1854phae.proj...178

KG
11365
17

A.17

1854.

Transit Circle.

August 15/16 to Novr 27th.

First observations of Zero stars by T.C.

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1854phae.proj...17n

KG-11365.17



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1854phae.proj...17h

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1854phae.proj...179

1854.

Aug $\frac{14}{15}$ / $\frac{15}{16}$

	α Ceti		α Persei		17 Tauri		γ Tauri
	lost 52.8		3 .. 13 .. 46.8		3 .. 36 .. 22.8		3 .. 38 .. 58.6
	lost 6.6		4 8.4		6 37.8		9 13.6
	2 .. 55 .. 20.4		4 29.3		6 52.7		9 28.7
	34.1		4 50.1		7 07.6		9 43.8
W.C.13	48.0	VV.C.13	5 11.6	VV C 13	7 22.8	VV.C.13	9 58.6
	01.8		5 32.4		7 37.7		0 13.5
	2 .. 56 .. 15.3		3 .. 15 .. 53.8		3 .. 37 .. 52.8		3 .. 40 .. 29.0
	~~179.0~~		232.4		234.2		245.8
	60		120		180		60
	7) 239.0		7) 352.4		7) 54.2		7) 305.8
	2 55 34.14		3 .. 14 50.34		3 37 07.74		3 39 43.69
			13.56.57		3 36 13.93		49.85
			+ 53.77		+ 53.81		53.84

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1854phae.proj...17b

Aug. 15/16

Ill East

D12 Limb.	ε Tauri	α Tauri
EC 4..05..26.4	16.7 lost	4..27..44.6
41.4	31.4 lost	) 58.9
56.5	45.9 lost	8 13.2
WC B 11.6	01 lost	8 27.5
26.8	WC 4..27..14.9	W.C.B 8 41.9
41.8	29.5	8 56.1
4..06..56.9	4..21..44.2	4..29..10.5
261.4	163.4	252.7 / 60
180	180	7/192.7
7) 81.4	7) 3.2	4 28..27.53
4 6 11.63	4 21 0.46	4..27..33.64
		EC 4 + 53.89
		13/14 " + 49.39
		2/4.56/2.25 56.14

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1854phae.proj...170

a +1.3 for α Lyrae +.07 +.04
b +.40 +.57 +.29
c .00 00 03.2 00
+.78

1854.

Aug. 16. M.T.

	β Urs. Min.		α Scorpii		α Lyrae
	27.2		16.. 20.. 38.2	18 32	3.4
	20.5		20.53.3		21.2
	12.5		21..08.8		38.7
7h 8.	4.3	WCB	21..23.9		56.2
	57.0		21..39.4		14.0
	49.1		21..54.7		31.4
14 57	41.4		16..22..10.0	18 33	49.3
	212.0		2283		214.1
	180.		60		180
	7)32.0		7)168.3		7)394.1
14 52	4.57		16..21..24.04	18 32	56.30
14..57..11.12			20..29..32		.00
	+53.45		+54.62	Rate.	
				Instr. Corr.	+.52
				~~Log~~	18 32 56.82
				~~Gyan~~	18 32 1.64
					-55.21

+.38
-55.21
-54.93

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1854phae.proj...tif

874

Zero Stars for Catalogue. – Cir. Read. 312° 13'

Lacaj. R. M. E. Wolf

* 8 Mg 10' S.	* 8 Mg 10' S. 2	* So. neg. vo dec.	* 8 neg. 6' S. faint. doubtful.
	18 37 21.9	~~40~~ 49.8	~~39.1~~ 24.2
N18	N16 35.9	2.7	~~43~~ 47.7
	49.3	18.3	~~34~~ 7.9
	3.3	31.3	14.8
	16.8	45.3	29.3
	30.2	58.7	43.2
18 36 26.4	18 38 44.3	18 43 12.3	18 49 56.9
– 41.36	201.7	218.4	228.0
	180.	0	120.
	7) 21.7	7) 218.4	7) 108.0
18 35 45.04	18 38 3.10	18 42 31.20	18 49 15.43
.00	– .01	– .01	– .02
~~+ 38~~	~~+ 38~~		
~~– 55.31~~	~~– 55.31~~		
Last Errors Cl. Cor. – 54.93	– 54.93	– 54.93	– 54.93
18 34 50.11	18 37 8.16	18 41 36.26	18 48 20.48

875

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1854phae.proj...17n

1854 Aug. 16. 880 (194) 904 905 910 911

Zero-Stab continued

	* 5h aap. * de. gain	* 6th 1/2 h	* 7h 1/2	* 9h 2/3 h	* 9h 44 s
	59.7	[19.4]		24.1	
	12.6	[33.2]		38.2	
	29.5	47.2		57.9	
	41.2	0.4		5.4	
	57.7	14.5		19.5	
	8.4	28.0		33.0	17.2 } 24.3
19 11	22.4	19 12 42.1	19 13h 1.4 - 19 15	46.9	19 16 31.4 }
	226.5	184.8	(-41.36)	219.0	- 14.62
	60.	180.		180.	
	7) 286.5	) 4.8		7) 39.0	
19 10	40.93	19 12 0.69	19 12 20.04	19 15 5.57	19 15 49.88
	- .04	- .04	- .04	- .04	- .04
	- 54.93	- 54.93	- 54.93	- 54.93	- 54.93
19 9	45.96	19 11 5.72	19 11 25.07	19 14 10.60	19 14 54.91

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91³

+ .07	+ .08
+ .34	+ .32
.00	.00
+ .41	+ .40

(195)

Time Stars.

+ 7th. 8 S.	+ 10th 4 S.	α Aquilae	β Aquilae
19.1	[16.7]	55.2	24.2
32.8	30.2	9.2	38.0
46.7	44.2	22.7	52.0
0.2	57.9	36.7	5.9
14.0	12.0	50.8	19.8
27.7	25.4	4.7	33.2
19 20 41.5	19 22 39.4	19 45 18.4	19 49 47.2
182.0	225.8	197.7	220.3
180.	180.	60.	180.
7) 2.00	7) 405.8	7) 257.7	7) 40.3
19 20 0.29	19 21 57.97	19 44 36.81	19 49 5.76
− .05	− .05	− .06	− .07
		+ .41	+ .40
		19 44 37.16	19 49 6.09
		19 43 41.76	19 48 10.76
		− 55.40	− 55.33
− 54.93	− 54.93		
19 19 5.31	19 21 2.99		

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1854phae.proj...170

1854

Aug. 24 P.M. Ill. East

α Bootis	β Ursæ Minoris	α Coronæ Borealis
———	49..39.3	61.9
———	50.31.8	7.2
9..52.7	61..24.2	22.7
7.4	52..16.4	38.2
22.1	53.. 8.7	53.7
36.6	54..00.3	9.0
14..10..51.4	14..54..53.3	15..30..24.7

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1854phae.proj...1?B

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1854phae.proj...17B

1854

(201)

Augst 28^{t}

Ill East

	Spica	Huron 1st limb		a^2 Libra	β Libra
2C	13 .. 18 .. 1.6	14 .. 12 .. 54.6		14 .. 43 .. 19.3	15 .. 09 .. 41.3
	8 .. 15.4	13 .. 08.9	14.3	3 .. 33.4	9 .. 55.2
	8 .. 29.3	13 .. 23.3	14.4	3 .. 47.7	10 .. 09.2
	8 .. 43.3	13 .. 37.6	14.3	4 .. 02.2	10 .. 23.0
	8 .. 57.5	13 .. 52.1	14.5	4 .. 16.3	10 .. 36.9
	9 .. 11.3	14 .. 06.3	14.2	4 .. 30.4	10 .. 50.8
	13 .. 19 .. 25.3	14 .. 14 .. 20.9	14.6	14 .. 44 .. 45.0	15 .. 11 .. 04.9
	183.7	203.7		194.3	221.3
	+120	60		−160	−60
	7 | 303.7	7 | 143.7		7 | 34.2	7 | 161.3
	13 .. 18 .. 43.39	14 13 37.67		14 44 02.03	15 10 23.04
	17 .. 30.61			14 .. 42 .. 49.20	9 .. 10.14
2C	+1 .. 12.78			+1 .. 12.83	+1 .. 12.96
	84			84	84

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1854phae.proj...178

1854.

Aug. 29th M. T.

# Boötis			α Libræ			β Herculis Minoris			Q'		
14	39	5.0	14	43	20.9	14	49	46.4	15	5	33.0
		20.4			35.2		50	38.8			47.6
		36.0			49.3		51	30.7		6	2.4
		51.5			3.6		52	23.2			17.2
	40	7.1			17.9		53	15.6			31.9
		22.5			32.1		54	7.6			46.7
14	40	35.2	14	44	46.5	14	55	0.3		7	1.6
		180.7			205.5			162.6			180.4
		180.			180.			0.			60.
	7)	360.7		7)	25.5		7)	162.6		7)	120.4
14	39	51.53	14	43	3.64	14	52	23.23	15	6	17.20

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1854phae.proj...17B

Aug 4

β Librae	γ Aquilae	α Aquilae	
15 9 42.9	39 59.9	19 42 14.7	19 48 43.9
56.9	7.9	28.6	57.7
10 10.8	21.7	42.3	11.3
24.7	35.7	56.2	25.3
38.7	49.7	70.2	39.0
52.7	3.7	23.9	52.7
15 11 6.5	19 41 17.7	19 45 38.1	19 50 6.7
233.2	190.3	214.0	236.6
60.	60.	180.	120.
173.2	250.3	394.0	176.6
15 10 24.74	19 40 35.76	19 44 56.29	19 49 25.23

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1854phae.proj...17n

Aug. 3th M. Sust.

	β Librae	β' Scorpii	α'	σ Scorpii	α Scorpii
+	44.7	30.8	17.0	51.4	59.4
	58.4	45.6	32.3	6.5	14.9
	12.3	0.0	47.5	21.8	30.0
	26.2	14.8	2.8	36.9	45.5
	40.2	29.3	17.9	52.1	0.7
	54.0	43.6	33.2	7.2	15.9
15 11	8.0	15 58 58.5	16 3 48.7	16 14 22.6	16 22 31.4
	243.8	222.6	199.4	198.5	197.8
	60.	120	180	60.	120.
	7) 183.8	7) 102.6	7) 19.4	7) 258.5	7) 317.8
15 10	26.26	15 58 14.66	16 3 2.77	16 13 36.93	16 21 45.40

1854. Sept. 4th.

α Capricorni	ψ Capricorni	ζ Cygni	☽ 1st Limb.	δ Capricorni
20.. 32.. 27.80	20. 38.. 8.10	20.. 7.. 22.70	21.. 28.. 8.20	21.. 39.. 42.70
42.50	23.40	38.60	23.70	57.40
56.90	38.90	54.15	38.75	11.80
11.00	54.10	19.00	54.00	26.00
25.90	9.20	25.90	9.10	40.20
40.00	24.30	41.90	24.20	54.70
33.. 54.90	39.. 39.90	8.. 57.80	29.. 39.60	41.. 9.20

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1854phae.proj...178

Sept. 7 Ill. East-

α Coronae Borealis	α Serpentis	β Scorpii	δ Ophiuchi
29..13.0	37.52.4	57..42.9	7..30.0
29.28.4	8. 6.2	7.57.3	7..43.7
29.43.7	8..20.0	8..12.0	7..57.4
29.59.3	8..33.9	8..26.6	8..11.2
30.14.8	8.47.8	8.41.3	8. 24.9
30.30.1	9 .1.3	8..55.7	8..38.7
15..30..45.7	15..39..15.6	16..59..10.4	16..08..52.5
235.0	177.2	2462	258.4
180.6	60	60	-180
7|415.0	7|237.2	7|286.2	7|78.4
15..29..59.29	15..38..33.89	16.58..26.60	16..08..11.20

1854 Nov. 25d

observer W.C.B.

α Cygni.	D^t - Limb	α Capricorni	ε Aquarii
20..35..30.25	Lost	21..44..41.60	21..57..53.15
49.30	21..25..25.90	Lost	7.60
8.90	41.10	10.50	21.40
28.00	56.35	23.10	35.80
47.70	11.40	39.30	50.05
7.00	26.50	Lost	4.10
37..26.40	26..41.95	Lost	59..18.60

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1854phae.proj...178

Sept. 10/11 Ill East.

