KG
11366
v.443

Fundamental Stars
Observations and Reduction
Final values
B5 1872 — 1873
from $13^h\ 18^m$ to $22^h\ 49^m$

1872pnae.proj...1447.

1872phae.proj.1447.

α Virginis α= 13h 18m 24s κ=−.016 δ= −10° 29′ tan δ = −.17 1.02 sin z +.81 ~~tan δ = .19~~

	n ☊	T′5		T_m	T_m+κ	R.A.	T_m − R.A. ΔLP T−R.A. −(ρL+P)	ΔT_{t+m}	wind c seed	dt/dt			
	n	m s	m	s	s						h	m	s
1872 June	11−.20	17 55.6	18	14.16	14.15			+14.00	++.03 ~~+.08~~	~~−.66~~ 94	13	18	27.~~52~~ 24
May	29−.27−.08	17 48.3	18	9.11	9.09			+22.41	+.04 ~~+.10~~ .08	−1.17			30.29
	31−.09−.10	17 45.5	18	9.72	9.70			+21.84	+.02 ~~+.07~~ −.10	−1.16			30.40
June	2−.26−.07	17 50.5	18	10.16	10.14			+21.43	+.04 −.07	−1.15			30.39
	5−.37	17 51.8	18	11.23	11.21			+20.21	+.06	−1.15			30.33
	10−.31	17 54.9	18	13.29	13.27			+18.04	+.05	−1.10			30.26
	11−.34	17 56.8	18	13.83	13.81			+17.60	+.06	−1.09			30.38
	12−.35	18 0.7	18	14.22	14.20			+17.12	+.06	−1.09			30.29
	15−.30	17 59.8	18	15.49	15.47			+15.87	+.05	−1.06			30.33
	17−.37	18 0.6	18	16.54	16.52			+14.82	+.06	−1.03			30.37
73 June	1−.20−.07	17 48.0	18	9.92	9.89			+21.60	+.03 ~~+~~.07	−1.16			30.29
'72 Aug	1−.27	~~13 27.142 A~~	18	34.64	34.62	18 27.61 A		−7.03	+.04	−0.47			27.16
	4−.17		18	42.04	42.02	27.57 A		−14.44	+.03	−0.43			27.18
	6−.24		18	47.09	47.07	27.55 A		−19.63	+.04	−0.40			27.08
	~~9~~		~~18~~	~~55.46~~	~~55.38~~								
~~morn. Dec.~~	18		~~18~~	~~7.42~~									
										1872.6	13	18	27.165 (4)
										1873.4		18	30.333 (10)

1872 23 45.099 69 H Urs. Maj. 13h 24m κ=−.031 +60° 37′ tan δ = +1.78 2.04 sin z −.31

	n	T′5		T_m	T_m+κ	R.A.	T_m − R.A. ΔLP T−R.A. −(ρL+P)	ΔT		dt/dt				
1872 Jan	1 +.42−.05		23	19.44	19.41	23 43.99	−24.58 −.04 −24.54	+23.92	+.75 −.10	+1.11	13	24	45.09	
June	18−.20		23	33.20	33.17	46.70	−13.53 −13.49	+13.90	−.36 ~~−.16~~	−1.60			45.11	
73 May	29−.27−.08	22 59.3	23	28.16	28.12			+22.41	−.48 ~~−.20~~ .16	−2.57	47.32		~~47.48~~ 47.32	×
	31−.09−.10	22 49.5	23	28.53	28.50			+21.84	−.16 ~~−.14~~ .20	−2.53	47.45		~~47.65~~ 47.45	+
June	2−.26−.07	23 7.0	23	29.06	29.02			+21.43	−.46 −.14	−2.47	47.38		~~47.52~~ 47.38	×
	5−.37	23 5.6	23	30.11	30.08			+20.21	−.66	−2.41			47.22	×
	10−.31	23 10.1	23	32.09	32.06			+18.04	−.55	−2.27			47.28	+
	11−.34	23 14.9	23	32.52	32.49			+17.60	−.60	−2.24	47.35		~~47.28~~ 47.35	+
	12−.35	23 4.3	23	33.02	32.99			+17.12	−.62	−2.27			47.22	+
	15−.30	23 13.7	23	34.11	34.08			+15.87	−.53	−2.18			47.24	+
	~~16~~													
	17−.37	23 12.2	23	35.21	35.18			+14.82	−.66	−2.12			47.22	+

~~ξ Urs. Maj. 13h 18m +55° 38′~~

1872 10.308 ζ Virginis 13h 28m 07s κ=−.015 +0° 01′ tan δ = +.00 1.00 sin z +.67

	n	T′5		T_m	T_m+κ	R.A.	T_m − R.A. ΔLP T−R.A. −(ρL+P)	ΔT		dt/dt				
1872 morn. Jan	10+.42		27	38.35	38.33	28 9.35	−31.02 +.01 −31.03	+31.02	+.00	+.96	13	28	10.31	
"	11+.38		27	37.66	37.65	9.38	−31.73 −31.74	+31.77	+.00	+.93			10.35	
June	18−.20	27 46.1	27	57.41	57.39	11.34	−13.95 −13.96	+13.90	−.00	−1.03			10.26	
73 May	29 ~~−.27−.08~~								~~−.00 −.08~~					
	31−.09−.10	27 34.1	27	52.90	52.89			+21.84	−.00 −.10	−1.31	13.32		~~13.42~~ 13.32	+
June	1 ~~−.20−.07~~								~~−.00 −.07~~				~~13.45~~	
	2−.26−.07	27 35.1	27	53.32	53.30			+21.43		−1.30			13.43	+
	5−.37	27 28.5	27	54.51	54.49			+20.22	−.00	−1.28			13.43	+
	10−.31	27 40.0	27	56.63	56.61			+18.04	−.00	−1.25			13.40	+
	12−.35	27 38.2	27	57.49	57.48			+17.12	−.00	−1.24			13.36	+

40 Cassiop. S.C. α= 13h 28m 15s κ=+.050 + 72 23 (107) tan δ = −3.15 3.31 sin z −.91

	n	T′5		T_m	T_m+κ	ΔT		dt/dt					
1873 June	11−.34	27 4.8	28	3.46	3.51	+17.60	+1.07	+2.48 9		13	28	24.67	+
	15−.30	27 5.7	28	5.58	5.63	+15.87	+.94	+2.18				24.62	×
	17−.37	27 21.8	28	6.80	6.85	+14.82	+1.16	+2.02	25.85			~~25.90~~ 24.85	+

	$T_m - T_s$	Circle Readings										
	+18.6	56 25.65	−10	34	23.97	34	29.26 −1.3 +4	44.32	+6.1	−10	29	~~40.14~~ 34.85
	+20.8	50 56.95		28	52.59	28	57.91 ~~−1.4~~ −1	6.76	+9.8			~~56.27~~ 50.95
	+24.2	50 54.25			49.17		55.08 −1.4	6.69	+9.8			~~53.37~~ (47.46)
	+19.6	50 57.50			50.87		56.66 −1.5	6.08	+9.7			~~54.54~~ (48.75)
	+19.4	50 53.10			52.36		58.12 −1.5	6.28	+9.7			~~56.20~~ 50.44
	+18.4	50 57.55			50.97		56.63 −1.5	6.33	+9.5			~~54.96~~ 49.30
	+17.0	50 52.85			53.55		59.17 −1.5	5.84	+9.4			~~57.11~~ 51.49
	+13.5	50 45.90			52.55		58.29 −1.5	5.62	+9.3			~~56.11~~ 50.37
	+15.7	50 51.05			53.10		58.69 −1.5	5.49	+9.3			~~56.38~~ 50.79
	+15.9	50 51.45			53.43		59.01 −1.5	5.50	+9.2	56.84		~~[illegible]~~ 51.23
	+21.9	50 57.45			52.59		58.27 −1.5	6.88	+9.7	56.95		~~[illegible]~~ 51.27
4)								15 1872		−10°	29′	34″.85 ~~40.14~~ (11)
(10)								1873			29	50.73 (18)
		51 33.95						~~+4 45.80~~				
32 ×	+28.8	45 29.5				37	21.93 +.5 −1	6.76	−7.6	+60	36	8.07
45 ×	+39.0	46 9.70					22.49 +.5	6.69	−8.2			8.10
38 ×	+22.0	46 0.20					21.01 +.5	6.08	−8.5			6.93
×	+24.5	46 0.50					22.12 +.5	6.28	−8.7			7.64
+	+22.0	45 57.0					23.76 +.5	6.33	−9.8			8.13
35 +	+17.6	45 55.0					22.84 +.5	5.84	−9.9			7.60
+	+28.7	46 3.1					22.07 +.5	5.62	−10.0			6.95
+	+20.4	45 56.6					22.87 +.5	5.49	−10.3			7.58
+	+23.0	45 58.1					23.05 +.5	5.50	−10.6			7.45
	+11.3	23 26.95				58	45.06 −1.1 +4	45.80	+3.8	+0	3	33.56
2.32 +	+18.8	18 4.25				4	15.18 −1.1 −1	6.69	+7.0	+0 14.38	3	~~14.49~~ 14.38
+	+28.2	18 18.00					14.82 −1.2	6.08	+6.9	~~13.44~~		~~13.63~~ 14.44
+	+26.0	18 15.10					15.13 −1.1	6.28	+6.7	14.46		~~13.45~~ 14.4
+	+16.6	18 2.~~8~~75					16.04 −1.1	6.33	+6.4			15.01
+	+19.3	18 5.50					16.02 −1.1	5.62	+6.3			15.60
+	+58.7	46 38.60				37	46.89 +1.6 −1	5.84	−12.3	107 +72	36	30.35
×	+57.9	46 37.00					47.51 +1.6	5.49	−12.3	34.32		~~31.42~~ 31.32
.85 +	+45.0	46 45.50					44.56 +1.6	5.50	−12.3			28.36

$\frac{T}{m}$ $\frac{T+k}{m \; h}$ $\frac{R.A.}{m}$ $\frac{T}{m}$ - R.A. P' - P $\frac{T}{m}$ - (R.A. P' - P)

17 H Can. Ven. α 13 29 06 k = -.020 δ = +37° 50' tan δ = +.77 1.27 ~~3.22~~ sin z +.08

1873	n	m s Tr	m	s Tm	s						
June 11	-.34	28 43.5	28	51.70	51.68	+17.60	-.26	-1.55	13h 29m	7.47s	+
15	-.30	28 44.5	28	53.14	53.39	+15.87	-.23	-1.50		7.53	+
16	-.41	28 42.4	28	53.92	53.90	+15.40	-.32	-1.48		7.50	+
17	-.37	29 0.0	28	54.54	54.52	+14.82	-.28	-1.47		7.59	+

1873 Gr. 2029 h 13 m 34 s 06 k = -.045 +71° 54' tan δ = +3.06 3.22 sin z -.49

Date	n	Tr	m	s	s						
May 31	-.09 -.10	33 19.9	33	50.83	50.79	+21.84	-.28 -.32	-4.02	13 34	8.01	+
June 11	-.34	33 23.7	33	55.24	55.19	+17.60	-1.04	-3.60	~~13~~ 8.10	~~8.45~~ 8.10	+
12	-.35	33 19.1	33	55.50	55.45	+17.12	-1.07	-3.55		7.95	+
13	-.30	33 22.5	33	56.52	56.47	+15.87	-.92	-3.30		8.12	+
16	-.41	33 19.8	33	57.13	57.08	+15.40	-1.25	-3.25		7.98	+
17	-.37	33 20.4	33	57.60	57.55	+14.81	-1.18	-3.19		8.04	+

~~Gr. 339~~ ~~h 13 m 34 s 08~~

η Urs. Maj. h 13 m 43 k = -.024 +49° 56' tan δ = +1.19 1.55 sin z = -.13

1872 29.707 9.99 29.734 A

Date	n	Tr	m	s	s									
1872 morn. Jan 10	+.42		41	57.44	57.42	42 28.88	-31.46	+.00 -31.46	+31.01	+.50	+.83	13h 47m	29.76	
" 11	+.38		41	56.73	56.71	28.92	-32.21	-32.21	+31.76	+.45	+.79		~~29.56~~ 71	
May 20	-.09	41 59.57 42 48.5	42	25.52	25.50	31.64	-6.14	-6.14	+6.26	-.11	-1.93		29.72	-18
June 19	-.19 -.10	41 56.6	42	17.78	17.75	31.11	-13.36	-13.36	+13.78	-.23 -.15	-1.40		29.75	
Aug 1	-.27		42	37.54	37.52	42 30.25 A.			-7.06	-.32	-0.52		29.62	
6	-.24		42	49.97	49.95	30.12 A			-19.67	-.28	-0.38		29.62	
7	-.23		42	52.80	52.69	30.09 A			-22.38	-.27	-0.36		29.68	
9			~~42~~	~~58.34~~	~~58.32~~									
'73 May 29	-.27 -.08									~~-.32 -.12~~				
31	-.109 -.10									~~-.11 -.15~~				
June 1	-.120 -.07									~~-.24 -.11~~				
2	-.126 -.07	41 38.9	42	13.06	13.04				+21.42	-.31 -.11	-2.02		32.02	+
5	-.37	41 48.4	42	14.28	14.26				+20.23	-.44	-1.98		32.07	+
10	-.31	41 51.8	42	16.33	16.30				+18.03	-.37	-1.89		32.07	+
11	-.34	41 52.8	42	16.84	16.81				+17.60	-.40	-1.88		32.13	+
12	-.35	41 53.2	42	17.34	17.31				+17.12	-.42	-1.86		32.15	+
15	-.30	41 51.0	42	18.41	18.39				+15.87	-.36	-1.80		32.10	+
16	-.41	41 52.0	42	19.04	19.02				+15.40	-.49	-1.78		32.15	+
17	-.37	41 49.8	42	19.52	19.49				+14.81	-.44	-1.76		32.10	+

10 i Draconis h 13 m 48 k = -.036 +65° 20' tan δ = +2.17 2.39

z = -22 57 sin z = -.39

41.707 A 21.53

Date	n	Tr	m	s	s								
1872 May 20	-.09	47 6.20	47	38.52	38.48	47 44.70	-6.22 -.05 -6.17	+6.26	-.20 -.22	-2.99	13	47	41.33

	T′m − T′s		Circle	Readings	Corr Circ Read	δ′	B+π+γ R_f	R_2nd R_3	Sum Corr δ	App δ R_ev				
			″	′ ″	′ ″	° ′ ″	″	″ ″	″	′ ″ ″				
+	+18.2		31 39.85″						51	12.32	−.1 −1	5.84 −4.5	+37° 50′	1.88″
+	+8.9		31 40.25						51	10.82	−.1	5.49 −4.9		0.33
+	+11.6		31 43.60							12.13	−.1	5.71 −5.0		1.32
+	−5.5		31 25.70							12.46	−.1	5.50 −5.1		1.76

+	−5.2		28 44.80						54	37.49	+.8 −1	6.69 −9.1	+71 53	22.50
+	+31.5		28 56.15							36.08	+.8	5.84 −11.0	20.04	~~20.08~~ 20.04
+	+36.4		28 60.05							34.77	+.8	5.62 −11.2		18.75
+	+34.0		28 57.65							35.40	+.8	5.49 −11.1		19.31
+	+37.4		28 58.95							35.08	+.8	5.71 −11.6		18.57
+	+37.2		28 59.30							35.08	+.8	5.50 −11.7		18.68

m + log tan z = 0.88400 m   ρ′ − ρ = +3″
log cos δ   9.80867
" const.   .11804 m

										57′	−0′			
−18	−14+7+1+	25.95 − 22.98	25 57.10	25 15.35	25 34.97	+49 57 13.38	−8.83 +7.50	−.16 +.04	+7.38 57	20.76 14.8	6.0 +.3 −0	6.34 −4.8	+49 57	9.92
	+21.2		30 37.40						52	36.00	+.3 +4	44.38 −10.0		10.68
			~~25 57.10~~	~~25~~ 15.35										

	+34.2		25 18.40						58	5.96	+.3 −1	6.08 −5.3	* 56	54.88
	+25.9		25 12.95							4.55	+.3	6.28 −5.8		52.77
	+24.5		25 10.90							5.32	+.2	6.33 −6.7		52.49
	+24.1		25 10.50							5.32	+.2	5.84 −6.9		52.78
	+24.1		25 11.55							4.44	+.2	5.62 −7.1		51.92
	+27.4		25 12.50							6.03	+.2	5.49 −7.4	53.34	~~53.14~~ 53.34
	+27.0		25 13.10							5.04	+.2	5.71 −7.5		52.03
	+29.7		25 14.45							5.97	+.2	5.50 −7.7		52.97

Approx z = −22 58 16 u + log tan z = 1.38750 m ρ′ − ρ = +6″
log cos δ 9.62049
" const .11804 m

										21′	−0			
		+32.32	1 54.40		1 36.67	+65 21 11.68	−8.70 +23.92	−.22 +.13	+23.83 21	35.51 28.6	6.9 +.7 −0	6.34 −7.1	+65 21 22.77	~~27.17~~ 22.77

1872 35.446 A
35.384 24.87″

H η Bootis — T_m h T_m+12 m R.A. T_m−R.A. P−P T_m−R.A.−(P−P)

13 49 κ=−.016. δ= +19° 2′ tan δ +.35 ^1.06 sin z= +.40

1872	n	m s $T_δ$		m	s	T_m s											
mean Jan 9	+.47			48	4.03	4.01	48 34.34	−30.33	+.03	−30.36	+30.79	+.15		+1.04	13h 48m	35.39	
10	+.42			48	3.26	3.25	34.37	−31.12		−31.15	+31.02	+.15		+1.01	35.43	~~35.42~~ 35.43	
11	+.38			48	2.55	2.53	34.41	−31.88		−31.91	+31.76	+.13		+.98		35.40	
May 20	−.09	48 12.6	48 58.47	48	30.51	30.50	36.71	−6.21		−6.24	+6.26	−.03		−1.33		35.40	
June 19	−.19 −.10	48 4.6		48	22.94	22.92	36.56	−13.64		−13.67	+13.78	−.07	−.11	−1.18		35.34	
27	−.22	48 6.5		48	27.74	27.73	36.48	−8.75		−8.78	+8.84	−.08		−1.10		35.39	
July 24	−.26			48	39.75	39.73	48 36.20 A.				−3.43	−.09		−0.75		35.46	
Aug 1	−.27			48	43.30	43.28	36.10 A.				−7.06	−.09		−0.66		35.47	
6	−.24			48	55.74	55.72	36.03 A				−19.68	−.08		−0.58		35.38	
7	−.23			48	58.50	58.48	36.02 A				−22.39	−.08		−0.58		35.43	
~~8~~				~~49~~	~~4.06~~	~~4.04~~											
73 May 31	−.09 −.10	48 1.8		48	17.98	17.96					+21.84	−.03	−.11	−1.51		38.15	x
June 1	~~−.20 −.07~~											~~−.07~~	~~−.07~~				
2	−.26 −.07	47 55.8		48	18.46	18.44					+21.42	−.09	−.07	−1.51		38.19	+
11	−.34	48 0.6		48	22.22	22.20					+17.60	−.12		−1.46		38.22	+
12	−.35	48 1.0		48	22.70	22.68					+17.12	−.12		−1.45		38.23	✓
15	−.30	48 8.7		48	23.88	23.87					+15.86	−.10		−1.42		38.21	+
16	−.41	48 6.7		48	24.39	24.38					+15.40	−.14		−1.41		38.23	x
17	−.37	48 4.4		48	24.92	24.90					+14.81	−.13		−1.40		38.18	+

Sch. 813 — 13h 50m ~~18~~ 22 κ=−.085 δ= +79° 38′ tan δ=5.4(6?) ~~5.54~~ ~~sec δ~~ sin z = −.60

1872 June 19	−.19 −.10	49 50.9	50 22.0	50	22.11	22.03	+13.78	−1.04	−.55	−4.35	13 50	29.87
73 May 31	−.09 −.10	49 53.0		50	15.73	15.65	+21.84	−.49	−.55	−6.96		29.49
June 11	−.34	49 14.4		50	19.96	19.87	+17.60	−1.86		−6.00		29.61
15	−.30	49 52.5		50	20.92	20.84	+15.86	−1.64		−5.62		29.44
16	−.41	49 34.7		50	22.00	21.91	+15.40	−2.24		−5.52		29.55
17	−.37	49 15.4		50	22.26	22.17	+14.81	−2.02		−5.42		29.54

	δ	z
1872	79 37 40	−27 14 52
73	37 20	14 34

	h m	s
'72	13 50	29.870
'73	13 50	29.536 (2)

H
1872 τ Virginis 13h 55m 07s κ=−.015 + 2° 9′ tan δ=+.04 1.01 sin z +.65

May 20	~~−.09 −.1~~	54 58.70	55	~~17.49~~	17.48	~~55 9.23~~	~~+ 8.25~~	~~+.02~~	~~+ 8.23~~		~~−.00 −.10~~		~~13h~~	
June 19	−.19 −.10	54 54.20	54	55.36	55.34	9.18	−13.84		−13.86	+13.78	−.07 −.10	−1.20	13 55	7.81
27	−.22	54 43.1	55	0.30	0.29	9.13	−8.84		−8.86	+8.83	−.01 ~~−.10~~	−1.15		7.96
73 May 31	−.09 −.10	54 33.9	54	50.69	50.68					+21.84	−.00 −.10	−1.47		10.95 +
June 15	−.30	54 39.6	54	56.61	56.59					+15.86	−.01	−1.40		11.~~44~~ 04 +

m + log tan z = 1.39510n P′-P = +.1
log cos δ 9.97558
" Const. .11804n

Corr Circ Read δ′ B+T+γ R_{ff} R_{md} R_{13} Sum Corr δ App δ R_{eq}

T_m - T_s Circle Readings ′ ″ ′ ″ ″ ° ′ ″ ″ ″ ″ ″ ′ ″ ′ ″ ″

2′ ″ -0′

-5 13+4.34 1791 - 2796 20 15.55 19 20.40 19 54.21 +19 2 54.14 - 8.67 *24.35 -.09 +.16 * 24.42 ~~3~~ 18.56 22.8 6.9 -.6 -0 6.34 +2.1 +19° 2′ 24.88″
+18.3 25 6.30 2 24.72 -.7 +4 44.38 -1.7 23.31
+21.2 25 5.90 57 41.33 44.29 -.7 44.33 -2.5 25.42

+22.6 19 40.70 3 10.99 -.7 -1 6.08 +2.6 2 6.81
+21.6 19 39.95 10.57 -.7 5.84 +1.3 5.33
+21.7 19 39.15 10.97 -.7 5.62 +1.2 5.85
+15.2 19 32.95 9.75 -.7 5.49 +.9 4.46
+19.7 19 35.55 12.92 -.7 5.71 +.8 7.31
+20.5 19 38.85 10.32 -.7 5.50 +.6 4.72

δ z tan δ sec δ 2 i z
1872 79 37 40 27° 15′ 5.46 6.54 - ~~0.46~~

+31.2 50 29.20 33 8.66 +1.0 +4 44.38 -13.93 79 37 40.31
+22.8 45 2.65 38 35.17 +1.0 -1 6.69 -8.78 20.70
+65.6 45 8.50 1873 37 20 5.46 37.25 +1.0 5.84 -10.67 21.74
+28.4 44 59.55 ~~38~~ 24 +1.0 5.49 -11.21 22.54
+47.3 45 3.40 37.19 +1.0 5.71 -11.33 21.15
+66.8 45 7.80 37.67 +1.0 5.50 -11.45 21.72

1872. 79° 37′ 40.″31
1873 79 37 21.57

54.39 5′
~~22 29.25~~
+ 1.15 16 54.55 5 7.91 -1.0 +4 44.38 +3.3 +2 9 ~~54.67~~ 4.59
+17.2 17 14.85 8.18 -1.0 44.33 +2.8 54.31
+16.8 11 42.70 10 37.81 -1.1 -1 6.69 +7.0 37.02
+17.0 11 47.00 36.41 -1.1 5.49 +5.9 35.72

1872.2 55.450 17.02 a Draconis

#					T_m	$T_m + \kappa$	h	R.A.	$T_m -$ R.A.	P.P.	T − R.A. − (δ.P.)	tan δ = +2.14	2.37					
						x = 14		1	κ = −.036		δ = +64° 59'		sin z = −.38					
1872	n	m s T_δ s		m	T_m s	s							1.01				s	
Jan	9 +.437			0	23.31	23.28	0	54.48	−31.20	+.01	−31.21	+30.20	~~+.92~~		+1.00	14h 0m	55.49	
	10 +.42			0	22.48	22.44		54.54	−32.10		−32.11	+31.03	+.90		+.86		55.23	
	11 +.38			0	22.12	22.09		54.60	−32.51		−32.52	+31.76	+.81		+.88	~~55.94~~	~~55.54~~ 55.54	
May	20 −.09	0 18.37	1 18.60	0	52.57	52.53		58.52	−5.99		−6.00	+6.26	−.19		−3.04	55.56	~~55.58~~ 55.56	−24
June	11 ~~−.20~~												~~.43~~					
	19 −.19 −.10	0 9.8	1 3.8	0	44.57	44.54		57.68	−13.14		−13.15	+13.77	−.41	−.24	−2.20		55.46	
	27 −.22	0 0.2		0	49.16	49.12		57.38	−8.26		−8.27	+8.83	−.47		−1.90		55.58	
73 May	31 ~~−.09~~ −.10			0	38.77	38.73						+21.84	−.19	−.24	−3.20		56.94	x
June	1 ~~−.20 −.07~~												~~.43~~					
	2 ~~−.26 −.07~~												−					
	11 −.34	0 20.3		0	43.13	43.10						+17.60	−.73		−2.91		57.06	x
	12 −.35	0 12.0		0	43.53	43.50						+17.11	−.75		−2.88		56.98	+
	15 −.30	0 17.8		0	44.70	44.66						+15.86	−.64		−2.78		57.10	+
	16 −.41	0 31.3		0	45.33	45.30						+15.39	−.88		−2.75		57.06	x
	17 −.37	0 26.1		0	45.90	45.86						+14.80	−.79		−2.71		57.16	x

d Bootis

14h 5m κ = −.017 +25° 41' tan δ = +.48 1.11 sin z +.29

1872																	
Jan	9 +.43											+.21					
June	13 −.20	4 37.93	4	20.50	20.48	4	35.02	−14.74	−.05	−14.69	+14.60	−.10		−1.30	14 4	33.68	
	19 −.19 −.10	4 2.87	4	21.43	21.41		34.97	−13.56		−13.51	+13.77	−.09	−.11	−1.25		33.73	
	27 −.22	4 9.73	4	26.19	26.17		34.88	−8.71		−8.66	+8.83	−.18		−1.16		33.73	
73 May	31 −.09 −.10	3 56.73	4	16.47	16.40						+21.84	−.04	−.11	−1.59		36.50	x
June	12 −.35	3 58.73	4	21.80	20.98						+17.11	−.17		−1.53		36.69	x
	15 −.30	3 58.77	4	22.64	22.25						+15.86	−.14		−1.50		36.47	+

1872.2 4 Urs. Min.

14h 9m 23s κ = −.075 +78° 8' tan δ = +4.76 4.85 sin z −.58

June	13 −.20		9	14.10	14.03	9	27.82	−13.79	−.21	−13.58	+14.60	−.95		−4.19	14 9	23.49	
	19 −.19 −.10	7 47.82	9	14.89	14.81		27.32	−12.51		−12.30	+13.77	−.90	−.48	−3.69		23.51	
'73 June	11 −.34	8 4.63	9	12.44	12.37						+17.61	−1.62		−5.39		22.97	x
	12 −.35	8 17.23	9	12.84	12.77						+17.11	−1.67		−5.31		22.90	x
	15 −.30	8 19.67	9	13.64	13.57						+15.86	−1.43		−5.07		22.98	+
	16 −.41	7 56.90	9	14.67	14.55						+15.39	−1.95		−4.99		23.00	x
	17 −.37	8 6.03	9	14.84	14.77						+14.80	−1.76		−4.91		22.90	x
	25 −.35	8 30.07	9	18.52	18.45						+10.50	−1.67		−4.25		23.03	+
	26 −.44	8 46.33	9	19.08	19.00						+10.11	−2.09		−4.16		22.86	+
July	6 Clt.																

~~1872~~ ~~June 11 −.20~~ ι Virginis ~~14h 9m κ = .016 − 5° 24'~~

~~1872 June 13~~ ~~'73 June 11~~ ~~12~~ ~~15~~ ~~16~~ ~~17~~ ~~25~~ 26

~~i Bootis~~ ~~14h 12m~~

m + log tan z = 1.37970 n   ρ' − ρ = +.7"
log cos δ 9.62622
" const .11804 n

$T_m - T_s$ 2 2		Circle Readings ° ' "		Cor. Circ Read "	δ' ° ' "	B+T+τ	R_f "	R_{md} "	R_{ts} "	Sum "	Cor δ '	"	App δ ' "	R_{av} "					
−24 14+28	+34.20 −26.03	24 1.85	23 28.45	23 42.88	+64 59 5.47	−8.38	+23.51	−19	+26	+23.58	59	29.05	59 23.1	−0 6.0	+.6 −0	6.34	−6.1	+64° 59'	17.21"
+34.8	−19.2	28 47.35	28 18.45								54	42.93			+.6 +4	44.38	−11.8		16.11
+48.9		28 53.90										43.97			+.6	44.33	−13.0		15.90
+22.8		23 10.10									0	13.76			+.6 −1	5.84	−8.4		0.12
+31.5		23 15.35										13.71			+.6	5.62	−8.6		0.09
+26.9		23 12.20										13.74			+.6	5.49	−9.0	58	59.85
+14.1		23 5.60										13.01			+.6	5.71	−9.2		58.70
+19.8		23 8.00										14.13			+.6	5.50	−9.3	59.93	~~[illegible]~~ 59.93
−17.43																			
+18.56		45 37.70									37	15.57			−.5 +4	44.38	−3.4	+25 41	56.05
+16.46		45 34.15										16.54			−.5	44.33	−4.5	42'	55.87
+19.69		40 8.90									42	44.90			−.5 −1	6.69	+1.4	41	39.91 39.11
+22.21		40 11.50										45.78	44 or		−.5	5.62	−0.3	41	39.36
+23.49		40 14.05										45.10	49		−.5	5.49	−0.7		38.41
+87.07		19 18.00									4	23.52			+.9 +4	44.38	−12.9	+78 8.	55.90
+67.81		13 52.60									9	53.38			+1.0 −1	5.84	−9.4		39.14
+55.61		13 50.00										53.75			+1.0	5.62	−9.6		39.53
+53.97		13 48.80										53.46			+1.0	5.49	−9.9		39.07
+77.72		13 54.15										53.67			+1.0	5.71	−10.0		38.96
+68.85		13 52.25										53.76			+1.0	5.50	−10.2		39.06
+48.45		13 41.65										53.96			+1.0	4.44	−11.1		39.42
+32.75		13 27.95										52.80			+1.0	4.01	−11.2		38.59

#

1872 49.394 99.410 A

$\frac{T}{m}$ $\frac{T}{m}+\frac{k}{h}$ R.A. $\frac{T}{m}$ − R.A. P.P. T_m − R.A. − (P.P.)

a = Bootis a = 14 10 k = −.016 δ = +19° 50' tan δ = +.36 1.06

1872	n	m s T_δ s		T_m								49.46 s	T_m
merid. Jan	9 +.487			9m 17.95	s 17.93	9 48.24	−30.31 +03 −30.34	+30.21	+.157	+1.15	14h 9m	~~49.42~~ 49.46	
"	10 +.42			9 17.12	17.11	48.27	−31.16 +04 −31.20	+31.03	+.15	+1.13		49.42	
"	11 +.35			9 16.46	16.44	48.31	−31.87 +03 −31.90	+31.76	+.14	+1.08		49.42	
July	24 −.26			9 53.83	53.81	9 50.24 A		−3.44	−.09	−0.83		49.45	
Aug.	4 −.17			10 4.79	4.77	50.08 A		−14.55	−.06	−0.67		49.49	
	6 −.24			~~9~~ 10 9.82	9.80	50.05 A		−19.72	−.09	−0.64		49.35	
	7 −.23			10 12.71	12.69	50.03 A		−22.44	−.08	−0.62		49.55	
	~~9~~ 7			~~10 18.19~~	~~18.16~~								
'73 May	29 ~~−.27 −.08~~								~~−.10 −.08~~				
	31 ~~−.09 −.10~~								~~−.03 −.11~~				
June	1 ~~−.20 −.07~~								~~−.07 −.07~~				
	2 ~~−.26 −.07~~								~~−.09 −.07~~				
Nov.	29												

#

1872 ι Bootis 14h 12m k = −.025 +51° 57' tan δ = +1.28 1.62 Am z −.17 37.89

June	13 −.20			11	25.40	25.38	11 39.78	−14.40 .00 −14.40	+14.60	−.26	−1.83	14 11	~~12.87~~ 37.89	
	19 −.19 −.10	10 51.10	11 53.65	11	26.38	26.36	39.67	−13.31 −13.31	+13.77	−.24 −.16	−1.72	38.01	~~14.71~~ 38.01	+35.2
'73 June	11 −.34	10 59.93		11	25.06	25.04			+17.61	−.44	−2.18	~~40.03~~	~~10.03~~ 40.03 f	+25.1
	12 −.35	11 3.03		11	25.56	25.53			+17.11	−.45	−2.16	40.03	~~11.03~~ 40.03 x	+22.5
	15 −.30	11 3.93		11	26.70	26.68			+15.86	−.38	−2.11	3~~9.05~~	~~13.31~~ 40.05 x	+22.7
	16 −.41	10 56.03		11	27.31	27.28			+15.39	−.52	−2.09	40.06	~~11.50~~ 40.06 x	+31.2
	17 −.37	10 58.90		11	27.81	27.78			+14.80	−.47	−2.07	40.04	~~15.52~~ 40.04 x	+28.9
	25 −.35	11 8.03		11	31.97	31.95			+10.50	−.45	−1.90	40.10	~~13.82~~ 40.10 x	+23.94
	26 −.44	11 1.03			32.41	32.38			+10.11	−.56	−1.88	40.05	~~24.71~~ 40.05 x	+31.38

#

ι Cassiop. L.C. 2h 19m k = −.038 113° 11' tan δ = −2.34 2.584 Am z −94

1872 June	19 −.19 −.10	17 38.97	18	17.13	17.16	18 31.20 A	−14.04 +26 −14.30	+13.76	+.44 −.265	+1.63	2 18	32.74 ~~32.77~~ 32.74	
'73 June	5 −.37	17 37.07	18	14.36	14.39			+20.26	+.86	+2.50		38.61	+37.2
	11 −.34	18 1.80	18	17.20	17.24			+17.61	+.80	+2.18		37.83	+15.4
	15 −.30	18 1.67	18	19.42	19.46			+15.86	+.70	+1.95		37.97	+17.7
	16 −.41	18 5.70	18	20.16	20.19			+15.39	+.96	+1.89		38.43	+14.4
	17 −.37	17 32.93	18	20.54	20.58			+14.79	+.86	+1.84	38.07	~~38.05~~ 38.07	+47.6
	25 −.35	17 43.20	18	25.26	25.29			+10.50	+.82	+1.35		37.96	+42.0
	26 −.44	17 43.70	18	25.62	25.66			+10.10	+1.03	+1.29		38.08	+41.9

6	$T_m - T_s$		Circle Readings									
9 /	+35.28	−27.27	30 31.35	29 40.55	52	34.46	+.3 +4	44.38	−9.3	+51	57	29.84
03 f	+25.13		24 52.35		58	25.10	+.3 −1	5.84	−5.7			13.86
53 x	+22.52		24 50.75			24.85	+.4	5.62	−5.9			13.73
03 x	+22.77		24 50.40			25.13	+.3	5.49	−6.3			13.64
36 x	+31.28		24 57.55			24.60	+.4	5.71	−6.4			12.89
4 x	+28.91		24 55.60			24.78	+.3	5.50	−6.6			12.98
0 x	+23.94		24 50.85			25.80	+.3	4.44	−7.9			13.76
05 x	+31.38		24 57.60			24.77	+.3	4.01	−8.0			13.06
74						[illegible]	~~+4~~	~~44.38~~	~~11.6~~			
	+37.29		13 46.35		11	25.02	+1.6 −1	6.28	−7.9	+113	10	12.44
	+15.40		13 53.65			25.46	+1.6	5.84	−8.5			12.72
	+17.75		13 52.00			25.13	+1.6	5.49	−8.9			12.34
07	+14.46		13 57.20			25.82	+1.6	5.71	−8.9			12.81
	+47.61		13 38.50			23.53	+1.6	5.50	−9.0			10.63
	+42.06		13 41.35			26.64	+1.6	4.44	−9.3			14.50
	+41.92		13 41.35			24.07	+1.6	4.01	−9.4			12.26

#	1872.2 50.344	50.315A		h Tm	Tm+κ	RA.	T−RA.	P.P.	T−RA−(P.P.)						
	θ Bootis		a =	14 21		κ = −0.025	+58°	2	26′ tan δ = +1.30	1.64	sin z −.17				
1872	n	Tδ		Tm	s								h m	s	
morn. Jan.	9 +.4~~8~~7			20 18.36	18.34 20	49.17	−30.83	+02	−30.85	+30.21	~~+.54~~ .61	+1.17	14 20	50.33	
	10 +.42			20 17.63	17.60	49.22	−31.62		−31.6~~8~~4	+31.04	+.55	+1.13		50.32	
	11 +.38			20 17.06	17.04	49.26	−32.22		−32.24	+31.76	+.49	+1.08		50.37	
	19														
June	13 −.20			20 37.96	37.94	52.23	−14.29		−14.31	+14.60	−.26	−1.89		50.39	
	19 −.19 −.10	20 7.17	21 10.80	20 38.80	38.78	52.12	−13.34		−13.36	+13.76	−.25 −.16	−1.78	50.35	~~51.14~~ 50.35	+31.6
July	24 −.26			20 55.08	55.06	51.26A				−3.44	−.34	−0.94		50.34	
	aug			~~21 19.29~~	~~19.27~~										
'73 May	29 −.27 −.08										−~~.13~~				
	31 −.09 −.10										−~~.16~~				
June	1 −.20 −.07										−~~.12~~				
	2 −.26 −.07										−~~.12~~				
	5 −.37	20 8.73		20 34.80	34.78					+20.26	−.48	−2.29		52.27 ×	+26.0
	10 −.31	20 10.37		20 36.94	36.91					+18.03	−.40	−2.24		52.20 ×	+26.
	12 −.35	20 13.57		20 37.87	37.84					+17.11	−.46	−2.21		52.28 ×	+24.
	15 −.30	20 14.83		20 39.11	39.08					+15.86	−.39	−2.17		52.38 ×	+24.
	16 −.41	20 10.70		20 39.68	39.66					+15.39	−.53	−2.15		52.37 ×	+28.
	25 −.35	20 15.57		20 44.34	44.32					+10.50	−.46	−1.96		52.40 ×	+28.
	26 −.44	20 19.63		20 44.79	44.77					+10.11	−.57	−1.94		52.37 ×	+25.
	29 −.49	20 14.57		20 46.47	46.45					+8.47	−.64	−1.87	52.41	~~52.43~~ 52.41 ×	+31.
July	6 −.46 −.05	20 26.17		20 53.13	53.10					+1.67	−.60 −.08	−1.70		52.39 +	+26.

#	~~ρ Bootis~~			h m ~~14 26~~		~~κ = −.018~~	~~+30°~~		~~55′ tan δ~~
1872	~~July 10~~								

#				2h m			107°		44′						
1872	36 H Cass.	L.C.		14 26		κ = +.049	+72°		15′ tan δ = −3.12	3.29	sin z −.91				
June	19 −.19 −.10	24 51.13		25 37.84	37.89	25 52.34	−14.45	+22	−14.67	+13.76	+.59 +.33	+2.31	14 25	5~~7~~.88	+46.
'73 June	5 −.37	25 6.80		25 35.47	35.52					+20.27	+1.15	+3.43	26	0.37 ×	+28.
	9 −.29	24 43.50		25 37.84	37.89					+18.48	+.90	+3.17		0.44 ×	+54.
	15 −.30	24 58.73		25 40.86	40.90					+15.86	+.94	+2.77		~~0.33~~ 0.47 ×	+42
	25 −.35			25 46.69	46.74					+10.49	+1.09	+2.02		0.34 ×	
	26 −.44	25 8.57		25 46.92	46.97					+10.11	+1.37	+1.95		0.40 ×	+38.
	29 −.49	25 6.03		25 48.56	48.60					+8.46	+1.53	+1.71		0.30 ×	+42.

	1872.2 49.405+5	Urs. Min.		h m 14 26		κ = −.065	+76°		16′ tan δ = +4.09	4.22	sin z = −.56				
1872 morn. Jan	9 +.4~~3~~7			27 15.76	15.70	27 47.90A				+30.22	+1.~~76~~92	+1.50	14 27	49.~~18~~34	
"	10 +.42			27 15.09	15.02	47.99A				+31.04	+1.72	+1.42		49.20	
	19														
Feb	7 ~~+.30~~										~~+1.23~~				
June	18 −.20			27 4~~7~~0.08	4~~7~~0.01					+14.60	−.82	−4.42		49.37	
	19 −.19 −.10	26 30.57	28 24.37	27 40.98	40.92					+13.76	−.78 −.42	−4.09		49.39	+70.
'73 May	~~26~~														
	31 −.09 −.10	26 40.97		27 33.56	33.49					+21.84	−.37 −.42	−5.75		48.79	+52.
June	1 ~~−.20~~														
	2 ~~−.26~~														
	5 −.37	26 29.97		27 35.76	35.69					+20.27	−1.51	−5.47		48.94	+.65
	9 −.29	26 44.63		27 37.16	37.09					+18.48	−1.19	−5.22		49.16	+52.
	10 −.31	27 2.50		27 37.67	37.60					+18.03	−1.27	−5.19		49.17	+35.
	15 −.30	26 58.87		27 39.48	39.41					+15.86	−1.23	−4.88		49.176	+40
	16 −.41	26 52.27		27 40.31	40.25					+15.39	−1.68	−4.82		49.14	+48
	25 −.35	27 12.43		27 44.53	44.47					+10.49	−1.43	−4.19		49.34	+32
	26 −.44	27 2.57		27 44.84	44.78					+10.11	−1.80	−4.12		48.97	+42.
	29 −.49	26 34.30		27 46.63	46.57					+8.46	−2.00	−3.90		49.13	+72.
July	6 −.46 −.05	26 58.60		27 52.99	52.92					+1.66	−1.88 −.21	−3.34		49.15	+54.

	h	m	s
1872.2	14	27	49.325
1873.5	14	27	49.099

	Tm − Ts		Circle Readings. ′ ″										
35	+31.63	− 32.00	1 22.90	0 32.55	22	0.28	+.3	+4	44.38	-8.8	+52	26	36.16
	+26.07		55 50.05		27	28.96	+.3	-1	6.28	-~~8.8~~ 3.9			19.08
	+26.57		55 49.55			29.70	+.4		6.33	-4.8			18.97
	+24.30		55 47.95			29.67	+.3		5.62	-5.2			19.15
	+24.28		55 47.05			30.28	+.4		5.49	-5.7			19.49
	+28.98		55 51.45			29.43	+.3		5.71	-5.9			18.12
	+28.78		55 50.55			30.49	+.3		4.44	-7.3			19.05
	+25.16		55 47.25			30.81	+.3		4.01	-7.5			19.60
41x	+31.90		55 52.15			30.97	+.3		3.79	-7.9			19.58
	+26.96		55 48.20			31.90	+.3		4.30	-9.1			19.80
	+46.41		44 29.10		40	2.01	+1.5	+4	44.38	-11.8	+107	44	36.09
	+28.67		38 7.10		45	33.61	+1.6	-1	6.28	-7.6			21.33
	+54.34		38 56.25			34.64	+1.6		6.46	-7.6			22.18
	+42.12		38 58.10			34.29	+1.6		5.49	-8.9			21.50
													~~[illegible]~~
	+38.35		39 0.95			33.25	+1.6		4.01	-9.6			21.24
	+42.52		38 57.00			33.21	+1.6		3.79	-9.7			21.32
	+70.41		12 26.35	11 41.55	11	20.59	+.9	+4	44.38	-11.90	+76	15	53.97
	+52.58		6 52.35		16	51.40	+.9	-1	6.69	-5.50			40.11
	+65.48		6 57.15			′ 49.30	+.9		6.28	-6.70			37.22
	+52.52		6 52.40			50.15	+.9		6.46	-7.50			37.09
6	+35.17		6 45.95			50.83	+.9		6.33	-7.70			37.70
	+40.61		6 47.60			50.38	+.9		5.49	-8.70			37.09
	+48.04		6 49.15			50.64	+.9		5.71	-8.90			36.93
	+32.10		6 45.20			50.96	+.9		4.44	-10.10			37.32
	+42.27		6 47.40			51.20	+.9		4.01	-10.30			37.79
	+72.33		6 55.80			50.92	+.9		3.79	-10.70			37.33
	+54.39		6 50.55			51.75	+.9		4.30	-10.90			37.45
											°	′	″
25									1872		+76	15	53.97
9									73		+76	15	37.60

T_m h $T_m + k$ R.A. T_m − R.A. P.P. T_m − R.A. − (P.P.)

~~γ Bootis a = 14 27~~ ~~δ = +38° 51′~~

n T_5 m T_m s h s m

1872 ~~5 Urs. Min. 14 27~~ ~~+76° 16′~~

See preceding page.

~~June~~ 13 −.20
19 −.19
'73 ~~May~~ 31 −.09
~~June~~ 5 −.37
9 −.29
10 −.31
13 −.30
16 −.41
25 −.35
26 −.44
29 −.49
July 6 −.46

1872 # $\overset{m}{.19}$ $\overset{1872}{4.37}$ 6 33 Bootis 14 h 34 m k = −.022 +44° 5′8′ tan δ = +1.00 1.41 sin z − .04

1872 July 1 −.40	3 43.30	34	4.02	4.00	19 5.88	+2. ~~29~~.30	−.40 −	−1.50	34	4.40
'73 June 9 −.29	34 3.23	33	50.49	50.47		+18.48	−.29	−2.05	14h 34m	6.61 +
29 −.49	33 42.45	34	0.46	0.24		+8.45	−.49	−1.77		6.43 +
July 6 −.46 −.05	33 44.70	34	7.20	7.18		+1.66	−.46 −.07	−1.63		6.68 +

F = worked as non-fundamental X

Br. 366 = W. 5.37 L.C. 2h ~~14~~ 34m K = +.038 $\overset{N.2°}{+67°}$ $\overset{43'}{16'}$ tan δ = −2.39 2.59 sin z − .94

1873 June 5 −.37	32 40.30	33	32.20	32.24	+20.28	+.88	+2.65	14	33	56.05
13 −.30	33 8.40	33	37.24	37.28	+15.85	+.72	+2.12			55.97
25 −.35	33 12.00	33	42.94	42.98	+10.48	+.84	+1.52			55.82
26 −.44	33 11.87	33	43.29	43.33	+10.10	+1.05	+1.45			55.93

1873 14h 33m 56.942s
5

μ Virginis 14 h 36 m K = −.016 −5° 6′ tan δ = −.09 1.00 sin z + .74

1872 June 11 −.20	3~~8~~ 5 42.30	3~~7~~ 6?	6.49	6.48	36 20.33 −13.85 +.02 −13.87	+14.00	+.02	−1.36	14	36	19.14 ~~8.98~~
~~13~~											
'73 June 5 −.37	35 41.37	36	3.37	3.36		+20.28	+.03	−1.52	22.15 36		~~22.14~~ 22.15 ×
9 −.29	35 45.23	36	5.18	5.17		+18.48	+.03	−1.52			22.16 +
~~10 −.31~~							+.03				
11 −.34	35 44.53	36	6.14	6.13		+17.61	+.03	−1.52			22.25 ×
17 −.37		36	8.88	8.87		+14.78	+.03	−1.50			22.18 ×
25 −.35	35 51.77	36	13.09	13.08		+10.48	+.03	−1.46			22.13 +
26 −.44	35 55.37	36	13.54	13.52		+10.10	+.04	−1.46			22.20 +
29 −.49	35 57.43	36	15.08	15.07		+8.45	+.04	−1.44			22.12 +
July 6 −.46 −.05	36 1.47	36	21.89	21.88		+1.66	+.04 × .05	−1.37			22.16 +
7 Lost.											

	Im − Iσ	Circle Readings. ″							
	+20.72	30 17.05	52	52.72	+ .1 +4	45.37	−10.1	+44° 57′	28.09″
	−12.74	24 17.60	58	21.29	+ .1 −1	6.46	−2.7		12.23
	+18.01	24 45.10		21.88	+ .1	3.79	−6.2		11.99
	+22.50	24 48.00		23.19	+ .1	4.30	−7.3		11.69
	~~+51.90~~	~~40 51.35~~	44	~~9.18~~	~~+ 1.7 −1~~	~~6.28~~	~~−6.9~~	~~+112 42~~	~~57.70~~ dele
	+28.84	40 55.20		13.09	+ 1.7	5.49	−8.0	43	1.30
	+30.94	40 58.25		12.03	+ 16	4.44	−8.6		0.59
	+31.42	40 55.10		12.44	+ 16	4.01	−8.7		1.33
2								~~112° 43′~~	~~1.07~~
	+24.19	33 8.30	10	49.32	− 1.2 +4	44.32	+4.9	− 5 6	1.30
.15 ×	+22.00	27 33.30	5	18.72	− 13 −1	6.28	+8.8		17.50
	+19.95	27 29.95		18.05	− 13	6.46	+8.6		17.21
	+21.61	27 35.10		19.90	− 13	5.84	+8.5		18.54
	+21.32	27 33.55		19.60	− 13	4.44	+7.8		17.54
	+18.17	27 30.30		19.45	− 13	4.01	+7.8	16.96	~~12.96~~
	+17.65	27 31.50		20.12	− 13	3.79	+7.6		17.61
	+20.42	27 30.55		17.85	− 13	4.30	+7.2		16.25

Sch. 853 ⊖ X d= 14 38 κ=−.090 δ=+80° 11′ tanδ=+5.~~50~~ 79? 5.87 Qin z = −.61

Date	n	T_δ	T_m		$T_m+\frac{\kappa}{h}$	R.A. m	T_m−R.A. P′−P	T_m−R.A.−(P′−P)						
1872 June	11−.20	36 48.70	37	8.11	8.02			+14.00	−1.16		−6.40	14 37	14.46	+19.4
July	1−.40	38 42.60	37	18.99	18.90			+2.30	−2.32		−4.42		14.46	
73 June	5−.37	36 58.43	37	1.98	1.89			+20 ~~28~~ 98	−2.14		−7.61		12.42	+3.5
	9−.29	38 4.90	37	3.22	3.13			+18.48	−1.68		−7.29		12.64	−1.6
	~~10 No obs.~~							~~+18.03~~						
	11−.34	36 46.70	37	4.09	4.00			+17.61	−1.97		−7.12		12.52	+17.3
	17−.37	36 46.60	37	6.69	6.60			+14.98	−2.14		−6.58		12.66	+20.0
June	25−.35	37 24.43	37	10.20	10.11			+10.48	−2.03		−5.77		12.79	−14.2
	26−.44	37 47.27	37	10.86	10.77			+10.11	−2.55		−5.67		12.66	−36.4
	29−.49	37 55.90	37	12.40	12.31			+8.45	−2.84		−5.35		12.57	−46.5
July	6−.46−.05	38 3.53	37	18.56	18.47			+1.66	−2.66	−.29	−4.57		12.61	−44.9

1872 14h 37m 14s.460

1873 12.~~610~~ 596

a² Librae X 14h 43m κ=−.016 −15° 30′ tanδ=−.28 1.04 Qin z +.85

Date	n	T_δ	T_m			R.A.								
1872 June	30−.34	43 25.37	43	44.34	44.32			+4.93	+.10		−1.32	14h 43m	48s.03	+18.9
July	1 −.40 a₁		43	35.56	35.55			+2.28	+.11		−1.31		36.63 a′	
73 May	31 ~~−.09~~ −.10	43 13.43	43	31.14	31.12			+21.84	+.02	±.10	−1.55		51.33	+17.7
June	5−.37	43 15.43	43	32.56	32.55			+20.28	+.10		−1.56		51.87	+17.1
	9 −.29 a₁	43 6.37	43	23.11	23.09			+18.48	+.08		−1.56		40.09 a′	+16.74
	10 ~~−.31~~													
	25−.35	43 17.17	43	42.32	42.30			+10.48	+.10		−1.50		51.38	+25.1
	26−.44	43 27.60	43	42.68	42.67			+10.10	+.12		−1.50		51.39	+15.0
	29−.49	43 31.25	43	44.24	44.22			+8.45	+.14		−1.48		51.33	+12.9
	30−.58	43 19.90 44 11.98	43	44.94	44.92			+7.80	+.16		−1.48		51.40	+25.0
July	6−.46 −.05	43 28.60	43	51.06	51.04			+1.65	+.13	±.05	−1.43		51.34	+22.4
	7 ~~−.48~~ −.48 −.03	43 26.87	43	52.14	52.13			+0.63	+.13	±.03	−1.43		51.43	+25.2
	10−.46	43 40.30	43	53.94	53.92			−1.19	+.13	a	−1.40		51.46	+13.6
	1872 48.013 A.													
72 Jan morning.	1 +.42 −.05		43	22.64	22.62	43 46.21 A		+23.88	−.12	±.05	+1.80		48.13	
	9 +.437		43	16.41	16.40	46.47		+30.23	−.1~~2~~3		+1.55		48.05	
"	10 +.42		43	15.66	15.64	46.51		+31.04	−.12		+1.51		48.07	Ap
"	11 +.38		43	15.00	14.99	46.54		+31.76	−.11		+1.47		48.11	

# 1872 (v. next page) Gr. 2164 14h 48m κ=−.031 +59° 48′ z=−17 25 tanδ=+1.71 1.99 Qin z=−.30

Date	n	T_δ	T_m			R.A.								
2 June	9−.14	47 26.70 48 21.0	48	1.22	1.19	48 14.01	−12.82 +.03 −12.85	+13.00	−.24		−2.48	14 48	~~10.47~~ 11.47	29 −9+45+3
11.527	# 30 ~~−.34~~													
" 54.12 July	11 ~~−.37~~													

means

~~−.58~~ a′ Librae 1872.5 14 43 36.630 (1)

~~−.63~~ " 1873.4 43 40.090 (1)

a² Librae 1872.1 43 48.078 (5)

1873.4 43 51.381 (9)

# 1872 Ceph 47 H. L.C. 2 14h 49m κ=+.080 101° +78 5′ 55′ tanδ=−5.10 5.19 Qin z −.85 10.93

Date	n	T_δ	T_m			R.A.								
June	13−.20	48 27.00	48	50.28	50.36	49 5.57	−15.21 +.22 −15.43	+14.59	+1.02		+4.96	14 49	~~10.92~~ 10.93	
	30−.34	49 17.80	49	0.81	0.89	7.40	−6.51 −6.73	+4.91	+1.73		+3.13		10.66	−16.9
July	1−.40		49	3.48	3.55			+2.27	+2.04		+3.00		10.86	
73 June	9−.29	48 52.00	48	52.74	52.82			+18.48	+1.48		+5.61		18.39 +	+0.7
	11−.34	49 8.70	48	53.66	53.74			+17.61	+1.73		+5.43		18.51 +	−15.0
	17−.37	48 30.40	48	56.49	56.57			+14.78	+1.89		+4.84		18.08 ×	+26
July	5 Rej.							~~+1.65~~						
	6−.46−.05	48 50.67	49	11.31	11.39			+1.65	+2.35	+.03 .26	+2.69		18.34 +	+2.06
	7−.48−.03	49 10.20	49	12.62	12.70			+0.62	+2.45	+.02 .16	+2.57		18.50 +	+2.4
	10 ~~−.46~~								~~+2.35~~					

# 1872 P. XIV 221 14h 50m κ=−.016 +14° 57′ z=+27 26 tanδ=+.27 1.03 Qin z=+.46

Date	n	T_δ	T_m			R.A.								
June 2 10.844 " 54.30	9−14	49 53.20 50 32.80	49	59.32	59.30	50 12.30	−13.00 −.04 −12.96	+13.00	−.04		−1.46	14 50	10.80	−0 −15+46

Tm − Tδ		Circle Readings		Corr Circ Read	δ'	B+P+γ D.f	Kund R	Sum χ	Corr'd	App δ R			
		′ ″		′ ″	° ′ ″	″	″ ″	″	″	′ ″			
+19.41		15 25.65							10.14	+1.0 +4	44.32 −10.04	80 ~~13~~ 12	45.42
+3.55		9 52.25						13	41.03	+1.0 −1	6.28 −6.14	12	29.61
−1.68		9 50.10							42.04	+1.0	6.46 −7.01		29.57
										~~+1.0~~	~~5.84~~		
+17.39		9 54.00							41.33	+1.0	5.84 −7.42		29.07
+20.09		9 53.25							42.35	+1.0	5.50 −8.53		29.32
−14.23		9 46.35							42.60	+1.0	4.44 −9.76		29.40
−36.41		9 41.45							41.77	+1.0	4.01 −9.90		28.86
−46.50		9 36.45							43.62	+1.0	3.79 −10.27		30.56
−44.97		9 37.90							43.46	+1.0	4.30 −10.95		29.21
												80° 12′	45.42″
												80° 12′	29.45

