

KG
11366
v. 684

*Instrumental Constants
depending on
New Pulkowa Coordinates.*

1871 - 1872

✕

[illegible]

* The value of h was applied with the wrong sign from Dec. 18, 1871 to July 1, 1872. Instead of correcting $\Delta(T-R)$, the final values of ΔT were changed.

1871 Dec 24 $h = +0.35$ $h' = -0.28$ $n = +39$ $c = -.05$
 $h = -.023$
 Star μ obs. μ RA δ μ RA δ
 (P.P.)

Star	μ obs.	μ RA	δ	μ RA	δ
α Cass.	$+50.16$	$+14$	29	$+0.26$	$+0.03$
β Cass.	$+105.30$	$+53$	13	$+1.34$	$+0.16$
γ Cass.	$+0.633$	$+55$	51	$+1.47$	$+0.15$
δ Cass.	$+30.956$	$+7$	13	$+0.13$	$+0.15$
ϵ Cass.	$+41.0$	3	34	$+0.22$	$+0.16$
ζ Cass.	$+0.62$	57	$+70$	$+0.22$	$+0.16$
η Cass.	$+1.90$	-17.48	-17.47	$+0.7$	$+1.55$
θ Cass.	$+1.73$	-17.37	-17.37	$+0.8$	$+1.73$
ι Cass.	$+40.81$	-28.10	-28.12	$+1.2$	$+40.81$

1871 Dec 27 $h = +0.33$ $h' = -0.21$ $n = +36$
 $h = -.021$
 Star μ obs. μ RA δ μ RA δ

Star	μ obs.	μ RA	δ	μ RA	δ
α Cass.	$+191.0$	3	34	$+70$	$+16$
β Cass.	$+18.1$	5	29	$+26$	$+56$
γ Cass.	$+151.4$	25	14	$+42$	$+26$
δ Cass.	$+114.5$	30	48	$+00$	$+1.11$
ϵ Cass.	$+33.2$	15	49	$+25$	$+1.17$
ζ Cass.	$+43.3$	18	$+8$	$+35$	$+1.5$
η Cass.	$+63.5$	31	$+62$	$+49$	$+1.95$
θ Cass.	$+73.6$	34	$+47$	$+23$	$+1.09$
ι Cass.	$+16.7$	18	-98	$+50$	$+15$
κ Cass.	$+43.3$	20	$+9$	$+18$	$+16$
λ Cass.	$+53.4$	27	$+09$	$+53$	$+17$
μ Cass.	$+103.9$	42	$+12$	$+8$	$+21$
ν Cass.	$+153.40$	59	$+47$	$+23$	$+1.09$
ξ Cass.	$+124.1$	6	-7	$+10$	$+13$
η Cass.	$+13.4$	12	$+15$	$+19$	$+27$
θ Cass.	$+14.1$	16	$+17$	$+15$	$+31$

1871 2.94

$1.2 + 41.81 - 35.52 - 35.45$
 $+ .07 + .07$
 $3.5 + 1.95 - 19.33 - 19.34$
 $+ .01 + .01$

1871 Dec 29

$2.3 + 2.34 - 2.58 - 2.152 - 2.152 - 2.8 - 3.65 - 18.83 - 18.79 - 18.79$	$3.1 + 4.42 + 2.252 - 2.249 - 2.249 - 6.2 - 16.86 - 12.43 - 12.52 - 12.52$
$5.4 + 3.71 - 2.246 - 2.252 - 2.252$	$6.1 + 2.66 - 2.167 - 2.176 - 2.176$
$6.7 + 20.76 - 2.940 - 2.951 - 2.951$	

1871 Dec 24

Star	μ obs.	μ RA	δ	μ RA	δ
α Cass.	$+26$	$+62$	14	$+1.90$	-17.48
β Cass.	$+41$	$+57$	9	$+1.53$	-17.21
γ Cass.	$+48$	$+60$	2	$+1.73$	-17.37
δ Cass.	$+13$	$+88$	39	$+4.19$	-28.10
ϵ Cass.	$+0.1$	$+26$	-16.79	$+0.5$	$+1.34$
ζ Cass.	$+0.9$	$+13$	-16.74	$+0.6$	$+1.47$
η Cass.	$+0.5$	$+1.53$	-16.76	$+1.0$	$+1.70$
θ Cass.	$+0.7$	$+1.17$	-17.16		

$0 = +170 - 0.72$ $n = +42$ $0 = +0.73 - 0.31$ $n = +43$
 $+ 135 - 0.46$ $+ 3.57$ $+ 0.38 - 0.05$ $+ 1.13$
 $+ 1.53 - 0.62$ $+ 3.57$ $+ 0.56 - 0.21$ $+ 3.81$
 $+ 41.61 - 11.36$ $+ 2.27$ $+ 40.64 - 10.96$ $+ 2.27$

Star	μ obs.	μ RA	δ	μ RA	δ
α Cass.	$+1.4$	$+26$	-18.77	$+1.5$	$+1.11$
β Cass.	$+3.3$	$+15$	-18.70	$+3.2$	$+1.17$
γ Cass.	$+1.3$	-15	-18.56	$+3.6$	$+1.09$
δ Cass.	$+3.3$	$+16$	-18.77	$+4.0$	$+1.09$
ϵ Cass.	$+3.4$	-17	-18.73	$+3.1$	$+1.12$
ζ Cass.	$+3.9$	$+21$	-18.76		
η Cass.	$+4.1$	-13	-18.64		
θ Cass.	$+4.2$	$+27$	-18.80		
ι Cass.	$+1.3$	$+21$	-18.77		
κ Cass.	$+3.2$	$+10$	-18.72		

$0 = +41.71 - 16.73$ $n = +40$ $0 = +40.69 - 16.40$ $n = +40$
 $+ 1.85 - 0.62$ $+ 3.33$ $+ 0.83 - 0.29$ $+ 3.33$

1872 Jan 1

$1.2 + 41.84 - 40.79 - 40.71 - 40.70 - 2.8 - 3.65 - 22.13 - 22.12 - 22.11$	$2.1 + 2.24 - 2.439 - 2.435 - 2.434 - 3.3 - 3.13 - 22.29 - 22.30 - 22.29$
$2.3 + 2.33 - 2.427 - 2.424 - 2.423 - 5.9 - 4.33 - 2.164 - 2.176 - 2.175$	$3.1 + 4.42 - 2.539 - 2.539 - 2.538$
$3.5 + 1.94 - 2.454 - 2.456 - 2.455$	

$12.8 + 2.26 - 2.475 - 2.477$ $13.2 - 41.84 - 8.12 - 8.11$
 $+ .03$ $+ .01$
 $14.8 + 3.66 - 2.529 - 2.534$
 $+ .05$

lin Z = +60 +80 +100 +60 +20 +40 +0 +20 +0 -20 -20 -40 -40 -60 -60 -80 -80 -100

P.A. lin Z

h m
0 6 +47
0 30 -19
0 33 -23
0 38
1 3 +13

+1 03.20
3.20

P_{ray}-R_{fl}
P_{ray}-R_{fl}
P_{ray}-R_{fl}
P_{ray}-R_{fl}

+1 3.1 +8 3.9 -7 3.2

3.20

-19 +3.9
-7
3.20
+0

P.A. lin Z P_{ray}-R_{fl} P_{ray}-R_{fl} P_{ray}-R_{fl}

h m
0 26 -34
0 41 -25
0 48 -30
1 13

1 13

1 3 +13
1 5 +22
1 25 +46
1 30 -10
3 15 -12
3 18 +56
3 31 -35
3 34 -09

1 18 +78
3 20 +55
3 27 +79
3 54 +50
3 59 -09
4 6 +76
4 12 +45
4 16 +42

+1 3.4 -3 3.1 +4 3.5
2.7 +1 2.8 +8 3.6
2.3 -2 2.1 +15 3.6
4.1 +3 4.4 -4 4.0
3.5 +6 4.1 -4 3.7
0 59.6 +4 0.0 +1.7 1.7
1 5.0 +4 5.4 -1.1 4.3
2.5 +5 3.0 -4 2.6

0 59.5 +4 59.9 +1.7 1.6
1 1.0 -2 0.8 +2.3 3.1
0.9 +3 1.2 +1.6 2.8
2.3 +4 2.7 -4 2.3
1.9 -5 1.4 +1.5 2.9
3.8 +0 3.8 +1.4 5.2
(4) 3.21

+7.9 +0.8 +4.6 +2.1 +2.2 +2.8 +1.3 +3.1 -1.0 +4.4 -3.5 +5.4
+5.6 0.0
+5.5 5.9
+5.0 1.2
+4.5 1.4
+4.2 3.8

-1.2 4.1
-0.9 3.0
-0.9 2.7

+1 03.25
3.21

+7.9 +0.8 +4.9 +1.4 +2.2 +2.8 +1.3 +3.1 -1.0 +3.6 -3.5 +5.4
+2.5 +1.6 +0.8 +0.5 -0.4 -1.2
1 3.3 6 3.0 1 3.6 4 3.2 1 4.2
-1.1 +.2 -4 -1.1 +.0 -1.0

14 45

$\sin 2 = +60 +80 +40 +60 +20 +40 +0 +20 +0 -20 -20 -40 -40 -60 -60 -80 -80 -100$

P.A.	$\sin 2$	$P_{\text{avg}} - P_{\text{pl}}$	P_{pl}	P_{pl}	P_{pl}	P_{pl}
23 31	-06	+1	4.3	+7	5.0	-2 4.8
0 2	+24	0	59.1	+7	59.8	+8 (0.6)
0 4	-05					
0 13	+79	1	3.0	+1	3.1	+23 5.4
0 23	+73	0	59.7	+1	59.8	+22 2.0
0 33	-23	1	4.4	+6	5.0	-7 4.3
0 41	-25					
1 3	+13		3.1	-3	2.8	+4 3.2
1 25	+46		2.4	-2	2.2	+14 3.6
1 30	-10		2.5	+3	2.8	-4 2.4
1 35	+61		0.1	+1	0.2	+1.8 2.0
1 39	+56		2.2	+4	2.6	+1.7 4.3
1 48	+38		2.8	-2	2.6	+1.2 3.8
1 56	+01		4.2	+1	4.3	+0 4.3
2 0	+33		1.6	-1	1.5	+1.1 2.6
2 2	+14		4.7	+1	4.8	+5 5.3
2 5						
2 11						
2 13						
2 19						
2 22						
2 32	+36	0	59.6	+7	0.3	+1.2 1.5
2 33	+68	1	0.7	-2	1.5	+2.0 2.5
2 37	+64		0.3	+3	0.6	+1.9 2.5
2 43	+27		2.7	+4	3.1	+1.0 4.1
2 45	-17		2.9	+6	3.5	-6 2.9
3 46	+19					
3 49	+25					

3.42

4 35
4 39
4 52
5 7
5 12
5 18
5 23
6 30
6 34
6 36
6 38

+79	+3.1	+46	+22	+24	+59.8	+13	+2.8	-06	+5.0	-23	+5.0	-40	+4.2
+73	59.8	+56	2.6	+38	2.6	+0.1	4.3	-10	2.8			-41	+5.3
+61	0.2			+33	1.5	+1.4	4.8	-17	3.5				
+68	0.5			+36	0.3								
+64	0.6			+27	3.1								
+69	+0.8	+57	+24	+32	+1.5	+0.9	+4.0	-11	+3.8	-23	+5.0	-40	+4.8
+23		+17		+11		+0.4		-0.4		-0.5		-1.4	
151	3.1	21	41	151	2.6	31	44	31	3.4	11	4.5	21	7.14
+3		-7		+8		-1.0		+0		-1.1		+0	