	β Tauri.	δ Orionis	ε Orionis
E C	5 17 53.3	5 25 28.0	5 29 43.2
	18 08.9	5 41.8	29 57.0
	18 24.8	5 55.3	30 11.0
	18 40.3	6 09.0	30 24.5
	18 55.9	6 23.0	30 38.3
	19 11.4	6 36.5	30 52.0
	5 19 27.3	5 26 50.3	5 31 06.0
	221.9	243.9	232.0
	66	−180	−60
7	281.9	7 63.9	7 172.0
	5 18 40.26	5 26 09.13	5 30 24.57

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1854phae.proj....178

1854.

Sept. 7ᵗʰ

Ill. East.

	2° Sat. Jupiter	1ᵉ Sat.	4s 1ᵗ Limb	4s 2ᵈ Limb
EC	19..17..44.5	19..17..49.8	19..17..55.3	19..17..58.3
	17..59.0	18..04.4	18..10.2	19..13.2
	18..14.0	18..19.3	18..24.9	19..27.8
	18..29.0	18..34.3	18..39.8	18..42.9
	18..43.8	18..49.2	18..55.0	18..58.0
	18..58.9	19..04.0	19..09.9	19..12.8
	19..19..13.8	19..19..19.1	19..19..24.8	19..19..27.8
	263.0	180.1	219.9	240.8
	−60	+60	60	60
	7|203.0	7|240.1	7|279.9	7|300.8
	19..19..29.00	19..19..34.30	19..18..39.99	19..19..42.97

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1854phae.proj...178

Sept. 12

E.C.

916

Ill. East

Rate +1.91

	Double x''	δ Aquilae	Star 4/5 mag pol δ Aq.	931 944	933 946
h m s			h m s		
19 10 38.9	19 13 51.3	19 19 07.2	19 19 14.5	19 31 52.4	19 35 32.2
52.3	5.3	20.6	27.8	6.3	46.9
6.2	18.9	34.4	41.7	20.0	00.0
20.2	32.9	48.0	55.3	33.5	13.7
34.8	46.6	1.8	9.2	47.3	27.3
47.3	59.9	15.7	23.0	1.2	41.1
19 12 01.6	19 15 14.2	19 20 29.5	19 20 36.9	19 33 15.0	19 36 55.0
200.3	229.1	157.2	208.4	175.7	215.2
60.	0.	180.	180.	60.	120.
140.3	229.1	337.2	388.4	235.7	95.2
19 11 20.04	19 14 32.73	19 19 48.17	19 19 55.49	19 32 33.39	19 36 13.60
Refr. +.01	+.02		+.03	+.01	+.05
Abb. −.01		−.01			
Lev. +.29		+.30			
Capt. −.05		−.05			
W. Corr. −1 38.34		−1 38.37			
Sum of Corr. −1 38.14	−1 38.14			−1 38.14	−1 38.14
19 9 41.89	19 12 57.59			19 30 55.21	19 34 35.41
Ab. Ac. ∓1.90	∓1.92	19 19 48.41		∓2.00	∓2.01
19 09 39.99	19 12 55.65	19 18 10.08		19 30 53.21	19 34 33.40
Cor. for Ch. Var. −3.06		+1 38.38		−3.07	−3.05
AR. 1853.0 − 19 09 36.93				19 30 50.14	19 34 30.35

+1 38.30
+1 38.43
+1 38.37
Clock error at 19h 00m
−1 38.37
−.03
19 18 10.01

Final Corr. by Cat. Stars +0.03

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1854phae.proj...178

(209)

Sept. 12

Ill East Rate +1.91 [3] a = −.02, b = +.38, c = −.05 } used in reduction of Bat. Stars

E.C.

9.34	938	(939)	943	947	950	957	958
19 35 39.0	19 38 36.7	19 41 06.9	19 44 27.3	19 47 29.4	19 50 44.1	19 54 49.0	19 58 19.9
52.5	50.3	20.4	41.1	43.3	57.4	2.7	33.8
6.3	4.0	34.2	54.8	56.8	14.4	16.2	47.1
19.8	17.7	48.0	8.3	10.5	25.2	30.0	0.9
34.0	31.5	1.7	22.2	24.6	39.2	43.9	14.7
47.6	46.6	15.7	35.9	38.0	52.9	58.0	28.5
19 37 01.2	19 39 58.9	19 42 29.6	19 45 49.7	19 48 52.0	19 52 06.8	19 56 11.6	19 59 42.2
100.5	244.6	156.5	229.3	252.5	266.0	211.4	187.1
60.	120.	180.	180.	180.	60	.	180
140.5	124.6	336.5	49.3	72.5	206.0	211.4	7.1
19 36 20.07	19 39 17.80	19 41 45.07	19 45 8.47	19 48 10.64	19 51 25.79	19 55 20.20	19 59 1.01
+ .05	− .05	− .06	− .06	− .06	− .07	− .07	− .08

− 1 38.16 − 1 38.16 − 1 38.16 − 1 38.16 − 1 38.16 − 1 38.16 − 1 38.16 − 1 38.16

19 34 41.86 .88	19 37 39.59 .61	19 40 09.85 .87	19 43 30.25 .27	19 46 32.46 .44	19 49 47.84 .08	19 53 57.91 .99	19 57 22.77 .79
2.01	2.03	2.04	2.06	2.07	2.08	2.10	2.12
19 34 39.87	19 37 37.58	19 40 07.83	19 43 28.21	19 46 30.37	19 49 45.00	19 53 49.89	19 57 20.67
− 3.05	− 3.06	− 3.05	− 3.06	− 3.05	− 3.07	− 3.05	− 3.06
19 34 36.82	19 37 34.52	19 40 04.78	19 43 25.15	19 46 27.32	19 49 41.93	19 53 46.84	19 57 17.61

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1854phae.proj...178

(210)

Sept 12 1854 Ill. East Catalogue Stars

E.C.

	961	966	973	976	977	979	981
	20 06 07.5	20 10 50.7	20 14 17.2	20 18 15.6	20 22 08.7	20 27 10.2	20 31 49.2
	21.1	4.1	30.9	29.2	22.0	23.9	2.9
	34.4	18.0	44.6	42.9	35.9	37.6	16.7
	48.5	31.7	58.3	56.7	49.6	51.2	30.3
	2.2	45.7	12.0	10.3	3.6	5.3	43.9
	16.2	59.4	25.7	24.1	17.1	18.7	57.8
	20 07 30.0	20 12 13.2	20 16 39.7	20 19 38.1	20 23 31.0	20 28 32.7	20 33 11.7
	160.3	222.6	228.4	216.2	187.9	179.6	212.5
	180	180	180.	180.	180.	180	0.
	340.3	228.8	408.4	396.2	347.9	359.6	212.5
	20 06 48.61	20 11 31.83	20 14 58.34	20 18 56.70	20 22 49.70	20 27 51.57	20 32 30.36
	-.09	-.10	-.10	-.11	-.11	-.12	-.12

Table.

Cz.

Lei.

Lou.

L. Cou.

Sun.	-1 38.14	-1 38.14	-1 38.14	-1 38.14	-1 38.14	-1 38.14	-1 38.14
	20 5 10.38	20 9 53.59	20 13 20.10	20 17 18.45	20 21 11.45	20 26 13.11	20 30 52.10
Mb.9c.	∓2.15	∓2.17	∓2.16	∓2.19	∓2.21	∓2.23	∓2.24
	20 05 08.23	20 09 51.42	20 13 17.92	20 17 16.26	20 21 09.24	20 26 10.88	20 30 49.86
	-3.06	-3.05	-3.05	-3.05	-3.07	-3.06	-3.06
Mb.1852.0	20 05 05.17	20 09 48.37	20 13 14.87	20 17 13.21	20 21 06.17	20 26 07.82	20 30 46.80

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1854phae.proj...tif

Sept 12 Ill. East

E.C.

967 / 969

	α Cygni
20.. 34.. 18.2	20.. 37.. (9.3)
31.7	28.8
45.6	47.9
59.0	7.1
13.0	26.8
26.7	46.0
20.. 35.. 40.4	20.. 39.. 05.7
24.6	171.6
80.	120
104.6	171.6
20 34 59.23	20 38 7.37
− 13	−.11
	.00
	+.54
	−.07

− 1 38.16	20.. 38.. 07.84	
20 33 20.94 .96	20.. 36.. 29.28	
	+ 1.38.56	+1.89
+2.25	−.13	+1.53
20.. 33.. 18.71	+ 1.38.43	+1.91
−3.06	− 1.. 38.37	
20.. 33.. 15.65	−.13	
	20.. 36.. 29.34	

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1854phae.proj...178

899

Sept. 18

E.C.

916

Ill. West

(212.)

anto +1.91

		931	933	934	x Aquilae	943
h m s						
19 10 40.8	19 13 53.6 / 19 13 07.1	19 31 54.3	19 35 34.7	19 36 40.4	19 40 19.2	19 44 29.2
54.7	20.6	8.1	47.9	54.3	33.2	43.9
8.3	34.6	21.9	1.8	8.0	47.0	56.8
22.0	48.8	35.5	16.7	22.0	1.2	10.6
35.9	2.2	49.5	29.5	35.5	15.0	24.2
49.4	19 15 16.9	3.0	43.2	49.6	29.2	37.8
19 12 3.0	182.2	19 33 16.8	19 36 56.9	19 37 3.0	19 41 43.0	19 45 51.7
263.9	60	189.1	229.2	212.8	187.8	254.2
60	242.2	60.	120.	60.	180.	180.
153.9	19 14 34.60	249.1	109.2	152.8	7.80	74.2
19 11 21.98		19 32 35.59	19 36 15.60	19 36 21.83	19 41 1.11	19 45 10.60
Rate. - .02	- .02	- .04	- .05	- .05		- .06
Wt. - .04					- .03	
Lev. +2.7					+ .29	
Coll. - .01					- .01	
Gl. Corr. - 1 40.24						
Sy Corr - 1 40.06	- 1 40.06	- 1 40.06	- 1 40.06	- 1 40.06		- 1 40.06
19 9 41.91	19 12 34.06 .52	19 30 55.53 .49	19 34 35.53 .49	19 34 41.76 .72		19 43 30.52 .48
Att. C. ∓1.69		∓1.98	∓2.00	∓2.00	19 41 01.36	∓2.04
19 09 40.02		19 30 53.51	19 34 33.49	19 34 39.72	19 39 21.07	19 43 28.44
-3.06		-3.07	-3.05	-3.05	+ 1 40.29	- 3.06
cR 1853.0 19 09 36.96		19 30 50.44	19 34 30.44	19 34 36.67	+ 1 40.24	19 43 25.38
					+ 1 40.24 .33	
					+ 1 40.24	
					Block Corr. at 19 4	
					- 1 40.24	
					- .05	
					19 39 21.03	

Final Corr by Cat. Stars + 0.8 03

- 1.93

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1854phae.proj...178

a = −.06
b = +.35
c = −.01
} used in (213) red. of Cod. 8 stars

Sept. 13

Error of E.C. at 19h = +1m 40.28

E.C.