+18.96		57 9.30							35	23.07 −13+4	45.16 +7.9	−15° 30′	31.31″
+17.71		51 22.85							29	45.88 −15−1	6.69 +10.7		43.37
+17.13		51 26.10								47.10 −15	6.28 +10.7		44.18
+16.74		48 45.05							27	26.71 −15	6.46 +10.7	28	23.97 α'
+25.15		51 39.30							29	49.79 −15	4.44 +10.5	~~29′~~	45.23
+15.08		51 28.50							29	50.23 −15	4.01 +10.5	30′ 30′	~~45.24~~ 45.24
+12.99		51 28.50							29	51.12 −15	3.79 +10.5	45.91	~~45.91~~ 45.91
+25.04		51 43.10	50 35.55						29	51.06 −15	3.71 +10.5		45.77
+22.46		51 36.95							29	49.47 −15	4.30 +10.3		44.97
+25.27		51 37.95							29	46.75 −15	4.74 +10.3		42.69
+13.64		51 25.05							29	47.99 −15	4.71 +10.2		44.00

Approx. z = −14° 26′ 11″ μ + log tan z = 1.25730n P′−P = −.6″
log cos δ 9.70159
" const. .11804n

									49′	−0′			
7 29 −9+45+39	+34.52 −19.78	34 4.25 395.60	33 28.95	33 41.74	+59 49 6.61	−10 62 +17.65	−.19 +.42	+17.88 49	24.49 1.2	23.3 +5 −0	24.51 −7.1	48	53.38
1)											α¹ Librae 1872	−15 ~~28~~	
1)											" 1873	28	23.97 (1)
5)											α² Librae 1872	30	31.31 (1)
9)											1873	30	44.60 (9)

.93

−16.99		23 29.15											
+0.74		17 59.55						6	21.61	+15−1	6.46 −9.7	+101 5	6.95
−15.04		18 0.45							23.52	+15	5.84 −9.7		9.48
+28.09		17 50.95							22.03	+15	5.50 −7.8		10.23
+20.64		17 51.70							23.33	+15	4.30 −9.6		10.93
+2.42		17 57.30							23.08	+15	4.74 −9.6		10.24

Approx. z = +27 24 9 μ + log tan z = 1.47490 P′−P = −.5
log cos δ 9.98505
" const. .11804n

									57′	−0′			
−0 −15+46+36	+ 6.12 −33.98	24 9.25	23 19.80	24 1.87	+14 58 46.18	−10 60 −29.13	−.08 +.41	−29.46 58	17.02 52.8	24.2 −7 −0	24.51 +1.5	+14 57	53.31

Gr. 21 64 or c   Tδ   Tm   Tm+κ   R.A.   Tm−R.A.

d=   14 48   κ=−.031   δ=+59° 49'   tan δ=+1.71   1.99   sin z −.30   Tm

1872	13−20			47 59.76	59.73	48 13.93	−14.20+.03	−14.23	+14.59	−.34		−2.40	14 48	11.58		
June	30−.34	48 14.30		48 9.27	9.24	13.51	−4.27	−4.30	+4.91	−.58		−1.98		11.59		−5.03
July	1−.40	47 57.47		48 11.94	11.91				+2.26	−.68		−1.96		11.53		+14.47
	11−.37	47 41.43		48 21.41	21.38				~~+14.00~~ −7.48	−.63		−1.67		11.60		+39.68
'73 June	9−.29	47 38.07		47 57.99	57.96				+18.48	−.50		−2.81		13.13	x	+19.92
	11−.34	47 43.84		47 58.82	58.79				+17.61	−.58		−2.77		13.05	x	+14.95
	17−.37	47 34.10		48 1.54	1.51				+14.78	−.63		−2.64		13.02	x	+27.44
	27−.46	47 38.73		48 6.18	6.15				+10.11	−.79		−2.40		13.07	x	+27.4
	30−.58	47 33.97		48 8.57	8.54				+7.79	−.99		−2.32		13.02	x	+34.6
July	5−.50	47 45.30		48 13.36	13.33				+2.68	−.86		−2.18		12.97	x	+28.0
	6−.46−.05	47 39.00		48 14.40	14.37				+1.65	−.79	−.10	−2.15		12.98	x	+35.0
	7−.48−.03	47 50.20		48 15.38	15.34				+0.62	−.82	−.06	−2.12		12.96	x	+25.1
	10 wrong #															
	13−.44	48 2.07		48 18.53	18.50				−3.02	−.75		−1.93		12.80	x	+16.4

1872 Δ 51 6.061   β Urs. Min.   14h 51m

κ=−.057   +74° 41'   tan δ=+3.65   3.79   sin z −.53

1872 Jan	1 +.42−.05			50 38.46	38.~~39~~ 40	51 3.59	−25.19 +.10	−25.29	+23.88	+1.53	−~~.21~~ .19	+2.47	14 51	6.29		
morning	8 +.46			50 23.12	23.05 7	4.13	−41.06	−41.16	+29.39	+1.68		+1.93	50	56.07		
morning.	9 +.437			50 32.45	32.39	4.22 1	−31.82	−31.92	+30.23	+1.57 72		+1.85	51	6.19		
"	10 +.42			50 31.81	31.74 6	4.30	−32.54	−32.64	+31.05	+1.53		+1.76		6.10		
"	11 +.35			50 31.38	31.31 2	4.38	−33.06	−33.16	+31.75	+1.39		+1.69		6.15		
	~~21 +.54~~															
~~Feb.~~	~~14 +.31~~															
June	#															
	30−.34	50 39.95		51 6.04	5.99	9.34	−3.~~45~~ 35	−3.45	+4.90	−1.24		−3.28		6.27		+26.0
July	+															
	7−.35	50 49.00		51 18.54	18.49	8.87			−8.34	−1.28		−2.81	51 ~~50~~ 57	~~56.44~~ 6.06 6.06		+29.5
	11−.37	50 12.00		51 17.60	17.54	8.59			−7.48	−1.35		−2.53	6.18	~~7.03~~ 6.18		+16.5
'73 Jan	24−.26	50 33.60		51 12.24	12.19	7.63			−3.44	−.95		−1.57	51	~~7.67~~ 6.23 6.23		+38.6
	14 ~~+.35~~									~~+1.23~~						
	19 ~~+.36+.05~~									~~+1.31~~						
May	26															
	29 ~~−.27−.05~~									~~−.99~~				5.81		
	31−.09−.10	50 5.17		50 50.08	50.02				+21.84	−.33	−.38	−5.34	51	~~5.82~~ 5.81	x	+44.9
June	1 ~~−.20~~															
	2 ~~−.26~~															
	9−.29	50 23.50		50 53.70	53.64				+18.48	−1.06		−4.96		6.10	x	+29.9
	11−.34	50 21.67		50 54.50	54.44				+17.61	−1.24		−4.87		5.94	x	+32.8
	17−.37	50 16.13		50 57.09	57.03				+14.78	−1.35		−4.55		5.91	x	+40.9
	18			50 57.72	57.66											
	30−.58	49 40.67	51 27.87	51 3.98	3.92				+7.79	−2.12		−3.76	5.83	~~5.93~~ 5.83	x	+83.3
July	5−.50	50 37.20		51 8.66	8.60				+2.68	−1.82		−3.43		6.03	x	+31.4
	6−.46−.05	50 20.90		51 9.74	9.68				+1.65	−1.68	−~~.02~~ .19	−3.13		6.33	x	+48.8
	7−.48−.03	50 45.60		51 10.76	10.70				+0.62	−1.75	−~~.07~~ .11	−3.06		6.40	x	+25.1
	10−.46	50 43.97		51 11.88	11.82				−1.19	−1.68		−2.85		6.10	x	+27.9
	13−.44	50 36.17		51 13.18	13.12				−3.02	−1.61		−2.63		5.86	x	+37.0

1872 Urs. Min. 2 H.   14h 56m

κ=−.037   +66° 26'   tan δ=+2.29   2.50   sin z=−.41

1872	33.481 34.26															
June	9−.14	54 48.57		(55) 23.69	23.65	55 36.58	−12.93 −.17	−12.76	+13.00	−.32		−3.10	14 55	33.23		
	#															
	30−.34	55 48.83		55 31.51	31.47	35.89	−4.42	−4.25	+4.89	−.78		−2.41		33.17		−17.3
July	6−.30−.08	55 8.87		55 43.30	43.26				−6.98	−.69	−.20	−2.18		33.21		+34.4
	7−.35	55 7.80		55 44.50	44.46				−8.35	−.80		−2.14		33.67		+36.7
	9−.29	56 4.23		55 45.11	45.09				−9.17	−.66		−2.06		33.20		−19.1
	11−.37	55 2.07		55 43.68	43.64				−7.48	−.85		−1.97		33.34		+41.6
'73 June	9−.29	54 50.57		55 19.87	19.84				+18.48	−.66		−3.45		34.21	x	+29.3
July	6−.46−.05	54 49.83		55 36.28	36.24				+1.65	−1.05	−.13	−2.53		34.18	x	+46.4
	10−.46	55 8.20		55 38.77	38.73				−1.19	−1.05		−2.37		34.12	x	+30.5
	13−.44	55 1.57		55 40.18	40.14				−3.03	−1.01		−2.23		33.87	x	+38.6

Im−IV		Circle Readings		Corr. Circ Read	δ′	B+T+γ	R_z	R_m	R_{ry}	Sum	Corr δ	App δ	R_{zr}					
s	s	′ ″	′ ″	′ ″	° ′ ″		″	″	″	″	′ ″	′ ″	″					
−5.03		38 44.20									44 17.40			+.5+4	45.16	−11.0	+59° 49′	52.06
+14.47		38 56.25									18.07			+.4	45.37	−11.2		52.64
+39.68		39 11.00									20.13			+.4	44.94	−12.4		53.07
+19.92		33 30.80									49 48.32			+.5−1	6.46	−4.4	48	37.96
+14.95		33 26.70									48.76			+.5	5.84	−4.8	~~37.62~~	~~39.02~~ 38.62
+27.44		33 34.50									48.88			+.5	5.50	−6.0		37.88
+27.45		33 34.25									49.01			+.5	3.50	−7.8		38.21
+34.60		33 37.60									50.25			+.5	3.71	−8.3		38.74
+28.05		33 33.60									50.01			+.5	3.77	−9.0	37.74	~~38.80~~ 37.74
+35.00		33 38.90									48.48			+.5	4.30	−9.1		36.58
+25.17		33 31.30									50.94			+.5	4.74	−9.2		37.50
+16.46		33 25.15									51.44			+.6	4.79	−9.8		37.45
		47 33.50	47 7.00															
+26.09		47 21.65									36 9.52			+.8+4 .1	45.16	−12.3	+74 40	43.18
+29.54		47 22.20									11.14			+.7	44.51	−13.1		43.25
+65.60		47 33.25									11.55			+.8	44.94	−13.6		43.69
+38.64		47 23.85									12.57			+.7	43.94	−14.1		43.05
+44.91		42 5.50									41 35.23			+.8−1	6.69	−3.4		25.94
+29.90		41 57.30									38.34			+.9	6.46	−5.6		27.18
+32.83		41 56.55									38.32			+.8	5.84	−5.8		27.48
+40.96		41 58.20									39.10			+.9	5.50	−7.2		27.30
																		~~27.19~~
+83.31		42 11.50									39.50			+.8	3.71	−9.4		27.19
+31.46		41 53.00									40.77			+.9	3.77	−10.0		27.90
+48.84		41 59.90									40.31			+.8	4.30	−10.1	26.71	~~26.70~~ 26.71
+25.16		41 50.20									42.43			+.9	4.74	−10.2		28.39
+27.91		41 51.05									41.87			+.9	4.71	−10.5		27.56
+37.01		41 53.90									42.40			+.9	4.79	−10.8		27.71

$u + \log \tan z = 1.41000_n$ $P' - P = -.1''$
$\log \cos \delta$ 9.60186
″ const. $.11804_n$

	+35.12	56 26.75 10 44.40		56 8.32	+66 26 40.83	−10 53	+25.09	−.25	+.15	+24.99	27 5.02	26′ 41.6	−0′ 23.4	+.7−0	24.51	−7.3	+66 26	33.91
−17.32		1 4.50									21 58.77			+.6+4	45.16	−11.3	#	33.23
+34.43		1 31.40									59.37			+.6	44.66	−12.1		32.53
+36.70		1 31.50									22 0.42			+.6	44.51	−12.3		33.23
−19.12		1 2.55									0.44			+.6	44.47	−12.4		33.11
+41.61		1 32.60									1.43			+.6	44.94	−12.7		34.27
+29.30		55 59.75									27 30.25			+.7−1	6.46	−4.6		19.89
+46.45		5x6 5.20									32.93			+.7	4.30	−9.4		19.93
+30.57		55 56.00									33.87			+.7	4.71	−9.9		19.96
+38.61		55 59.10									35.07			+.7	4.79	−10.1		20.88

# 1872	1872 7.460 46.94	7.468 2												
	β	Bootis Ts		Tm α=	Tm+k 14	57 k=−.020 R.A. m	Tm−R.A. δ= +40°	53′	tan δ= +.87	1.32 sin z= +.03				T′m
Jan	1 +.42 −.05			56 54 41.55	41.53 57	5.69 −24.16	+.04 −24.20	+23.87	+.36 −.07	+1.77	14h ~~56~~ 57m	7.46s		
~~morning.~~	8 +.46			56 36.25	36.23	5.98 −29.75	−29.79	+29.39	+.40	+1.48	57	7.60		
June	9 −.14	56 32.67	15.45	56 56.49	56.47	9.26 −12.79	−12.83	~~+30.24~~ +13.00	−.12	−1.80		7.55	−16	−18+43 +35 +
	11 −.20													
	30 −.34	56 41.67		57 4.48	4.46	9.03 −4.57	−4.61	+4.89	−.30	−1.57		7.48		+22.81
July	6 −.30 −.08	56 52.53		57 16.36	16.34			−6.99	−.26 −.11	−1.49	~~7.54~~	~~7.49~~ 7.49		+25.83
	7 −.35	56 51.92		57 17.64	17.63			−8.35	−.30	−1.47		7.51		+25.72
	9 −.29	57 29.00		57 18.36	18.34			−9.16	−.25	−1.44		7.49		−10.64
	11 −.37	56 54.70		57 16.84	16.82			−7.48	−.32	−1.41	7.61	~~7.67~~ 7.61		+22.14
	14 −.32	56 46.27		57 14.90	14.88			−5.68	−.28	−1.35		7.57		+28.63
	24 −.26	56 49.27		57 12.36	12.34			−3.45	−.23	−1.16		7.50		+23.09
Aug	1 −.27			57 15.84	15.82 57	8.46A		−7.15	−.23	−0.99		7.45		
	4 −.17			58 57 23.26	23.25	8.39A		−14.64	−.15	−0.92		7.54		
	7 −.23			57 31.17	31.15	8.33A.		−22.55	−.20	−0.86		7.54		
'73 June	9 −.29	56 31.60		56 53.54	53.53			+18.48	−.25	−2.04		9.72	x	+21.94
	11 −.34	56 33.73		56 54.46	54.44			+17.61	−.30	−2.02		9.73	x	+20.73
	17 −.37	56 33.13		56 57.31	57.29			+14.77	−.32	−1.97		9.77	+	+24.1
	~~18~~			~~56 57.86~~	~~57.84~~				−					+18
	30 −.58	56 46.17 57	28.80	57 4.26	4.24			+7.79	−.50	−1.81		9.72	4	+18.0
July	~~5~~	3												
	6 −.46 −.05	56 46.20		57 10.32	10.30			+1.65	−.40 −.07	−1.73		9.75	x	+24.1
	7 −.48 −.03	56 49.43		57 11.32	11.30			+0.62	−.42 −.04	−1.71		9.75	x	+21.8
	10 −.46	56 47.90		57 13.04	13.02			−1.20	−.40	−1.66		9.76	√	+25.1
	13 −.44	56 47.47		57 14.52	14.50			−3.03	−.38	−1.61		9.48	x	+27.03

#	1872				h	m			tan δ= +.52	1.13				
1872	57.674 52.48	ψ Bootis			14	58 k=−.017	+27°	27′		sin z=+.26				
June	9 −.14	58 32.8		58 46.35	46.33 58	59.25 −12.92	+.00 −12.92	+13.00	−.07	−1.58	14 58	~~57.~~ 57.68		
	27 −.22	58 28.73		58 50.43	50.41	59.14 −8.73	−8.73	+8.83	−.11	−1.47		57.64		+21.70
July	6 −.30 −.08	58 44.17		59 6.33	6.31			−6.99	−.16 −.09	−1.38		57.69		+22.1
	7 −.35	58 51.17		59 7.59	7.57			−8.35	−.18	−1.37		57.67		+16.4
	9 −.29	58 48.25		59 8.37	8.36			−9.16	−.15	−1.34	57.71	~~57.46~~ 57.71		+20.1
	11 −.37	58 49.37		59 6.74	6.72			−7.48	−.19	−1.31		57.74		+17.3
'73 June	9 −.29	58 27.17		58 43.69	43.67			+18.48	−.15	−1.79		0.21	+	+16.5
	30 −.58	58 35.17		58 54.42	54.40			+7.78	−.30	−1.64	59 0.24	~~0.04~~ 0.24	x	+19.2
July	6 −.50	58 45.60		58 59.54	59.53			+2.66	−.26	−1.59		0.34	x	+15.5
	7 −.48 −.03	58 41.00		59 1.52	1.51			+0.62	−.25 −.03	−1.57		0.28	x	+20.5
	10 −.46	58 44.37		59 3.30	3.28			−1.20	−.24	−1.55		0.29	+	+18.9
	13 ~~−.44~~	58 45.17		59 4.77	4.76			−3.03	−.23	−1.50		0.00	x	+19.6

		96	Urs. Min.	L.C.	h ~~16~~ 3	m 02	X +95°	33′	tan δ=−10.30		sin z=−.80		1873 15h 2m 38.917s	
1873 June	9 −.27			2 5.91	5.87			+ 18.48	+ 2.99	+11.97	15 2	39.31		
	30 −.58	0 33.73		2 16.38	16.53			+7.78	+5.97	+7.92		38.20		+102.6
July	7 −.48 −.03	59 46.40		2 26.59	26.75			+0.62	+4.94 +.31	+6.35		38.97		+160.1
	10 −.46	0 12.73		2 29.84	30.00			−1.20	+4.74	+5.635		39.179		+137.1

# 1872		48	H. Cephei	L.C.	15	m 04 k=−.070	+77° +05	15′	tan δ −4.42	4.55	sin z +.87			
June	2													
July	6 −.30 −.08	3 26.00		4 13.28	13.35			−6.99	+1.33 +.36	+2.26	15 4	10.31		+47.28
	7 −.35			4 14.77	14.84			−8.35	+1.55	+2.15		10.19		
'73 May	26													
	29 ~~−.27~~													
	31 ~~−.09~~													
June	1 ~~−.20~~													
	2 ~~−.26~~													
	30 −.58	4 29.30		4 4.30	4.37			+7.78	+2.56	+3.03		17.74	x	−25.
July	7 −.48 −.03	3 38.70		4 12.40	12.47			+0.61	+2.12 +.14	+2.31	17.65	~~17.51~~ 17.65	+	+33.7
	10 −.46	3 38.90		4 14.98	15.05			−1.20	+2.03	+1.99		17.87	+	+36.
	13 −.44	3 38.30		4 16.86	16.92			−3.04	+1.94	+1.65		17.47	+	+38.

u + log tan z = 0.17260
ρ'−ρ = +.6"

log cos δ 9.87855
" Const. .11804n

	T'm	−Tf	Circle Readings		Corr Circ. Read.	δ'	B+T+γ	Rf	Rd and	Rss	Sum	Corr δ	App δ	Rdy					
	s	s	' "	' "	' "	° ' "	"	"	"	"	"	' "	' "	"					
													53'	−0'					
−16 8+43 +35	+23.82	−18.96	28 55.95	28 13.40	28 32.26	+40 54 16.09	−10.51	−1.45	−.13	+.39	−1.19	54 14.90	50.3	24.6	−.0 −0	24.51	−3.4	+40° 53'	~~56.89~~ ~~56.81~~ 46.99
			34 4.50												+4	44.32			
	+22.81		33 60.35									49 8.53			−.1	45.16	−7.3		46.29
	+25.83		34 2.30									9.84			−.0	44.66	−8.1		46.40
	+25.72		34 0.95									11.09			−.1	44.51	−8.2		47.30
	−10.64		33 25.00									11.32			−.0	44.47	−8.4		47.39
	+22.14		33 58.40									10.17			−.1	44.94	−8.7	46.31	~~46.41~~ 46.31
	+28.63		34 2.85									12.10			−.0	43.82	−9.0		46.92
																~~43.94~~			
	+23.09																		
	+21.94		28 28.10									54 40.65			−.0 −1	6.46	−0.8		33.39
	+20.73		28 27.45									39.49			−.1	5.84	−1.2		32.35
	+24.18		28 29.95									40.38			−.0	5.50	−2.4		32.48
	+18.08	−~~24.55~~	28 22.60									41.87			−.1	3.71	−4.7		33.36
	+24.12		28 28.00									42.29			−.0	4.30	−5.5		32.49
	+21.89		28 24.50									43.61			−.1	4.74	−5.6		33.17
	+25.16		28 27.70									43.57			−.0	4.71	−6.0		32.86
	+27.05		28 29.55									43.73			−.1	4.79	−6.3		32.54

u + log tan z = 1.18610
log cos δ 9.94813
" const. .11804n
ρ'−ρ = +.5"

													26'	−0'					
		+13.55	55 30.20		55 14.42	+27 27 33.93	−10.48	−14.98	−.04	+.01	−15.01	27 18.92	53.0	25.9	−.4 −0	24.51	−0.9	+27 26	53.11
	+21.70		0 45.20									22 13.06			−.4 +4	44.33	−4.0		52.99
	+22.16		0 46.15									12.99			−.4	44.66	−4.9		52.35
	+16.42		0 38.65									13.89			−.4	44.51	−5.2		53.80
	+20.12		0 43.15									13.62			−.4	44.47	−5.3		52.39
	+17.37		0 40.40									13.93			−.4	44.94	−5.6		52.87
	+16.52		55 8.35									27 43.76			−.4 −1	6.46	+1.8	38.70	~~38.50~~ 38.70
	+19.25		55 11.45									44.34			−.5	3.71	−1.7		38.43
	+15.54		55 5.60									45.72			−.5	3.77	−2.4		39.05
	+20.52		55 9.65									47.26			−.5	4.74	−2.6		39.42
	+18.93		55 8.55									46.80			−.5	4.71	−2.9		38.69
	+19.60		55 8.45									47.57			−.5	4.79	−3.2		39.08
~5 38.91			~~49 54.90~~													~~−1 6.46~~			
	+102.65		49 56.10									33	55.37		+1.4 −1	3.71	−8.95	95 32	44.11
	+160.10		49 50.90										53.92		+1.4	4.74	−9.59		40.99
	+137.11		49 51.60										54.41		+1.4	4.71	−9.79		41.31
																1873 162		95° 32'	42.14"
	+47.28		44 25.05									39 46.80			+1.3 +4	44.66	−11.7	+ ~~77~~ 44	21.06
	−25.00		39 14.05									45 18.07			+1.5 −1	3.76	−8.7		7.16
	+33.70		38 58.30									15.45			+1.5	4.74	−8.9		3.31
	+36.08		38 57.05									18.17			+1.5	4.71	−9.0		5.96
	+38.56		38 56.85									18.52			+1.5	4.79	−9.2	6.03	~~6.13~~ 6.03

Gr. 2213 X

T_m $\frac{T}{h}_m + k$ RA. T_m - RA.

a = 15 4 k = -.158 δ = +84 25'

log tan δ July 1, 72 = 11.01212 July 7, 73 = 11.01179

tan δ = +10.28 recd 10.33 tan δ = +10.28 10.33 sin z = -.67

1872	n	Ts	m	Tm s	s							
June	~~27-.22~~											
	30-.34	4 7.13	4	55.60	55.44	+4.89	-3.50	~~-10.68~~ 8.43	15	4	46.15	48.40
July	1-.40		4	58.03	57.88	+2.~~33~~21	-4.11	~~-10.44~~ 8.24			45.~~66~~54	47.74
	6-.30 -.08	5 58.47	5	6.80	6.64	-6.99	-3.08 -.82	~~-9.21~~ ~~-8.2~~ 7.24			46.54	48.51
	7-.35	5 56.17	5	6.89	6.73	-8.35	-3.60	~~-8.96~~ 7.04 ~~-8.43~~			45.82	47.74
	~~9 wrong~~											
	11-.37	4 9.60	5	6.16	6.00	-7.48	-3.80	~~-7.91~~ 6.20			46.61	48.52
'73 ~~June~~	~~30-.58~~											
July	7-.48 -.03	5 37.97	4	54.52	54.36	+0.62	-4.93 -.31	-7.96 ~~-9.89~~ ~~-.34~~			38.85	41.78
	10-.46	5 6.00	4	54.70	54.54	-1.20	-4.73	~~-9.10~~ -7.33			39.51	41.28
	~~17~~											

1872 15h 4m 48.182s

1873 41.530

1872# 3 Serpentis 15h 9m k = -.016 + 5° 25' tan δ = +.09 1.00 sin z +.60s

1872 July	1-.40		8	48.89	48.88	+2.20	-.04	-1.41	15h 8m	49.63	
	~~6-.30~~										
	7-.35	8 53.85	8	59.44	59.42	-8.36	-.03	-1.37		49.66~~7~~	
	9-.29	8-39.40	9	0.24	0.23	-9.15	-.03	-1.35		49.70	
	10										
	11-.37	8 39.93	8	58.66	58.64	-7.49	-.03	-1.33		49.79	
	14-.32		8	56.80	56.78	-5.69	-.03	-1.31		49.75	
'73 June	11-.34	8 17.67	8	36.78	36.76	+~~18.48~~ 17.61	-.03	-1.66		52.68	x
	17-.37	8 21.27	8	39.66	39.64	+14.77	-.03	-1.64	52.74	~~52.77~~ 52.74	x
	30-.58	8 27.40	8	46.62	46.60	+7.78	-.05	-1.60		52.73	x
July	7-.48-.03	8 33.30	8	53.69	53.68	+0.61	-.04 -.03	-1.55		52.67	✓
	13-.44	8 38.77	8	57.10	57.08	-3.04	-.04	-1.51		52.49	x

1872# B Librae 15h 10m k = -.016 -8° 55' tan δ = -.16 1.01 z = +51 18 sin z = +.78

1872 June	9-.14	9 42.07	9	55.81	55.80	10 8.75 -12.95+.02-12.97	+13.00	+.02	-1.49	15 10	7.33
Aug	1-.27		10	15.57	15.55	8.41A	-7.16	+.04	-1.14		7.29
	4-.17		~~9~~10	23.08	23.06	8.38A	-14.66	+.03	-1.10		7.33
2 7.261	7.275A										
" 32.39											

1872# δ Bootis 15h 10m k = -.019 + 33° 48' tan δ = +.67 1.20 sin z +.15

1872 June	27-.22	9 54.37	10	13.42	13.40	10 22.18 - 8.78-.02-8.76	+8.83	-.15	-1.60	15 10	20.4~~8~~	
July	1-.40	10 41.30	10	20.19	20.17		+2.20	-.27	-1.54		20.56	
	7-.35	10 0.53	10	30.63	30.61		-8.36	-.23	-1.48		20.54	
	9-.29	10 13.62	10	31.41	31.39		-9.15	-.19	-1.45		20.60	
	11-.37	10 41.83	10	29.73	29.71		-7.49	-.25	-1.43		20.54	
	14-.32	10 37.17	10	27.91	27.89		-5.69	-.21	-1.38		20.61	
73 June	11-.34	9 44.87	10	7.56	7.54		+17.61	-.23	-1.92		23.00	+
	17-.37	9 53.20	10	10.36	10.35		+14.77	-.25	-1.88		22.99	x
	30-.58	9 58.93	10	17.41	17.39		+7.78	-.39	-1.77		23.01	+
July	7-.48-.03	10 2.80	10	24.39	24.37		+0.61	-.32 -.04	-1.69		22.93	+
	13-.44	10 3.40	10	27.61	27.59		-3.05	-.29	-1.61		22.64~~5~~	x
'72 June	11-.37 -.20											

−67	Tm − s	Tδ s	Circle ′ ″	Readings ′ ″	Corr Circ Read ′ ″	δ′ ° ′ ″	B+V+γ	D_ν R_{md} ″ R_{ro} ″	Sum ″ Corr δ ′	″ App δ ′	″ R_{eq} ″		
40	+48.47		1 31.95						22 10.48	+1.1 +4	~~44.33~~ 45.16 −11.85	84 26	44.89
74													
51	−51.67		1 19.55						11.98	+1.0 +4	44.66 ~~45.37~~ −12.57		45.07
74	−49.28		1 18.05						13.81	+1.0	44.51 −12.67		46.65
52	+56.56		1 30.70						13.80	+.9	44.94 −13.04		46.60
78	−63.45		55 47.85						27 43.27	+1.2 −1	4.74 −9.95		29.78
28	−11.30		55 55.15						41.87	+1.2	4.71 −10.24		28.12
												84° 26′	45.80″
													28.95
			2 ~~18.35~~							~~+4~~	~~44.46~~		
	+5.59		1 57.70						20 16.20	−.9 +4	44.51 +1.0	+5° 25′	0.81″
	+20.84		2 19.90						13.74	−.9	44.47 +.9	24	58.21
											~~+.7~~		
	+18.72		2 17.60						14.17	−.9	44.94 +.7		58.91
	+19.11		56 45.50						25 45.54	−1.0 −1	5.84 +6.3		45.00
	+18.38		56 43.45						46.72	−1.0	5.50 +5.7		45.92
	+19.22		56 47.50						44.06	−1.0	3.71 +4.4		43.75
	+20.39		56 45.15						46.92	−1.1	4.74 +3.8		44.88
	+18.33		56 42.80						47.14	−1.1	4.79 +3.4		44.65
	Approx	z = +51 15	58	u + log tan z =	1.85530	P′−P = −.1″							
		log cos δ	9.99472										
		″ const.	.11804										
	+13.74		16 8.95	15 20.60}	15 51.14	−8 53 2.79	−10 36 −69.97	+.01 +12	−69.84 54	1263 54′ 38.8 −1.2 −0	−0′ 26.2 +6.4 24.51	−8 54	31.94
	+19.05		40 3.30						42 57.11	−.2 +4	44.33 −5.0	+33 47	36.24
	−21.11		39 22.35						54.35	−.2	45.37 −5.6		33.92
	+30.10		40 14.70						57.72	−.2	44.51 −6.4		35.63
	+17.79		40 0.90						58.29	−.2	44.47 −6.6		35.96
	−12.10		39 31.35						55.51	−.2	44.94 −6.9		33.35
	−9.26		39 31.55						58.43	−.2	43.82 −7.3		34.75
	+22.68		34 37.30						48 26.64	−.2 −1	5.84 +.9		21.50
	+17.16		34 30.35						27.77	−.3	5.60 −.3		21.67
	+18.48		34 30.90						28.74	−.3	3.71 −2.6		22.13
	+21.59		34 31.25						31.53	−.2	4.74 −3.7		22.89
	+23.91		34 34.85						30.68	−.3	4.79 −4.4		21.19
			40 16.55										

1872
10.669
59.52

Urs. Min. 1 H.

Π_m | $\Pi_m + \kappa$ d= | RA. h 15 Π_m - RA. m 13 | κ=-.039 δ= 67 50 | tan δ_0 = +2.45 2.65 | sin z = -.43

1872 June	9-.14	12 2277	13 4673	13	1.61	1.57 13	14.06 -12.79	-.03 -12.46	+13.00	-.34	-3.39	15 13	~~14.23~~ 10.84		- 29-38
	30-.34														
July	1-.40	12 27.93		13	12.21	12.17			+2.20	-.98	-2.67		10.72		+
	7-.35	12 46.23		13	22.34	22.31			-8.36	-.86	-2.43		10.66		+
	9-.29	12 20.00		13	23.03	22.99			-9.15	-.71	-2.34		10.79		+
	14-.32	12 39.25		13	19.34	19.31			-5.69	-.78	-2.11		10.73		+
Oct	15														
'73 June	11-.34	12 22.50		12	58.30	58.26			+17.61	-.83	-3.68	11.36	~~11.33~~ 11.36	+	+
	17-.37	12 26.83		13	1.00	0.96			+14.77	-.91	-3.51	11.31	~~12.34~~ 11.31	x	
	30-.58	12 16.53		13	8.26	8.22			+7.77	-1.42	-3.04		11.53	x	
July	6-.46-.05	12 20.60		13	13.88	13.84			+1.64	-1.13 -.13	-2.80		11.42	x	+
	7-.48-.03	12 45.57		13	14.80	14.76			+0.61	-1.18 -.08	-2.76		11.35	+	+
	9-.50	12 44.97		13	15.93	15.89			-0.69	-1.22	-2.67		11.31	+	+
	13-.44	12 34.10		13	17.69	17.65			-3.05	-1.08	-2.48		11.04	+	+

July 12 log tan δ = 11.40012 July 7 '73 = 11.39932

tan δ_0 = +25.13 tan δ = +25.08

sec 25.14 sec 25.09

Dir

4 Urs. Min.

h 15 m 19 | κ=-.384 | +87 43

1872 June	11-.20	19 26.80		19	44.43	44.25			+14.01	-5.03	-28.~~68~~ 86	15 19	24.~~55~~ 37		+1
	30-.34			19	49.48	49.30			+4.84	-8.54	-21.04		24.56		
July	7-.35	17 35.50		19	59.10	58.92			-8.37	-8.80	-17.62		24.13		
'73 June	11-.34	18 27.10		19	23.54	23.36			+17.61	-8.53	-30.64		1.80		+5
	17-.37	16 42.00		19	25.44	25.26			+14.77	-9.28	-28.42		2.33		+16
July	7-.48-.03	18 41.30		19	33.87	33.68			+0.60	-12.04 -.75	-19.33		2.16		+5
	10-.46	18 32.00		19	31.66	31.48			-1.21	-11.54	-17.77		0.96		+5
	13-.44	18 13.50		19	31.84	31.66			-3.05	-11.04	-16.75		0.82		+7

1872 15h 19m 24s.353

1873 19m 1.614

γ¹ Urs. Min.

h 15 m 21 | κ=-.050 | +72° 17′

1872 July 12
'73 May 26

1872 γ² Urs. Min.

h 15 m 21 | κ=-.050 | +72 18 | tan δ = +3.13 3.29 | sin z = -.50

57.129 22.08

M

1872 June	9-.14	20 14.0	21 56.47	20	48.68	48.63 21	1.30 -12.67	-.15 -12.52	+13.00	-.44	-4.17	15 20	57.02		-20-74
	27-.22	20 16.20		20	52.07	52.02	0.57 -8.55	-8.40	+8.83	-.69	-3.44		56.72		+35
	~~30~~			2											
July	9-.29	20 3.97		21	9.89	9.84			-9.14	-.91	-2.80		56.99		+63
	11-.37			21	8.34	8.30			-7.49	-1.16	-2.68		56.97		
	14-.32	20 26.63		21	6.17	6.12			-5.70	-1.02	-2.51		56.91		+39
	23			~~21~~	~~3.43~~	~~3.38~~									
	24-.26	20 32.60		21	3.12	3.07			-3.45	-.81	-1.87		56.94		+30
'73 May	29 ~~-.27~~														
June	1 ~~-.20~~														
~~July~~	2			~~20~~	~~55.97~~	~~55.91~~									
July	7-.48-.03	20 45.43		21	0.92	0.87			+0.60	-1.50 -.10	-3.06		56.81	+	+15.
	10-.46	20 48.80		21	2.47	2.42			-1.21	-1.44	-2.88		56.89	+	+13
	12-.42	20 18.23		21	3.51	3.46			-2.41	-1.31	-2.77		56.97	+	+45
	21-.41	20 50.40		21	8.33	8.28			-7.90	-1.28	-2.21		56.89	+	+17.

A

1872 μ Bootis

h 15 m 20 | κ=-.020 | +37 49 | tan δ = +.78 | z = +4° 34′ | sin z = +.08

June	9-.14	19 0.73		19	28.25	28.23 19	41.10 -12.87	+.05 (2) -12.92 (89)	+13.00	-.11	-1.81	15 19	39.31
~~July~~	~~2~~			~~19~~	~~38.00~~	~~37.94~~							

39.289
37.72

log cos δ 9.57669 u+log tan z = 1.43770n P′−P = −.2″
" const. .11804n

π′m−π δ e e Circle Readings Cor Circ Read δ′ B+π+γ R_rg R_md R_m Sem Cor δ App δ 50′ ″ R_ey

−29 −38+34+26 +38.84 −45.12 33 4.45 32 23.60 32 45.58 +67 50 2.77 −1033 +26.75 −.34 +.30 +26.71 50 29.48 + 5.5 .7 −0 240 ~~45.21~~ 24.51 −.6.0 +67 49 59.67

~~37 40.00~~

+44.28 38 11.35 45 23.83 + .6 +4 45.~~38~~37 −10.6 49 59.20″

+36.11 38 7.60 24.60 + .6 ~~44.33~~ 51 −10.5 59.21

+63.03 38 19.95 25.02 + .6 ~~43.82~~ 44.47 −11.6 58.49

+40.09 38 6.80 27.15 + .6 43.82 −12.2 59.37

36 + +35.80 32 38.90 50 53.38 + .7 −1 5.84 −3.6 44.64 ~~45.64~~ 44.64

31 + +34.17 32 36.55 54.72 + .7 5.50 −5.1 44.82 ~~44.81~~ 44.82

+57.72 32 43.90 53.58 + .7 3.71 −7.7 44.87

+53.28 32 43.10 57.50 + .7 4.30 −8.6 45.30

+29.23 32 31.45 57.95 + .7 4.74 −8.8 45.11

+30.96 32 31.95 58.14 + .7 4.82 −9.0 45.02

+43.59 32 38.05 58.00 + .7 4.79 −9.4 44.51

Δm z = −.71

+17.63 45 8.45 38 37.14 +1.1 +4 44.~~94~~32 −7.51 87 43 15.05

+ 5

+56.44 39 37.00 44 10.67 +1.2 −1 5.84 −4.70 43 1.33

+163.44 39 42.45 9.76 +1.2 5.50 −5.77 42 59.69

+52.57 39 35.20 12.85 +1.2 4.74 −9.18 43 0.13

+59.66 39 34.05 13.25 +1.3 4.71 −9.50 0.34

+78.34 39 33.15 15.62 +1.3 4.79 −9.80 2.33

3 87° 43′ 15.05″

4 43 0.7~~7~~6

u+log tan z = 1.51990n P′−P = +.1″
log cos δ 9.48292
" const. .11804n

−20 −74+8+0+ 34.68 −67.84 5 42.10 5 1.70 5 28.02 +72 17 20.33 −1024 +32.33 −.47 +.04 +31.90 17 52.23 17′ 28.2 +.8 −0 −0′ 240 24.51 −6.1 +72 17 22.42

+35.87 20 48.35 12 46.42 +.7 +4 44.33 −10.1 21.35

+65.92 10 57.70 47.89 + .7 44.47 −11.9 21.16

+39.54 10 45.40 50.03 + .7 43.82 −12.5 22.05

+30.57 ~~43.94~~

+15.49 5 6.45 18 20.64 +.8 −1 4.74 −8.9 7.80

+13.67 5 3.40 22.04 +.8 4.71 −9.3 8.83

+45.28 5 15.30 23.14 +.8 4.43 −9.5 10.01

+17.93 4.64

Approx z = +4° 32′ 45″ u+log tan z = 0.66060 P′−P = +.0″
log cos δ 9.89761
" const. .11804n

+ 27.52 33 6.40 32 37.87 +37 50 10.98 −1025 −4.47 −.19 +.34 −4.32 50 6.16 49′ 39.6 −.2 −0 0′ 26.6 24.51 −1.9 +37 49 39.55

#	n	T_σ	T_m	$\frac{T}{m}$	$\frac{T}{m}+\frac{k}{n}$	RA.	$\frac{T}{m}$ - RA.						
#	ν Draconis			a =	15 22		δ = +59° 24'						
1872 July	2												
	9 −.29												

Gr. 642 L.C.

3h ~~2~~ 23m +93° 44'

tan δ = − 15.21 sec δ − 15.28 tan δ = − 15.22

log tan δ for July '72 = 11.18205n July '73 = 11.18250n

sin z = − .78

								tan δ =			h m	s	
1872 June	27 −.22	25 43.32		24 23.24	23.31			+ 8.83	+ 3.35	+ 13.08	15 24	48.57	
July	7 −.35	22 31.83		24 41.57	41.63			− 8.37	+ 5.32	+ 10.00		48.58	
	9 −.29	22 8.37		24 43.37	43.43			− 9.14	+ 4.41	+ 9.36		48.06	
	11 −.37	22 17.70		24 41.69	41.76			− 7.49	+ 5.63	+ 8.69		48.59	
	14 −.32	21 43.30		24 41.07	41.13			− 5.70	+ 4.87 −	+ 7.66		47.96	
'73 July	7 −.48 −.03	21 48.10		24 48.99	49.06			+ 0.60	+ 7.31 + 46	+ 10.72	25	8.15	
	10 −.46	22 12.00		24 52.44	52.51			− 1.21	+ 7.00	+ 9.71		8.01	
	12 −.42	21 59.57		24 54.90	54.97			− 2.42	+ 6.39	+ 9.04		7.98	
	13 −.44	22 2.35		24 55.22	55.29			− 3.06	+ 6.69 70	+ 8.70		7.673	

1872 15h 24m 48.352

1873 25m 7.992 4

# ν¹ Bootis

15h 26m +41° 16'

tan δ = +.88 1.33 sin z +.02

												19.85	
1872 June	11 −.20	26 49.15 26 38.10		26 7.83	7.92 26	21.90	− 13.98 + 05 − 14.03	+ 14.01	− .178	− 1.90	15h 26m	~~19.84~~ 19.85	
July	~~6~~ −.30 −.08								− .26	~~1.6~~			
	7 −.35	26 11.30 26 59.00		26 30.26	30.23			− ~~7.01~~ 8.37	− .31	− 1.63		19.92	
	9 −.29	26 21.00		26 30.98	30.96			− 9.14	− .26	− 1.60		19.96	
	11 −.37	26 21.27		26 29.32	29.30			− 7.49	− .33	− 1.57		19.91	
	14 −.32	26 41.73		26 27.41	27.39			− 5.70	− .28	− 1.52		19.89	
	15 −.34	26 ~~√2~~ 1.40		26 26.64	26.61			− 4.88	− .30	− 1.50		19.93	
					~~15 27~~		+ ~~41° 19'~~	~~tan δ +.88~~	~~1.33~~				
'73 July	3 −.55	25 56.77		26 19.66	19.63			+ 4.83	− .48	− 1.91	15 26	22.07	+
	7 −.48 −.03	26 43.13		26 23.87	23.85			+ 0.60	− .42 − .04	− 1.86		22.13	x
	9 ~~−.50~~												
	10 −.46	26 18.50		26 25.54	25.52			− 1.21	− .40	− 1.81		22.10	x
	13 −.44	26 18.00		26 26.98	26.96			− 3.06	− .39	− 1.76		21.75	x
	15 −.56	26 1.57		26 28.29	28.27			− 3.93	− .49	− 1.73		22.12	v
	21 −.41 √1			26 32.00	31.98			− 7.90	− .36	− 1.60		22.12	x

# 16.135s A. α Coronae

15h 29m +27° 9'

tan δ = +.51 1.12 sin z +.26

1872 June	11 −.20	28 45.13 29 25.37		29 3.94	3.93 29	17.80	− 13.87 ~~+.02~~ − 13.89	+ 14.01	− .10	− 1.68	15 29	16.16	
July	7 −.35	29 3.17		29 26.33	26.31			− 8.38	− .108	− 1.52		16.~~19~~ 23 17	
	9 −.29	29 7.00		29 26.96	26.95			− 9.13	− .185	− 1.50		16.~~18~~	
	11 −.37	29 2.67		29 25.33	25.31			− 7.49	− .159	− 1.48	16.15	~~16.14~~ 16.15	
	14 −.32	29 12.80		29 23.44	23.43			− 5.70	− 16	− 1.44		16.13	
	15 −.34	29 4.73		29 22.71	22.69			− 4.89	− 17	− 1.43		16.20	
	24 −.26			29 21.02	21.00 29	17.44 A		− 3.45	− 13	− 1.30		16.17	
~~Aug~~	~~9~~			~~29 45.50~~	~~45.48~~								
'73 May	26												
	29 ~~−.27~~												
	31 ~~−.09~~												
June	1 ~~−.20~~												
	2 ~~−.26~~												
July	3 −.65	28 57.77		29 15.90	15.88			+ 4.82	− .28	− 1.77		18.65	+
	~~6~~ −.46 −.05	28 56.00		29 19.10	19.08			+ 1.63	− .23 − .06	− 1.74		18.68	+
	7 −.48 −.03	28 54.13		29 20.14	20.13			+ 0.59	− .24 − .03	− 1.73		18.72	+
	9 −.50	29 1.07		29 21.30	21.28			− 0.70	− .25	− 1.71		18.62	+
	10 −.46	29 2.00		29 21.81	21.79			− 1.21	− .23	− 1.70		18.65	+
	12 −.42	28 56.13		29 22.86	22.85			− 2.42	− .21	− 1.67		18.55	+
	13 −.44	29 1.20		29 23.36	23.34			− 3.07	− .22	− 1.66	18.39	~~18.59~~ 18.39	x
	15 −.56	29 1.53		29 24.53	24.51			− 3.94	− .29	− 1.64		18.64	x

	Tm − Ts		Circle Readings.										
					~~41~~	~~6.51~~			~~44.33~~				
	−80.08		42 59.10		41	~~6.51~~	+1.2	+4	44.33	−10.21	93	45	41.83
	+129.74		42 36.70			12.09	+1.1		44.51	−11.57			46.19
	+155.00		42 36.95			9.21	+1.1		44.47	−11.72			43.06
	+143.99		42 34.65			10.36	+1.1		44.94	−11.91			44.49
	+177.77		42 32.45			10.62	+1.1		43.82	−12.15			43.39
	+180.89		36 59.40		46	42.69	+1.4	−1	4.74	−9.27			30.0~~7~~8
	+160.44		37 2.80			42.23	+1.4		4.71	−9.01			29.91
	+175.33		37 1.70			43.26	+1.4		4.43	−9.19			31.04
	+172.87		37 1.35			43.34	+1.4		4.79	−9.27			30.68
52											93′	45′	43.79″
92 4												45′	30.43
85	+18.67	− 30.28	11 34.10	10 46.70	11	31.26	− 0	+4	44.32	−2.5	+41°	16′	13.08″
			11 34.60			?			~~44.66~~				
	+18.95	− 28.75	11 29.50	10 43.20		36.24	− 0		44.51	−7.8			12.95
	+9.98		11 20.35			36.66	− 0		44.47	−8.0			13.13
	+ 8.05		11 19.15			35.98	− 0		44.94	−8.3			12.62
	− 14.32		11 55.10			38.09	− 0		43.82	−8.6			13.31
	+25.24		11 33.40			38.49	− 0		44.22	−8.7			14.01
+	+22.88		5 59.95		17	9.57	− 0	−1	3.69	−4.1			1.78
x	−19.26		5 18.80			9.43	− 0		4.74	−4.6	0.09		~~0.07~~ 0.09
									~~4.82~~				
x	+ 7.04		5 43.25			10.85	− 0		4.71	−5.1			1.04
x	+ 8.98		5 44.75			11.26	− 0		4.79	−5.7			0.77
v x	+26.72		6 2.20			11.08	− 0		3.04	−6.0			2.04
	+18.81	− 21.43	18 50.90	18 4.05	4	3.73	− .4	+4	44.32	−0.2	+27	8	47.45
	+23.16		18 51.95			7.98	− .4		44.51	−4.8			47.29
.15	+19.96		18 47.35			8.89	− .4		44.47	−5.1			47.86
	+22.66		18 50.75			8.85	− .4		44.94	−5.4			47.99
	+ 10.64		18 34.85			10.85	− .4		43.82	−5.7			48.57 2
	+17.98		18 43.90			10.36	− .4		44.22	−5.9			~~48.28~~ 48.28
+	+18.13		13 12.40		9	41.67	− .5	−1	3.69	−1.2			36.28
+	+23.10		13 17.55			41.95	− .5		4.30	−1.6			35.55
+	+26.01		13 19.30			43.40	− .5		4.74	−1.7			36.46
+	+ 20.23		13 12.60			43.56	− .5		4.82	−2.0			36.24
+	+19.81		13 12.50			43.38	− .5		4.71	~~−2.2~~			35.97
+	+ 26.73		13 18.95			44.67	− .5		4.43	−2.5			37.24
.39 x	+22.16		13 14.45			44.18	− .5		4.79	−2.6			36.29
x	+23.00		13 17.60			42.38	− 5		3.04	−2.8			36.04

#
1872 δ Boötis α= 15 33 δ= +40° 46′ tan δ= +.86 1.32 Div Z +.03

	n	T_s		T_m	$\Pi_m + k$	R.A.	Π_m – R.A.								
1872 June	11 −.20	32 38.73	33	1.90	1.88	33 15.72	−13.84 +.06 −13.90	+14.01	−.17		−1.91	15 33	13.81		+23.1
July	11 −.37	33 2.10	33	23.24	23.22			−7.49	−.32		−1.60		13.81		+21.1
	14 −.32	32 55.67	33	21.36	21.34			−5.70	−.28		−1.55		13.81		+25.0
	15 −.34	33 0.30	33	20.60	20.58			−4.89	−.29		−1.53		13.87		+20.3
'73 June	29 −.49	32 42.60	33	9.94	9.92			+8.40	−.42		−1.98		15.92	+	
July	3 −.55	32 45.37	33	13.60	13.58			+4.82	−.47		−1.93		16.00	+	
	6 −.46 −.05	33 9.75	33	16.67	16.65			+1.62	−.40	−.07	−1.89		15.9~~8~~1	+	+6.9
	7 −.48 −.03	32 56.57	33	17.76	17.74			+0.59	−.41	−.04	−1.88		16.00	×	+21.1
	9 −.50	32 59.75	33	19.02	19.00			−0.70	−.4~~2~~3		−1.85		16.02	+	+19.2
	10 −.46	32 53.10	33	19.47	19.45			−1.22	−.40		−1.83		16.00	+	+26.3
	12 −.42	32 55.27	33	20.51	20.49			−2.43^{2}	−.36		−1.80		15.91	+	+25.2
	13 −.44	32 51.33	33	20.90	20.88			−3.07	−.38		−1.78		15.65	×	+29.5
	15 −.56	32 57.43	33	22.16	22.14			−3.94	−.48		−1.75		15.97	+	+22.
	21 −.41		23	25.92	25.90			−7.91	−.35		−1.65		15.99	+	

1872 15 Urs. Min. 15ʰ 35ᵐ +77° 46′ tan δ = +4.61 sec δ 4.72 Div Z = −.58

	n	T_s		T_m											
1872 June	11 −.20	33 55.58	35	8.42	8.35			+14.01	−.92		−5.87	15 35	15.57		+72.8
	27 −.22	33 58.87	35	12.69	12.62			+8.83	−1.01		−4.88		15.56		+73.8
	30 −.34	35 46.63	35	17.10	17.03			+4.80	−1.57		−4.66		15.60		−29.5
July	6 −.30 −.08	34 0.47	35	28.52	28.45			−7.03	−1.38	−.38	−4.19		15.47		+87.9
	7 −.35	33 34.37	35	29.64	29.57			−8.38	−1.61		−4.10		15.48		+115.2
	9 −.29	33 46.93	35	30.03	29.96			−9.13	−1.34		−3.93		15.56		+103.1
	11 −.37	35 2.03	35	28.49	28.42			−7.~~50~~49	−1.71		−3.76		15.46		+26.4
	14 −.32	34 18.83	35	26.26	26.18			−5.70	−1.48		−3.50		15.50		+67.4
	15 −.34	34 8.10	35	25.46	25.38			−4.89	−1.57		−3.41		15.52		+67.35
'73 June	29 −.49	34 27.03	35	12.79	12.72			+8.40	−2.26		−5.13		13.73		+45.7
July	3 −.55	34 5.23	35	16.24	16.17			+4.82	−2.54		−4.82		13.63		+71.01
	7 −.48 −.03	34 19.30	35	19.89	19.82			+0.59	−2.24	−.14	−4.49		13.57		+60.5
	9 −.50	34 57.40	35	21.11	21.04			−0.70	−2.30		−4.33		13.71		+23.7
	12 −.42	34 21.27	35	22.12	22.05			−2.42	−1.94		−4.07		13.62		+60.8
	13 −.44	34 50.30	35	22.42	22.35			−3.~~70~~07	−2.03		−3.98		13.27		+32.1
	15 −.56	34 16.90	35	24.08	24.00			−3.~~40~~94	−2.58		−3.80		13.68		+67.18
	21 −.41		35	26.76	26.68			−7.91	−1.89		−3.24		13.64		
	22 −.42	34 46.77	35	27.23	27.16			−8.41	−1.94		−3.14		13.67		+404

1872 15ʰ 35ᵐ 15ˢ.523

1873 35 13.613

#
1872 5 H Camelop. L.C. 3ʰ ᵐ 15 36 109 +70° 56′ tan δ = −2.89 3.06 Div Z −.92

	n	T_s		T_m											
1872 June	11 −.20	36 20.20	36	35.23	35.28	36 49.70	−13.42 +.17 −13.59	+14.01	+.58		+3.22	15 36	53.09		+15.03
	27 −.22	36 10.23	36	41.37	41.41	50.62	−9.21 −9.38	+8.83	+.64		+2.30		53.18		+31.14
	30 −.34		36	45.24	45.29	50.82	−5.53 −5.70	+4.80	+.98		+2.10		53.17		
July	6 −.30 −.08	36 28.90	36	57.38	57.42			−~~+~~7.04	+.8~~8~~7	+.24	+1.69	~~37~~	~~1.26~~ 53.18		+28.4
	11 −.37	37 18.80	36	58.29	58.33			−7.49	+1.07		+1.34	36	53.25		−20.5
	15 −.34	36 25.73	36	55.94	55.99			−4.89	+.98		+1.03		53.11		+30.2
'73 June	29 −.49	36 29.63	36	47.16	47.20			+8.40	+1.42		+2.13		59.15	×	+17.52
July	6 −.46 −.05	36 4.00	36	54.67	54.71			+1.62	+1.33	+.15	+1.66	59.47	~~59.57~~ 59.47	+	+50.67
	7 −.48 −.03	36 21.20	36	55.79	55.83			+0.59	+1.39	+.09	+1.59		59.49	×	+34.59
	9 −.50	36 13.93	36	57.00	57.~~94~~04			−0.70	+1.44		+1.44	~~37~~	~~0.12~~ 59.22	×	+43.07
	12 −.42	36 23.80	36	59.29	59.33			−2.43^{2}	+1.21		+1.23	36	59.35	+	+35.44
	13 −.44	36 45.20	36	59.63	59.68			−3.07	+1.27		+1.14	36 59.02 ~~37~~	~~0.05~~ 59.02	+	+14.43
	15 −.56	36 23.77	37	0.58	0.62			−3.94	+1.62		+.99	36	59.29	+	+36.81
	21 −.41		37	5.53	5.58			−7.91	+1.18		+.54		59.39	×	
	22 −.42	36 26.13	37	6.02	6.07			−8.41	+1.21		+.45		59.32	^	+39.89

	Im − Ts	Circle Readings								
	+23.17	41 37.10	41	32.30	−.0	+4	44.32	−2.2	+40° 46′	14.42″
	+21.14	41 28.85		38.72	−.1		44.94	−8.0	15.56	~~15.66~~
	+25.69	41 32.15		39.88	−.0		43.82	−8.4		15.30
+	+20.30	41 26.65		40.12	−.1		44.22	−8.6		1564
							~~+ 3.79~~			
+	+6.92	36 1.10	47	13.49	−.0	−1	4.30	−4.3		4.89
+	+21.18	35 39.40		14.02	−.1		4.74	−4.4	4.78	~~4.80~~ 4.78
+	+19.27	35 53.50		14.04	−.0		4.82	−4.7		4.52
+	+26.37	35 51.20		14.39	−.1		4.71	−4.9	4.68	~~4.78~~ 4.6.8
+	+25.24	35 58.95		14.64	−.0		4.43	−5.2		5.01
x	+29.57	36 1.10	47	14.63	−.1		4.79	−5.4		4.34
+	+22.73	35 55.50		13.61	−.1		3.04	−5.7		4.77
8										
	+72.84	41 59.05	41	48.34	+.9	+4	44.32	−5.87	+77 46	27.69
	+73.82	41 55.60		52.47	+.9		44.33	−8.52		29.18
	−29.53	41 25.15		53.45	+.9		45.16	−10.11		29.40
	+84.95	41 56.50		54.48	+~~.9~~.8		44.66	−11.12		28.82
	+115.27	42 3.55		54.66	+.8		44.51	−11.27		28.70
	+103.10	42 57.15		57.94	+.8		44.47	−11.58		31.63
	+26.46	41 38.35		56.03	+.8		44.94	−11.87		29.90
	+67.43	41 48.75		57.34	+.8		43.82	−12.24		29.72
	+67.35	41 51.55		54.24	+.8		44.22	−12.36		26.90
	+45.76	36 13.95	47	25.99	+1.0	−1	3.79	−7.05		16.08
	+71.01	36 19.05		27.47	+1.0		3.69	−7.77		17.01
	+60.59	36 16.05		28.92	+1.0		4.74	−8.43		16.~~9~~75
	+23.71	36 6.40		28.48	+1.0		4.82	−8.75		15.91
	+60.85	36 15.65		29.15	+1.0		4.43	−9.16		16.56
	+32.12	36 7.50		29.35	+1.0		4.79	−9.28		16.28
	+67.18	36 16.90		28.26	+1.0		3.04	−9.52		16.70
							~~4.64~~			
	+40.46	36 7.95		30.86	+1.0		4.26	−10.22		17.38
3									77° 46′	3′ 29.10
3									46	16.58
	+15.03	25 33.95	59	16.58	+1.6	+4	44.32	−6.1	109 +~~74~~ ~~53~~	56.40
	+31.14	25 25.75		19.57	+1.5		44.33	−8.5		56.90
18	+28.48	25 23.85		20.40	+1.4		44.66	−9.5		56.96
	−20.51	25 41.45		21.63	+1.3		44.94	−9.9	57.97	~~56.77~~ 57.97
	+30.21	25 18.60		23.03	+1.3		44.22	−10.1		58.45
x	+17.52	20 56.55	4	51.12	+1.6	−1	3.79	−5.9	43.03	~~53.03~~ 43.03
47 +	+50.67	19 43.55		52.94	+1.6		4.30	−6.7		43.54
x	+34.59	19 51.90		52.44	+1.6		4.74	−6.8		42.50
22x	+43.07	19 46.55		53.26	+1.5		4.82	−6.8		43.14
+	+35.49	19 48.10		55.18	+1.5		4.43	−7.1	45.15	~~45.85~~ 45.15
9.02 +	+14.43	19 57.15		53.94	+1.6		4.79	−7.1		43.65
+	+36.81	19 45.30	4	53.21	+1.6		3.04	−7.2		44.57
x										
x	+39.89	19 44.35		55.21	+1.6		4.26	−7.5		45.05

n Ts Tm Tm+κ R.A. Tm−R.A.