-92 +5.2
-86 7.8
-92 7.7

-90 +6.9
-2.6
131 4.3 21 7.14

+103.40
3.412

12 49
12 56
13 24
14 57

1 13
14 51
12 50

1871 Dec 29 $h = +0.39$ $h' = -0.029$ $n = +44$
 $h = -0.028$

Star	RA	Dec	δ	i	Tangd	Secd	20.598	20.598
74 Ceti	298.4	22	7	54	14	37-20.57	16	-20.51-05
82 Androm	252.32	21	25	39	35-20.68	17	51-04	55
8 Ceti	252.33	0	13	00	52			
8 Ceti	252.33	2	42	15	41-20.59	02	57-04	61
41 Androm	252.74	26	45	50	44-20.52	22	60-04	64
2 Persei	22.845	52	15	129	45-21.23	4	66-03	69
α Ceti	252.956	3	36	06	47-20.56	03	53-03	56
β Persei	252.956	40	25	55	50-21.03	4	66-03	66
γ Persei	252.846	31	31	61	62-20.92	27	65-01	66
δ Persei	252.846	39	39	83	62-21.01	4	64-01	65
ε Persei	252.846	35	26	71	62-20.91	4	60-00	60
ζ Persei	252.846	17	15	31	7			
η Persei	252.846	22	43	12	37-20.50	18	62+02	60
θ Persei	252.846	3	29	06	47-20.59	03	62+02	60
ι Persei	252.846	60	15	175	80-21.69	17	72+03	69
κ Persei	252.846	5	38	20	79-37-21.00	4	65+03	62
λ Persei	252.846	45	52	103	86-21.23	4	78+03	75
μ Persei	252.846	8	21	15	57			
ν Persei	252.846	6	59	12	58-20.55	05	60+03	57
ξ Persei	252.846	18	30	54	7			
ο Persei	252.846	10	1	18	108-20.76	08	67+07	60
π Persei	252.846	25	15	47	107-20.88	21	68+07	60
ρ Persei	252.846	15	25	117	52-21.11	4	60-02	62
σ Persei	252.846	35	35	55	52-20.64	07	57-02	59
τ Persei	252.846	9	18	16	54-20.40	07	63-02	65
υ Persei	252.846	27	17	56	20.60	07	67-02	69
φ Persei	252.846	49	195	363	21.53	4	67-01	68
χ Persei	252.846	49	195	363	21.53	4	68	20.628

1872 Jan 1 $h = +0.41$ $h' = -0.038$ $n = +42$
 $h = -0.030$

	228						23.478	
7 Perseus	29.14	25 +14	42 +	26.26	23.62	4	-23.51	-07 -23.58
2 Perseus	24.81	5.30 +48	00 +	11.23	23.96	47	49	-07 56
2 Perseus	24.71	6.35 +4	51 +	08.34	23.53	4	50	-06 56
2 Perseus	24.67	7.29 +8	32 +	15.25	23.49	4	43	-06 54
3 Perseus	18.57	8.46 +20	12 +	37.30	23.65	4	49	-06 54
2 Perseus	21.49	9.56 +41	44 +	89.32	23.92	47	53	-05 60
2 Perseus	21.32	0.00 +22	52 +	42.33	23.64	4	46	-05 51
3 Perseus	21.32	0.2 +34	24 +	68.34	23.79	4	50	-05 55
6 Perseus	21.5	5.50	29 +	21				
2 Perseus	21.12	2.11 +19	19 +	35.35	23.57	4	42	-04 46
2 Ceti	21.92	4.22 +7	54 +	11.37	23.47	4	41	-03 44
3 Perseus	21.82	5.32 +21	25 +	39.35	23.55	4	39	-03 42
2 Ceti	21.33	0	13	00				
2 Ceti	21.26	3.7 +2	42 +	05.41	23.38	4	36	-03 39
41 Andromeda	21.62	7.45 +26	45 +	51.44	23.74	4	53	-02 55
2 Perseus	21.52	8.45 +52	15 +	129.45	24.05	4	51	-02 53
2 Ceti	21.42	9.56 +3	36 +	06.47	23.53	4	50	-01 51
2 Perseus	21.42	9.57 +38	21 +	79.49	23.86	4	54	-01 55
3 Perseus	21.33	0.00 +40	28 +	85.50	23.87	4	51	-01 52
2 Perseus	21.23	2.15 +49	25 +	117.52	24.00	4	51	-00 57
2 Perseus	21.36	3.4 +47	23 +	109.57	24.00	4	54	+01 53
3 Perseus	21.14	3.57 +40	53 +	87.13	24.20	4		
2 Perseus	21.58	4.46 +31	31 +	161.63	23.85	4	59	+02 57
2 Perseus	21.58	4.49 +39	39 +	83.64	23.88	4	53	+02 51
2 Perseus	21.63	9.61 +35	35 +	118.65	23.79	4	49	+02 47
2 Perseus	21.44	6.35 +22	43 +	42.37	23.79	4	61	+05 56
2 Perseus	21.44	7.39 -3	30 -	06.75	23.52	4	55	+05 50
2 Perseus	21.64	9.52 +60	15 +	175.80	21.34	4	61	+06 55
2 Perseus	21.51	1.5 +38	20 +	79.37	23.91	4	58	+07 51
2 Perseus	21.51	1.7 +45	52 +	103.86	24.02	4	59	+07 52
2 Perseus	21.5	1.8 -8	21 -	15.87	24.58	4		
2 Perseus	21.52	1.11 -23	11 -	118.88	23.49	4	54	+07 47
2 Perseus	21.54	2.38 +28	30 +	54.20	23.61	4	58	+07 50
2 Perseus	21.58	4.48 +7	22 +	13.10	23.62	4	59	+09 52
2 Perseus	21.59	5.31 +37	12 +	76.37	23.76	4	-23.64	+10 54
	3.32						-23.64	-23.516

1871 Dec 29

Star	RA	Dec	δ	i	Tangd	Secd	20.598	20.598
74. Ceti	298.4	22	7	54	14	37-20.57	16	-20.51-05
82. Androm	252.32	21	25	39	35-20.68	17	51-04	
8 Ceti	252.33	0	13	00	52			
8 Ceti	252.33	2	42	15	41-20.59	02	54-04	
41 Androm	252.74	26	45	50	44-20.52	22	60-04	
2 Persei	22.845	52	15	129	45-21.23	4	66-03	
α Ceti	252.956	3	36	06	47-20.56	03	53-03	
β Persei	252.956	40	25	55	50-21.03	4	66-03	
γ Persei	252.846	31	31	61	62-20.92	27	65-01	
δ Persei	252.846	39	39	83	62-21.01	4	66-03	
ε Persei	252.846	35	26	71	62-20.91	4	60-00	
ζ Persei	252.846	17	15	31	7			
η Persei	252.846	22	43	12	37-20.50	18	62+02	
θ Persei	252.846	3	29	06	47-20.59	03	62+02	
ι Persei	252.846	60	15	175	80-21.69	17	72+03	
κ Persei	252.846	5	38	20	79-37-21.00	4	65+03	
λ Persei	252.846	45	52	103	86-21.23	4	78+03	
μ Persei	252.846	8	21	15	57			
ν Persei	252.846	6	59	12	58-20.55	05	60+03	
ξ Persei	252.846	18	30	54	7			
ο Persei	252.846	10	1	18	108-20.76	08	67+07	
π Persei	252.846	25	15	47	107-20.88	21	68+07	
ρ Persei	252.846	15	25	117	52-21.11	4	60-02	
σ Persei	252.846	35	35	55	52-20.64	07	57-02	
τ Persei	252.846	9	18	16	54-20.40	07	63-02	
υ Persei	252.846	27	17	56	20.60	07	67-02	
φ Persei	252.846	49	195	363	21.53	4	67-01	
χ Persei	252.846	49	195	363	21.53	4	68	

$$\sin Z = +.60 +.80 \quad +.40 +.60 \quad +.20 +.40 \quad +.0 +.20 \quad +.0 -.20 \quad -.20 -.40 \quad -.40 -.60 \quad -.60 -.80 \quad -.80 -1.00$$
[illegible]

[illegible]

$$\sin 2 = +.60 + .80 + .40 + .60 + .20 + .40 + 0 + .20 + 0 - .20 - .20 - .40 - .40 - .60 - .60 - .80 - .80 - 1.00$$
[illegible]

[illegible]

$$\sin z = +60 + 80 \quad +10 + 60 \quad +20 + 40 \quad +0 + 20 \quad +0 \quad -20 \quad -20 \quad -40 \quad -40 \quad -60 \quad -60 \quad -80 \quad -80 \quad -100$$

19
98

19
31
36
19

[illegible]

$$\sin z = +60 +80 +40 +60 +20 +40 +0 +20 +0 -20 -20 -40 -40 -60 -60 -80 -80 -100$$

P_{st}	$\sin z$	$P_{\text{st}} - P_{\text{st}}$	$P_{\text{st}} - P_{\text{st}}$	$P_{\text{st}} - P_{\text{st}}$	$P_{\text{st}} - P_{\text{st}}$
h	m	"	"	"	"
2 45	-17	+1	0.9	+7	1.6 -6 1.0
2 56	+63	+0	57.9	+7	(5.4) +17 (0.3)
2 57	+27	1	3.0	-3	2.7 +3 3.0
3 0	+03		3.3	-1	3.2 +1 3.3
4 29	+44		2.9	-3	2.6 +13 3.9
4 30	+42		2.5	+3	2.8 +19 4.7
4 34	+34		1.2	+5	1.7 +11 2.8
4 38	-24		4.0	+5	4.5 -7 3.8
4 42					
4 49	+16		2.9	-1	2.8 +5 3.3
11 52	-31		4.3	+2	4.5 -8 3.7
4 53	-02	+0	52.2	0	
4 56	+36		1.9	-0	1.9 +11 3.0
5 5	+07		4.5	-1	4.4 +3 4.7
5 7	-06		5.0	+1	(5.1) -2 4.9
5 9	+27		0.5	+5	1.0 +21 3.1
5 13	+78		1.1	+10	2.1 +21 4.2
4 21	+40		2.1	-4	1.7 +13 3.0
4 39	+72		1.1	+3	1.4 +19 3.3

P_{st}	$\sin z$	$P_{\text{st}} - P_{\text{st}}$	$P_{\text{st}} - P_{\text{st}}$	$P_{\text{st}} - P_{\text{st}}$	$P_{\text{st}} - P_{\text{st}}$
h	m	"	"	"	"
2 50	-59	+1	1.7	+11	2.8 -16 1.2
2 51	-89		6.7	-9	5.8 -25 3.3
3 5	-54		3.3	+7	4.0 -16 2.4
4 41	-10				
16 57	-82		6.3	-0	6.3 -23 4.0
14 51	-89				

(2) 1.80

+72	+28	+44	+26	+34	+17	+07	+27	-17	+16	-24	+45	-59	+28
+77	1.0	+4		+36	1.9	+03	3.2			-31	4.5	-57	+40
+78	2.1			+40	1.7	+16	2.8						
+72	1.4					+17	4.4						
+75	+18	+44	+26	+37	+18	+08	+3.3	-17	+16	-38	+45	-58	+34
722		+14		+12		+3			-6	-10	-58	-18	
4	4.0	1	4.0	3	3.0	4	3.6	1	1.0	2	2.5	2	1.6
-8			-8		+2		-4		+2.2		-3	+1.6	