~~930~~	~~933~~	~~940~~	~~941~~	941	~~949~~	~~956~~	
947	940	957	958	(961)	966	973	
19h 47m 31.4	19h 49m 23.1	19h 50m 45.9	19h 54m 50.7	19h 58m 21.8	20h 06m 09.0	20h 10m 52.4	20h 14m 18.8
45.4	36.7	59.7	4.7	36.6	23.1	6.3	32.9
58.9	50.7	13.4	18.3	49.6	36.6	20.0	46.4
12.7	4.4	27.2	32.1	3.2	50.4	33.7	0.3
26.3	18.4	41.0	46.0	16.7	4.2	47.6	13.9
40.3	32.1	54.8	59.6	30.3	18.0	1.3	27.7
19h 48m 53.6		19h 52m 08.3	19h 56m 13.3	19h 59m 44.3	20h 07m 31.7	20h 12m 14.9	20h 16m 41.2
268.6	~~197.8~~ 174.5	250.3	254.7	201.4	173.0	176.2	181.2
180	~~60~~ 180	60	00	180	180	60	180
88.6	~~137.8~~ 154.5	190.3	224.7	21.4	353.0	~~redu~~	1.20
19h 48m 12.66	19h 49m ~~36.83~~ 50.63	19h 51m 27.19	19h 55m 32.1	19h 59m 03.06	20h 06m 50.40	20h 11m 33.74	20h 15m 0.7
−.06	−.06	−.09	−.07	−.08	−.09	−.09	−.10
	−.04						
	+.23						
	−.01						

−1 40.06	~~−1 40.06~~	−1 40.06	−1 40.06	−1 40.06	−1 40.06	−1 40.06	−1 40.06
19 46 ~~32.48~~ .54		19 49 ~~47.10~~ .06	19 53 ~~52.01~~ 51.97	19 57 ~~27.96~~ .92	20 5 10.~~27~~ .25	20 9 ~~53.61~~ .59	20 13 ~~20.48~~ .01
+2.06		+2.07	+2.09	+2.11	+2.14	+2.16	+2.17
19h 46m 30.48		19h 49m 44.99	19h 53m 49.88	19h 57m 20.81	20h 05m 08.11	20h 09m 57.43	20h 13m 17.84
−3.05		−3.07	−3.05	−3.06	−3.06	−3.05	−3.05
19h 46m 27.43		19h 49m 41.92	19h 53m 46.83	19h 57m 17.75	20h 05m 05.05	~~20h 09m~~ 20h 09m 48.38	20h 13m 14.79

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1854phae.proj...178

(214)

Sept. 13 Ill West

	976	(977)	979	981	987	α Cygni
	20 18 17.3	20 22 10.4	20 27 11.8	20 32 51.0	20 34 19.7	20 37 10.9
	31.0	24.2	25.8	4.9	35.5	30.7
	44.7	37.9	39.4	18.7	47.3	50.1
	58.5	61.7	53.4	32.3	1.2	9.7
	12.4	5.6	7.0	46.8	16.2	28.7
	25.9	19.0	20.8	59.6	28.9	47.9
	20 19 39.5	20 23 34.4	20 28 34.4	20 33 13.4	20 35 42.4	20 39 07.1
	229.3	181.4	192.6	226.7	187.8	184.6
	180.	180.	180.	0	180.	120
	409.3	361.4	372.6	226.7	7.80	64.6
	20 18 58.47	20 22 57.63	20 27 53.23	20 32 39	20 35 1.11	20 38 09.23
Stat.	-.10	-.11	-.11	-.12	-.12	20 36 29.18
Uz.						1 40 05.00
Lev.						+.40
Coll.						-.01
Aberr.						+.09
S. Corr.	-1 40.02	-1 40.02	-1 40.02	-1 40.02	-1 40.02	-.01
	20 17 18.35	20 21 11.50	20 26 13.10	20 30 52.25	20 33 20.97	
Ab. Ac.	∓2.16	∓2.20	∓2.22	∓2.23	∓2.24	20 38 09.71
	~~20 18 56.15~~	20 21 09.30	20 26 10.88	20 30 50.02	20 33 18.73	20 36 29.26
	20 17 16.17	-3.06	-3.06	-3.06	-3.06	+1 40.45
	-3.05					
	20 17 13.12	20 21 06.26	20 26 07.82	20 30 46.96	20 33 15.67	-1 40.24
	a R 1853.0					

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1854phae.proj...178

Sept. 15/16 A.M.

E.C.

α Orionis

20.7
34.7
48.4
2.0
~~7.8.4~~
30.0
5.49.43.7
196.8
180
16.8
2.4

W.C.B.

131.1
120.6
5)11.1
5.49.02.2
5.47.17.41
1.44.79

E.C.

ε Geminorum

57.1
12.7
27.6
43.0
58.3
13.2
6.37.28.6

W.C.B.

Ill. West

Sept. 16 P.M.

E.C.

β Librae

—
28.0
41.6
55.7
9.6
23.2
15.11.37.3

W.C.B.

E.C. set each before observing β' Scorpii

−19.24

E.C.

β' Scorpii

56.15.9
30.6
44.9
59.8
14.4
28.9
15.57.43.5
238.0
180
7)418.0
13.56.59.71
~~16.56.58.09~~
~~+.62~~
~~−1.94~~

W.C.B.

15.56.59.71
+.03
+.17
−.04
15.56.59.87
15.56.58.16
+1.71
+.37
+2.08
+1.80
+1.94
at 19.20 hrs m
−1.94
+.37
15.56.58.30

Septr 16^d 4 P.M. Set E.C. and reduced itf rate.
β Librae observed before setting E.C. and β' Scorpii after setting E.C.

~~+.37~~
~~+4~~

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1854phae.proj...178

used in Red. Cat. Stars.

a = +.03
b = +.33
c = −.04

(216) Error of E.C. at 19h +1m.94

Ill. West −16.31

Sept. 16 P.M. Rate +3s.0 +6.29

E.C. 938 Cat. 421	E.C. (939) Cat. 422	E.C. α Aquilæ
36 59.9	39..30.0	43..01.5
13.7	43.8	16.4
27.3	57.8	29.2
41.2	11.4	43.0
55.0	25.0	57.1
8.5	38.6	11.0
19..38..22.3	19..40..52.3	19 44..24.6
227.9	258.9	181.8
60	180	120
7)287.9	7)78.9	7)301.8
19 37 41.13	19 40 11.27	19 43 43.41
a +.02		+.02
b +.25		+.28
c −.04		−.04
d b −1.94		19..43..43.37
sum −1.71	−1.71	19..43..41.28
rate −.08	−.08	+1.89
19..37..39.34	19..40..09.48	−.09
M.S. ∓1.99	∓2.00	+1.80

Rate of E.C. altered after observing Sirius on the 18th.

19..37..37.35 19..40..07.48

α Leonis first observed after altering Rate of EC.

−2.06 −3.06 −1.94

19..37..34.29 19..40..04.42 −.09

19..43..41.34

Sept. 17/18

E.C. Sirius	17/18 E.C. α Leonis
38..03.6	52.2
18.2	6.5
32.5	20.5
46.9	34.6
1.2	48.7
16.5	2.4
6..39..29.8	10..01..16.8
147.7	181.7
180	60
D 327.7	241.7
6..38..46.81	10..00..34.53
~~38..43.70~~	10..00..35.83
~~+3.11~~	−1.30
+.03	
+.18	
−.04	
6..38..46.98	
6..38..43.64	
+3.34	

Rate of E.C. altered after observing Sirius. E.C. adopted

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1854phae.proj....178

1854 Sept. 18. Phila. M.T.

el.

	γ Aquilae	β Aquilae	α Aquilae	α² Capricorni	α Cygni
	19 38 37.7	27.7	58.2	15.8	29.3
	51.9	41.7	12.4	30.0	49.0
Phila.	5.8	55.5	26.2	44.2	8.4
	19.7	9.2	40.3	58.3	17.8
	33.5	23.0	54.2	12.4	47.2
	~~19 39~~ 47.6	36.8	7.9	26.4	6.3
	19 40 1.7	19 48 50.7	19 44 21.9	20 10 40.5	20 37 25.7
	197.9	244.6	221.1	327.6	193.7
	60	180	60	180	0
	7) 137.9	7) 64.6	7) 281.1	7) 407.6	7) 193.7
	19 39 19.70	19 48 9.23	19 43 40.16	20 9 58.23	20 36 27.67

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1854phae.proj...178

Sept. 19 P.M.
E.C.
a Ophiuchi

—

W.C.B. 41.00
56.1
9.2
23.2
37.4
17 28 51.2

Sept. 19/20
E.C.
Librae

—

—

W.C.B. 42.2
56.6
10.8
6 88 25.0

Sept. 20th P.M.
γ Draconis

EC. 17 52 5.4
2.27.8
2.49.9
W.C.B. 3.12.0
3.34.0
3.56.2
17.54.18.0
203.3
120
+ 83.3
17.53.17.90
+28

.13.67
EC +1.57

ν' Sagittarii

18 04 17.9
4 32.9
4 47.5
5 2.3
5 16.8
5 31.6
18.05.46.3
195.3
180
+ 15.3
18.05.02.19
−28

5 3.56
+1.87

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1854phae.proj...178

1854

Sept. 20/21 Ill West.

Sirius ✳ greatly disturbed

EC	Procyon	β Geminorum
6..37..59.3	7..30..57.6	7..35..50.8
8..13.8	1..11.0	6..6.3
8.28.0	1..25.1	6..22.0 mid
8.42.4	1..38.8	6..37.7
WCB 8.56.7	1.52.7	7..36..53.3
9.11.2	2..6.4	
6..39..25.6	7..32..20.2	
237.0	211.8	170.1
60	60	60
7|2 14.0	7|2 71.8	7|110.1
6..38..42.43	7..31.38.83	7..36..22.02
		+2
6..38..43.79	31..40.18	36..23.61
EC −1.36 Slow	EC −1.35	−1.34

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1854phae.proj...178

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1854. Sept. 24/25.

Sirius

EC 6.. 37.. 58.2
8..12.8
8..26.9
8..41.2
8..55.7
9..10.0
6..39..24.2
220.0
60
7)289.0
6..38..41.29
38..43.93
-2.64

Ill. West

Procyon

7..30..56.2
1..10.3
1..24.1
1..37.9
1..51.7
2..05.5
7..32..19.1
204.8
60.0
7)264.8
7..31..37.83
+05
7..31..37.88
40.30
-2.42

β Geminorum

7..35..34.0
5..49.8
6..05.3
6..20.9
6.36.6
6.52.2
7..37..07.6
206.4
-60
7)146.4
7..36..20.91
2
7..36..21.11
23.75
-2.64

Sept 23 - 9 P.M.

In adjusting the galvanic connections the pendulum of EC was touched -

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1854phae.proj...178

(1854)

Sept. 25. M. W.

		δ Cygni.			ε Pegasi.
E C		55.5			18.8
		11.6			33.0
M.		27.3		M.	46.8
		42.9			0,8
		58.8			14.6
		14.6			28.5
28	7	30.4	28	37	42.7
		240.8			185.2
		60			180
	7	300.8		7	5.2
28	6	42.97	28	37	0.74

comp. R	28	6	45.42	28	37	3.23
			- 2.45		- 2.49

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1854phae.proj...178

1854.

Sept. 27. M. W.

	Antares.	Moon I.	α Ophiuchi	γ Draconis
EC.	16 19 39.1	16 43 12.0	lost -	17 .. 52 .. 03.6
	54.6	27.9	17 .. 27 .. 38.9	2 .. 25.9
	9.9	43.3	52.8	2 .. 49.8
WC 13	25.0	WC 13 58.9	WC B 7.0	W.C.B 3 .. 12.0
	40.3	14.6	21.2	3 .. 31.9
	54.8	30.1	35.2	3 .. 54.0
	16 21 10.9	16 44 44.7	17 .. 28 .. 49.1	17 .. 55 .. 16.0
	235.5	231.5	229.2	189.2
	60	180	180	126
	7 175.5	7 411.5	49.2	7 63.2
	16 20 25.07	16 43 58.79	17 .. 28 .. 07.03	17 .. 53 .. 09.90 (25)
				17 .. 53 .. 10.15

20 .. 58.59

EC Slow 3.52

28 .. 10.42

− 3.39

53 .. 13.42

− 3.27

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1854phae.proj...178

1854

(224).

Ill. West

Sept. 28 P.M.

E.C. Moon's Limb		E.C. μ Sagittarii		E.C. δ Sagitt.	
	46.44.0		18.04.16.4		10.50.0
W.C.W.	00.2		31.3		6.0
	16.0	W.C.W.	46.0	W.C.W.	21.9
	32.0		00.8		37.8
	47.9		15.5		53.8
	4.0		30.2		9.45
17.48.	19.8	18.05.	44.8	18.12.	24.2
	15.9		15.0		208.1
	60		150.		60
)	223.9	)	5.0	)	268.1
17	47 31.99	18	5 0.71	18	11 3.59 7.3

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1854phae.proj...178

Sept 30th 1854 9h West

C. W. J observed τ Sagittarii

E C	E.C,	E.C.	E.C	E.C,	E.C.	E.C.
τ Sagittarii	γ Aquilæ	α Aquilæ	β Aquilæ	Moon's ☾ limb	a² Capric.	π Capric.
18 56 00.0	19 38 39.0	19 42 54.9	19 47 24.0	19 58 16.4	20 09 12.3	20 18 11.8
16.0	48.2	8.9	38.1	31.2	26.5	26.3
C.W.J 32.2	G.P.B 2.1	22.8	52.8	47.2	40.5	40.8
46.9	16.0	36.8	5.8	3.0	54.8	56.3
2.4	30.0	50.6	19.5	18.8	8.8	9.9
18.0	44.1	4.4	33.4	34.6	22.9	24.2
18 58 33.6	19 39 57.9	19 44 18.1	19 48 47.0	19 59 50.2	20 10 37.0	20 19 38.7
149.1	232.3	196.5	219.6	200.4	202.8	207.0
180.	120.	60	180.	180.	180.	180.
7) 329.1	7) 112.3	7) 256.5	7) 39.6	7) 20.4	7) 382.8	7) 387.0
18 57 47.01	19 39 16.04	19 43 36.64	19 48 5.66	19 59 2.91	20 9 54.69	20 18 55.29

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1854
Oct. 1/2 A.M.