a Serpentis α = 15h 37m δ = +6° 50′ tan δ = +.12 1.01 sin z +.58

Date	n	Ts	Tm	Tm+κ	R.A.	Tm−R.A.					h m	s		T
1872 June	11−.20	37 19.80	37 45.56	45.54	37 59.41	−13.87 +.02 −13.89	+14.01	−.02		−1.57	15h 37m	57.96s		+25.7
July	15−.34	38 57.43	38 4.31	4.29			−4.89	−.04		−1.57		57.79		+12.8
'73 May	26													
	29 ~~−.27~~													
	31 ~~−.09~~													
June	1 ~~−.20~~													
	2 ~~−.26~~													
	29−.49	37 33.30	37 54.19	54.18			+8.40	−.06		−1.73	38	0.79	x	+20.8
July	3−.55	37 37.97	37 57.86	57.85			+4.82	−.07		−1.71		0.89	x	+19.8
	6−.46−.05	37 42.60	38 1.07	1.06			+1.62	−.06	−.05	−1.70		0.87	x	+18.4
	7 Reject.													
	9−.50	37 44.77	38 3.26	3.25			−0.70	−.06		−1.69		0.80	x	+16.4
	12−.42	37 49.20	38 4.88	4.87			−2.42	−.05		−1.67		0.73	x	+15.6
	13−.44	37 50.43	38 5.34	5.33			−3.07	−.05		−1.66		0.55	x	+14.9
	15−.56	37 45.47	38 6.46	6.45			−3.94	−.07		−1.64		0.80	x	+20.9
	21−.41		38 10.37	10.36			−7.91	−.05		−1.58		0.82	x	
	22−.42	37 52.60	38 10.84	10.83			−8.41	−.05		−1.57		0.80	x	+18.2

β Serpentis 15h 40m +15° 49′ tan δ = +.28 1.04 sin z +.45

Date	n	Ts	Tm	Tm+κ	R.A.	Tm−R.A.					h m	s		T
1872 June	27−.22	39 49.27	40 9.66	9.65	40 18.42	−8.75 +.01 −8.76 8	+8.83	−.06		−1.58	15 40	16.84		+20.3
July	14−.32	40 7.27	40 24.16	24.15			−5.71	−.09		−1.46		16.89		+16.8
	15−.34	40 4.23	40 23.36	23.35			−4.90	−.10		−1.45		16.90		+19.
'73 June	26−.44	39 51.03	40 11.42	11.40			+10.08	−.12		−1.78		19.58	x	+20.3
	29−.49	39 58.53	40 13.11	13.09			+8.40	−.14		−1.76		19.59	x	+14.5
July	3−.55	39 56.30	40 16.72	16.70			+4.81	−.15		−1.74		19.62	x	+20.4
	6−.46−.05	40 0.23	40 19.90	19.88			+1.62	−.13	−.05	−1.72		19.60	x	+19.6
	7−.48−.03	39 58.53	40 20.94	20.92			+0.58	−.13	−.03	−1.71		19.63	x	+22.4
	9−.50	40 0.20	40 22.24	22.22			−0.71	−.14		−1.70		19.67	x	+22.0
	12−.42	40 5.17	40 23.76	23.75			−2.43	−.12		−1.68	19.52	~~19.32~~ 19.52	x	+18.5
	13−.44	40 2.53	40 24.24	24.22			−3.08	−.12		−1.67		19.35	x	+21.
	15−.56	40 4.63	40 25.38	25.37			−3.94	−.16		−1.65		19.62	x	+20.
	21−.41	40 12.53	40 29.24	29.23			−7.91	−.11		−1.59		19.62	x	+16.
	22−.42	40 7.27	40 29.74	29.73			−8.41	−.12		−1.58		19.62	x	+22.4

μ Serpentis 15h 43m * 3° 3′ tan δ = −.05 1.00 sin z +.71

Date	n	Ts	Tm	Tm+κ	R.A.	Tm−R.A.					h m	s		T
1872 June	27−.22	42 26.77	42 49.32	49.30	42 58.10	−8.80 −.02 −8.78	+8.83	+.01		−1.58	15 42	56.56		+22.
'73 June	25−.35	42 34.63	42 50.96	50.94			+10.43	+.02		−1.76		59.63	x	+16.3
	26−.44	42 30.93	42 51.33	51.31			+10.08	+.02		−1.76		59.65	x	+20.4
	29−.49	42 33.57	42 52.94	52.92			+8.40	+.02		−1.74		59.60	x	+19.3
July	3−.55	42 33.23	42 56.59	56.58			+4.81	+.03		−1.72		59.70	x	+23.
	6−.46−.05	42 33.60	42 59.80	59.79			+1.62	+.02	∓.05	−1.71		59.67	x	+26.2
	7−.48−.03	42 39.50	43 0.79	0.78			+0.58	+.02	±.03	−1.71		59.64	x	+21.2
	9−.50	42 43.00	43 2.11	2.09			−0.71	+.02		−1.70		59.70	x	+19.
	12−.42	42 39.00	43 3.76	3.75			−2.43	+.02		−1.68		59.66	x	+24.
	13−.44	42 44.40	43 4.16	4.14			−3.08	+.02		−1.68		59.49	x	+19.
	15−.56	42 45.60	43 5.18	5.17			−3.94	+.03		−1.66		59.60	x	+19.5
	20−.39	42 46.63	43 8.68	8.67			−7.39	+.02		−1.62		59.68	x	+22.0
	21−.41	42 44.33	43 9.13	9.11			−7.91	+.02		−1.61		59.61	x	+24.8
	22−.42	42 48.83	43 9.66	9.64			−8.41	+.02		−1.60		59.65	x	+20.8

Tm –Ts	Circle Readings							
	′ ″							″
+25.75	37 35.65	45	5.95	−.9 +4	44.32	+3.4	+6° 49′	52.77
+12.88	37 20.90		4.93	−.9	44.22	+2.8		51.05
+20.89	31 58.70	50	37.12	−.10 −1	3.79	+4.1		36.43
+19.89	31 57.55		37.00	−.10	3.69	+3.7		36.01
+18.47	31 52.85		39.09	−.10	4.30	+3.4	37.19	~~36.83~~ 37.19
+16.49	31 52.10		39.72	−.10	4.82	+3.2		37.10
+15.68	31 48.55		39.62	−.10	4.43	+2.9		37.09
+14.91	31 47.85		39.75	−.10	4.79	+2.8		36.76
+20.99	31 58.40		38.07	−.10	3.04	+2.6		36.63
								36.29
+18.24	31 52.65		39.55	−.10	4.26	+2.0		
+20.39	38 3.15	44	42.20	−.7 +4	44.33	−0.5	+15 49	25.33
+16.89	37 58.30		43.70	−.6	43.82	−2.5		24.42
+19.13	38 1.10		43.90	−.6	44.22	−2.7		24.82
+20.39	32 29.40	50	16.16	−.7 −1	4.01	+2.5	13.95	~~13.85~~ 13.95
+14.58	32 23.05		15.74	−.8	3.79	+2.2		13.35
+20.42	32 29.50		16.67	−.7	3.69	+1.7		13.98
+19.67	32 26.55		18.13	−.8	4.30	+1.3		14.33
+22.41	32 29.90		17.91	−.7	4.74	+1.2		13.67
+22.04	32 28.65		18.88	−.8	4.82	+1.0		14.26
+18.59	32 24.90		18.29	−.7	4.43	+.6		13.76
+21.71	32 28.05		19.42	−.8	4.79	+.5		14.33
+20.75	32 29.25		17.72	−.8	3.04	+.2		14.08
+16.71	32 21.60		19.77	−.8	4.64	−.5		13.83
+22.48	32 29.10		19.52	−.8	4.26	−.6		13.86
+22.55	29 19.90	6	59.87	−.10 +4	44.33	+3.7	− 3 2	12.84
+16.32	23 38.15	1	26.82	−.12 −1	4.44	+6.9		25.56
+20.40	23 44.60		27.03	−.12	4.01	+6.7		25.54
+19.37	23 43.15		25.81	−.12	3.79	+6.6		24.20
+23.36	23 48.70		26.11	−.12	3.69	+6.3	24.70	~~24.60~~ 24.70
+26.20	23 50.45		25.27	−.12	4.30	+6.1		24.67
+21.29	23 43.00		24.79	−.12	4.74	+6.0	24.73	~~23.73~~ 24.73
+19.11	23 39.05		23.41	−.12	4.82	+6.0		23.43
+24.96	23 47.20		24.15	−.13	4.43	+5.7		24.18
+19.75	23 41.20		23.98	−.12	4.79	+5.7		24.27
+19.58	23 44.95		25.96	−.13	3.04	+5.5		24.80
+22.05	23 44.30				4.72			
+24.80	23 48.75				4.64			
+20.83	23 44.50				4.26			

n TΣ Tm $\frac{\Pi}{m}+\kappa$ $\frac{Rf.}{n}$ $\frac{\Pi}{m}$ - Rt.

ε Serpentis

a = 15 45   tan δ = +.08 1.00   δ = + 4° 51'

1872		m s	m	s	s	
~~Aug 9~~			44	~~55.56~~	55.54	~~-.01~~
'73 May	31-.09					~~-.02~~
June	2-.26					

12 H. Draconis

h m 15 45   + 63° 00'   tan δ = +1.96 2.20   Rin Z -.35

1872 June	27-.22	44 57.30	44	42.12	37.55	44 45.94	-8.39 -.06 -8.33	+8.83	-.43	-2.64	h m 15 44	s 43.31		
	30-.34	44 9.97	44	41.70	41.67	45.86	-4.19 -4.13	+4.77	-.67	-2.55		43.22		
July	6-.30-.08	44 17.53	44	53.46	53.42			-7.04	-.59 -.18	-2.39		43.22		
	7-.35	44 8.93	44	54.73	54.70			-8.39	-.69	-2.35		43.27		
	9-.29	44 10.53	44	55.23	55.20			-9.12	-.57	-2.29		43.22		
	11-.37	44 18.70	44	53.64	53.61			-7.49	-.73	-2.23		43.16		
	15-.34	44 17.37	44	50.90	50.87			-4.90	-.67	-2.09		43.21		
'73 June	25-.35	44 12.40	44	37.22	37.19			+10.43	-.69	-2.95		43.98		x
	26-.44	44 2.67	44	37.77	37.74			+10.08	-.86	-2.91	44.05	~~43.05~~	44.05	x
	29-.49	44 13.47	44	39.52	39.49			+8.40	-.96	-2.84		44.09		x
July	3-.55	44 9.50	44	43.16	43.12			+4.81	-1.08	-2.72		44.13		x
	6-.46-.05	44 17.07	44	46.22	46.19			+1.62	-.90 -.11	-2.65		44.85		x
	7-.48-.03	44 9.63	44	47.19	47.15			+0.58	-.94 -.07	-2.61		44.11		x
	9-.50	44 16.47	44	48.36	48.32			-0.71	-.98	-2.53		44.10		x
	12-.42	44 27.10	44	49.77	49.73			-2.43	-.82	-2.44		44.04		x
	13-.44	44 8.07	44	50.23	50.20			-3.08	-.86	-2.40		43.86		x
	15-.56	44 9.80	44	51.42	51.39			-3.94	-1.10	-2.34		44.01		x
	20-.39	44 26.60	44	54.31	54.28			-7.39	-.76	-2.16		43.97		x
	21-.41	44 21.03	44	54.92	54.89			-7.91	-.80	-2.14		44.04		x
	22-.42	44 11.33	44	55.44	55.40			-8.41	-.82	-2.09		44.08		+

ξ Urs. Min.

h m 15 49   +78° 11'   tan δ = +4.78 4.89   Rin Z -.58

1872 Feb	1													
June	19~~-.19~~													
	27-.22	48 31.30	48	38.36	38.29	48 45.62	-7.33 +.26 -7.59	+8.83	-1.05	-5.22	15 48	40.85		
July	3-.35	47 51.37	48	49.32	49.25			-2.27	-1.67	-4.75		40.56		
	7-.35	47 45.20	48	55.28	55.21			-8.39	-1.67	-4.44		40.71		
	9-.29	47 32.93	48	55.41	55.34			-9.12	-1.39	-4.26		40.57		
	11-.37	47 35.77	48	54.24	54.18			-7.50	-1.77	-4.10		40.81		
	14-.32	47 59.77	48	51.73	51.66			-5.71	-1.53	-3.83		40.59		
	15-.34	47 33.27	48	51.02	50.95			-4.90	-1.63	-2.74 3		40.68		
'73 May	26													
	29~~-.27~~													
	31~~-.09~~													
June	1~~-.20~~													
	2~~-.26~~													
	25-.35	47 35.40	48	35.29	35.22			+10.43	-1.67	-5.74		38.24		+
	26-.44	47 38.03	48	36.01	35.94			+10.08	-2.10	-5.66		38.26		x
	29-.489		48	37.50	37.43			+8.40	-2.34	-5.43	38.06	~~38.10~~	38.06	x
July	3-.55	47 32.93	48	41.40	41.33			+4.80	-2.63	-5.12		38.38		x
	6-.46-.05	47 40.73	48	44.16	44.09			+1.62	-2.20 -.2~~5~~4	-4.88		38.39		+
	7-.48-.03	47 33.60	48	45.22	45.15			+0.58	-2.29 -.15	-4.80		38.49		+
	9-.50	47 29.07	48	46.00	46.23			-0.71	-2.39	-4.63		38.50		x
	12-.42	47 47.67	48	47.24	47.17			-2.43	-2.01	-4.37		38.36		x
	13-.44	47 18.30	48	47.72	47.65			-3.09	-2.10	-4.28		38.18		+
	15-.56	47 50.73	48	49.10	49.03			-3.94	-2.68	-4.10	38.31	~~38.41~~	38.31	+
	20-.39	47 12.27	48	51.38	51.31			-7.39	-1.86	-3.62		38.44		x
	21-.41	47 55.60	48	51.78	51.71			-7.92	-1.96	-3.53		38.30		+
	22-.42	47 48.87	48	52.32	52.26			-8.41	-2.01	-3.43		38.41		x

Tm−Tδ	Circle Readings								
	′ ″					2°	′	″	
−15.18	27 51.95	55	8.29 +.5 +4	44.33	−8.0	+63	59	45.12	
+31.73	28 19.50		7.48 +.5	45.16	−8.6			44.54	
+35.92	28 20.90		9.29 +.5	44.66	−9.8			44.65	
+45.80	28 27.85		8.00 +.5	44.51	−10.0			43.01	
+44.70	28 26.80		8.44 +.5	44.47	−10.3			43.11	
+34.94	28 20.95		8.34 +.5	44.94	−10.7			43.08	
+33.53	28 17.80		10.76 +.5	44.22	−11.3			44.18	
+24.82	22 43.70	0	40.54 +.6 −1	4.44	−4.8			31.90	
+35.10	22 49.70		40.14 +.6	4.01	−5.0			31.73	31.73
+26.05	22 44.10		40.09 +.6	3.79	−5.5			31.40	
+33.65	22 47.95		40.66 +.6	3.69	−6.2			31.37	
+29.15	22 43.50		42.93 +.6	4.30	−6.8			32.43	
+37.56	22 48.40		43.15 +.6	4.74	−7.0			32.01	
+31.88	22 44.00		44.09 +.6	4.82	−7.3	32.57		~~32.03~~ 32.57	
+22.67	22 38.60		44.15 +.6	4.43	−7.9			32.42	
+42.16	22 50.45		43.48 +.6	4.79	−8.1			31.19	
+41.62	22 50.15		42.95 +.6	3.04	−8.4			32.11	
+27.71	22 39.60		45.83 +.6	4.72	−9.2			32.51	
+33.89	22 44.00		45.06 +.6	4.64	−9.3			31.72	
+44.11	22 50.05		44.86 +.6	4.26	−9.5			31.70	
	17 11.50 16 57.50			~~+4 44.38~~					
+7.05	16 53.80	6	36.96 +.9 +4	44.33	−8.8	+78	11	13.39	
+51.95	17 3.50		37.93 +.8	44.89	−9.8			13.82	
+70.08	17 7.35		39.22 +.8	44.51	−10.6			13.93	
+82.48	17 10.90		38.86 +.8	44.47	−10.9			13.23	
+78.47	17 8.10		39.94 +.8	44.94	−11.3			14.38	
+51.96	17 0.65		41.01 +.8	43.82	−11.6			14.03	
+77.75	17 6.90		41.~~83~~ .03 +.8	44.22	−11.7			14.35	
+59.89	11 33.95	12	11.16 +1.0 −1	4.44	−5.4			2.32	
+57.98	11 32.20		11.78 +1.0	4.01	−5.6	3.17		~~3.11~~ 3.17	
+68.47	11 33.80		12.06 +1.0	3.69	−7.0			2.37	
+63.42	11 32.35		13.02 +1.0	4.30	−7.6			2.12	
+71.62	11 34.40		13.54 +1.0	4.74	−7.8			2.00	
+77.23	11 34.90		14.07 +1.0	4.82	−8.1			2.15	
+59.57	11 30.00		14.56 +1.0	4.43	−8.6			2.53	
+89.42	11 36.60		15.09 +1.0	4.79	−8.8			2.50	
+58.37	11 29.45		13.82 +1.0	3.04	−9.1			2.68	
+99.11	11 37.05		16.78 +1.0	4.72	−9.7			3.36	
+56.18	11 26.80		16.39 +1.0	4.64	−9.8			2.95	
+63.45	11 28.50		16.43 +1.0	4.26	−9.9			3.27	

γ Serpentis

# d = 15h 57m δ = +16 4 tan δ₀ = +.29 1.04 sin z +.44

	n	T_s	T_m	$T_m + k$	R.A. T_m − R.A.							
1872 June	27 −.22	50 1.40	50 25.43	25.41	50 34.14 −8.73 +.00 −8.73	+8.82	−.06		−1.63	15h 50m	32.54	
July	3 −.35	50 19.43	50 36.52	36.50		−2.28	−.10		−1.60		32.52	
	11 −.37	50 23.03	50 41.68	41.57		−7.50	−.11		−1.54		32.42	
	14 −.32	50 19.13	50 39.86	39.84		−5.72	−.09		−1.52		32.~~64~~ 51	
	15 −.34	50 15.00	50 39.04	39.03		−4.90	−.10		−1.51		32.52	
'73 June	29 −.49	50 15.80	50 28.80	28.78		+8.40	−.14		−1.80		35.24	x
July	3 −.55	50 12.87	50 32.43	3241		+4.80	−.16		−1.78		35.27	+
	7 −.48 −.03	50 11.60	50 36.71	3669		+0.58	−.14	−.03	−1.75		35.35	+
	9 −.50	50 14.83	50 37.94	37.93		−0.71	−.14		−1.74		35.34	x
	12 −.42	50 19.83	50 39.54	39.53		−2.43	−.12		−1.72		35.26	x
	13 −.44	50 2000	50 39.97	39.96		−3.09	−.13		−1.71		35.03	x
	15 −.56	50 20.30	50 41.06	41.05		−3.95	−.16		−1.69		35.25	+
	20 −.39	50 24.07	50 4446	4444		−7.39	−.11		−1.65		35.29	+
	21 −.41	50 25.30	50 4496	4495		−7.92	−.12		−1.64		35.37	+
	22 −.42	50 29.13	50 45.43	45.42		−8.41	−.12		−1.63		35.26	+

ε Cor. Bor.

# 15h 52m tan δ₀ = +.52 1.12 sin z +.26 +27 14

1872 June	27 −.22	52 30.40	52 10.39	10.37	52 19.06 −8.69 −.04 −8.65	+8.82	−.11		−1.68	15 52	17.40	
July	3 −.35	52 0.33	52 21.50	21.48		−2.28	−.1~~4~~8		−1.64		17.38	
	11 −.37	52 7.30	52 26.61	26.59		−7.50	−.19		−1.57		17.33	
	14 −.32	52 2.70	52 24.77	24.76		−5.72	−.1~~9~~7		−1.54		17.33	
	15 −.34	52 2.30	52 23.96	23.95		−4.90	−.1~~7~~8		−1.53	~~16.34~~	~~17.34~~ 17.34	
	24 ~~−.26~~						~~−.15~~		~~−1.35~~			
	29 ~~−.22~~		52 21.98	21.97		−3.15	−.11		~~−1.87~~ −1.36		17.36	
'73 June	1 ~~−.20~~										~~19.81~~	
	29 −.49	51 48.37	52 13.56	13.54		+8.39	−.25		−1.87		19.81	+
July	3 −.55	51 57.07	52 17.09	17.08		+4.80	−.29		−1.84		19.75	+
	7 −.48 −.03	52 2.10	52 21.33	21.31		+0.58	−.25	−.03	−1.80		19.81	+
	12 −.42	51 57.73	52 24.22	24.20		−2.43	−.22		−1.79		19.76	+
	13 −.44	52 3.17	52 24.60	24.58		−3.09	−.23		−1.75		19.51	x
	15 −.56	52 7.84	52 25.77	25.76		−3.95	−.29		−1.73		19.79	+
	20 −.39	52 2.27	52 29.09	29.07		−7.40	−.20		−1.67		19.80	+
	21 −.41	52 9.90	52 29.70	29.68		−7.92	−.21		−1.66		19.89	x
	22 −.42	52 9.60	52 30.06	30.05		−8.40	−.22		−1.65		19.78	x

Gr. 2296

# 15h 55m tan δ₀ = +1.43 1.75 sin z −.22 +53 7

1872 x June	19 ~~−.19~~											
July	3 −.35	54 17.87	54 50.26	50.24		−2.28	−.50		−2.14	15 54	45.32	
	15 −.34	54 2000	54 52.64	5262		−4.90	−.49		−1.87		45.36	
'73 June	29 −.49	54 6.80	54 41.51	41.48		+8.39	−.70		−2.44	46.73	~~46.75~~ 46.73	x
July	3 −.55	54 33.30	54 45.10	45.07		+4.80	−.79		−2.36		46.72	x
	12 −.42	54 11.27	54 51.91	51.88		−2.43	−.60		−2.16		46.69	+
	13 −.44	54 23.23	64 52.36	5234		−3.09	−.63		−2.14		46.~~08~~ 4	+
	15 −.56	54 16.80	54 53.58	53.55		−3.95	−.80		−2.08		46.~~47~~ 72	+
	20 −.39	54 16.90	54 56.64	5662		−7.40	−.56		−1.96		46.70	+
	21 −.41	54 33.03	54 57.14	57.12		−7.92	−.59		−1.93		46.68	+
	22 −.42	54 26.10	54 57.64	57.62		−8.40	−.60		−1.91		46.71	x

Tm − Tδ	Circle Readings								
+24.03	22 43.95	0	6.24 − .7 +4	44.33	+.1	+16°	4′		49.97″
+17.09	22 36.70		5.91 − .6	44.89	−.6				49.60
+18.65	22 36.45		8.18 − .6	44.94	−1.6				50.92
+20.72	22 38.10		8.97 − .6	43.82	−1.9				50.29
+24.04	22 42.95		9.05 − .6	44.22	−2.0				50.67
+13.00	16 56.95	5	40.23 − .7 −1	3.79	+2.9				38.64
+19.56	17 4.90		40.47 − .7	3.69	+2.3				38.38
+25.11	17 7.95		43.55 − .7	4.74	+1.8			39.91	~~40.21~~ 39.91
+23.11	17 6.55		42.62 − .7	4.82	+1.6				38.70
+19.71	17 1.10		43.80 − .7	4.43	+1.2				39.87
+19.97	17 2.20		43.56 − .7	4.79	+1.1				39.17
+20.76	16 5.70	8 5	41.58 − .8	3.04	+.8		5		38.54
+20.39	17 2.60	5	43.71 − .8	4.72	+.3		4		38.49
+19.66	17 1.50		43.84 − .8	4.64	+.1				38.50
+16.30	16 57.45		43.75 − .8	4.26	+.0				38.69
−20.01	11 52.05	10	17.50 − .4 +4	44.33	−2.6	+27	14		58.83
+21.17	12 40.20		17.76 − .4	44.89	−3.7				58.55
+19.31	12 36.60		19.24 − .4	44.94	−4.9				58.88
+22.07	12 38.55		20.41 − .4	43.82	−5.3				58.53
+21.66	12 38.95		19.65 − .4	44.22	−5.5				57.97
+25.18	7 9.40	15	52.90 − .5 −1	3.79	0.0				48.61
+20.02	7 2.45		53.93 − .5	3.69	−.7				49.04
+19.23	6 58.90		56.14 − .5	4.74	−1.3				49.60
+26.49	7 6.85		56.71 − .5	4.43	−2.1				49.68
+21.43	7 1.50		56.16 − .5	4.79	−2.2				48.67
+17.90	6 59.25		54.94 − .5	3.04	−2.5				48.90
+26.82	7 6.55		57.59 − .5	4.72	−3.2				49.17
+19.80	6 58.25		57.85 − .5	4.64	−3.3				49.41
+20.46	7 0.10		56.79 − .5	4.26	−3.4				48.63
	21 18.25			~~44.38~~					43.58
+32.39	21 18.15	2	6.49 + .3 +4	44.89	−8.1	+55	6		~~43.44~~ 43.58
+32.64	21 14.70		10.12 + .3	44.22	−10.3				44.34
+34.71	15 14.50	7	41.95 + .4 −1	3.79	−4.3				34.26
+11.80	15 26.20		43.40 + .4	3.69	−5.2				34.91
+40.64	15 46.30		44.73 + .4	4.43	−7.0				33.70
+29.13	15 37.05		45.48 + .4	4.79	−7.2				33.89
+36.78	15 43.10		44.70 + .4	3.04	−7.5				34.56
+39.74	15 43.15		47.03 + .4	4.72	−8.2				34.51
+24.11	15 31.35		47.47 + .4	4.64	−8.3				34.93
+31.54	15 37.45		46.78 + .4	4.26	−8.4				34.52

= worked as non-fundamental

★ Gr. 750 L.C. a = T_r T_m T_m+k RA ~~T_m-RA.~~ 3h ~~18~~ 56m δ = + 94° 47' ~~+ 85 13~~ tang δ = −11.94 sin z −.79

1872 June	30 −.34			56	48.62	48.80 56	+4.76	+4.06	+10.53	15 57	8.15
July	3 −.35	55 52.20		56	55.99	56.17	−2.28	+4.18	+9.87		7.94
	6 −.30 −.08	57 43.30		56	1.43	1.61	−7.06	+3.58 +.96	+9.17		8.26
	7 −.35	56 36.10	56 32.80	57	3.00	3.21	−8.40	+4.18	+8.93		7.91
	9 −.29	56 7.00		57	4.84	5.03	−9.11	+3.46	+8.45		7.83
	15 −.34			57	1.54	1.73	−4.90	+4.06	+6.94		7.83
	16 −.28 −.07	53 36.63?		57	1.62	1.80	−4.36	+3.34 +.84	+6.68		8.30
'73 July	3 −.55	56 0.03		57	3.03	3.21	+4.80	+6.57	+10.06		24.64
	12 −.42	55 39.00		57	14.19	14.37	−2.43	+5.02	+7.88		24.84
	15 −.56	55 34.20		57	14.59	14.77	−3.95	+6.69	+7.11		24.62
	20 −.39	55 44.20		57	21.64	21.83	−7.40	+4.66	+5.78		24.87
	21 −.41			57	22.23	22.41	−7.92	+4.90	+5.52		24.91
	22 −.42			~~58~~	~~22.83~~						

	h m	s
1872	15 57	8.031
1873		24.776

#

0 Draconis 16h 0m δ = +58° 54' tang δ = +1.66 1.94 sin z −.28

1872 June	27 −.22	58 50.43	59	23.64	23.61	59 31.98 −8.37 +.15 −8.52	+8.82	−.37	−2.46	15 59	29.60
July	1 −.40	59 20.60	59	30.60	30.57		+2.07	−.66	−2.37		29.61
	3 −.35	58 58.10	59	34.80	34.77		−2.29	−.58	−2.32		29.58
	11 −.37	59 12.60	59	39.84	39.81		−7.50	−.61	−2.13		29.57
	14 −.32	58 55.83	59	37.94	37.91		−5.72	−.53	−2.03		29.63
	16 −.28 −.07	57 58.57	58	36.54	36.51		−4.37	−.46 −.14	−1.98		29.56
'73 July	3 −.55	59 2.73	59	29.39	29.36		+4.79	−.91	−2.57		30.67 ×
	12 −.42	59 1.33	59	36.18	36.15		−2.43	−.70	−2.32		30.70 +
	15 −.56	59 8.40	59	37.90	37.87		−3.95	−.93	−2.24		30.75 +
	20 −.39	59 0.80	59	40.86	40.83		−7.40	−.65	−2.09		30.69 ×
	21 −.41	59 11.23	59	41.42	41.39		−7.93	−.68	−2.06		30.72 ×
	22 −.42	59 13.23	59	41.82	41.79		−8.40	−.70	−2.08		30.66 +
	24 −.50	59 20.87	59	43.08	43.05		−9.68	−.83	−1.96		30.58 ×

#

φ Herculis 16h 5m +45° 16' tang δ = +1.01 1.42 sin z −.05

1872 July	1 −.40		4	44.57	44.55	+2.07	−.40	−1.94		~~15~~ 16 4 44.28
	15 −.34	4 34.40	4	51.30	51.28	−4.91	−.34	−1.75		44.28
	16 −.28 −.07	4 21.17	4	50.80	50.78	−4.37	−.28 −.10	−1.73		44.30
	22 −.27	4 32.53	4	50.09	50.09	−3.95	−.27	−1.62	44.25	~~44.45~~ 44.25
	28 −.24	4 16.77	4	48.90	48.88	−2.90	−.24	−1.50		44.24
	29 −.22		4	49.12	49.10	−3.16	−.22	−1.47		44.25
'73 June	~~25 −.35~~	~~4 15.50~~	~~4~~	~~44.04~~	~~44.01~~		~~−.35~~			
July	3 ~~−.55~~ −.55	4 15.50	4	44.04	44.01	+4.79	−.56	−2.11		46.13 ×
	12 −.42	4 24.47	4	51.00	50.98	−2.44	−.42	−1.98		46.14 +
	15 −.56	4 27.10	4	52.62	52.60	−3.95	−.57	−1.93		46.15 ×
	20 −.39	4 23.23	4	55.84	55.81	−7.40	−.39	−1.85		46.17 +
	21 −.41	4 30.50	4	56.31	56.29	−7.93	−.41	−1.83		46.12 +
	22 −.42	4 26.93	4	56.80	56.78	−8.40	−.42	−1.81		46.15 ×
	23 −.49	4 31.50	4	57.40	57.38	−8.95	−.49	−1.79		46.15 ×
	24 −.50	4 29.83	4	58.13	58.11	−9.68	−.50	−1.77	46.16	~~46.66~~ 46.16 +

	Tm − Tδ		Circle Readings								
								94°	'	"	
	+63.79		41 19.10	42	33.48 +1.1 +4	44.89	−9.2	+85	47	10.27	
	−41.87		41 31.50		33.48 +1.1	44.66	−9.7			9.54	
	+36.92	+ 30.22	41 22.95		33.39 +1.1	44.51	−9.8			9.20	
	+57.84		41 19.75		34.52 +1.1	44.47	−10.1			9.99	
	+63.00		35 45.00	48	8.28 +14 −1	3.69	−6.3		46	59.69	
	+95.19		35 42.00		9.76 +14	4.43	−7.6			59.13	
	+100.39		35 38.85		9.88 +14	3.04	−8.0		47	0.24	
	+97.44		35 37.35		12.97 +14	4.72	−8.5			1.15	
			35								
			~~35 42.55~~			~~4.26~~					
								°	'	"	
1								94	47	9.75	
76									47'	0.05	
	+33.21		33 37.20	49	49.56 +4 +4	44.33	−7.1	+58	54	27.29	
	+10.00		33 21.05		49.78 +.4	45.37	−8.0			27.55	
	+36.70		33 38.40		50.58 +.4	44.89	−8.4			27.47	
	+27.24		33 31.00		51.72 +.4	44.94	−10.0			27.06	
	+42.11		33 39.20		53.48 +.4	43.82	−10.5		27.20	~~27.65~~	27.20
	+37.97		33 35.80		54.08 +.4	43.57	−10.9		27.15	~~27.07~~	27.15
x	+26.66		27 55.65	55	26.73 +.5 −1	3.69	−5.4			18.14	
	+34.85		27 59.55		28.62 +.5	4.43	−7.3		17.39	~~15.39~~	17.39
	+29.50		27 56.65		27.53 +.5	3.04	−7.8			17.19	
x	+40.05		28 0.55		30.86 +.5	4.72	−8.6			18.04	
	+30.19		27 54.50		30.48 +.5	4.64	−8.7			17.64	
+	+28.59		27 53.15		30.73 +.5	4.26	−8.9			18.07	
x	+22.21		27 51.20		28.22 +.5	3.37	−9.0			16.35	
	+16.90		11 25.60	11	41.00 +.1 +4	44.22	−8.7	+45	16	16.62	
44.25	+29.63		11 36.75		41.33 +.1	43.57	−8.9			16.10	
	+18.38		11 24.60		43.08 +.1	42.99	−9.8			16.37	
	+32.13		11 36.80		43.48 +.1	44.13	−10.5			17.21	
	~~+28.54~~		~~5 54.70~~								
x	+28.54		5 54.70	~~17~~	~~22.36 +.1 −1~~	~~3.69~~	~~−3.4~~			~~15.37~~	
+	+26.53		5 58.70	17	17.62 +.1	4.43	−5.2			8.09	
x	+25.52		5 58.75		15.59 +.1	3.04	−5.7			6.95	
+	+32.61		6 2.05		18.76 +.1	4.72	−6.5			7.64	
+	+25.81		5 56.05	17	18.70 +.1	4.64	−6.6			7.56	
x	+29.87		5 59.90		18.42 +.1	4.26	−6.7			7.56	
x	+25.90		5 57.00		17.71 +.1	3.32	−6.9			7.59	
4616 +	+28.30		5 59.25		17.63 +.1	3.37	−7.0			7.38	

Gr. 23 20 — n — T_s — X — T_m — α = 16ʰ 6ᵐ — δ = +68° 9′ — tan ~~X~~ δ = +2.49 2.68 — sin z = −43

1872 July	1-.40	5 46.00	6	1.04	1.00		+2.05	−1.00		−3.10	16	5	58.95
	3-.35	5 14.70	6	5.13	5.09		−2.30	−.87		−3.03			58.89
	15-.34	5 48.20	6	7.24	7.20		−4.91	−.85		−2.55			58.89
	16-.28 -.07	5 38.40	6	6.71	6.67		−4.37	−.70	−.19	−2.51			58.90
	28-.24	5 46.57	6	4.50	4.46		−2.90	−.60		−1.94			59.02
'73 July	3-.55	5 34.37	6	58.97	58.93		+4.~~79~~ 80	−1.37		−3.25			59.11
	12-.42	5 45.47	6	5.50	5.41		−2.44	−1.05		−2.91			59.01
	15-.56	5 40.37	6	7.29	7.25		−3.96	−1.39		−2.78			59.12
	20-.39	5 52.50	6	9.94	9.90		−7.40	−.97		−2.56			58.97
	21-.41	5 51.93	6	10.48	10.44		−7.93	−1.02		−2.51			58.98
	22-.42	5 55.33	6	11.02	10.98		−8.40	−1.05		−2.46			59.07
	23-.49	5 47.73	6	11.71	11.67		−8.95	−1.22		−2.41			59.09
	24-.50	5 47.23	6	12.36	12.32		−9.68	−1.24		−2.37			59.03

'72.5 16ʰ 5ᵐ 58ˢ.430

'73.5 5 59.048

# 1872 38.340 A — δ Ophiuchi 16ʰ 8ᵐ — −3° 24′ tan δ = −.06 1.00 sin z +.72

1872 July	3-.35	7 55.80	7	42.27	42.25		−2.30	+.02		−1.66	16ʰ	7	38.31
	15-.34	7 27.30	7	44.93	44.91		−4.91	+.02		−1.60			38.42
	24-.26	7 22.97	7	43.40	43.39		−3.46	+.02		−1.54			38.41
	29-.22		7	42.98	42.97		−3.16	+.01		−1.49			38.33
Aug	1-.27		7	47.05	47.03	7 39.78 A	−7.23	+.02		−1.44			38.38
'73 May	26 1873 41.478 A												
	29 ~~.27~~												
June	23-.35		7	32.89	32.87	43.31 A	+10.41	+.02		−1.83			41.47
July	3-.55	7 22.63	7	38.56	38.54		+4.79	+.03		−1.83			41.53 +
	6-.46 -.05	7 20.87	7	41.74	41.73		+1.61	+.03	−.05	−1.82			41.50 +
	9-.50	7 22.43	7	44.03	44.01		−0.72	+.03		−1.81			41.51 +
	12-.42	7 25.80	7	45.79	45.78		−2.44	+.03		−1.79			41.58 +
	15-.56	7 27.67	7	47.24	47.22		−3.96	+.03		−1.77			41.52 +
	20-.39	7 28.90	7	50.74	50.73		−7.40	+.02		−1.74			41.61 +
	21-.41		7	51.16	51.14	43.21 A	−7.93	+.02		−1.73			41.50
	22-.42	7 33.87	7	51.61	51.59		−8.40	+.03		−1.73			41.49 ×
	23-.49	7 34.63	7	52.20	52.19		−8.95	+.03		−1.72			41.55 ×
	24-.50	7 36.43	7	52.88	52.87		−9.68	+.03		−1.71			41.51 ×
	30-.54	7 41.83	7	58.96	58.95		−15.84	+.03		−1.65			41.49 ×

# ε Ophiuchi 16ʰ 12ᵐ — −4° 28′ tan δ = −.08 1.00 sin z +.73

1872 July	1-.40		11	32.74	32.73		+2.04	+.03		−1.70	16	11	33.10
	15-.34	11 21.77	11	39.57	39.56		−4.92	+.03		−1.63			33.04
	22-.27	11 19.93	11	38.54	38.52		−3.95	+.02		−1.59			33.00
	24-.26	11 28.10	11	38.06	38.05		−3.46	+.02		−1.57			33.04
	28-.24	11 17.50	11	37.46	37.44		−2.90	+.02		−1.53			33.03
	29-.22		11	37.68	37.67		−3.16	+.02		−1.52			33.01
'73 July	3-.55	11 15.50	11	33.22	33.20		+4.78	+.04		−1.86			36.16 ×
	6-.46 -.05	11 17.20	11	36.43	36.41		+1.61	+.04	−.05	−1.86			36.15 ×
	9-.50	11 21.83	11	38.64	38.63		−0.72	+.04		−1.84			36.11 ×
	12-.42	11 19.27	11	40.52	40.50		−2.44	+.03		−1.83			36.26 +
	15-.56	11 20.67	11	41.93	41.91		−3.96	+.04		−1.81			36.18 ×
	20-.39	11 59.90	11	45.31	45.29		−7.40	+.03		−1.78			36.14 +
	21-.41	11 25.73	11	45.86	45.85		−7.93	+.03		−1.78			36.17 +
	23-.49	11 27.70	11	46.87	46.86		−8.95	+.04		−1.76			36.19 +
	24-.50	11 48.50	11	47.60	47.58		−9.68	+.04		−1.75			36.19 +
	30-.54	11 29.90	11	53.64	53.63		−15.84	+.04		−1.69			36.14 ×

	Tm − Tv	Circle Readings								
−43										
	+15.00	19 8.90	4	12.47	+.6	+4 45.37	−8.15	68	8	50.29
	+50.43	19 25.50		13.25	+.6	44.89	−8.59			50.15
	+19.04	19 7.65		16.26	+.6	44.22	−10.93			50.15
	+28.31	19 11.00		17.43	+.6	43.57	−11.09			50.51
	+17.93	19 4.80		18.90	+.6	44.13	−12.74			50.89
	+24.60	13 37.15	9	49.52	+.7	−1 3.69	−5.67			40.86
	+20.03	13 33.75		51.41	+.7	4.43	−7.47			40.21
	+26.92	13 36.10		51.52	+.7	3.04	−7.99			41.19
	+17.44	13 29.05		54.53	+.7	4.72	−8.79			41.72
	+18.55	13 30.95		53.21	+.7	4.64	−8.94			40.33
	+15.69	13 29.00		53.74	+.7	4.26	−9.09			41.09
	+23.98	13 33.45		52.95	+.7	3.32	−9.23			41.10
	+25.12	13 34.40		52.45	+.7	3.37	−9.38			40.40
								°	′	″
30								68	8	50.40
18									8	40.86
	−12.53	48 9.00	26	34.54	−10	+4 44.89	+3.2	− 3°	21′	47.45″
	+17.63	48 48.05		32.72	−10	44.22	+2.4			47.10
	+20.43	48 50.15		32.33	−10	43.94	+1.9			47.49
	+15.93	43 10.65	20	58.50	−12	−1 3.69	+6.1			57.29
	+20.88	43 15.25		57.74	−12	4.30	+5.9			57.34
	+21.30	43 14.10		56.24	−12	4.82	+5.7			56.56
	+19.99	43 12.40		56.36	−13	4.43	+5.5			56.59
	+19.57	43 14.50		56.86	−13	3.04	+5.3			55.90
	+21.84	43 15.45		55.86	−13	4.72	+5.0			56.88
x	+17.74	43 9.60		55.33	−13	4.26	+4.9			55.99
x	+19.57	43 12.90		58.25	−13	3.32	+4.8			58.07
x	+16.45	43 10.50		57.10	−13	3.37	+4.8			56.97
x	+17.13	43 11.20		56.67	−13	3.18	+4.5			56.65
	+17.80	49 43.30	27	29.80	−10	+4 44.22	+2.5	− 4	22	44.08
	+18.61	49 42.10		29.78	−10	42.99	+2.1			45.69
	+9.96	49 32.10		30.08	−10	43.94	+2.0			45.14
	+19.95	49 44.50		30.46	−10	44.13	+1.8			45.53
x	+17.72	44 6.80	21	54.49	−12	−1 3.69	+6.2			53.18
x	+19.23	44 5.45		52.29	−13	4.30	+6.1			51.79
x	+16.81	44 2.60		53.76	−12	4.82	+5.9			53.88
x	+21.25	44 8.00	21	52.54	−13	4.43	+5.7			52.57
x	+21.26	44 12.05		54.30	−13	3.04	+5.5			53.14
x	−14.59	43 23.45		53.48	−13	4.72	+5.2			54.80
x	+20.13	44 7.00		51.97	−13	4.64	+5.2			52.71
x	+19.17	43 8.60		54.02	−13	3.32	+5.1			53.52
x	−0.90	43 42.15		53.43	−13	3.37	+5.0			53.10
x	+23.75	44 14.40		53.34	−13	3.18	+4.9			52.92

#	n 19	Tζ Urs. Min.		Tm d		16 h	14 m		δ = +76°	12′ tan δ = +4.07	4.19		sin z − .56				T
1872 July	1 −.40	14 53.00		14	34.50	34.44			+2.03	−1.623		−4.58	16	14	30.26		−18.
	3 −.35	13 27.73	14 15.10	14	38.50	38.44			−2.31	−1.42		−4.46			30.25		+10,
	15 −.34	13 49.10		14	40.29	40.23			−4.92	−1.38		−3.65			30.28		+51.
	16 −.28 −.07	13 43.90		14	39.57	39.50			−4.37	−1.14	−.29	−3.58			30.12		+55.
	24 −.26	13 40.53		14	37.69	37.63			−3.46	−1.06		−2.95			30.16		+57.
	28 −.24			14	36.69	36.63			−2.90	−.98		−2.62			30.13		
	29 −.22			14	36.89	36.83			−3.16	−.90		−2.54			30.23		
'73 July	6 −.46 −.05	13 40.73		14	33.84	33.28			+1.61	−1.87	−21	−4.50			28.39	+	+52.
	9 −.50	13 25.33		14	35.39	35.32			−0.72	−2.03	~~.21~~	−4.30			28.27	+	+70.
	12 −.42	13 10.77		14	36.76	36.69			−2.44	−1.71		−4.10			28.44	+	+85,
	15 −.56	13 50.10		14	38.64	38.58			−3.96	−2.28		−3.88			28.46	+	+48.
	20 −.39	13 41.33		14	40.83	40.77			−7.41	−1.59		−3.51			28.26	+	+59.
	21 −.41	13 28.20		14	41.48	41.41			−7.93	−1.67		−3.43			28.38	+	+43
	22 −.42	13 47.07		14	41.88	41.81			−8.40	−1.71	~~.34~~	−3.35			28.35	+	+54.
	24 −.50	13 33.17		14	43.34	43.28			−9.68	−2.03		−3.18			28.39	+	+70.
	30 −.54	14 9.00		14	49.17	49.10			−15.84	−2.20		−2.69			28.37	+	+40
Aug	4 −.47 −.08	14 8.63		14	51.67	51.60			−18.70	−1.91	−.34	−2.25			28.40	+	+43.

# 1872		γ Herculis				16 h	16 m		+19°	27′ tan δ = +.35	1.06		sin z +.39				
July	1 −.40	15 55.83		16	16.34	16.32			+2.02	−.14		−1.70	16	16	16.50		+20.
	3 −.35	16 0.63		16	20.62	20.60			−2.32	−.12		−1.70			16.46		+19.
	15 −.34	16 0.50		16	23.14	23.13			−4.92	−.12		−1.61			16.48		+22.
'73 July	12 −.42	16 1.70		16	23.49	23.48			−2.44	−.15		−1.82			19.07	+	+21.
	15 −.56	16 5.63		16	25.07	25.06			−3.96	−.20		−1.80			19.10	+	+19.
	20 −.39	16 6.53		16	28.40	28.39			−7.41	−.14		−1.76			19.08	+	+21.
	21 −.41	16 9.07		16	28.93	28.91			−7.94	−.14		−1.75			19.08	+	+19.
	22 −.42	16 8.23		16	29.43	29.41			−8.40	−.15		−1.74			19.12	+	+21.
	24 −.50	16 9.80		16	30.70	30.68			−9.69	−.17		−1.72			19.10	+	+20.
	30 −.54	16 12.47		16	36.76	36.74			−15.84	−.19		−1.64			19.07	✓	+24.
Aug.	4 −.47 −.08	16 14.80		16	39.54	39.53			−18.70	−.16	−.08	−1.57			19.02	+	+24.

# # 1872	1872 2 53.519A	τ Herculis				16 h	16 m		+46°	37′ tan δ = +1.06	1.46						
July	22 −.27			15	59.60	59.58	15 55.21 A		−3.95	−.29		−1.69	16	15	53.65		
	24 −.26			15	59.06	59.05	55.16 A		−3.46	−.28		−1.64			53.67		
	25 −.26			15	58.97	58.95	55.15 A		−3.44	−.28		−1.63			53.60		
	28 −.24			15	58.46	58.44	55.08 A		−2.91	−.25		−1.56			53.72		
	29 −.22			15	58.66	58.64	55.06 A		−3.16	−.23		−1.54			53.71		
~~Aug~~	~~9~~			~~16~~	~~23.38~~	~~23.36~~											
'73 ~~May~~	~~26~~ ~~29 −.27~~																

'72.5 16 h 15 m 53.670 s

1872		Gr. 828 L.C.				~~16~~ 4 h	19 m		+107° ~~+72°~~	45′ ~~15′~~ tan δ = − 3.12	3.28		sin z = −.91				
July	3 −.35	18 1.60		18	40.93	40.98			−2.32	+1.09		+2.47	16	18	42.22		+39.
	11 −.37	19 9.10		18	46.53	46.58			−7.50	+1.15		+1.92			42.15		−22.
	14 −.32	18 49.80		18	45.09	45.14			−5.73	+1.00		+1.70			42.11		−4.
	15 −.34	18 0.30		18	44.32	44.37			−4.92	+1.06		+1.62			42.13		+44
	16 −.28 −.07	18 29.20		18	43.99	44.04			−4.37	+.87	+.23	+1.55			42.32		+14.
	22 −.27	18 10.03		18.	44.24	44.29			−3.95	+.84		+1.08			42.26		+34.
	24 −.26	18 0.53		18	44.03	44.08			−3.46	+.81		+0.92			42.~~25~~35		+43.
	28 −.24	17 51.73		18	43.72	43.77			−2.90	+.75		+0.60			42.22		+51.
'73 July	12 −.42	18 6.03		18	48.42	48.47			∓2.44	+1.31		+1.70			49.04		+42.
	15 −.56	17 46.00		18	49.68	49.73			−3.96	+1.75		+1.48			49.00		+63.
	20 −.39	18 5.20		18	54.04	54.09			−7.41	+1.22		+1.09			48.99		+48.
	22 −.42	18 7.00		18	55.19	55.24			−8.40	+1.31		+0.93			49.08		+48.
	23 −.49	18 18.03		18	55.64	55.69			−8.95	+1.53		+0.85			49.12		+37.
	24 −.50	17 51.80		18	56.37	56.42			−9.69	+1.56		+0.77			49.06		+64
	30 −.54	18 1.73		19	2.49	2.54			−15.84	+1.68		+0.28			48.66		+60
Aug	4 −.47 −.06	18 41.30		19	6.12	6.17			−18.70	+1.47	+.26	−0.14			49.06		+24

72 16 h 18 m 42.220 s
73 18 49.001

	Tm − Tσ		Circle Readings										
56													
	−18.50		16 1.50		7	17.31	+.8	41	45.37	−8.0	+76°	11	55.51
	+10.77	+23.40	16 27.40	16 13.85		18.48	+.8		44.89	−8.4			55.77
	+51.19		16 19.00			21.55	+.8		44.22	−10.8	55.77		~~55.77~~ 55.77
	+55.67		16 19.80			22.24	+.8		43.57	−11.0			55.61
	+57.16		16 19.60			23.20	+.8		43.94	−12.1			55.84
	+52.61		10 45.65		12	56.48	+.9	−1	4.30	−6.2			46.88
	+70.06		10 50.90			56.50	+.9		4.82	−6.7			45.88
	+85.98		10 54.55			57.31	+1.0		4.43	−7.3			46.58
	+48.54		10 43.00			56.79	+1.0		3.04	−7.8			46.95
	+59.50		10 44.55			59.19	+1.0		4.72	−8.7			46.77
	+73.28		10 49.00			58.89	+1.0		4.64	−8.9			46.35
	+54.81		10 43.30			59.03	+1.0		4.26	−9.0			46.77
	+70.17		10 48.75		12	57.59	+1.0		3.37	−9.2			46.02
	+40.17		10 38.05			59.18	+1.0		3.18	−9.9			47.10
	+43.04		10 38.40		13	0.58	+1.0		4.55	−10.3			46.73
39													
	+20.51		0 16.35		22	34.13	−.6	+4	45.37	−1.4	+19	27	17.50
	+19.99		0 14.50			35.17	−.6		44.89	−1.6			17.86
	+22.64		0 15.05			37.95	−.5		44.22	−3.5			18.17
+	+21.79		54 37.20		28	13.54	−.6	−1	4.43	−0.2			8.38
×	+19.44		54 35.85			13.05	−.7		3.04	−.6			8.71
+	+21.87		54 36.85			14.60	−.6		4.72	−1.3			7.98
+	+19.86		54 34.05			15.87	−.7		4.64	−1.4			9.13
+	+21.20		54 35.70			14.93	−.6		4.26	−1.5			8.57
×	+20.90		54 36.10			14.51	−.7		3.37	−1.7			8.74
✓	+24.28		54 39.85			14.97	−.6		3.18	−2.3			8.89
+	+24.74		54 36.90			17.85	−.7		4.55	−2.7			9.90
70													
91	+39.33		44 4.70		40	27.16	+1.4	+4	44.89	−7.03	107	45	6.42
	−22.57		44 26.60			31.59	+1.3		44.94	−8.10			9.73
	−4.71		44 19.90			29.97	+1.3		43.82	−8.43			6.66
	+44.02		44 0.00			29.73	+1.3		44.22	−8.54			6.71
	+14.79		44 10.70			30.78	+1.3		43.57	−8.64			7.01
	+34.21		44 3.90			32.91	+1.3		42.99	−9.18			8.02
	+43.50		44 3.15			28.29	+1.3		43.94	−9.31			4.22
	+51.99		43 59.55			29.80	+1.3		44.13	−9.55			5.68
	+42.39		38 28.25		46	6.12	+1.7	−1	4.43	−5.28		44	58.11
	+63.60		38 19.95			8.18	+1.7		3.04	−5.62		45	1.22
	+48.84		38 24.15			5.78	+1.7		4.72	−6.10		44	56.82
	+48.19		38 21.95			8.13	+1.7		4.26	−6.27			59.30
	+37.61		38 25.85			6.97	+1.7		3.32	−6.34			~~[illegible]~~ 59.01
	+64.57		38 15.15			6.94	+1.7		3.37	−6.42			58.85
	+60.96		38 14.90			8.04	+1.7		3.18	−6.77			59.79
	+24.82		38 32.05			7.43	+1.8		4.55	−6.95			57.73
20											107°	45′	6.″81
01												44′	58.″83

# 1872	$n^w c$ w	Tσ Herculis	Tm	α = 16h 20m		δ = +14° 20'	tan δ = +.26			1.03	Jun z +.47	
July	1-.40	19 23.40	19 30.34	30.33		+2.02	-.10		-169	16h 19m	30.56s	
	3-.35	19 20.43	19 34.66	34.64		-2.32	-.09		-168		30.55	
	15-.34	19 32.30	19 37.17	37.15		-4.92	-.09		-162		30.52	
	22-.27	19 51.50	19 36.14	36.12		-3.95	-.07		-157		30.53	
	24-.26		19 35.64	35.62		-3.46	-.07		-155		30.54	
	25-.26	19 29.30	19 35.61	35.59		-3.44	-.07		-154		30.54	
	28-.24	19 25.50	19 35.10	35.08		-2.91	-.06		-151		30.60	
73 July	6-.46 -.05	19 17.63	19 33.80	33.78		+1.60	-.12	-.05	-184		33.37	x
	12-.42	19 32.60	19 37.67	37.66		-2.44	-.11		-181		33.30	x
	15-.56	19 29.00	19 39.26	39.25		-3.96	-.15		-179		33.35	x
	20-.39	19 28.67	19 42.60	42.58		-7.41	-.10		-176		33.31	x
	~~22~~-.42	~~18 6.97~~	~~19 54.96~~	~~54.94~~		~~-8.40~~	~~-.11~~		~~-174~~			
	23-.49	19 54.00	19 44.08	44.06		-8.95	-.13		-173		33.25	x
	24-.50	19 31.20	19 44.91	44.89		-9.69	-.13		-172		33.35	x
	30-.54	19 35.05	19 50.92	50.90		-15.84	-.14		-166		33.26	x

# 1872		Gr. 2348 (3)		16h 22m		+55° 30'	tan δ = +1.46			1.77	Jun z -.23	
July	1-.40	21 10.00	21 38.37	38.34		+2.01	-.58		-234	16 21	37.43	
	3-.35	21 13.00	21 42.62	42.59		-2.32	-.51		-230		37.46	
	15-.34	21 16.07	21 45.00	44.97		-4.92	-.50		-205		37.50	
	16-.28 -.07	21 10.83	21 44.41	44.38		-4.37	-.41	-.12	-202		37.46	
'73 July	6-.46 -.05	21 12.93	21 40.32	40.30		+1.60	-.67	-.09	-244	38.70	~~37.10~~ 38.70	x
	9-.50	21 9.40	21 42.58	42.56		-0.73	-.73		-238		38.72	x
	12-.42	21 13.67	21 44.14	44.12		-2.44	-.61		-231		38.76	x
	~~15~~-.56		~~21 30.86~~	~~30.84~~		~~-3.96~~	~~-.82~~		~~-224~~		~~38.82~~	
	20-.39	21 12.00	21 48.86	48.83		-7.41	-.57		-213		38.72	x
	22-.42	21 44.80	21 43.31	43.28		-8.40	-.61		-208		~~32.19~~	

# 1872	1872½ 15.771 A.	η^E Draco.		16h 22m		+61 48	tan δ = +1.87			2.12	Jun z -.33	
June	3~~-.07~~											
	30~~-.34~~											
July	3-.35	22 8.70	22 21.27	21.23		-2.32	-.65		-264	16 22	15.62	
	15-.34	22 11.00	22 23.51	23.48		-4.92	-.64		-231		15.61	
	16-.28 -.07	22 28.60	22 23.02	22.99		-4.37	-.52	-.15	-228		15.67	
	~~23~~		~~22 22.00~~	~~21.97~~			~~.49~~					
	24-.26		22 21.66	21.63	22 17.77 A	-3.46	-.49		-200		15.68	
	25-.26	22 9.87	22 21.54	21.51		-3.44	-.49		-199		15.59	
	27-.23		22 21.30	21.27		-3.28	-.43		-192		15.64	
	28-.24	22 0.30	22 20.87	20.84		-2.91	-.45		-189		15.59	
	29-.22		22 21.08	21.05		-3.16	-.41		-185		15.63	
Aug	4-.17		22 32.50	32.47		-14.80	-.32		-162		15.73	
	5-.18		22 34.88	34.85	17.32 A	-17.37	-.34		-156		15.58	
	~~2~~		~~22 45.79~~	~~45.77~~								
73 ~~May~~	~~26~~											
~~June~~	~~2-.26~~										38.28	
July	12-.42	~~21 13.63~~	~~21 44.13~~	~~44.09~~		~~-2.44~~	~~-.79~~		~~-258~~	~~21~~	~~39.28~~ ~~38.28~~	
	15-.56		22 24.26	24.22		-3.96	-1.05		-249	22	16.72	x
	20-.39	22 38.33	22 26.98	26.95		-7.41	-.73		-234		16.47	x
	23-.49	22 3.80	22 28.61	28.58		-8.96	-.92		-224		16.46	x
	24-.50	22 0.20	22 29.31	29.28		-9.69	-.93		-221		16.45	x
	30-.54	22 6.27	22 35.40	35.37		-15.85	-1.01		-199		16.52	x
	~~31~~		~~22 36.16~~	~~36.15~~								
Aug	4-.47 -.08	21 50.87	22 37.79	37.76		-18.70	-.88	-.17	-180		16.21	x

Tm − Ts	Circle Reading							
+6.94	7 28.30	14	5956	−.7 +4	45.37	−.4	+14 19	43.83
+14.22	7 35.15	15	1.95	−.7	44.89	−.7		45.44
+4.87	7 21.90		3.49	−.6	44.22	−2.3		44.81
−15.36	6 52.70		6.02	−.6	42.99	−3.0		45.41
+6.31	7 21.45		482	−.6	44.85	−3.3		45.77
+9.60	7 25.00		542	−.6	44.13	−3.6		45.35
+16.17	1 58.20	20	4034	−.8 −1	4.30	+1.8	37.04	~~36.04~~ 37.04
+5.07	1 42.55		41.82	−.8	4.43	+1.0		37.59
+10.26	1 51.45		4062	−.8	3.04	+.7		37.48
+13.93	1 54.30		41.85	−.8	4.72	+.0		36.33
+107.98	1 35.25							
−9.92	1 25.05		40.90	−.8	3.32	−.1		36.68
+13.71	1 55.05		41.26	−.8	3.37	−.3		36.79
+15.87	1 56.95	20	4223	−.8	3.18	−.8		37.45
+28.37	58 11.75	25	9.72	+.4 +4	45.37	−6.3	+55 29	49.19
+29.62	58 12.20		1056	+.3	44.89	−6.7		49.05
+28.93	58 8.50		1377	+.3	44.22	−9.3		48.99
+33.58	58 10.80		1488	+.3	43.57	−9.5		49.25
+27.39	52 32.10	30	4930	+.4 −1	4.30	−4.6		40.80
+33.18	52 35.50		5012	+.4	4.82	−5.3		40.40
+80.47	52 33.40		4930	+.5	4.43	−5.9	39.47	~~48.53~~ 39.47
+36.85	52 35.00		5315	+.4	4.72	−7.3		41.53
−1.49	43 45.55				4.26			
+12.57	[illegible]							
	~~39 26.50~~				~~14 45.16~~			
+12.57	39 37.90	43	3743	+.5	44.89	−7.5	+61 48	15.32
+12.51	39 33.10		4225	+.5	44.22	−10.0		16.97
−5.58	39 22.85		4139	+.4	43.57	−10.2		15.06
	~~37 59.10~~ 39				~~43.94~~			
+11.67	39 33.55		4139	+.5	44.85	−11.7		15.04
+0.57	39 25.65		4262	+.4	44.13	−12.1		15.05
−11.35	33 41.65	49	1923	+.6 −1	4.72	−7.9		7.21
+24.81	34 4.85		18.97	+.6	3.32	−8.4		7.85
+29.11	34 7.80		17.53	+.6	3.37	−8.5		6.26
+29.13	34 6.05		1919	+.6	3.18	−9.4		7.21
+46.92	34 15.55		2079	+.6	4.55	−9.9		6.94

3

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β Herculis α = 16h 25m δ = +21° 46′ tan δ = +40 1.08 lni Z +.35

	w×c	Tb	Tm										T′m
1872 July	1-.40	24 25.00	24	43.01	42.99	+2.00	-.16		-1.73	16h 24m	43.10s		+18.0
	3-.35	24 27.63	24	47.27	47.26	-2.32	-.14		-1.73		43.07		+19.6
	13-.34	24 32.47	24	49.82	49.80	-4.92	-.14		-1.65		43.09		+17.3
	22-.27	24 32.00	24	48.77	48.76	-3.95	-.11		-1.59		43.11		+16.7
	24-.26	24 27.47	24	48.21	48.19	-3.46	-.10		-1.57		43.06		+20.7
	25-.26	24 22.63	24	48.17	48.16	-3.44	-.10		-1.56		43.06		+25.8
	27-.23		24	48.04	48.02	-3.28	-.09		-1.53		43.12		
	28-.24	24 24.37	24	47.62	47.60	-2.91	-.10		-1.52		43.07		+23.2
	29-.22		24	47.86	47.85	-3.16	-.09		-1.51		43.09		
Aug	4-.17		24	59.40	59.38	-14.80	-.07		-1.42		43.09		
73 July	12-.42	24 26.40	24	50.10	50.08	-2.44	-.17		-1.87		45.60	x	+23.7
	15 Reject												
	20-.39	24 35.90	24	55.02	55.00	-7.41	-.16		-1.80		45.63	x	+19.1
	22-.42	24 32.10	24	56.04	56.02	-8.40	-.17		-1.77		45.68	x	+23.9
	23-.49	24 33.43	24	56.63	56.61	-8.96	-.20		-1.77		45.68	x	+23.2
	24-.50	24 38.00	24	57.33	57.31	-9.69	-.20		-1.75		45.67	x	+19.
	30 Chf.												
Aug	4-.47-.08	24 43.30	25	6.13	6.11	-18.70	-.19	-.09	-1.61		45.52	x	+22

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A Draconis 16h 28m +69° 3′ tan δ = +261 2.79 lni Z -.45

	1872.0 14.666 A.													
1872 July	1-.40	27 43.27	28	16.93	16.89		+1.99	-1.04		-3.34	16h 28m 10.52	~~11.52~~ ~~10.52~~ 14.50		+33
	3-.35	27 37.03	28	21.03	20.99		-2.33	-.91		-3.27		14.48		+44.
	7-.35	27 42.85	28	27.02	26.98		-8.43	-.91		-3.14		14.50		+44.
	9-.29	27 40.43	28	27.52	27.48		-9.07	-.76		-3.06		14.59		+47
	13-.34	27 34.73	28	23.13	23.09		-4.93	-.89		-2.82		15.45		+48.
	24-.26	27 42.60	28	21.09	21.05		-3.47	-.68		-2.39	~~14.51~~	~~14.56~~ 51		+38.
	25-.26	27 40.10	28	21.16	21.12		-3.43	-.68		-2.34		14.67		+41.
	27-.23	27 30.77	28	20.68	20.64		-3.28	-.60		-2.24		14.52		+49.
	28-.24	27 40.57	28	20.33	20.29		-2.91	-.63		-2.18		14.57		+39.7
	29-.22		28	20.46	20.42		-3.16	-.57		-2.13		14.56		
Aug	1-.27	27 36.43	28	24.42	24.38		-7.26	-.70		-1.97		14.45		+47
	4 Reject													
	5-.18		28	34.17	34.13	16.44A	-17.38	-.47		-1.77		14.51		
73 May	26													
June	~~2-.26~~													
July	12-.42	27 49.47	28	20.97	20.93		-2.45	-1.10		-3.13		14.25	x	+31.
	22-.42	28 2.30	28	26.68	26.64		-8.40	-1.10		-2.68		14.46	x	+24.
	23-.49	27 27.40	28	27.24	27.20		-8.96	-1.28		-2.63		14.33	x	+59.
	24-.50	27 28.07	28	27.97	27.93		-9.69	-1.30		-2.58		14.36	x	+59.
Aug	4-.47-.08	28 0.50	28	36.46	36.41		-18.69	-1.23	-.22	-1.99		14.28	x	+35.