-89 +58
-82 63-86 +60
-2.5
3.5

18 546

13 13
14 1
14 5113 28
13 43
13 49
14 10
14 21

1872 Jan¹² $h = +009$ $h' = -038$ $n = +42$
 $h' = +000$
 Star RA S Tang

2 Persi	$+1.42$	7.45	$+52$	15	$+1.29$	145	3.24	54	-2.70	-05	-2.75
3 Persi	$+1.22$	9.56	$+53$	1	$+1.33$	148	3.26	56	70	-05	75
3 Persi	$+1.13$	0.00	$+40$	28	$+55$	50	3.11	54	75	-04	79
2 Tauri	$+2.3$	9.54	$+12$	8	$+21$	66	2.68	54	59	-01	60
6 Persi	$+1.4$	0.00	$+47$	23	$+1.04$	69	3.14	54	68	-00	68
2 Tauri	$+1.4$	2.13	$+15$	19	$+27$	70	2.87	54	76	$+00$	76
2 Tauri	$+2.4$	3.16	$+17$	15	$+31$	71	2.81	54	67	$+01$	67
E Tauri	$+3.4$	4.21	$+18$	54	$+34$	72	2.87	54	72	$+01$	72
4 Camel	$+5.4$	6.37	$+56$	32	$+151$	371	3.32	54	63	$+02$	67
4 Camel	$+5.4$	8.49	$+32$	58	$+65$	78	2.99	54	69	$+03$	69
10 Camel	$+5.4$	9.52	$+60$	15	$+1.75$	180	3.52	54	73	$+03$	76
4 Aurigae	$+7.05$	1.5	$+38$	20	$+79$	374	3.04	54	33	$+04$	67
4 Aurigae	$+7.05$	1.7	$+45$	52	$+1.03$	186	3.24	54	43	$+04$	77
4.7	$+2.26$	-3.68	-3.68	-369	5.0	-7.35	$+0.24$	$+0.23$	$+0.23$	$+0.23$	-2.714
	$+ .00$	$+ .01$				$+ .01$	$+ .01$				

1872 Jan¹²
Star RA S Tang

9 Camel	✓ 4	41	+66	8	+2.21	✓ - 3.68	76	
Elbs. Mund.	✓ 16	59	+97	16	7.32	✓ + 0.24	235	
3.9	+21	-2.68	2.7	+1.29	-3.24			
4.2	+27	287	2.9	+1.33	3.26			
4.3	+31	281	4.0	+1.09	3.14			
4.3	+34	287	4.6	+1.51	3.32			
4.3	+31	-2.85	4.9	+1.75	3.52			
			5.1	+1.03	3.24			
			4.0	+1.33	-3.29			
			n5=43					
0	+1.93	-0.83	n	+43	0	+0.93	-0.40 n	+43
0	-7.66	+3.08	n	+40	0	-8.68	+3.52 n	+41

1872 Jan¹³ $h = +005$ $h' = +054$ $n = +42$
 $h' = +003$

P Persi	$+1.62$	9.57	$+38$	21	$+79$	49	3.27	54	33	-2.94	$+03$	-2.91
3 Persi	$+1.53$	0.00	$+40$	28	$+55$	50	3.30	54	36	2.94	$+03$	2.91
2 Persi	$+1.3$	2.15	$+49$	25	$+17$	52	3.51	54	49	3.02	$+02$	3.00
E Tauri	$+1.5$	3.20	$+9$	18	$+16$	54	2.96	54	07	2.89	$+01$	2.88
F Tauri	$+1.3$	4.23	$+12$	30	$+12$	55	3.09	54	09	3.00	$+00$	3.00
E Eridani	$+1.3$	4.27	-9	53	$+14$	56	2.85	54	07	2.92	$+00$	2.92
Gr. 716	$+1.3$	3.31	$+62$	49	$+1.54$	363	3.86	54				
2 Persi	$+1.3$	6.34	$+47$	23	$+1.04$	67	3.11	54	46	2.95	-00	2.95
4 Tauri	$+2.3$	7.40	$+23$	43	$+1.44$	61	3.14	54	18	2.96	-01	2.97
4 Camel	$+3.8$	4.6	$+60$	14	$+1.76$	365	3.66	54				
E Persi	$+3.8$	4.9	$+39$	39	$+33$	64	3.27	54	35	2.92	-02	2.94
C Persi	$+3.4$	0.56	$+47$	23	$+1.04$	69	3.34	54	46	2.88	-03	2.91
E Eridani	$+3.4$	1.6	-7	10	-13	366	2.83	54	05	2.88	-03	2.91
2.8	$+5.10$	-4.96	-4.96	-496	3.1	-4.96	-4.96	-4.96	-4.96	-4.96	-4.96	-4.96
3.1	$+4.42$	-4.68	-4.68	-468	3.5	-4.68	-4.68	-4.68	-4.68	-4.68	-4.68	-4.68
3.5	$+1.94$	-3.86	-3.86	-386	3.8	-3.86	-3.86	-3.86	-3.86	-3.86	-3.86	-3.86
3.8	$+1.78$	-3.66	-3.66	-366								

47 Heph	✓ 2	48	+ 78	55	+ 5.10	- 4.96	358
48 Heph	✓ 3	04	+ 77	16	+ 4.42	- 4.68	360
	3	29					
3.3 + 16	- 2.96	3.3 + 1.17	- 3.51				
3.4 + 22	3.09	3.6 + 1.09	3.41				
3.4 - 17	2.85	4.0 + 1.09	3.34				
4.1 - 13	2.83						
3.6 + 02	- 2.93	3.6 + 1.12	- 3.42				
		n5 = 44					
0 = + 5.08	- 2.03	n = + 40	0 = + 3.98	- 1.54	n = + 39		
+ 4.40	- 1.75	+ 40	+ 3.30	- 1.26	+ 32		
+ 1.92	- 0.93	+ 48	+ 0.82	- 0.44	+ 52		
+ 1.76	- 0.73	+ 41	+ 0.66	- 0.24	+ 37		

1872 Jan¹⁴ $h = +002$ $h' = +005$ $n = +38$
 $h' = +006$

7 Trianguli	$+2.10$	$+33$	16	$+66$	352	3.24	54	25	-2.99	00	
v Aurigae	$+2.25$	31	$+21$	25	$+39$	355	3.10	54	15	2.95	
6 Persi	$+1.26$	35	$+48$	42	$+1.44$	40	3.48	54	43	3.05	
41 Aurigae	$+2.7$	42	$+26$	45	$+5.04$	44	3.21	54	19	3.02	
P Persi	$+1.28$	45	$+52$	15	$+1.29$	45	3.50	54	49	3.01	
P Persi	$+2.29$	57	$+38$	21	$+79$	49	3.27	54	30	2.97	
3 Persi	$+3.0$	00	$+40$	28	$+55$	50	3.30	54	32	-2.98	00
1.2	$+4.84$	-19.62	-19.62	-1962							
2.1	$+2.24$	-3.85	-3.85	-385							
2.3	$+2.34$	-3.85	-3.85	-385							

2 Vrs. Min.	✓ 1	11	+88	39	+41.94	-19.62	19
55 Lacs.	✓ 2	4	+65	56	+2.44	-3.85	350
L Cas	✓ 2	18	+66	50	+2.33	-3.85	36
		2	40				
45 Heph	3	4	+77	16	+4.42		360
2.5 + 39 -	3.10		2.6 + 1.14 -	3.48			
2.7 + 50 -	3.21		2.7 + 1.29	3.50			
			2.9 + 1.9	3.27			
			3.0 + 1.5	3.30			
2.6 + 44 -	3.16		2.8 + 1.02 -	3.89			
			n5 = 40				
0 = +4.140 - 16.46	n = +40		0 = +4.082 - 16.23	n = +40			
+ 1.80 - 0.69	+ 38		+ 7.22 - 0.46	+ 38			
+ 1.90 - 0.69	+ 36		+ 1.32 - 0.46	+ 35			

$$\sin 2 = +.60 + .80 + .40 + .60 + .20 + .40 + 0 + .20 + 0 - .20 - .20 - .40 - .40 - .60 - .60 - .80 - .80 - 1.00$$

[illegible]

Star	RA	Dec	h	h'	n
1872 Jan 24			$h = +004$	$h' = -010$	$n = +39$
$h' = +003$					
δ	ϵ	$\tan \delta$			
β Androm	251.03	+34.57	$70.16 - 5.92$	$70.27 - 5.58$	-03
γ Androm	102.633	-0.73	$08.39 - 5.50$	$08.50 - 5.01$	.51
δ Androm	102.637	+2.42	$05.41 - 5.44$	$05.42 - 5.01$	.43
ϵ Androm	092.742	+26.45	$50.44 - 5.72$	$50.49 - 5.33$	.19
ζ Persei	109.2743	+52.15	$129.445 - 5.98$	$129.45 - 5.48$	.50
η Persei	72.957	+38.21	$79.44 - 5.82$	$79.45 - 5.31$	.51
θ Persei	53.142	+19.15	$35.359 - 5.61$	$35.36 - 5.19$	.47
ι Persei	43.215	+49.25	$117.52 - 5.97$	$117.53 - 5.46$	.51
κ Persei	23.423	+12.30	$22.55 - 5.57$	$22.56 - 5.09$	.48
λ Persei	23.427	-9.53	$17.56 - 5.38$	$17.57 - 4.87$	.45
μ Persei	3.37	+62.09	$1.95 - 5.30$	$1.96 - 4.79$	.47
ν Persei	205.636	+49.46	$118.377 - 5.95$	$118.38 - 5.44$	.49
ξ Persei	15.743	+39.7	$81.101 - 5.85$	$81.11 - 5.32$	.57
ζ Persei	225.849	+54.76	$139.379 - 6.01$	$139.38 - 5.49$	.45
η Persei	225.851	+37.12	$76.704 - 5.88$	$76.71 - 5.36$	.56
θ Persei	22.303	+34.34	06.2578	$06.26 - 5.46$	.46
ι Persei	33.318	+8.35	$15.53 - 5.52$	$15.54 - 5.01$	.47
κ Persei	3.59			$3.60 - 5.49$	.47
λ Persei	1.2 + 41.84	-22.14	-22.13	-22.12	-2.8
μ Persei	1.9 + 3.04	-6.83	-6.82	-6.81	-3.3
ν Persei	3.5 + 1.94	-6.30	-6.30	-6.30	-6.30

1872 Jan 30			$h = +014$	$h' = +008$	$n = +47$
$h' = -007$					
δ	ϵ	$\tan \delta$			
β Androm	251.03	+34.57	$70.16 - 5.92$	$70.27 - 5.58$	-03
γ Androm	102.633	-0.73	$08.39 - 5.50$	$08.50 - 5.01$	.51
δ Androm	102.637	+2.42	$05.41 - 5.44$	$05.42 - 5.01$	.43
ϵ Androm	092.742	+26.45	$50.44 - 5.72$	$50.49 - 5.33$	.19
ζ Persei	109.2743	+52.15	$129.445 - 5.98$	$129.45 - 5.48$	.50
η Persei	72.957	+38.21	$79.44 - 5.82$	$79.45 - 5.31$	.51
θ Persei	53.142	+19.15	$35.359 - 5.61$	$35.36 - 5.19$	.47
ι Persei	43.215	+49.25	$117.52 - 5.97$	$117.53 - 5.46$	.51
κ Persei	23.423	+12.30	$22.55 - 5.57$	$22.56 - 5.09$	.48
λ Persei	23.427	-9.53	$17.56 - 5.38$	$17.57 - 4.87$	.45
μ Persei	3.37	+62.09	$1.95 - 5.30$	$1.96 - 4.79$	.47
ν Persei	205.636	+49.46	$118.377 - 5.95$	$118.38 - 5.44$	.49
ξ Persei	15.743	+39.7	$81.101 - 5.85$	$81.11 - 5.32$	.57
ζ Persei	225.849	+54.76	$139.379 - 6.01$	$139.38 - 5.49$	.45
η Persei	225.851	+37.12	$76.704 - 5.88$	$76.71 - 5.36$	.56
θ Persei	22.303	+34.34	06.2578	$06.26 - 5.46$	.46
ι Persei	33.318	+8.35	$15.53 - 5.52$	$15.54 - 5.01$	.47
κ Persei	3.59			$3.60 - 5.49$	.47
λ Persei	1.2 + 41.84	-22.14	-22.13	-22.12	-2.8
μ Persei	1.9 + 3.04	-6.83	-6.82	-6.81	-3.3
ν Persei	3.5 + 1.94	-6.30	-6.30	-6.30	-6.30