E.C. δ Geminorum	E.C. α² Geminorum	E.C. Procyon	E.C. β Geminorum
		1st wire last	
7h 10m 34.8	24-2 7h 24m 23.2	7h 31m 7.0	7h 35m 30.9
49.8	39.7	20.8	46.8
W.C.B. 4.6	55.8	34.7	2.1
19.4	W.C.B. 12.0	W.C.B. 48.4	W.C.B. 17.8
34.3	28.3	2.3	33.6
49.1	44.5	7h 32 16.1	49.2
7h 12m 3.9	7h 26m 00.8		7h 37m 4.7
185.9	204.3		185.1
60	120		60
135.9	84.3		7)125.1
7h 11m 19.41	7h 25m 12.04		7h 36m 17.87
7h 11m 26.58	7h 25m 18.28		36m 24.00
6.17	6.24		6.13

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1854phae.proj...178

September 29

E.C. γ Draconis	E.C. μ' Sagittarii	δ Sagittarii	α Lyrae	β Lyrae	Alter pol β Lyrae	Moon's L limb
17 52 03.0	18 04 15.6	18 10 49.2	18 31 03.7	18 43 49.2	18 43 51.0	18 52 29.2
25.5	30.4	4.9	21.5	5.9	7.8	46.1
47.2	45.0	20.9	39.3	22.2	24.3	2.0
9.7	59.8	36.9	56.8	38.2	40.5	17.8
31.5	14.7	52.8	14.2	55.0	56.9	33.9
53.7	29.2	8.7	32.0	11.3	13.2	50.0
17 54 16.6	18 05 44.1	18 12 24.5	18 32 49.3	18 45 27.8	18 45 29.9	18 54 5.9
186.2	238.8	197.9	216.8	209.6		184.9
120.	180.	60.	180.	60.		60.
) 66.2	) 418.8	) 257.9	) 396.8	) 269.6		) 124.9
17 53 9.46	18 4 59.83	18 11 36.84	18 31 56.69	18 44 38.51		18 53 17.84

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1854phae.proj...178

Sept. 29
E.C.
τ Sagittarii

57.01.2
16.9
32.3
48.0
3.4
18.9
18, 58. 34.3
135.0
180.
7) 335.0
18 57 47.86

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1854phae.proj...178

1854) Oct. 2. M. T.

ε Capricorni		ε Pegasi		ι Aquarii		Moon I
	6.2		14.4		46.5	59.0
	21.0		28.6		0.8	14.2
	35.7		42.6		14.9	29.0
Wd.	50.3	Wd.	56.5	Wd.	29.2	44.1
	4.8		10.3		43.5	58.8
	19.5		24.3		57.5	13.7
21 29	34.2	21 37	38.0	21 59	14.7	22 3 28.5
	171.7		214.6		214.1	248.3
	180.		180.		0	60
	7) 351.7		7) 394.6		7) 214.1	7) 208.3
21 28	50.24	21 36	56.37	21 58	29.16	22 2 44.04

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1854phae.proj.17B

Oct. 2. cont.

o Aquarii			ζ Pegasi			Fomalhaut		
					~~24.4~~			
		8.9			24.4			43.0
		23.1			38.9			59.2
		37.2			52.8			15.2
ML		51.1	JHL		6.8	ML		31.2
		5.1			20.7			47.0
		19.2			34.6			2.7
22	23	33.2	22	34	48.6	22	50	19.0
		177.8			226.8			217.3
		180.			180.			0.
		7)357.8			7)46.8			7)217.3
22	22	51.11	22	34	6.69	22	49	31.04

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1854phae.proj....178

Ill. West

1864

Oct. 5/6

E.C. Procyon	E.C. β Geminiorum
—	27.7
—	43.7
16.7	59.0
31.9	14.8
45.4	30.4
59.3	46.2
7h 32m 13.3	7h 37m 1.6
	2234
	12.6
	163.4
	7h 36m 14.77
	7h 36m 24.10
	9.33

Oct. 7

E.C. a Lyrae	E.C. β Lyrae	E.C. companion
18h 30m 66.6	43m 41.8	44m —
14.4	58.4	00.3
N.6.13. 31.8	N.6.13. 14.8	16.7
49.5	31.3	32.9
7.0	47.9	49.7
24.7	4.2	6.0
18h 32m 42.2	18h 45m 20.6	18h 45m 22.3

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1854phae.proj...178

(232)

1854

Oct. 9/10 Ill.m West.

α Leonis

C - g. 59. 40.8
g. 55.1
0. g.1
0. 23.2
0. 37.2
0. 57.3
10. 01. 05.4
222.1
6e
7) 162.1
10. 00. 23.16

Altered the regulator of S.C after this transit without changing it was turning 2.5 and 3 part forward the rest 1/4 division. W.B. W.C.B.

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1854phae.proj...178

1854

~~Aug 16~~

α Herculis.

El. 17 ° 6.7
20.9
35.0
49.3
3.5
WB 17.7
31.8
164.9
180.
2 | 344.9
1 1 49.27

γ Draconis

17 57 55.4
17.6
39.6
1.9
23.9
WB. 45.0
7.9
192.3
180.
2 | 12.30
1 53 1.76

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1854phae.proj...178

1854 Oct 17/18. M. W.

α Leonis.			δ Leonis.			Moon II.			β Leonis.		
			10	5	2						43.9
			11	5	26.3	11	12	47.6	11	40	58.0
					41.3			1.9			58.6
					56.1			16.2			12.8
10	0	26.3			10.6			30.4			27.0
		40.4	WBB.		25.4	WBB.		44.7	WBB.		41.2
WBB.		54.4			40.4			58.8			55.7
10	1	8.4	10	6	55.0	10	14	13.1	11	42	9.8
					255.1			212.7			249.0
					180.			0.			60.
				7	75.1		7	212.7		7	189.0
			10	6	10.73			30.39	11	41	27.00
											8
									11	41	27.08

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(235)

1854
Oct. 19. P.M.

Ill. mean

α Lyrae.	β Lyrae.	δ Aquilae.
18 30 57.7		50.8
15.0		5.0
32.7	15.5	19.0
18 31 50.1	18 44 32.2	18 58 33.3
7.8	48.5	47.4
25.5	4.9	1.6
43.0	21.3	15.3
231.8		172.4
120.		60.
7)351.8		7)232.4
18 31 50.26		18 58 33.20
+18		1
18.31.50.44		18.58.33.30
32.0064		42.99
EC 9.64		9.69

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1854)

Oct. 21. M. W.

	a Ophiuchi			ν Draconis			a Lyrae		
		18.3			56.2			57.5	
WBB.		32.4	WBB.		18.8	ABB.		15.1	
		46.4			40.7			32.7	
17	28	0.5	17	53	2.9	18	31	50.4	
		14.6			24.9			8.0	
		28.7			46.9			25.4	
		42.7			9.0			42.9	
		183.6			199.4			232.0	
		180			180			120	
		3.6			19.4			352.0	
17	28	0.51	17	53	2.77	18	31	50.29	

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1854phae.proj...178

1854

Oct. 22/23. M.T.

α Leonis.

9	59	51.1
		5.2
		19.3
10	0	33.5
		47.6
		1.5
		15.7
		29.9
		60.
	7	233.9
10	0	33.41

α Ursae Majoris.

	3	32.7
	4	2.2
	4	32.1
10	55	1.9
	5	31.8
	6	1.1

52. 32.14

Polaris S.P.

A.	12	40	3.9
B		48	58.6
C		57	53.9
D	13	6	57.3
E		15	51.2
F		24	49.2
G		33	56.2
			327.3
			60.
	7		387.3
13	6	55.33	

Mid. wire –

+5 –	12.	59.	28.6
4	13	0.	56.7
Mids. 3		2	25.4
2		3	57.2
1		5	24.5
0	+ 13	6	57.3
+ 1		8	20.5
2		9	54.8
3		11	21.6
4		12	52.7
+5 –		14	19.4

9	59	45.1
		59.3
		13.4
10	0	27.5
		41.6
		55.4
		9.7
		252.0
		60.
	7	192.0
10	0	27.43
	2	
0		27.65
		36.61
		8.96

Polaris Computed int. of wires

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1854)

Oct 24.

Wire-Intervals, from Equatorial Stars.

Date.	A & D	B & D	C & D	D & E	D & F	D & G.
Sept. 16.	41.4	27.4	14.0	13.5	26.9	41.0
	41.5	28.6	13.0	14.0	27.4	41.0
	41.6	27.1	12.9	14.5	28.4	42.1
	41.5	28.6	13.7	13.5	27.2	41.2
	41.3	27.2	13.5	14.1	27.6	41.5
	41.1	27.4	13.5	13.8	27.5	41.3
Sept. 12	41.3	27.9	14.0	13.6	27.1	41.4
	41.6	27.6	14.0	13.7	27.0	41.3
	41.1	27.2	13.5	13.8	27.7	41.5
	40.9	27.4	13.6	14.1	27.7	41.3
	41.0	27.4	13.7	13.8	27.8	41.2
	41.1	27.6	13.8	13.7	27.7	41.6
	41.0	27.2	13.5	13.9	27.6	41.4
	41.1	27.2	13.7	14.0	27.5	41.5
	41.1	27.8	13.8	14.0	27.7	41.6
	41.0	27.3	13.8	13.9	28.0	41.6
	41.0	27.1	13.8	13.8	27.6	41.3
	41.0	27.4	13.7	13.7	27.7	41.5
	41.7	27.6	13.7	14.0	27.7	41.5
	41.1	27.4	13.7	13.7	27.4	41.4
	41.1	27.5	13.8	13.6	27.4	41.4
	40.9	27.6	13.7	14.0	27.5	41.4
	41.0	27.3	13.6	14.1	27.5	41.5
	41.1	27.4	13.6	13.6	27.5	41.4
	40.8	27.3	13.4	14.0	27.7	41.4
Sept. 13.	41.0	27.4	13.7	13.7	27.3	41.2
	41.3	27.6	13.7	13.9	27.5	41.1
	41.3	27.5	14.0	13.6	27.4	41.2
	41.2	27.5	13.8	13.9	27.8	41.5
	41.0	27.6	13.5	14.0	27.7	41.6

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1854phae.proj...178

Wire-Intervals from Equatorial Stars. continued.

Sept 3 continued.	41.3	27.6	13.8	13.8	27.3	41.4
	41.2	27.6	13.9	13.7	27.4	41.3
	40.9	27.4	13.6	13.9	27.4	41.5
	41.0	27.4	13.9	13.8	27.5	41.2
	41.0	27.3	13.8	13.8	27.5	41.3
	41.0	27.4	13.6	14.0	27.6	41.6
	41.1	27.3	13.5	13.6	27.4	41.3
Sept. 16.	41.1	27.3	13.8	13.9	27.5	41.3
	40.9	27.2	13.6	13.6 71	27.6 42	41.4 43
Adopted on Oct 24.	41.16 5	27.48 35	13.67 45	13.64 71	27.52	41.39
Mean to Sept wires	41.22	27.54	13.73	13.78	27.46	41.38
Mean to D.	$-0^s.063$					

Rejecting the obs. of Aug. 16, at which the wires were illuminated we get

Adopted to	$41^s.08$	$27^s.53$	$13^s.68$	$13^s.68$	$27^s.44$	$41^s.34$
Mean wires to	41.12	27.56	13.64	13.74	27.41	41.30
Mean to D	$-0^s.03$					

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1854phae.proj...17B

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1854phae.proj...178

1854 Oct. 24th M.T.

E.C. a Aquilae

19h 42m 50.2
4.1 3.9
18.1 4.0
31.9 3.8
45.8 3.9
59.7 3.9
19h 44m 13.5 3.6
223.3
0.
7) 223.3
19 43 31.90
Refr. .00
Dy. −.15
Lev. +.22
Coll. +.02
Y. corr.
S. corr.