#

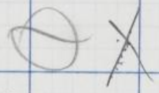
ο Herculis 16h 30m +42° 42′ tan δ = +.92 1.36 lni Z -.01

1872 July	3-.35	29 41.27	30	3.32	3.30	-2.33	-.32		-1.97	16 29 ~~30~~	58.68		+22.
	13-.34	29 42.63	30	5.72	5.70	-4.93	-.31		-1.82	29	58.64		+23.
	25-.26	29 37.90	30	4.01	3.99	-3.43	-.24		-1.57	58.75	~~58.35~~ 58.75		+26.
'73 July	12-.42	29 37.07	30	5.47	5.45	-2.45	-.39		-2.04	30 30	0.57	x	+28.
	15-.56		~~30~~	~~25.46~~	~~25.44~~	~~-3.97~~	~~-.52~~		~~-2.01~~		~~18.94~~		
	24-.50	29 53.00	30	12.67	12.65	-9.69	-.46		-1.87		0.63	x	+19.
Aug	4-.47-.08	29 52.83	30	21.36	21.33	-18.69	-.43	-.11	-1.66		0.44	x	+28.

T'm−T'δ	Circle Readings						
+18.01	41 19.65	41	29.86 −.5 +4	45.37	−1.6	+21° 46'	13.13"
+19.64	41 21.60		29.86 −.5	44.89	−2.0		12.25
+17.35	41 16.55		32.19 −.5	44.22	−3.9	~~13.01~~	12.01 ~~12.01~~ ~~13.01~~
+16.77	41 13.45		33.90 −.5	42.99	−4.8		11.59
+20.74	41 17.85		34.57 −.5	43.94	−5.0		13.01
+25.54	41 24.60		33.37 −.5	44.85	−5.1		12.62
+23.25	41 21.10		34.18 −.4	44.13	−5.5		12.41
+23.70	35 47.00	47	8.54 −.6 −1	4.43	−.5		3.01
+19.12	35 40.10		10.34 −.6	4.72	−1.7		3.32
+23.94	35 46.50		9.77 −.6	4.26	−2.0		2.59
+23.20	35 46.85		8.76 −.6	3.32	−2.1		2.74
+19.33	35 41.45		9.39 −.6	3.37	−2.2		3.22
+22.83	35 42.00		12.97 −.6	4.55	−3.3		4.52
						69 2	
+33.66	25 27.60	58	3.56 +.7 +4	45.37	−6.9	+ ~~69~~ ~~58~~	42.73
+44.00	25 32.90		3.19 +.6	44.89	−7.4		41.28
+44.17	25 30.40		6.16 +.7	44.51	−8.4		42.97
+47.09	25 31.95		5.96 +.6	44.47	−8.9		42.13
+48.40	25 30.95		7.07 +.6	44.22	−10.1		41.79
+38.49	25 25.00		8.93 +.6	43.94	−11.6		41.87
+41.05	25 27.20		8.15 +.6	44.85	−11.8		41.80
+49.91	25 30.20		8.99 +.6	43.33	−12.1	40.82	~~40.72~~ 40.82
+39.76	25 25.90		8.88 +.6	44.13	−12.2		41.41
+47.99	25 27.75		10.81 +.6	43.02	12.7	41.73	~~42.75~~ 41.73
+31.50	19 47.45	3	43.64 .7 −1	4.43	−6.5		33.41
+24.38	19 41.85		45.68 .8	4.26	−8.4		33.82
+59.84	19 58.20		44.74 .8	3.32	−8.5		31.72
+59.90	19 57.95		45.15 .8	3.37	−8.7		33.88
+35.95	19 44.95		47.85 .8	4.55	−10.1		34.00
+22.05	45 42.00	37	27.67 +.0 +4	44.89	−5.0	+42 42	7.56
+23.09	45 40.05		30.62 +.0	44.22	−7.5		7.34
+26.11	45 41.70		31.79 +.0	44.85	−9.2		7.44
+28.40	40 7.75	43	7.94 +.0 −1	4.43	−4.2	41	59.31
+19.67	39 58.40		8.87 +.1	3.37	−6.1		59.50
+28.52	40 3.30		12.53 +.0	4.55	−7.7	42	0.28

# w c Gr. Tσ 848 L.C. α= Tm 4h m 16 31 δ= + 104° 18' 75° 42' tan δ= -3.93 4.05 sin z -.88

1872 July	3-.35	31 5.60	31	36.60	36.66	-2.33	+1.38	+3.26	16h 31m	38s.97	
	13-.34	31 6.53	31	40.18	40.24	-4.93	+1.34	+2.30		38.95	
	27-.23	31 32.50	31	40.34	40.40	-3.28	+.90	+1.18		39.20	
	28-.24	31 3.40	31	40.00	40.06	-2.91	+.94	+1.09	39.18	~~39.23~~ 39.18	
Aug	1-.27	32 3.55	31	44.65	44.71	-7.26	+1.06	+0.69	39.20	~~39.18~~ 39.20	
73 July	20-.39	31 23.93	31	51.19	51.25	-7.41	+1.53	+1.65	47.02	~~46.02~~ 47.02	×
	24-.50	31 18.73	31	53.29	53.35	-9.69	+1.96	+1.29		46.91	×
Aug	4-.47-.08	31 27.53	32	3.13	3.19	-18.69	+1.85 +.32	+0.19		46.86	×



1872 Gr. 2372 h 16 m 33 +79° 13' tan δ= +5.26 sin z = -.60

1872 July	1-.40	33 34.00	33	0.53	0.45	+1.99	-2.10	-5.89	16 32	54.45	
	3-.35	32 29.77	33	4.52	4.44	-2.33	-1.84	-5.75		54.52	
	7-.35	31 52.23	33	10.34	10.26	~~-8 7.10~~ 43	-1.84	-5.44		54.56	
	9-.29		33	10.37	10.29	-9.07	-1.53	-5.27		54.42	
	13-.34	32 30.90	33	6.07	5.99	-4.92	-1.79	-4.74		54.54	
	~~22~~										
	25-.26	33 35.60	33	3.48	3.40	-3.43	-1.87	-3.76		54.84	
	27-.23	33 28.80	33	2.73	2.65	-3.28	-1.21	-3.55		54.61	
	28-.24	32 24.67	33	2.04	1.96	-2.91	-1.26	-3.44		54.35	
	29-.22		33	2.18	2.10	-3.16	-1.16	-3.33		54.45	
Aug	1-.27	32 35.30	33	6.24	6.16	-7.26	-1.42	-3.01		54.47	
	4-.17		33	13.24	13.16	-14.61	-0.89	-2.69		54.77	
	3-.18							~~-4.03~~			
'73 July	20-.39									~~50.96~~	
	24-.50	32 46.10	33	7.41	7.33	-9.69	-2.63	-4.03		50.98	
Aug	4-.47										

	h	m	s
1872	16	32	54.5~~70~~ 43
73		32	50.980

#

1872 Gr. 2373 h 16 m 36 +77° 42' tan δ= +4.59 4.69 sin z -.58

1872 July	1-.40	36 22.80	36	15.92	15.85	+1.97	-1.84	-5.25	16 36	~~6.79~~ 10.73	
	3-.35	34 29.17	36	20.00	19.93	-2.34	-1.61	-5.13		10.85	
	11-.37	34 40.10	36	24.72	24.65	-7.51	-1.70	-4.59		10.85	
	13-.34	34 54.80	36	21.67	21.60	-4.93	-1.56	-4.29		10.82	
	16-.28-.07	35 0.17	36	21.14	21.07	-4.38	-1.29 -.33	-4.21		10.86	
	22-.27	34 50.67	36	19.80	19.73	-3.95	-1.24	-3.69		10.85	
	24-.26	35 20.97	36	19.10	19.03	-3.47	-1.19	-3.52		10.85	
	25-.26	36 9.20	36	18.8~~7~~ 8	18.81	-3.43	-1.19	-3.43		10.76	
	27-.23	34 28.10	36	18.47	18.39	-3.28	-1.06	-3.25		10.80	
	28-.24		36	18.10	18.03	-2.91	-1.10	-3.16		10.86	
	29-.22		36	18.09	18.02	-3.17	-1.01	-3.07		10.77	
Aug	1-.27	35 15.33	36	22.22	22.15	-7.27	-1.24	-2.79		10.85	
	5-.18	35 17.90	36	31.52	31.45	-17.40	-.83	-2.41		10.81	
'73 July	20-.39	35 23.37	36	21.49	21.42	-7.42	-1.79	-4.02		8.19	×
	23-.49	36 42.77	36	23.26	23.18	-8.96	-2.25	-3.77		8.20	×
	24-.50	35 28.87	36	24.13	24.06	-9.70	-2.29	-3.68		8.39	×
	30-.54	36 4.63	36	29.84	29.77	-15.85	-2.48	-3.14		8.30	×
Aug	4-.47-.08	36 46.00	36	31.99	31.92	-18.69	-2.16 -.37	-~~3~~2.66		~~7~~8.04	×
	5-.43	35 59.27	36	31.69	31.62	-18.93	-1.97	-2.56		8.1~~3~~6	×
	6-.42	36 9.93	36	31.90	31.83	-19.25	-1.93	-2.46		8.19	×
	9-.48	36 35.60	36	33.04	32.97	-20.39	-2.20	-2.15		8.23	×

$T_m - T'_\delta$	Circle Readings								
+31.00	11 11.30	13	9.61	+1.3 +.4	44.89	−6.6	104 + 75	17	49.20
+33.65	11 6.55		13.27	+1.2	44.22	−8.4		50.29	~~51.29~~ 50.29
+7.84	11 14.50		15.53	+1.2	43.33	−9.7			50.36
+36.60	11 6.95		14.36	+1.2	44.13	−9.8			49.89
−18.90	11 23.85		15.94	+1.3	43.02	−10.1			50.16
+27.26	5 31.95	18	51.88	+1.5 −1	4.72	−6.2			42.46
+34.36	5 29.45		50.58	+1.5	3.37	−6.6			42.11
+35.60	5 30.10		51.17	+1.6	4.55	−7.4			40.82
−33.47	13 53.85								
+34.75	14 10.40	9	25.81	+.9	+1 45.37	−6.92	79	14	5.16
+78.11	14 19.85		28.12	+.9	44.89	−7.39			6.52
			30.58	+.9	44.51	−8.30			7.69
+45.17	14. 8.65		32.53	+.9	44.22	−8.73			8.92
−32.12	13 49.65		31.81	+.8	44.85	−11.61			5.85
−26.07	13 50.10		32.80	+.8	43.33	−11.90			5.03
+37.37	14 7.50		32.36	+.8	44.13	−12.03			5.26
+30.94	14 4.35		33.99	+.8	43.02	−12.56			5.25
+21.31	8 24.20	15	10.88	+1.1	−1 ~~4.55~~ 3.37	−8.55		14 ~~13~~	~~57.06~~ 0.06
							79°	14′	~~8~~ 6.21″
								14.	0.06
−6.88	46 4.30	37	20.60	+.9 +.4	45.37	−6.8	+77	42	0.07
+110.83	46 35.95		20.70	+.8	44.89	−7.2		41	59.19
+104.62	46 32.00		23.01	+.8	44.94	−9.2		59.65	~~59.54~~ 59.55
+8.6.84	46 26.15		24.24	+.8	44.22	−9.9			59.36
+80.97	46 24.50		24.50	+.8	43.57	−10.2			58.67
+89.13	46 25.10		26.87	+.8	42.99	−11.1			59.56
+58.13	46 18.10		25.31	+.8	43.94	−11.5			58.55
+110.37	46 30.15		27.00	+.8	43.33	−12.0		59.13	~~58.33~~ 59.13
+66.89	46 18.95		27.26	+.8	43.02	−12.6			58.48
+73.62	46 19.95		28.21	+.8	42.70	−13.1			58.61
+58.12	40 39.50	43	4.18	+1.0 −1	4.72	−8.0		52.44	~~53.46~~ 52.46
+40.48	40 39.15		2.67	+1.0	3.32	−8.5			51.85
+55.26	40 38.40		3.93	+1.0	3.37	−8.7			52.86
+25.21	40 29.05		5.00	+1.1	3.18	−9.6			53.32
−14.01	40 44.05				4.55				~~51.70~~
+32.42	40 30.80		6.60	+1.1	5.90	−10.1		s.	51.70
+21.97	40 43.30		7.31	+1.1	4.95	−10.3		x.	53.16
−2.58	40 19.30		7.89	+1.1	4.44	−10.5			54.05

#	n ☉	Ts	Tm								
	η Herculis			d=	16h 39m	δ= +39° 10′	tan δ = +.81	1.29	Sin z +.06		
1872 July	1 −.40	38 7.50	38	30.87	30.85	+1.97	−.32	−.196	16h 38m	30.54s	
	3 −.35	38 9.13	38	35.10	35.08	−2.34	−.28	−.195		30.51	
	15 −.34	38 12.73	38	37.53	37.51	−4.93	−.28	−.183		30.47	
	22 −.27	38 13.63	38	36.43	36.41	−3.95	−.22	−.173		30.51	
	25 −.26	38 10.10	38	35.88	35.86	−3.43	−.21	−.168		30.54	
	27 −.23	38 9.63	38	35.63	35.61	−3.28	−.19	−.165		30.49	
	28 −.24		38	35.31	35.29	−2.91	−.19	−.163		30.56	
	29 −.22		38	35.38	35.36	−3.17	−.18	−.162		30.39	
Aug	1 −.27	38 17.03	38	39.62	39.60	−7.27	−.22	−.156	30.55	~~30.15~~ 30.55	
	4 −.17	38 31.80	38	46.91	46.89	−14.82	−.14	−.151		30.42	
	5 −.18	38 28.97	38	49.60	49.58	−17.40	−.15	−.149		30.54	
	6 −.24	38 35.17	38	52.12	52.10	−19.94	−.19	−.147		30.50	
	7 −.23	38 29.17	38	54.96	54.93	−22.77	−.19	−.144		30.53	
	10 −.27	38 42.33	39	2.81	2.79	−30.62	−.22	−.139		30.56	
73 July	20 −.39	38 15.07	38	42.24	42.22	−7.42	−.32	−.193		32.55	×
	23 −.49	39 30.03	38	43.78	43.76	−8.96	−.40	−.188		32.52	×
	24 −.50	38 19.40	38	44.54	44.52	−9.70	−.40	−.187		32.55	×
	26 −.50	38 23.20	38	46.23	46.21	−11.37	−.40	−.183		32.61	×
Aug	4 −.47 −.08	38 24.60	38	53.36	53.34	−18.69	−.38 −.10	−.168		32.49	×
	6 Clef.										
	9 −.48	38 32.93	38	54.97	54.95	−20.39	−.39	−.159		32.58	×

#											
		Gr. 2377			16h 43m	+57° 1′	tan δ = +1.54	1.84	Sin z −.25		
1872 July	3 −.35	42 24.23	42?	57.62	57.56	−2.35	−.54 −.+	−.246	16 42	52.21	
July	20 −.25 −.07	42 26.10	42	59.14	59.09	−4.23	−.38 −.13	−.210		52.25	
	24 −.26					[illegible]	−.40	−			
	28 −.24	42 22.37	42	57.47	57.42	−2.91	−.37	−.189		52.25	
Aug	1 −.27	42 24.37	43	1.68	1.62	−7.27	−.42	−.177		52.16	
	4 −.17	42 38.87	43	9.06	9.00	−14.84	−.26	−.168		52.22	
	5 −.18	42 41.17	43	11.64	11.59	−17.41	−.28	−.164		52.26	
	6 −.24	42 31.70	43	14.12	14.06	−19.95	−.37	−.161		52.13	
	7 −.23	42 47.53	43	17.00	16.94	−22.78	−.35	−.158		52.23	
	10 −.27	42 51.63	43	24.86	24.81	−30.63	−.42	−.149		52.27	
73 July	20 −.39	42 39.53	43	3.64	3.59	−7.42	−.60	−.227		53.30	×
	24 −.50	42 33.53	43	5.90	5.84	−9.70	−.77	−.216		53.21	×
	26 −.50	42 48.10	43	7.71	7.65	−11.37	−.77	−.211		53.40	×
Aug	4 −.47	42 34.83	43	14.73	14.68	−~~15.86~~ 18.69	−.72	−.184		53.43	×
	9 −.48	42 47.60	43	16.21	16.19	−20.39	−.74	−.168		53.38	×
	11 −.44	42 52.57	43	16.92	16.86	−21.31	−.68	−.161		53.26	×

#											
		49 Herculis			16h 46m	+15° 11′	tan δ = +.27	1.04	Sin z +.46		
1872 July	1 −.40		46	15.16	15.15	+1.94	−−.10	−.178	16 46	15.21	
	15 −.34	46 6.77	46	21.96	21.94	−4.94	−.09	−.172		15.19	
	25 −.26	46 10.10	46	20.46	20.44	−3.43	−.07	−.165		15.29	
	28 −.24	46 0.00	46	19.90	19.88	−2.91	−.06	−.160		15.31	
Aug	1 −.27	46 3.73	46	24.23	24.21	−7.28	−.07	−.157		15.29	
	6 −.24	46 19.07	46	36.81	36.79	−19.96	−.06	−.151		15.26	
	7 −.23	46 20.07	46	39.64	39.62	−22.79	−.06	−.151		15.26	
	10 −.27	46 25.90	46	47.44	47.42	−30.64	−.07	−.147	15.24	~~15.27~~ 15.24	
'73 July	20 −.39	46 9.97	46	27.36	27.35	−7.42	−.11	−.187		17.95	×
	24 −.50	46 12.63	46	29.68	29.67	−9.70	−.13	−.184		18.00	+
	26 −.50	46 10.47	46	31.33	31.31	−11.38	−.13	−.182		17.98	×
Aug	4 −.47 −.08	46 15.67	46	38.50	38.48	−18.68	−.13 −.08	−.173		17.86	×
	9 −.48	46 19.60	46	40.24	40.22	−20.40	−.13	−.167		18.02	×
	11 −.44	46 21.43	46	41.06	41.04	−21.31	−.12	−.164		17.97	+

	Tm − T'5	Circle Readings							
	+23.37	17 49.55	5	18.94 −.1 +4	45.37	−3.8	+39°	10	0.41
	+25.97	17 51.70		19.62 −.1	44.89	−4.3			0.11
	+24.80	17 47.45		22.76 −.1	44.22	−6.8			0.08
	+22.80	17 42.85		25.05 −.1	42.99	−8.0		9	59.94
	+25.78	17 46.80		24.33 −.1	44.85	−8.5		10	0.58
	+26.00	17 45.55		25.81 −.1	43.33	−8.8			0.24
30.55	+22.59	17 40.55		27.25 −.1	43.02	−9.5			0.67
	+15.11	17 32.45		27.88 −.1	42.22	−9.9			0.10
	+20.63	17 39.00		26.88 −.1	42.70	−10.0		9	59.48
	+16.95	17 35.50		26.73 −.1	43.50	−10.1		10	0.03
	+25.78	17 44.45		26.64 −.1	43.78	−10.2			0.12
	+20.48	17 38.30		27.48 −.1	43.48	−10.6			0.26
x	+27.18	12 9.40	11	3.06 −.1 −1	4.72	−4.8		9	53.44
x	+13.75	11 56.00		3.05 −.1	3.32	−5.3			54.33
x	+25.14	12 7.45		3.00 −.1	3.37	−5.4		54.13	~~54.23~~ 54.18
x	+23.03	12 5.40		2.95 −.1	4.07	−5.7			53.08
x	+28.76	12 8.90		5.10 −.2	4.55	−7.0			53 35 53.35
x	+22.04	12 2.70		4.60 −.2	4.44	−7.7			52.26
	+33.04	27 19.30	56	6.74 +.4 H	43.45	−9.7	59 +57	0	40.89
		46 18.10			~~43.94~~				
	+35.10	27 20.20		7.25 +.3	44.13	−11.2		40.44	~~41.38~~ 40.48
	+37.31	27 19.90		9.12 +.3	43.02	−11.8			40.64
	+30.18	27 14.40		10.01 +.3	42.22	−12.2		40.33	~~40.32~~ 40.33
	+30.47	27 14.45		10.03 +.3	42.70	−12.3		40.73	~~42.73~~ 40.73
	+42.42	27 23.15		9.46 +.3	43.50	−12.4			40.86
	+29.47	27 14.75		8.82 +.3	43.78	−12.5		40.40	~~40.30~~ 40.40
	+33.23	27 16.50		9.72 +.3	43.48	−12.9			40.60
x	+24.11	21 33.50	1	46.38 +.6 −1	4.72	−6.8			35.46
x	+32.37	21 40.35		45.06 +.5	3.37	−7.5			34.69
x	+19.61	21 31.45		45.05 +.5	4.07	−7.9			33.58
x	+39.90	21 44.00		46.81 +.4	4.55	−9.2			33.46
x	+28.65	21 35.25		47.76 +.5	4.44	−9.9			33.92
x	+24.35	21 31.40		48.84 +.4	4.58	−10.2			34.46
	+15.18	15 55.55	6	43.75 −.7 H	44.22	−2.4	+15	11	24.87
	+10.35	15 47.30		45.16 −.6	44.85	−3.6			25.81
	+19.90	15 57.65		46.88 −.6	44.13	−4.0		26.41	~~26.35~~ 26.41
	+20.50	15 56.70		48.43 −.6	43.02	−4.3			26.55
	+17.74	15 53.85		48.04 −.6	43.50	−4.9			26.04
	+19.57	15 56.40		47.92 −.6	43.78	−4.9			26.20
15.24	+21.54	15 57.55		49.15 −.6	43.48	−5.3			26.73
x	+17.39	10 16.40	12	25.07 −.8 −1	4.72	−.2			19.35
+	+17.05	10 16.80		24.69 −.8	3.37	−.6			19.92
x	+20.86	10 18.20		28.05 −.8	4.07	−.8			22.88
x	+22.83	10 20.00		28.37 −.8	4.55	−1.7			21.32
x	+20.64	10 18.60		27.00 −.8	4.44	−2.2			19.56
+	+19.62	10 15.95		27.96 −.8	4.58	−2.4			20.18

Gr. 2391 α 16h 48m δ +77° 44′ tan. δ=+4.60 4.71 sin z = -58

	n, T.S.		h Tm	s	s					h m	s	
1872 July	3-.35	6 48 47.47	48	59.04	58.97	-2.36	±1.61		-5.28	16 48	49.72	+
	6-.30 -.08	46 59.17	49	3.58	3.51	-7.13	±1.38	-.38	-5.09		49.53	+
	7-.35	47 55.00	49	4.88	4.81	-8.45 5	±1.61		-5.03		49.74 2	+
	9-.29	47 25.50	49	5.17	5.10	-9.07 5	-1.33		-4.89		49.83	+
	11-.37	46 36.40	49	3.78	3.71	-7.51	-1.70		-4.76		49.74	+
	14-.32	47 28.07	49	1.57	1.50	-5.75	-1.47		-4.54		49.74	+
	15-.34	47 34.30	49	0.84	0.77	-4.94	-1.56		-4.46		49.81	+
	16-.28 -.07	47 54.20	49	0.32	0.25	-4.38	-1.29	-.33	-4.39		49.86	+
	22-.27	47 14.03	49	58.90	58.83	-3.94	-1.24		-3.90		49.75	+
	25-.26	47 29.75	48	57.92	57.85	-3.43	-1.20		-3.65		49.57	+
	28-.24		48	57.15	57.11	-2.91	-1.10		-3.38		49.72	
Aug	1-.27	47 16.10	49	1.33	1.26	-7.28	-1.24		-3.01		49.73	+
	4-.17		49	8.34	8.27	-14.85	-.78		-2.72		49.92	
	5-.18	47 38.70	49	10.77	10.69	-17.42	-.83		-2.62		49.~~72~~ 82	+
	6-.24		49	13.30	13.23	-19.96 79	-1.10		-2.53		49.64	
	7-.23	47 38.50	49	16.13	16.06	-22.~~80~~	-1.06		-2.43		49.78	+
73 July	20-.39	47 44.83	49	0.41	0.34	-7.42	-1.79		-4.18		46.95	+
	24-.50	48 0.57	49	3.09	3.02	-9.70	-2.30		-3.84		47.18	+
	26-.50	47 45.90	49	4.48	4.41	-11.38	-2.30		-3.66		47.07	+
Aug	4-.47 -.08	47 52.63	49	11.41	11.34	-18.6~~8~~7	-2.16	-.38	-2.83		47.30	+
	9-.48	48 53.80	49	11.98	11.91	-20.40	-2.21		-2.33		46.97	+
	11-.44	47 43.30	49	12.50	12.43	-21.31	-2.02		-2.13		46.97	+

1872 16h 48m 49s.742

1873 48 47.073

# 1872   1872 36.573 A.   κ Ophiuchi 16h 52m +9° 34′ tan δ = +.17 1.01 sin z +.54

										h m	s	
July	16-.28 -.07	51 25.83	51	42.92	42.90	-4.38	-.05	-.07	-1.73	16 51	36.67	+
	22-.27	51 38.60	51	42.33	42.31	-3.94	-.05		-1.68		36.64	+
	24-.26						-.04					
	25-.26	51 24.07	51	41.81	41.79	-3.43	-.04		-1.66		36.66	+
	27-.23	52 27.30	52	41.67	41.66	-3.28	-.04		-1.65		36.69	+
	28-.24	51 21.63	51	41.24	41.23	-2.91	-.04		-1.64		36.64	+
Aug	1-.27	51 29.37	51	45.64	45.63	-7.29	-.05		-1.60		36.69	+
	4-.17	51 39.23	51	53.14	53.13	-14.86	-.03		-1.57		36.67	+
	5-.18		51	55.61	55.60 51 38.12 A.	-17.43	-.03		-1.55		36.59	
	6-.24	51 40.55	51	58.19	58.18	-19.97	-.04		-1.54		36.63	+
	7-.23	51 42.10	52	1.03	1.01	-22.81	-.04		-1.53		36.63	+
	10-.27	51 49.70	52	8.84	8.82	-30.66	-.05		-1.49		36.62	+
73 July	23-.49	51 28.17	51	50.43	50.41	-8.97	-.08		-1.86		39.50 +	+
	24-.50	51 29.07	51	51.16	51.15	-9.71	-.08		-1.84		39.52 +	+
	26-.50	51 27.50	51	52.81	52.79	-11.39	-.08		-1.83		39.49 +	+
Aug	4-.47 -.08	51 41.87	52	0.06	0.05	-~~15.86~~ 18.68	-.08	-.08	-1.74		39.47 +	+
	6 Chf.						-					
	9-.48	51 36.07	52	1.71	1.69	-20.40	-.08		-1.70		39.51 +	+
	11-.44	51 42.93	52	2.53	2.51	-21.31	-.07		-1.67		39.46 +	+
	12-.42 -.06	50 49.10	52	2.96	2.94	-21.65	-.07	-.06	-1.67		39.49 +	+

# 1872 ε Herculis 16h 55m +31° 7′ tan δ = +.60 1.17 sin z +.20

										h m	s	
July	1-.40	55 3.20	55	23.80	23.78	+1.92	-.24		-1.88	16 55	~~23.48~~ 23.58 23.58	+
	3-.35	55 7.10	55	28.08	28.06	-2.387	-.21		-1.88		23.60	+
	11-.37	55 12.17	55	33.26	33.24	-7.51	-.22		-1.84		23.67	+
	14-.32	55 11.93	55	31.29	31.27	-5.75	-.19		-1.81		23.52	+
73 July	23-.49	55 19.27	55	37.04	37.02	-8.97	-.29		-1.89		25.87 +	+
	24-.50	55 20.93	55	37.80	37.78	-9.71	-.30		-1.88		25.89 +	+
	26-.50	55 27.40	55	39.36	39.34	-11.39	-.30		-1.85		25.80 ×	
Aug	4-.47 -.08	55 19.60	55	46.63	46.61	-~~15.86~~ 18.68	-.28	-.09	-1.73		25.83 ×	+
	6-.42	55 27.23	55	47.14	47.13	-19.25	-.25		-1.70		25.93 +	+
	9-.48	55 32.63	55	48.24	48.22	-20.40	-.29		-1.66		25.87 ×	+
	11 No obs.											
	12 ~~.42 -.06~~	55 [illegible]	55	[illegible]	[illegible]		- ~~.25 .07~~		+			

	T m − T5	Circle Readings		X							
8											
	+71.57	44 27.75	39	18.73 ~~2.09~~	+.8	+4	44.89	−6.39	77	43	58.23 ~~41.39~~
2	+~~8~~4.41 13	44 40.40		20,14~~4.80~~	+.8		44.66	−7.13			~~43.13~~ 58.47
	+69.88			22.17	+.8		44.51	−7.37		44	0.11
	+~~8~~9.67	44 33.45		20.92~~5.24~~	+.8		44.47	−7.84		43	~~42.67~~ 58.35
	+87.38	44 28.80		21.45~~8.7~~	+.8		44.94	−8.30			~~43.31~~ 58.87
	+83.50	44 29.00		23.47~~7.70~~	+.8		43.82	−8.96			~~43.36~~ 59.13
	+86.54	44 28.05		22.~~07~~28	+.8		44.22	−9.17			58.18
	+66.12	44 21.35		23.77	+.8		43.57	−9.37			58.77
	+74.87	44 22.00		25.90	+.8		42.99	−10.55			59.14
	+88.17	44 27.50		23.90	+.8		44.85	−11.08			58.47
	+105.23	44 29.55		26.31	+.8		43.02	−12.16			57.97
82	+92.07	44 26.05		26.94	+.8		42.70	−12.67			57.77
−	+97.63	49 26.95	34	26.89	+.8		43.78	−12.93			58.54
	+75.58	38 44.25	45	3.96	+1.0	−1	4.72	−7.27			52.97
	+62.52	38 41.05		3.10	+1.0		3.37	−7.99			52.74
	+78.58	38 45.45		2.91	+1.0		4.07	−8.33			51.51
	+78.88	38 44.40		4.54	+1.1		4.55	−9.66			51.43
	+18.18	38 27.45		5.37	+1.1		4.44	−10.22			51.81
	+89.20	38 46.75		5.45	+1.1		4.58	−10.41			51.56
42									°	′	″
									77	43	58.61
73											52,00
	+17.09	52 44.15	29	50.81	−.8	+4	43.57	−1.5	+9	34	32.08
	+3.73	52 24.40		52.35	−.7		42.99	−2.0	−		32.64
		52 44.40									
	+17.74	52 44.00		48.73	−.7		44.85	−2.2			30.68
	+14.37	52 39.00		51.48	−.7		43.33	−2.4			31.71
	+19.61	52 45.50		51.63	−.7		44.13	−2.5			32.56
	+16.27	52 39.85		52.91	−.7		43.02	−2.9			32.33
	+13.91	52 35.05		54.41	−.7		42.22	−3.2		32.73	~~32.53~~ 32.73
	+17.64	52 41.65		53.25	−.7		43.50	−3.4			32.65
	+18.93	52 44.90		51.85	−.7		43.78	−3.5			31.43
	+19.14	52 44.85		52.26	−.7		43.48	−3.8			31.24
x	+22.26	47 13.30	35	27.96	−10	−1	3.32	+.8			24.44
x	+22.09	47 10.85		30.28	−10		3.37	+.7			25.61
+	+25.31	47 14.70		30.56	−10		4.07	+.5			25.99
x	+18.19	47 2.80		32.91	−10		4.55	−.5			26.86
x	+25.64	47 12.60		32.62	−10		4.44	−.9			26.28
x	+19.60	47 4.90		32.09	−10		4.58	−1.0			25.51
x	+13.86	46 55.40		33.54	−10		4.71	−1.1			26.73
23,58	+20.60	20 43.55	2	16.77	−.3	+4	45.37	−2.3	+31	6	59.54
	+20.98	20 43.60		17.14	−.3		44.89	−2.7			59.03
	+21.08	20 41.90		18.96	−.3		44.94	−4.4			59.20
	+19.36	20 38.80		20.09	−.3		43.82	−5.0			58.61
+	+17.77	14 56.85	8	0.12	−.3	−1	3.32	−3.8			52.70 5
+	+16.87	14 56.55	7	59.45	−.3		3.37	−3.8		51.98	~~50.98~~ 51.98
x											
x	+27.03	15 3.10	8	4.20	−.4		4.55	−5.4			53.85
+	+19.91	14 56.50		3.33	−.4		4.95	−5.8			52.18
x	+15.61	14 50.95		3.46	−.4		4.44	−6.1			52.52
	+72.55	15 [illegible]									

E Urs. Min. a = 16h 59m δ = + 82° 14′ tan δ = +7.34 7.37 Riv z –.64

#	n	T₀		Tm									
1872													
~~Jan~~	~~10~~												
Feb	7												
July	1–.40			59	19.44	19.33		+1.90	–2.94		–825	16h 59m	10.04s
	3–.35	58 55.10		59	23.01	22.90		–2.37	–2.57		–807		9.89
	6–.30 –08	58 42.37		59	27.79	27.68		–7.14	–2.20	–.59	–778		9.97
	7–.35	58 11.27		59	28.56	28.44		–8.486	–2.57	~~–.52~~	–768	9.73	[illegible] 9.73
	9–.29	58 6.07		59	28.68	28.56		–9.04	–2.13		–740		9.93
	11–.37	56 49.93		59	27.69	26.98		–7.51	–2.72		–724		9.51
	14–.32	58 47.75		59	25.04	24.93		–5.75	–2.35		–689		9.94
	16–.28 –.07	56 40.20		59	23.57	23.45		–4.38	–2.06	–.52	–665		9.854
	20–.25 –.07	58 7.20	0 1.20	59	22.44	22.33		–4.22	–1.84	–.52	–615		9.60
	22–.27	58 6.17		59	21.89	21.76		–3.94	–1.98		–587		9.97
	23			~~59~~	~~21.59~~	~~21.49~~							
	24–.26	57 58.40		59	21.04	20.93		–3.47	–1.91		–560		9.95
	25–.26			59	20.88	20.76		–3.42	–1.91		–546		9.97
	27–.23			59	20.31	20.20		–3.28	–1.69		–517		10.06
	28–.24	57 58.03		59	19.68	19.56		–2.92	–1.76		–503		9.85
	29–.22	57 55.43		59	19.71	19.60		–3.17	–1.61		–489		9.93
Aug	1–.27	57 40.00		59	23.83	23.72		–7.30	–1.98		–445		9.99
	4–.17	58 44.73		59	30.14	30.03		–14.87	–1.25		–400		9.91
	5–.18	58 9.60		59	32.83	32.72		–17.44	–1.32		–385		10.11
	6–.24	58 23.05		59	35.47	35.35		–19.98	–1.76		–368		9.93
	7–.23	58 9.77		59	38.29	38.18		–22.82	–1.69		–352		10.15
	8–.26	59 43.20		59	41.46	41.34		–25.87	–1.91		–336		10.20
	10–.27							–30.67	–1.98		–		
73 Jan	22 ~~1.28~~												
	29 ~~4.42~~												
Feb	6 ~~1.34~~												
July	23–.49	56 58.50		59	22.10	21.99		–8.97	–3.60		–574		3.68 +
	24–.50	57 10.43		59	22.60	22.49		–9.71	–3.67		–560		3.51 +
	26–.50	56 32.50		59	24.21	24.10		–11.39	–3.67		–532		3.72 +
Aug	4–.47 –08	57 15.43		59	30.13	30.02		–18.68	–3.45	–.59	–399		3.31 +
	6–.42	57 2.92		59	29.86	29.74		–19.25	–3.08		–367		3.74 +
	9–.48	57 21.80		59	30.84	30.73		–20.41	–3.52		–319		3.61 +
	10 Lost.												
	11–.44	57 26.47		59	31.19	31.07		–21.31	–3.23		–286		3.67 +
	12–.42 –.06	0 3.00		59	31.50	31.39		–21.65	–3.08	–.44	–270		3.52 +

19 H. Camelop. L.C. 5h 17 m 01 100° +79° 4′ tan δ = –5.18 5.29 Riv z –.85

#													
1872 July	9–.29	60 58.15		1	33.79	33.87		–9.04	+1.50		+422	17 1	30.55
	11–.37	0 50.30		1	31.82	31.90		–7.51	+1.92		+403		30.34
	14–.32	0 54.53		1	30.67	30.75		–5.75	+1.66		+373		30.39
	25–.26	0 38.05		1	29.66	29.73		–3.42	+1.35		+253		30.19
	28–.24	0 43.73		1	29.93	30.01		–2.92	+1.24		+217		30.50
	29–.22	0 29.30		1	30.90	30.98		–3.17	+1.14		+205	31.00	~~30.96~~ 31.00
Aug	7–.23	1 11.30		1	51.31	51.40		–22.82	+1.19		+94		30.71
	8–.26	1 19.43		1	54.39	54.48		–25.87	+1.35		+81		30.77
	~~24~~								+ ~~2.59~~				
'73 July	24–.50	0 35.55		1	45.12	45.20		–9.71	+2.59		+233		40.41 +
	26–.50	0 26.50		1	47.00	47.08		–11.39	+2.59		+210		40.38 +
Aug	4–.47 –.08	0 30.40		1	54.71	54.79		–18.68	+2.43	+.42	+113		40.09 +
	6–.42	1 9.20		1	56.78	56.86		–19.25	+2.18		+75		40.54 +
	9–.48	1 1.77		1	57.70	57.78		–20.41	+2.49		+37		40.23 +
	10 Lost.												
	11–.44	1 8.70		1	59.20	59.28		–21.31	+2.28		+11		40.36 +
	12–.42 –.06	1 23.30		1	59.70	59.78		–21.65	+2.18	+.31	–06		40.56 +

	Tm - Ts		Circle Readings							
64										
	+27.91		13 40.40		9	58.60 + .9 +4	44.89	-6.2	+ 82 14	38.19
9.73	+45.92		13 43.90		9	58.85 + .9	44.66	-7.0	37.41	~~37.57~~ 37.41
	+77.29		13 47.55		10	0.46 + .9	44.51	-7.2		38.67
	+82.61		13 48.60		10	0.33 + .9	44.47	-7.7	38.00	~~37.70~~ 38.00
	+136.14		13 58.85		9	57.85 + .9	44.94	-8.2		35.49
	+37.29		13 38.55		10	2.40 + .9	43.82	-8.9		38.22
	+163.40		13 58.10			5.36 + .9	43.57	-9.3		40.53
	+45.24	-38.76	13 43.80	13 23.35		3.69 + .9	43.45	-10.1		37.94
	+75.72		13 42.10			5.74 + .9	42.99	-10.5		39.13
	+82.64		13 43.95			4.61 + .9	43.94	-10.9		38.55
	+81.65		13 44.25			4.61 + .9	44.13	-11.0		38.64
	+84.28		13 43.65			4.96 + .9	43.51	-11.2		38.17
	+103.83		13 46.00			6.56 + .9	43.02	-11.6		38.88
	+45.41		13 36.70			7.01 + .9	42.22	-12.1		38.03
	+83.23		13 42.05			7.56 + .9	42.70	-12.2		38.96
	+72.42		13 40.40			6.80 + .9	43.50	-12.4		38.80
	+88.52		13 45.65			4.13 + .9	43.78	-12.5		36.31
	-1.75		13 26.30			7.77 + .9	43.14	-12.6		39.21
×	+143.60		8 14.45		15	43.71 +1.2-1	3.32	-7.2		34.39
×	+132.17		8 12.05			44.18 +1.2	3.37	-7.4		34.61
×	+171.71		8 18.40			43.91 +1.2	4.07	-7.8		32.24
×	+134.70		8 11.55			45.57 +1.2	4.55	-9.2		33.02
×	+146.94		8 12.30			46.82 +1.2	4.95	-9.6		33.47
×	+129.04		8 10.30			46.02 +1.2	4.44	-9.8		32.98
×	+124.72		8 9.05			47.15 +1.2	4.58	-10.0		33.77
×	-31.50		7 42.85			47.32 +1.2	4.71	-10.1		33.71
75									100	2062
	+35.64		33 30.50		50	40.95 +1.2 +4	44.47	-6.0	+79 55	~~20.52~~ 20.62
	+41.52		33 24.85			42.78 +1.2	44.94	-6.4	77 22.52	~~22.42~~ 22.52
	+36.14		33 26.80			42.83 +1.2	43.82	-6.9		20.95
	+51.60		33 24.05			43.12 +1.2	44.85	-8.7		20.47
	+46.20		33 24.50			43.95 +1.1	44.13	-9.1		20.08
31.00	+61.60		33 20.45			43.06 +1.1	43.51	-9.3		18.37 18.37
	+40.01		33 23.35			45.96 +1.1	43.78	-10.3		20.54
	+34.96		33 22.80			46.94 +1.1	43.14	-10.4		20.78
×	+69.57		27 37.90		56	23.45 +1.5-1	3.37	-5.7		15.88
×	+80.50		27 34.95			23.86 +1.5	4.07	-5.9		15.39
×	+84.31		27 36.00			23.10 +1.6	4.55	-7.1	13.05	~~[illegible]~~ 13.05
×	+47.58		27 42.05			25.12 +1.6	4.95	-7.3		14.47
×	+55.93		27 41.70			23.97 +1.6	4.44	-7.5		13.63
×	+50.50		27 42.70			25.42 +1.7	4.58	-7.7		14.84
×	+36.40		27 47.15			24.98 +1.7	4.71	-7.7		14.27

#	Jour St.	Tδ 2415	d =	Tm 17	Tm+k 4	Rt. −	Tm−Rt. δ = +40°	41'	tan δ = +.86	1.32	Sin z	+.03	T
1872 July	6-.30-.08	3 38.27	3	45.81	45.78			−7.15	−.2~~5~~6 −.11	−2.01	17h 8m	36.25s	+7.5
	11-.37	3 22.77	3	46.12	46.09			−7.51	−.32	−1.98		36.28	+23.
	14-.32	3 16.30	3	44.30	44.27			−5.76	−.28	−1.94		36.29	+28.
	20-.25-.07	3 57.97	3	42.67	42.64			−4.22	−.21 −.09	−1.88		36.24	−15.3
	25-.26	3 19.10	3	41.69	41.66			−3.42	−.22	−1.80		36.22	+22.
	28-.24	3 17.53	3	41.17	41.14			−2.92	−.21	−1.75	36.26	~~36.96~~ 36.26	+23.6
×	29-.22	3 20.40	3	41.44	41.41			−3.18	−.19	−1.74		36.30	+21.0
Aug	6-.24	3 34.50	3	58.18	58.15			−19.99	−.21	−1.60		36.35	+23.0
	7-.23	3 38.90	4	0.92	0.89			−22.83	−.20	−1.58		36.28	+22.
	8-.26	3 43.90	4	3.96	3.93			−25.88	−.22	−1.56		36.27	+20.0
	10-.27	3 47.03	4	8.78	8.75			−30.68	−.23	−1.52		36.32	+21.7
'73 July	24-.50	3 27.33	3	50.39	50.36			−9.71	−.43	−1.97		38.25 +	+0.3
	26-.50	3 24.73	3	51.96	51.93			−11.39	−.43	−1.94		38.17 ×	+27.
Aug	4-.47-.08	3 33.57	3	59.12	59.09			−18.68	−.40 −.11	−1.79		38.11 ×	+25.
	6-.42	3 38.90	3	59.54	59.51			−19.25	−.36	−1.75		38.15 ×	+20.
	9-.48	3 41.47	4	0.82	0.79			−20.41	−.41	−1.70		38.27 +	+19.
	11-.44	3 35.17	4	1.67	1.64			−21.32	−.38	−1.66		38.28 ×	+26.
	12-.42-.06	3 39.33	4	1.96	1.93			−21.65	−.36 −.08	−1.64		38.20 ×	+22.

# 1872	1872 48.681 A.	α Herculis		17h	9m		+ 14°	32'	tan δ = +.26	1.03	Sin z	+.47	
June	30-.34	8 28.03	8	46.07	46.06	8 50.51	−4.45+.01−4.46	+4.57	−.09 ~~−.08~~	−1.82	17 8	48.~~64~~72	+18.0
July	6-.30-.08	8 41.23	8	57.92	57.90			−7.16	−.08 −.08	−1.82		48.76	+16.
	7-.35	8 37.37	8	59.11	59.09			−8.47	−.09	−1.82		48.71	+21.
	9-.29	8 37.93	8	57.70	57.68			−9.03	−.08	−1.82		48.75	+19.
	11-.37	8 37.40	8	58.14	58.13			−7.52	−.10	−1.81		48.70	+20.
	14-.32	8 40.77	8	56.32	56.30			−5.76	−.08	−1.80		48.66	+15.
	20-.25-.07	8 58.40	8	54.90	54.88			−4.22	−.06 −.07	−1.77		48.76	−3.
	22-.27		8	54.49	54.47			−3.94	−.07	−1.76	48.70	~~48.77~~ 48.70	
	25-.26	8 32.40	8	53.93	53.91			−3.42	−.07	−1.74		48.68	+21.5
	28-.24	8 34.80	8	53.47	53.46			−2.92	−.06	−1.72		48.76	+18.
	29-.22	8 33.40	8	53.64	53.62			−3.18	−.06	−1.71		48.67	+20.
Aug	1-.27	8 52.60	8	57.77	57.76			−7.31	−.07	−1.68		48.70	+5.
	5-.18		9	7.84	7.83	8 50.31 A.		−17.46	−.05	−1.63		48.69	
	6-.24	8 51.47	9	10.38	10.37			−20.00	−.06	−1.62		48.69	+18.9
	7-.23	8 48.17	9	13.24	13.23			−22.85	−.06	−1.61		48.71	+25.
	8-.26	8 58.93	9	16.32	16.30			−25.89	−.07	−1.60	48.74	~~48.84~~ 48.74	+17.3
	10-.27	9 2.23	9	21.06	21.05			−30.69	−.07	−1.57		48.72	+18.
73 July	26-.50	8 43.83	9	4.91	4.89			−11.39	−.13	−1.90		51.47 +	+21.
Aug	4-.47-.08	8 49.03	9	12.02	12.00			−18.67	−.12 −.08	−1.81		51.32 ×	+22.
	10-.46	8 53.63	9	14.26	14.24			−20.87	−.12	−1.75		51.50 ×	+20.
	11-.44	8 52.67	9	14.67	14.66			−21.32	−.11	−1.74		51.49 ×	+22.
	12-.42-.06	8 52.83	9	15.00	14.98			−21.65	−.11 −.06	−1.73		51.43 ×	+22.