1872 Jan 30			$h = +014$	$h' = -054$	$n = +51$
$h' = -007$					
δ	ϵ	$\tan \delta$			
β Androm	251.03	+34.57	$70.16 - 5.92$	$70.27 - 5.58$	-03
γ Androm	102.633	-0.73	$08.39 - 5.50$	$08.50 - 5.01$	.51
δ Androm	102.637	+2.42	$05.41 - 5.44$	$05.42 - 5.01$	.43
ϵ Androm	092.742	+26.45	$50.44 - 5.72$	$50.49 - 5.33$	.19
ζ Persei	109.2743	+52.15	$129.445 - 5.98$	$129.45 - 5.48$	.50
η Persei	72.957	+38.21	$79.44 - 5.82$	$79.45 - 5.31$	.51
θ Persei	53.142	+19.15	$35.359 - 5.61$	$35.36 - 5.19$	.47
ι Persei	43.215	+49.25	$117.52 - 5.97$	$117.53 - 5.46$	.51
κ Persei	23.423	+12.30	$22.55 - 5.57$	$22.56 - 5.09$	.48
λ Persei	23.427	-9.53	$17.56 - 5.38$	$17.57 - 4.87$	.45
μ Persei	3.37	+62.09	$1.95 - 5.30$	$1.96 - 4.79$	.47
ν Persei	205.636	+49.46	$118.377 - 5.95$	$118.38 - 5.44$	.49
ξ Persei	15.743	+39.7	$81.101 - 5.85$	$81.11 - 5.32$	.57
ζ Persei	225.849	+54.76	$139.379 - 6.01$	$139.38 - 5.49$	.45
η Persei	225.851	+37.12	$76.704 - 5.88$	$76.71 - 5.36$	.56
θ Persei	22.303	+34.34	06.2578	$06.26 - 5.46$	.46
ι Persei	33.318	+8.35	$15.53 - 5.52$	$15.54 - 5.01$	.47
κ Persei	3.59			$3.60 - 5.49$	.47
λ Persei	1.2 + 41.84	-22.14	-22.13	-22.12	-2.8
μ Persei	1.9 + 3.04	-6.83	-6.82	-6.81	-3.3
ν Persei	3.5 + 1.94	-6.30	-6.30	-6.30	-6.30

1872 Jan 24			$h = +004$	$h' = -010$	$n = +39$
$h' = +003$					
δ	ϵ	$\tan \delta$			
β Androm	251.03	+34.57	$70.16 - 5.92$	$70.27 - 5.58$	-03
γ Androm	102.633	-0.73	$08.39 - 5.50$	$08.50 - 5.01$	.51
δ Androm	102.637	+2.42	$05.41 - 5.44$	$05.42 - 5.01$	.43
ϵ Androm	092.742	+26.45	$50.44 - 5.72$	$50.49 - 5.33$	.19
ζ Persei	109.2743	+52.15	$129.445 - 5.98$	$129.45 - 5.48$	.50
η Persei	72.957	+38.21	$79.44 - 5.82$	$79.45 - 5.31$	.51
θ Persei	53.142	+19.15	$35.359 - 5.61$	$35.36 - 5.19$	.47
ι Persei	43.215	+49.25	$117.52 - 5.97$	$117.53 - 5.46$	.51
κ Persei	23.423	+12.30	$22.55 - 5.57$	$22.56 - 5.09$	.48
λ Persei	23.427	-9.53	$17.56 - 5.38$	$17.57 - 4.87$	.45
μ Persei	3.37	+62.09	$1.95 - 5.30$	$1.96 - 4.79$	.47
ν Persei	205.636	+49.46	$118.377 - 5.95$	$118.38 - 5.44$	.49
ξ Persei	15.743	+39.7	$81.101 - 5.85$	$81.11 - 5.32$	.57
ζ Persei	225.849	+54.76	$139.379 - 6.01$	$139.38 - 5.49$	.45
η Persei	225.851	+37.12	$76.704 - 5.88$	$76.71 - 5.36$	.56
θ Persei	22.303	+34.34	06.2578	$06.26 - 5.46$	.46
ι Persei	33.318	+8.35	$15.53 - 5.52$	$15.54 - 5.01$	.47
κ Persei	3.59			$3.60 - 5.49$	.47
λ Persei	1.2 + 41.84	-22.14	-22.13	-22.12	-2.8
μ Persei	1.9 + 3.04	-6.83	-6.82	-6.81	-3.3
ν Persei	3.5 + 1.94	-6.30	-6.30	-6.30	-6.30

$\sin Z = +60 +80 +140 +60 +20 +40 +0 +20 +0 -20 -20 -40 -140 -60 -60 -80 -80 -100$

P.A. $\sin Z$		$R_{\text{eq}} R_{\text{p}} R_{\text{p}} R_{\text{p}}$			
h	m	R_{eq}	R_{p}	R_{p}	R_{p}
1	3	+0	"	"	"
2	33	+68	56.1	-2	55.9
2	37	+64	54.8	+3	55.1
2	43	+27	56.8	+4	57.2
2	48	-14	58.6	+6	59.2
2	57	+07	58.8	-3	58.3
3	4	+39	57.5	-2	57.3
3	15	-12	57.9	+6	58.5
3	23	+50	58.2	-2	58.0
3	27	+79	56.4	-1	56.3
3	18	+56	56.6	+4	57.0
5	36	-13	58.3	+9	59.2
5	43	+06	59.9	-18	58.1
5	49	-21	28.5	+1	28.6
5	51	+09	+1	27.7	(12) 58.28

3	18	+56	+68	+55.9	+50	+58.0	+27	+57.2	+07	+58.5	-17	+59.2	-35	+1.0	-49	+59.5	-91	+1.5
			+64	55.1	+56	57.0	+39	57.3	+06	58.1	-12	58.5	-13	59.2				
			+79	56.3														
			+70	+55.8	+53	+57.5	+33	+57.2	+06	+58.3	-14	+59.0	-35	+1.0	-49	+59.5	-91	+1.5
				+19		+15		+11		+02	-05		-11		-15		-2.2	
+0	58.424		3	58.7	2	58.0	2	58.3	2	58.5	3	58.5	1	58.9	1	58.0	59.3	14
	58.37			+1.7		-1.6		+1.1		-1.1		-1.1		-1.5		+1.4		15

1	48	+38	+0	40.7	-2	40.5	+10	41.5										
1	56	+01		42.3	+1	42.4	+0	42.4										
2	10	+16		42.0	-2	41.8	+1	42.2										
3	15	+12		42.0	+6	42.6	-3	42.3										
3	18	+56		55.9	+4	(56.3)	+14	(57.7)										
3	27	+79		41.1	-1	41.0	+19	42.9										
3	34	+09		40.6	+5	41.1	-3	40.8										
3	46	+19	-31	44.9	-1	44.8	-9	43.9										
3	59	-09		42.9	+4	43.3	-3	43.0										

			+79	+41.0		+38	+40.5	+01	+42.4	-12	+42.0	-31	+44.8					
						+16	41.8		-09	41.1								
			+79	+41.0		+38	+40.5	+08	+42.1	-10	+42.3	-31	+44.8					
				+21		+11			+2									
+0	42.40		1	43.1		41.6	2	42.3	3	42.0	4	42.9						
	42.38			-1.7		+8		+1		+4		-1.5						

4	16	+42	+0	43.3	+0	43.3	+11	44.4										
4	22	-19		40.7	+9	41.6	-5	41.1										
4	30	+72		42.9	-6	42.3	+17	44.0										
4	35	+34		40.3	+5	40.8	+9	41.7										
4	37	-24		41.9	+5	42.4	-6	41.8										
4	39	+72		41.1	+3	41.4	+17	43.1										
4	49	+16		43.1	-1	43.0	+4	43.4										
4	52	-31		42.9	+2	43.1	-8	42.3										
4	54	+03		42.9	+1	43.0	+1	43.1										
4	55	+36		42.6	-0	42.6	+10	43.6										
5	3	+78		42.0	+11	41.1	+18	42.9										
5	5	+07		42.9	-1	42.8	+2	43.0										
5	7	-06		43.7	+1	43.8	-2	43.6										
5	8	+77		40.9	+5	41.4	+18	43.2										
5	11	+76		42.2	-1	42.1	+18	43.9										
5	18	+24		41.1	+11	42.2	+6	42.8										

			+76	+42.1		(16)	42.99											
			+72	+42.3	+42	+43.3	+34	+40.8	+16	+43.0	-19	+41.6	-24	+42.4	-40	+42.5	-82	+42.9
			+72	41.4			+36	42.6	+03	43.0	-06	43.8	-31	43.1	-54	+42.5		
			+78	41.1			+24	42.2	+07	42.8								
			+77	41.4														
			+75	+41.7	+42	+43.3	+31	+41.9	+09	+42.9	-12	+42.7	-28	+42.8	-47	+42.5	-82	+42.9
				+19		+12		+09		+03		-4		-9		-13	-2.1	
+0	42.35		5	43.6	1	44.5	3	42.8	3	43.2	2	42.3	2	41.0	2	41.2	40.8	18
	42.51							+2				+3		+2		+16		513