E.C. ξ Aquilae

46m 21.0
35.2
48.9
2.8
16.7
30.5
19h 47m 44.4
199.5
180.
7) 19.5
19 47 2.79
.00

(242) − 8
Rate +0.20

E.C.

988 (11)
20h 40m 27.7
41.5 3.8
54.7 3.2
8.9 4.2
22.6 3.7
36.6 4.0
20h 41m 50.1 3.5
241.3
180.
7) 61.3
20 41 8.76
.00
−.16
+.20
+.02
+8.90
+8.96
20 41 17.72
Pr. M. Dr. −1.75
20h 41m 15.97
Cor. for Abn. Var. −3.05
M 1653.0
20h 41m 12.92

991
45h 44.6 1st W.
58.4 2d
46m 12.1 3d
115.0
82.47
197.47
3) 77.47
20h 46m 25.82
.00
+8.96
20 46 34.78
−1.77
20h 46m 33.01
−3.06
20h 46m 29.95

a = −.25
b = +.26
c = +.02
used in red. of Cat. Stars

996 (11)
52h 48.8
2.7 3.9
16.3 3.6
30.2 3.9
43.9 3.7
57.7 3.8
20h 54m 11.1 3.4
210.7
0.
7) 210.7
20 53 30.10
−.01
+8.96
20 53 39.05
−1.81
20h 53m 37.24
−3.06
20h 53m 34.18

1001 (11)
57h 03.4
17.2 3.8
30.9 3.7
44.8 3.9
58.6 3.8
12.3 3.7
20h 58m 26.0 3.7
192
20.
7) 212
20 57 44.74
−.01
+8.96
20 57 53.69
−1.83
20h 57m 51.86
−3.07
20h 57m 48.79

19h 43m 31.99
19h 43m 40.87
− 08.88
− 8.91
− 8.88
− 8.90
+ 8.90
19h 43m 40.89

Final Corr. By Cat. Stars 0.0

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1854phae.proj....178

Oct-

	1003	(1006)	1010	(1014)	(1016)	(1024)	(1029)
20	34.1	3..54.0	21..08..35.8	12..46.0	18..11.8	25..05.3	32..51.9
	48.1 4.0	4.9 3.9	49.8 4.0	00.0 4.0	25.8 4.0	19.2 3.9	5.9
	1.9 3.8	18.4 3.5	3.4 3.6	13.7 3.7	39.6 3.8	33.0 3.8	19.3
	15.7 3.8	32.3 3.9	17.2 3.8	27.5 3.8	53.2 3.6	46.7 3.7	33.2
	29.2 3.5	46.2 3.9	31.0 3.8	41.1 3.6	6.9 3.7	0.7 4.0	46.9
	43.1 3.9	59.9 3.7	44.8 3.8	54.9 3.8	20.7 3.8	14.2 3.5	0.7
	3.6	3.4	3.5	3.7	3.3	3.7	
21 00	56.7	21. 5..13.3	21. 9..58.3	21..14..8.6	21..19..34.0	21..26.27.9	21.34..14.3
	228.8	226.0	240.3	191.8	192.0	147.0	172.2
	120.	0.	120.	0.	180.	180.	60
	7)108.8	7)226.0	7)120.3	7)191.8	7)372.0	7)327.0	7)232.2
21	00 15.54	21 4 32.29	21 9 17.19	21 13 27.40	21 18 53.14	21 25 46.71	21 33 33.17
	−.01	−.01	−.01	−.01	−.01	−.01	−.01

	+ 8.96	+ 8.96	+ 8.96	+ 8.96	+ 8.96	+ 8.96	+ 8.96
21	00 24.49	21 4 41.21	21 9 26.14	21..13..26.35	21..19..2.09	21 25 55.66	21 33 42.12
	−1.46	−1.86	−1.89	−1.91	−1.94	−1.98	−2.02
21	00 22.65	21..04..39.38	21..09..24.25	21..13..34.44	21..19..00.15	21..25..53.68	21..33..40.10
	−3.06	−3.05	−3.06	−3.07	−3.06	−3.07	−3.06
21	00 19.59	21..04..36.38	21..09..21.19	21..13..31.37	21..18..57.09	21..25..50.61	21..33..37.04

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Oct. 24

Reg. & Exposure	ε Regas	(1031) 1013	(1033) 1015	1039	1042	(1049 1050) 15.6
21 36 06.82	12.1	38 38.0	42 16.0	46 25.9	49 36.9	29.5
20.2 4.0	26.0 3.9	52.0 4.0	30.0 4.0	38.6 3.7	50.7 3.8	58 43.1
39.2 4.0	39.9 3.9	5.6 3.6	43.9 3.9	62.3 3.7	4.3 3.6	57.0
48.0 3.8	53.9 4.0	19.3 3.7	57.8 3.9	6.1 3.8	18.2 3.9	10.8
2.0 4.0	7.9 4.0	33.0 3.7	11.6 3.8	20.0 3.9	31.8 3.6	24.6
16.0 4.0	21.8 3.9	46.9 3.9	25.0 3.4	33.8 3.8	45.7 3.9	38.0
37 30.0 4.0	37 35.7 3.9	20 40 0.6 3.7	21 43 38.9 3.6	21 47 47.3 3.5	21 50 57.4 3.7	
156.6	197.3	195.4	223.2	223.0	247.0	218.5
180.	180.	60	180.	180.	120.	180.
7 336.6	7 337.3	7 135.4	7 403.2	7 43.0	7 127.0	7 398.5
21 36 48.09	21 36 53.99	21 39 19.34	21 42 57.60	21 47 6.14	21 50 18.14	21 58 56.93
Refr. z = .01	.01	−.01	−.01	−.01	−.02	−.02
Az. a	−15					
" b	+.22					
Refl. c	+.02					
N. corr.						
S. corr.		+8.96	+8.96	+8.96	+8.96	+8.96
		21 39 28.29	21 43 6.55	21 47 [illegible]	21 50 27.08	21 59 5.87
Rr. clk. c.	21 36 53.99	−2.05	−2.07	15.09 −2.09	−2.10	−2.15
corr. for clk. Var.	21 36 62.89	−3.07	−3.07	−3.06	−3.07	−3.06
NR. 1863.0	− 8.90	21 39 23.17	21 43 01.41	21 47 09.94	21 50 21.91	21 59 00.66
	+ 8.90					
	21 37.0 2.89					

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1854phae.proj....178

5 Pegasi

(1053)		1055	1056	1057	(1059)	1060	1061	5 Pegasi
5.. 35.5		10.. 16.3	13.46.5	13.. 48.4	17.. 01.4	19.. 34.4	24.. 17.2	33.. 22.2
49.4	3.9	29.2 3.9	0.2 3.7	2.1 3.7	15.2 3.8	48.4 4.0	31.0 3.8	36.4
3.0	3.6	42.9 3.7	14.0 3.8	15.9 3.8	28.9 3.7	2.0 3.6	44.7 3.7	50.2
16.8	3.8	56.7 3.8	26.0 7.4	29.8 3.9	42.7 3.8	15.9 3.9	58.4 3.7	4.2
30.7	3.9	10.6 3.9	41.6	43.4 3.6	56.4 3.7	29.7 3.8	12.1 3.7	18.0
44.4	3.7	24.2 3.6	55.3 3.7	57.3 3.9	10.0 3.6	43.4 3.7	25.9 3.8	32.0
22.. 06.. 38.0	3.6	22.. 11.. 37.8 3.6	22.. 15.. 9.0 3.7	22.. 15.. 11.0 3.7	22.. 18.. 23.8 3.8	22.. 20.. 57.0 3.6	22.. 25.. 39.7 3.8	22.. 34.. 46.0
237.8		216.7	194.0	207.9	178.4	230.8	229.0	309.0
120.		180.	0	0	120.	120	180.	180.
117.8		396.7	194.0	207.9	298.4	110.8	409.0	129.0
22 06 16.83		22 10 56.6	22 14 29.71	22 14 29.70	22 17 42.63	22 20 15.83	22 24 58.43	22 34 44.14
— .02		— .02	— .02	— .02	— .02	— .02	— .02	— .02
								— .14
								+ .22
								+ .02
								22.. 34.. 04.24
								22.. 34.. 13.10
+ 8.96		+ 8.96	+ 8.96	+ 8.96	+ 8.96	+ 8.96	+ 8.96	— 8.86
22 6 25.77		22 11 5.61	22 14 36.65	22 14 38.64	22 17 51.57	22 20 24.78	22 25 7.37	+ 8.90
— 2.19		— 2.21	— 2.23	— 2.23	— 2.24	— 2.26	— 2.29	22.. 34.. 13.14
— 3.06		— 3.07	— 3.07	— 3.07	— 3.07	— 3.06	— 3.06	
22.. 06.. 20.52		22.. 11.. 00.33	22.. 14.. 31.35	22.. 14.. 33.34	22.. 17.. 46.26	22.. 20.. 19.46	22.. 25.. 02.02	

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1854phae.proj ..17

1854.

Oct. 24/25

Polaris S.P.

E.C.	12	40	03.7		
B		48	58.0	58.6	
N.C.13		57	56.6	N.C.13.	
D	13	06	57.0	54.4	
E		15	55.8	64.8	
F		24	47.5	51.7	
	13	33	53.8		
			326.4		
			60.		
			386.4		
	13	6	55.20		

Ill. west

γ Urs. Maj.

13	40	33.2	
		54.9	
		15.8	
13	41	37.6	
		58.8	
		20.2	
13	42	41.5	

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1854phae.proj...179

1857/ Oct. 25/26. Mt. East.

	α Leonis			β Leonis.			Polaris Sup.			γ Ursae Majoris		
W.W.		28.2	W.W.		45.9		12	39	56.8			33.5
		43.0 4.8			0.1		7	49	3.5			54.7
		57.7 4.7			14.6		E	58	2.3	58.8		16.1
11	6	12.4 4.7	11	41	28.7		D	13	0.3		13	42 37.4
		27.2 4.8			42.9		C	15	57.2	56.9		58.8
		41.9 4.7			56.9		B	24	55.1	57.9		20.1
		56.7 4.8			11.6		A	33	51.9			41.6
		269.1			200.7				227.1			262.2
		180.			0.				180			0.
		7) 89.1			7) 200.7				7) 47.1	40.1		7) 262.2
11	6	12.44	11	41	28.67				6 58.16		13	42 37.46

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1854phae.proj...170

Oct. 26

970(?)