# 1872		π Herculis		17h	11m		+ 36°	57'	tan δ = +.75	1.25	Sin z	+.09	
June	30-.34	10 17.00	10	33.08	33.06	10 37.43	−4.37−.04−4.33	+4.57	−.26	−2.00	17 10	35.37	+16.
July	6-.30-.08	10 19.63	10	44.86	44.84			−7.16	−.22 −.10	−1.97		35.39	+25.
	7-.35	10 54.63	10	46.16	46.14			−8.47	−.26	−1.96		35.45	−8.
	9-.29	10 21.50	10	46.61	46.59			−9.02	−.22	−1.95		35.40	+25
	11-.37	10 21.43	10	45.13	45.11			−7.52	−.28	−1.94		35.37	+23.
	20-.25-.07	10 42.40	10	41.74	41.73			−4.22	−.19 −.09	−1.86	35.37	~~35.07~~ 35.37	−0.
	25-.26	10 16.20	10	40.77	40.75			−3.42	−.19	−1.80	35.34	~~35.44~~ 35.34	+24.
	28-.24	10 14.47	10	40.24	40.23			−2.92	−.18	−1.76		35.37	+25.
	29-.22	10 20.60	10	40.48	40.46			−3.18	−.16	−1.75		35.37	+19.
	30-.29	10 50.60	10	41.56	41.54			−4.21	−.22	−1.74		35.37	−9.
Aug	6-.24	10 35.20	10	57.21	57.19			−20.00	−.18	−1.62		35.39	+22
	7-.23	10 47.23	11	0.06	0.04			−22.85	−.17	−1.60		35.42	+12.
	8-.26	10 40.13	11	3.12	3.10			−25.89	−.20	−1.59		35.42	+22.
	10 Ch.f.								−			37.50 +	
73 July	26-.50	10 24.00	10	51.24	51.22			−11.40	−.38	−1.94		~~23.54~~	+27
Aug	4-.47-.08	10 34.27	10	58.34	58.32			−18.67	−.35 −.10	−1.83		37.37 ×	+24
	6-.42	10 35.67	10	58.84	58.82			−19.26	−.31	−1.79		37.46 ×	+23
	10-.46	10 37.47	11	0.46	0.44			−20.87	−.34	−1.71		37.52 ×	+22
	12-.42-.06	10 33.00	11	1.24	1.22			−21.65	−.31 −.07	−1.63		37.56 ×	+28

Tm−Ts	Circle Readings							
+7.54	46 30.65	36	2345 −.0 +4	44.66	−4.3	+40°	41	3.81
+23.35	46 45.65		2401 −.1	44.94	−5.5			3.35
+28.00	46 48.90		2532 −.0	43.82	−6.2			2.94
−15.30	46 4.95		2656 −.1	43.45	−7.4			2.51
+22.59	46 41.85		2692 −.0	44.85	−8.3			3.47
+23.64	46 41.95		2785 −.1	44.13	−8.9			2.98
+21.04	46 27.70		2~~4~~760 −.0	43.51	−9.0			2.11
+23.68	46 39.45		3050 −.1	43.50	−10.2		3.70	~~3.80~~ 3.70
+22.02	46 39.05		2929 −.0	43.78	−10.4			2.67
+20.06	46 35.40		3094 −.1	43.14	−10.5			3.48
+21.75	46 37.60		30.46 −.0	43.48	−10.8			3.14
+23.06	41 1.40	42	797 −.1 −1	3.37	−5.1		40	57.40
+27.23	41 5.90		752 −.1	4.07	−5.5			57.85
+25.54	41 1.70		1006 −.1	4.55	−7.0			58.41
+20.64	40 56.05		10.93 −.1	4.95	−7.2		58.68	~~57.68~~ 58.68
+19.35	40 55.10		1062 −.1	4.44	−7.6			58.48
+26.50	41 1.55		11.13 −.1	4.58	−7.9			58.55
+22.63	40 57.80		11.09 −.1	4.71	−8.0			58.28
+18.04	55 11.10	27	31.16 −.7 +4	45.16	+.1	+14	32	15.72
+16.69	55 6.25		3363 −.7	44.66	−1.0			16.59
+21.74	55 12.95		3332 −.6	44.51	−1.1			16.13
+19.77	55 9.20		3455 −.7	44.47	−1.4			16.92
+20.74	55 11.60		3389 −.6	44.94	−1.8			16.43
+15.55	55 3.40		3539 −.6	43.82	−2.2			16.36
−3.50	54 38.90		3571 −.6	43.45	−3.1			15.46
+21.53	55 9.55		3622 −.6	44.85	−3.7			16.77
+18.67	55 5.35		3683 −.6	44.13	−4.1			16.26
+20.24	55 7.40		3728 −.6	43.51	−4.2			15.99
+5.17	54 47.45		3721 −.6	43.02	−4.5			15.13
+18.91	55 5.30		3730 −.6	43.50	−5.0			15.20
+25.07	55 12.50		3802 −.6	43.78	−5.1			16.10
+17.39	55 3.00		3809 −.6	43.14	−5.2			15.43
+18.83	55 4.75		3783 −.6	43.48	−5.4			15.31
+21.08	49 29.10	33	1652 −.8 −1	4.07	−1.0			10.65
+22.99	49 30.25		1748 −.8	4.55	−1.9			10.23
+20.63	49 25.00		1941 −.8	4.38	−2.7			11.53
+22.00	49 26.55		1957 −.8	4.58	−2.7			11.49
+22.17	49 25.90		2013 −.8	4.71	−2.9			11.72
+16.08	30 26.40	52	3341 −.2 +4	45.16	−2.2	+36	57	16.17
+25.22	30 32.80		3637 −.1	44.66	−3.7			17.23
−8.48	29 59.60		3447 −.1	44.51	−4.0			14.88
+25.11	30 31.55		3749 −.1	44.47	−4.5			17.36
+23.70	30 30.70		3697 −.1	44.94	−4.9			16.91
−0.66	30 2.35		3904 −.1	43.45	−6.7			15.69
+24.57	30 28.40		4002 −.1	44.85	−7.6			17.17
+25.77	30 29.05		4062 −.1	44.13	−8.2			16.45
+19.88	30 23.40		4029 −.1	43.51	−8.3			15.40
−9.04	29 52.85		4030 −.1	43.30	−8.5			15.00
+22.01	30 23.20		4265 −.1	43.50	−9.6			16.45
+12.83	30 16.15		40.23 −.1	43.78	−9.7			14.21
+22.99	30 24.05		42.88 −.1	43.14	−9.8			16.12
+27.24	24 50.35	58	2079 −.2 −1	4.07	−4.8			11.72
+24.07	24 45.35		2248 −.2	4.55	−6.1			11.63
+23.17	24 43.80		2308 −.2	4.95	−6.3			11.63
+22.99	24 42.55		2409 −.2	4.38	−7.4			12.11
+28.24	24 47.90		2410 −.2	4.71	−7.8			11.39

	G^n Gr.	Ts 2437	d	Tm	$T_m + \frac{k}{h}$ Rf. 17 18	T_m − Rt.							
							δ = +71° 55′	tan δ = +3.06	3.22	sin z = −.49			
1872 June	30−.34	17 29.30	18	13.52	13.47		+4.56	−1.04		−4.05	17 18	12.94	
July	6−.30−.08	17 30.20	18	24.88	24.83		−7.17	−.92	−.26	−3.87		12.61	
	7−.35	17 29.70	18	26.26	26.21		−8.47	−1.07		−3.84		12.63	
	9−.29	17 47.70	18	26.48	26.43		−9.03	−.89		−3.77		12.74	
	11−.37	17 26.20	18	25.19	25.14		−7.51	−1.13		−3.70		12.60	
	~~16−.28~~−.07						~~−4.39~~	~~−.86~~	~~−.23~~				
	24−.26	18 56.07	18	20.32	20.27		−3.47	−.80		−3.11		12.88	
'73 July	24−.50	17 49.13	18	26.31	26.26		−9.72	−1.53		−3.17		11.84	
	26−.50	17 41.87	18	27.96	27.91		−11.40	−1.53		−3.06		11.92	
Aug	4−.47−.08	17 31.50	18	34.79	34.74		−18.67	−1.44	−.26	−2.55		11.82	
	6−.42	17 56.87	18	35.01	34.96		−19.26	−1.29		−2.43		11.98	
	10−.46	18 26.70	18	36.39	36.34		−20.87	−1.41		−2.17		11.89	
	12−.42 −.06	18 28.40	18	37.13	37.08		−21.65	−1.29	−.19	−2.05		11.90	
									72		17^h 18^m	12.806^s	
									73			11.892	

# 1872	Gr. 966 L.C.			$5,7^h$	22^m		105 +74° 57′	tan δ = −3.72		3.86	sin z −.89		
June	30−.34	21 8.77	22	27.60	27.66	22 33.86 − 6 20.00 − 6.20	+4.55	+1.26		+3.59	17 22	37.06	
July	6−.30−.08	21 41.80	22	37.73	37.79		−7.18	+1.12	+.31	+3.24		37.28	
	7−.35	21 59.10	22	41.31	41.37		−8.48	+1.30		+3.18		37.37	
	9−.29	21 57.71	22	42.27	42.33		−9.02	+1.08		+3.04		37.43	
	11−.37	21 47.17	22	40.47	40.53		−7.52	+1.38		+2.90		37.29	
	16−.28−.07	21 51.07	22	37.80	37.86		−4.39	+1.04	+.27	+2.54		37.32	
	20−.25−.07	21 58.80	22	38.19	38.25		−4.22	+.93	+.27	+2.24		37.47	
	24−.26	23 25.67	22	37.43	37.49		−3.48	+.97		+1.93		36.91	
	25−.26		22	37.96	38.01		−3.42	+.97		+1.85		37.41	
	27−.23	22 0.80	22	37.99	38.05		−3.27	+.86		+1.68		37.32	
	28−.24	21 36.90	22	37.60	37.66		−2.92	+.89		+1.60		37.23	
	29−.22	21 43.97	22	38.36	38.41		−3.18	+.82		+1.51		37.56	
Aug	4−.17	21 53.35	22	50.58	50.64		−14.92	+.63		+.99		37.34	
	6−.24	22 3.07	22	55.76	55.81		−20.02	+.89		+.79		37.47	
	7−.23	22 40.00	22	58.70	58.76		−22.87	+.86		+.71		37.46	
	8−.26	22 35.77	23	1.82	1.88		−25.92	+.97		+.62		37.55	
'73 July	24−.50	22 7.83	22	51.73	51.79		−9.72	+1.86		+1.64		45.57	×
	26−.50	21 8.00	22	53.40	53.46		−11.41	+1.86		+1.18		48.39	×
Aug	4−.47−.08 6 Cht.	22 21.60	23	0.87	0.93		−18.67	+1.75 + ~~1.71~~	+.31	+.70	45.02	~~50.55~~ 45.02	×
	10−.46	22 13.20	23	4.18	4.24		−20.87	+1.71		+.13		45.21	×
	12−.42−.06	22 12.43	23	5.38	5.44		−21.65	+1.56	+.24 3	−.06		45.52	×

# 1872	1872.0 32.425 A.	β Draconis		17^h	28^m		+52° 24′	tan δ = +1.30		1.64	sin z −.17		
June	30−.34	27 4.23	27	30.83	30.81	27 34.87 −4.06 +.06 −4.12	+4.53	−.44		−2.41	17 27	32.49	
July	6−.30−.08	~~27 16.75~~	27	42.60	42.58		−7.18	−.39	−.13	−2.37		32.51	
	7−.35		27	43.80	43.78		−8.48	−.46		−2.36		32.48	
	9−.29	27 10.73	27	44.30	44.28		−9.01	−.38		−2.34		32.55	
	11−.37	27 10.13	27	42.82	42.79		−7.52	−.48		−2.31		32.48	
	16−.28−.07	27 7.67	27	39.56	39.53		−4.39	−.36	−.11	−2.24		32.43	
	20−.25−.07	27 12.50	27	39.40	39.38		−4.21	−.32	−.11	−2.18		32.56	
	24−.26	27 12.03	27	38.48	38.46		−3.48	−.34		−2.11		32.53	
	25−.26	27 29.60	27	38.31	38.28		−3.42	−.34		−2.09		32.43	
	27−.23	27 8.67	27	38.09	38.07		−3.27	−.30		−2.05		32.45	
	28−.24	27 15.10	27	37.76	37.74		−2.92	−.31		−2.02		32.49	
	29−.22	27 7.80	27	38.06	38.03		−3.18	−.29		−2.01		32.55	
Aug	1−.27	27 17.73	27	42.16	42.14		−7.33	−.35		−1.95		32.51	
	4−.17	27 19.37	27	49.64	49.61		−14.93	−.22		−1.87		32.59	
	6−.24	27 21.20	27	54.70	54.68		−20.03	−.31		−1.81		32.53	
	7−.23	27 22.50	27	57.58	57.56		−22.89	−.30		−1.79		32.58	
	8−.26	27 33.40	27	0.57	0.55		−25.93	−.34		−1.76		32.52	
	10−.27	26 39.87	27	5.21	5.28		−30.73	−.35		−1.72		32.48	
'73 July	24−.50	27 21.80	27	46.52	46.49		−9.72	−.65		−2.23		33.89	×
	26−.50	27 21.23	27	48.13	48.10		−11.41	−.65		−2.19		33.85	+
	30−.54	27 21.77	27	52.66	52.63		−15.88	−.70		−2.11		33.94	+
Aug	4−.47−.08	28 6.57	27	55.06	55.03		−18.66	−.61	−.13	−1.98	33.65	~~33.75~~ 33.65	×
	5−.43	27 33.90	27	55.29	55.27		−18.94	−.56		−1.96		33.81	×
	6−.42	27 29.93	27	55.67	55.65		−19.26	−.55		−1.93		33.91	+
	12−.42−.06	27 34.37	27	57.99	57.96		−21.65	−.55 .8	−.10	−1.84		33.82	+
'72 July	30−.29		27	39.14	39.11	27 34.41 A	−4.23	−.38		−1.99		32.51	

Tm − Tδ	Circle Readings										
+44.22	32 50.20	50	46.41	+.7	+4	45.16	−3.60	+71	55	28.67	
+54.68	32 53.25		48.41	+.7		44.66	−5.81			28.46	
+56.55	32 53.40		48.93	+.7		44.51	−5.59			28.55	
+38.78	32 45.50		49.98	+.7		44.47	−6.14			29.01	
+58.99	32 52.85		49.93	+.7		44.94	−6.66			28.91	
	~~32 39.55~~					~~43.57~~					
−35.75	32 11.75		53.32	+.7		43.94	−9.77			~~28.19~~	
+37.18	27 0.00	56	34.40	+.9	−1	3.37	−6.97			24.96	
+46.08	27 2.40		35.47	+.9		4.07	−7.37			24.93	
+63.29	27 7.50		37.18	+.9		4.55	−9.04			24.49	
+38.14	26 56.70		38.52	+.9		4.95	−9.38			25.09	
+9.69	26 46.50		37.63	+.9		4.38	−10.01			24.14	
+8.73	26 45.65		38.46	+.9		4.71	−10.29			24.36	
								°	′	″	
								71	55	28.63	
									55	24.66	
								105 ~~75~~			
+78.53	26 4.20	58	3.39	+1.4	+4	45.16	−2.7	+~~71~~	2	47.25	
+57.93	26 10.65		6.26	+1.3		44.66	−3.9			48.32	
+42.21	26 14.50		7.32	+1.3		44.51	−4.1			49.03	
+42.50	26 15.50		6.16	+1.3		44.47	−4.6			47.33	
+53.30	26 8.80		7.71	+1.3		44.94	−4.9			49.05	
+46.73	26 10.10		8.43	+1.2		43.57	−6.8			47.40	
+39.39	26 14.45		7.79	+1.2		43.45	−6.5			45.94	
−48.24	26 43.75		8.51	+1.2		43.94	−7.2			46.45	
+37.19	26 14.10		10.25	+1.1		43.33	−7.6			47.08	
+60.70	26 7.15		9.44	+1.1		44.13	−7.8			46.87	
+54.38	26 7.40		9.73	+1.1		43.51	−8.0			46.34	
+57.23	26 6.70		12.53	+1.1		42.22	−8.8			47.05	
+32.68	26 6.55		12.28	+1.1		43.50	−9.0			47.88	
+18.70	26 18.15		11.23	+1.1		43.78	−9.2			44.91	
+26.05	26 13.05		13.03	+1.1		43.14	−9.3			47.97	
+43.90	20 29.30	3	51.68	+1.5	−1	3.37	−4.5			45.31	
+105.40	20 10.00		50.39	+1.6		4.07	−4.8			43.12	
+39.30	20 30.50		51.84	+1.6		4.55	−6.0			42.89	
+50.98	20 26.60		53.34	+1.7		4.38	−6.7			43.96	
+52.95	20 27.15		53.41	+1.7		4.71	−6.9			43.50	
+34.60	4 13.30	19	11.48	+.3	+4	45.16	24 −~~4.8~~	+52	~~23~~	~~49.14~~	54.54
	~~4 6.75~~										
+33.53	4 15.00		9.57	+.2		44.47	−~~9.8~~	5.0		~~44.44~~	49.24
+32.69	4 12.60		11.25	+.3		44.94	−~~10.3~~	5.5		~~46.19~~	50.99
+31.88	4 11.50		9.67	+.2		43.57	−~~11.2~~	6.5		~~42.24~~	46.94
+26.90	4 6.90		12.59	+.2		43.45	−~~11.8~~	7.7		~~44.44~~	48.54
+26.45	4 6.20		12.56	+.2		43.94	−~~12.3~~	8.6		~~44.40~~	48.10
+8.71	3 50.85		14.06	+.2		44.85	−~~12.5~~	8.7		~~46.61~~	50.41
+29.42	4 7.20		14.01	+.2		43.33	−~~12.8~~	9.3		~~44.74~~	48.24
+22.66	4 1.50		14.40	+.2		44.13	−~~12.9~~	9.5		~~46.83~~	50.23
+30.25	4 7.20		14.67	+.2		43.51	−~~13.0~~	9.6		~~45.38~~	48.78
+24.43	3 50.25					~~43.02~~					
+30.27	4 5.10		17.21	+.2		42.22	~~−13.6~~	−10.9		~~46.03~~	48.73
+33.50	4 7.00		17.65	+.2		43.50	~~13.8~~	−11.2		~~47.55~~	50.15
+35.08	4 8.85		16.90	+.2		43.78	~~13.9~~	−11.4		~~46.78~~	49.48
+27.17	4 2.40		17.17	+.2		43.14	~~14.6~~	−11.5		~~46.51~~	49.01
+25.44	4 0.90		17.38	+.2		43.48	~~−14.2~~	−11.9		~~46.86~~	49.16
+24.72	58 21.75	24	53.77	+.3	−1	3.37	−5.8			46.90	
+26.93	58 23.05		56.18	+.3		4.07	−6.1			46.31	
+30.89	58 26.75		55.52	+.3		3.18	−7.0			45.64	
−11.51	57 50.55		58.30	+.3		4.55	−8.0			46.05	
+21.39	58 14.85	25	0.35	+.3		5.90	−8.2			46.55	
+25.74	58 20.55	24	57.88	+.3		4.95	−8.4			44.83	
+23.62	58 17.95		59.01	+.3		4.71	−9.6			45.00	

1872
59.571A. n
#

1872 α Ophiuchi Tδ Tm $h = 17^h\ 29^m$ δ = +12° 39′ tan δ = +.22 1.02

		Tδ	Tm								
July	16 -.28 -.07	~~28 46.57~~	29	5.87	5.85	29 1.43 A	-4.39	-.06 -.07	-1.86	17 28	59.47
	20 -.25 -.07		29	5.89	5.87	1.41 A	-4.21	-.05 -.07	-1.84		59.70
	25 -.26		29	4.93	4.92	1.39 A	-3.42	-.06	-1.82		59.62
	27 -.23		29	4.77	4.75	1.38 A	-3.27	-.05	-1.81		59.62
Aug	8 -.26		29	27.33	27.30	1.27 A	-25.93	-.06	-1.69		59.62
	10 -.27		28	32.11	32.09	1.25 A	-30.73	-.06	-1.68		59.62

1872
39.367
#

1872 ψ 1 & 2 Draco. $17^h\ 29^m$ +55° 16′ tan δ = +1.44 1.76 sin z -.22

		Tδ	Tm								
July	20 -.25 ψ2 -.07	30 17.40	29	51.59	51.56		-4.21	-.36 -.12	-230	17h 29m	~~44.59~~ 44.57
July	16 -.28 ψ1 -.07	~~29 31.12~~	29	46.68	46.65	29 41.73	-4.39	-.40 -.12	-236		39.38
	16 -.28 ψ2 -.07	~~30 31.70~~						~~-.40 -.12~~			
	24 -.26 ψ1	29 25.20	29	45.50	45.47		-3.48	-.37	-220		39.42
	29 -.22 ψ2	29 21.47	29	50.42	50.39		-3.18	-.32	-209		~~45.80~~ 44.80
Aug	4 -.17 ψ1	29 25.30	29	56.56	56.53		-14.93	-.24	-195		39.41
	6 -.24 ψ2	29 35.90	30	6.99	6.96		-20.03	-.35	-189		44.69
	7 -.23 ψ1	29 35.20	30	4.54	4.51		-22.89	-.33	-187		39.42
	8 -.26 ψ2	30 25.33	30	12.83	12.81		-25.93	-.37	-184		44~~3~~.67
	10 -.27 ψ2	29 50.90	~~29~~ 30	17.60	17.57		-30.73	-.39	-180		44.65
'73 Aug	5 ~~-.43~~										
	6 ~~-.42~~										
	10 ~~-.46~~										
	12 ~~-.42~~ -.06										
'72 June	30 ~~-.34~~										

#

1872 f Draco. $17^h\ 32^m$ +68° 12′ tan δ = +2.50 2.69 sin z -.44

		Tδ	Tm								
July	20 -.25 -.07	31 37.93	32	36.81	36.77	-4.21	-.62 -.19	-299	17 32	28.76	
	29 -.22	31 31.33	32	35.33	35.29	-3.18	-.56	-264		28.92	
	30 -.29	31 51.60	32	36.41	36.37	-4.23	-.72	-260		28.82	
Aug	1 -.27	32 16.73	32	39.41	39.37	-7.33	-.68	-251		28.85	
	4 -.17	32 4.67	32	46.61	46.57	-14.93	-.42	-238		28.84	
	5 -.18	32 23.63	32	44.14	44.10	-17.50	-.45	-233		28.82	
	6 -.24	32 10.13	32	51.82	51.78	-20.03	-.60	-228		28.87	
	7 -.23	31 57.00	32	54.46	54.43	-22.89	-.58	-224		28.72	
	8 -.26	32 14.37	32	57.64	57.61	-25.93	-.65	-219		28.84	
'73 Aug	4 -.47 -.08	31 58.13	32	51.01	50.97	-18.67	-1.18 -.21	-243		28.48	×
	5 -.43	32 10.43	32	51.02	50.98	-18.94	-1.08	-238		28.58	×
	6 -.42	32 7.70	32	51.23	51.19	-19.26	-1.05	-234		28.54	×
	10 -.46	32 11.93	32	52.69	52.65	-20.87	-1.15	-216		2 ~~38.80~~ 8.47	×
	12 -.42 -.06	32 13.10	32	53.59	53.55	-21.65	-1.05 -.16	-205		28.64	×

#
1872
51.373

1872 i Herculis $17^h\ 36^m$ +46 4 tan δ = +1.04 1.44 sin z -.06

		Tδ		Tm									
June	30 ~~-.34~~												
July	16 -.28 -.07	~~35 26.93~~		35	58.10	58.08	35 53.51	-4.39	-.29 -.10	-2.14	17^h 35^m	~~51~~ 51.16	
	20 -.25 -.07	35 32.95		35	57.81	57.79		-4.21	-.26 -.10	-2.08		51.14	
×	24 -.26	35 25.30	36 19.97	35	56.99	56.97		-3.48	-.27	-2.03		51.19	
	29 -.22	35 30.17		35	56.54	56.52		-3.19	-.23	-1.96		51.14	
	30 -.29	35 33.17		35	57.66	57.64		-4.24	-.30	-1.94		51.16	
Aug	1 -.27	35 30.24		36	0.64	0.62		-7.34	-.28	-1.90		51.10	
	5 -.18	35 38.03		36	10.67	10.65		-17.51	-.19	-1.83		51.12	
	6 -.24	35 49.77		36	13.24	13.21		-20.04	-.25	-1.81		51.11	
	7 -.23	35 55.00		36	16.09	16.07		-22.90	-.24	-1.79		51.14	
	8 -.26	35 55.77		36	19.16	19.14		-25.94	-.27	-1.77		51.16	
	10 -.27	34 55.83		36	23.94	23.92		-30.74	-.28	-1.73		51.17	
73 Aug	4 -.47 -.08	35 42.00		36	14.00	13.98		-18.66	-.49 -.12	-1.96		52.75	×
	5 -.43	35 45.13		36	14.17	14.15		-18.94	-.44	-1.94		52.83	×
	6 -.42	35 53.93		36	14.54	14.51		-19.26	-.41	-1.92		52.89	×
	10 -.46	36 7.03		36	15.97	15.95		-20.88	-.48	-1.84		52.75	×
	12 -.42 -.06	35 53.63		36	16.86	16.84		-21.65	-.44 -.09	-1.82		52.84	×
Sept	9 -.30			35	54.98	54.96		-0.74	-.31	-1.06		52.85	×

$T_m - T_s$	Circle Readings											
	~~48 5.85?~~					~~+4 43.57~~						
−25.81	11 24.55					+4 43.45						
	~~11 28.40~~					~~43.57~~						
	~~11 28.40~~					~~43.57~~						
+22.30	11 30.15					43.94						
+25.95	12 17.10					43.51						
+31.25	11 34.55					42.22						
+31.09	12 17.20					43.50						
+29.34	11 38.75					43.78						
−12.50	11 33.15					43.14						
−33.30	11 45.00					43.48						
	~~11 55.45~~ 11 55.45											
								"	'		"	
+58.88	15 19.80		8	23.37	+ .6	+4 43.45	−8.4	+68	12		59.02	
+64.00	15 20.40			25.63	+ .6	43.51	−10.2				58.94	
+44.81	15 11.05			25.88	+ .6	43.30	−10.5				59.28	
+22.68	15 0.80			25.76	+ .6	43.02	−10.8				58.58	
+41.94	15 8.65			27.33	+ .6	42.22	−11.5				58.65	
+25.51	15 1.05			26.99	+ .6	42.70	−11.7				58.59	
+41.69	15 8.50			26.89	+ .6	43.50	−11.9				59.09	
+57.46	15 14.60			27.97	+ .6	43.78	−12.2		13		0.15	
+43.27	15 8.80			26.95	+ .6	43.14	−12.2		12		58.49	
+57.88	9 32.60		14	7.55	+ .8	−1 4.55	−8.7				55.10	
+40.59	9 25.40			9.69	+ .8	5.90	−8.9				55.69	
+43.53	9 27.15			8.58	+ .8	4.95	−9.1				55.33	
+40.76	9 25.40			9.52	+ .8	4.38	−9.8			56.14	~~55.14~~	56.14
+40.49	9 24.55			10.56	+ .8	4.71	−10.1			56.55	~~55.55~~	56.55
	~~23 24.90~~					~~+4 45.16~~						
	~~23 27.00~~					~~43.57~~		46				
+24.86	23 19.30		59	55.00	+ .1	43.45	−7.1	+ ~~46~~	4		31.45	
+31.69	23 26.00	22 36.45		54.11	+ .1	43.94	−8.0				30.15	
+26.37	23 19.30			58.58	+ .1	43.51	−9.0				33.19	
+24.49	23 17.55			56.20	+ .1	43.30	−9.2			30.40	~~[illegible]~~	30.40
+30.37	23 21.60			57.39	+ .1	43.02	−9.6				30.91	
+32.64	23 21.30			59.90	+ .1	42.70	−10.3				32.40	
+23.47	23 15.75			57.27	+ .1	43.50	−10.6				30 ~~29~~.27	
+21.09	23 12.20			58.68	+ .1	43.78	−10.8				31.76	
+23.39	23 14.95			57.97	+ .1	43.14	−11.0				30.21	
+28.11	23 18.20			58.81	+ .1	43.48	−11.4				30.99	
+32.00	17 40.00		5	40.53	+ .2	−1 4.55	−7.6				28.58	
+29.04	17 35.60			42.39	+ .2	5.90	−7.7				28.99	
+20.61	17 29.30			41.18	+ .2	4.95	−7.8				28.63	
+8.94	17 19.05			40.92	+ .2	4.38	−8.4				28.34	
+23.23	17 31.25			41.59	+ .2	4.71	−8.7				28.38	

1870

#	n	Tv		Tm h		m							
	β Ophiuchi			α 17		37		δ +4° 37'					
1872 June	30 ~~37~~												

#	1872 42.187 A			h		m							
1872	w Draconis			17		38		+68° 49'		tan δ = +2.58	2.76	lim Z	−.44
Feb	8 ~~1.42~~											h m	s
July	16 −.28 −.07	~~36 41.96~~		37	50.64	50.60	37 45.37 A.	−4.39	−.72	−.19	−318	17 37	42.12
	20 −.25 −.07	36 55.23		37	50.46	50.42		−4.21	−.64	−.19	−309	~~17 37~~	42.28
	22 −.27	37 0.23		37	49.83	49.79		−3.94	−.70		−301		42.14
	25 −.26								~~.67~~				
	27 −.23	36 35.10		37	48.90	48.86		−3.27	−.59		−281		42.19
	29 −.22	37 8.67		37	48.79	48.75		−3.19	−.57		−273		42.26
	30 −.29	37 7.60		37	49.87	49.83		−4.24	−.75		−269		42.15
Aug	1 −.27	36 49.83		37	52.64	52.60		−7.34	−.70		−260		41.96
	4 −.17	37 5.67		37	57.97	57.93		−14.94	−.44		−247		42.08
	5 ~~6~~ −.18	37 13.70		38	2.74	2.70		−17.51	−.46		~~−342~~ 2		42.31
	6 ~~8~~ −.24	36 57.50		38	5.18	5.14		−20.04	−.62		−238		42.10
	7 −.23	37 10.90	38 10.90	38	8.02	7.98		−22.90	−.59		−233		42.16
	8 −.26	37 20.33		38	11.16	11.12		−25.94	−.67		−228		42.23
'73 Aug	4 −.47 −.08	37 9.70		38	4.28	4.24		−18.66	−1.21	−.22	−251		41.64 ×
	5 −.43	37 22.50		38	4.28	4.24		−18.95	−1.11		−246		41.72 +
	6 −.42	37 22.90		38	4.69	4.65		−19.26	−1.08		−241		41.90 ×
	12 −.42 −.06	37 16.73		38	7.01	6.97		−21.65	−1.08	−.17	−210		41.97 +
Sept	9 −.30			37	43.84	43.80		−0.74	− ~~.31~~ .77		−.46		41.83 ×

#				h		m							
1872	μ Herculis			17		41		+27° 48'		tan δ = +.53	1.13	lim Z	+.25
July	20 −.25 −.07	41 14.07		41	33.29	33.27		−4.21	−.13	−.08	−188	17 41	26.97
	22 −.27			41	32.92	32.90		−3.94	−.14		−186		26.96
	27 −.23	41 12.20		41	32.24	32.22		−3.27	−.12		−182		27.01
	29 −.22	41 9.70		41	32.13	32.11		−3.19	−.12		−181	26.99	~~26.98~~ 26.99
	30 −.29	41 10.43		41	33.22	33.20		−4.24	−.15		−180		27.01
'72 Aug	1 −.27	41 14.13		41	36.30	36.28		−7.35	−.14		−1.78		27.01
	4 −.17	41 25.27		41	43.78	43.76		−14.95	−.09		−1.75		26.97
	5 −.18	41 21.70		41	46.34	46.32		−17.52	−.10		−1.75		26.95
	6 −.24	41 27.90		41	48.88	48.86		−20.05	−.13		−1.72		26.96
	8 −.26	41 37.33		41	54.76	54.75		−25.95	−.14		−1.70		26.96
	10 −.27	42 22.73		41	59.64	59.62		−30.76	−.14		−1.67		27.05
'73 Aug	4 −.47 −.08	41 22.73		41	50.24	50.23		−18.66	−.25	−.09	−1.92		29.31 +
	5 −.43	41 25.83		41	50.41	50.39		−18.95	−.23		−1.91		29.30 ×
	6 −.42	41 26.87		41	50.76	50.74		−19.27	−.22		−1.89		29.36 +
	9 ~~−.48~~								~~.25~~				
	12 −.42 −.06	41 27.63		41	53.12	53.10		−21.65	−.22	−.07	−1.79		29.37 +
Sept	9 −.30			41	31.54	31.52		−0.74	−.16		−1.29		29.33 +

#	1872 13.731 A			h		m							
1872	ψ¹ Draco			17		44		+72° 13'		tan δ = +3.12	3.27	lim z	−.50
July	22 −.27			44	21.36	21.32		−3.94	−.84		−345	17 44	13.09
	25 −.26			44	20.59	20.54		−3.41	−.81		−331		13.01
	27 −.23	43 29.45		44	20.49	20.44		−3.27	−.72		−322		13.23
	29 −.22	43 22.90		44	20.19	20.14		−3.19	−.69		−312		13.14
	30 −.29	43 28.17		44	21.42	21.37		−4.25	−.90		−307		13.15
Aug	1 −.27	43 15.87		44	24.26	24.21		−7.35	−.84		−296	13.06	~~14.06~~ 13.06
	5 −.18	43 32.87		44	34.12	34.07		−17.52	−.56		−273		13.26
	6 −.24	43 33.73		44	36.66	36.61		−20.05	−.75		−268		13.13
	7 −.23	43 33.07		44	39.49	39.41		−22.91	−.72		−262		13.19
	8 −.26	43 48.93		44	42.62	42.57		−25.95	−.81		−256		13.25
	10 −.27	43 30.17		44	47.21	47.16		−30.75	−.84		−245		13.12
'73 Aug	4 −.47 −.08	43 55.73		44	35.18	35.13		−18.66	−1.47	−.26	−277		11.97 +
	5 −.43	43 49.10		44	35.14	35.10		−18.95	−1.34		−271		12.10 +
	12 ~~−.42 −.06~~												
Sept	6 −.41			44	14.21	14.16		−0.41	−1.28		−.54		11.93 +
	9 −.30			44	14.09	14.04		−0.74	−.94		−.31		12.05 +
'72 July	20 −.25 −.07			44	22.08	22.03	44 16.67 A	−4.21	−.78	−.23	−354		13.27

	Tm — T's	Circle Readings								
		~~49 43.35~~								
		~~39 25.00~~				~~+4 43.57~~				
	+55.22	39 18.55	44	22.96	+.6	43.45	−8.1	+68°	48′	58.91″
	+49.60					~~42.99~~ ~~44.55~~				
	+73.80	39 25.05		24.85	+.6	43.33	−9.6			59.18
	+40.12	39 9.00		25.25	+.6	43.51	−10.1			59.26
	+42.27	39 8.65		27.01	+.6	43.30	−10.3		49	0.61
	+62.81	39 18.05		26.93	+.6	43.02	−10.7		48	59.85
	+54.30	39 12.90				~~42.22~~				
	+49.04	39 11.50		27.64	+.6	42.70	−11.6		48	59.34
	+67.68	39 19.00		28.32	+.6	43.50	−11.8		49	0.62
	+57.12	39 14.50		27.86	+.6	43.78	−12.0			0.24
	+30.82	39 11.05		28.24	+.6	43.14	−12.3		48	59.68
x	+54.58	33 30.30	50	10.70	+.8−1	4.55	−8.9			58.05
+	+41.78	33 23.05		12.89	+.8	5.90	−9.0			58.79
x	+41.79	33 23.40		12.08	+.8	4.95	−9.1			58.83
+	+50.28	33 24.30		12.56	+.8	4.71	−10.0			58.65
x										
	+19.22	39 46.35	43	9.62	−.4+4	43.15	−4.4	+27	47	48.27
	+20.04	39 44.80		11.51	−.3	43.33	−5.7			48.84
2699	+22.43	39 48.05		11.32	−.3	43.51	−6.0			48.53
	+22.79	39 47.60		11.89	−.3	43.30	−6.2			48.69
	+22.17	39 46.80		11.97	−.3	43.02	−6.6			48.09
	+18.51	39 41.30		13.39	−.3	42.22	−7.1			48.21
	+24.64	39 48.10		13.71	−.3	42.70	−7.3			48.81
	+20.98	39 44.80		12.85	−.3	43.50	−7.4			48.65
	+17.43	39 40.60		13.31	−.3	43.14	−7.7	48 45		~~48.44~~ 48.45
	+36.91	39 54.15				43.48				
+	+27.57	34 8.80	48	56.54	−.4−1	4.55	−4.5			47.09
x	+24.58	34 3.75		57.85	−.5	5.90	−4.6			46.85
+	+23.89	34 4.70		56.36	−.4	4.95	~~−4.3~~ −4.8			46.21
+	+25.49	34 5.20		57.41	−.5	4.71	−5.5			46.70
+										
	+51.04	15 36.20	8	4.45	+.7+4	43.33	−9.4	+72	12	39.58
	+57.29	15 37.55		4.91	+.7	43.51	−9.6			39.52
	+53.25	15 36.95		4.45	+.7	43.30	−9.8			38.65
−13.06	+68.39	15 41.00		6.18	+.7	43.02	−10.2			39.70
	+61.25	15 38.80		5.88	+.6	42.70	−11.2			37.98
	+62.93	15 38.00		6.98	+.6	43.50	−11.3			39.78
	+66.42	15 39.75		6.34	+.6	43.78	−11.5			39.22
	+53.69	15 33.45		7.57	+.6	43.14	−11.7			39.61
	+77.04	15 43.05		6.85	+.6	43.48	−12.1			38.83
+	+39.45	9 47.50	13	47.93	+.9−1	4.55	−7.9			36.38
+	+46.04	9 49.40		49.44	+.9	5.90	−8.0			36.44
+										
+										

1872 ξ Draconis α = 17h 57m δ = +56° 54′ tan δ = +1.53 1.83 sin z = −.25

#	n	T′s	T′m								
July	25 −.26		51	25.22	25.19	−3.41	−.40		−2.32	17h 51	19.06
	27 −.23	50 57.25	51	24.89	24.86	−3.27	−.35		−2.28		18.96
	29 −.22	50 50.92	51	24.72	24.69	−3.19	−.34		−2.23		18.93
	30 not found										
Aug	1 −.27	50 52.93	51	28.88	28.86	−7.36	−.41		−2.16		18.93
	5 −.18	50 57.50	51	38.84	38.82	−17.54	−.28		−2.07	18.93	~~18.97~~ 18.93
	7 −.23	51 12.70	51	44.27	44.25	−22.93	−.35		−2.01		18.96
	8 −.26	50 41.67	51	47.36	47.33	−25.97	−.40		−1.98	18.98	~~18.75~~ 18.98
	10 −.27	51 16.23	51	52.09	52.06	−30.78	−.41		−1.93		18.94
73 Aug	5 −.43	51 3.63	51	41.80	41.77	−18.95	−.66		−2.14		20.02 +
	12 Ch.f.										
	28 −.35 −.04		51	49.18	49.16	−27.11	−.54	−.07	−1.41		20.03 +
Sept	2 Ch.f.										~~20.05~~
	6 −.41		51	22.20	22.17	−0.41	−.63		−1.08		20.05 ×
	9 −.30		51	22.20	22.17	−0.74	−.46		−.96		20.01 ×

1872 # γ Draconis 17h 54m +51° 30′ tan δ = +1.26 1.61 sin z −.16

July	20 −.25 −.07	53 17.07	53	44.96	44.93	−4.20	−.32	−.11	−2.25	17 53	38.05
	22 −.27		53	44.64	44.61	−3.94	−.34		−2.22		38.11
	25 −.26		53	44.06	44.04	−3.41	−.33		−2.17		38.13
	27 −.23	53 19.43	53	43.82	43.79	−3.27	−.29		−2.14		38.09
	29 −.22	53 15.73	53	43.77	43.75	−3.19	−.28		−2.11		38.17
	30 −.29	53 18.33	53	44.84	44.82	−4.26	−.37		−2.09		38.10
Aug	1 −.27	53 23.30	53	47.74	47.72	−7.36	−.34		−2.05		37.97
	5 −.18	53 24.70	53	57.91	57.88	−17.55	−.23		−1.96	38.14	~~38.18~~ 38.14
	6 −.24		54	0.46	0.44	−20.07	−.30		−1.95		38.12
	7 −.23	53 40.30	54	3.30	3.28	−22.94	−.29		−1.91		38.14
	8 −.26	53 37.47	54	6.36	6.35	−25.97	−.33		−1.89		38.16
	10 −.27	53 43.60	54	11.07	11.05	−30.78	−.34		−1.85		38.08
73 Aug	4 −.47 −.08	53 31.97	54	0.84	0.81	−18.65	−.59	−.13	−2.08		39.36 ×
	5 −.43	53 28.77	54	1.02	0.99	−18.95	−.54		−2.03		39.47 +
	12 Ch.f.										
	28 −.35 −.04		54	8.52	8.49	−27.11	−.44	−.06	−1.44		39.44 ×
Sept.	2 Ch.f.										
	6 −.41		53	41.63	41.60	−0.40	−.52		−1.15		39.53 ×
	9 −.30		53	41.74	41.72	−0.74	−.38		−1.05		39.55 ×

1872 # 35 Draconis 17h 55m +76° 59′ tan δ = +4.32 4.44 sin z −.57

~~Jan~~ July	27 −.23	54 43.87	55	19.33	19.26	−3.27	−.99		−4.15	17 55	10.85
	30 −.29	54 35.93	55	20.57	20.50	−4.26	−1.25		−3.94		11.05
Aug	5 −.18	54 40.60	55	32.84	32.77	−17.55	−.78		−3.48	10.96	~~10.95~~ 10.96
	6 −.24		55	35.38	35.31	−20.07	−1.04		−3.39	10.81	~~11.01~~ 10.81
	8 −.26	54 56.70	55	41.27	41.20	−25.98	−1.12		−3.23		10.87
	10 −.27	55 13.00	55	45.92	45.85	−30.78	−1.17		−3.06		10.84
73 Aug	5 −.43	54 50.33	55	32.32	32.25	−18.95	−1.88		−3.36		8.08 ×
							−.75				
	12 Ch.f.										
	28 −.35 −.04		55	38.28	38.21	−27.11	−1.51	−.18	−1.28		8.13 ×
Sept.	2 Ch.f.										
	6 −.41		55	10.84	10.78	−0.40	−1.77		−.36		8.25 ×
	9 Wrong #										

1873 1879 Urs. Min L.C. 5h 17 55m + 93° 14′ ~~+ 86 25~~ g tan δ = −17.64 −17.65 sin z = −.77

Aug	4 −.47 −.08	54 51.10	56	2.32	2.41	~~−18.65~~	+8.27	+1.41	+7.90	+5 56	1.3[illegible]6
	5 −.43	~~56~~ 55 28.90	56	5.08	5.17	−18.95	+7.58		+7.56	17	1.3[illegible]6
	28 −.35 −.04		56	23.88	23.97	−27.11	+6.17	+.71	−1.59		2.15
Sept.	6 −.41		55	59.75	59.84	−0.40	+7.23		−5.60		1.0[illegible]7
	9 −.30		55	54.97	55.06	−0.74	+5.29		−6.97	[55	52.64]

1873 5h 17 56m 1.485s

Tm − Tδ	Circle Readings								
+27.64	34 20.80	49	1.37	+.3 +4	43.33	−8.7	+56°	53′	36.30″
+33.79	34 25.20		0.97	+.3	43.51	−9.2			35.58
+35.95	34 25.55		2.35	+.3	43.02	−9.9			35.77
+41.34	34 28.30	4~~8~~9	~~50.48~~ 4.54	+.3	42.70	−10.8			~~22.68~~ 36.74
+31.57	34 21.60	49	3.37	+.3	43.78	−11.2			36.25
+65.69	33 18.95		29.31	+.3	43.14	−11.5		~~54~~	~~1.25~~
+35.86	34 23.80		4.19	+.3	43.48	−11.9		53	36.07
+38.17	28 41.35	54	48.47	+.4 −1	5.90	−6.1			36.87
+27.88	57 39.25	25	40.49	+.2 +4	43.45	−6.7	+51	~~29~~ 30	17.44 ~~17.45~~ 17.44
+24.39	57 35.70		41.21	+.2	43.33	−8.3			16.44
+28.04	57 38.65		41.09	+.2	43.51	−8.8			16.00
+26.51	57 35.60		42.95	+.2	43.30	−9.0			17.45
+24.44	57 33.50		43.42	+.2	43.02	−9.5			17.14
+23.21	57 39.60		44.50	+.2	42.70	−10.4			17.00
+23.00	57 32.05		43.77	+.2	43.78	−10.8			16.95
+28.89	57 35.45		45.00	+.2	43.14	−11.1			17.24
+27.47	57 32.90		46.41	+.2	43.48	−11.5			18.59
+28.84	51 51.95	31	28.46	+.3 −1	4.55	−7.7			16.51
+32.25	51 53.45		29.92	+.3	5.90	−7.8			16.52 16.52
+35.46	29 32.00	54	5.33	+.8 +4	43.33	−8.9	+76	58	40.56 ~~40.10~~ 40.56
+44.64	29 34.40		5.36	+.8	43.30	−9.6			39.86
+44.57	29 30.95		8.37	+.8	43.14	−11.6			39.71
+32.92	29 27.45		9.01	+.8	43.48	−12.0			41.29
+41.99	23 47.50	59	55.12	+1.0 −1	5.90	−8.2			42.02
+71.22	8 27.50	15	23.62	+1.5 −1	4.55	−6.60	+93	14	~~13.8~~ 98
~~23.83~~ +36.17	8 33.75		~~42.11~~ 21.91	+1.5	5.90	−6.79			~~30.92~~ 10.72

93° 14′ 12.35″

#	n	T'0		T'm									T'm
1872	72 Ophiuchi			α	18h 1m	δ = +9° 32'	tan δ = +.17		1.01 sin z +.54				
Aug	6-.24	1 17.43	1	38.94	38.90	-20.08	- .04		-187	18 1	16.91s		+21.5
	7-.23	1 23.47	1	41.81	41.79	-22.96	- .04		-185		16.94		+18.34
	8-.26	1 28.30	1	44.81	44.79	-25.99	- .04		-185		16.91		+16.5
	10-.27	1 28.03	1	49.53	49.51	-30.79	- .05		-1.82		16.85		+21.5
73 Aug	5-.43	1 19.53	1	40.84	40.83	-18.95	- .07		-204		19.77	+	+21.3
	9-.48	1 22.27	1	42.33	42.31	-20.45	- .08		-200		19.78	×	+20.0
	28-.35-.04	1 32.80	1	48.74	48.73	-27.12	- .06	-.04	-1.78		19.73	+	
Sept.	9-.30		1	22.20	22.18	-0.74	- .05		-159		19.80	+	

H													
1872		o Herculis			18h 2m	+28° 45'	tan d = +.55		1.14 sin z +.23				
July	27-.23	2 13.13	2	38.32	38.30	-3.27	- .13		-1.92	18 2	32.98		+25.1
	30-.29	2 40.00	2	39.36	39.34	-4.26	- .16		-1.90		33.02		-0.6
Aug	7-.23	2 37.07	2	57.94	57.92	-22.96	- .13		-1.82	33.01	~~33.60~~ 33.01		+20.8
	10-.27	2 43.73	3	5.71	5.69	-30.79	- .15		-1.78		32.97		+21.9
73 Aug	5-.43	2 38.43	2	56.56	56.55	-18.95	- .24		-1.99		35.37	+	+18.1
	9-.48	2 41.77	2	58.04	58.02	-20.45	- .26		-1.93		35.38	+	+16.2
	28-.35-.04	2 42.93	3	4.30	4.28	-27.12	- .19	-.05	-1.64		35.28	×	+21.3
Sept.	9-.30		2	37.64	37.63	-0.74	- .16		-1.40		35.33	+	

H = worked as non-fundamental

#													
1872		22 Camelop. S.C.			186h 4m X	+110° 38'	tan d = -2.65		2.84 sin z -.93				
July	27-.23	4 25.13	4	45.56	45.53	-3.27	+ .61		+1.36	18 4	44.23		+20.4
	30-.29	4 2.80	4	46.71	46.69	-4.27	+ .77		+1.20		44.39		+43.9
'73 Aug	5-.43	4 21.90	5	8.09	8.07	-18.95	+ 1.14		+.43		50.69		+46.1
	9-.48	4 13.60	5	9.83	9.81	-20.46	+ 1.27		+.18		50.80		+56.2
	28-.35-.04	4 48.97	5	18.18	18.15	-27.12	+ .93	+.11	-1.17		50.90		+29.
Sept.	6-.41	4 24.03	5	51.94	51.92	-0.40	+ 1.09		-1.85		50.76		+27.9

	h	m	s
1872	18	4	44.310
1873		4	50.787

#													
1873		Gt. 2533			18h 12m	+42° 7'	tan d = +.90		1.35 sin z +.01				
Aug	5-.43	11 35.03	12	3.26	3.24	-18.95	- .39		-203	18 ~~12~~ 11	41.87	+	+28.2
	9-.48	11 37.83	12	4.72	4.70	-20.46	- .43		-1.97		41.84	×	+28.
	28-.35-.04	11 49.27	12	10.90	10.88	-27.12	- .31	-.05	-1.59		41.81	+	+21.6

	T'm −Tδ	Circle Readings.								
	+21.51	54 27.90	28	11.77	−.7 +4	43.50	−4.7	+ 9°	32′	49″.87
	+18.34	54 23.45		12.38	−.7	43.78	−4.7			50.76
	+16.51	54 21.30		12.44	−.7	43.14	−4.8			50.08
	+21.50	54 27.50		12.41	−.7	43.48	−4.9			50.29
	+21.31	48 39.10	33	59.67	−1.0 −1	5.90	−1.9			50.87
	+20.06	48 37.35	34	0.66	−1.0	4.44	−2.3			52.92
	+25.19	42 53.35	40	9.71	−.3 +4	43.33	−6.1	+28	44	46.64
	−0.65	42 23.95		9.79	−.3	43.30	−6.6			46.19
3.01	+20.87	42 47.45		11.08	−.3	43.78	−8.2			46.36
	+21.98	42 48.00		11.74	−.3	43.48	−8.7			46.22
	+18.13	36 56.55	45	58.56	−.4 −1	5.90	−5.3			46.96
	+16.27	36 54.70		58.61	−.4	4.44	−5.9			47.87
	+21.37	36 56.35	46	2.46	−.5	6.47	−8.3			47.19
	+20.42	51 17.35	33	42.72	+1.9 +4	43.33	−5.2	+ 110	38	22.25
	+43.90	51 5.25		43.43	+1.9	43.30	−5.7			22.43
	+46.19	45 18.35	39	31.11	+1.9 −1	5.90	−4.0		~~32~~ 38	23.11
	+56.23	45 13.65		29.09	+1.9	4.44	−4.7			21.85
	+29.21	45 22.95		34.09	+2.0	6.47	−6.9			22.72
	+27.91	45 23.00		35.80	+2.0	6.70	−7.6			23.50
0								110°	38′	22″.34
1									38	22.79
	+28.23	15 1.65	8	13.28	−.0 −1	5.90	−7.0	+42	7	0.38
	+28.89	15 0.95		12.66	−.1	4.44	−7.6			0.57
	+21.63	14 50.90		17.91	−.0	6.47	−10.6			0.84

m 1872 s
13 37.558 A.

#

	n	T_J		T_m										T_m
1872	δ Urs. Min.			α = 18 h 14 m				δ = +86° 36′ tan δ = +16.87				sin z −.70		
Jan	1													
	31													
Feb.	1													
	8 ~~+.42~~													
	12 ~~+.38~~													
	14 ~~+.31~~													
	24													
	27													
Mar	11													
	14													
	18 ~~+.43~~													
	28													
July	20 −.25 −.07	14 41.35	14	2.58	2.32		−4.20	−4.22 −1.18	−15.58	18 h	13 m	37.14 s		+81.
	22 −.27		14	1.81	1.55		−3.9~~4~~3	−4.55	−15.12	~~18~~		37.95		
	24 −.26		13	59.76	59.50		−3.49	−4.39	−14.69			36.93		
	27 −.23		13	59.26	59.00		−3.27	−3.88	−14.01			37.84		
	30 −.29		13	60.17	59.90	13 50.70	−4.28	−4.89	−13.14			37.59		
Aug	1 −.27		14	2.84	2.55		−7.38	−4.55	−12.51			38.11		
	5 −.18		14	10.72	10.46	48.84	−17.58	−3.04	−11.28			38.56		
	6 −.24		14	13.22	12.96		−20.10	−4.05	−11.00			37.81		
	7 −.23	13 6.20	14	15.39	15.13		−22.98	−3.88	−10.72			37.55		+69.
	8 −.26		14	18.61	18.35		−26.01	−4.89	−10.44	37.51		~~36.57~~ 37.51		
	10 −.27		14	23.10	22.84		−30.82	−4.55	−9.83			37.64		
Oct.	2 −.03		14	19.75	19.49		+8.21	−.51	−11.45	~~14~~		15.74		
	9 −.09	11 49.75	14	17.30	17.04		+7.78	−1.52	−14.57			8.73		+87.
73 Feb	8 ~~+.27~~													
	10 ~~+.42~~													
	13 ~~+.38~~													
	17 ~~+.31~~													
	19 ~~+.26~~													
	20 ~~+.30~~													
	22 ~~+.42~~													
	24 ~~+.46~~													
	25 ~~+.39~~													
Mar	4 ~~+.36~~													
	5 ~~+.37~~													
	6 ~~+.34~~													
Aug	5 −.43	13 29.50	13	55.33	55.07		−18.95	−7.25	−10.04	18	13	18.83 ×		+25.
	9 −.48	13 51.60	13	56.04	55.78		−20.46	−8.10	−8.75			18.47 ×		+4.
	28 −.35 −.04	13 23.00	13	54.64	54.38		−27.12	−5.91 −.68	−2.02			18.65 ×		+31.
Sept	~~2 Ch.f.~~													
	3 −.39	12 1.40	13	56.03	55.77		−31.06	−6.58	+.53			18.66		+54.
	6 −.41	15 29.63	13	24.58	24.32		−0.40	−6.92 ~~−5.06~~	+1.73			18.73 ×		−125.
	9 ~~−.30~~													

#

1872	109 Herculis				18 h	18 m	+21 42 tan δ = +.40 1.08			sin z +.35			
July	27 −.23	18 0.30	18	19.98	19.97	−3.27	−.09	−1.97	18	18	14.64		+19.6
Aug	1 −.27		18	24.13	24.11	−7.39	−.11	−1.93			14.68		
'73 Aug	5 −.43	18 18.33	18	38.41	38.39	−18.96	−.17	−2.06			17.20 ×		+20.
	9 −.48	18 27.80	18	39.84	39.82	−20.47	−.19	−2.02			17.14 ×		+12.
	28 −.35 −.04	18 26.53	18	46.32	46.30	−27.13	−.14 −.04	−1.78			17.21 ×		+19.
Sept.	~~2 Ch.f.~~												
	3 −.39	18 24.40	18	50.06	50.04	−31.06	−.16	−1.68			17.14		+25.

1872	Lal. 896 L.C.				1~~8~~6 h	20 m	+101° 52′ tan δ = −4.7~~7~~5 −4.86		4.86	sin z = −.86			
July	27 −.23	19 46.75	20	33.29	33.36	−3.27	+1.09	+3.02	18	20	34.20		+46.
Aug	1 −.27		20	37.60	37.67	−7.39	+1.28	+2.58			34.14		
73 Aug	9 −.48	19 58.70	21	0.50	0.57	−20.47	+2.28	+1.18			43.56		+61.
	28 −.35 −.04	20 7.72	21	10.08	10.15	−27.13	+1.66 +1.7~~x~~9 +	−0.95			43.9~~0~~2		+67.
Sept	~~2 Ch.f.~~												
	3 −.39	19 41.83	21	14.54	14.62	−31.06	+1.85	−1.68			43.73		+92

'72 18 h 20 m 34.170 s
'73 20 43.737

Tm - Tδ	Circle Readings								
+81.23	52 4.05		31	14.62 +.9+4	43.45	-6.0	+86	36	22.97
+69.19	52 14.35		31	33.46 +.9+4	43.78	-10.2			~~7.94~~
+87.55	54 43.80		29	5.18 +1.0+7	45.09	-15.5	35.77		~~36.77~~ 35.77
+25.83	46 10.60		37	35.17 +13-1	5.90	-7.0	86	36	23.57
+ 4.44	46 8.00			34.83 +13	4.44	-7.6			24.09
+31.64	46 5.75			40.48 +14	6.47	-11.1			24.31
+54.63	46 9.00			38.68 +14	7.80	-11.7			20.58
-125.05	45 54.30			39.77 +14	6.70	-12.0			22.47
+19.68	44 40.60		38	9.71 -6+4	43.33	-5.0	+21	42	47.44
+20.08	38 52.90		43	58.03 -6-1	5.90	-4.2	47.33		~~47.31~~ 47.33
+12.04	38 43.70		43	57.82 -6	4.44	-4.7			48.08
+19.79	38 48.30		44	2.37 -7	6.47	-6.9	48.30		~~49.30~~ 48.30
+25.65	38 54.60		44	3.39 -7	7.80	-7.6			47.29
+46.54	34 18.30	~~49~~ 49	~~22.73~~	53.76 +1.2+1.4	43.33 ~~43.02~~	-5.51	+101	54	32.78
+61.80	28 26.10	~~55~~ 55	~~18.65~~	40.39 +1.8-1	4.44	-5.67		55	32.08
+67.31	28 20.35		~~26.99~~	47.11 +1.9	6.47	-8.71			33.83
+92.71	28 10.70		~~43.38~~	49.23 +1.9	7.80	-9.41			33.92
							101°	54′	32″.78
								54	33.28

#	n	Tδ		Tm	h	m		δ=						T
1872	φ Draconis			α:	18	22		+ 71° 16'		tan δ= +2.95	3.12	sin z -.48		
July	27 -.23	22 8.30		22 42.77	42.72			-3.27	- .68		-3.37	18h 42m 32	35.40^5	+34.
Aug	1 -.27			22 46.73	46.69			-7.40	- .80		-3.16		35.33	
Oct	2 -.03	21 55.27		22 26.61	26.57			+8.21	-.09		+0.82		35.51	
	9 -.09			22 26.63	26.58			+7.78	- .27		+1.34		35.43	
	14 +.05			22 27.01	26.87			+6.6~~2~~1	+ .15		+1.69		35.32	
73 Aug	9 -.48	2~~2~~3 16.17		~~2~~2 59.16	59.12			-20.47	-1.42		-2.70		34.~~[illegible]~~53 ×	-17.0
	28 -.35 -.04	22 14.87		23 4.50	4.46			-27.13	-1.03 -.12		-1.60		34.58 ×	+49.
Sept.	2 Ch.f.													
	3 -.39	22 33.90		23 8.04	8.00			-31.07	-1.15		-1.21		34.57 ×	+34.1

#					h	m								
1872	χ Draconis				18	23		+72° 41'		tan δ= +3.21	3.36	sin z -.50		
Oct	2 -.03	22 32.60		23 12.84	12.79			+8.21	- .10		+0.90	18 23	21.80	+40.2
	9 -.09			23 12.79	12.74			+7.78	- .29		+1.46		21.69	
	14 +.05	22 53.87		23 13.18	13.13			+6.61	+ .16		+1.86		21.76	+19.5
1873 Aug	9 -.48	23 22.00		3				-20.47	~~-1.54~~		~~-2.88~~			
	28 -.35 -.04	23 51.30		23 50.82	50.77			-27.13	-1.12 -.13		-1.69 -	20.70	~~21.70~~ 20.70 ×	-0.4
Sept.	3 -.39	23 46.60		23 54.39	54.34			-31.07	-1.25		-1.26		20.76 ×	+7.7

#					6h	m								
1872	23 H. Camel. L.C.				18	24		100 +79° 41'		tan δ= -5.50	5.59	sin z -.85		
Aug	1 -.27			24 23.43	23.53			-7.40	+1.48		+3.12	18 24	20.73	
73 Aug	9 -.48	24 6.50												
	28 -.35 -.04	25 33.20		24 56.67	56.76			-27.13	+1.92 +.22		-0.86		30.91 ×	-36.
Sept.	2 Ch.f.													