1872 Jan 30 $h = +0.14$ $h' = -0.16$ $n = +52$

Star RA S $Tang$

α Orion $+15.848 + 7$ 23 + 13.102 - 6.474 .07 - 6.40 00

β Aurigae $+15.850 + 44$ 56 + 1.00/103 - 6.854 .52 .33

γ Orion $+16.000 + 14$ 47 + 26.384 - 6.494 .14 .35

δ Gemini $+16.1 + 22$ 32 + 41.105 - 6.574 .21 - 6.36 00

5.921

6.1 + 266 - 7.70 - 7.70 - 7.70 6.2 - 16.88 + 1.36 + 1.36 + 1.35

+ .00 + .00

6.7 + 20.78 - 17.61 - 17.62 - 17.62

+ .01 + .01

6.2 - 16.88 + 1.36 + 1.36 + 1.36

00

1872 Jan 31 $h = +0.22$ $h' = -0.26$ $n = +53$

Star RA S $Tang$

α Arietis $+12.000 + 22$ 52 + 12.033 - 7.074 .22 - 6.85 00

β Trianguli $+12.0 + 34$ 24 + 1.88/34 - 7.294 .36 .93

γ Persei $+12.15 + 50$ 29 + 1.21/351 - 7.634 .64 .99

67 Ceti $+12.211 - 7$ 00 - 12.352 - 6.774 .06 - 6.83 00

2.08

1.2 + 41.84 - 29.16 - 29.14 - 29.14

* .02 * .02

- 6.900 - 6.900

1872 Jan 31 $h = +0.22$ $h' = +0.05$ $n = +52$

Star RA S $Tang$

α Persei $+12.000 + 47$ 23 + 1.09/69 - 7.504 .54 - 6.93 00

β Tauri $+12.13 + 15$ 19 + 27.10 - 7.034 .14 .89

γ Camelopardalis $+12.2 + 53$ 38 + 1.36/348 - 8.554 .71 7.84

δ Aurigae $+12.36 + 49$ 46 + 1.18/377 - 7.554 .61 .94

ϵ Aurigae $+12.5143 + 39$ 7 + 8.101 - 7.344 .42 .92

ζ Orion $+12.5848 + 7$ 23 + 13.102 - 6.554 .07 .78

η Aurigae $+12.5850 + 44$ 56 + 1.00/103 - 7.404 .52 7.880 .88

5.921

θ Eridani $+12.84.16 - 7$ 10 - 13.366 - 6.764 .07 .83

ι Tauri $+12.12 + 15$ 19 + 27.10 - 7.034 .14 .89

κ Tauri $+12.43.16 + 17$ 15 + 31.71 - 7.024 .16 .86

λ Camelopardalis $+12.44.22 + 53$ 38 + 1.36/368 - 7.644 .71 - 6.93 00

μ Eridani $+12.42 + 37$ 37 - 6.884 - 6.884

4.88

6.2 + 266 - 8.39 - 5.43 - 8.42 6.2 - 16.88 + 2.05 + 2.01 + 2.02

+ .04 + .03

6.7 + 20.78 - 17.60 - 17.64 - 17.64 5.4 - 3.11 - 5.39

+ .04 + .04

1872 Jan 30

Star RA S $Tang$

22 Camelopardalis $+12.69 + 22$ 22 + 2.664 - 7.704 .383

δ Ursae Minoris $+12.84 + 13$ 13 + 9.38/2436 - 16.884 + 1.364 .256

ϵ Cephei $+12.84 + 14$ 14 + 20.504 - 17.614 .111

5.8 + 1.3 - 6.47

6.0 + 26 - 6.49

6.1 + 41 - 6.57

6.0 + 27 - 6.51

5.8 + 1.00 - 6.85

9.5 = 47

0 = +239 - 1.09 $n = +50$

+ 20.51 - 11.11 + .54

0 = +1.66 - 0.85 $n = +51$

+ 19.78 - 10.77 + .54

1872 Jan 31

Star RA S $Tang$

α Orion $+12.15 + 50$ 29 + 1.21/351 - 7.634 .64 .99

2.2 - 12 - 6.77

2.0 + 42 - 7.07

2.1 + 15 - 6.92

2.1 + 1.21 - 7.63

2.0 + 68 - 7.29

2.0 + 94 - 7.46

0 = +4169 - 2222 $n = +53$

0 = +4090 - 2168 $n = +53$

1872 Jan 31

Star RA S $Tang$

22 Camelopardalis $+12.69 + 22$ 22 + 2.664 - 7.704 .383

δ Ursae Minoris $+12.84 + 13$ 13 + 9.38/2436 - 16.884 + 1.364 .256

ϵ Cephei $+12.84 + 14$ 14 + 20.504 - 17.614 .111

ζ Eridani $+12.84.16 - 7$ 10 - 13.366 - 6.764 .07 .83

4.2 + 27 - 7.03

4.1 - 13 - 6.76

4.3 + 31 - 7.02

5.8 + 1.3 - 6.85

4.6 + 14 - 6.92

4.0 + 1.09 - 7.50

4.4 + 1.36 - 7.64

5.6 + 1.18 - 7.55

5.8 + 1.00 - 7.40

4.9 + 1.16 - 7.52

9.5 = 51

0 = +252 - 1.51 $n = +52$

+ 20.64 - 10.72 + .52

0 = +1.50 - 0.90 $n = +50$

+ 19.62 - 10.12 + .52

1872 Jan 31

Star RA S $Tang$

22 Camelopardalis $+12.69 + 22$ 22 + 2.664 - 7.704 .383

δ Ursae Minoris $+12.84 + 13$ 13 + 9.38/2436 - 16.884 + 1.364 .256

ϵ Cephei $+12.84 + 14$ 14 + 20.504 - 17.614 .111

ζ Eridani $+12.84.16 - 7$ 10 - 13.366 - 6.764 .07 .83

4.2 + 27 - 7.03

4.1 - 13 - 6.76

4.3 + 31 - 7.02

5.8 + 1.3 - 6.85

4.6 + 14 - 6.92

4.0 + 1.09 - 7.50

4.4 + 1.36 - 7.64

5.6 + 1.18 - 7.55

5.8 + 1.00 - 7.40

4.9 + 1.16 - 7.52

9.5 = 51

0 = +252 - 1.51 $n = +52$

+ 20.64 - 10.72 + .52

0 = +1.50 - 0.90 $n = +50$

+ 19.62 - 10.12 + .52

0 = -1702 + 893 $n = +52^3$

0 = -1804 + 954 $n = +53$

$$\sin 2 = +60 + 80 + 40 + 60 + 20 + 40 + 0 + 20 + 0 - 20 - 20 - 40 - 40 - 60 - 60 - 80 - 80 - 100$$

RA	sin 2	P ₂	P ₁	P ₀	P ₀	P ₀
h m						
5 48	+57	+0	38.8	+1	39.5	+13 40.8
5 50	-05		41.3	+5	41.8	-2 41.6
6 0	+46		41.7	+3	42.0	+12 43.2
6 7	+34		39.6	+2	39.8	+9 42.7
					(4)	41.58
					+57 +39.5	+34 +39.8
					+46 42.0	
					+52 +40.8	+34 +39.8
+0	4162		2	422	1	408
	41.55			-6		+7

RA	sin 2	P ₂	P ₁	P ₀	P ₀	P ₀
h m						
6 4	-45	+0	42.2	+3	42.5	-12 41.3
18 13	-87		44.3	-3	44.0	-22 41.8
6 40	-70		43.1	+2	43.3	-16 41.7
					(2)	41.50
					-45 +42.5	-70 +43.3
					-87 +44.0	
					-45 +42.5	-70 +43.3
					-87 +44.0	
					-13	-18
					-21	
					41.2	41.9
					+4	+1

2 0	+33	+0	39.4	-1	39.3	+9 40.2
2 2	+14		41.9	+1	42.0	+4 42.4
2 5	-14		42.3	+5	42.8	-4 42.4
2 11	+76		41.2	+8	42.0	+18 43.8
					(4)	42.20
					+76 +42.0	+33 +39.3
					+33 +39.3	+14 +42.0
					-14 +42.8	
					+76 +42.0	+33 +39.3
					+33 +39.3	+14 +42.0
					-14 +42.8	
					+2.0	+1.0
					+44	-4
+0	4228		1	440	1	40.8
	42.20			-1.7		+2.0
						-1

1 13

4 0	-09	+0	42.0	+4	42.4	-3 42.1
4 13	+45		42.5	-5	42.0	+12 43.2
4 22	-19		40.8	+9	41.2	-4 42.4
5 36	-13		41.9	+9	42.8	-4 42.4
5 43	+06		44.0	-18	42.2	+2 42.4
5 48	+57		39.2	+7	39.9	+14 41.3
5 50	-05		43.8	+5	44.3	-2 44.1
4 6						
4 16	+42		41.3	+0	41.3	+11 42.4
4 22	-19					
					(7)	42.56

6 5		+0	45.0	-3	44.7	-22 42.5
18 13	-87		42.7	+2	42.9	-16 41.8
6 41	-70		45.7	-4	45.3	-23 43.0
17 44	-91					
					(1)	41.30

+45 +42.0	+06 +42.2	-09 +42.4	-70 +42.9	-87 +44.7
+57 39.9		-13 42.8	-91 45.3	
+42 41.3		-05 44.3		
+48 +41.1	+06 +42.2	-09 +43.2	-70 +42.9	-87 +45.0
+1.3	+02	-3	-21	
3 42.4	1 42.4	3 42.9	1 41.1	42.8
+1.0	+1.0	-1.5	+1.3	

+0 42.48²
42.40

8

1871phae.	1872.	Feb, mare	$h = +0.23$ $h' = -0.17$	$h = -0.75$ $n = +.53$			
Star	LR	δ	Tung				
	2000	m			-7.340		
S. Arctici	1.41	8.48 + 20	12' + 37.30 -	7.56 +	20	-7.36 - 10	-7.46
6 Persi	1.2	5 + 50	29 + 121.351				
67 Ceti	1.10	2.10 - 7	0 - 12.353	7.26 +	06	32 - 07	.39
S. Arctici	1.1	1.4 + 19	15 + 35.359	7.60 +	19	41 - 01	.42
a Persi	1.03	2.15 + 49	25 + 1.17.52	8.10 +	62	48 - 00	.48
S. Arctici	1.43	6.34 + 47	23 + 1.49.57	8.04 +	58	46 + 03	.43
m. Auri	1.53	7.40 + 23	43 + 4.40.61	7.64 +	23	41 + 04	.37
S. Camel.	1.63	8.46 + 60	44 + 1.78.36.5	8.44 +	94	50 + 04	.46
S. Arctici	1.2	5.15.35	26 + 7.16	- 4.62 +			
m. Auri	1.43	9.54 + 12	8 + 2.15.66	7.59 +	11	-7.48 + 05	.43
Camel.	1.42	4.22 + 53	38 + 1.36 +	8.20			
	3.55	3.16			-7.457	-7.428	-7.430

1872 H.A.R.	Feb 1 st		
She	Pa	S	
1.8 + 37 = 756	3.3 + 1.17 = 8.10		
22 - 12 = 726	3.6 + 1.09 = 8.04		
3.1 + 35 = 760	3.8 + 1.78 = 8.44		
3.9 + 31 = 759			
2.8 + 20 = 750	3.6 + 1.35 = 8.19		
	NS = 60		

1872 Bob h = *023 h' = -035 m = +5.4
 h' = -017

Camel ^{4.45} 7.422 + 53 38 + 136.368 - 8.20 4 73 ^{7.460} - 7.47 - 05 - 7.52
 + 1.4 5.28 + 16 15 + 29.73 - 7.61 + 16 15.04 19

3 Auriga x.2.58 50 + 44 56 + 100.103 - 8.11 4 54 .57 + 01 .56
 2 Aynia x.5.0.1.9 + 59 3 + 167.384 - 8.37 4 90 .47 + 02 .45
 8 Aynia x.8.6.42 6 + 61 35 + 15.388 8.50 4 100 .60 + 03 .57

51 Auriga ^{5.62} 9.653 0 + 39 30 + 8.2.389 7.91 + 34 - 7.47 + 03 .44
 - 7.528 - 7.505 - 7.505

6.1 + 2.66 - 8.88 - 8.92 - 8.89 3.8 - 4.78 - 4.60 4.58 - 4.56
 + .04 + 01 ± .02 ± 04

6.7 + 2.078 - 19.48 - 19.53 - 19.50 6.2 - 16.88 + 2.70 + 0.66 + 0.69
 + .05 + 02 + 04 + 01

3 Wbs Mini SL	✓ 15	19	+ 12	49	- 4.78 ✓	- 4.60 ✓	217
22 M Carnot	6	5	+ 69	22	+ 2.66 ✓	- 8.88 ✓	383
8 Wbs Mini	18	13	+ 93	46	+ 16.88 ✓	+ 0.70 ✓	256
51 H Cepheix	6	41	+ 87	14	+ 20.50 ✓	- 19.48 ✓	111
4.5 + 29	- 7.61	4.4 + 1.36	- 8.20				
		5.8 + 1.00	8.11				
		6.1 + 1.67	8.37				
		6.4 + 1.85	8.62				
4.5 + 29	- 7.61	5.7 + 1.47	- 8.32				
0 = + 237	- 1.31	n = + 55	2	0 = + 1.19	- 0.57	n = + 49	3
+ 2049	- 11.92	+ 0.88		+ 19.31	- 11.8	+ 5.8	