991

Axis + 0°48'

996

1001

1003

a = −0.22
b = +0.22
c = ± .00
} used in red. of Cat. Stars

Ill. ~~Wed~~

(248) ~~Sat.~~

(1)

Cincinnati - Cincinnati

		44.30.1	20.46.26.2	52.49.4	57.4.0	59.34.7
		43.8	40.1	2.9	17.4	48.2
51.2	3.5	47.4	53.9	16.9	31.2	2.0
5.0	3.8	11.4	7.7	30.5	45.0	15.5
18.9	3.9	25.0		44.2	58.8	29.8
32.7	3.8	38.8		57.8	12.4	43.1
20.41.46.5	3.8	20.45.52.9	4.1	20.54.12.0	20.58.26.3	21.00.57.2
35.8		259.4	244.3	213.7	196.1	230.5
30.		180.	60	0.	120.	120
7)35.8		7)79.4	7)184.3	7)213.7	7)316.1	7)110.5
20 41 5.11		20 45 11.34	20 46 26.34	20 53 30.53	20 57 45.16 / 45.01	21 00 15.79
Rate	.00	.00	.00	.00	.00	.00
Aug.	− .15					
Lev.	+ .16					
Coll	.00					
M. Corr.	+ 8.48					
S. Corr.	+ 8.50	+ 8.50	+ 8.50	+ 8.50	+ 8.50	+ 8.50
Wt. M.	20 41 13.69	20 45 19.84	20 46 34.84	20 53 39.03	20 57 53.51	21 00 24.29
Pr. Ctl. Br.	− 1.72	− 1.74	− 1.74	− 1.78	− 1.80	− 1.82
Geo. Cen. Nor			− 3.06	− 3.06	− 3.07	− 3.06
MR 1853.0			20.46.30.04	20.53.34.19	20.57.48.64	21.00.19.41

Final Corr. by Cat. Stars + 0.03

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1854phae.proj...170

~~1010~~ ~~99x~~	(1014) ~~996~~	(1018) 1000	β Aquarii	~~1006~~ (1024) ~~1011~~	(1029) ~~1011~~ ~~prec. Kyani~~ : prec. Kyani.	
8.. 36.1	12.. 46.5	16.. 12.2	23.. 04.5	5.8	32.. 52.4	36.. 06.9
50.0	0.2	25.9	18.0	19.8	6.0	20.7
3.8	13.9	39.7	31.6	33.0	20.0	34.6
17.5	27.8	53.5	45.8	47.0	33.5	48.4
31.2	41.7	7.1	59.6	0.8	47.2	2.4
45.0	55.2	20.9	13.4	14.5	0.9	16.2
21.. 09.. 58.9	21.. 14.. 9.1	21.. 19.. 34.9	21.. 24.. 27.1	21.. 26.. 28.4	21.. 34.. 14.9	21.. 37.. 30.4
)242.5	194.4	194.2	20)140.0	148.3	174.9	159.6
120	.	180.	120.	180	60.	180.
7)122.5	7)194.4	7)374.2	7)320.0	7)328.3	7)234.9	7)339.6
21 9 17.50	21 13 27.77	21 18 53.46	21 23 45.71	21 25 46.90	21 33 33.56	21 36 48.51
.00	.00	.00	.00	.00	.00	.00
			-.17			
			+.15			
			.00			
			21.. 23.. 45.69			
			21.. 23.. 54.25			
			− 8.56			
+ 8.50	+ 8.50	+ 8.50		+ 8.50	+ 8.50	
21 9 26.~~85~~	21 13 36.~~35~~	21 19 ~~2.46~~	~~21 2~~	21 25 ~~53.48~~	21 33 42.~~74~~	
.00	.27	1.96		.40	.06	
−1.87	−1.89	−1.92	+ 8.48	−1.95	−1.99	
−3.06	−3.07	−3.06	21.. 23.. 54.17	−3.06	−3.06	
21.. 09.. 21.07	21.. 13.. 31.31	21.. 18.. 56.98		21.. 25.. 50.39	21.. 33.. 37.01	

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1854phae.proj...178

(220) East.

Oct. 26 Ill. West

	(1031)	(1033)	1039		1049
Regul					
12.6	38.6	42..16.6	46..26.3	48..49.8	16.1
26.4	52.1	30.5	39.0	3.4	29.9
40.3	6.0	44.3	52.7	17.4	43.7
54.2	19.6	58.1	6.6	30.9	57.2
8.1	33.5	11.9	20.4	44.6	11.1
22.0	47.2	25.3	33.9	58.3	24.6
21.. 37.. 35.9	21.. 40.. 0.9	21.. 43.. 39.3	21 47.. 47.9	21.. 50.. 12.2	21.. 59.. 38.6
199.5	197.9	226.0	228.8	216.6	221.2
180.	60.	180.	180.	180.	180.
) 379.5	) 137.9	) 406.0	) 45.8	) 216	) 401.2
21 36 54.21	21 39 19.70	21 42 58.00	21 47 6.54	21 49 30.94	21 58 57.31
.10	.00	.00	.00	.00	.00
− .13					
+ .19					
.00					
21..36.. 54.27					
21..36.. 62.86	+ 8.50	+ 8.50	+ 8.50	+ 8.50	+ 8.50
− 8.59	21 39 28.75 .20	21 43 6.56 .50	21 47 15.42 .04	21 49 39.57 .44	21 59 5.59 .81
− 8.56 Pz-Ub.Br.	− 2.02	− 2.04	− 2.06	− 2.07	− 2.12
− 8.25 Bs. for the star	− 3.07	− 3.07	− 3.06		− 3.06
− 8.46 Mr. 1863.0	21..39.. 23.11	21..43.. 01.39	21..47.. 09.92	21..49..	21..59.. 00.63
+ 8.48					
21.. 37..02 175					

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1854phae.proj...178

Oct. 26

(1053)	1055	1057	(1059)	1060	1061
5h 35.8	10h 16.8	13h 48.8	17h 1.9	19h 35.0	24h 17.5
49.7	29.6	2.5	16.4	48.7	31.3
3.4	43.3	16.3	29.1	2.5	44.9
17.2	57.1	30.0	42.9	16.0	58.8
31.0	10.8	43.6	56.6	30.0	12.6
44.6	24.5	57.3	10.3	43.6	26.2
22m 06s 58.6	22m 11s 38.2	22m 15s 11.3	22m 18s 24.2	22m 20s 57.5	22m 25s 40.1
240.3	219.2	209.8	180.4	233.3	231.4
120.	180.	0.	120.	120.	180.
7) 120.3	7) 399.2	7) 209.8	7) 300.4	7) 113.3	7) 411.4
22 6 17.19	22 10 57.03	22 14 29.97	22 17 42.91	22 20 16.19	22 24 58.77
−.01	−.11	−.01	−.01	−.01	−.01

+ 8.50	+ 8.50	+ 8.50	+ 8.50	+ 8.50	+ 8.50
22 6 25.68	22 11 5.52	22 14 38.46	22 17 51.40	22 20 24.68	22 25 7.26
−2.16	−2.19	−2.20	−2.22	−2.24	−2.26
−3.06	−3.07	−3.07	−3.07	−3.06	−3.06
22m 06s 20.46	22m 11s 00.26	22m 14s 33.19	22m 17s 46.11	22m 20s 19.38	22m 25s 01.94

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1854phae.proj...170

Oct. 26
E.C.
3 Pegasi

33..22.9
S. H. 36.9
50.9
4.7
18.6
32.6
22.. 34 .. 46.7

213.9
7) 33.3
22..34.. 04.76
-.13
+.19
00
22.34.. 04.82
22.. 34.. 13.08
- 8.26
+8.48
22.. 34.. 13.30

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1854phae_proj...179

1854.

Oct. 26th

α Lyrae.		β Lyrae		α Aquilæ	
Lost		18	43 23.9	19	42 50.6
"		44	00.2		43 04.3
EC	18 31 33.4	44	16.6		18.3
	50.9	44	33.0		32.1
WC13	8.)	WC13	44 49.5	WC13	46.1
	26.3	45	5.9		00.0
	32 43.9		45 22.3	19	42 14.0
			171.4		
			60		
			7)231.4		
			33.0		

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1854phae.proj..176

1854.

(254)

Oct. 26/27

Polaris S.P.

EC 12 " 39 " 57.2
" 49 " 04.8 53.2
" 57 " 58.0
WLB 13 " 06 " 57.5 55.7
" 15 " 53.2 58.0
B " 22 " 57.2
A 13 " 33 " 51.4

228° 3' 3"
180°
48° 33' 3" : 7
13h 6m 56s.14

Ill.n East

η Urs. maj.

13 " 10 " 33.4
1 " 52.4
1 " 16.3
WCB 1 " 37.4
1 " 59.1
2 " 20.2
13 " 42 " 42.0

Bluw. min

14 " 48 " 21.0
49 " 13.1
50 " 05.3
WLB 57 " 49.4
52 " 41.4
53 " 04.4

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1854phae.proj....178

1854 Ill: East

Octr 27th

	α Lyræ – Lost –		β Lyræ. – Lost –		γ Aquilæ		δ Aquilæ
E C	18.. 31.. 16.3		18.. 44.. 00.3		18.. 57.. 52.1		19.. 17.. 19.9
	31.. 33.8		44.. 16.9		58.. 06.2		17.. 33.8
J.H.S.	31.. 57.4	J.H.S.	44.. 33.3	J.H.S.	58.. 20.4	J.H.S.	17.. 47.2
	32.. 09.0		44.. 49.8		58.. 34.6		18.. 01.1
	32.. 26.4		45.. 06.1		58.. 48.9		18.. 14.9
	18.. 32.. 44.2		18.. 45.. 22.8		59.. 02.8		18.. 28.5
					18.. 59.. 17.0		19.. 18.. 42.3

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1854phae.proj...178

1852. Ill East

Oct. 27th

	☉'s 1st Limb.	α Aquilæ	c Sagittarii
EC.	1ʰ 38ᵐ 49ˢ.4	– lost –	1ʰ 52ᵐ 47ˢ.5
	39 05.1	– lost –	3 02.8
	39 21.2	– lost –	3 18.4
THS.	39 37.2	THS. – lost –	THS. 3 34.1
	39 53.0	1ʰ 43ᵐ 46ˢ.3	3 49.7
	40 8.9	44 00.2	4 5.0
	1ʰ 40ᵐ 24ˢ.9	1ʰ 44ᵐ 14ˢ.1	1ʰ 54ᵐ 20ˢ.0

1999
661
3)259.7
1ʰ 39ᵐ 39ˢ.9

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1854phae.proj....179

1854.
Oct. 28th.

Ill. East $a = -0.163$. $b = +0.220$ $c = +0.063$

α Cygni N 44°.45' D's 1st Limb S. 24°.		γ Capricorni S 20°28'61'	β Cygni N. 38°.2'
Ec. 20..35..21.7	20..42..43.9	20..55..15.4	20..59..39.6
40.8	2 54.3	30.1	" 57.0
60.2	3 14.7	44.6	" 14.5
19.8	3 30.4	59.3	" 31.8
39.2	3 45.9	14.0	" 49.2
58.4	4 01.2	28.6	" 07.1
20..36..17.9	20..44..17.0	56..43.4	
1980	2124.	2354.	(41,142 × sec d + 199.2) : 6
−1380		+1800	
		4154	
$20^h\,36^m\,19^s,77$	$20^h,43^m,30^s.34$	$20^h,55^m,59^s.34$	$21^h,00^m,14^s,49$

rate				
a	+ 01	− 16	− 15	− 01
b	+ 31	+ 10	+ 11	+ 28
c	+ 08	+ 07	+ 07	+ 08
u	h m s	h m s	h m s	h m s

S.

Obs R	$20^h\,36^m\,20^s,17$	$20^h\,55^m\,59^s.37$	$21^h\,00^m\,14^s.84$
	$20^h\,36^m\,28^s\,13$	$20^h\,56^m\,7\,37$	$21^h\,00\,22^s\,68$
	7.56	8	7,84

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1854phae.proj...178

(2378)

1854
Oct. 28 J. Ill. East

	61² Cygni N. 38. 2′	5 Cygni N 29°. 38′	ι Capricorni S 17°. 27′	β Aquarii S 6°. 13′
E C	20.. 59.. 41.0	21.. 05.. 49.1	21.. 13.. 17.7	21.. 23.. 04.8
	58.2	4.9	31.9	18.4
	15.8 mid.	20.7	46.2	32.3
	33.3	36.5	00.7	45.8
	50.7 last 5 vars.	52.3	15.2	59.8
	08.5	8.0	29.5	13.6
		21 .07 .23.9	21 .14 .44.0	21 .24 .27.6
(21.142 × sec δ + 207.5) : 6		1954	1852	2023
		+ 60	− 180	+ 120
		2554.7	52.7	3223 : 7
	21ʰ, 00ᵐ, 15ˢ, 87	21ʰ, 6ᵐ, 36ˢ. 49	21ʰ, 14ᵐ, 00ˢ, 74	21ʰ, 23ᵐ. 46ˢ, 04
r.				
a.	− 00	− .05	− 14	− .12
b.	+ 30	+ .28	+ 12	+ 16
c.	+ 08	+ .07	+ 06	+ 06
u.				
S	21ʰ „ 1ᵐ „ 16ˢ, 25	21ʰ „ 6ᵐ „ 36ˢ, 77	21ʰ „ 14ᵐ „ 00ˢ, 78	21ʰ „ 23ᵐ „ 46ˢ, 14
		21ʰ „ 6ᵐ „ 44 82	21 14ᵐ 8 77	21 „ 23 „ 54 17
		D 8 05		D 8, 03

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1854phae.proj....179

1854. Ill. East

Oct. 28^{d}

ε Pegasi N. 9° 13'.