#					h	m								
1872	α Lyrae				18	33		+38 40		tan δ= +.80	1.28	sin z +.06		
July	20 -.25 -.07			32 43.00	42.98			-4.19	-.20 -.09		-2.12	18 32	36.38	
	22 -.27			32 42.66	42.64			-3.93	- .22		-2.11		36.38	
	24 -.26			32 42.12	42.10			-3.49	- .21		-2.10		36.30	
	27 -.23	32 18.70		32 41.89	41.87			-3.27	- .18		-2.08		36.34	+23.
Aug	1 -.27			32 45.96	45.94			-7.41	- .22		-2.04		36.27	
	6 -.24	32 23.23		32 58.56	58.54			-20.12	- .19		-1.98	36.25	~~36.~~ 36.25	+35.
	7 -.23	32 33.90		33 1.46	1.44			-23.02	- .18		-1.97		36.27	+27.
	8 -.26	32 44.00		33 4.54	4.52			-26.05	- .21		-1.96		36.30	+20.
	10 -.27	32 44.37		33 9.37	9.35			-30.85	- .22		-1.93		36.35	+25.
Oct.	2 -.03			32 28.88	28.86			+8.22	- .02		-0.77		36.29	
	9 -.09	31 53.03		32 29.12	29.10			+7.78	- .07		-0.59	36.24	~~36.2~~ 36.22	+36.
	14 +.05	31 54.23		32 30.09	30.07			+6.61	+ .04		-0.46		36.26	+35.
'73 Aug	9 -.48			33 1.18	1.16			-20.48	- .38		-2.05		38.25 ×	
	28 -.35 -.04	32 41.73		33 7.54	7.53			-27.13	- .28 -.05		-1.72		38.35 ×	+25.
Sept.	3 -.39	32 45.23		33 11.33	11.31			-31.07	- .31		-1.59		38.34 +	+26.
	6 ~~-.44~~													
	9 ~~-.30~~													
	11													

#					h	m								
1872	Gr. 2640				18	35		+65° 22'		tan δ= +2.18	2.40	sin z -.39		
Aug	1 -.27			35 59.76	59.74			-7.41	- .59		-2.79	18 35	48.95	
	6 -.24	35 14.88		36 12.50	12.48			-20.13	- .52		-2.62		49.21	+57.
	7 -.23	35 37.60		36 15.16	15.14			-23.04	- .50		-2.56		49.04	+37.
Oct	2 -.03	35 20.83		35 40.78	40.76			+8.22	- .07		+ .12		49.03	+19.
	14 +.05	34 54.77		35 41.62	41.60			+6.60	+ .11		+ .58		48.89	+46.
'73 Aug	9 -.48	3~~4~~5 46.70		3~~5~~6 13.21	13.19			-20.48	- 1.05		-2.47		49.19	+26.
	28 -.35 -.04	35 42.63		36 18.96	18.94			-27.13	- .76 -.10		-1.69		~~49.26~~ ×	+36.
Sept	2 Ch.f.												~~49.2~~	
	3 -.39	35 44.90		36 22.67	22.65			-31.07	- .85		-1.44		49.29	+37.

	Tm − Tδ	Circle Readings							
8	+34.47	12 1.80	11	32.04 +.6 +4	43.33	−7.6	+71°	16′	8.37″
	−17.01	5 50.05	17	21.84 +.8 −1	4.44	−8.4			9.80
	+49.63	6 11.40	17	28.83 +.9	6.47	−12.1			11.16
	+34.14	6 3.25	17	30.30 +.9	7.80	−12.9			10.50
0	+40.24	50 21.30	33	15.86 +.7 +7	45.58 45.09	−16.6	+72	40	45.54
	+19.31	50 10.00 41 7.10	33	19.26 +.8	46.85	−15.9			51.01
	− 0.48	41 26.75	41	53.95 +.9 −1	6.47	−11.8			3 ~~3~~6.58
	+ 7.79	41 27.60	41	56.69 +1.0	7.80	−12.6			37.29
5		4 57.70		+4	43.02				
	−36.53	4 55.55	19	30.02 +1.9 −1	6.47	−9.5	100 +79	18	15.95
5	+23.19	47 48.55	35	19.38 −.1 +4	43.33	−6.7	+38	39	55.91
	+35.33	47 57.75	35	22.57 −.1	43.50	−9.1			56.87
	+27.55	47 50.20	35	22.31 −.1	43.78	−9.3			56.69
	+20.54	47 42.50	35	22.91 −.1	43.14	−9.6		~~57.35~~	~~56.05~~ 56.35
	+25.00	47 44.50	35	22.50 −.1	43.48	−10.0			55.88
	+36.09	49 44.05	32	25.02 −.1 +7	45.09	−15.0			55.01
	+35.86	49 45.40	32	23.87 −.1	46.85	−14.9			55.72
	+25.81	41 53.95	41	16.78 −.1 −1	6.47	−10.6			59.61
	+26.10	41 51.95	41	19.12 −.1	7.80	−11.4			59.82
39	+57.62	5 50.80	17	52.08 +.5 +4	43.50	−9.7	+65	22	26.38
	+37.55	5 39.45	17	52.74 +.5	43.78	−10.0			27.02
	+19.95	8 4.70	14	57.48 +.5 +7	45.58	−17.3			2 36.26
	+46.85	7 51.30	14	55.55 +.6	46.85	−17.3		25.70	~~25.60~~ 25.70
	+26.51	59 45.00	23	41.09 +.7 −1	44.54	~~−12.4~~	82		~~24.75~~ 29.15
	+36.32	59 44.45	23	47.54 +.8	6.47	~~−14.7~~	122		~~27.17~~ 29.67
	+37.77	59 42.55	23	49.91 +.7	7.80	~~−15.0~~	131		~~27.81~~ 29.71

#
1872 n 51 T Cephei L.C. Tm d= 18 h 39 m δ= +87° 15' tan d= −~~20.71~~ 41.18 sin z −.77

July	20−.25−.07	36 16.40	39	23.20	23.52	−4.19	+ 5.18	−1.45	+18.12	18 39	~~5.04~~ 41.18
	22−.27		39	23.96	24.27	−3.93	+ 5.59		+17.58	43.51	~~3.93~~ 43.51
	24−.26		39	24.33	24.65	−3.49	+ 5.38		+17.09	43.63	~~3.49~~ 43.63
	27−.23		39	25.66	25.97	−3.27	+ 4.76		+16.34	43.80	~~3.27~~ 43.80
Aug	1−.27		39	31.12	31.44	−7.41	+ 5.59		+14.58	44.20	~~7.41~~ 44.20
	6−.24	37 46.47	39	46.78	47.10	−20.14	+ 4.97		+12.81	44.74	~~20.14~~ 44.74
	7−.23	37 39.53	39	50.39	50.71	−23.04	+ 4.76		+12.50	44.93	~~23.04~~ 44.93
	8−.26	41 27.30	39	52.92	53.24	−26.06	+ 5.38		+12.18	44.74	~~26.06~~ 44.74
Oct.	2−.03	37 45.20	39	50.10	50.42	+8.22	+ .62		−14.54	44.72	~~35.72~~ 44.72
	9−.09	37 46.25	39	53.24	53.56	+7.78	+ 1.86		−18.49		44.71
	14+.05	37 22.50	40	0.16	0.48	+6.61	− 1.04		−21.19		44.86
73 Aug	9−.48	37 8.43	~~39~~ 40	15.43	15.75	−20.48	+ 9.94		+9.32	~~39~~ 40	14.53 ×
	28−.35−.04	38 18.03	40	32.72	33.04	−27.14	+ 7.25	−.83	+1.38	40	13.70 ×
Sept	2 Ch.f.										
	3−.39	37 8.00	40	38.76	39.07	−31.07	+ 8.07		−1.74		14.33 ×
	~~6−.41~~	~~36 25.13~~	~~40~~	~~23.06~~	~~23.37~~	~~−0.40~~	~~+ 8.48~~		~~−3.21~~		~~28.24~~

#
1872 24 H. Camelop L.C. 18 h 41 m +77° 7' tan d= −4.38 4.48 sin z −.87

Aug	1−.27		41	25.58	25.64	−7.42	+ 1.18	;	+2.48	18 41	21.88
73 Aug	9−.48	4~~1~~2 13.00	41	47.83	47.90	−20.49	+ 2.10		+1.15		30.66 ×
	28−.35−.04	4~~2~~3 37.60	42	56.63	56.70	−27.14	+ 1.53	+.18	−0.73		30.54 ×

#
1872 β Lyrae 18 h 45 m +33° 13' tan d= +.65 1.20 sin z +.16

July	20−.25−.07	45 6.63	45	27.84	27.83	−4.18	− .16	−.08	−2.08	18 45	21.33
	22−.27		45	27.46	27.45	−3.93	− .18		−2.07		21.27
	24−.26		45	27.00	26.98	−3.49	− .17		−2.07		21.25
	27−.23	46 1.13	45	26.74	26.73	−3.27	− .15		−2.06		21.25
Aug	1−.27		45	30.93	30.91	−7.42	− .18		−2.03		21.28
	6−.24	45 21.30	45	43.64	43.63	−20.14	− .16		−2.00		21.33
	7−.23	45 26.43	45	46.54	46.53	−23.06	− .15		−1.99		21.33
	8−.26	45 29.13	45	49.51	49.49	−26.08	− .17		−1.98		21.26
	10−.27	45 32.23	45	54.32	54.30	−30.88	− .18		−1.96		21.28
Oct	2−.03	44 41.17	45	14.04	14.02	+8.22	− .02		−0.95		21.27
	9−.09	44 53.60	45	14.26	14.24	+7.78	− .06		−0.79		21.17
	14+.05	45 11.00	45	15.28	15.26	+6.60	+ .03		−0.66		21.23
73 Aug	28−.35−.04	45 25.83	45	52.76	52.73	−27.14	− .23	−.05	−1.80		21.51 ×

#
1872 o₂ Draconis 18 h 49 m +59° 14' tan d= +1.68 1.95 sin z −.29

July	24 Rej.										
Aug	1−.27		49	29.11	29.08	−7.43	− .45		−2.50	18 ~~29~~	18.70
Oct.	2−.03		49	10.90	10.87	+8.22	− .05		−0.35	49	18.69
	9−.09	49 22.97	49	11.00	10.97	+7.78	− .15		−0.04		18.58
	14+.05	49 30.00	49	11.97	11.94	+6.60	+ .08		+0.19	18.81	~~18.65~~ 18.81
73 Aug	28−.35−.04	49 23.43	49	49.20	49.17	−27.14	− .59	−.08	−1.76	19.60	~~18.60~~ 19.60

T_m − T_δ		Circle Readings							
+186.80		42 43.10	41	1.83 +1.0+4	43.45	−3.4	92 +~~87~~°	45′	42.88″
+120.31		42 40.90	41	8.07 + 1.0	43.50	−7.9			44.67
+130.86		42 40.15	41	7.77 + 1.0	43.78	−8.1			44.45
−94.38		42 52.45	41	8.96 + 1.0	43.14	−8.3			44.80
+124.90		45 51.35	38	13.91 +1.1 +7	45.58	−15.6			44.99
+126.99		45 51.45			45.09				
+167.66		45 54.35	38	13.15 +1.3	46.85	−15.4	5 4~~4~~.90		~~45.85~~ 45.90
+127.00		36 53.30							
+134.69		36 47.00	47	2.26 +1.5 −1	6.47	−10.4			46.89
+210.76		36 38.95		5.34 +1.6	7.80	−11.1	48.04		~~47.03~~ 48.04
		36 41.95							
~~+34.83~~ −25.17		31 28.40	53 ~~52~~	5.34 ~~47.90~~ +1.8 −1	1 4.44 ~~43.02~~	−5.0	102 +77	1 57	~~40.26~~ 57.70 ~~27.72~~
~~+19.03~~ −40.97		31 27.90	~~52~~ 53	~~55.45~~ +1.9 −1 12.89	6.47	−8.5		51	~~42.38~~ 59.82
+21.21		14 44.15	8	17.85 −.2 +4	43.45	−4.0	+33	12	57.10
+25.61		14 50.85	8	15.60 −.2	43.33	−5.7			53.03
+22.84		14 43.85	8	19.61 −.2	43.50	−8.0			54.91
+20.11		14 41.80	8	19.31 −.2	43.78	−8.2			54.69
+20.38		14 41.90	8	19.57 −.2	43.14	−8.4			54.11
+22.09		14 43.45	8	19.92 −.2	43.48	−8.9			54.30
+32.87		16 40.90	5	23.84 −.2	45.58	−14.3			54.92
+20.65		16 53.70	5	23.79 −.2	45.09	−14.4	54.28		~~54.48~~ 54.28
+4.28		17 13.80	5	20.70 −.2	46.85	−14.3			53.05
+26.93		8 51.80	14	16.49 −.3 −1	6.47	−9.8	59.92		~~54.12~~ 59.92
−11.97		16 43.40	6	29.78 +.4 +7	45.09	−17.7	+59	13	57.57
−18.03		16 50.35	6	26.59 +.5	46.85	−17.4			56.54
+25.77		8 3.40	15	19.22 +.6 −1	6.47	−12.1		14	1.25

1872 29.318 A. 1873 27.419 m

Tσ X Tm

50 Draconis d = 18h 50m δ = +75° 17' tan δ = +3.81 3.94 sin z = -.54

1872 July	27 -.23	49 37.93	50	37.84	37.78		-3.26	-.88		-4.19	18 50	29.45
Aug	1 -.27		50	41.80	41.74		-7.43	-1.03		-3.96		29.32
	7 -.23	50 33.03	50	57.14	57.09		-23.0~~7~~6	-.88		-3.64		29.51
	8 -.26	49 59.83	51	0.11	0.05		-26.08	-.99		-3.58		29.40
Oct	2 -.03		50	20.50	20.44		+8.22	-.11		+.92		29.47
	9 -.09		50	20.42	20.36		+7.78	-.34		+1.59		29.39
	14 +.05	49 57.40	49	20.58	20.52		+6.60	+.19	~~-.16~~	+2.07		~~29.22~~ 29.38
'73 Aug	28 -.35 -.04	50 40.20	50	58.29	58.22		-27.14	-1.33	-.16	-1.96		27.7~~9~~63
Sept.	3 -.39	50 4.53	51	1.70	1.64	28.89 A.	-31.07	-1.49		-1.47		27.61
'72 July	20 -.25 -.07		50	39.31	39.25	33.77 A	-4.18	-.95	-.24	-4.45		29.43

'72.7 18h 50m 29s.419

'73.7 50 27.620

13 R. Lyrae 18h 52m +43° 47' tan δ = +.96 1.39 sin z -.02

1872 Aug	1 -.27		57	36.30	36.28		-7.43	-.26		-2.14	18h 51	26.45
Oct	2 -.03	51 34.31	57	19.06	19.03		+8.22	-.03		-0.78		26.44
Oct	9 -.09	51 5.60	57	19.18	19.16		+7.78	-.09		-0.60	26.25	~~26.57~~ 26.25
	10 -.01	50 56.87	57	19.27	19.25		+7.74	-.01		-0.57	26.41	~~[illegible]~~ 26.41
	14 +.05	51 0.75	57	20.24	20.22		+6.60	+.05		-0.47	26.40	~~26.41~~ 26.40
'73 Aug,	28 -.35 -.04	52 3.57	51	57.58	57.56		-27.14	-.34	-.06	-1.79		28.23
Sept	2 Ch.f.											
	~~9 -.30~~											
Oct.	9 -.17	51 21.13	51	41.51	41.49		-12.36	-.16		-0.70		28.27

v Draco 18h 55m +71° 7' tan δ = +2.92 3.09 sin z -.48

1872 Aug	1 -.27		56	9.13	9.09		-7.43	-.79		-3.37	18 55	57.50
X Oct.	2 -.03	55 14.87	55	49.17	49.12		+8.22	-.09		+0.31		57.56
	9 -.09	54 40.17	55	49.04	49.00		+7.78	-.26		+0.82		57.34
	10 -.01	54 26.17	55	49.01	48.97		+7.74	-.03		+0.89		57.57
	14 +.05	55 23.57	55	49.68	49.63		+6.60	+.15		+1.18		57.56
'73 Aug	28 -.35 -.04	55 33.60	56	27.10	27.06		-27.14	-1.02	-.12	-1.92	56.86	~~57.86~~ 56.86
Sept.	2 Ch.f.											
	3 -.39	55 53.07	56	30.60	30.56		-31.08	-1.14		-1.51	56.83	~~57.83~~ 56.83
	~~9 -.30~~											
Oct.	9 -.17	55 22.47	56	8.86	8.82		-12.37	-.50		+0.96	56.91	~~[illegible]~~ 56.91

λ Aquilae 18h 59m ± 5° 4' tan δ = -.09 1.00 sin z +.74

1872 Oct.	10 -.01		59	20.97	20.96		+7.74	+.00		-1.35	18 59	27.35
	12 ~~+.04~~											
	14 +.05	59 6.03	59	22.03	22.01		+6.60	-.00		-1.28		27.33
'73 Aug	28 -.35 -.04	59 43.43	59	59.88	59.87		-27.15	+.03	±.04	-2.20		30.51
Sept.	2 Ch.f.											

1872 31.540 A.

ζ Aquilae 19h 0m +13° 41' tan δ = +.24 1.03

1872 July	24 -.26		59	37.16	37.15	59 33.57 A	-3.50	-.06		-2.03	18 59	31.56
	30 -.29		59	38.16	38.14	33.58 A	-4.33	-.07		-2.04		31.70
Aug.	1 -.27		59	41.23	41.21	33.58 A	-7.44	-.07		-2.04		31.66
	6 -.24		59	54.01	53.99	33.56 A	-20.17	-.06		-2.02		31.74
~~Sept.~~	10											
	~~+2~~											
'73 ~~Sept.~~	~~6 -.41~~							-.10				
	~~9 -.30~~							-.07				

Tm − Tδ	Circle Readings					
+59.91	11 28.05	12	16.57 +.7 +4	43.33 −6.10	+75 16	54.50
				43.1		
+24.11	11 20.35	12	12.03 +.7	43.78 −9.2	~~+75~~	[47.31] ?
+60.28	11 24.40	12	19.35 +.7	43.14 −9.7		53.49
+18.09	5 15.85	18	15.44 +1.0 −1	6.47 −11.80	−	~~58.09~~ .17
+57.17	5 23.85		19.54 +1.0	7.80 −13.00		59.74
				'72	75° 16′	54.00
				'73	75 16	58.95
−15.25	43 49.70	39	13.52 +.0 +7	46.58 −17.0	+4³ 46	42.10
+18.58	43 24.45	39	12.86 +.0	45.09 −16.4		41.55
+22.40	43 18.40	39	10.93 +.0	46.25 −16.3		40.88
+19.49	43 21.00	39	10.99 +.0	46.85 −16.1		41.74
− 5.99	34 39.60					
− |						
+20.38	34 59.70	48	9.08 +.1 −1	8.16 −14.2		46.82
+34.30	23 1.80	0	3.97 +.7 +7	45.58 −18.3	+71 7	31.95
+68.87	22 46.05	0	5.62 +.7	45.09 −18.4		33.01
+82.84	22 41.00	0	3.54 +.7	46.25 −18.4		32.09
+26.11	22 5.45	0	3.65 +.7	46.85 −18.2		33.00
+53.50	14 47.05	8	54.69 +.9 −1	6.47 −11.9		37.22
+37.53	14 38.00	8	56.86 +1.0	7.80 −13.0		37.06
+46.39	14 39.45	9	0.12 +1.1 −1	8.16 −16.2		36.86
+16.00	33 29.30	12	3.34 −.12 +7	46.85 −4.2	−5 4	21.89
+16.45	25 13.90	3	6.39 −.14 −1	6.47 −2.0		16.26

1872 Gr. 1255 L.C. X	n Tv	Tm α=	7h ~~19~~	1m	δ= +98° ~~+84°~~	31′ ~~28~~	tan δ = − ~~6.68~~	6.74	sin z = −.83
~~Aug. 1 Comp #~~									
Oct. 2 −.03	59 10.63	0 54.79	54.92	+8.22	+.20		−4.99	19 0	58.40
9 −.09	0 5.60	0 55.66	55.79	+7.78	+.60		−6.21		57.96
'73 Aug 28 −.35 −.04	1 32.00	1 34.42	34.45	−27.15	+2.34	−.27	−0.02	1	9.385
Sept 3 −.39	1 12.10	1 39.11	39.24	−31.08	+2.60		−.95		9.81
Oct 9 −.17	0 26.13	1 28.62	28.75	−12.37	+1.13		−7.23		10.28

72 19h 0m 58.180s

73 1 9.813

1872 # ι Lyrae			19h	3m	+35°	54′	tan δ = +.72	1.24	sin z +.11
Sept 10									
12									
Oct. 9 Rej.									
10 −.01	2 12.17	2 37.19	37.17	+7.74	−.01		−0.81	19h 32m 44.09	sec ~~44.19~~ 44.09
21 +.09	2 16.43	2 35.96	35.94	+8.75	+.06		−0.56		44.19
'73 Aug 28 −.35 −.04	2 52.60	3 15.58	15.56	−27.15	−.25	−.05	−1.87		46.24 ×
Sept. 1 Ch.f.									
3 −.39	2 57.17	3 19.44	19.42	−31.08	−.28		−1.76		46.30 ×
6 −.41	2 27.93	2 48.64	48.62	−0.39	−.30		−1.70		46.23 ×

1872 Gr. 2784 X			19h	3m	+76°	53′	tan δ = +4.29	4.41	sin z = −.57
Aug 1 −.27		3 31.12	31.19	−7.45	−1.16		−4.43	19 3	18.15
6 −.24		3 43.61	43.68	−20.18	−1.03		−4.15		18.32
Oct. 2 −.03	2 45.23	3 9.27	9.34	+8.22	−.13		+0.94		18.37
14 +.05	3 36.90	3 9.27	9.34	+6.60	+.21		+2.23		18.38
'73 Aug 28 −.35 −.04	4 54.90	3 46.84	46.90	−27.15	−1.50	−.17 8	−2.20		15.88 7
Sept ~~1 Ch.f.~~				~~−28.82~~					
3 −.39	4 27.93	3 50.32	50.39	−31.08	−1.67		−1.67		15.97
9 ~~−.30~~									
Oct. 9 −.17	3 50.03	3 27.09	27.16	−12.37	−.73		+2.04		16.10

'72 19h 3m 18.305s

'73 3 ~~16.035~~ 15.980

1872 Gr. 1259 L.C. X			~~17~~ 19h	4m	+97° 21′ + ~~82~~	88	tan δ = −7.75	−7.83	sin z = −.82
Aug 6 −.24	4 42.80	4 13.54	13.71	−20.18	+1.86		+4.71	19 4	0.10
'73 Sept. ~~1 Ch.f.~~									
~~3 Wrong #~~									
6 −.41	3 43.80	4 10.82	11.00	−0.39	+3.18		−1.37		12.42

72 19h 4m 0.100s

73 4 12.420

1872 # w Aquilae			19h	12m			tan δ = +.20		sin z +.51
Oct 9 −.09	11 57.20	11 41.86	41.85	+7.78	−.02		−1.24	19 11	48.87
10 −.01		11 42.03	42.01	+7.73	−.00		−1.21		48.53
21 +.09		11 40.78	40.77	+8.76	+.02		−1.03		48.52
'73 Aug 28 −.35 −.04	12 4.67	12 20.76	20.74	−27.15	−.07	−.04	−2.07		51.41 ×
Sept. 1 −.38 −.06	12 3.07	12 22.36	22.34	−28.83	−.08	−.06	−2.02		51.35 ×
~~2 Ch.f.~~					0				
Oct 9 −.17		12 5.23	5.21	−12.37	−.03		−1.41		51.40 ×

Tm − Tσ	Circle Readings								
+104.16	1 0.50	23	3305	+1.3 +7	45.58	−15.50	+98	31	4.43 ?
+50.05	0 49.15	23	4262	+1.4	45.09	−15.85			13.31 ?
+2.42	51 57.30	32	2157	+1.9 −1	6.47	−9.02			~~8.64~~ 7.98
+27.01	51 42.50	32	2464	+1.9	7.80	−10.09			~~8.74~~ 8.65
+62.49	51 34.65	32	2888	+2.1	8.16	−13.67			9.125
						'72	98	31	4.43
						'73	98	31	8.59
+25.02	35 46.30	46	3036	−.2 +7	46.25	−15.6	+35	54	0.81
+19.52					45.75				
+22.98	27 41.10	55	2486	−.2 −1	6.47	−10.4		7.79	~~7.81~~ 7.79
+22.27	27 37.80	55	2751	−.2	7.80	−11.2			8.31
+20.41	27 37.90	55	25.69	−.2	6.70	−11.5			7.29
+24.04	38 48.85	44	31.95	+.8 +7	45.58	−18.29	76	52	0.04
−27.63	39 4.40		30.74	+.9	46.86	−18.44			0.05
−68.07	29 44.50	53	22.83	+1.1 −1	6.47	−11.57			5.39
			~~18.58~~						
−37.61	29 56.95		18.58	+1.2 −1	7.80	−12.76		51	59.22
−22.94	29 53.00		28.56	+1.3	8.16	−16.40		52	5.30
							76°	52′	0.″04
								52	5.34
−29.26	7 49.35	16	14.28	+1.1 +4	43.50	± 6.32	+97	20	~~5.20~~ 52.56
+27.02	1 46.30	22	29.02	+1.8 −1	6.70	± 10.80		21	~~34.92~~ 13.32
							97°	20′	52.″56
								21	13.32
−15.34	8 9.50	14	2284	−.7 +7	45.09	−10.1	11	21	57.13
+16.08	59 16.60	23	17.84	−.9 −1	6.47	−6.4		22	4.07
+19.28	59 20.30	23	19.16	−1.0	7.93	−6.6			3.63

Y/H = worked as non-fundamental

# 1872	1872 n 31.173 H	T_o		T_m	X									
1872	δ Draconis			α =	19h 13m		δ = +67° 26′	tan δ = +2.41			2.60	sin z	-.42	
July	24-.26		12	38.54	38.50	34.42 A	-3.50	-.63		-3.25	19	12.	31.12	
	27-.23	12 12.03	12	38.20	38.16		-3.26	-.55		-3.20			31.15	+26.1
	30-.29			39.39	39.45	34.31 A	-4.34	-.70		-3.14			31.27	
Aug	1-.27 6 Ch.f.		12	42.30	42.26		-7.46	-.65		-3.08			31.07	
Oct.	10-.01	12 13.90	12	23.30	23.26		+7.73	-.02		-2.82	28.15		~~28.14~~ 28.13	+9.4
	14+.05	11 47.73	12	24.00	23.96		+6.60	+.12		-2.68			28.00	+36.
	20+.12	11 50.43	12	21.50	21.46		+8.55	+.29		-2.46			27.84	+31.0
	21+.09	12 40.53	12	21.40	21.36		+8.76	+.22		-2.42			27.92	-19.1
'73 Aug.	28-.35-.04	13 21.97	13	1.39	1.35		-27.15	-.84	-.10	-1.99			31.27	-20.5
Sept	1-.38-.06	13 29.63	13	3.01	2.98		-28.83	-.92	-.16	-1.80			31.27	-26.6
	3-.39	12 29.13	13	5.07	5.03		-31.08	-.94		-1.71			31.30	+35.9
Oct.	6													
	9-.17 10	12 39.80	12	43.79	43.75		-12.37	-.41		+.34	31.31		~~30.53~~ 31.31	+3.9
										72	19	12	~~29.565~~ 31.152	
										73		12	31.287	

# 1872														
		K Cygni			19h 14m		+53° 8′	tan δ = +1.33			1.67	sin z	-.19	
Sept.	28-.13	14 15.30	14	1.24	1.21		+8.45	-.17		-.90	19	14	8.59	-14.5
Oct.	9-.09	14 49.90	14	18.93	18.90		+7.78	-.12		-.50			~~26.06~~	-30.9
	10-.01	14 20.20	14	1.44	1.42		+7.73	-.01		-.46			8.68	-18.9
	14+.05	13 35.60	14	2.34	2.32		+6.60	+.07		-.32			8.67	+26.4
	20+.12	14 28.60	14	0.08	0.06		+8.55	+.16		-.13			8.64	-28.
'73 Aug	28-.35-.04	14 6.17	14	39.63	39.60		-27.15	-.47	-.07	-1.89			10.02 ×	+33.4
Sept.	1-.38-.06 2 Ch.f.	14 18.97	14	41.22	41.19		-28.83	-.51	-.10	-1.78			9.97 ×	+22.
Oct.	9-.17	14 11.30	14	23.22	23.20		-12.37	-.23		-.55			10.05 ×	+11.9

#	1872 5039 A													
1872		τ Draconis			19h	18m	+73° 7′	tan δ = +3.29			3.44	sin z	-.53	
July	24-.26		18	8.26	8.20	18 4.00 A	-3.50	-.86		-3.96	19	17	59.88	
	30-.29		18	9.26	9.20	3.84 A	-4.35	-.95		-3.80		18	0.10	
Aug	1-.27		18	12.23	12.18		-7.46	-.89		-3.73			0.10	
	6-.24		18	24.71	24.66		-20.20	-.79		-3.55		18	0.12	
~~Sept~~	~~23-.13~~													
Sept.	28-.13	17 26.20	17	52.34	52.32		+8.45	-.43		-.15		~~17~~	~~59.17~~ 0.19	+26.1
Oct	14+.05	17 46.00	17	52.26	52.20		+6.59	+.16		+1.16		18	0.11	+6.
	20+.12		17	49.33	49.28		+8.55	+.39		+1.65		17	59.87	
	21+.09	17 43.20	17	49.46	49.40		+8.76	+.30		+1.73		18	0.19	+6.2
'73 Aug	28-.35-.04	17 46.47	18	29.54	29.49		-27.16	-1.15	-.14	-2.16		17	58.88 ×	+43.
Sept	1-.38-.06 ~~10~~ ~~2~~	17 50.40	18	31.13	31.08		-28.83	-1.25	-.21	-1.91			58.88 ×	+40.
Oct.	~~6~~													
	9-.17	17 54.10	18	11.10	11.05		-12.37	-.56		+.98			~~59.07~~ 59.10 ×	+17.0
	22-.18		18	15.63	15.58		-18.18	-.59		+1.64			58.45 ×	

	$T_m - T_\delta$	Circle Readings						
	+26.17	1 55.95	21	32.06 +.6 +4	43.33	−5.3	+67° 26′	10.69″
8.13	+9.40	4 36.65	18	33.12 +.6 +7	46.25	−9.5		10.87
	+36.27	4 15.45		41.91 +.6	46.85	−10.6		15.76
	+31.07	4 18.85		4169 +.7	46.02	−12.2		16.21
	−19.13	4 41.80		4387 +.7	45.75	−12.4		17.92
	−20.58	55 30.25	27	3447 +.8 −1	6.47	−11.9		16.90
	−26.62	55 23.75		37.15 +.8	7.93	−12.8		17.22
	+35.94	55 53.55		3898 +.8	7.80	−13.2	18.78	~~19.78~~ 18.78
31	+3.99	50 35.60		4212 +1.0	8.16	−17.2	17.76	~~19.76~~ 17.76
5					′72		67° 26′	10.~~58~~ ″69
7					′73		67° 26′	17.66
	−14.56	22 37.65	0	3225 +.3 +7	45.01	−18.2	+53 7	5936
	−30.97	20 35.15			45.09			0.22
	−18.76	22 40.50		3217 +.4	46.25	−18.6	8	~~1.22~~ 0.22
	+26.74	22 8.35		30.70 +.3	46.55	−18.4	7	5945
	−28.52	22 50.30		29.99 +.4	46.02	−18.2		58.21
	+33.46	14 1.40	9	2366 +.4 −1	6.47	−11.9	8	5.69
	+22.75	13 50.65		2551 +.4	7.93	−12.5	8	~~4.49~~ 5.48 5.48
	+11.92	13 39.20		2949 +.5	8.16	−16.6		5.23
.10								
19	+26.17	23 38.10	59	36.01 +.7 +7	45.01	−18.8	73 ~~74~~ +73 7	2.92
	+6.26	23 47.75		33.58 +.8	46.85	−19.3	~~2.93~~	~~2.95~~ 1.93
	+6.26	23 48.20		3416 +.9	45.75	−19.6		1.21
	+43.07	15 12.65	8	27.15 +1.0 −1	6.47	−11.7		7.98
	+40.73	15 7.95		3004 +1.0	7.93	−12.5	10.61	~~9.61~~ 10.61
9.10 ×	+17.00	14 56.00		34.88 +1.2	8.16	−17.4		10.52

1872 2.609 A   n   Tσ   Tm

1872 # δ = Aquilae   d_s 19^h 19^m δ = +2° 52′   tan δ = +.05   1.00   sin z +.64

July	24-.26		19	8.29	8.27	19 4.72 A	-3.50	-.01	-211	19^h 19^m	265
	30-.29		19	9.31	9.29	4.74 A	-4.36	-.01	-2.13		2.79
Aug	6-.24		19	25.14	25.12		-20.20	-.01	-2.15		2.76
Oct.	9-.09	18 30.70	18	56.19	56.18		+7.78	-.00	-1.39		257
	10-.01	18 40.40	18	56.36	56.34		+7.73	-.00	-1.37		2.70
	20+.12	18 43.40	18	55.34	55.33		+8.55	+.01	-122		2.67
	21+.09	18 38.40	18	55.16	55.15		+8.76	+.00	-120		2.71
73 Aug	28-.35 -.04	18 19.83	19	35.17	35.16		-27.16	-.02 -.04	-2.19		5.75 ×
Sept.	1-.38 -.06 2 Ch.f.	19 20.63	19	36.76	36.74		-28.84	-.02 -.06	-2.14		5.68
Oct	22-.18		19	25.28	25.27		-18.18	-.01	-1.40		5.68 ×

X

1872   23 20 Urs. Min L.C. $1\cancel{9}^{7}$ 25^m +91° 0′ 4″   ~~+88° 5′ 9″ 55~~   tan δ -57.29 {1872 -57.18 {1873   sin z = -.75

Oct	20+.12		26	11.42	12.30	+8.55	-6.87	-51.69	19 25	22.29
	21+.09	22 25.60	26	9.32	10.19	+8.76	-5.16	-53.17		20.62
73 Sept.	1-.38 -.06	28 5.00	26 ~~25~~	33.84	34.74	-28.84	+21.73 +3.43	+8.74	26	39.80
Oct.	23-.07 -.10		26 ~~25~~	53.45	54.32	-18.77	+4.00 +5.72	-62.07	h m	43.20 s
								72	19 25	21.455
								73	~~25~~ 26	41.500

1872 # β Cygni 19^h 26^m +27° 41′   tan δ = +.53   1.13   sin z +.25

Sept	×a									
	28-.13	25 2.40	25	26.65	26.63	+8.~~55~~45	-.07	-1.34	19 25	33.67
Oct.	10-.01		25	26.98	26.96	+7.73	-.01	-1.07		33.61
73 Oct	8-.18	25 55.93	25	49.18	49.16	-11.81	-.10	-1.26		35.99 ×
	22-.18		25	55.24	55.23	-18.18	-.10	-.97		35.98 ×
Nov.	2+.03		25	58.88	58.86	-22.08	+.02	-.76	36.04	~~36.00~~ 36.04 ×

1872 # c Cygni 19^h 26^m +51° 27′   tan δ = +1.25   1.61   sin z -.16

Oct	10-.01	26 3.40	26	21.68	21.66	+7.73	-.01	-.63	19 26	28.75
	14+.05	25 50.73	26	22.62	22.59	+6.59	+.06	-.49		28.75
'73 Oct	8-.18	26 33.60	26	42.99	42.96	-11.81	-.22	-.72		30.21 ×
	22-.18		26	48.88	48.85	-18.18	-.22	-.26		30.19 ?
Nov.	2+.03		26	52.20	52.18	-22.08	+.04	+.10		30.24 ×

1872 # Gr. 2900 19^h 29^m +79° 21′   tan δ = +5.32   5.39   sin z -.60

Sept	23-.12		29	16.20	16.12	+8.49	-.64	-.39	19 29	23.58
	28-.13	28 29.30	29	15.52	15.44	+8.45	-.69	+.25		23.45
Oct.	10-.01	29 57.20	29	14.03	13.95	+7.73	-.05	+1.82		23.45
	20 Reject.									
	21 Reject									
'73 Sept.	1-.38 -.06	29 10.67	29	53.63	53.55	-28.85	-2.02 -.32	-2.37	29	19.99 ×
Oct	8-.18	28 48.60	29	30.67	30.59	-11.81	-.96	+2.08		19.90 ×
	9-.17	30 3.10	29	31.18	31.10	-12.37	-.90	+2.21		20.04 ×
	22-.18		29	35.12	35.04	-18.18	-.96	+3.94		19.84 ×

1872 # θ Cygni 19^h 33^m +49° 55′   tan δ = +1.19   1.55   sin z -.13

Sept	23-.12		32	53.48	53.45	+8.48	-.14	-1.26	19 33	0.53
Oct	20+.12	33 6.67	32	52.23	52.21	+8.56	+.14	-.43		0.48
	21+.09		32	52.07	52.04	+8.76	+.11	-.40		0.51
73 Sept.	1-.38 -.06	33 16.37	33	33.42	33.39	-28.85	-.45 -.09	-1.88	2.12	~~2.11~~ 2.12 ×
	6-.41	32 36.70	33	4.82	4.79	-0.38	-.49	-1.76		2.16 ×
Oct	8-.18	32 52.87	33	15.00	14.98	-11.81	-.21	-.82		2.14 ×
	9-.17	32 43.13	33	15.57	15.55	-12.37	-.20	-.79		2.19 ×
	13-.28 +.10	32 57.40	33	17.46	17.44	-14.45	-.33 +.16	-.66		2.16 ×
	23 Reject.									
Nov.	2+.03		33	24.82	24.76	-22.07	+.04	-.04		2.19 ×

For Gr 2917 19^h 35^m see next page.

Tm − Tō	Circle Readings								
+25.49	37 23.70		44	5.48 −.10 +7	46.09	−7.8	+2°	51	41.76″
+15.95	37 38.25			3.95 −.10	46.25	−7.7			41.50
+11.94	37 42.45			2.56 −.10	46.02	−7.4			40.18
+16.46	37 35.70			3.41 −.10	45.75	−7.3			40.86
+15.34	29 20.10		53	0.99 −.12 −1	6.47	−4.9			48.42
+16.12	29 22.10			1.28 −.13	7.93	−5.2			46.85
+23.72	31 29.20	52	31.31	+.13 +7	45.75	±18.38	+90	59	59.98
−91.13	22 29.00	1	24.52	+1.5 −1	7.93	±10.68	91	0	7.41
					'72		90°	59′	59.98″
					'73		91	0	7.41
+24.25	48 4.70		34	1.83 −.3 +7	45.01	−14.5	+27	41	32.04
−6.75	49 23.10		~~34~~ 43	2.32 −.6 −1	8.43	−13.1		41 ~~32~~	40.19
+18.28	2 43.00		19	59.93 +.3 +7	46.25	−19.0	+51	27	27.48
+31.89	2 32.45		20	0.02 +.3	46.85	−19.0			28.17
+9.39	54 5.00								
+46.22	10 7.30		13	13.34 +.9 +7	45.01	−18.5	+79	20	40.75
−43.17	10 27.85			12.40 +.9	46.25	−19.5			40.05
+42.96	1 34.65		22	5.78 +.12 −1	7.93	−11.9		20	47.15
+42.07	1 30.35			11.28 +.14	8.43	−17.5			46.75
−31.92	1 13.75			10.89 +.14	8.16	−17.6			46.53
−14.44	35 3.25		48	4.35 +.2 +7	46.02	−19.0	+49	55	31.57 ~~31.57~~ 31.57
+17.05	26 9.65		57	0.32 +.2 −1	7.93	−12.7			39.89
+28.12	26 18.50			0.82 +.3	6.70	−13.7			40.72
+22.13	26 8.30			6.13 +.3	8.43	−17.4			40.60
+32.44	26 17.35			5.74 +.4	8.16	−17.4			40.58
+20.06	26 7.10			5.77 +.3	8.82	−17.4	~~40.83~~		~~40.56~~ 39.85
					~~19.42~~				

15 Cygni d 19h 39m δ = +37° 3′ tan δ = +.75 1.25 sin z +.09

#	n	Tσ	Tm									
1872 Sept	28-.13	38 57.50 40 6.10	39	32.61	32.59	+8.45	- .10		-1.31	19h 39m	39.63s	
Oct	10-.01	39 26.13	39	32.96	32.94	+7.72	- .01		-1.03		39.62	
	20+.12	39 38.30	39	31.83	31.81	+8.56	+ .09		-.79	39.67	~~39.66~~ 39.67	
	21+.09	39 30.00	39	31.53	31.51	+8.76	+ .07		-.77		39.57	
'73 Sept	1-.38-.06	39 49.63	40	13.04	13.02	-28.85	- .28	-.08	-1.96		41.85	×
	2 Cl. f.						-					
Oct	9-.17		39	55.52	55.50	-12.37	- .13		-1.15		41.85	
	13-.28+.10		39	57.42	57.40	-14.45	- .21	+.12	-1.05		41.81	
	22-.18		40	1.02	1.00	-18.18	- .14		-.83	41.85	~~41.75~~ 41.83	×
	23-.07-.10		40	1.59	1.57	-18.77	- .05	-.12	-.81		41.82	×
Nov.	2+.03		40	4.51	4.49	-22.07	+ .02		-.59		41.85	×

# 1872 δ Cygni 19h 40m +44° 49′ tan δ = +.99 1.41 sin z -.04

Oct	2-.03	40 2.73 41 42.07	40	51.41	51.39	+8.22	- .03		-1.11	19 40	58.47	
	10-.01	40 19.53	40	51.66	51.63	+7.72	- .01		-.87		58.47	
	20+.12	40 9.83	40	50.53	50.51	+8.56	+ .12		-.59		58.60	
	21+.09	40 14.07	40	50.19	50.17	+8.77	+ .09		-.56		58.47	
'73 Sept	1-.38-.06	41 7.17	41	31.62	31.60	-28.86	- .38	-.08	-1.80	41	0.48	×
	2 Cl. f.											
Oct	8-.18	40 49.30	41	13.48	13.26	-11.82	- .18		-.97		0.29	×
	9-.17	40 47.60	41	13.99	13.97	-12.37	- .17		-.94		0.49	×
	13-.28+.10	40 53.20	41	15.86	15.83	-14.45	- .28		-.84		0.26	×
	23-.07-.10		41	19.93	19.91	-18.77	- .07	+.14	-.55		0.66	×
Nov.	2+.03		41	22.78	22.76	-22.07	+ .03	-.14	-.29		0.29	×

# 1872 γ Aquilae 19h 40m +10° 19′ tan δ =

Aug	7-.23
Sept	10
	12
	6
	9
	11
	30
Oct	2-.03
'73 Sept	6-.41
	9-.30
	11
	30
Oct	2

1872 X Gr. 2917 19h 35m +71° 19′ tan. δ = +2.96 3.12 sin z = -.48

Sept.	23-.12		35	34.59	34.54	+8.49	-.36		-0.93	19 35	41.74
	28-.13	34 21.30 ~~36 53.70~~	35	34.04	34.00	+8.45	-.38		-0.58		41.49
Oct.	20+.12	34 37.67	35	31.74	31.70	+8.55	+.36		+1.04		41.65
'73 Sept.	5-.38 -.06	35 32.70	36	13.20	13.15	-28.85	-1.12	-.19	-2.08		40.91
	6-.41	35 12.43	35	44.41	44.36	-0.38	-1.21		-1.80		40.97
Oct.	8-.18	35 29.33	35	53.09	53.04	-11.81	-.53		+0.36		41.06
	9-.17	35 35.70	35	53.46	53.41	-12.37	-.50		+0.44		40.98
	13-.28 +.10		35	55.39	55.34	-14.45	-.83	+.31	+0.73		41.10
	22-.18		35	58.26	58.21	-18.18	-.53		+1.39		40.89

	h	m	s
72	19	35	41 629
73		35	40.985

Tm − Ts	Circle Readings.							
						.37 ~~38~~		47.10
+40.11	26 44.00 27	58.20	55	1889 −.1 +7	45.01 −16.7	+37	2	~~48.10~~ 47.10
+ 6.82	27 18.25			17.89 −.1	46.25 −17.3			46.74
−6.47	27 29.90			1918 −.2	46.02 −17.1			47.90
+1.53	27 24.05			17.10 −.2	45.75 −17.1			45.55
+23.41	28 53.85		4	1347 −.2 −1	7.93 −11.5			5~~4~~3.84
								8.65
+48.68	40 25.70 41	52.40	41	4167 +.1 +7	45.58 −18.7	+44	49	~~8.67~~ 8.65
+32.12	40 42.10			4009 +.1	46.25 −18.5			7.94
+40.70	40 33.05			4153 +.1	46.02 −18.5			9.15
+36.12	40 37.15			4158 +.1	45.75 −18.5			8.93
+24.45	32 36.00		50	3716 +.1 −1	7.93 −12.2			17.13
+24.18	32 29.75			4324 +.1	8.43 −17.0			17.91
+26.39	32 34.80			4026 +.1	8.16 −17.0			15.20
+22.65	32 28.70			4294 +.1	8.82 −16.9			17.32
+72.74	11 3.10		11	47.12 +.~~8~~6 +7	45.01 −19.11	71	19	13.~~82~~62
+54.07	11 12.25			46.56 +.~~8~~7	46.02 −20.71			12.~~77~~57
+40.50	2 54.15		20	41.63 +~~1.2~~9 −1	7.93 −12.58			22.~~32~~02
+31.98	2 51.90			41.13 +~~1.2~~10	6.70 −13.58			~~22.05~~ 21.85
+23.76	2 43.15			46.83 +1,31	8.43 −18.19			21.~~51~~31
+17.75	2 40.85			47.22 +1,31	8.16 −18.25			~~22.11~~ 21.91
					~~8.8~~			
						°	′	″
						71	19	13.09
							19	21.77

1872
32.244 A. N

		Tδ	Tm										
1872 #	a Aquilae				α 19h 45m		δ = + 8° 32′		tan δ = +.15 1.01		sin z +.56		
Aug	1 -.27		44	42.02	-42.00	44 34.39 A	-7.49	-.04		-2.15	19 44	32.32	
	7 ~~-.23~~												
Sept	9												
	10												
	12												
	28 -.13	44 5.00	44	25.57	25.56		+8.45	-.02		-1.66	~~19h 44m~~	32.33s	
Oct.	10 -.01	44 8.93	44	26.03	26.01		+7.72	-.00		-1.46		32.27	
	20 +.12		44	24.98	24.97		+8.56	+.02		-1.30		32.25	
'73 Sept	1 -.38 -.06	44 43.90	45	6.44	6.42		-28.86	-.06	-.06	-2.20		35.24	x
	2 Ch. f.												
	6 ~~-.41~~												
	9 ~~-.30~~												
	11												
	30												
Oct.	2 -												
	5 -.19	44 26.93	44	46.89	46.88		-9.90	-.03		-1.73		35.22	x
	8 -.18	44 59.00	44	48.88	48.86		-11.82	-.03		-1.68		35.33	x
	9 -.17		44	49.33	49.31		-12.37	-.03		-1.66		35.25	x
	13 -.28 +.10		44	51.26	51.25		-14.45	-.04	+.10	-1.60		35.26	x
	21 -.19		44	54.40	54.38		-17.67	-.03		-1.47		35.21	x
	23 -.07 -.10		44	55.64	55.63		-18.77	-.01	-.10	-1.44		35.31	x
Nov.	2 -+.03		44	58.59	58.58		-22.07	+.00		-1.30		35.21	

1872 #		Gr. 1374 L.C.			~~7h~~ 19h 45m		105° ~~+74~~	45′ ~~18~~	tan δ = -3.55 3.69		sin z -.89		
Oct.	2 -.03	45 10.14	44	43.31	43.37		+8.22	~~+~~.11		-2.42	19 44	49.28	
	21 +.09	43 56.97	44	43.33	43.39		+8.77	-.32		-2.34		49.50	
'73 Sept	1 -.38 -.06	45 59.90	45	24.70	24.76		-28.86	+1.35	+.23	-.38		57.09	x
	2 Ch. f.												
Oct	9 -.17	45 44.00	45	12.77	12.82		-12.37	+.60		-3.53		57.52	x
	13 -.28 +.10		45	14.97	15.02		-14.45	+.99	-.37	-4.16		57.03	x
	23 -.07 -.10		45	20.43	20.49		-18.77	+.25	+.37	-5.16		57.18	x

X

1872		Gr. 1359 L.C.			~~7h~~ 19h 46m		+95° ~~+84~~	34′ ~~25~~	tan δ = -10.23 -10.28		sin z = -.80		
Oct	2 -.03	46 51.77	45	52.92	53.08		+8.22	+.31		-4.48	~~7~~ 19 45	57.13	
	10 -.01	46 12.70	45	56.27	56.42		+7.72	+.10		-6.60		57.64	
	20 Reject.										~~46~~	~~13.23~~	
73 Sept	1 -.38 -.06	47 32.40	46	36.25	36.41		-28.86	+3.89	+.61	+1.16	46	13.21	
Oct	13 -.28 +.10	46 41.80	46	34.90	35.06		-14.46	+2.86	-.03	-9.12		13.32	
	21 -.19	47 1.10	46	39.18	39.33		-17.67	+1.94		-11.31		12.29	
	23 Reject												
Nov.	2 +.03		46	50.26	50.41		-22.07	-.31		-14.59		13.44	

72 ~~7h~~ 19 45m 57s.385

73 46m 13.065

$T_m - T_\delta$	Circle Readings					
+20.57	57 22.85	24	2180 −.8 +7	45.01 −10.7	+8° 31′	55.31″
+17.10	57 29.60	24	1994 −.8	46.25 −10.8		55.59
+22.54	49 19.45	33	2048 −1.1 −1	7.93 −7.6	32	~~6.05~~ 3.85″
+19.96	49 14.15		22.41 −1.3 −1	8.54 −9.2		~~5.97~~ 3.37
−10.12	48 34.00		22.60 −1.3	8.43 −9.2		~~6.27~~ 3.67
					105″	
−26.86	47 25.20	37	8.33 +1.4 +7	45.58 −15.4	+74 44	39.91
+48.36	47 48.70	37	13.21 +1.7	45.75 −17.0	43.66	~~53.66~~ 43.66
−35.20	38 48.10	46	3.53 +1.9 −1	7.93 −8.4		49.10
−31.23	38 46.55	46	9.33 +2.2	8.16 −14.4		48.97
−58.85	56 36.85	27	21.37 +1.2 +7	45.58 −17.31	95 34	50.84
−16.43	56 38.65		22.59 +1.3	46.25 −18.15		51.97
−56.15	47 59.80	36	15.19 +1.7 −1	793 −9.75		59.21
−6.90	47 45.00		22.66 +2.0	8.82 −16.72		59.12
−21.93	46 33.00	37	3436 +2.1 −2	19.42 −17.18		59.86

95° 34′ 51.40″

34 59.40

# 1872	n E	Tₛ Draconis	Tₘ a	19h	49m	δ = +69° 57′ tan δ = +2.75	2.92 sin z −.46				
Mar.	14										
	18 ~~+.43~~										
Aug	7 ~~−.23~~										
Sept	10										
	12										
	28 −.13	46 46.00	48 25.58	28.54		+8.45	−.36		−.84	19h 48m	s 35.79
Oct	2 −.03	47 56.87	48 28.37	28.33		+8.22	−.08		−.58		35.89
	21 +.09	48 1.67	48 26.00	25.96		+8.77	+.25		+.68		35.66
73 Sept	1 −.38 −.06	49 27.17	49 7.92	7.88		−28.87	−1.04	−.18	−2.17		35.62 ×
	6 −.41										
	9 −.30										
	11										
	30										
Oct.	2										
	5 −.19	48 5.33	48 46.30	46.26		−9.90	−.52		−.19	~~35.61~~	~~35.75~~ 35.65 +
	9 −.17	48 6.37	48 48.48	48.44		−12.38	−.47		+.09	35.68	~~35.60~~ 35.68 +
	13 −.28 +.10	48 59.50	48 49.69	49.65		−14.45	−.77	+.29	+.35		35.07 +
	21 −.19	48 31.50	48 53.09	53.05		−17.67	−.52		+.89		35.65 ×
	22 −.18		48 53.51	53.47		−18.18	−.49		+.96		35.76 +
	23 −.07 −.10		48 53.91	53.87		−18.78	−.19	−.29	+1.02		35.63 ×
	29 −.04		48 56.59	56.55		−22.15	−.11		+1.42		35.71 +
Nov	2 +.03		48 55.99	55.95		−22.07	+.08		+1.69	35.65	~~35.47~~ 35.65

# 1872	1872.2 1.510 A	β Aquilae		19h	49m	+ 6° 6′ tan δ = +11					
Aug	1 −.27		49 11.33	11.31	49 3.66	−7.50	−.03		−2.15	19 49	1.63
	6 −.24		49 24.10	24.08	3.67	−20.25	−.03		−2.16		1.64

# 1872	1872.2 m 52 18.360 A	λ Urs. Min.		19h	52m	+ 88° 55′ tan δ = ~~+53.44~~	sin z −.72				
Feb	27										
Mar	14										
	18 ~~+.43~~										
Apr.	4 ~~+.24~~										
	10 ~~+.20~~										
	11 ~~+.19~~										
Aug	1 −.27		53 27.83	27.00	53 4.70	−7.51	−14.38		−46.34	19 52	18.77
	6 −.24		53 34.27	33.46		−20.25	−12.78		−43.37	~~19~~ ~~52~~	17.06
Sept.	9										
	28 −.13	50 28.47	52 8.57	7.76		+8.45	−6.95		+8.67		17.93
Oct	2 −.03	49 28.60	51 55.72	54.91		+8.22	−1.60		+13.54		15.07
	9 No sheet.										
	10 −.01	55 40.90	51 46.73	45.92		+7.72	−.53		+24.35		17.46
	20 +.12	52 32.60	51 28.67	27.86		+8.56	+5.42		+37.55		19.39
	21 +.09	53 30.10	51 24.06	23.15		+8.77	+4.81		+39.02		15.75
Nov.	4 Ch. f.										
'73 Sept	1 −.38 −.06	51 48.35	52 27.04	26.23		−28.87	−20.32	−3.21	−14.84	51	18.99 ×
Oct.	5 −.19	51 18.70	51 14.17	13.36		−9.90	−10.16		+25.72		[19.02]
	9 −.17	50 38.80	51 8.30	7.49		−12.38	−9.09		+30.70		16.72 +
	13 −.28 +.10	54 56.60	51 6.26	5.45		−14.45	−14.99	+5.36	+36.46	17.83	~~17.83~~ 17.83 ×
	21 −.19		51 0.45	50 59.64		−17.68	−10.18		+47.18		18.96
	22 −.18		50 56.95	56.14		−18.18	−9.64		+48.49		16.81
	23 −.07 −.10		50 55.88	55.07		−18.78	−3.75	−5.36	+49.85		17.03 +
Nov.	2 +.03		50 33.40	32.59		−22.07	+1.61		+63.86		15.99 ×

$T_m - T_\delta$	Circle Readings.						′	″
+102.58	33 30.20	49	2.53 +.6 +7	45.01	−19.3	+69°	56	28.84
+31.50	34 1.00		3.74 +.6	45.58	−19.7			30.22
+24.33	34 3.45		3.87 +.8	45.75	−21.0			29.42
−19.25	25 9.70	57	57.12 +.9 −1	~~6.70~~ 7.93	−12.3		39.79	~~39.07~~ 39.79
+40.97	25 30.25	58	5.28 +1.1 −1	8.54	−18.5			39.34
+42.11	25 32.10		5.41 +1.1	8.16	−18.7			39.65
−9.81	25 8.15		6.52 +1.1	8.82	−18.8			40.50
+21.59	24 10.75	59	16.86 +1.1 −2	19.47	−19.2			39.29
+101.10	35 53.55	47	52.79 +1.0 +7	45.01	−16.9	+88	55	21.90
+147.12	35 50.30		55.16 +1.1	45.58	−17.4			24.44
−234.17	35 57.50		54.88 +1.1	46.25	−18.4			23.83
−63.93	35 56.60		54.70 +1.2	46.02	−19.1			22.82
−126.04	35 55.55		57.76 +1.2	45.75	−19.2			25.51
+38.69	26 58.05	56	50.03 +1.4 −1	7.93	−9.8			33.70
−4.53	26 50.05		56.48 +1.6	8.~~24~~.54	−16.0			33.54
+29.50	26 54.95		55.84 +1.7	8.16	−16.6			32.78
−230.34	26 46.50		58.23 +1.7	8.82	−17.0			34.11

	n	T₅			T_m										
# 1872	γ	Sagittae			d	15h	~~92~~ 53m		δ= +19° 9′						
~~July~~	~~20-.25~~														
	~~24-.26~~														
~~Aug~~	~~5=.18~~														

1872 Br. 1147 = Gr. 1408 L.C. 20h 3m

103
+76° 9′ tan δ = -4.05   4.19 sin z -.88

												h	m	s	
Sept.	28-.13	0 46.37	5 53.17	3	16.53	16.60	+8.46	+.53		-1.68		20	3	23.91	
Oct.	2-.03	2 10.07		3	17.63	17.70	+8.23	+.12		-2.21				23.84	
	12+.04	2 52.90		3	20.00	20.06	+7.25	-.16		-3.30				23.85	
73 Sept.	1-.38-.06	2 51.00		3	58.52	58.58	-28.88	+1.54	+.25	-.08				~~31.~~ 31.41	×
Oct.	9-.17	3 0.43		3	47.17	47.23	-12.38	+.69		-3.81				31.73	×
	13-.28+.10	2 56.40		3	49.42	49.48	-14.44	+1.13	-.42	-4.25	31.50			~~30.97~~ 31.50	×
	21-.19	4 9.23		3	53.83	53.90	-17.68	+.77		-5.15				31.94	×
	23-.07-.10			3	54.94	55.01	-18.78	+.28	+.42	-5.38	31.55			~~31.05~~ 31.55	
Nov.	1-.03	3 52.80		3	59.84	59.91	-22.08	+.12		-6.41				31.54	×
	2+.03			4	0.29	0.35	-22.07	-.12		-6.53				31.63	×