1872	Feb. 2	$\bar{h} = +.018$	$\bar{h}' = -.035$	$\bar{a} = +.54$
	A.M.	$\bar{h}'' = -.012$		
α Orion	$+15.848 + 7$	$23 + .13 \sqrt{102}$	$8.10 \sqrt{.07}$	$-8.03 = .00$
β Auriga	$+15.850 + 44$	$56 + .10 \sqrt{103}$	$8.60 \sqrt{.54}$	$-8.06 = .00$
γ Orion	$+16.000 + 14$	$47 + .26 \sqrt{382}$	$8.17 \sqrt{.14}$	$-8.03 = .00$
η Gemini	$+26.17 + 22$	$32 + .41 \sqrt{105}$	$8.19 \sqrt{.22}$	$-7.97 + .01$
	5.92			-8.022
$6.1 + 2.66$	$-9.36 - 9.36$	-9.37	$5.7 - 3.11$	$-6.22 \div 6.21$
	$+ .00 + .01$			$- 6.22$
$6.7 + 20.78$	$-19.09 - 19.10$	-19.11	$6.2 - 16.88$	$+ .01 + .00$
	$+ .01 + .02$			$+ 1.20 + 1.20$
				$+ .00 + .01$

0 = -507 + 303	n = +60 ⁵⁹	0 = -6.25 + 3.76	n = +60 ⁵⁷
-17.7 + 69.5	+48 ⁵⁰	-18.35 + 7.63	+49 ⁵⁰
1' Deneb Auck SC	15 144 + 17 47	-6.22 ✓	484
2' Camel X	6 44 + 69 22 + 2.66	-9.36 ✓	383
3' Deneb Auck SC	15 15 + 93 ⁸⁶ 24 + 1.68	+1.20 ✓	256
4' 21.55	18 35 + 77 27 + 4.47	-19.09 ✓	440
5' 1st Cephei	6 40 + 87 14 + 2.00		111
5.8 + 13 - 8.10	5.8 + 100 - 8.60		
6.0 + 26 8.17			
6.1 + 41 8.19			
6.0 + 27 - 8.15	5.8 + 100 - 8.60		
	715 = 58		
0 = +2.39 - 1.21	n = +51	0 = +1.66 - 0.77	n = +46 ⁷
+20.51 - 10.95	+53	+19.78 - 10.51	+53

$$\begin{array}{rcl} \theta = -338 + 194 & n = +57 & \theta = -411 + 238 & n = +58 \\ -17.15 + 695 & +55 & -17.88 + 144 & +55 \\ \quad \quad \quad 9.35 & & \quad \quad \quad 9.49 \end{array}$$

$$\sin z = +60 + 80 + 40 + 60 + 20 + 40 + 0 + 20 + 0 - 20 - 20 - 40 - 40 - 60 - 60 - 80 - 80 - 100$$
[illegible]

1872	Feb 4	$L = +0.16$	$h = -0.4$	$n = +46$
Star	RA	L	h	n
α Cep	336.6	25	0	0
β Persei	112.956	+3	36	+06.47 - 8.74
γ Persei	103.010	+40	28	+35.50 - 9.14
δ Persei	83.215	+49	25	+117.52 - 9.34
ϵ Tauri	73.318	+8	35	+15.53 - 8.73
ζ Tauri	73.320	+9	18	+16.54 - 8.78
η Tauri	63.421	+12	30	+22.55 - 8.81
θ Persei	43.634	+47	23	+149.57 - 9.27
ι Tauri	33.740	+23	43	+144.61 - 8.92
κ Persei	23.846	+31	31	+161.63 - 8.99
λ Persei	23.849	+39	39	+133.64 - 9.19
μ Tauri	13.954	+12	8	+121.66 - 8.81
ν Persei	04.000	+47	23	+149.69 - 9.29
ξ Tauri	2.122	+15	19	+27.70 - 8.86
ζ Tauri	3.436	+17	15	+31.71 - 8.81
η Tauri	4.421	+16	54	+34.72 - 8.88
θ Tauri	5.529	+16	15	+29.73 - 8.96
β Aurigae	58.50	+44	56	+100.103 - 9.37
γ Lynx	6.29	+59	3	+168.384 - 9.62
δ Eridani	41.6	-7	10	+13.366 - 8.69
ϵ Eridani	3.97	-11.12	-11.10	-11.09
ζ Eridani	02.7	-10.76	-10.75	-10.74
η Eridani	01.2	-10.76	-10.75	-10.74

1872	Feb 5	$L = +0.16$	$h = -0.73$	$n = +48$
Star	RA	L	h	n
α Orionis	35.25	-0	24	-11.93
β Orionis	35.29	-1	17	-12.97 - 9.09
γ Orionis	35.32	-2	40	-15.37 - 9.09
δ Orionis	25.636	+49	46	+118.37 - 9.74
ϵ Aurigae	5.743	+39	7	+81.01 - 9.50
ζ Orionis	5.848	+7	23	+13.102 - 9.22
η Aurigae	58.50	+44	56	+100.103 - 9.64
θ Orionis	26.004	+14	47	+26.82 - 9.24
ι Tauri	36.17	+22	32	+41.15 - 9.38
κ Tauri	6.530	+16	30	+30.107 - 9.34
λ Tauri	5.83	-11.09	-11.08	-11.09
μ Tauri	01.2	-18.66	-18.67	-18.68
ν Tauri	01.2	-18.66	-18.67	-18.68

1872	Feb 6	$L = +0.16$	$h = -0.73$	$n = +48$
Star	RA	L	h	n
α Orionis	35.25	-0	24	-11.93
β Orionis	35.29	-1	17	-12.97 - 9.09
γ Orionis	35.32	-2	40	-15.37 - 9.09
δ Orionis	25.636	+49	46	+118.37 - 9.74
ϵ Aurigae	5.743	+39	7	+81.01 - 9.50
ζ Orionis	5.848	+7	23	+13.102 - 9.22
η Aurigae	58.50	+44	56	+100.103 - 9.64
θ Orionis	26.004	+14	47	+26.82 - 9.24
ι Tauri	36.17	+22	32	+41.15 - 9.38
κ Tauri	6.530	+16	30	+30.107 - 9.34
λ Tauri	5.83	-11.09	-11.08	-11.09
μ Tauri	01.2	-18.66	-18.67	-18.68
ν Tauri	01.2	-18.66	-18.67	-18.68

1872	Feb 4	$L = +0.16$	$h = -0.4$	$n = +46$
Star	RA	L	h	n
α Cep	336.6	25	0	0
β Persei	112.956	+3	36	+06.47 - 8.74
γ Persei	103.010	+40	28	+35.50 - 9.14
δ Persei	83.215	+49	25	+117.52 - 9.34
ϵ Tauri	73.318	+8	35	+15.53 - 8.73
ζ Tauri	73.320	+9	18	+16.54 - 8.78
η Tauri	63.421	+12	30	+22.55 - 8.81
θ Persei	43.634	+47	23	+149.57 - 9.27
ι Tauri	33.740	+23	43	+144.61 - 8.92
κ Persei	23.846	+31	31	+161.63 - 8.99
λ Persei	23.849	+39	39	+133.64 - 9.19
μ Tauri	13.954	+12	8	+121.66 - 8.81
ν Persei	04.000	+47	23	+149.69 - 9.29
ξ Tauri	2.122	+15	19	+27.70 - 8.86
ζ Tauri	3.436	+17	15	+31.71 - 8.81
η Tauri	4.421	+16	54	+34.72 - 8.88
θ Tauri	5.529	+16	15	+29.73 - 8.96
β Aurigae	58.50	+44	56	+100.103 - 9.37
γ Lynx	6.29	+59	3	+168.384 - 9.62
δ Eridani	41.6	-7	10	+13.366 - 8.69
ϵ Eridani	3.97	-11.12	-11.10	-11.09
ζ Eridani	02.7	-10.76	-10.75	-10.74
η Eridani	01.2	-10.76	-10.75	-10.74

1872	Feb 5	$L = +0.16$	$h = -0.73$	$n = +48$
Star	RA	L	h	n
α Orionis	35.25	-0	24	-11.93
β Orionis	35.29	-1	17	-12.97 - 9.09
γ Orionis	35.32	-2	40	-15.37 - 9.09
δ Orionis	25.636	+49	46	+118.37 - 9.74
ϵ Aurigae	5.743	+39	7	+81.01 - 9.50
ζ Orionis	5.848	+7	23	+13.102 - 9.22
η Aurigae	58.50	+44	56	+100.103 - 9.64
θ Orionis	26.004	+14	47	+26.82 - 9.24
ι Tauri	36.17	+22	32	+41.15 - 9.38
κ Tauri	6.530	+16	30	+30.107 - 9.34
λ Tauri	5.83	-11.09	-11.08	-11.09
μ Tauri	01.2	-18.66	-18.67	-18.68
ν Tauri	01.2	-18.66	-18.67	-18.68

$\sin 2 = +.60 +.80 +.40 +.60 +.20 +.40 +0 +.20 +0 -.20 -.20 -.40 -.40 -.60 -.60 -.80 -.80 -1.00$

	Ret.	Pinz	P _{ry}	R/L	D-P	P _{ry} R/L D-P +10-10
58	2	m		"	"	"
60	2	56	+63	384	+7	39.1 + 1.4 (40.5)
	3	0	+03	41.8	-1	41.7 + .1 41.8
	3	15	-12	42.2	+6	42.8 - .3 42.5
	3	18	+56	40.2	+4	40.6 + .13 41.9
	3	20	+55	40.4	+4	40.8 + .13 42.1
	3	24	+50	42.7	-2	42.5 + .12 43.7
	3	34	-09	42.5	+5	43.0 - .2 42.8
	3	40	+32	42.1	+2	42.3 + .8 43.1
	3	46	+19	41.3	+6	41.9 + .5 42.4
	3	49	+05	43.1	+5	43.6 + .2 43.8
	3	54	+50	42.3	+3	42.6 + .12 43.8
	4	0	-09	42.4	+4	42.8 - .2 42.6
	4	12	+45	42.7	-5	42.2 + .11 43.3
	4	16	+42	42.3	+0	42.3 + .10 43.4
	4	21	+40	43.4	-11	43.0 + .10 44.0
	4	29	+44	43.6	-3	43.3 + .11 44.34
	5	30	-05	42.7	+5	43.2 - .2 43.0
	6	9	-29	40.9	+4	41.3 - .7 40.6
5	4	16				
3						(17) 4290

+ 0.42.68

[illegible]

+0 42.28
12.18

[illegible]
$$+0 \quad 42.92 \quad 55$$

$$4263$$

Star	h	m.	s.	tang ^t sec ^s			
	0	1					
γ Andromedae	+41.956	+41	44 + .89 $\sqrt{32}$	-10.20 $\sqrt{4}$	.27	-9.93	.00
β Trianguli	+32.0 2	+34	24 + .68 $\sqrt{34}$	-10.13 $\sqrt{4}$	.20	.93	
δ Persei	+22.1 5	+50	29 + 1.21 $\sqrt{351}$	-10.29 $\sqrt{4}$	.36	.93	
α Trianguli	+12.2 10	+33	16 + .66 $\sqrt{352}$	-10.11 $\sqrt{4}$	.20	.91	
δ Ceti	-12.2 5 33	-0	13 - .081 $\sqrt{39}$	-9.84 $\sqrt{4}$	.00	.84	
δ Persei	-32.6 35	+48	42 + 1.14 $\sqrt{40}$	-10.30 $\sqrt{4}$	.34	.96	
γ Ceti seq.	+32.6 37	+2	42 + .05 $\sqrt{41}$	-9.80 $\sqrt{4}$	.01	.79	.00
α Persei	$\pm .15$	+49	25 + 1.17 $\sqrt{4}$			-9.88	
	2.27					-9.88	-9.898
-1.2 + 11.84	-22.50	-22.48	-22.48				
* .02	* .02						

