621	+0.11
43	+0.11	0.1621	+0.11
44	+0.11	0.1621	+0.11
45	+0.11	0.1621	+0.11
46	+0.11	0.1621	+0.11
47	+0.11	0.1621	+0.11
48	+0.11	0.1621	+0.11
49	+0.11	0.1621	+0.11
50	+0.11	0.1621	+0.11
51	+0.11	0.1621	+0.11
52	+0.11	0.1621	+0.11
53	+0.11	0.1621	+0.11
54	+0.11	0.1621	+0.11
55	+0.11	0.1621	+0.11
56	+0.11	0.1621	+0.11
57	+0.11	0.1621	+0.11
58	+0.11	0.1621	+0.11
59	+0.11	0.1621	+0.11
60	+0.11	0.1621	+0.11
61	+0.11	0.1621	+0.11
62	+0.11	0.1621	+0.11
63	+0.11	0.1621	+0.11
64	+0.11	0.1621	+0.11
65	+0.11	0.1621	+0.11
66	+0.11	0.1621	+0.11
67	+0.11	0.1621	+0.11
68	+0.11	0.1621	+0.11
69	+0.11	0.1621	+0.11
70	+0.11	0.1621	+0.11
71	+0.11	0.1621	+0.11
72	+0.11	0.1621	+0.11
73	+0.11	0.1621	+0.11
74	+0.11	0.1621	+0.11
75	+0.11	0.1621	+0.11
76	+0.11	0.1621	+0.11
77	+0.11	0.1621	+0.11
78	+0.11	0.1621	+0.11
79	+0.11	0.1621	+0.11
80	+0.11	0.1621	+0.11
81	+0.11	0.1621	+0.11
82	+0.11	0.1621	+0.11
83	+0.11	0.1621	+0.11
84	+0.11	0.1621	+0.11
85	+0.11	0.1621	+0.11
86	+0.11	0.1621	+0.11
87	+0.11	0.1621	+0.11
88	+0.11	0.1621	+0.11
89	+0.11	0.1621	+0.11
90	+0.11	0.1621	+0.11
91	+0.11	0.1621	+0.11
92	+0.11	0.1621	+0.11
93	+0.11	0.1621	+0.11
94	+0.11	0.1621	+0.11
95	+0.11	0.1621	+0.11
96	+0.11	0.1621	+0.11
97	+0.11	0.1621	+0.11
98	+0.11	0.1621	+0.11
99	+0.11	0.1621	+0.11
100	+0.11	0.1621	+0.11

12 35 5	
36 9	
3 12 55	
- 6.794	mod.
+ 8.9	
4 29.6	
5 6.4	
6 6.4	
7 25.4	
8 35.4	
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80 35.4	
81 35.4	
82 35.4	
83 35.4	
84 35.4	
85 35.4	
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91 35.4	
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93 35.4	
94 35.4	
95 35.4	
96 35.4	
97 35.4	
98 35.4	
99 35.4	
100 35.4	

562 Apr 25th continued. 2M2

13 Cephei Nov. sp.	E Virginis	Polaris s.p.	L Virginis	Other
1/2 49 46.1	2.3	13 4 37.8 67	39.5	
50 29.6	5.5	6 56.7 75	42.8	20 32.5
51 8.5	9.4		46.7	21 20.4
51 56.5	12.4		49.6	21 57.8
52 37.4	15.8	13 33.6 38	53.3	
178.1	45.4		231.9	
1/2 51 11.62	1/2 50 9.08	13 9 46.07	13 18 16.38	13 21 16.77
50 20.17		1 8 4.03	17 58.84	20 34.33
insol. 4.59	+ 0.19	-14.47	+ 0.11	+ 4.55
C.S. 4.86		[+47.57]	+ 47.55	[+46.99]
C.L. 8.7	-47.73	-47.75	-47.77	-47.77
Sw. 4.86	-30.86	-0.18	-0.22	+44.32
2-36.9	3.041			-3.45
2-52.4	6.441			-41.22
C.d.J.	-0.04			0.5116
4.22	+ 0.264			

0.9327	-16.06	0.4358w	+ 6.41
9.9149	+ 0.06	9.8982w	+ - 0.03
9.9102	-12.69	9.8995w	+ 12.10
9.9708	-2.22	9.4625w	+ 3.45
	-0.18	0.001	+ 0.22
	-0.04	0.005	+ 0.04

8	1.1053w	+ 22.25
10	8.1069w	
+2.75	0.440	
+1.84	0.265	

88 31 30.65	6043w
	1.477w
	1.6044w
11.2 5.68	0.938w
6.97	5.7416w
9 3.62	0.762w
9 3.62	-4.30.0
2.980	-3.132

6.701	8.1	+ 2 11.4
6.5	6.5	+ 4.283

200 9	
124 321	9.9157
+50.4	1.70121
85 28 26.8	1.1015
10	1.1029
+2.72	0.436
+1.83	0.261

B	17.2	+44.7
C	16.7	-3.7
D	16.4	-21.4

Feb 25th 1862unplaced.
2 Hydron

g Leonie

Polaris

30.9
34.0
38.0
41.0
44.4
48.315.8
19.0
22.8
25.7
29.2
112.51 4 10.0
6 18.6
8 50.4
10 50.3
13 7.0
136.3

Clock Error.