1873 o Aquilae 20h 5m

-1° 12′ tan δ = -.02   1.00 sin z +.69

Sept	1-.38 -.06	5 1.10	5	16.40	16.39	-28.88	+.01	±.06	-2.36		20	4	45.10	×
Oct	5=.19	4 40.07	4	56.96	56.95	-9.90	+.00		-1.95				45.10	×
	9-.17	5 7.77	4	59.40	59.38	-12.38	+.00		-1.88				45.12	×
	13-.28+.10	4 40.30	5	1.26	1.24	-14.44	+.01	+.10	-1.82				45.09	×
	21-.19	5 20.43	5	4.52	4.50	-17.68	+.00		-1.69				45.13	×
	23-.07 -.10		5	5.63	5.61	-18.78	+.00	±.10	-1.66	45.07			~~44.97~~ 45.07	×
Nov.	1-.03	5 20.10	5	8.60	8.59	-22.08	+.00		-1.53				44.98	×
	2+.03		5	8.72	8.70	-22.07	+.00		-1.51	45.12			~~44.12~~ 45.12	×

1872 o′ Cygni 20h 10m

+46° 22′ tan δ = +1.05   1.45 sin z -.07

pr. Sept	28-.13	8 20.67	10 14.17	9	9.74	9.72	+8.46	-.14		-1.42		20	9	16.62	
pr. Oct.	2 -.03	8 37.27		9	9.83	9.81	+8.23	-.03		-1.31				16.70	
	12 +.04	8 57.20		9	29.80	29.78	+7.26	+.04		-1.04				36.04	
1873 Sept	1-38-06	9 42.80		10	9.36	9.34	-28.89	-.40	-.09	-2.05				37.91	×
Oct	5=19	9 24.17		9	49.44	49.42	-9.90	-.20		-1.28				38.04	×
	9~~-.09~~-.17	9 24.97		9	51.76	51.74	-12.38	-.18	~~-.25~~	-1.16				38.02	×
	13-28+.10	9 22.37		9	53.60	53.58	-14.44	-.29	+.14	-1.05	37.94			~~37.66~~ 37.94	×
	21~~+.09~~-.19	9 28.70		9	56.69	56.67	-17.69	-.20	~~-.28~~	-.82				37.96	×
	23-.07 -.10			9	57.74	57.72	-18.79	-.07	-.14	-.77				37.95	×
Nov	1-.03			10	0.66	0.63	-22.08	-.03		-.51				38.01	×
	2 Reject.						-22.07								

o Cygni pr. 1872 20h 9m 16.660s

1872 24 Vulpec. 20h 11m

+24° 16′ tan δ = +.45   1.10 sin z +.31

Sept	28-.13	11 21.83	11	11.71	11.69	+8.46	-.06		-1.62		20	11	18.47	
Oct	2-.03	10 49.87	11	11.86	11.85	+8.23	-.01		-1.55				18.52	
'73 Sept	1-.38-.06	11 26.20	11	52.34	52.32	-28.89	-.17	-.07	-2.13				21.06	×
Oct	5=.19	11 14.70	11	32.71	32.69	-9.90	-.09		-1.64				21.06	×
	13-.28+.10		11	36.94	36.93	-14.44	-.13	+.11	-1.48				20.99	×
Nov.	1-.03		11	44.30	44.28	-22.08	-.01		-1.13	21.06			~~20.96~~ 21.06	×
	2+.03		11	44.24	44.22	-22.07	+.01		-1.11				21.05	×

	Tm − Tσ	Circle Readings					
						103	
	+150.16	41 30.25	43	50.56 +13 +7	45.01 −154	+76 51	21.47
	+67.56	41 1.30		53.28 +13	45.58 −162		23.96
	+27.10	40 52.00		52.30 +14	47.62 −175		23.82
x	+67.52	31 20.75	52	49.41 +1.9 −1	7.93 −8.1		35.28
x	+46.74	31 26.55		55.05 +22	8.16 −154	33.69	~~33.79~~ 33.69
.50 x	+52.02	31 25.50		54.50 +22	8.82 −160		31.88
+	−15.40	30 29.70	54	8.40 +23 −2	19.47 −16.7		34.53
.55 x							
x							
x							
x	+15.30	32 48.45	10	33.31 −1.4 −1	7.93 −6.2	−1 11	48.84
x	+16.89	32 47.80		30.64 −1.5	8.54 −7.0		47.68
x	−7.77	32 14.10		31.79 −1.6	8.16 −6.8	48.35	~~46.15~~ 48.35
x	+20.95	32 50.75		31.11 −1.6	8.82 −6.7		48.23
x	−15.91	30 52.65	9	19.59 −1.7 −2	19.47 −6.5		47.26
.07 x							
x							
,12 x							
				(40)			″
	+49.07	3 51.85	18	1776 +.1 +7	45.01 −187	+46 25	5417
	+32.56	4 5.40		18.72 +.1	45.58 −19.1		45.30
	+32.60	8 38.00	13	46.03 +.1	47.62 −19.9	21	13.85
x	+26.56	0 31.35	22	44.62 +.1 −1	7.93 −124	24.39	~~24.47~~ 24.39
x	+25.27	0 24.40		50.44 +.2	8.54 −18.1	24.00	~~14.00~~ 24.00
x	+26.49	0 25.40		50.98 +.3	8.16 −18.3		24.82
7.94 x	+31.23	0 29.15		51.17 +.2	8.82 −184		24.15
x	+27.99	59 15.40	24	1.51 +.3 −2	19.47 −18.8	23.54	~~22.54~~ 23.54
x							
x					1872	+46° 25′	44.74″
	−11.43	13 31.35	9	9.54 −.4 +7	45.01 −151	+24 16	39.05
	+21.99	12 53.05		11.42 −.4	45.58 −154		41.20
x	+26.14	4 52.05	18	8.89 −.6 −1	7.93 −106		49.76
+	+18.01	4 37.25		14.08 −.7	8.54 −144		50.44
+							
21.06 x							
x							

#	n	T'_s		T_m											T_m
1872	K Cephei			d–	20h	13m	δ= +77° 20'	tan δ = +4.45	4.55	sin Z –.57					
Feb	16 ~~–.39~~														
~~Mar~~	~~14~~														
~~Apr~~	~~10~~														
	~~11~~														
Aug	7 ~~–.23~~														
Sept	10														
	12														
	28 ~~–.13~~														
Oct	2 –.03	12 24.93		13	2.04	1.97	+8.23	–.13		–64	20h	13	9.43		+37.1
'73 Sept	1 –.38 –.06	12 48.77		13	41.21	41.14	–28.89	–1.69	–.27	–2.84			7.45	x	+52.4
	6 ~~–.44~~														
	9 –.30														
	11														
	30														
Oct	1														
	2–														
	5 =.19	13 43.90		13	18.23	18.16	–9.90	–.85		+.17			7.58	x	–25.6
	21 –.19	13 48.30		13	24.31	24.24	–17.69	–.85		+1.86			7.56	x	–23.9
	23 –.07 –.10			13	24.94	24.87	–18.79	–.31	–.45	+2.08			7.40	x	
Nov.	1 –.03			13	26.73	26.66	–22.08	–.13		+3.06			7.51	x	
	2 +.03			13	26.34	26.27	–22.07	+.13		+3.17			7.50	x	

#															
1872		γ Cygni			20h	18m	+39° 37'	tan δ = +.83	1.30	sin Z +.04					
Sept	10														
	12														
	18														
	28 –.13	17 52.27		17	31.30	31.28	+8.46	–.11		–1.52	20	17	38.11 s		–20.9
Oct	2 –.03	16 42.80	18 16.93				+8.23	–.02							
	12 +.04	17 2.07		17	32.11	32.09	+7.26	+.03		–1.20			38.18		+30.0
Nov	4 +.09	17 4.40		17	22.33	22.31	+16.39	+.07		–.66			38.11		+17.9
'73 Sept	1 –.38 –.06	17 54.80		18	11.68	11.66	–28.90	–.32	–.08	–2.09			40.27	x	+16.8
Oct	5 =.19	17 29.10		17	51.80	51.78	–9.90	–.16		–1.43			40.29	x	+22.7
	21 –.19	18 6.93		17	59.21	59.19	–17.69	–.16		–1.05			40.29	x	–7.7
	23 –.07 –.10			18	0.24	0.23	–18.79	–.06	–.13	–1.02			40.23	x	
Nov	1 –.02			18	3.16	3.14	–22.08	–.02	–.12	–.84			40.20	x	
	2 +.03			18	3.12	3.10	–22.07	+.02		–.82			40.23	x	

			X		8 ~~9~~			1872 tan δ = –7.77	sec δ –7.83						
1872		Gr. 1431 L.C.			8 h ~~20~~	m 23	+97° 18	1873	–7.79	Sin Z = –.82					
Sept	28 –.13	21 2.70		22	52.64	52.76	+8.46	+1.01		–1.43	8 20	23	0.80		+109.
Oct	2 –.03	20 50.17		22	54.46	54.57	+8.23	+ .23		–2.18			0.85		+124.2
	12 +.04	22 7.37		22	58.03	58.15	+7.27	– .31		–4.12			0.99		+50.0
Nov	4 +.09	22 1.53		22	53.52	53.64	+16.39	– .70		–8.86			0.47		+51.9
73 Sept	1 –.38 –.06	20 46.93		23	36.40	36.52	–28.90	+2.96	+.47	+1.45			12.50		+169
Oct	5 =.19	22 13.20		23	23.97	24.09	–9.90	+1.48		–4.22			11.45		+70.7
	21 –.19	23 9.70		23	35.46	35.57	–17.69	+1.48		–7.42			11.94		+25.
	23 –.07 –.10			23	37.32	37.44	–18.79	+ .54	+.78	–7.83			12.14		
Nov.	1 –.03			23	43.37	43.49	–22.08	+ .23		–9.71			11.93		
	2 +.03			23	44.31	44.43	–22.07	– 23		–9.42			12.21		
						72			20	23	s 0.778				
						73				23	12.028				

Tm - Ts	Circle Readings								
+37.11	11 16.40		12	212 +.8 +7	45.58	-19.9	+77	19	28.60"
+52.44	2 42.90		20	5913 +11 -1	7.93	-11.5			40.80
-25.67	2 12.65		21	7.30 +13 -1	8.54	-19.0			41.06
-23.99	1 2.60		22	1869 +14 -2	19.47	-20.6			40.02
-20.97	39 41.55		43	2395 -.1 +7	45.01	-180	+39	50' ~~51~~	~~51.86~~ ~~7.06~~ 50.86
	38 33.00	40 2.15			45.58				
+30.04	38 52.50			24.17 -.1	47.62	-192		50	5249
+17.93	36 38.90			+4	52.69				
+16.88	30 39.10		52	2358 -.1 -1	7.93	-121		51	3.45
+22.70	30 37.80		52	30.67 -.1	8.54	-176			4.43
-7.72	28 55.80		53	41.88 -.2 -2	19.47	-182			4.01

!

+109.94	13 8.35		10	45.01 45 +1.3 +7	45.01	-16.75	97	18	14.57
+124.28	13 7.10			44.71 +1.3	45.58	-17.52			14.08
+50.66	12 57.90		11	6.22 +1.4	47.62	-19.13		18	36.11
+51.99	11 46.90		~~12~~ ~~13~~ 12	18.66 +1.8 +4	52.69	-21.00		~~14~~ 18	52.15
+16.947	3 22.45		20	19.20 +1.8 -1	7.93	-8.86		19	4.21
+70.77	3 29.20			27.38 +2.0	8.54	-16.71			4.13
+25.75	3 25.80		21	39.42 +2.2 -2	19.47	-18.94			3.21

'72 97° 18' 52.15"

h m s

73 97 19 3.85

# 1872 Gr. Tδ 1446 L.C. Tm a = 20h 25m δ = +105° 56′ (75) tan δ = −3.50 3.68 sin z −.89 Tm

Sept	28 −.13	25 35.52		25	17.42	17.48	+8.46	+.46		−1.27	20h 25m	25.13s		−18.10
Oct	2 −.03	25 1.10		25	18.44	18.50	+8.23	+.10		−1.62		25.21		+17.34
	12 +.04	24 55.20		25	20.16	20.21	+7.27	−.14		−2.55		24.79		+24.96
'73 Sept	1 −.38 −.06	24 51.13		25	59.26	59.31	−28.90	+1.33	+.22	+.05		32.01	x	+68.12
Oct	5 −.19	26 5.30		25	43.76	43.82	−9.90	+.66		−2.65		31.93	x	−21.54
	21 −.19	25 15.43		25	52.94	53.04	−17.69	+.66		−4.21		31.80	x	+37.56
	23 −.07 −.10			25	54.53	54.59	−18.79	+.24	+.36	−4.41		31.99	x	

# 1872 1872 27m 58.23s A ε Delphini 20h 27m +10° 53′ tan δ = +.19 1.02 sin z +.52

Aug	6 −.24			27	28.55	28.54	27 7.99 A	−20.31	−.04		−2.17	20 27	6.02		
	7 ~~−.23~~														
Sept	10 ~~−.27~~														
	~~12~~														
~~Oct~~	3														
'73 ~~May~~	~~28 morn~~ −27 −.08			~~26~~	~~47.54~~	~~47.52~~	9.74	~~+22.70~~	~~−.05~~	~~−.08~~	~~−1.05~~	~~27~~	~~9.04~~		
'73 ~~Sept~~	6 ~~−.44~~														
	~~9~~ −.30														
	~~11~~ 1873														
	~~30~~ ~~27m 56.89 A~~														
~~Oct~~	~~1~~														
	~~2~~														
Oct	21 −.19	27 21.07		27	28.09	28.08		−17.69	−.04		−1.64	20h 27	8.71	x	+7.02
	23 −.07 −.10			27	29.26	29.24		−18.79	−.01	−.10	−1.61		8.78	x	
Nov.	1 −.03			27	32.36	32.34		−22.08	−.01		−1.47		8.78	x	
	2 +.03			27	32.24	32.23		−22.07	+.01		−1.45		8.72	x	
	11			~~27~~	~~32.36~~	~~32.34~~									
	25														

X For Gr. 3241 20h 30m See B4)

# 1872 73 Draconis 20h 33m +74° 32′ tan δ = +3.61 3.74 sin z −.53

Oct	3 −.04	32 37.33		33	3.33	3.28	+8.16	−.14		−1.11	20 33	10.19		+26.0
	10 ~~−.01~~													
	12 +.04	31 6.80	35 23.10	33	3.02	2.97	+7.27	+.14		−.39		9.99		+11.62
Nov.	4 +.09	31 58.53		32	51.98	51.92	+16.39	+.32		+1.57		10.20		+53.4
	19 +.22	33 7.17		32	42.80	42.74	+24.03	+.79		+2.84		10.40		−24.3
'73 Sept	1 ~~−.38~~													
	2													
Oct	5 −.19	32 38.55		33	20.70	20.64	−9.90	−.69		−.56		9.49	x	+42.1
	23 −.07 −.10			33	28.24	28.19	−18.79	−.25	−.37	+.95		9.73	x	
Nov.	1 −.03			33	30.13	30.19	−22.08	−.11		+1.71		9.71	x	
	2 +.03			33	29.67	29.61	−22.07	+.11		+1.79		9.44	x	

# α Cygni 20h 37m +44° 50′ tan δ = +1.00 1.41 sin z −.04

1872 Sept.	3													
	12													
Oct.	3 −.04	36 2.77	37 49.03	36	57.58	57.56	+8.16	−.04		−1.53	20 37	4.15		+54.8
	12 +.04	36 17.07	37 53.60	36	58.11	58.09	+7.27	+.04		−1.27		4.13		+41.04
Nov.	4 +.09	37 1.60		36	48.40	48.38	+16.39	+.09		−.67		4.19		−13.2
	27 ~~+.24~~													
morn '73 May	28 −27 −.08			~~36~~	~~45.10~~	~~45.08 37 7.14 A~~	~~+22.70~~	~~−.27~~	~~−.11~~	~~−0.99~~				
Sept	6 ~~−.44~~													
	11													
	30													
Oct	1													
	2													
	5 −.19	36 51.37		37	17.84	17.82	−9.90	−.19		−1.49		6.24	x	+26.2
	21 −.19	37 16.77		37	25.16	25.13	−17.70	−.19		−1.08		6.16	x	+8.3
Nov	1 −.03			37	29.19	29.17	−22.08	−.03		−.79		6.27	x	
	2 +.03			37	29.04	29.02	−22.07	+.03		−.76		6.22	x	
	11			~~37~~	~~29.10~~	~~29.08~~								

Tm-Tƒ	Circle Readings						
				+7 45.01			
+18.10	30 6.20						
+17.34	36 45.25	48	5.04 +1.3	45.58	-15.9	+105° 55'	36.02"
+24.96	36 50.85		4.38 +1.4	47.62	-17.7		35.70
+68.12	27 13.40	57	2.48 +1.9 -1	7.93	-7.4		4 59.05
-21.54	24 38.15		9.94 +2.1	8.54	-15.2		48.30
+37.56	26 7.55	58	21.70 +2.2 -2	~~28.28~~ 19.47	-17.5		46.93
+7.02	27 8.68			~~+7 45.75~~			
+26.00	59 46.85	23	28.70 +.7 +7	45.87	-20.4	+74 30	54.87
+116.22	59 16.60		29.59 +.8	47.62	-21.8		56.21
+53.45	57 19.05	26	25.30 +1.0 +4	52.69	-23.6		55.39
-24.37	56 49.40		27.69 +1.1	48.72	-23.2		54.31
+42.15	52 2.65	31	35.27 +1.2 -1	8.54	-19.6	31	8.33
+54.81	40 3.10	41	58.75 +.1 +7	45.87	-19.8	+44 49	24.92
+41.04	40 16.30		58.03 +.1	47.62	-20.4		25.35
-13.20	37 43.75	44	54.74 +.1 +4	52.69	-21.1		26.43
			+1				
+26.29	32 9.75	57	5.08 +.1 -1	8.54	-18.8		37.84
+8.38	30 41.90	52	16.57 +.1 -2	19.47	-19.8		37.40

	ω	T_s		T_m										T_m
# 1872	γ Delphini seq.				α =	20h	41m	δ = +15°	40′	tan δ = +.28		1.04 sin z +45		
Oct	3 −.04	40 17.77		40 36.86	36.84			+8.16	−.01	−1.77	20h 40m	43.22s		+24.08
	12 +.04	40 16.90		40 37.61	37.59			+7.28	+.01	−1.63		43.25		+20.71
Nov.	4 +.09	40 10.23		40 28.27	28.26			+16.39	+.03	−1.26		43.42		+18.04
	21 +.24	40 6.90		40 18.51	18.49			+25.70	+.07	−1.00		43.26		+11.61
'73 Oct	5 −.19	40 35.40	40 36.80	40 57.03 57.01	57.92 57.90			−9.90	−.05	−1.90	pr 40	45.16	46.05 +	+21.63
	21 ~~+.24~~ −.19	40 47.60	40 49.30	41 4.59 4.58	5.40 5.38			−17.70	−.05	~~+.80~~ −1.64	pr ~~39~~ 40	45.19	45.99 +	+16.99
Nov.	1 −.03			41 8.77 8.76	9.61 9.59			−22.08	−.01	−1.47	pr 40	45.20	46.03 ×	
	2 +.03			41 8.74 8.72	9.51 9.49			−22.07	+.01	−1.45	pr 40	45.21	45.98	
# 1872	E Cygni					20h	41m	+33°	30′		h	m s		
Sept	12							γ Delphini	pr. 1873.8		20 40	45.190 (4)		
	18													
# 1872		6 H. Cephei				20h	42m	+37°	8′	tan δ = +1.55		1.84 sin z −.25		
Oct	10 ~~−.01~~													
Nov.	4 +.09	42 5.10		41 54.22	54.19			+16.39	+.14	−.28	20 42	10.44		−10.88
	16 +.15	42 4.70		41 48.04	48.02			+21.92	+.23	+.15		10.32		−16.66
	21 ~~+.24~~ rej.								+					
	27 ~~+.24~~													
'73 Oct	21 −.19	42 39.85		42 30.63	30.61			−17.70	−.29	−.67		11.95	×	−9.22
Nov	1 −.03			42 34.49	34.46			−22.08	−.05	−.35		11.98	×	
	2 +.03			42 34.26	34.23			−22.07	+.05	−.32		11.89	×	
# '73		η Cephei				20h	43m	+61°	21′					
Sept	30													
Yedoauko # =	worked as non-fundamental													
1872		~~Lal. 3606~~	D M. +63° 1663			20h	47m	+63°	30′	tan δ = +2.01		2.24 sin z = −.36		
Nov.	4 +.09	46 59.33		46 45.86	45.84			+16.39	+.18	+0.0	20h ~~47~~ 47m	2.41		−13.48
	16 +.15	46 26.65		46 39.63	39.62			+21.92	+.30	+0.56		2.39		+12.98
	19 +.22	46 54.10		46 37.07	37.05			+24.04	+.~~38~~ 44	+0.69		2.~~16~~ 22		−17.03
	21 +.24	45 55.13		46 35.51	35.49			+25.~~84~~ 70	+.48	+0.79		2.46		+40.38
'73 Oct.	5 −.19	46 28.77		47 14.91	14.89			−9.90	−.38	−1.24		3.37		+46.14
	21 −.19	47 9.77		47 21.98	21.96			−17.70	−.38	−0.52		3.36		+12.21
	22 −.18			47 22.56	22.54			−18.20	−.36	−0.48		3.50		
	28 −.02 −.10			47 25.66	25.68			−21.64	−.04	−.22 −0.19		3.59		
Nov.	1 −.03			47 25.58	25.56			−22.08	−.06	+0.00		3.42		
	2 +.03			47 25.30	25.28			−22.07	+.06	+0.08		3.35		
										'72	20h 47m	2.370s		
										'73	47	3.432		
# 1872		32 Vulpec.				20h	49m	+27°	34′	tan δ = +.52		1.13 sin z +.26		
Nov.	4 +.09													
	16 +.15	48 35.30		48 45.32	45.30			+21.92	+.08	−.92	20 49	6.38		+10.02
	19 +.22	48 40.30		48 43.06	43.05			+24.04	+.11	−.86		6.34		+2.76
	21 +.24	48 18.00		48 41.43	41.41			+25.70	+.12	−.83		6.40		+23.4
	27 ~~+.24~~								+.					
'73 Oct.	5 −.19	48 59.67		49 20.72	20.70			−9.90	−.10	−1.80		8.90	×	+21.05
	21 −.19	49 8.83		49 28.18	28.16			−17.70	−.10	−1.51		8.85	×	+17.35
	22 −.18			49 28.76	28.75			−18.20	−.09	−1.50		8.96	+	
	28 −.02 −.10			49 32.04	32.03			−21.64	−.01 −.11	−1.39		8.88	×	
Nov.	1 −.03			49 32.29	32.27			−22.08	−.02	−1.32		8.85	+	
	2 +.03			49 32.22	32.20			−22.07	+.02	−1.30		8.85	×	

Tm – Ts   Circle Readings.

15

+24.08   49 29.60
20.41   49 35.00
18.04   47 26.15
11.61   47 17.20
+21.63 +21.12   41 20.10 41 20.10
+16.99 +16.10   40 0.45 40 0.45

° ′ ″
32 20.61 –.6 +7 45.87 –14.5 +15 39 51.38
18.58 –.6 47.62 –14.7 50.90
35 14.26 –.8 +4 52.69 –14.3 51.85
15.71 –10 49.59 –13.3 51.00
41 41 27.12 26.49 –10 –1 8.54 –13.5 40 4.98 4.35
42 42 40.46 39.35 –11 –2 19.47 –13.6 40 7.39 6.28

° ′ ″
γ Delphini / pr. 1873 + 15 ~~39~~ 40 6.18 (2)

25

–10.88   20 12.40
–16.66   20 5.35

–9.22   12 48.30

2 44.10 +.5 +4 52.69 –22.8 +57 7 14.49
46.82 +.6 51.76 –22.5 16.68

10 8.27 +.6 –2 19.47 –21.4 28.00

–36

–13.48   53 39.25
+12.98   53 54.25
–14.03   53 34.20
+40.38   54 7.85
+46.14   48 2.05
+12.21   46 29.35

29 24.39 +.7 +4 52.69 –23.95 63 33 53.83
24.50 +.8 51.76 –23.66 53.40
27.05 +.8 48.72 –23.45 53.12
26.10 +.8 49.59 –23.29 53.20
35 34.41 +.8 –1 8.54 –20.12 34 6.55
36 48.06 +.9 –2 19.47 –22.30 7.21

° ′ ″
72 63 33 53.39
73 34′ 6.88″

+.26

+10.02   53 0.35
+2.76   52 48.95
+23.43   53 12.75

+21.05   47 0.80
+19.35   45 46.75

29 43.59 –.6 +4 51.76 –17.6 +27 34 17.15
46.62 –.6 48.72 –17.3 17.44
46.59 –.6 49.59 –17.1 18.48

35 56.93 –.6 –1 8.54 –16.6 31.19
37 8.74 –.6 –2 19.47 –17.1 31.57

f = worked as non-fundamental, T Tm X

#
1872 76 Draco α = 20h 51m δ = +82° 3′ tan δ = +7.17 7.28 sin z -.64

1872 Nov	16 +.15	50 27.30	51	14.28	14.13	+21.92	+1.08		+585	20h 51	42.98s
	19 +.22	50 13.20	51	10.71	10.56	+24.04	+1.58		+636		42.54
	21 +.24		51	8.48	8.33	+25.70	+1.72		+669		42.44
	27 +.24										
'73 Oct.	3 -.19	51 2.77	51	50.12	49.97	-9.90	-1.36		-13		38.58
	21 ~~+.24~~ -.19	51 19.50	51	55.50	55.35	-17.70	-1.36		+240		38.69
	22 -.18		51	55.80	55.65	-18.20	-1.29		+257		38.73
	28 -.02 -.10		51	57.20	57.05	-21.64	-.14	-.73	+359	38.13	~~38.14~~ 38.13
Nov.	1 -.03		51	56.56	56.40	-22.08	-.22		+428		38.38
	2 +.03		51	56.06	55.90	-22.07	+.22		+445	h m	38.50

1872 20 51 42.653
73 51 38.502

#
Br. 2749 20h 53m +80° 4′ tan δ = +5.72 5.82 sin z -.61

	Mar 21										
1872	27 ~~+.24~~										
Nov.	16 ~~+.15~~										
	19 +.22	53 25.20	52	48.80	48.71	+24.04	+.126		+466	20 53	18.67
	21 +.24	52 9.03	52	47.03	46.94	+25.70	+1.37		+492		18.935
'73 Oct	3 -.19	54 0.17	53	28.17	28.08	-9.90	-1.09		-53	16.52	~~16.48~~ 16.56 ×
	21 -.19	54 0.20	53	33.97	33.88	-17.71	-1.09		+1.50		16.58 ×
	22 -.18		53	34.44	34.36	-18.20	-1.03		+1.63		16.76 ✓
	28 -.02 -.10		53	36.51	36.42	-21.64	-.11	-.88	+2.44		16.53 ×
Nov	1 -.03		53	35.81	35.72	-22.08	-.17		+2.98		16.45 ×
	2 +.03		53	35.37	35.28	-22.07	+.17		+3.11		16.49 ✓

#
~~1872 July 21~~ δ ~~Cygni~~ ~~20h 53m~~ +40° 41′ tan δ = ~~+.86~~ ~~+.32~~ 1.32

~~52 30.62 30.60~~

~~'73 May 28 morn -.27 -.08~~ ~~52 5.12 5.10~~ ~~-.23 -.07~~

X

1872 11 Urs. Maj. L.C. 8h ~~20~~ 57m +112° 36′ tan δ = -2.40 Sin Z = -.94

Nov	16 +.15	57 7.63	56	50.00	50.04	+21.92	-.36	-4.17	20 57	7.53.43
	19 +.22	56 19.87	56	48.20	48.24	+24.04	-.53	-4.39		7.36
	21 +.24	56 27.60	56	46.82	46.86	+25.70	-.58	-4.54		7.44
'73 Oct	5 -.19	56 38.23	57	23.82	23.86	-9.90	+.46	-1.82		12.60
	21 -.19	57 44.47	57	32.77	32.81	-17.71	+.46	-2.89		12.67
	22 -.18		57	33.71	33.75	-18.20	+.43	-2.96		13.02
Nov.	1 -.03		57	38.38	38.42	-22.08	+.07	-3.68		12.73
	2 +.03		57	38.68	38.72	-22.07	-.07	-3.75		12.83

'72 20h 57m 7.410s
'73 57 12.770

#
~~1872 Oct 10 -.01~~
~~11 +.05~~ ~~ξ Cygni~~ ~~21h 0m~~ ~~+43° 26′~~

Tm −T5	Circle Readings							
+46.98	24 54.90	58	5087 +15 +4	51.76	−244	~~83~~ 82 + ~~82~~	3	19.73″
+57.51	24 53.90	,	5366 +15	48.72	−242			19.68
+47.35	18 44 45	4	5874 +14 −1	8.54	−19.3			32.30
+36.00	17 29.50	6	1233 +15 −2	19.47	−220			32.36
						83°	3′	19.70″
							3′	32.33
−36.40	23 35.30	59	5056 +14 +4	48.72	−24.5	80 81 + ~~80~~	4	16.18
+38.00	23 53.25		4868 +15	49.59	−243			15.47
−32.00	17 29.20	5	5519 +14 −1	8.54	−19.5			28.55
−26.23	16 17.40	7	896 +15 −2	19.47	−222			28.79
−17.63	53 19.35	32	22,12 +2,1 +4	51.76	−20.99	112	36	54.99
+28.33	52 52.85		25,59 +2,1	48.72	−21.12			55.24
				~~49.59~~			37	~~8.34~~
+45.59	46 31.80	38	26.85 +2.2 −1	8.54	−14.13			8.38
−11.70	45 50.20	39	41.21 +2.4 −2	19.47	−17.22			6.92
						112	36′	55.14″
							37	7.65

#
1872 61 Cygni α 21h 1m δ = +38° 7′ tan δ = +.78 1.27 sin z +.07

	n	Tf		Tm					h	m	s
Sept	18										
Oct	14+.05										
	~~15~~ -		~~1~~	~~4.92~~	~~4.90~~						
Nov.	19+.22	0 27.40	0	46.53	46.51	+24.04	+.17	-1.03	21h	1	9.69
	21+.24	0 36.37	0	44.74	44.73	+25.70	+.19	-.99			9.63
~~morn.~~	~~27+.24~~										
73 ~~May~~	~~28 .27 -.08~~		~~0~~	~~51.14~~	~~51.12~~	~~-9.91~~	~~-.21 -.10~~				
Oct	2										
	5-.19		1	24.43	24.41	-9.91	-.15	-2.01			12.34 ×
	17										
	22-.18		1	32.44	32.42	-18.20	-.14	-1.66			12.42 +
Nov	1-.03		1	35.90	35.88	-22.08	-.02	-1.45			12.33 ×
	2+.03		1	35.86	35.84	-22.07	+.02	-1.43			12.36 +
	~~11~~		~~1~~	~~35.92~~	~~35.90~~						
'72 ~~Oct.~~	~~16~~		~~1~~	~~4.82~~	~~4.80~~						

#
1872 7 1872.2 29.327 + ξ Cygni 21h 8m +29° 43′ tan δ = +.57 1.15

Oct	14+.05		7	24.46	24.45	7 30.95A.	+6.57	+.03	-1.62	21 7	29.53
	~~15~~		~~7~~	~~24.60~~	~~24.58~~						
morn.	21 ~~+.09~~										
73 ~~May~~	~~28 .27 -.08~~		~~7~~	~~10.38~~	~~10.36~~			~~-.15 -.09~~			
~~Sept~~	~~8~~		~~7~~	~~35.27~~	~~35.25~~						
	30										
Oct	1										
	2										

#
1872 Br. 2777 = 77 Draco 21h 8m +77° 36′ tan δ = +4.55 4.66 sin z -.58.

Nov.	16+.15	7 56.60	7	35.80	35.73	+21.93	+.68	+2.55	21	8	0.89
	19+.22	7 5.77	7	32.96	32.88	+24.04	+1.00	+2.87			0.79
	21+.24	6 7.00	7	31.08	31.01	+25.69	+1.09	+3.08			0.87
73 Oct.	9-.17	8 33.80	8	13.74	13.67	-12.39	-.77	-.77		7	59.74 ×
	21-.19	7 20.10	8	17.98	17.91	-17.71	-.86	+.42			59.76 ×
	22-.18	7 14.77	8	18.57	18.50	-18.21	-.82	+.52			59.99 ×
	23-.07 -.10										
	28-.02 -.10		8	20.96	20.88	-21.65	-.09 -.47	+1.13			59.80 ×

#
1872 τ Cygni 21h 10m +37° 31′ tan δ = +.77 1.26 sin z +.08

Oct	10-.01										
Nov	16+.15	8 57.70	9	19.83	19.81	+21.93	+.12	-.89	20	9	40.97
×	19+.22	8 58.87	9	17.51	17.55	+24.05	+.17	-.83			40.94
	21+.24	8 54.40	9	15.86	15.84	+25.69	+.18	-.79			40.92
'73 Oct	9-.17	9 34.13	9	57.64	57.62	-12.39	-.13	-1.76			43.34 ×
	13-.28+.10	9 39.67	9	59.53	59.51	-14.42	-.22 +.13	-1.68			43.32 +
	14-.15	10 9.60	9	59.92	59.90	-14.89	-.12	-1.66			43.23 ×
	21-.19	9 40.87	10	2.73	2.71	-17.71	-.15	-1.50			43.35 ×
	22-.18	9 41.80	10	3.22	3.20	-18.21	-.14	-1.49			43.36 +
	28-.02 -.10		10	6.55	6.53	-21.65	-.02 -.13	-1.37			43.36 ×

	$T_m - T_\delta$	Circle Readings							
07									
	+19.13	20 12.10	2	9.09 −.2 +4	48.72	−23.3	+38°	6′	34.31″
	+8.37	20 3.15		7.53 −.2	49.59	−23.1			33.82
x.									
x									
8.	−20.80	51 26.75	31	57.82 +1.3 +4	51.76	−25.6	+77	36	25.28
	+27.19	51 37.20	32	0.72 +1.3	48.72	−25.5			25.24
	+84.08	51 54.30			49.59				
x	+39.94	45 46.75							
x	+57.88	44 25.10	39	18.92 +1.4 −2	19.47	−23.0			37.85
x	+63.80	44 27.70		18.69 +1.4	19.42	−23.1			37.57
x									
8									
	+22.13	57 36.25	25	29.62 −.2 +4	51.76	−21.6	+37°	29	59.58
	+18.70	57 28.35		34.00 −.2	48.72	−21.3		30	1.22
	+21.46	57 34.70		30.41 −.2	49.59	−21.2		29	58.60
x	+23.51	51 25.40	31	42.11 −.2 −1	8.16	−19.5		30	14.25
x	+19.86	51 19.25		44.50 −.2	8.82	−19.8			15.68
x	−9.68	50 51.85		41.45 −.3	7.70	−20.0			13.45
x	+21.86	50 10.00	32	55.98 −.3 −2	19.47	−20.4			15.81
x	+21.42	50 10.50		54.94 −.2	19.42	−20.6			14.72
x									

# 1872 | 1872 m a 15 31.341 A. | Tδ | α = Cephei | Tm α = 21h 16m | δ = +62° 3' | tan δ = +1.89 2 ×.14 | sin z -.34

Oct	12 +.04	16 45.60	15 25.63	25.59		+7.30	+ .08		-1.47	21h 15m	31.50s	
	14 +.05		15 26.22	26.19	15 32.80 A.	+6.56	+ .09		-1.41		31.43	
	~~15~~		~~15 26.26~~	~~26.23~~								
	21 +.09		15 23.59	23.56	32.52 A.	+8.79	+ .17		-1.13		31.39	
Nov.	16 +.15	15 11.00	15 9.13	9.10		+21.93	+ .28		- .01		31.30	-1.
	19 +.22	14 21.15	15 6.76	6.72		+24.05	+ .42		+ .12		31.31	+4
	27 +.24						+ ~~.45~~					
'73 Sept	8		~~15 36.71~~	~~36.68~~								
	30											
Oct	1											
	2											
	9 -.17		15 47.00	46.97		-12.39	- .32		-1.62		32.64 ×	
	13 -.28 +.10	15 20.37	15 49.00	48.97		-14.42	- .53	+ .41 .21	-1.31		32.92 ×	+2
	21 -.19	15 26.80	15 51.88	51.85		-17.72	- .36		- .98	32.79	~~32.77~~ 32.79 ×	+2
	22 -.18	15 23.20	15 52.40	52.37		-18.21	- .34		- .94		32.88 ×	+2
moving '73 ~~30 May~~	~~28 -.27 -.08~~		~~15 11.40~~	~~11.67~~			- ~~.51~~	~~.09~~ ~~.14~~				

ℋ = worked as non-fundamental X

# 1872 | 1872 a 38.586 A | 1 H Draco L.C. 9h 18m | +98° 6' | tan δ = -7.01 7.10 | sin z -.83

~~Oct~~	~~12 +.04~~											
Nov	16 +.15	19 28.20	18 24.94	25.05		+21.93	- 1.05		-7.72	9 18	38.21	-6
	19 +.22	17 19.70	18 23.56	23.66		+24.05	- 1.54		-8.28	21	37.89	+
	27 ~~+.24~~											
'73 Oct.	13 -.28 +.10	17 5.40	19 3.83	3.94		-14.42	+ 1.96	-.71	-3.10		47.67	+11
	14 -.15	18 1.77	19 4.80	4.91		-14.89	+ 1.05		-3.27		47.80	+6
	21 -.19	17 53.70	19 8.23	8.34		-17.72	+ 1.33		-4.44		47.51	+7
	22 -.18	17 38.47	19 9.31	9.42		-18.21	+ 1.26		-4.62		47.85	+9
	28 -.02 -.10		19 14.22	14.33		-21.65	+ .14	+.71	-5.67		47.86	
Nov.	2 +.03		19 16.41	16.52		-22.06	- .21		-6.38		47.87	
'72 ~~Oct~~	~~15~~		~~18 34.20~~	~~34.30~~								
Oct	21 +.09		18 33.58	33.69	18 41.70	+8.79	- .69		-3.11	h m	~~38.74~~ S	

'72 9 21 18 38.280

'73 18 47.760

# 1872 | a 7.420 | d Urs. Maj. L.C. 9h 23m | +109° 36' | tan δ = -2.81 2.98 | sin z -.92

Oct	12 +.04	22 58.30	23 1.24	1.29		+7.31	- .11		-1.27	9. 23	7.22	+2
Nov.	16 +.15	22 59.90:	22 49.93	49.97		+21.93	- .42		-4.01		7.47	-9
	19 +.22	22 53.10	22 48.07	48.11		+24.05	- .62		-4.26		7.28	-5
	23 +.20	22 23.80	22 45.56	45.60		+27.00	- .56		-4.60		7.44	+2
'73 Oct.	13 -.28 +.10	23 1.357	23 28.78	28.82		-14.42	+ .79	-.30	-1.97		12.92 ×	+1
	28 -.02 -.10		23 37.37	37.41		-21.66	+ .06	+.30	-3.17		12.94 ×	
Nov.	2 +.03		23 38.50	38.54		-22.06	- .08		-3.57		12.83 ×	
	4 +.01		23 38.05	38.09		-21.59	- .03		-3.73		12.74 ×	
'72 Oct	~~15~~		~~23 2.20~~	~~2.25~~								
	21 +.09		23 0.90	0.94	23 9.40	+8.79	-.25		-1.98		7.50	

1872 | 75 04 X Urs. Min. 21h 25m | +86° 30' | 1872 +16.36 16.38 | 1873 +16.38 | sin z - -.68

~~Oct~~	~~12 +.04~~											
Nov.	16 +.15	24 12.83	24 8.46	8.38		+21.93	+2.45		-0.30	21 24	32.46	Rej
	19 +.22		24 4.25	4.17		+24.05	+3.60		+0.76		32.58	
'73 Oct.	13 -.28 +.10	~~25~~ 24 16.00	24 49.44	49.36		-14.42	~~+~~ 4.59	+1.64	+1.34		33.33	+2
	14 -.15		24 49.48	49.40		-14.89	- 2.46		+1.60		33.65	
	28 -.02 -.10		24 51.01	50.93		-21.66	- .33	-1.64	+6.98		~~33.92~~ 34.28	
Nov.	2 +.03		24 46.63	46.55		-22.06	+ 1.49		+8.91		33.~~79~~ 89	
	21 +.01		24 45.06	44.98		-21.59	+ 1.16		+9.69		33.24	

'72 21h 24m 32.520s Rej

'73 24 33.678

	$T_m - T_\delta$	Circle Readings							
	−1.87	24 59.75	58	8.49 + .8 +4	51.76	−25.3	+ ~~62~~ 63°	2′	35.75″
	+45.60	25 24.50		1262 + .8	48.72	−25.2	62		36.94
×									
×	+28.63	19 5.20	4	21.52 + .8 −1	8.82	−21.8			51.70
2.79 ×	+25.08	17 49.90	5	33.76 + .8 −2	19.47	−23.1			51.99
×	+29.20	17 51.85		3467 + .8	19.42	−23.2			52.85
	−63.26	22 15.60	2	11.98 + 1.9 +4	51.76	−24.7	+ 98	6	40.94
	+ 3.85	21 49.00		19.59 + 1.9	48.72	−24.9			45.31]
	+118.43	15 32.75	8	2153 + 21 −1	8.82	−19.2			54.61
	+ 63.03	15 37.95		2369 + 21	7.70	−19.5			58.59
	+72.53	14 26.10	9	3239 + 21 −2	19.47	−20.9			54.12
	+90.84	14 22.10		3495 + 22	19.42	−21.1	56.63		~~57.63~~ 56.63
							98°	6′	40.94 ~~43.12~~
D									35.99
0									3270
	+ 2.94	56 8.45	29	098 + 1.4 +7	47.62	−17.3	+ 109	36	~~32.76~~ .4 32.70
	− 9.97	48 12.05	32	192 + 20 +4	51.46	−23.2			~~32.47~~ 32.48
	− 5.03	53 6.50	32	516 + 20	48.72	−23.4			32.48
	+21.45	52 56.85		365 + 20	50.11	−23.7			32.06
	+15.21	46 51.00	38	1051 + 23 −1	8.82	−17.0	46.99		~~47.01~~ 46.99
.68									
hy	−26.56	51 50.25	31	~~51.26~~ 55.91 + 1.6 −1	8.82	−20.97	86	30	~~23.07~~ 27.72
.28									
o]	Rej				73		86°	30′	~~23.07″~~ 27.72
8									

# 1872	1872 59.960A β n	Ts Cephei		Tm α =		21h 27m		δ = +70° 00'	tan δ = + 2.75	2.92		sin Z -.46			T
Mar	28														
Oct	12 +.04	26 6.10 28	28.00	26	54.27	54.23			+7.31	+ .11		-1.60	21h 27m	0.05s	+48.1
	~~14 +.05~~														
	~~16~~			~~26~~	~~54.81~~	~~54.76~~									
	21 +.09			26	52.08	52.04	27 1.05A		+8.79	+ .25		-1.09	26	59.99	
Nov.	16 +.15	26 55.47		26	37.13	37.09			+21.93	+ .41		+.50	26	59.93	-18.3
	19 +.22	26 55.80		26	34.70	34.66			+24.05	+ .60		+.60		59.91	-21.1
'73 Apr.	16 ~~+.14~~														
~~moon May~~	~~28 -.27 -.08~~			~~26~~	~~39.88~~	~~39.83~~				- ~~.74~~ ~~.23~~					
Sept.	9 ~~-.30~~														
	30														
Oct	1														
	2														
	13 -.28 +.10	26 32.10		27	17.11	17.07			-14.42	- .77	+.29	-1.26	27	0.91 +	+450
	14 -.15	27 41.30		27	17.31	17.24			-14.89	- .41		-1.20		0.77 +	-23.9
	28 -.02 -.10			27	23.24	23.20			-21.66	- .06	-.29	-.39		0.80 x	
Nov.	2 +.03			27	23.00	22.96			-22.06	+ .08		-.08		0.90 x	
	4 +.01	26 28.03		27	22.31	22.27			-21.59	+ .03		+.04		0.75 +	+54.2

# 1872		74 Cygni				21h	32m	+39° 30'	tan δ = +.83	1.30		sin Z +.04			
Oct.	12 +.04	30 57.33 32	17.45	31	43.64	43.62			+7.31	+ .03		-1.76	21 31	49.20	+46.3
Nov.	16 +.15	31 4.57		31	28.26	28.24			+21.94	+ .12		-1.01		49.29	+23.6
	19 +.22	31 1.50		31	25.94	25.92			+24.05	+ .18		-.95		49.20	+24.
	23 +.20	30 53.47		31	22.90	22.88			+27.00	+ .167		-.88		49.17	+29.4
1873	27 ~~+.24~~														
Oct.	13 -.28 +.10	31 43.13		32	7.97	7.95			-14.41	- .23	+.13	-1.79		51.65 +	+24.8
	14 ~~+.05~~ -.15	31 59.50		32	8.44	8.42			-14.90	- .12		-1.77		51.63 +	+8.9
	28 -.02 -.10	31 49.87		32	14.94	14.92			-21.66	- .02	-.13	-1.48		51.63 +	+25.0
Nov.	2 +.03			32	15.04	15.02			-22.06	+ .02		-1.37		51.61 +	
	4 ~~+.09~~ +.01	31 53.63		32	14.51	14.49			-21.59	+ ~~.4~~ .01		-1.33		51.58 +	+20.8

# 1872		13 H Cephei				21h	35m	+56° 54'	tan δ = +1.53	1.83		sin Z -.25			
Sept	28 -.13	34 23.47		34	53.26	53.24			+8.47	- .20		-2.10	21 34	59.41	+29.7
Oct	2 -.03	33 57.90 35	55.90	34	53.19	53.16			+8.24	- .05		-1.99		59.36	+55.2
	12 +.04	34 1.20 35	57.77	34	53.72	53.69			+7.32	+ .06		-1.73		59.34	+52.3
Nov.	19 +.22	34 19.60		34	35.54	35.52			+24.05	+ .34		-.44		59.47	
	27 ~~+.24~~														
'73 Oct	13 -.28 +.10	34 55.63		35	17.64	17.61			-14.41	- .43	+.18	-1.60	35	1.35 +	+22.0
	28 -.02 -.10	35 0.00		35	24.24	24.22			-21.66	- .03	-.18	-1.13		1.22 +	+24.2
Nov.	2 +.03			35	24.22	24.19			-22.06	+ .05		-.97		1.21 +	
	4 +.01	34 52.47		35	23.80	23.77			-21.59	+ .02		-.90		1.30 +	+31.3

# 1872	1872 53.976A	ε Pegasi				21h	37m		tan δ = +.16						
Oct.	14 +.05			37	49.51	49.49	37 55.95A		+6.56	+ .01		-1.97	21 37	54.09	
	~~15~~			~~37~~	~~49.44~~	~~49.42~~									
	~~16~~			~~37~~	~~49.45~~	~~49.43~~									
	~~19~~			~~36~~	~~48.09~~	~~48.07~~									
	21 +.09			37	47.03	47.01	55.85A		+8.80	+ .01 ~~.04~~		-1.88		53.94	
'73 ~~moon May~~	~~28 -.27 -.08~~			~~37~~	~~35.22~~	~~35.20~~									
Sept	9 -.30														
	30														
Oct	1														
	2														
	14 -.15														

Tm -Ts	Circle Readings								
+48.17	30 28.50		52	3000 +.6 +7	47.62	-226	69 +70°	59'	55.62"
-18.34	27 40.10		55	31.11 +10 +4	51.76	-26.4			57.47
-21.10	27 36.95			32.98 +.10	48.72	-26.4			56.30
+45.01	21 58.55		1	4047 +1.1 -1	8.82	-211	70	0	11.65
-23.99	21 25.20			4243 +1.1	7.70	-212			14.63
+54.28	21 46.00		2	5662 +12 -2	19.78	-254			12.64
+46.31	39 6.60	40 23.45	42	5445 -.1 +7	47.62	-210	+39	50	20.97
+23.69	37 17.55		45	5158 -.1 +4	51.76	-228			20.44
+24.44	37 16.55			5333 -.1 +4	48.72	-227			19.25
+29.43	37 20.65			5401 -.1	50.11	-225			21.52
+24.84	31 2.95		52	7.49 -.2 -1	8.82	-207			37.77
+ 8.94	30 48.05			659 -.2	7.70	-208			37.89
+25.07	29 50.75		53	1960 -.2 -2	20.31	-221			36.99
+20.88	29 46.70			1868 -.2	19.78	-224			36.30
+29.79	35 30.55		47	1237 +.3 +7	45.01	-196	+56	54	38.08
+55.29	35 12.00	36 31.60		1325 +.3	45.58	-205			38.63
+52.52	35 14.55	36 33.55		1295 +.4	47.62	-224			38.57
+22.01	26 53.75		56	2547 +.6 -1	8.82	-221			55.15
+24.24	25 41.85		57	3865 +.6 -2	20.31	-243			54.64
+31.33	25 46.80			3877 +.7	19.78	-250			54.69

1872 | 1872.2 2.362 A | 11 Cephei | Tδ | Tm | α = 21h 40m | δ = +70° 44′ | tan δ = +2.86 3.03 | sin Z −.47

Oct	2 −.03	39 19.45		39	56.51	56.47		+8.24	−.09	−2.36	21h 40m	2.26s	
	14 ~~+.05~~												
	~~16~~			~~39~~	~~57.32~~	~~57.28~~							
	~~19~~												
	21 +.09			39	54.75	54.71	40 3.71	+8.80	+.26	−1.35		2.42	
Nov.	19 +.22	38 55.13		39	37.28	37.23		+24.06	+.63	+.46		2.38	
~~moon~~	21 +.24	38 32.80		39	35.40	35.36		+25.68	+.69	+.59		2.32	
'73 May	~~28 .27 −.08~~			~~39~~	~~42.08~~	~~42.02~~			~~−.77 −.24~~				
Sept	9 −.20												
	30												
Oct	1												
	2												
	13 −.28 +.10	39 16.77		40	19.49	19.45		−14.41	−.80 +.30	−1.48		3.36	×
	14 −.15	39 57.03		40	20.14	20.10		−14.90	−.43	−1.42		3.35	×
Nov.	2 +.03			40	25.61	25.57		−22.06	+.09	−.30		3.30	×
	4 +.01	39 51.83		40	25.10	25.06		−21.59	+.03	−.18		3.32	×

1872 π² Cygni 21h 42m +48° 44′ tan δ = +1.14 1.52 sin Z −.11

Sept	28 −.13	41 16.73	43 3.50	41	57.76	57.74		+8.47	−.15	−2.11	21 42	3.95	
Oct	2 −.03	41 4.13	42 53.43	41	57.89	57.87		+8.24	−.03	−2.03		4.05	
Nov.	7												
	9												
	19 +.22	41 30.20		41	40.47	40.45		+24.06	+.25	−.84		3.92	
	21 +.24	41 14.29		41	38.89	38.87		+25.68	+.27	−.78		4.04	
	23 +.20	41 8.57		41	37.53	37.50		+27.00	+.23	−.73		4.00	
'73 Oct	13 −.28 +.10	41 53.43		42	22.54	22.52		−14.41	−.32 +.15	−1.77		6.17	×
	14 −.15	42 2.33		42	23.08	23.06		−14.90	−.17	−1.75		6.24	×
Nov.	2 +.03			42	29.51	29.49		−22.06	+.03	−1.29		6.17	×
	4 +.01	42 2.17		42	29.01	28.99		−21.59	+.01	−1.24		6.17	×

~~1873~~ 16 Pegasi ~~21h 47m~~ ~~+25° 20′~~

~~Oct 14 +.05~~

1872 Gr. 1586 S.C 21h 47m +73° 29′ tan δ = −3.37 3.52 sin Z −.90

Sept	28 −.13	44 49.72	49 19.33	46	44.00	44.05		+8.47	+.44	+.21	21 46	53.17	
Oct	2 −.03	45 30.60		46	44.93	44.99		+8.24	+.10	−.05		53.28	
Nov.	19 +.22	45 47.17		46	33.83	33.89		+24.06	−.74	−4.12		53.09	
	21 +.24	45 55.30		46	32.52	32.58		+25.68	−.81	−4.30		53.15	
'73 Oct	14 −.15	46 20.53		47	14.86	14.91		−14.90	+.51	−1.75		58.77	×
Nov.	2 +.03			47	24.23	24.29		−22.06	−.10	−3.33		58.80	×
	4 +.01	46 7.80		47	23.98	24.03		−21.59	−.03	−3.52		58.89	×
	5 +.05	46 39.90		47	23.62	23.68		−21.46	−.17	−3.61		58.44	×
	6 +.03			47	24.10	24.15		−21.32	−.10	−3.70	59.03	~~58.03~~ 59.03	×

1872 | 1872.2 16.440 A | 79 Draco 21h 51m +73° 6′ tan δ = +3.29 3.44 Sin Z = −.51

~~'72 Oct~~	~~21 +.09~~			~~51~~	~~8.90~~	~~8.85~~	~~51 17.83~~	~~+8.80~~	+.30	~~−1.39~~	21h 51m	16.56s	
Sept	23 −.12			51	11.80	11.75		+8.41	−.39	−3.09	21 51	16.68	
	28 −.13	50 7.60	52 38.23	51	11.28	11.23		+8.47	−.43	−2.86		16.41	
Oct	2 −.03	50 48.97		51	11.02	10.97		+8.24	−.10	−2.64		16.47	
	12 ~~9~~ +.04	50 29.40		51	10.93	10.88		+7.33	+.03	−2.10		16.24	
Nov.	19 +.22	50 4.45		50	51.20	51.15		+24.06	+.72	+.51		16.44	
	21 +.24	49 55.17		50	49.31	49.26		+25.68	+.79	+.66		16.89	
Nov.	23 +.20	49 35.40		50	48.07	48.01		+27.00	+.66	+.81		16.48	
'73 Oct	14 −.15	50 59.23		51	34.24	34.19		−14.90	−.49	−1.57		17.23	
	21 −.19	50 28.40		51	36.64	36.59		−17.73	−.59	−1.13		17.14	
Nov.	2 +.03	50 51.80		51	39.47	39.42		−22.06	+.10	−.32		17.14	
	4 +.01	50 56.13		51	38.94	38.89		−21.59	+.03	−.18		17.75	
	5 +.05	51 18.10		51	38.69	38.64		−21.46	+.16	−.11		17.23	
	6 +.03	49 3.07		51	38.60	38.55		−21.32	+.10	−.04		17.29	
'72 Oct.	14 +.05			51	11.68	11.63	51 18.41 A.	+6.55	+.16	−1.97		16.37	
	~~15~~			~~51~~	~~11.83~~	~~11.77~~							
	~~16~~			~~51~~	~~11.55~~	~~11.50~~							

1873.2 21h 51m 17.197s

1872.8 21 51 16.435

Tm-Ts	Circle Readings						
+42.15	44 39.95		38	58.19 + 1.0 +4	48.72 −27.2	+70° 43′	20.71″
+62.60	44 50.25			55.71 + 1.0	49.59 −27.3		19.00
+63.02	38 40.35		45	6.30 + 1.1 −1	8.82 −22.4		36.18
+23.11	38 22.90			6.13 + 1.1	7.70 −22.5		37.03
+33.27	37 12.30		46	21.58 + 1.2 −2	19.78 −26.1		36.90
+41.03	46 43.35	48 10.60	35	37.36 + .2 +7	45.01 −19.3	+48 43	3.27
+53.76	46 30.95	48 57.50		39.10 + .2	45.58 −20.2		4.68
+10.27	44 23.30		38	40.60 + .3 +4	48.72 −24.8		4.82
+24.16	44 36.85			38.56 + .3	49.59 −24.8		3.65
+28.96	44 39.90			39.68 + .3	50.11 −24.7		5.39
+29.11	38 28.35		44	51.36 + .3 −1	8.82 −21.9		20.94
+20.75	38 21.35			50.83 + .3	7.70 −22.0	21.43	~~23.43~~ 21.43
+26.84	37 11.65		46	5.66 + .4 −2	19.78 −24.4		21.88
+114.28	2 15.95	0 41.75		~~+7~~	~~45.01~~	106	48.63
+74.33	1 57.40		23	16.95 + 1.4 +7	45.58 −15.3	+73 30	~~46.53~~ 48.63
+46.66	58 10.55		26	23.18 + 2.0 +4	48.72 −25.2		48.70
+37.22	58 16.90		26	18.79 + 2.0	49.59 −25.4		44.98
+54.32	51 55.50		32	31.39 + 2.3 −1	7.70 −18.3		7.69
+73.18	50 34.25		33	48.96 + 2.5 −2	19.78 −22.9		8.78
+43.72	50 50.35			46.29 + 2.5	19.08 −23.1		6.61
+63.68	24 39.20	25 33.00	58	19.74 + .7 ~~+7~~	45.01 −18.6	+73 5	46.85
+22.05	24 53.20			21.48 + .8	45.58 −19.7		48.16
+41.22	24 48.90			19.26 + .8	47.62 −22.3		45.38
+46.75	22 14.70		1	26.42 + 1.1 +4	48.72 −27.8		48.44
+54.14	22 18.80			24.48 + 1.1	49.59 −27.8		47.37
+72.64	22 24.15			26.36 + 1.1	50.11 −27.9		49.67
+34.91	15 59.05		7	36.57 + 1.2 −1	7.70 −22.5	6	7.57
~~+68.24~~	~~15 57.75~~						~~6.43~~
+47.67	14 51.10		8	48.95 + 1.3 −2	19.42 −24.0		6.~~43~~83
+42.81	14 47.75			50.57 + 1.3 −2	19.78 −26.3		5.74
				~~49.20~~	~~19.08~~ ~~−26.6~~		
	14 46.45			49.20 + 1.3	19.86 −26.6		4.04
					72	73° 5′	47.64
					73	6	6.06

#	n	Tε		Tm								
1872	20	Pegasi		a=	21h	55m	δ= +12° 31'	tan δ = +.22		1.02	sin z +.50	
Sept.	28 -.13	54 10.47	55 21.27	54 44.99	44.98		+8.47	-.03	-2.20	21h 54m	51.22s	
Oct.	2 -.03	54 21.50		54 45.13	45.11		+8.24	-.01	-2.17		51.17	
	12 +.04	54 10.13	55 24.87	54 4600	45.98		+7.33	+.01	-2.07	51.25	~~51.23~~ 51.25	
Nov.	19 +.22	54 1053		54 2866	2865		+24.06	+.05	-1.56	51.20	~~51.40~~ 51.20	
	21 +.24	54 8.50		54 27.04	27.03		+25.68	+.05	-1.53		51.23	
	23 +.20	54 9.40		54 25.73	25.71		+27.00	+.04	-1.50		51.25	
Dec	7 +.28	54 12.37		54 33.01	32.99		+19.54	+.06	-1.34		51.25	
73 Oct	14 -.15	54 48.60		55 11.34	11.33		-14.90	-.03	-2.19		54.21	+
	21 -.19	54 57.07		55 1409	14.08		-17.73	-.04	-2.11		54.20	+
Nov	1 -.03	54 59.67		55 18.26	18.25		-22.09	-.01	-1.98		54.17	x
	2 +.03	54 59.37		55 18.17	18.16		-22.06	+.01	-1.97		54.14	x
	3 +.05	54 56.73		55 17.56	17.55		-21.46	+.01	-1.93		54.17	x
	6 +.03	55 1.63		55 17.39	17.38		-21.32	+.01	-1.92		54.15	x

#	1872 2 12.529A											
1872		α Aquarii			21h	59m	-0° 56'	tan δ = -.02		1.00	sin z +.69	
Sept	28 -.13			59 6.47	6.45		+8.47	+.00	-2.31	21 59	12.61	
Oct	14 +.05			59 8.24	8.22	59 14.69A	+6.55	+.00	-2.16		12.61	
	~~15~~			~~59 8.42~~	~~8.40~~							
	~~16~~			~~59 8.20~~	~~8.18~~							
	~~19~~											
	21 +.09			59 5.83	5.81	14.60A	+8.80	+00	-2.07		12.54	
	29											
Nov.	19 +.22	58 27.43		58 5023	5021		+24.06	+00	-1.72		12.55	
	21 +.24	58 29.17		58 48.57	48.56		+25.68	+00	-1.70		12.54	
	23 +.20	58 30.83		58 47.24	47.22		+27.00	+00	-1.67		12.55	
	27 ~~+.24~~											
Dec	7 +.28	59 1.10		58 54.54	54.53		+19.54	∓.01	-1.52		12.54	
73 Sept	9 ~~+.30~~											
Oct.	1											
	2											
	14 -.15	59 12.95		59 32.94	32.92		-14.90	+00	-2.38		15.64	+
	21 -.19	59 30.00		59 35.74	35.72		-17.74	+00	-2.30		15.68	x
Nov.	1 -.03	59 14.93		59 39.90	39.89		-22.09	+00	-2.17		15.63	x
	2 +.03	59 19.03		59 39.87	39.86		-22.06	+00	-2.16		15.64	x
	4 +.01			59 39.44	39.42	59 17.74A.	-21.59	+00	-2.13		15.70	
	5 +.05	59 19.70		59 39.27	39.26		-21.46	+00	-2.18		15.69	+
	6 +.03	59 54.77		59 39.04	39.02		-21.32	+00	-2.10		15.60	x
	1873 2 15.613A.											