1872	Feb. 7				
	HAR.				
Star	RA	Dec			
	2 m				
	2, 23				
	2, 28				
Polaris	1 13 + 88	37 + 4.84 ✓	- 22, 50 ✓		9
2.6 - .01 - 9.84		2.1 + 1.21 - 10.29			
2.6 + .05 - 9.80		2.6 + 1.14 - 10.30			
2.6 + .02 - 9.82		1.9 + .89 - 10.20			
		2.2 + 1.08 - 10.26			
		4.5 - 4.1			
0 = +4182 - 12.96	66	n = +.30	0 = +4276 - 12.22	n = +.30	

1872	Feb	$h = +.017$	$h' = -.008$	$n = +.43$
Star		$h' = -.011$		
ϵ Tauri	$+43.4 9 55 + 21$	$25 + .36 \sqrt{372} - 9.97 \sqrt{4}$	.17	-9.80 .00
λ Eridani	$+25.0 3 - 8$	$53 - .16 \sqrt{85} - 9.79 \sqrt{4}$	.07	.86
μ Aurigae	$+15.1 5 + 38$	$20 + .76 \sqrt{374} - 10.17 \sqrt{4}$	.34	.83
α Aurigae	$+15.1 7 + 45$	$52 + 1.03 \sqrt{86} - 10.35 \sqrt{4}$	.44	.91
β Orionis	$+05.2 8 - 8$	$21 - .15 \sqrt{87} - 9.81 \sqrt{4}$	.06	.87
γ Orionis	$+05.2 11 - 6$	$59 - .12 \sqrt{88} - 9.76 \sqrt{4}$	.05	.81
β Tauri	$+15.3 18 + 28$	$30 + .51 \sqrt{90} - 10.05 \sqrt{4}$	.23	.82
δ Orionis	$+35.5 30 - 1$	$17 + .02 \sqrt{97}$		
δ Aurigae	$+35.5 32 - 2$	$40 - .05 \sqrt{99} - 9.82 \sqrt{4}$	.02	.84
α Aurigae	$+45.6 36 + 49$	$46 + 1.18 \sqrt{377} - 10.32 \sqrt{4}$	.51	-9.81 .00
	5.24			-9.831 - 9.831
$5.4 + 3.72 - 11.47 - 11.47$		$5.0 - 7.35 - 6.82 - 6.81 - 6.81$		
$\pm .00 \pm .00$		$\pm .01 \pm .01$		

Elk. 1872 Feb 7	16 59 + 97	46 - 7.35 ^{7.32} - 6.82 ✓	235
λ 966 ✓	5 11 5 22 + 74	57 + 3.78 ^{3.75} - 11.47 ✓	92
5.0 - 16 - 9.79	5.1 + 1.03 - 10.35		
5.1 - 15 - 9.81	5.6 1.18 <u>10.32</u>		
5.2 - 12 - 9.76	5.4 + 1.10 - 10.34		
5.5 - 02 - 9.75			
5.5 - 05 - 9.82	9.15 = 4.6		
5.3 - 10 - 9.79			
0 = +382 - 1.68	n = +.44	0 = +2.62 - 1.13	n = +.43
0 = -7.25 + 2.98	n = +.44	0 = -8.45 + 3.53	n = +.42

1872	Feb. 8	$h = +.014$	$h' = -.023$	$n = +.42$	$c = -.06$
	Feb. 28	$h = -.028$		10.290	
ϵ Tauri	$+43.4 9 55 + 21$	$25 + .36 \sqrt{372} - 9.97 \sqrt{4}$	.17	-9.80	.00
μ Aurigae	$+15.1 5 + 38$	$20 + .76 \sqrt{374} - 10.17 \sqrt{4}$	.34	.83	
α Aurigae	$+15.1 7 + 45$	$52 + 1.03 \sqrt{86} - 10.35 \sqrt{4}$	.44	.91	
β Orionis	$+05.2 8 - 8$	$21 - .15 \sqrt{87} - 9.81 \sqrt{4}$	.06	.87	
γ Orionis	$+05.2 11 - 6$	$59 - .12 \sqrt{88} - 9.76 \sqrt{4}$	.05	.81	
β Tauri	$+15.3 18 + 28$	$30 + .51 \sqrt{90} - 10.05 \sqrt{4}$	.23	.82	
δ Orionis	$+35.5 30 - 1$	$17 - .02 \sqrt{97} - 9.75 \sqrt{4}$	.01	.76	
δ Aurigae	$+35.5 32 - 2$	$40 - .05 \sqrt{99} - 9.82 \sqrt{4}$	.02	.84	
α Aurigae	$+45.6 36 + 49$	$46 + 1.18 \sqrt{377} - 10.32 \sqrt{4}$	.51	-9.81	.00
	5.24			-9.831	-9.831
ϵ Orionis	$+25.4 25 - 0$	$24 - .11 \sqrt{100} - 9.16 \sqrt{4}$	.00	.86	.22
ϵ Orionis	$+15.5 30 - 1$	$17 - .02 \sqrt{100} - 9.11 \sqrt{4}$	.01	.86	.18
δ Orionis	$+15.5 32 - 2$	$40 - .05 \sqrt{100} - 9.11 \sqrt{4}$	.02	.86	.19
α Aurigae	$+45.6 36 + 49$	$46 + 1.18 \sqrt{377} - 10.32 \sqrt{4}$	.50	.89	.35
μ Aurigae	$+15.7 43 + 39$	$7 + .81 \sqrt{129} - 10.47 \sqrt{4}$	.34	.88	.21
ϵ Orionis	$+25.8 48 + 4$	$23 + .13 \sqrt{101} - 9.19 \sqrt{4}$	.05	.86	.20
μ Aurigae	$+25.5 51 + 34$	$12 + .76 \sqrt{125} - 10.53 \sqrt{4}$	.32	.87	.28
ϵ Orionis	$+25.6 0 + 17$	$47 + .26 \sqrt{103} - 9.28 \sqrt{4}$	.11	.86	.24
γ Gemini	$+06.1 7 + 22$	$32 + .41 \sqrt{108} - 10.36 \sqrt{4}$	.17	.86	.25
γ Gemini	$+06.5 30 + 16$	$30 + .30 \sqrt{104} - 10.28 \sqrt{4}$	.13	.86	.23
	5.53			-10.232	-10.232
5.4 + 3.72	-11.85	-11.85	5.0 - 7.35	-7.92	-7.91
	$\pm .00 \pm .00$			$\pm .01 \pm .01$	
6.1 + 2.66	-11.12	-11.13	5.6 - 2.58	-9.33	-9.33
	$\pm .01 \pm .01$			$\pm .81 \pm .00$	
6.7 + 2.78	-17.93	-17.94	5.7 - 3.11	-9.12	-9.12
	$\pm .01 \pm .02$			$\pm .80 \pm .01$	
			6.2 - 16.88	-4.45	-4.46
				$\pm .81 \pm .01$	

ϵ Urs. Min. \checkmark	$59 + 97$	$46 - 7.35$	$-7.92 \checkmark$	235
λ Eridani \checkmark	$5 22 + 74$	$57 + 3.78$	$-11.85 \checkmark$	92
$5.0 - .16 - 9.79$	$5.1 + 1.03$	$5.6 + 1.18$	-10.76	483
$5.1 - .15 - 9.81$	$5.4 + 1.10$	$5.4 + 1.10$	-10.70	484
$5.5 - .02 - 9.75$				363.25
$5.5 - .05 - 9.82$				256
$5.3 - .10 - 9.79$				111
$0 = +365 - 1.66$	$n = +.45$	$0 = +2.62 - 1.15$	$n = +.44$	
$+2.59 - 0.94$	$+36$	$+1.56 - 0.43$	$+2.87$	
$+20.71 - 7.75$	$+37$	$+19.68 - 7.25$	$+37$	
$0 = -742 + 2.28$	$n = +.31$	$0 = -845 + 2.79$	$n = +.33$	
$-2.65 + 0.87$	$+32$	$-3.68 + 1.37$	$+37$	
$-3.18 + 1.07$	$+34$	$-4.21 + 1.57$	$+34$	
$-1.695 + 5.73$	$+34$	$-1.998 + 6.24$	$+35$	

$$\text{Ris } Z = +60 + 80 + 40 + 60 + 20 + 40 + 0 + 20 + 0 - 20 - 20 - 40 - 40 - 60 - 60 - 80 - 80 - 100$$

[illegible]

Star	RA	S	tang						
1872 Feb. 12	$h = +0.06$	$h' = -0.12$	$m = +38$						
	$h = +0.00$								
β Persi	390 20x29 57 +38	21 + 79	49 - 11.44	30	-11.4-02	-11.16			
ϵ Tauri	+6x 4.3 21 +18	54 + 34	72 - 11.29	13	16-01	17			
α Tauri	+4x 4.5 29 +16	15 + 29	73 - 11.23	11	12-00	12			
ν Eridani	+4x 4.5 30 -3	37 - 10	74 - 11.14	02	16-00	16			
δ Tauri	+3x 4.6 35 +22	43 + 42	70 - 11.30	16	14-00	14			
δ Camel	+3x 4.6 38 +56	32 + 15	371 - 11.72	57	15-00	15			
μ Eridani	+2x 4.7 34 -3	29 - 10	675 - 11.10	02	12-00	12			
ν Orionis	+1x 5.0 10 +14	47 + 26	382 - 11.28	10	18+01	17			
η Gemini	+2x 6.1 7 +22	32 + 41	105 - 11.37	16	21+01	20			
γ Gemini	+2x 6.5 30 +16	30 + 30	107 - 11.25	11	-11.14+02	12			
	52x 4.87			11.157	-11.152	-11.151			
1.2 + 4184	-2885 - 2883	-2884	6.2 - 16.88	-5.64	-5.65	-5.65			
	+ .02 + .01			+ .01	+ .01				
4.7 + 226	-12.04 - 12.04	-12.05							
	+ .00 + .01								
6.1 + 266	-12.10 - 12.11	-12.11							
	+ .01 + .01								
6.7 + 2078	-19.38 - 19.38	-19.40							
	+ .01 + .02								

1872 Feb. 14	$h = +0.02$	$h' = +0.31$	$m = +31$						
	$h = +0.04$								
μ Eridani	+2x 2.7 42 +26	45 + 58	44 - 11.51	15	-11.36+04	-11.32			
α Ceti	+1.0 2.9 55 +3	36 + 16	47 - 11.41	02	39+08	36			
β Persi	+1.0 2.9 57 +38	21 + 79	49 - 11.58	24	34+83	31			
δ Orionis	+1.8 3.1 4 +19	15 + 35	859 - 11.45	11	34+02	32			
α Persi	+1.7 3.2 15 +49	25 + 11	52 - 11.72	36	36+02	34			
δ Tauri	+1.6 3.3 18 +8	35 + 15	53 - 11.31	05	26+02	24			
δ Tauri	+1.5 3.4 24 +12	30 + 22	55 - 11.40	07	33+02	31			
ϵ Eridani	+1.5 3.4 27 -9	53 - 11	56 - 11.23	08	28+02	26			
β Tauri	+1.5 3.5 31 +62	49 + 19	54363 - 12.00	00					
δ Camel	+1.7 4.6 34 +22	43 + 42	370 - 11.44	13	31-02	33			
μ Eridani	+1.8 4.7 39 -3	29 - 10	675 - 11.21	02	26-02	28			
η Gemini	+1.8 4.8 1 +22	32 + 41	105 - 11.41	13	28-07	35			
γ Gemini	+1.8 4.8 30 +16	30 + 30	107 - 11.33	09	-11.24-08	32			
	9.8x 3.95			-11.250	-11.312	-11.312			
3.5 + 1.94	-12.00 - 12.00	-12.00	2.8 - 3.65	9.94	9.94	9.94			
	+ .00 + .00			+ .00 + .00					
4.7 + 226	-11.91 - 11.91	-11.91	3.3 - 3.13	10.36	10.36	10.36			
	+ .00 + .00			+ .00 + .00					
6.1 + 266	-12.04 - 12.04	-12.04	6.2 - 16.88	6.31	6.32	6.31			
	+ .01 + .00			+ .01 - .00					
6.7 + 2078	-17.95 - 17.96	-17.96							
	+ .01 + .01								