A.

S.

9 39 +47.40

54 47.41

10 1 47.39 ✓

26 47.45

58 47.53

11 8 47.46

10 21 +47.44 6

10 39 +47.48 10

10.3 -47.430

9 21 +47.25 ✓

11 12 47.56

12 36 47.73

13 18 47.65 ✓

11 7 +47.55 ✓

113

9 21 37.66
20 50.53
+ .12
+47.25
- 47.34
- 0.0910 26 22.50
25 35.23
~~+0.76~~
+47.45
- 47.45
+ 0.001 8 39.26
8 4.20
+ 14.47
+47.53
- 49.05
+ 0.00
+ 11.14
+ 0.27reverted 1st break
for 5th wireApproximate
c = +0.0951. Approximate
+c.

T + c

Sec.

18 Oct. H.	63° 41' +54.8	+ 81° 56' 02	9.14712
19 Oct. B.	245 30 -55.6	83 40.21	9.04234
20 Oct. H.	77 55 +59.8	83 15.55	9.06959
29 Oct. H.	276 22 -60.7	86 32.74	8.97997
5th min B.	107 37 +58.3	87 12.18	8.18847
43 Oct. H.	296 50 -54.6	85 30.95 ✓	8.89012
14 Oct. B.	124 29 +50.4	85 28.45 ✓	8.89712
Polaris		88 24 30.5	8.79560

Clock Correction

Rate - 1.07 per hr. Cor. to alt. also alt. sig

9	+47.307	-47.228
10	47.414	47.335
11	47.521	47.442
12	47.628	47.549
13	47.735	47.656
14	+47.842	47.763

1.6043
1.6044

Separate wires

37.60
.51
73
37.75
37.74

1862 Apr 26 Alt. West

Alt		"		"		"		"		"		"		"	
L. Lewis		34 Cephei H. S. p.		β Urs. Maj.		α Urs. Maj.		L. Lewis							
	46.0		50.7		10.5		50.0		39.9						
	49.4		14.4		16.8		57.5		43.2						
	52.4		43.4		22.2		4.0		46.2						
	56.3		4.7		29.1		12.2		50.0						
10	42	59.5	10 49	31.4	10 54	35.1	10 56	19.1	10 58	53.3					11
	263.6		144.6		113.7		142.8		232.6						
10	42	52.72	10 48	40.92	10 54	22.74	10 56	4.56	10 58	46.52					11
	42	2.79	47	49.57	~~55~~	~~14.8~~	55	[14.83]	57	56.59					

Continued on next page

	ψ Uro Maj	δ Leonis	δ Crateris	γ Crateris	39 Apheri H.S.p.
9	37.2	31.5	12.6	45.4	37.4
2	42.0	35.2	Equat.	48.9	29.9
2	46.2	38.3	19.1	52.0	32.3
0	51.7	42.4	23.2	56.0	22.5
3	56.1	45.9	26.4	59.4	18.5
6	233.2	193.3		261.7	140.6
2	46.64	38.66	11 13 19.48	11 18 52.34	11 28 28.12
59		6 48.84	12 29.40		27 35.17

μ P 0.1132
 A 19.48 - 1.92
 B 51 - 3.64
 C 40 + 0.30
 D — + 3.27
 E 49 + 1.89

1862 Apr. 26. Continued Ill. Mer

1862phae. p.