SC 21.. 36.. 12.9
26.8
40.8
54.5
8.5
.22.2
21 37) .36.5
202,2
+ 180
3822.7
21^{h}, 36^{m}, 54^{s}.60

r —.04
a —.09
b +.19
c +.06
w
s

21^{h} .. 36^{m} .. 54,76
21^{h} 37^{m} .. 2^{s},80
8.04

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1854phae.proj...178

Wire Intervals from Obs. Oct 24. 26.

	A	B	C	D	E	F	G
			to	D.			
Oct 24th	41.2	27.7	13.7	14.2	27.4	41.2	
	40.9	.5	.7	13.9	.5	.4	
	41.2	.5	.8	.9	.6	.4	
	.0	.4	.5	.8	.6	.6	
	.0	.6	.9	.9	.4	.3	
	.1	.6	.8	.8	.4	.4	
	41.1	.4	.6	.8	.5	.5	
	40.8	.5	13.7	.6	.4	.4	
	41.2	.5	14.0	.7	.5	.4	
	41.1 6	27.5 52	13.7 74	13.9 85	27.3 46	41.3 39	
	41.3	27.6	13.7	13.7	27.3	41.3	
	.1	.2	.8	.9	.8	.8	
	.2	.7	.9	.8	.5	.2	
	.2	.5	.6	.9	.5	.3	
	.2	.6	.9	.8	.4	.3	
	.1	.5	.9	.8	.5	.4	
	2	.5	.6	.9	.7	.4	
	.1	.3	.7	.8	.5	.3	
	.1	.5	.8	.9	.5	.5	
	41.3 18	27.5 49	13.7 76	13.7 82	27.4 51	41.2 37	
	41.12	27.505	13.75	-13.835	-27.485	-41.38	

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1854phae.proj...170

	A.	B.	L.	E.	F.	G.
Oct. 26.	41.3	27.6	14.0	13.6	27.4	41.5
	41.1	27.6	13.6	13.7	27.3	41.5
	.0	.6	.8	.8	.4	.3
	40.8	27.3	13.5	14.3	.6	.7
	41.4	.5	.7	13.7	.5	.4
	.3	.6	.9	.9	.4	.2
	.3	.6	.8	.6	.4	.4
	.2	.2	14.0	.8	.5	.4
	.1	.5	13.5	.7	.4	.4
	41.0 15	27.5 50	13.6 74	13.9 80	27.6 45	41.3 42
	41.5	27.6	13.8	13.8	27.2	41.2
	.7	.6	.9	.8	.3	.3
	.1	.5	.5	.7	.4	.3
	.1	.3	.5	.9	.4	.4
	.4	.5	.8	.8	.4	.4
	.3	.6	.8	.7	.4	.1
	.2	.5	.7	.6	.3	.3
	.0	.5	.8	13.7	.4	.3
	.0	.3	.5	14.0	.6	.5
	41.3 22	27.5 49	13.9 72	13.8 78	27.4 38	41.3 31
	41.185	27.495	13.730	−13.790	−27.415	−41.365
Adopted D.	41.15	27.50	13.74	−13.81	−27.45	−41.37
Mean to D	−0.034					
Mean to A. etc	41.19	−27.53	−13.77	+13.78	+27.42	+41.34

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1854phae.proj...178

Intervals of the Transit-Circle wires, from obs. of Catalogue Equatorial Stars.

From 73 obs.

Sept	12.	19
	13	12
	16	2
Oct	24	20
	26	20.

We find, for 0° dec —

A to D	41^s.12	Mean to A	+ 41.15
B "	27.56	B	+ 27.54
C "	13.69	C	+ 13.71
D to E	13.75	D	+ 0.02 = +0^s.09=+0^s.029
" " F	27.45	E	- 13.72
" " G.	41.30	F	- 27.42
		G	- 41.33

A is the first wire, M. E., above pole.

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1854phae.proj...178

log 41.15 = 1.6143698
log 27.54 = 1.4399639
log 13.71 = 1.1370375
log 0.03 = 4771213
log 13.72 = 1,1373541
log 27.42 = 1.4380675
log 41,33 = 1.6162654

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1854phae.proj...178

1854

(264)

Oct. 31/32.

Ill. East

	α Hydrae.	A Ursæ maj.	α Leonis	α Ursæ maj.
Ec	9 .. 19 .. 36.8	lost ~~~~	9 .. 59 .. 46.8	10 .. 53 .. 04.4
	9 . 50.5	" ~~~~	0 . 00.5 3.7	3 .. 34.1
WCB	20 . 4.3	WCB " ~~~~	WCB. 0 . 14.8 4.3	4 .. 03.6
	0 .. 18.1	" ~~~~	0 . 28.9 4.1	4 .. 33.5
	0 . 32.1	9 . 23 . 20.4	0 . 43.0 4.1	5 .. 03.6
	0 .. 45.9	9 .. 23 .. 42.7	0 . 56.9 3.9	5 .. 33.0
	9 .. 21 .. 00.0	9 .. 24 .. 05.7	10 .. 01 .. 11.3 4.4	10 .. 56 .. 03.4
	1877		2022.7	1151
	7/1277			120. / 235.1
	9 .. 20 .. 18.24		9 h, 0 m, 28,89	10 .. 54 .. 33.59
	+ 15			
	9 20 1834			
	20 26.03			
	SC −7.64			

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1854phae.proj...170

1854

Oct. 31/32 Ill. East

δ Leonis

Σ c — 11 .. 05 .. 29.2

5	43.9	4.7
5	58.5	4.6
6	13.4	4.9
6	28.2	4.8
6	42.4 ? wrong	4.2
11 .. 6 ..	57.6	5.2

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1854phae.proj...176

1854

Nov. 2

Ill East.

	α Cassiopeæ	☽'s 1st Limb	ε Piscium
E 6	0 .. 30 .. 57.5	lost ———	0 .. 54 .. 36.1
	1 21.5	" ———	4 .. 49.8
	1 46.0	" ———	5 .. 3.6
I.H.S.	2 10.4	I.H.S. " ———	I.H.S. 5 .. 17.4
	2 34.9	1 .. 14 .. 05.4	5 .. 31.3
	2 59.5	19.6	5 .. 45.2
	0 .. 33 .. 23.8	1 .. 14 .. 33.9	0 .. 5 .. 59.1
	253.6		242.5
	−240		120
	13		122.5
	0 .. 32 .. 10.51		$0^h, 5^m, 17^s.5$

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1854phae.proj...178

1854.

Ill. East.

Sat. 4h

Stars excessively unsteady - great change of temperature.

	ζ Pegasi		Fomalhaut.		α Andromeda		ι Piscium.	
ℰ	22 .. 33 .. 23.9		22 .. 48 .. 43.0		0 .. 00 .. 00.3		23 .. 31 .. 40.9	
	" 38.4	4.5	8 .59.1		" 15.6		" 54.8	3.9
	" 52.7	4.3	9 .15.2		" 30.1		32 08.8	4.0
P.S.C.	34 6.4	3.9	P.S.C. 9 .30.8		P.S.C. " 46.7		P.S.C. " 22.3	3.5
	" 20.3	3.9	9 .46.8		1 2.3		" 36.3	4.0
	" 34.2	3.9	10 .02.9		1 17.8		" 49.8	3.5
	22 .. 34 .. 48.3	4.1	22 .10 .. 18.8		0 .. 01 .. 33.6		23 .. 33 .. 03.8	4.0
	2242		2166:7		1464		216.7	
	180				180		60	
	442:7				3264:7		1561:7	
	$2^h, 34^m, 6^s.31$		$22^h, 48^m, 30^s.94$		$0^h, 00^m 46^s,63$		$23^h, 32^m, 22^s,39$	

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1854

Nov. 4th —

	γ Pegasi	α Cassiopeæ.	β Ceti	Polaris.	
E C —	0.. 05.. 24.8	0.. 30.. 58.1	0.. 35.. 28.8	0.. 38.. 48.7	A
	39.2	1.. 21.8	" .. 42.9	48.. 36.3	B
	" 53.4	1.. 46.7	" .. 57.6	57.. 35.2	C
P.S.6.	6 07.5	2.. 11.2	36 .. 12.0	1.. 06.. 33.0	D
	" 21.8	2 .. 35.6	" .. 26.5	1 15.. 43.7	E
	2 first wires lost	2 .. 59.9	" .. 41.0	1 24.. 38.1	F
		0 .. 33 .. 24.9	0 .. 36 .. 55.7	1 .33.. 52.6	G
	1467	2582	2645	1h 06m 31s.09	
		−1800	180		
		8.2	845		
		0h " 2m " 11s,17	0h " 36m " 12s,08	1h . 06m . 31s.09	

58.9
57.8
54.4

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1854-

Nov. 7 — Ill East.

Polaris 88° 32' 15"

$a = -0.163$ $b = +0.220$ $c = +0.063$

α Arietis N. 122° 47'

ℒC	0^h " 39^m " $37^s.9$		
	" " 48^m " $39^s, 8$	55.1	
	" " 57^m " $31^s, 9$	59.1	
P.H.S.	1^h, 06^m " $34^s, 0$		
	15^m " $33^s, 2$	56,6	
	24^m " $29^s, 8$		
	33^m " $38^s, 4$		
	7)248.0		

1^h, 06^m, $35^s.43$

	1^h, 58^m, $9^s.9$	
	" $24^s.9$	5.0
	" 39.9	5.0
P.S.C.	" 54.7	4.8
	59 9.6	4.9
	" 24.3	4.7
	" 39.4	5.1
	202.7	
	180	
	382.7	

1^h, 58^m, $54^s.67$

r

a — −.07

b — +.23

c — +.07

u

S

R

1^h, 58^m " $54^s, 90$

1^h, 59^m " $00^s, 12$

+ $5^s, 22$

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1854 Nov. 9/10 Ill. East.

α Leonis

Σ C − 9.. 59.. 48.7

0 2.8

0 16.8

0 31.0

0 45.1

0 58.8

10 − 01 .. 13.1

7/2163

10 00 .. 30.90 $10^h\ 00^m,\ 30^s.90$

+22 +16

10 00 31.12 $10^h\ 00^m\ 31\ 06$

37.03 $10^h\ 00\ 37^s\ 03$

−5.91 5 57

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1854phae.proj...179

Nov 8 Ill. East.

	α Aquarii D = S. 1°, 1′	ζ Pegasi D = N 10°, 5′	Formalhaut. D S 30° 24′
	21h 57m 32s.9	22h 33m 26s.0	22h 48m 44s.6
	46.5	40.0	49m 0s.2
	58 0.1	53.9	16.3
	14.1	34. 7.9	32.2
	27.8	21.8	48.2
	41.5	35.8	4.1
	55.5	50.0	20.1
	218.4	235.4	165.7
	− 120	− 180	+ 60
	98.4	55.4	225.7
	21h, 58m, 14s.06	22h, 34m, 7s.91	22h, 49m, 32s.26
r		+ .95	− 0.39
a	+ 10	− 09	+ 18
b	+ 16	+ 19	+ 08
a	+ 06	+ 06	+ 07
us			
	21h 58m 14s, 38	22h 34m 8s, 07	22h 49m 32s, 59
	21h 58m 18s 90	22h 34 13s.89	22 49 37 02
	+ 4.32	+ 4, 82	4, 43

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Nov 8. 1854 — Sth East.

Del. N. 14°,26

α Pegasi (Markab)		ι Piscium D = N. 4°,49′		γ de la Baleine	
22h	56m 44s,0	23h	31m 42s.6	23h	55m 30s.1
	" " 58,1		" " 56.2		" 44s,1
	57 " 12.3		32 " 10.1		" " 58,8
PSC	" " 26,5	PSC	" " 23.8	PSC	56 " 13,4
	" " 40,7		" " 37.9		" " " 27,8
	" " 54,8		" " 51,3		
	58 " 9,2		33 " 5,4		56.8
	245.5		227,3		
	− 60		− 60		
	185,5		167,3		
	22h 57m 26s,50		23h 32m 23.91		
r.	+ 43		+ 01		
a.	− 08		− 10		
b.	+ 19		+ 17		
c.	+ 06		+ 06		
u.					
S.	22h 57m 26s 67		23h 32m 24s 04		
R	22h 57m 31s 57		23h 32m 28s 95		
	+ 4s 90		4s 91		

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1854phae.proj...278

Nov 8 1854. Sth. East.