#	1872 2 3.157											
1872		ν Pegasi			22h	1m	+24° 44'	tan δ = +.46		1.10		
Oct	14 +.05			0 5865	5863	1 5.15	+6.55	+.02	-1.99	22 1	3.21	
	~~15~~			~~0 58.83~~	~~58.81~~							
	~~16~~			~~0 58.64~~	~~58.62~~							
	~~19~~											
	21 +.09			0 5631	5629	5.06	+8.80	+.04	-1.90		3.23	
	~~29~~			~~0 52.23~~	~~52.21~~							

#												
1872		20 Cephei			22h	1m	+62° 9'	tan δ = +1.89		2.14	sin z -.34	
Sept	28 -.13	59 45.30	1 1.73	1 1.30	1.27		+8.47	-.25	-2.46	22 1	7.03	
Oct	2 -.03	0 23.63		1 1.46	1.42		+8.24	-.06	-2.15		7.45	
	12 +.04	0 36.97		1 1.81	1.78		+7.33	+.08	-2.06		7.13	
Nov.	19 +.22	0 26.77		0 4330	4327		+24.06	+.42	-.59		7.16	
	21 +.24	0 28.57		0 41.61	41.58		+25.68	+.45	-.51		7.20	
	23 +.20	0 10.73		0 4028	4025		+27.00	+.38	-.43		7.20	
Dec	7 +.28	0 17.57		0 47.13	47.10		+19.54	+.53	+.13		7.30	
73 Oct	14 -.15	0 49.23		1 26.13	26.10		-14.90	-.28	-1.83		9.09	x
Nov.	5 +.05	1 41.77		1 31.47	31.43		-21.46	+.09	-1.02		9.04	x
	9 +.05	1 13.43		1 30.92	30.89		-21.14	+.09	-.86		8.98	x

Tm	−Tσ	Circle Readings							
+34.52		58 35.30 59	1.45	22	5790 − 7 +7	45.01	−154	+12° 30	26.81 ~~25.81~~ 26.81
+23.63		58 48.60			5764 − 7	45.58	−157		26.82
+35.87		58 34.90 59	5.15		5559 − 7	47.62	−162		26.31
+18.13		56 41.90		25	5505 − 1.1 +4	48.72	−160	26.67	~~27.67~~ 26.67
+18.54		56 42.30			5551 − 1.1	49.59	−159		28.10
+16.33		56 40.35			5409 − 1.1	50.11	−157		27.40
+20.64		56 47.75				49.79	−148		
+22.74		50 33.95		32	10.11 − 12 −1	7.70	−161		45.11
+17.02		49 15.20		33	21.74 − 12 −2	19.47	−164		44.67
+18.59		49 15.60			2093 − 12 −½	19.40	−164		43.93
+18.80		49 16.35			2097 − 12	19.42	−164		43.95
+20.83		49 18.40			2061 − 12 −2	19.08	−162		44.13
+15.76		49 9.55			2308 − 12	19.86	−162		45.82
+22.80		23 24.55		1	234 − 16 +4	48.72	−11.5	− 0 56	26.72
+19.40		23 20.85			255 − 16	49.59	−11.4		25.76
+16.41		23 18.90			545 − 16	50.11	−11.3		28.24
−6.56		22 49.25				49.79			
+19.99		17 7.70		54	4750 − 16 −1	7.70	−129	56	9.70
+5.94		15 37.50		53	3517 − 17 −2	19.47	−128		9.14
+21.97		15 57.00			3722 − 18 −½	19.40	−125		10.92
+20.84		15 55.95			3611 − 17	19.42	−125		9.73
+19.57		15 52.90			3617 − 18 −2	19.08	−123		9.35
−15.73		15 6.05			3535 − 17	19.86	−123		9.21
+76.00		20 9.50 21	30.35	2	1430 + 4 +7	45.01	−19.1	+62 9	40.61
+39.82		20 32.90			1414 + 4	45.58	−19.3		40.82
+24.84		20 39.60			1568 + .5	47.62	−21.8		42.00
+16.53		18 0.75		5	1892 + .8 +4	48.72	−27.3		41.14
+13.04		18 0.25			1690 + .8	49.59	−27.3	39.99	~~40.99~~ 39.99
+29.55		18 8.65			1876 + .8	50.11	−27.3		42.37
+29.56		18 10.35				49.79			
+36.90		12 3.05		11	2805 + .8 −1	7.70	−22.8		58.35
−10.30		10 19.30		12	4318 + .9 −2	19.08	−26.3		58.70
+17.49		10 33.55			4637 + .9	20.54	−26.8		59.93

w Tσ Tm T

1872 # 2 44.569 ϑ Pegasi d 22h 4m +5° 35′ tan δ = +.10 1.00

Oct	14 +.05			3	40.16	40.14	8 46.71	+6.55	+.00	−2.14	22 3	44.55		
	15			3	~~40.34~~									
	16			3	~~40.22~~	~~40.22~~								
	19−			3	~~38.94~~	~~38.92~~								
	21 +.09								~~+.01~~					
	29			3	~~33.86~~	33.84								

# π¹ (π² = π̄) Pegasi 22h 4m +32° 34′ tan δ = ~~+1.89~~ +.64 1.19 sin z +.17

1872 Sept	23 ~~+.11~~ −.12 π²			4	12.16	12.14		+8.40	−.08	−2.23	22h 4m	18.23		
Oct.	2 +.03 π¹)	2 47.00		3	27.34	27.32		+8.24	−.02	−2.13	3	33.41 — π¹		+403
	12 +.04 π¹)	3 11.90		3	28.12	28.10		+7.34	+.03	−2.01		33.46 —		+16.2
	23 π²													
Nov.	6 π²													
	19 +.22 π¹)	2 46.07		3	10.62	10.60		+24.06	+.14	−1.36		33.44 —		+24.5
	21 +.24 π¹)	2 50.20		3	8.93	8.91		+25.68	+.15	−1.33		33.41 —		+16.
	21 +.24 π²			3	53.76	53.74		+25.68	+.15	−1.33	4	18.24		
	23 +.29 π¹),	2 44.17		3	7.64	7.62		+27.00	+.13	−1.29	3	33.46 —		+23.4
Dec	7 +.28 π¹	3 0.40		3	14.88	14.86		+19.54	+.18	−1.06		33.52 —		+14.
	7 +.28 π²	3 36.14		3	59.70	59.68		+19.54	+.18	−1.06	4	18.34		+23.3
73 Oct	14 −.15 π¹)	3 29.60		3	53.26	53.24		−14.90	−.10	−2.06	3	36.18 —		+23.6
Nov.	5 +.05 π¹	4 9.50		3	59.18	59.16		−21.46	+.03	−1.71	2097	36.02 —	×	−10.3
	5 +.05	4 44.60		4	44.13	44.11		−21.46	+.03	−1.71	4	~~20.97~~ 20.97	×	−0.4
	6 +.03 π¹,	3 40.27		3	59.18	59.16		−21.33	+.02	−1.69	3	36.16 —	×	+18.9
	6 +.03 π₂,			4	44.01	43.99		−21.33	+.02	−1.69	4	20.99	×	
	9 +.05 π	4 0.60		3	58.83	58.81		−21.14	+.03	−1.64	3	36.06 —	×	−1.7
	9 +.05 π₂	4 36.10		4	43.64	43.63		−21.14	+.03	−1.64	4	20.88	×	+7.5

π¹ 1872.8 22h 3m 33.450 (6)

.73.8 3 36.105 (4)

# 1872 ξ Cephei 22h 7m +57° 35′ tan δ =

Oct	12 ~~+.04~~
	13
	16
	17
	22
	23
Nov.	6
	9
	19 ~~+.22~~
	22
'73 May	26
Sept.	9 ~~+.30~~
Oct	1

# 1872 24 Cephei 22h 7m +71° 44′ tan δ = +3.02 3.18 sin z −.49

Sept	23 −.12			7[8]	15.91	15.86		+8.40	−.36	−3.19	22 7	20.71 44		
	28 −.13			7	15.41	15.36		+8.47	−.39	−3.00		20.[illegible]		
Oct	2 −.03	5 32.00	9 19.23	7	15.26	15.22		+8.24	−.09	−2.83		20.54		+103
	~~17~~													
Nov	17 +.22	6 24.40		6	57.51	57.46		+22.62	+.66	−.22		20.52		+33.
Nov.	19 +.22	5 41.63		6	55.91	55.86		+24.07	+.66	−.09		20.50		+74.
	20 +.17	6 38.20		6	55.29	55.24		+24.82	+.51	−.02		20.55		+17.
	21 +.24	6 11.60		6	54.21	54.17		+25.68	+.72	+.05		20.62		+42.
	23 +.20	5 50.45		6	52.84	52.80		+27.00	+.60	+.18		20.58		+62.
Dec	1													
	7 +.28	6 19.03		6	59.11	59.06		+19.54	+.85	+1.09		20.54		+40.0
73 Oct	14 ~~.15~~													
	21 −.19	7 8.47		7	41.54	41.50		−17.74	−.57	−1.54		21.65	+	+33.
Nov.	5 +.05	6 44.10		7	43.63	43.59		−21.46	+.15	−.65		21.63	×	+59.
	6 +.03	7 18.40		7	43.56	43.50		−21.33	+.09	−.58		21.68	×	~~+25.~~
	9 +.05	7 19.57		7	43.13	43.08		−21.14	+.15	−.39		21.70	×	+23.

	Tm – Ts	Circle Readings									
	+40.34	56 31.00	57 53.85	25	2471 –.2 +7	45.58	–18.7	+32	32	51.39	π′
	+16.22	56 57.25			2367 –.3	47.62	–20.1			50.89	π′
	+24.55	54 39.90		28	2471 –.4 +4	48.72	–22.3			50.73	π′
	+16.73	54 34.80			23.28 –.4	49.59	–22.2			50.27	π′
	+23.47	54 40.80			2226 –.4	50.11	–22.1			49.87	π′
	+14.48	54 29.80			2240 –.4	49.79	–21.3			50.49	π′
	+23.53	54 29.80			3272 –.4	49.79	–21.3		33	0.81	
	+23.65	48 26.10		34	3780 –.4 –1	7.70	–20.4			9.30	π′
×	–10.32	46 34.35		35	5174 –.5 –2	19.08	–22.3			9.86	π′
×	–0.47	46 34.35		36	260 –.5 –2	19.08	–22.3			20.72	
×	+18.91	47 7.50		35	5056 –.4 –2	19.86	–22.3			8.00	π′
×											
×	–1.77	46 42.65		35	53.18 –.5	20.54	–22.4			9.74	π′
×	+7.54	46 42.65		36	3.42 –.5	20.54	–22.4			19.98	

π′ 72 32° 32′ 50″.51 (6)
6
73 33′ 9.22 (4)

+103.24	47 27.00	48 55.00	35	13.62 +.7 +7	45.58	–19.5	+71	42	40.40
+33.11	45 19.10		38	1675 +1.0 +4	50.86	–28.3			40.31
+74.28	45 33.40			1807 +1.0	48.72	–28.4			39.39
+17.09	45 10.35			1865 +1.1	49.69	–28.5			40.94
+42.61	45 23.20			1649 +1.1	49.59	–28.5			38.68
+62.39	45 28.45			1823 +1.1	50.11	–28.6			40.84
+40.08	45 22.15			17.96 +1.1	49.79	–28.6			40.25
+33.07	37 54.85		45	3856 +1.2 –2	19.47	–24.2			56.09
+59.53	38 4.80			4065 +1.3	19.08	–27.0			55.87
+25.15	37 50.15			4180 +1.2	19.86	–27.1		56.04	~~56.14~~ 56.04
+23.56	37 46.15			4401 +1.3	20.54	–27.5			57.27

	n	T_s		T'_m									
# 1872	1872 4.679 #	θ Aquarii			α	22 h	10 m	δ = −8° 25′	tan δ = −.15	1.01	sin z ± .77		
Sept	28 −.13	10 18.50		9	58.66	58.64			+ 8.47	+ .02	−2.43	22h 10	4.70⁵
Oct	14 +.05			10	0.51	0.49	10 6.97 A.		+ 6.55	+ .00	−2.29		4.75
	~~15~~			~~10~~	~~0.62~~	~~0.60~~							
	~~19~~												
	~~29~~			~~9~~	~~54.14~~	~~54.12~~							
Nov.	17 +.22	9 27.57		9	44.00	43.98			+22.63	− .03	−1.89		4.69
	19 +.22	9 23.20		9	42.54	42.53			+24.07	− .03	−1.86	4.71	~~4.61~~ 4.71
	23 +.20	9 54.50		9	39.61	39.59			+27.00	− .03	−1.81		4.75
Dec	7 +.28	9 36.80		9	46.89	46.88			+19.53	− .04	−1.66		4.71
'73 Nov.	3 +.05	10 11.93		10	31.58	31.57			−21.46	− .01	−2.28		7.82 +
		Br.	3785	X		22 h	11 m	+75° 50′	tan δ = +3.96		sin z = −.55		
											1873	22h 11m	11.017s
1873 Nov.	~~4 +.01~~												
	5 +.05	11 57.97		11	32.70	32.64			−21.46	+.20	−0.40	22 11	10.98
	6 +.03	10 30.80		11	32.56	32.49			−21.33	+.12	−0.31	13 h m s	10.97
	9 +.05	11 46.40		11	32.13	32.07			−21.134	+.20	−0.03	22 ~~11 11.017~~	11.10
1872		Lal.	4097			22 h	13 m	+~~66~~ 65° ~~4~~ 29	tan. δ = ~~+2.25~~ 219		sin z = −.4039		
Sept.	28 −.13	13 33.20		13	20.86	20.82			+ 8.48	+.298	−2.770	22 13	26.382
Nov.	17 +.22			13	4.09	4.05			+22.63	~~+.51~~ 048	−0.702		26.~~48~~ 44
	19 +.22	12 49.80		13	2.58	2.54			+24.07	~~+.51~~ 0 48	−0.683		26.~~50~~ 46
	20 +.17	12 32.30		13	1.94	1.91			+24.82	~~+.39~~ 37	−0.588		26.~~55~~ 52
	23 +.20	12 17.27		12	59.52	59.48			+27.00	~~+.46~~ 544	−0.413		26.~~53~~ 49
Dec.	7 +.28	12 37.20		13	6.30	6.26			+ 19.53	~~+.64~~ 61	+0.264		26.~~68~~ 64
										72		22h 13m	26.~~50~~.5 477
1873		Lal	4097 ~~4123~~	X		22 h	13 m	+~~66~~ 65° ~~4~~ 29′	tan δ ~~+2.25~~ 2.19		sin z = −~~.40~~ .39		
Oct.	5 −.19	12 57.20		13	40.97	40.93			− 9.91	−.482	−2.~~30~~ 28	22 13	28.29 33
Nov	5 +.05	13 31.83		13	50.80	50.76			−21.46	+ 11	−1.078		28.3~~4~~ 3
	6 +.03	13 30.83		13	50.50	50.46			−21.33	+ 07	−1.023		28.19 7
	9 +.05	13 18.80		13	50.29	50.25			−21.14	+.11	−0.~~88~~ 90		28.3~~8~~ 2
										73		22h 13m	28.2~~90~~ 88
# 1872	1872 2 2.658	ν Aquarii				22 h	15 m	−2° 1′	tan δ = −.03	1.00	~~sin z +.51~~		
Oct.	14 +.05			14	58.39	58.37	15 4.90		+ 6.55	+.00	−2.24	22 15	2.68
	~~16~~												
	~~19~~			~~14~~	~~57.11~~	~~57.09~~							
	~~21 +.09~~									+00			
	~~28~~			~~14~~	~~52.84~~	52.82							
	~~29~~			~~15~~	~~4.14~~								
'73 Oct	14 −.15									+.00			
# 1872		31 Pegasi				22 h	15 m	+11° 35′	tan δ = +.20	1.02	sin z +.51		
Sept.	23 −.12			15	7.04	7.03			+8.39	− .02	−2.31	22 15	13.09
Oct	2 −.03	14 35.13	15 43.00	15	7.14	7.13			+8.24	− .01	−2.25		13.11
Nov.	4 +.09	14 41.73		14	58.66	58.65			+16.38	+ .02	−1.89		13.16
	17 +.22	14 32.43		14	52.19	52.18			+22.63	+ .04	−1.73		13.12
	20 +.17	14 35.07		14	49.96	49.94			+24.82	+ .03	−1.68		13.11
	23 +.20	14 23.03		14	47.72	47.70			+27.00	+ .04	−1.64		13.10
Dec.	7 ~~+.28~~												
'73 Oct.	3 −.19	15 6.10		15	28.40	28.38			−9.91	− .04	−2.38		16.05 +
Nov.	3 +.01	15 50.10		15	39.94	39.92			−21.75	+ .00	−2.05		16.12 +
	5 +.05	15 19.50		15	39.61	39.59			−21.46	+ .01	−2.03		16.11 +
	6 +.03	15 25.47		15	39.44	39.43			−21.33	+ .01	−2.02		16.09 +
	9 +.05	15 22.57		15	39.14	39.13			−21.14	+ .01	−1.98		16.02 +

Tm − Tδ	Circle Readings						
−19.84	54 45.05		32	4317 − 11 +7	45.08 −119	− 8 25	11.16
+16.43	51 47.10		29	5204 − 17 +4	50.86 −96		1248 12.48
+19.34	51 50.40			5043 − 18	48.72 −94		12.91
−19.89	52 1.25			5233 − 18	~~49.69~~ 50.11 −92		13.22
+10.09	51 39.45			5318 − 18	49.79 −83		13.49
+19.65	44 22.05		22	2323 − 19 −2	19.08 −103	24	54.51
−25.27	30 43.45		52	36.23 + 1,4 −2	19.08 −27.03	+ 75 49	51.52
+61.75	31 10.15			38.18 3 +1,4	19.86 −27.18		52,5~~4~~ 49
−14.27	30 43.60			38.51 +1,4	20.54 −27.02		52.35
					' 73	75° 49'	52".12
−12.34	1 26.60		21	52.53 + .5 +7	45.01 −18.~~47~~ 52	, 66 29.7	19,5~~7~~2
							~~17.72~~
+12.78	58 24.05		24	56.85 +.9 +4	48.72 −28.25 1		17.~~72~~ 68
+29.64	58 32.80			56.41 +.9	49.69 −28.29 7		18.~~71~~ 69
+42.25	58 39.30			56.28 +.9	50.11 −28.42 38		18.8~~7~~3
+29.10	58 32.00			57.21 +.9	49.79 −29.05 1		18.8~~5~~1
					' 72	~~66~~° 65 29'	18".7~~7~~1
+43.77	52 30.25		31	4.96 + .9 −1	8.54 −20.4~~4~~8	65 66 29	36.8~~8~~4
+18.97	51 2.30		32	21.64 +1.0 −2	19.08 −26.98		36.58
+19.67	51 1.80			22.56 +1.0	19.86 −27.11		36.59
+31.49	51 5.90			23.69 +1.0	20.54 −27.49		36.66
					' 73	~~66~~° 65 29'	36".6~~8~~7
							~~38.24~~
+32.01	55 23.85 56	47.20	26	1036 − 7 +7	45.58 −16.0	+ 11 33	39.24
+16.93	53 29.25		29	432 − 10 +4	52.69 −17.0		39.01
+19.76	53 31.15			591 − 11 +4	50.86 −16.7		38.97
+14.88	53 25.25			607 − 12	49.69 −16.5		38.06
+24.69	53 38.05			554 − 11	50.11 −16.4		38.15
+22.30	47 19.45		35	2364 − 12 −1	8.54 −16.5		57.40
−10.16	45 24.55		36	3524 − 13 −2	18.58 −17.1		58.26
+20.11	46 2.25			3540 − 13 −2	19.08 −17.1		57.92
+13.97	45 54.50			3515 − 13	19.86 −17.1		56.89
+16.57	45 57.65			3653 − 13	20.54 −17.0		57.69

#	n	Ts		Tm						
1872	3	Lacertae		α	22h	19m	δ + 51° 36′	tan δ = + 1.26	1.61	sin z − .16
Sept	23 −.12			18 26.10	26.08	+8.39	− .15	−2.45	22h 18m	31.87^{5}
	28 −.13	18 4.00		18 25.81	25.79	+8.48	− .16	−2.39		31.72
Oct	14 +.05									
Nov	4 +.09	17 40.60		18 16.91	16.89	+16.38	+ .11	−1.58		31.80
	17 +.22	17 40.20		18 10.14	10.11	+22.63	+ .28	−1.25		31.77
	20 +.17	17 47.20		18 7.90	7.88	+24.83	+ .21	−1.17		31.75
	23 +.20	17 46.07		18 5.64	5.61	+27.00	+ .25	−1.09		31.77
Dec.	7 +.28	17 48.13		18 12.57	12.57	+19.53	+ .35	−.71	31.74	~~31.44~~ 31.74
73 Oct	5 −.19	18 15.37		18 46.54	46.52	−9.91	− .24	−2.22		34.15 ×
Nov	3 +.01	18 31.27		18 57.44	57.42	−21.75	+ .01	−1.59		34.09 ×
	5 +.05	18 22.30		18 57.14	57.11	−21.46	+ .06	−1.54		34.17 ×
	6 +.03	18 23.50		18 56.96	56.94	−21.33	+ .04	−1.51		34.14 ×
	9 +.05	18 28.13		18 56.59	56.57	−21.14	+ .06	−1.43		34.06 ×

b Ae Min = B ~~λ~~ 2997

1872	78	54 Mrs	Min ½	α =	22h	23m	δ = + 85° 21′	tan δ = +12.93 + 13.15		sin z = .68
Sept.	23 −.12			23 39.78	39.59	+8.39	− 1.55	−9.38	22 23	37.05
Oct	2 −.03	21 0.00		23 37.38	37.19	+8.24	− .39	−7.99		37.05
Nov	20 +.17	20 14.80		23 6.14	5.95	+24.83	+ 2.20	+3.81		36.79
Dec.	7 +.28	22 0.10		23 4.12	3.93	+19.53	+ 3.62	+8.77		35.85
73 Nov	3 +.01	21 48.27		23 53.22	53.03	−21.75	+ .13	+1.20		~~32.61~~
	5 +.05	23 27.30		23 52.81	52.62	−21.46	+ .6×6	+1.72		33.~~47~~.54
	9 +.05	22 58.30		23 51.19	51.00	−21.14	+ .6×6	+2.~~40~~ .80		~~32.87~~ 33.32
								'72	22h 23m	36.685s
								73	23	~~32.82~~3 33.157

# 1872	1872/2 9.037	g. H Draconis Sc.			22h	24m	103° 38′	tan δ = − 4.13 − 4.25		sin z = −.88
Nov.	4 +.09	22 52.83		23 54.61	54.68	+16.38	− .37	−1.80	22 24	8.89
	17 +.22	24 23.10		23 50.45	50.52	+22.64	− .91	−3.16		9.09
	23 +.20	23 6.73		23 46.46	46.52	+27.00	− .83	−3.82		8.87
'73 Oct	5 ~~−.19~~ Rej									
	28 −.02 −.10	25 8.30		24 37.47	37.53	−21.68	+ .08 + .42	−2.08		14.27 ×
Nov.	3 +.01	25 37.30		24 38.73	38.80	−21.75	− .04	−2.66		14.35 ×
	5 +.05	25 10.07		24 38.80	38.86	−21.46	− .21	−2.87		14.32 ×
	6 +.03	24 57.00		24 38.52	38.58	−21.33	− .12	−2.97		14.16 ×
	9 +.05	25 25.70		24 38.73	38.80	−21.14	− .21	−3.26		14.19 ×
'72 Oct.	14 +.05			24 2.27	2.33	24 9.03	+6.54 − .21	+.01		8.67
	~~15~~			~~24 2.83~~	~~2.88~~					
	~~19~~			~~24 1.67~~	~~1.73~~					
	21 +.09			24 0.80	0.86	9.53	+8.81 − .37	−.49		8.81
	~~28~~			~~23 58.49~~	~~58.55~~					

# 1872	~~29~~	δ Cephei		~~23 57.29~~	~~57.35~~ 22h	25m	+ 57° 47′	− .21		
Oct	14 +.05									

# 1872		7 Lacertae			22h	26m	+ 49° 37′	tan δ = + 1.18	1.54	sin z −.13
Sept	28 −.13	25 56.00		25 55.42	55.40	+8.48	− .15	−2.42	22 26	1.31
Nov	4 +.09	25 22.03		25 46.44	46.42	+16.37	+ .11	−1.69		1.21
	20 +.17	25 11.73		25 37.63	37.60	+24.83	+ .20	−1.31		1.32
	23 +.20	24 52.57		25 25.73	25.70	+27.00	+ .22	−1.23	25	51.69
73 Oct	5 −.19	25 50.53		26 16.21	16.19	−9.91	− .22	−2.29	26	3.77 ×
	22 −.18	26 4.60		26 24.21	24.19	−18.23	− .21	−1.98		3.77 ×
	28 −.02 −.10	26 3.47		26 27.52	27.50	−21.68	− .02 − .15	−1.86		3.79 ×
Nov.	3 +.01	26 42.97		26 27.25	27.23	−21.75	+ .01	−1.71		3.78 ×
	5 +.05	26 31.45		26 26.79	26.77	−21.46	+ .06	−1.66		3.71 +
	6 +.03	26 19.00		26 26.68	26.66	−21.33	+ .04	−1.64		3.73 +

Tm − Tʹs	Circle Readings					
+21.81	54 50.65	27	50.03 + .3 +7	45.01 −18.6	+51° 35′	16.74″
+36.31	52 36.85	30	50.25 + 3 +4	52.69 −25.5		17.74
+29.94	52 28.35		53.72 + 4	50.86 −26.5		18.48
+20.40	52 19.40		54.88 + 4	49.69 −26.4		18.57
+19.54	52 19.30		54.27 + 4	50.11 −26.4		18.38
+24.46	52 23.80		53.63 + 4	49.79 −26.4		17.42
+31.17	46 19.10	37	3.42 + .4 −1	8.54 −20.4		34.88
+26.14	45 59.10		19.73 + .4 −2	18.58 −25.7		35.85
+34.84	45 5.70	38	20.40 + .4 −2	19.08 −25.8		35.92
+33.46	45 3.90		21.10 + .4	19.86 −25.9		35.74
+28.46	44 58.20		21.73 + .4	20.54 −26.2		35.39
+152.38	56 19.30	27	7.12	+1.0 +7 45.58 −17.62	85 34	36.08
+71.34	53 46.55	30	14.27	+1.6 +4 49.69 −28.91		36.65
+64.02	53 36.80		14.89	+1.6 49.79 −29.86		36.42
~~+64.95~~ 124.95	46 16.55	37	40.05 ~~33.86~~	+1.87 −2 18.58 −26.43	56.74	~~50.~~55
+3~~4.49~~ 25.51	46 9.05		~~32.26~~ 38.49	+1.87 19.08 −26.83	54.28	~~47.94~~ ~~48.64~~
+52.89	46 6.65		41.77	+ 1.7 20.54 −27.56	55.37	
					85° 34′	36.38″
					34′	55.46″
+61.78	51 6.80	33	13.57 + 1.8 +4	52.69 −24.3	+103 37	43.76
−32.65	51 31.50		17.36 + 20	50.86 −26.8		43.42
+39.72	51 4.15		21.21 + 20	50.11 −27.6		45.72
−30.83	44 1.25	40	42.26 + 23 −2	20.31 −22.7	38	1.55
−58.57	44 10.80		42.63 + 23 −2	18.58 −24.1		2.25
−31.27	44 4.25		42.86 + 23 −2	19.08 −24.6		1.48
−18.48	44 0.60		42.75 + 23	19.86 −24.9		0.29
−46.90	44 2.80			20.54		
−0.58	52 53.20	30	2.87 + .2 +7	45.01 −18.6	+49 37	29.48
+24.41	50 13.65	33	2.88 + .3 +4	52.69 −25.6		30.27
+25.90	50 10.90		6.80 + .3	49.69 −26.7		30.09
+33.16	45 17.55		4.91 + .3	50.11 −26.7		28.62
+25.68	44 0.65	39	16.35 + .3 −1	8.54 −20.5		47.61
+19.61	42 40.05	40	31.95 + .4 −2	19.42 −23.9		49.03
+24.05	42 42.10		33.60 + .4 −2	20.31 −24.9		48.79
−15.42	42 9.95		32.10 + .4	18.58 −25.7		48.22
−4.66	42 18.40		33.17 + .4 −2	19.08 −25.9		48.59
+7.68	42 28.80		33.15 + .4	19.86 −26.0		47.69

	n	Ts		Tm									T
# 1872	η	Aquarii		α =	22h	29m	δ = −0°	46'	tan δ = −.01	1.00			
Sept	19												
Oct	12 ~~+.04~~												
	19			~~28 41.19~~	~~41.17~~								
	28			~~28 36.95~~	~~36.93~~								
Nov.	2												
73 Sept	30												
Oct	1												

X

1872		226	B. Cephei		22h	30m	+75°	34'	tan δ = +	3.89	3.98	R sin Z = −.55	
Sept	23 −.12			29 57.20	57.14			+8.38	−.47		−4.01	22 30	1.04	
	28 −.13	29 1.17		29 56.84	56.78			+8.48	−.57		−3.81		0.94	+55.6
Nov	4 +.09	29 28.00		29 45.64	45.58			+16.37	+.35		−1.54		0.76	+47.6
	16 +.15	29 23.00		29 39.21	39.15			+21.96	+.58		−0.59		1.10	+16.2
	17 +.22	29 10.87		29 34.92	34.86			+22.694	+.86		−0.51		0.85	+27.0
	20 +.17	28 17.30		29 35.76	35.69			+24.83	+.66		−0.26		0.92	+78.4
Dec	7 +.28	28 47.40		29 38.88	38.82			+19.53	+1.09		+1.19		0.63	+57.4
'73 Oct	5 −.19	29 15.03		30 15.72	15.66			−9.91	−.74		−3.07		1.94	+60.6
	8 −.18	29 16.50		30 17.33	17.27			−11.87	−.70		−2.83		1.87	+60.8
	22 −.18	29 10.03		30 22.86	22.79			−18.23	−.70		−1.97		1.89	+42
	28 −.02 −.10	29 55.77		30 25.62	25.56			−21.69	−.08	−.40	−1.56		1.83	+29.
Nov.	3 +.01	29 17.73		30 25.27	25.21			−21.75	+.04		−1.12		2.38	+67.
	9 +.05	30 0.37		30 23.67	23.61			−21.13	+.19		−0.66		2.01	+18.
	10 +.09 −.05	29 18.17		30 23.24	23.18			−20.90	+.35	−.20	−0.58		1.85	+65.
'72 Oct	14 +.05			30 57.30	57.24 30	4.06 A		+6.54	+.19		−2.97		1.00	
	21 +.09			30 54.42	54.36	3.64 A		+8.81	+.35		−2.54		0.98	
	~~29~~			~~29 50.30~~	~~50.24~~									
	1872 m 30 10.93 A									'72.8	22h 30m	0s.913(9)	
										'73.8	30	1.96~~7~~4	

# 1872		31	Cephei		22h	32m	+72°	59'	tan δ = +	3.27	3.42	R sin Z	−.51	
Sept	23 −.12			32 31.84	31.79			+8.38	−.39		−3.68	22h 32m	36.10s	
Nov.	4 +.09	31 45.33		32 21.29	21.24			+16.37	+.29		−1.67		36.23	+35.9
	16 +.15	31 39.90		32 14.89	14.84			+21.96	+.49		−.89	36.40	~~36.36~~ 36.40	+34.9
	17 +.22	31 34.53		32 13.78	13.73			+22.64	+.72		−.82		36.27	+39.2
	20 +.17	31 31.82		32 11.42	11.37			+24.83	+.66		−.62		36.54	+39.6
Dec	7 +.28	31 28.23		32 15.22	15.17			+19.53	+.92		+.57		36.19	+46.9
73 Oct	5 −.19	32 6.23		32 51.26	51.20			−9.91	−.62		−2.86		37.81 +	+45.0
	8 −.18	32 0.40		32 53.14	53.09			−11.87	−.59		−2.73		37.90 ×	+52.
	~~14 −.15~~								−.49					
	22 −.18	32 35.53		32 58.59	58.54			−18.23	−.59		−2.05		37.67 +	+23.0
	28 −.02 −.10	32 11.27		33 1.80	1.75			−21.69	−.07	−.34	−1.71		37.94 ×	+50.
Nov.	3 +.01	32 13.43		33 1.09	1.04			−21.75	+.03		−1.36		37.96 +	+47.
	9 +.05	32 17.73		32 59.88	59.83			−21.14	+.16		−.96		37.89 ×	+42.
	10 +.09 −.05	34 34.93		32 59.44	59.39			−20.90	+.29	−.17	−.91	37.70	~~37.45~~ 37.70 ×	+24.

1872 ~~10 Lacertae 22h 34m +38° 24'~~

~~Sept~~ ~~19~~

= worked as non-fundamental

# 1872		30	Cephei X		22h	34m	+62°	55'	tan δ = +	1.95	2.20	R sin Z	−.35	
Sept	28 ~~−.13~~													
Nov	4 +.09	33 29.90		33 51.94	51.91			+16.37	+ ~~.25~~ .18		−1.71	22 34	6.75	+22.0
	16 +.15	33 32.53		33 45.92	45.89			+21.96	+.29		−1.25		6.89	+13.3
	17 +.22	33 16.80		33 45.17	45.13			+22.65	+.43		−1.21		7.00	+28.3
73 Oct	5 −.19	33 50.63		34 21.77	21.73			−9.91	−.37		−2.48		8.97	+31.1
	8 −.18	33 41.10		34 23.64	23.61			−11.87	−.35		−2.41		8.98	+42.3
	22 −.18	34 5.33		34 29.60	29.57			−18.23	−.35		−2.01		8.98	+24.
	28 −.02 −.10	33 44.33		34 32.82	32.79			−21.69	−.04	−.22	−1.81		9.03	+48.
Nov.	3 +.01	33 50.13		34 32.51	32.48			−21.75	+.02		−1.60		9.15	+42
	9 +.05	34 2.43		34 31.40	31.37			−21.14	+.10		−1.38		8.95	+28.
	10 +.09 −.05	34 17.80		34 31.13	31.10			−20.90	+.18	−.11	−1.34		8.93	+13.
										72	22h 34m	6s.880		
										73	34	8.~~856~~984		

Tm − Tʋ	Circle Readings.								
+55.67	56 35.35	26	33.13	+.8	+7	45.01	−17.15	+75 34	1.79
+17.64	54 0.10	29	33.29	+.11	+4	52.69	−26.99		0.09
+16.21	53 56.35		36.27	+1.2		51.76	−28.81		0.42
+27.05	53 59.30		37.26	+1.2		50.86	−28.94		0.388
+78.45	54 12.65		39.40	+1.2		49.69	−29.24		1.05
+57.48	54 3.95		40.05	+1.3		49.79	−30.00		1.184
+60.69	47 58.60	35	45.96	+1.3	−1	8.54	−19.57		19.15
+60.83	47 59.10		46.05	+1.3		8.43	−20.49		18.43
+42.82	46 47.40	37	1.98	+1.3	−2	19.42	−24.38		19.48
+29.85	46 32.05		3.91	+1.3		20.31	−25.79		19.11
+67.54	46 44.65		3.62	+1.4	−2	18.58	−27.05		19.39
+18.30	46 25.20		7.08	+1.4	−2	20.54	−28.11		19.83
+65.07	46 41.70		6.55	+1.4	−2	19.77	−28.26		19.92

75° 34′ 0.″81
34 19.33

+35.96	29 20.65	54	16.79	+1.0	+4	52.69	−27.2	+72° 58′	43.″28
+34.99	29 16.20		20.56	+1.1		51.76	−28.8		44.62
+39.25	29 18.45		20.34	+1.1		50.86	−28.9		43.40
+39.60	29 15.35		23.11	+1.1		49.69	−29.2		44.70
+46.99	29 18.35		24.56	+1.2		49.79	−30.0		45.55
+43.02	23 9.20	0	29.45	+1.2	−1	8.54	−19.8	59	2.31
+52.74	23 11.95		30.01	+1.2		8.43	−20.7		2.08
+23.06	21 46.85	1	44.59	+1.3	−2	19.42	−24.6		1.87
+50.53	21 53.95		47.64	+1.3	−2	20.31	−26.0		2.63
+47.36	21 54.45		46.43	+1.3	−2	18.58	−27.2	1.95	~~0.95~~ 1.95
+42.15	21 48.55		49.87	+1.3	−2	20.54	−28.2		2.43
+24.31	21 43.95		49.19	+1.3	−2	19.77	−28.4		2.32

+22.04	32 40.60	50	43.32	+.7	+4	52.69	−26.8	+62 55	9.91
+13.39	32 31.90		46.72	+.8		51.76	−28.3		10.98
+28.37	32 41.45		46.21	+.8		50.86	−28.4		9.47
+31.14	26 31.20	56	56.63	+.8	−1	8.54	−20.2		28.69
+42.54	26 38.05		56.67	+.8	−1	8.43	−21.1		27.94
+24.27	25 12.80	58	12.72	+.9	−2	19.42	−24.6		29.62
+48.49	25 24.00		14.48	+.9	−2	20.31	−25.9		29.17
+42.38	25 22.00		13.41	+.9	−2	18.58	−26.9		28.83
+28.97	25 10.50		16.82	+1.0	−2	20.54	−27.9		29.38
+13.33	25 0.95		18.06	+.9	−2	19.77	−28.0		29.19

62° 55′ 10.″12
55 29.26

#
1872 | 1872 ½ m 4.649 A | Tε | Pegasi | Tm α= 22h 35m | δ= + 10° 11' | tan δ= +.18 1.02

Oct	12 ~~+.04~~											
	14 +.05		35	0.42	0.40	35 6.88 A	+6.54	+ .01		−2.23	22 35	4.72
	~~17~~											
	21 +.09		34	5805	5803	6.81 A	+8.81	+ .02		−2.16		4.70
	~~28~~		~~34~~	~~54.97~~	~~54.95~~							
	~~29~~		~~34~~	~~54.08~~	~~54.06~~							
~~Nov~~	~~2~~		~~34~~	~~51.26~~	~~51.25~~							
73 Sept	9 ~~+.30~~											
	30											
Oct	1											

#
1872 | η Pegasi | 22h 37m | + 29° 34' | tan δ= +.57 & 1.15 | sin Z +.22

Sept	23 −.12		36	54.31	54.29	+8.38	− .07		−2.34	22 37	0.26s	
Nov	4 +.09	36 35.70	36	4580	45.78	+16.37	+ .05		−1.91		0.29	
	16 +.15	36 1840	36	39.96	39.93	+21.96	+ .09		−1.73		0.25	
	17 +.22	36 2460	36	39.23	39.21	+22.65	+ .13		−1.71		0.28	
	20 +.17	36 14.63	36	36.98	36.96	+24.84	+ .10		−1.66	0.24	~~0.29~~ 0.24	
Dec	7 +.28	36 15.57	36	4202	4200	+19.53	+ .16		−1.41		0.28	
'73 Oct	5 −.19	36 53.97	37	1546	15.45	− 9.91	− .11		−2.36		3.07	×
	8 −.18	36 54.23	37	17.41	17.39	− 11.87	− .10		−2.33		3.09	×
	22 −.18	37 5.27	37	23.61	23.59	− 18.23	− .10		−2.18		3.08	×
	28 −.02 −.10	37 7.67	37	27.04	27.03	− 21.69	− .01	−.11	−2.11		3.11	×
Nov.	3 +.01	37 0.10	37	26.88	26.86	− 21.75	+ .01		−2.02		3.10	×
	9 +.05	37 1.87	37	26.10	26.08	− 21.13	+ .03		−1.93		3.05	×
	10 +.09 −.05	37 6.93	37	25.92	25.90	− 20.90	+ .05	−.06	−1.92		3.07	×

#
1872 | .19 | 13 Lacertae | 22h 38m | + 41° 9' | tan δ= +.87 1.33 | sin Z +.02

Sept	23 −.12		38	17.32	17.30	+ 8.38	− .10		−2.41	22 38	23.17	
Nov	4 +.09	37 52.80	38	8.56	8.54	+16.37	+ .08		−1.86		23.13	
	17 +.22	37 56.80	38	2.00	1.98	+22.65	+ .19		−1.61		23.21	
	20 +.17	38 7.40	37	59.72	59.70	+24.84	+ .15		−1.45		23.24	
Dec.	7 +.28	38 13.90	38	4.62	4.60	+19.53	+ .24		−1.22		23.15	
73 Oct	8 −.18	38 17.83	38	40.26	40.24	−11.87	− .16		−2.32		25.89	×
	22 −.18	38 22.33	38	4639	4637	− 18.23	− .16		−2.11		25.87	×
Nov.	3 +.01	38 25.20	38	49.38	49.36	− 21.75	+ .01		−1.90		25.72	×
	9 +.05	38 29.80	38	4886	4884	− 21.13	+ .04		−1.81		25.94	×
	10 +.09 −.05	38 26.20	38	48.54	48.52	− 20.90	+ .08	−.07	−1.79	~~25.94~~	25.84	×

#
1872 | 1872 ½ 22.003 | λ Pegasi | 22h 41m | + 22° 54' | tan δ= +.42 1.09 | sin Z +.33

Sept	23 −.12		40	16.04	16.03	+8.38	− .05		−2.36		22.00	
~~Oct~~	~~19~~		~~40~~	~~16.43~~	~~16.41~~							
Oct	21 +.09		40	15.27	15.25 40 24.13	+ 8.82	+ .04		− 2.13		21.98	
	~~28~~		~~40~~	~~12.19~~	~~12.17~~							
	29		~~40~~	~~11.26~~	~~11.24~~							
~~Nov~~	~~2~~		~~40~~	~~8.52~~	~~8.50~~						2209	
	4 +.09	39 51.80	40	7.66	7.64	+16.37	+ .04		−1.96	22 40	~~22.19~~ 22.09	
	16 +.15	39 45.47	40	1.84	1.82	+21.96	+ .06		−1.81		22.03	
	17 +.22	39 47.10	40	1.10	1.08	+22.65	+ .09		−1.79		22.03	
	20 +.17	39 41.97	39	58.89	58.87	+24.84	+ .07		−1.75		22.03	
Dec	7 +.28	39 43.47	40	3.94	3.93	+19.53	+ .12		−1.53		22.05	
73 Oct	8 −.18	40 17.17	40	39.29	39.27	− 11.87	− .08		−2.39		24.93	×
	14 ~~−.15~~											
	22 −.18	40 23.83	40	4551	4549	− 18.23	− .08		−2.25		24.93	×
	28 −.02 −.10	40 30.20	40	49.00	48.98	− 21.69	− .01	−.11	−2.20		24.97	×
	29 −.04	40 28.83	40	49.34	49.33	− 22.20	− .02		−2.18		24.93	×
Nov	3 +.01	40 26.80	40	48.81	48.79	− 21.75	+ .00		−2.11		24.93	×
	9 +.05	40 28.87	40	48.13	48.11	− 21.13	+ .02		−2.02		24.98	×
	10 +.09 −.05	40 19.90	40	47.87	47.86	− 20.90	+ .04	−.05	−1.99		24.96	×

Tm–Ts	Circle Readings							
+10.10	54 4.30	28	4137 –.4 +4	52.69	–222	+29°	32' ~~33~~	11.46"
+21.55	54 18.35		4038 –.5	51.76	–226			9.04
+14.63	54 10.55		4022 –.5	50.86	–226			7.98
+22.35	54 17.00		4264 –.5	49.69	–226			9.23
+26.45	54 22.70		4111 –.5	49.79	–221			8.30
+21.49	48 4.55	34	5518 –.5 –1	8.54	–19.3			26.84
+23.18	48 5.80		5562 –.5	8.43	–19.7			26.99
+18.34	46 47.55	36	8.07 –.6 –2	19.42	–214			26.65
+19.37	46 47.00		9.81 –.6 –2	20.31	–220			26.90
+26.78	46 57.20		7.38 –.6 –2	18.58	–224			25.80
+24.23	46 52.35		9.57 –.6 –2	20.54	–227			25.73
+18.99	46 44.85		10.74 –.6 –2	19.77	–22.8			27.57
+15.76	18 39.20	4	2303 –.1 +4	52.69	–244	+41	8	51.22
–7.68	18 12.45		26.81 –.1	49.69	–254			51.00
–9.28	18 9.20		26.28 –.1	49.79	–252			50.77
+22.42	12 29.25	10	39.74 –.1 –1	8.43	–207		9	10 ~~49.44~~ 51
+24.06	11 15.95	11	54.52 –.1 –2	19.42	–232			11.80
+24.18	11 15.10		55.28 –.1 –2	18.58	–247			11.90
+19.05	11 8.25		57.25 –.1 –2	20.54	–252			11.41
+22.34	11 12.30		56.30 –.1 –2	19.77	–253			11.13
+15.85	33 44.50	49	1.15 –.6 +4	52.69	–20.6	+22	53	32.64
+16.37	33 43.60		2.85 –.7	51.76	–209			33.01
+14.00	33 39.50		3.85 –.8	50.86	–209			33.01
+16.92	33 42.00		5.13 –.7	49.69	–209			33.22
+20.47	33 47.15		3.72 –.8	49.79	–202			32.51
+22.12	27 35.00	55	19.56 –.8 –1	8.43	–18.9			51.43
+21.68	26 21.15	56	32.36 –.8 –2	19.42	–203			51.84
+18.80	26 16.85		33.25 –.8 –2	20.31	–208			51.34
+20.51	26 17.55		34.15 –.8 –2	19.79	–209			52.66
+22.01	26 21.20		32.11 –.9 –2	18.58	–21.1			51.53
+19.26	26 15.65		34.73 –.8 –2	20.54	–21.3			52.09
+21.97	26 25.95		34.05 –.9 –2	19.77	–21.3			52.08

#	n	Ts		Tm								
1872		u Pegasi		α =	22h	44m		δ = +23° 57′				
Sept	19											
3 Oct.	14 ~~+.15~~											

# 1872	1872/2 7.669	ι Cephei	Tm									
				22h	45m	+65° 32′		tan δ = + 2.20	2.41 22h 45		sin z -.39	
Sept	23 -.12		45	2.79	2.75	+8.37	-.26		-3.11		7.75	
Oct	12 +.04											
	14 +.05		45	3.75	3.71	45 10.29	+6.54	+.11	-2.62		7.74	
	~~19~~		~~45~~	~~1.99~~	~~1.95~~							
	21 +.09		45	1.11	1.07	10.07	+8.82	+.20	-2.40		7.69	
	~~28~~		~~44~~	~~57.94~~	~~57.90~~							
	~~29~~		~~44~~	~~56.94~~	~~56.90~~							
Nov	~~2~~		~~44~~	~~54.00~~	~~53.96~~							
	4 +.09	44 13.83	44	53.17	53.13		+16.37	+.20	-1.89		7.81	+39.
	16 +.15	44 12.97	44	47.06	47.02		+21.97	+.33	-1.39		7.93	+34
	17 +.22	44 28.10	44	46.07	46.03		+22.66	+.48	-1.35	7.82	~~7.72~~ 7.82	+17.
	20 +.17	43 34.70	44	43.72	43.69		+24.84	+.37	-1.21		7.69	+69
Dec	7 +.28	44 19.40	44	48.07	48.03		+19.53	+.62	-.44		7.74	+28
73 Sept	9 ~~-.30~~											
Oct	1											
	8 -.18	44 47.47	45	24.77	24.73		-11.88	-.40	-2.59		9.86 ×	+42.
	14 ~~-.15~~											
	22 -.18	44 52.97	45	30.72	30.69		-18.23	-.40	-2.17		9.89 ×	+37.
	28 -.02 -.10	45 4.53	45	33.91	33.88		-21.69	-.04 -.24	-1.97		9.94 ×	+29.
	29 -.04	45 3.77	45	34.13	34.10		-22.21	-.09	-1.93		9.87 ×	+30.
Nov	3 +.01	45 8.10	45	33.48	33.44		-21.75	+.02	-1.73		9.98 ×	+25.
	~~8~~		~~45~~	~~32.70~~	~~32.65~~							

φ

1872	Gal. 4309		~~α~~	~~22~~ 22h	48m	+79° 42′		tan δ = +5.50			sin z = -.61	
× Sept	23 -.12		48	0.96	0.84	+8.36	-.66	-5.42 ~~-6.59~~	22 48		~~1.998~~ 3.05	
Nov.	4 +.09	46 27.90	47	48.39	48.30	+16.37	+.49	-2.25 ~~-2.25~~			2.91	
	16 +.15	46 1.27 46 56.60	47	41.73	41.65	+21.97	+.82	-.95 ~~-0.95~~			3.49	+80.
	17 +.22	46 25.10	47	39.80	39.72	+22.66	+1.21	-.84 ~~-0.84~~			2.75	+100.
	20 +.17	47 5.80	47	37.71	37.63	+24.84	+.93	-.49 ~~-0.49~~			2.91	+74.
Dec	7 +.28	46 35.60	47	40.32	40.24	+19.53	+1.54	+1.54 ~~+0.75~~			~~2.06~~ 2.85	+31.
'73 Oct	8 -.18	46 47.73	48	20.49	20.40	-11.88	-.99	~~3.75~~ 3.78			~~1.78~~ 3.75	~~+64.~~
	22 -.18	46 34.43	48	25.78	25.69	-18.23	-.99	~~-4.61~~ -2.70			~~1.80~~ 3.77	+96.
	28 -.02 -.10	46 48.90	48	28.51	28.43	-21.69	-.11	-.55 ~~-4.02~~ -2.15			~~2.07~~ .06 3.93	+111.
	29 -.04	47 8.60	48	28.33	28.25	-22.21	-.22	~~-3.92~~ -2.06			~~1.90~~ 3.76	+89.
Nov.	3 +.01	47 31.50	48	27.38	27.30	-21.75	+.06	~~-3.40~~ -1.57			~~2.21~~ 4.04	+79.
												+55.

'72	22h	48m	~~2.683~~	2.993
'73		48	~~1.962~~	3.850

101

# 1872		Br. 1508	S.C.	10h 22	49m	+78° 26′		tan δ = -4.89	4.97		sin z -.86	
Nov.	4 +.09	49 30.90	49	22.99	23.06	+16.37	-.44	-1.00	22 49		37.99	
	16 +.15	48 41.43 49 40.95	49	19.33	19.41	+21.97	-.73	-2.26	38.39		~~38.49~~ 38.39	-7.
	17 +.22	48 47.40	49	19.04	19.12	+22.66	-1.08	-2.38			38.32	+37.
	20 +.17	49 37.10	49	16.92	17.00	+24.84	-.83	-2.74			38.27	+31.
Dec	7 +.28	48 45.33	49	24.94	25.02	+19.52	-1.37	-4.90			38.27	-20
1873 Oct.	22 -.18	49 19.90	50	1.56	1.63	-18.23	+.88 ~~+.50~~	-.68			43.60 ×	+39.
	28 -.02 -.10	49 23.50	50	5.69	5.76	-21.69	+.10 +.50	-1.26			43.41 ×	+41.
	29 -.04	49 26.90	50	7.10	7.18	-22.21	+.20	-1.36			43.81 ×	+42.
Nov	3 +.01 Rej.					-21.75						+40.

$T_m - T_\delta$	Circle Readings					
					31′	″
+39.34	56 23.00	27	1214 +.7 +4	52.69 −26.8	+65° ~~36~~	38.73
+34.08	56 14.15		1501 +.8	51.76 −28.6		38.97
+17.97	56 8.65		1529 +.9	50.86 −28.7		38.35
+69.02	56 33.35		1594 +.8	49.69 −29.0		37.43
+28.67	56 13.40		16.11 +.9	49.79 −29.8	3700	~~36.00~~ 37.00
+42.30	50 9.35	33	2604 +.9 −1	8.43 −20.7		57.81
+37.75	48 5.25	34	4065 +12 2	19.42 −24.5		57.73
+29.38	48 46.05		4259 +10 −2	20.31 −25.9		57.38
+30.36	48 47.20		4251 +10 −2	19.79 −26.1		57.62
+25.38	48 44.15		4240 +10 −2	18.58 −27.0		57.82
+80.49	46 58.85	36 58.75	+1.2 +4	52.69 −26.84	79 41	20.80
+100.46	46 59.40	57.12	+1.4	51.76 −29.03		21.25
+74.70	46 53.45	58.05	+1.4	50.86 −29.18		21.13
+31.91	46 42.15	59.23	+1.4	49.69 −29.61		20.78 ×1
~~+64.42~~	~~47 3.85~~			~~19.79~~		
+90.76	40 45.50	43 6.95	+1.4 −1	8.43 −19.75		40.17
+111.35	39 35.10	44 22.14	+1.5 −2	19.42 −23.99		40.23
+89.61	39 29.60	22.94	+1.5	20.31 −25.61		38.52
+79.73	39 26.90	24.49	+1.5	19.79 −25.86		40.34
+55.88	39 22.70	22.78	+1.5	18.58 −27.07		38.63
					° ′	″
					79 41	20.97
					41′	39.58″
					101 32	
−7.91	56 21.20	28	1042 +18 +4	52.69 −24.6	+18 ~~26~~	40.31
+37.90	56 5.55 56 16.60		1341 +19	51.76 −27.3		39.77
+31.64	56 6.00		1577 +19	50.86 −27.5		41.03*
−20.18	56 16.25		1796 +19	49.69 −28.1		41.45
+39.61	56 0.35		1933 +21	49.79 −30.4		40.82
+41.66	48 36.40	35	3849 +23 −2	19.42 −[illegible]	3333	0.07
+42.19	48 33.50		4115 +23	20.31 −23.1		0.04
+40.20	48 35.65		4167 +23	19.79 −23.4		0.78

For following stars see ~~next~~ book. B3

1872 o Androm. a= 22^h 56^m δ= +41° 39′

Nov. 4 +.09
16 +.15
17 +.22
20 +.17
73 Oct. 8 −.18
22 −.18
28 −.02
29 −.04
Nov. 3 +.01
Dec 6 +.10

1872 α Pegasi 22^h 59^m +14° 32′

19
Sept 23 −.12
Oct 12 +.04
14 +.05
19
21 +.09
28
29
Nov 2
4 +.09
16 +.15
17 +.22
20 +.17
Dec. 7 +.28
21 +.23
73 Oct. 5 −.19
8 −.18
14 −.15
22 −.18
28 −.02
29 −.04
Nov. 3 +.01
Dec. 6 +.10

1872 π Cephei 23^h 4^m +74° 43′

Sept. 28 −.13
Oct 13
27
~~73~~ Dec. 7 +.28
21 +.23
'73 Jan 1 +.51
Oct. 14 −.15
22 −.18
28 −.02
29 −.04
Nov. 1 −.03
2 +.03
Dec. 6 +.10