A U			"			"			"			"			
κ Usc Maj.			β Virginis			γ Usc Maj.			π Virginis			η Virginis			
		28.2			16.9			15.3			34.3			37.3	
		33.4			20.0			21.2			37.8			40.7	
		37.7			23.1			26.3			40.8			43.6	
		43.7			26.9			32.9			44.5			47.4	
11	39	48.4	Equat.	—	11	47	38.3	11	54	47.8	11	13	50.6	12	
		191.4					134.0			205.2			219.6		
11	39	38.28	11	44	23.40	11	47	26.80	11	54	41.04	12	13	43.92	12
			13	33.33			46	[37.14]				12	53.81		

A -4.72
 B 23.37 -3.53
 C 39 +0.29
 D 27 3.27
 E 59 6.40

see below Continued on next page

	15 γ Com Ber.			δ Caroi			~~γ Virgo~~ γ Virgo			ε Usc Maj.			12 Can. Ven.		
7.3			48.8			30.1			44.1			38.3			—
0.7			52.6			33.5			47.7			44.6			—
5.6			56.1			36.6			50.8			50.0			26.9
2.4			0.4			40.5			54.7			56.9			31.8
0.6	12	21	4.0	12	23	43.9	12	25	58.0	12	49	2.7	12	50	36.0
9.6			161.9			184.6			255.3			192.5			
2	12	20	56.38	12	23	36.92	12	25	51.06	12	48	50.50	12	50	27.29
81								3						49	37.32

γ Virgo

26.8

30.1

35 33.1

36.9

40.0

166.9

12 35 33.38

12.5 0.1099
 13 27.75 -8.65
 13 75 -4.55
 14 28 +0.38
 15 +4.24
 16 +4.61

862. Apr 26 Continued M. West

Apr 25. End.

AU.

1862 phase

Polaris s.p.		α Virginis		ϵ Virginis				
4	31.7		42.3		4.7			
6	40.5		45.8		8.2			
9	16.5		48.9		11.3			
11	12.9		52.7		15.1			
13	13	13	18	55.9	12	56	18.4	
	132.0		245.6			57.7		
13	9	2.40	13	18	49.12	12	56	11.54
	8	4.78		17	58.88			

	+0.193 -0.067
	9.286 8.672
40°	+0.101
30	0.057
20	+0.020
+10	-0.014
0	-0.047
-10	-0.082
20	-0.120

Apr 26^m

ϵ Virginis	10 42	-01	49.92	-49.89	+03
X	10 58	-02	49.92	49.92	00
δ	11 7	+02	49.86	49.93	-09
θ Virginis	11 13	-10	49.98	49.94	+04
β Virginis	11 42	-04	50.03	49.99	+04
η	12 13	-05	50.06	50.03	+03
γ Virginis	12 50	+10	50.02	50.09	-07
α Virginis	13 18	-08	50.16	50.14	+02
	11 46		+49.991		

Pro Rate
Zoll+0.093
+0.096
+0.095

$\frac{W_2}{2} q_4$

1862 Apr 29 M. Mont.

11 53 55.5

10 Virgin	7 Virgin	6 near mi B. Achils	By Coma Ber.	8 Corvi
30.6	46.5			37.2
33.9	47.8			40.8
36.9	50.7	15 37.2		43.9
40.8	54.6	18 0.8	7.6	47.8
43.8	57.9	20 0.0	71.3	51.1
166.0	258.5			220.8
12 3 37.20	12 13 57.10	12 15 48.90	12 21 3.59	12 23 44.16
	12 53.80	14 57.25		
inst cor. -0.04	-0.05	+5.41	+ .06	- 10
C.C. -57.14	+ 57.25	[+57.06]		
Ev. -57.20	-57.20	-57.20	-57.21	-57.22
Alt 12 2 39.93	+ 0.13	mean -0.14		
			12 20 6.44	12 22 46.84
				Cid. -0.04

Circle B

12 3 19
4 8

Point 309 25
+2 161
+2 201

H farther from zero. 25.8
G nearer to zero 48.4
F " 29.9
E " 50.5
Baron. 30.036
1 Th. 47
2 Th.

143° 46'
107° 6'
+59.2
9.9804
S 88.27 53.24 1.5719
2 1.5720
+7.16 0.855
-1.75 0.244

0.0583

+ S. 0'3 per. 1.1

Alt & Corvi comes
in a bad place: the
ground up in the way

C 46.1 +10.9
B 49.1 -2 11.7
A 49.5 -10.5
3.56 -4.04
3.62 -8.69

Continued on next page

η Corvi
^{51.1}
 57.7
 57.9
 1.8
 5.2
 11 53 55.5?

170.7

12 25 58.14

23 52 55.93

- 50

- 57.22

12 25 0.82

 γ Vir. med

33.9

37.3

40.2

44.0

47.3

202.7

12 34 40.54

33 43.25

- 0.05

+ 57.24

- 57.14

0.00

43 Cephei-New.

12 49 52.0

50 34.5

52 50.0?

12 51 [19.80]

0 50 20.82

- 1.45

[+ 57.13]

- 57.27

- 0.14

~~A 12 51 19.6~~~~B 12 51 19.6~~~~S. 12 51 24.4?~~

Polaris S.P

13 4 41.4

11 46.3

9 20.5

11 20.0

13 38.1

166.3

13 9 9.26

8 5.84

- 5.42

[+ 57.60]

- 57.30

+ 0.30

312 50

- 3 53.3
55.3

14

19.3

5

37.5

4

18.5

2

41.2

I do not know why
 stars 3.6 and perhaps
 5 were not recorded.

from 2.