α Andromedae N 28°,17′ α Cassiopeiae D - N. 55° 43′ Polaris 88°,32′,15″

	0h „ 00m „ 01ˢ.5		0h „ 30m „ 59ˢ,3	A.	39 41.2
	„ „ 16, 9		31 „ 23ˢ. 9		0h „ 48m „ 36ˢ,5
	„ „ 32, 6		31 „ 48, 0		57 „ 38ˢ.3
PSC.	„ 48, 13	PSC	32 „ 12, 5	PSC	6 „ 35.0
	1. „ 3, 8		„ „ 37, 0		15 „ 36.4
	„ „ 19, 6		33 „ 1, 2		24 „ 33,3
	1 „ 35, 2		„ „ 25, 9	g.	33 40.5
	157, 9		207, 8		−41,15 + 41,33 = −0.18
	+ 180		− 120		δ = 88°, 32′ sec 7) 264.1
	336.8		87, 8		1.h 6.m 37.30
	00h, 0m, 48ˢ,26		0h, 32m „ 12ˢ,54		
r	− 08.		+ 16		
a	− 05		− 07		
b	+ 24.		+ 38		
c	+ 07.		+ 11		
u					
S.	00h, 0m, 48ˢ. 56		0h „ 32m „ 12ˢ, 96		
	00h „ 0m, 53 39		0h „ 32m „ 18ˢ 05		
	4 „ 83		5ˢ, 09		

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Nov 8 Ill. East.

α Arietis N 22°,47'

h	m	s
11	58	10.2
"		25.1
"		40.0
"		54.9 PSC
59		9.9
"		24.8
"		39.9
		204.8
		+ 130
		384,8 : 7
1	58	54.97

r — 1.9
a. — 07
b + 23
c + 07
u.
S.

1	58	55.20
1	59	00.12
		4.92

Nov 8/9 Polaris. S. P. 88°,32'15"

	h	m	s	
	12	49	55.1	58.3
		58	53.4	
		07	58.2	58.8
PSC		16	57.0	62.9
		25	59.1	
		34	52.9	
			388.0	
	1	07	56.86	

r.
a.
b
c.
u.
S.

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Nov 9 Illumination East.

10

α Leonis N. 12°.41'

9h 59m 49v.9

10h 0 " 4,2

" " 18,2

WCB. " " 32,2

" " 46,3

1 " 0,2

" " 14,7

165,7

+ 60

225,7

10h " 0m " 32v,24

r. — .18

a — 09

b + 19

c + 06

w.

S.

10h 0m " 32v,40

10h " 0m " 37v.14

4v,74

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Nov $\frac{12}{13}$ Illum. East. a = −.163 b = +0.220 c = +0.063

	ρ Leonis D = N 10.3	Moon's II Limb N 13°44,35"	δ Leonis D = N 21°19'
	10h 24m 22s.7	10h 50m 46s.6	11h 5m 33s.7
	" 36.7	52 " 0.8	" " 47,8
	" 50.9	52 " 14.9	6 " 2,8
W.C.B	25 4.6	W.C.B " " 29,3	W.C.B — — — —
	" 18,5	" " 43.9	— — — — —
	" 32.5	" " 58.0	— — — — — —
	" 46,7	53,12.7	7m " 2s.2
	212,6	206.2:7	86,5
	− 180		Sec 21.°19 = 0.03078
	32;6:7		log − 41.11 = 1.61395
	10h " 25m " 4s.66	10h " 52m " 29s.46	130.63 1.64473
			130.63
			− 60
			70.63:4
			11h " 6m " 17s.66

r			
a	− 09	− 08	− 07
b	+ 19	+ 19	+ 22
c	+ 06	+ 06	+ 07
u			
S.	10h " 25m " 4s.82	10h " 52m " 29s,63	11h " 6m " 17s,88
R	10h " 25m " 8s,82	10h " 52m " 35s,36	11h " 6m " 21 68
	− 4s 00	5s.73	− 3s,80

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Nov. 17 Ill. East. $a = -0.163$ $b = +0.220$ $c = +0.063$

ζ Aquilæ D. = N. 13° 39′.

18h " 58m " 10v,4
" " 24v,4
P. S. C. " " 38v,4
" " 52v,7
59m " 06v,9
" 21v,2

154v,0

sec 13° 39′ = 0.01244
log 41° 15 = 1,614~~37~~

42.34 1,62681

42,34
111.66
+ 120
231,66:6

18h " 58m " 38v.61.

r — 08
a + 13
b + 06
c 18h 58m, 38v.72
u
S
R 18h, 58m 42,74
— 4v,02

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Nov. 19/20 M. T. Nov 20 1854

E.C.

δ Leonis

11 5.. 36.4
51.1
W.C.B. 5.8
20.4
35.2
49.9
11.. 7.. 4.9
203.7
60
143.7
11.. 6.. 20.53
11. 6. 21.87
1.34

γ Pegasi. Algenib.

24h 5m 2s,1
" 16,1
" 30,4
THS. " 44.5
" 58,7
6 13,1
" 27,3
192s.2
+ 120
3m 12s,2 :7
0h 5m 44s.60
0h 5m 45,74
1s,1

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Nov. 20/21 1854. M.E.

Polaris S.S.

Worthless.

Nov. 23d. 1854

α Ursæ Majoris

10h	5	3
		13, 2
		43, 1
		12, 8
		42, 4 PSC
		12, 2
		42, 2
		12, 3
		178, 2
		+ 120
		298, 2 :7

10h 54m 42s, 66

10 54 43s. 29

— 0s, 53

δ Leonis

11h	5	37, 8
		52. 6
		7, 1
		21, 8 PSC
		36, 7
		51, 4
		6, 2
		213. 6
		— 60
		153, 6 :7

11h 6m 21s, 94

11 6 22, 03

— 0s, 9

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Nov 23, 1854 M. E.

β Leonis

12h 40m 55,2
9,5
23,8
38,8 PSC
52,3
6,3
20,9
2060
+ 60
2660.07

12h 40m 38,00
12 40m 37,97
+ 0,03

α Polaris S.P.

lost 39 48.5
lost 48 57.0
lost 57 55.5

13 6 54.7 P.S.C. 61.2
C 15 55,9 58.1
B 24 54.0
A 33 52.5

13h 41m 37,1

328.1
to
7) 388.1

For Moon culmination see page under heading Augt 4th 1854

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1854 Nov. 25.

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α Lyrae ——

Ill East

Ill West.

h m s

~~18 31 33~~

~~30.7~~

~~48.1~~

~~0.0~~

18 7.3

24.7

Ind. 42.1

0.2

17.8

35.1

18 32 52.9

) 180.1

180

) 0.1

18 32 0.07

Fr. Circ. y Aquilae.

39.0

52.9

West 6.9

20.8

34.8

48.8

18 40 2.8

206.0

180

) 146.0

18 39 20.86

18 39 19.80

.96

West Transit

W. Transit. α Aquilae

18 42 59.1

10.5

43 9.6

12.2 2.6

14.8 2.6

17.3 2.5

19.8 2.5

5.3

43 25.1

27.6 2.5

30.2 2.6

32.7 2.5

34.8 2.1

5.3

43 40.1

42.6 2.5

45.2 2.6

48.0 2.8

50.3 2.3

4.8

43 55.1

57.9 2.7

44 0.5 2.9

3.0 2.5

5.6 2.6

4.9

44 10.5

13.0 2.5

15.8 2.8

18.1 2.3

20.8 2.7

10.2

18 44 31.0

18 43 45.20

18 43 48.43

+4.77

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West Transit

Nov $\frac{26}{27}$ 1854

	w. transit Polaris S. P.		β Ursæ Min.
	lost		lost.
12	46″ 35.3		14h 48m 42.9
	48″ 16.4	41.1	52.5
	50″ 2.1	45 7	2.0
	51″ 45.2	43 1	12.1
	53″ 23.3	38 1	21.4
			49 40.7
	56m 40.0		49 50.1
	58m 17.2		59.5
	59m 58.8		9.4
	1m 32.5		19.4
	3m 9.8		
	lost		50 37.5
	8m 7.1		47.6
	9″ 45 7		56.7
	11″ 22.8		6.5
	13″ 8.1		16.3
	lost.		51 35.1
	17m 56.9		44.8
	19m 41.9		53.8
	21 18.4		3.8
	22 57.1		13 0
	~~lost~~		
	26m 17.3		52″ 32.1
	27″ 55.9		41.4
	29″ 35.6		51.6
	31″ 11.4		1.2
	32″ 55 0		11.7
	39m 31.8		53 50.0

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1854phae.proj...17B

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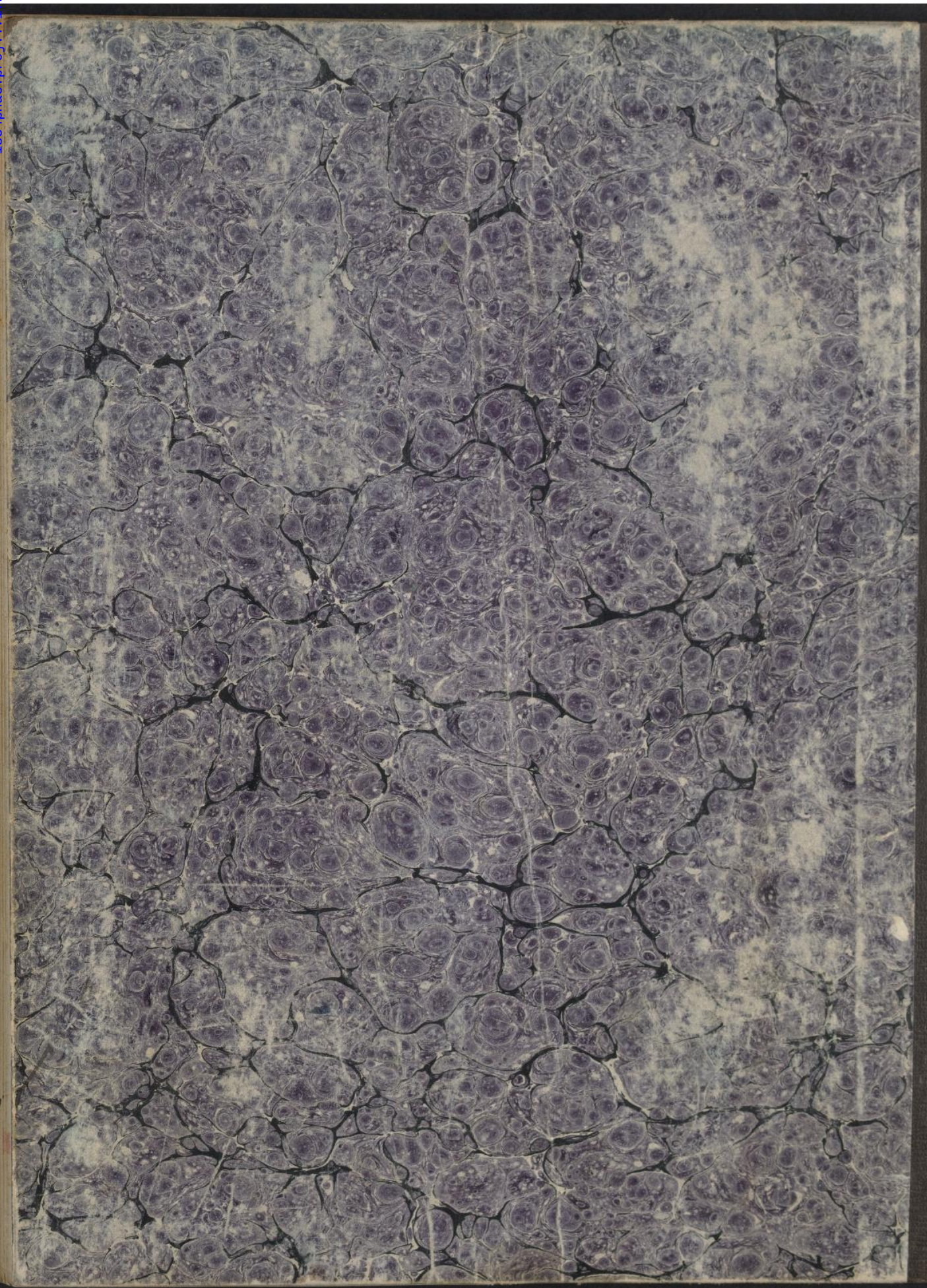
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1854phae..proj...1B



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