8.29569

A-C 439.1 0.8414

B-C 234.2 0.5838

D-C 159.5 0.4730

E-C 417.6 0.8066

Mean 11.24 9.4415

- 55.7 1.7456

25 30 51.2 1.1056

24 1.1070

+ 2.45 0.3892

+ 0.60 9.779

A 19.9 + 125.9

B 19.7 + 45.2

E - 1 25.5

D 88 34 29.4

12 1.6062

12 6053

- 7.71 0.8892

+ 1.89 0.276

+ Examined sheet.
 Mr. Hall was observing
 with the Equatorial.

Print.

1862 Apr 29 M. West. cont.

d Virgin

B.H. 4498

S. Virgin

2 ^u	52.9	13	~~19~~ ~~47.6~~
3-	56.0	20	47.6
4-	57.7	21	25.1
5-	3.0		
	<u>7</u>	22	54.6

32.7
37.2
40.1
43.9
47.1
202.0

Clock Error

13	14	56.20	13	21	~~29.43~~
	17	58.87		20	33.87
		+0.08			+1.83
		+57.25			[+57.45]
		-57.32			-57.32
		-0.07			+0.13

13	28	40.40
	27	43.03
		-0.05
		+57.32
		-57.33
		-0.01

12	13	57.25	-57.25	+0.0	
	34	57.26	57.23	+0.1	
	13	14	57.25	57.31	-0.6
		15	57.32	57.32	0.0
	12	53	57.32	265	
	14	15	100		

12	57.59
13	57.59
14	57.59

N.W. S.

12 24 + 57.33

Sud

1.0072

200	4
123	30
	9.9211
	1.7130
285	28.0
	1.1016
	1.1030
	0.385
	9.775

A	57.14	1.52	A	29.5	7/ 25.1
B	56.1	-3.59			
C	56.30	+0.30	C	29.8	+ 3.7
D	56.22	+3.32	D	29.5	+ 41.4
E	56.14	-1.46			

1862 May 1. A.M.

W. West

Examination of Circle A. within the limits for

the new planet (Comparison Stars) W. West.

312.8' - 8	Circle A pointer	} W. West.
47 52 + 2	" opposite	
272 52 + 8	Ch. micro. copy	
267 12 - 8	" "	

Then for -2' 30' about the same divisions are used.

Examine from pointer 300 to 315

	A.	B.	C.	D.	Mean
300 0	34.8 - 6.6	42.0	36.1	52.8	41.4
302 0	42.0 - 7.7	44.4 + 0.1	38.5 - 6.1	53.4 + 6.3	44.7
304 0	51.2 - 1.8	51.3 - 1.7	47.6 - 5.4	44.6 - 6.9	53.0
306 0	55.4 - 0.3	51.4 - 4.3	52.6 - 3.1	5.5 - 7.0	53.7
308 0	55.5 - 0.6	51.0 - 3.7	50.5 - 4.3	2.5 - 7.0	54.9
310 0	0.5 - 0.4	56.4 - 4.5	57.8 - 3.1	9.0 + 8.1	0.9
312 0	3.7 - 1.9	1.0 - 4.6	3.8 - 1.8	14.0 + 8.5	5.6
314 0	4.0 - 3.0	1.2 - 3.8	7.4 + 0.4	15.2 + 8.2	6.95
316 0					

Now, about + 6° to - 2° the circle A. (on west) can be used without much danger.

1862. Apr. 30 M. West

All		" "		" "		" "		" "		" "		" "		" "	
1 Leonis		β Vir Maj		α Vir Maj		γ Vir Maj		δ Leonis							
	53.2		19.6		59.2		46.2		40.7						
	58.7		25.9		6.6		51.1		44.3						
	01.7		31.3		13.1		55.3		47.6						
	05.6		38.2		21.3		0.8		51.7						
10	43	08.7	10	54	44.2	10	56	28.2	11	3	5.3	11	7	55.1	HL
	129.9		159.2		128.4		158.7		239.4						
10	43	1.98	10	54	31.84	10	56	13.68	11	2	55.74	11	7	47.88	11
	42	2.75					55	[14.70]					6	38.80	

Apr. 30 continued on next page

8 Crateris		7 Crateris		202 Camel. B.		39 Cephei H.s.p.		X Urs. Maj	
	21.7		54.5	mixed up with	17.3		46.1		37.4
	25.2		58.0	Equal observation	41.4		39.8		42.6
	28.4		1.2		2.6		43.0		52.8
	32.3		5.2		29.3		31.3		46.9
14	13 35.7	11	19 8.5	11	23 52.1	11	30 28.2	11	39 57.6
	143.3		127.4		142.7		188.4		237.3
88	11 13 28.66	11	19 1.48	11	23 4.54	11	28 37.68	11	39 47.46
30	12 29.36				22 6.94	23	27 36.25		

862. Apr. 30 Ill. Wed

A.H.

β Leonis			β Virginis			γ Mus Maj			Str. 4193 s.p.			ϵ Corvi		
		56.3			26.0			24.5			24.3			57.3
		59.9			29.4			30.3			8.4			1.0
		2.9			32.3			35.3			2.6			4.1
		6.9			36.1			42.0			42.2			8.3
11	43	10.2	11	44	39.3	11	47	47.6	11	55	31.6	12	4	11.6
		136.2			163.1			179.7			109.1			82.3
11	43	3.24	11	44	32.62	11	47	35.94	11	53	57.82	12	4	4.46
	42	4.05		43	33.38		46	[37.07]		52	56.21		3	5.00

Apr 30 continued on next page

γ Corvi				η Virginis				15 γ Com Ber				δ Corvi				η Corvi			
			38.1				46.5				58.0				39.3				53.3
			41.8				49.9				2.0				42.7				56.9
			44.9				52.8				5.3				45.8				59.9
			48.8				56.7				9.6				53.1				4.0
12	9		52.2	12	13		59.9	12	21		13.3	12	23		49.8	12	26		7.3
			225.8				265.8				88.2				230.7				181.4
12	9		45.16	12	13		53.16	12	21		5.64	12	23		46.14	12	26		0.28
							12 53.79												

1862. Apr. 30

M. W. W.

A. M.
B. Cowi γ Virginis ϵ Virginis

Polaris sp

 δ Spica

18		4.0		36.0		14.0		4	41.3		51.6		
		7.9		39.3		17.6		6	50.0		54.9		
		10.9		42.2		20.6		9	23.7		58.0		
		15.1		46.1		24.5		11	23.1		1.9		
12	28	18.5	12	33	49.3	12	56	27.8	13	38.5	13	19	57.1
		56.4			212.9			104.5		176.6			171.5

12	28	11.28	12	33	42.58	12	56	20.90	13	9	11.32	13	18	58.30
	27	11.83		34	43.24				1	8	1.37		17	58.88
		- 13												- 08
		17.32												57.34

Apr. 30 End.

I Virginis BAC 262 sp
 49 56.7
 50 37.0
 51 25.9
 52 3.2
 12 52 46.5
 169.3
 12 51 21.86
 50 20.99

Apr 30

<i>I Corvi</i>	10 42	-01	+59.22	-59.14	+08	W_3	S_3
<i>δ —</i>	11 7	+02	59.10	59.18	-08		
<i>α Crateri</i>	11 12	-10	59.20	59.19	+01		
<i>β Corvi</i>	11 42	.00	59.19	59.24	-05		
<i>β Virginis</i>	11 44	-04	59.27	59.24	-03		
<i>ε Corvi</i>	12 3	-13	59.33	59.27	+06		
<i>γ Virginis</i>	12 13	-05	59.32	59.29	+03		
<i>β Corvi</i>	12 27	-13	59.32	59.31	+01		
<i>γ Virginis</i>	12 35	-05	59.29	59.32	-03		
<i>ε —</i>	13 18	-08	59.34	59.40	-06		
	11 54		+59.258				
	Pre 12		+0.096				
	John		0.093	not wr. for R_2			
			0.097				

W. Hall observed
 perhaps 0.06 less
 than J. on Apr 24.
 J.H.S.

Apr May 7 M. West

e. pro

	10	42	18.28	10	48	8.72	10	53	48.22	10	55	29.88	10	58	12.22
			2.67	22	47	57.20						[14.46]	57	56.47	
inst. cor.		0.00				-1.40		+0.27				+0.35			-0.01
C. Evs		+15.61				[+16.17]						[+15.78]			+15.74
C. int		-15.70				-15.71		-15.72				-15.72			-15.73
Lo.		-0.09				+0.41						+0.05			+0.01
Alt.							10	53	32.77						
xi							C. L		-0.28						

by road 9.1203
sea 0.99
n + 0.995

2
21 " 58'
21 20 9.9971 -
- 42" 6 1.7962 -
22 25 120 1/2 0.8760 -
for 0.8798 -
+ 1.76 0.245 -
+ 0.26 9.553 -

Very weak

continued on next page

	δ Leonis	δ Crateri	γ Crateri	202 Camel. B	39 Cygnus sp
5	57.3	38.4	11.0	21 32.6	26 5.3.
0	0.8	41.7	14.5	57.6	58.1
9	3.9	44.9	17.7	22 18.5	28 2.2
8	8.0	48.8	21.7	45.3	57.1
9	11.6	52.1	25.1	23 7.8	29 48.3
1	15.6	225.9	90.0	161.6	165.0
22	11 6 4.32	11 12 45.18	11 18 16.00	11 22 20.32	11 27 57.00
42	δ 48.72	29.29		6.01	23 27 38.57
01	+0.05	-0.10	-0.12	+1.38	-3.08
24	+15.65	+15.79		[+15.62]	[+15.41]
13	-15.74	-15.75	-15.76	-15.77	-15.77
1	-0.19	+0.04		-0.15	-0.36
			11 18 2.12		

good 9.1496
did 0.99

good 8.7800
did

170° 31'		351° 55'	
41 54	9.9998	273 17	9.9993
+1' 2" 9	1.7989	-1' 2" 9	1.7984
81 53 13.6	0.8460	81 32 42.4	1.2192
	0.8504		1.2200
+1.64	0.215	-3.86	0.882
-1.33	9.522	+0.78	9.892

562 May 7th M. West.

24.5

γ Ursa majoris	β Lerin	β Virginis	γ Ursa majoris	π Virginis
53.5	12.8	62.5	60.9	0.0
58.9	16.4	46.0	47.0	3.6
3.6	19.5	48.8	52.0	6.4
9.4	23.4	52.6	58.4	10.4
12.9	26.6	55.9	3.9	13.6
139.1	94.7	145.8	202.2	33.8
11 39 3.82	11 42 19.74	11 43 49.16	11 46 52.44	11 54 6.76
	3.99	33.28	[36.92]	
+0.19	+0.02	-0.04	+0.28	-0.01
	+15.77	+15.87	[15.77]	
-15.79	-15.80	-15.79	-15.80	-15.82
~~11 38 48.22~~	-0.03	+0.08	-0.03	
11 38 48.22				11 53 50.93

Noting on next pages

ϵ Corvi	δ Corvi B.	δ Corvi	γ Corvi	β Corvi
13.8	12 10 56.1	55.7	9.8	20.6
17.5	13 0.3	59.4	13.4	24.3
20.6	14 52.7	2.4	16.5	27.4
24.8	17 13.4	6.4	20.5	31.7
28.2	19 12.4	9.6	23.9	35.1
106.9	132.9	133.5	24.1	139.1
12 320.98	12 15 2.58	12 23 2.70	12 25 16.82	12 27 27.82
4.95	14 52.91			11.80
-10.14	+7.03	-0.11	-0.11	-0.14
+15.89	[+16.70]			+15.88
-15.83	-15.85	-15.86	-15.86	-15.87
+0.06	+0.85			+0.01
		12 22 46.73	12 25 0.85	
		C.d.T. -0.12		
	hard 8.4279			

183 43
 105 5 9.9843
 +1 0.8 9.7439
 8 88 27 56.8 1.5720
 1.5721
 +8.28 0.941
 -1.75 0.2442

562 May 7 continued M West

Cepheus A sp		Polaris sp		of Mue major		of Booris		of Virgin	
12	49 14.7	13	4 4.1						50.2
	56.5		6 11.6						53.5
	50 45.3		8 45.5						56.5
			10 44.7	42 30.8					0.3
	52 7.3		13 1.0	42 35.5	1	33.2			3.7
			106.9						164.2
12	50 41.40	13	8 33.38	13	42 25.14	13	48	12	54 56.84
	22.18		9.87		9.43		10.07		40.78
	-2.38		-7.51		+0.21				-0.04
	[+16.84]		[+16.36]		[+15.96]				+16.02
	-15.91		-15.94		-15.99				-16.01
	+0.93		+0.42		-0.03				+0.01
Dev		M. sp.		Report.					
by end 8.5931		by end 8.3959							

Cloudy

12 36					
243 58	9.9608				
- 57.5	1.7599				
85 30 34.5	1.1055	2	86 34 24.5	1.6040	
h.	1.1068		h.	1.6091	
-2.98	0.474	-9.40	0.973		
+0.60	9.779	+1.89	9.276		
A 40.5	+1 25.8				
B 41.6	+ 45.1				
C 41.6	- 3.7				
S 41.9	- 1.751				

<i>Alutani</i>	<i>Polaris</i>
46.4	3 50.6
57.5	6 10.3
54.3	8 11.0
59.0	
2.9	12 54.5
213.1	

1/3 58 54.62	1 8 21.30
	9.73
-0.23	+ 7.81
	+ 19.08
-16.02	- 17.10
	+ 7.98
1/3 58 38.37	
C.d.T. + 0.32	

18 18.22	19.3
21.62	22.0
20.12	22.5
22.72	22.7

Correction mid-air	+ 0.260
Daily aberr.	+ 0.015
Rev. to mid air	- 0.
0	

1.6040
1.6041
0.973

A 21.7. -4 29.8

C 21.7 + 11.7
S 21.7 + 211.4
S 19.1 + 4 28.5

Clock Error

<i>North</i>	<i>Dec</i>	<i>South</i>
10 42	+ 15.64 - 15.70	11 12 + 15.79
58	15.74 15.73	12 3 15.89
11 7	15.65 15.74	27 15.88
42	15.77 15.60	
44	15.87 15.80	
13 55	16.02 - 16.01	
11 41	+ 15.77	11 54 + 15.853
Mean	11 45 + 15.802 (9)	

Rate Apr 29-May 7	+ 2.332	11 54
May 7 - 15	+ 2.292	
Adapted	+ 2.312	
Pt Hour	0.096	

Ant. alt.

Ant. alt. ~~10.54~~ + 15.77

Clock Correction

10 0	+ 15.634
11	730
14	826
13	15.922
14 0	16.018

	Alumini	Alumini	Alumini	Alumini	Alumini	Alumini	Alumini	Alumini	Alumini	Alumini	Alumini	Alumini
Th												
Nov 11	-0.16		+0.08	~~0.11~~	~~0.11~~	+0.04	+0.04					
24	+0.01	-0.02	-0.16	+0.13	-0.02	+0.08						
26												
27								+0.07			-0.09	-0.03
28					-0.07	-0.11					+0.06	
29								+0.14			-0.03	+0.02
Apr 4								+0.07	+0.13	-0.04	-0.08	-0.09
7								+0.07	+0.02	+0.01	+0.10	-0.04
12												
16												
18												
19											+0.03	-0.05
24												
25											-0.09	+0.02
26												
29												
30												
May 7												
14												
15												
17												
23												
Oct 5	+0.03		+0.04				+0.05					
7	-0.11	-0.04	-0.01	+0.08	+0.14	+0.03						

12/10/11

$$\Delta' = \Delta \text{ for } 1865 + (A+n)a + Bb + Cc + Dd + (E+n)e + (F+n)f$$

$$\Delta' = \Delta \text{ for } 1865 + \gamma \sin[T+x] - h \cos[T+x] [1 - \sin \delta] + i \cos \delta \quad (\text{The last two terms may be omitted})$$

German Notation

Here $1865 + T + n = T$

for 1865 $n = -3$

		Log A + n	Log B.	Log C.	Log D.	(E+n)	Log F.	T
1862	12.5	9.7834						
Oct. 28	5 14 27.5	0.3837	9.793	1.2689	0.4521	-2.761	1.7405	290 30'
"	7 34 27.6	0.3837	9.793	1.2688	0.4521	2.761	1.7389	
"	10 2 27.7	0.3837	9.793	1.2687	0.4521	2.761		
29	7 34 27.6	0.3837	9.789	1.2677	0.5070	2.758	1.7415	290 14
"	12 26 28.0	0.3837	9.786	1.2674	0.5164	2.757		
Apr. 4	7 34 3.4	0.3821	9.540	1.2582	0.7220	2.742	1.7293	289
"	12 26 3.6	0.3820	9.533	1.2578	0.7275	2.741	1.7269	289 2
"	7 34 6.6	0.3803	9.577	1.2576	0.7979	2.734	1.7357	288 28
"	12 26 6.8	0.3802	9.525	1.2571	0.8024	2.733	1.7345	
Apr. 12	10 2 11.7	0.3792	9.557	1.2375	0.9001	-2.720	1.7479	287 32
16	12 26 13.3	0.3778	9.124	1.2238	0.9656	2.708	1.7473	
18	10 2 17.7	0.3769	8.672	1.2161	0.9923	2.703		
19	10 2 18.7	0.3754	8.415	1.2120	1.0054	2.700	1.7470	286 6
23	11 14 22.75	0.3734	8.740	1.1936	1.0538	2.689		
24	12 26 23.8	0.3732	8.763	1.1884	1.0652	2.686		
25	10 2 24.7	0.3731	8.653	1.1838	1.0747	2.684	1.7475	286 25
"	12 26 24.8	0.3731	8.633	1.1832	1.0757	2.684	1.7477	
26	12 26 25.0	0.3730	8.000	1.1779	1.0854	2.681		
29	12 26 26.9	0.3722	9.230	1.1606	1.1139	2.673	1.7499	283 22
30	12 26 29.0	0.3717	9.367	1.1544	1.1227	-2.670	1.7495	
May 7	10 2 6.7	0.3673	9.484	1.1060	1.1755	2.651		
"	14 50 6.7	0.3672	9.484	1.1044	1.1769	2.651	1.7495	281 22

9.72 32975
17 7120
20 7137
21 7147

$$\gamma \sin T^* = [1.3022] [A + n] + D$$

$$\gamma \cos T^* = -B + C$$

The numerical values on the opposite page have been tested by Polaris and I Corae min

Circle B. will not do for N.B. + 2°. Ill. West

off. Circle B. Examination between +10° and -2° Dec.

Point 302. 0

H 26.2 } much defaced
G 5.6 } "
F 49.8 } "
E 9.9 } 7.97

Point 314 0

H 20.0
G 38.2
F 23.0
E 46.4 46.90

Point 306° 0'

H 29.2
G 4.3
F 46.3
E 7.3 6.78

302	14	14.33	G	-2.27	F	-16.02	E	+2.03
304		24.42		-2.48		20.48		+0.52
306		25.90		-3.80		21.60		-0.50
308		29.74		-6.02		23.72		-0.02
310		32.60		-6.60		24.40		-1.60
312		35.18		-8.42		24.02		-2.62
314		33.10		-8.70		-23.90		-0.50

Point 306 0

H 32.7
G 3.0
F 45.2
E 6.3 6.40

308

197.76
28.25
1.40
19.85 +1.52 -6
21.65 +0.23 -4
25.45 -0.45 -2
28.25 -1.53 0
31.05 -1.55 2
33.85 -2.32 4
35.65 +2.55 6

24 an aa 46
2.3
0.1
0.2
2.3
2.4
1.8
6.5
19.6 -0.76 -2.76 7 112

306 - 313

Point 308 0

H 25.1
G 47.3
F 31.6
E 55.3 55.32

Point 310 0

H 22.0
G 42.8
F 29.0
E 47.8 49.40

Point 312 0

H 21.6 16.5
G 34.8
F 19.3
E 40.7 43.32

307

309

311

313

307

H 23.6

G 52.8

F 32.2

E 55.2 55.90

309

H 26.3

G 49.4

F 30.4

E 54.6 55.18

311

H 22.5

G 40.6

F 24.8

E 67.1 48.75

313

Declinations for 1862.0 of Cassini's stars for the Meridian Circle
(Reduced to the Libras Reductions)

	Logarithms (German order)				1862.0	Circle reading	
	a'	b'	c'	d'			
α Leonis	+ 8° 4' 52".6						N.A. + 0".4
β —	2 42 15.1 - 0.02 1.2871	9.4841	9.6245	8.7093	10 59 52	309 40	
γ —	3 45 52.0 + 0.16 1.4955	9.2628	9.6249	8.9112	11 19 56		
δ Virginis	2 40 21.1 - 0.22 1.3022	8.6287	9.6375	8.6692	12 2 37		
ϵ —	4 4 53.2 - 0.05 1.3015	8.7703	9.6405	8.8579	12 13 20		
ζ —	+ 0 6 1.7						N.A. - 0".4
η — med.	- 0 41 31.0						N.A. (p) + 1".9
θ —	+ 4 8 53.3 - 0.06 1.2923	9.3238	9.6513	8.8498	12 48 39		
ι Virginis	+ 7 23 2.2 - 0.03 1.3013	8.4192	9.6303	9.1082	11 58 48		

From a short investigation made Apr. 23, 1862 it appears that the irregular errors of ^{one} division between these limits Circle A M E. are about $\pm 0".4$
Hence of four microscopes $\pm 0".2$

Including probable errors about $[20".2]$ of two readings it is $\pm 0".44$

It was assumed that the ^{regular} errors of division were proportional to the length of the arc, between $+8^\circ$ and -1° .

It was found also that under these circumstances and within these limits the readings of ~~the arc under microscope~~ Δ must be corrected by $+0".05$ ($7 - 309.0$) $\frac{1}{10}$ agree with the mean of 4
 $\begin{array}{l} \Delta \\ \Gamma \\ \delta \\ \epsilon \end{array} \quad \begin{array}{l} +0.04 \\ +0.26 \\ -0.35 \end{array}$
 P. is the pointer reading

The sum of $\begin{array}{l} H = 304.35 \\ G = 299.65 \\ F = 300.3 \\ E = 303.5 \end{array}$

But the effect is insensible within $30".$

1 rev. Del. Micr = $34".28 + x$