1872 Feb. 15	$h = +0.05$	$h' = -0.16$	$m = +43$						
	$h = -0.01$								
ν Eridani	+1.8 4.5 30 -3	37 - 10	674 - 11.24	03	-11.27-01	-11.28			
δ Aurigae	+1.8 4.9 58 +40	53 + 87	82 - 11.66	37	29-00	29			
δ Orionis	+1.0 5.2 11 -6	59 - 12	88 - 11.25	05	30+00	30			
δ Tauri	+1.5 5.3 18 +28	30 + 54	90 - 11.55	23	32+00	32			
δ Orionis	+1.5 5.4 25 -0	24 - 10	1093 - 11.24	00	24+00	24			
δ Aurigae	+1.5 5.8 51 +37	12 + 17	6104 - 11.66	33	-11.33+01	32			
	5.50 5.18			-11.297	-11.292	-11.292			
1.2 + 4184	-2972 - 2970	-2970	4.5 - 2.61	-10.20	-10.20	-10.20			
	+ .02 + .02			.00	.00				

1872 Feb. 12									
Star	RA	S	tang						
α Urs Min	x 1 13 +88	39 + 41	84W	-28.85	19				
η Camel	x 4 42 +66	8 + 15	26V	-12.04	76				
μ Camel	x 4 52 +60	15 + 17	5V	-12.10	383				
δ Camel	x 6 5 +69	22 + 26	66V	-12.10	383				
δ Urs Min	x 18 13 +98	24 + 16	88V	-5.61	256				
	5-15								
51 H Cephei	x 6 48 +87	14 + 21	50V	-19.38	111				
	5-15								
4.3 + 34	-11.29	4.6 + 1.51	-11.72						
4.5 + 29	-11.23	29 + 79	11.44						
4.5 - 06	11.14	38 + 115	11.58						
4.6 - 06	11.10		11.58						
6.0 + 26	11.28		11.58						
6.5 + 30	11.25								
5.1 + 18	-11.22								
0 = +4166	-19.61	$m = +.42$	0 = +40.69	-17.26	+42				
+ 2.08	-0.82	+ 39	+ 1.11	-0.47	+ 42				
+ 2.48	-0.89	+ 385	+ 1.51	-0.53	+ 354				
+ 2.060	-8.17	+ 410	+ 19.63	-7.82	+ 40				
0 = -17.06	+5.57	$m = +.33$	0 = -18.03	+5.93	+33				

β Urs Min	x 14 51 +105	20 - 36	5V	-9.94	198				
δ Urs Min	x 15 21 +107	48 - 31	3A	-10.36	203				
η Camel	x 4 41 +66	8 + 22	26V	-11.91	76				
δ Camel	x 6 5 +69	22 + 26	66V	-12.04	383				
δ Urs Min	x 18 13 +98	24 + 16	88V	-5.61	256				
	6-15								
51 H Cephei	x 6 48 +87	14 + 21	50V	-17.95	111				
	5-15								
2.9 + 06	-11.41	3.2 + 1.17	-11.72						
3.3 + 15	11.31	4.6 + 1.51	11.78						
3.4 + 22	11.40	3.9 + 1.34	-11.75						
3.4 - 17	11.23								
4.6 - 06	11.24		11.58						
3.5 + 04	-11.32								
0 = +1.90	-0.68	$m = +.36$	0 = +0.60	-0.25	+40				
+ 2.22	-0.59	+ 27	+ 0.92	-0.16	+ 19				
+ 2.62	-0.78	+ 27	+ 1.32	-0.29	+ 22				
+ 2.074	-6.64	+ 32	+ 19.44	-6.21	+ 32				
0 = -3.69	+1.38	+ 37	0 = -4.99	+1.81	+ 36				
-3.17	+0.96	+ 30	-4.47	+1.39	+ 31				
-1.692	+5.00	+ 30	-1.822	+5.44	+ 30				

$$0 = +41.90 - 18.46 \quad m = +.44 \quad 0 = +41.02 - 18.04 \quad m = +.44$$

$$0 = -2.55 + 10.4 \quad m = +.41 \quad 0 = -3.43 - 1.46 \quad m = +.43$$

1872 Feb. 16 $h = \pm 0.12$ $h' = -0.16$ $n = +39$
 $h = -0.06$
 $h = -0.06$

α Aurigae $\times 15 + 49$ $21 + 116$ $\sqrt{385}$

63 Aurigae $\times 27.0$ $3 + 39$ $31 + 82$ $\sqrt{395}$ 11.76 $\sqrt{4}$ 32 -11.44 00 -11.44

64 Aurigae $\times 17.1$ $9 + 41$ $6 + 87$ $\sqrt{396}$ 11.81 $\sqrt{4}$ 34 47 00 47

19 Lynx $\times 07.13$ $+55$ $31 + 145$ $\sqrt{397}$ 12.05 $\sqrt{4}$ 57 48 00 48

β Gemini $\times 17.3$ $18 + 28$ $3 + 53$ $\sqrt{117}$ 11.70 $\sqrt{4}$ 31 49 00 49

ρ Gemini $\times 17.3$ $21 + 32$ $2 + 62$ $\sqrt{398}$ 11.70 $\sqrt{4}$ 24 46 00 46

α Gemini $\times 17.4$ $27 + 32$ $10 + 63$ $\sqrt{119}$ 11.46 $\sqrt{4}$ 24 24 $[24]$ $7.9 + 53$ -11.70

β Gemini $\times 17.6$ $38 + 28$ $20 + 54$ $\sqrt{122}$ 11.71 $\sqrt{4}$ 21 -11.50 $+01$ 47

γ Cephei $\times 17.13$ $+77$ $19 + 44$ $\sqrt{502}$ 9.73 $\sqrt{4}$ 473 -11.468 -11.472

7.25

$8.2 - 4.44 - 9.73 - 9.72 - 9.72$

$\pm .01$ $\pm .01$

$$0 = -5.00 + 1.98 \quad n = +39 \quad 0 = -5.49 + 2.15 \quad n = +39$$

1872 Feb. 17 $h = \pm 0.05$ $h' = -0.02$ $n = +41$
 $h = -0.01$
 $h = -0.01$

α Aurigae $\times 14.5$ $17 + 45$ $52 + 103$ $\sqrt{86}$ 12.23 $\sqrt{4}$ 42 -11.81 00

β Aurigae $\times 12.5$ $3 + 18 + 62$ $58 + 196$ $\sqrt{375}$ 12.44 $\sqrt{4}$ 50 64

γ Aurigae $\times 10.5$ $30 + 21$ $4 + 39$ $\sqrt{98}$ 11.87 $\sqrt{4}$ 16 71

63 Aurigae $\times 17.0$ $3 + 39$ $31 + 82$ $\sqrt{395}$ 12.06 $\sqrt{4}$ 34 72

64 Aurigae $\times 17.1$ $9 + 41$ $6 + 87$ $\sqrt{396}$ 12.10 $\sqrt{4}$ 37 73

19 Lynx $\times 17.2$ $13 + 55$ $31 + 146$ $\sqrt{397}$ 12.29 $\sqrt{4}$ 59 70

β Gemini $\times 17.3$ $18 + 28$ $3 + 53$ $\sqrt{117}$ 12.71 $\sqrt{4}$ 25 73

ρ Gemini $\times 17.3$ $21 + 32$ $2 + 62$ $\sqrt{398}$ 11.98 $\sqrt{4}$ 25 73

α Gemini $\times 17.4$ $27 + 32$ $10 + 63$ $\sqrt{119}$ 11.53 $\sqrt{4}$ 22 -11.74 00

β Gemini $\times 17.6$ $38 + 28$ $20 + 54$ $\sqrt{122}$ 11.96 $\sqrt{4}$ 22 -11.724 -11.722 -11.722

7.25 6.51

$5.4 + 3.72 - 13.33 - 13.32 - 13.32$

$\pm .01$ $\pm .01$

$7.3 + 2.56 - 12.71 - 12.71 - 12.71$

$\pm .01$ $\pm .01$

$$5.5 + 3.9 - 11.87 \quad 5.1 + 1.03 - 12.23$$

$$4.3 + 6.2 - 11.98 \quad 5.3 + 1.96 - 12.44$$

$$7.6 + 5.4 - 11.96 \quad 4.1 + 8.2 - 12.06$$

$$6.8 + 5.2 - 11.94 \quad 7.2 + 8.7 - 12.10$$

$$6.4 + 12.3 - 12.22$$

$$n = 40$$

$$0 = +3.20 - 1.38 \quad n = +43.4 \quad 0 = +2.49 - 1.10 \quad n = +47.5$$

$$+2.04 - 0.77 \quad +3.8 \quad +1.33 - 0.49 \quad +.37$$

1872 Feb. 18 $h = \pm 0.14$ $h' = -0.45$ $n = +48.953$
 $h = -0.04$
 $h = -0.04$

α Aurigae $\times 14.5$ $17 + 45$ $52 + 103$ $\sqrt{86}$ 12.23 $\sqrt{4}$ 42 -11.81 00

β Aurigae $\times 12.5$ $3 + 18 + 62$ $58 + 196$ $\sqrt{375}$ 12.44 $\sqrt{4}$ 50 64

γ Aurigae $\times 10.5$ $30 + 21$ $4 + 39$ $\sqrt{98}$ 11.87 $\sqrt{4}$ 16 71

63 Aurigae $\times 17.0$ $3 + 39$ $31 + 82$ $\sqrt{395}$ 12.06 $\sqrt{4}$ 34 72

64 Aurigae $\times 17.1$ $9 + 41$ $6 + 87$ $\sqrt{396}$ 12.10 $\sqrt{4}$ 37 73

19 Lynx $\times 17.2$ $13 + 55$ $31 + 146$ $\sqrt{397}$ 12.29 $\sqrt{4}$ 59 70

β Gemini $\times 17.3$ $18 + 28$ $3 + 53$ $\sqrt{117}$ 12.71 $\sqrt{4}$ 25 73

ρ Gemini $\times 17.3$ $21 + 32$ $2 + 62$ $\sqrt{398}$ 11.98 $\sqrt{4}$ 25 73

α Gemini $\times 17.4$ $27 + 32$ $10 + 63$ $\sqrt{119}$ 11.53 $\sqrt{4}$ 22 -11.74 00

β Gemini $\times 17.6$ $38 + 28$ $20 + 54$ $\sqrt{122}$ 11.96 $\sqrt{4}$ 22 -11.724 -11.722 -11.722

7.25 6.51

$5.4 + 3.72 - 13.57 - 13.58 - 13.58$

$\pm .01$ $\pm .01$

$5.6 - 2.58 - 10.86 - 10.87 - 10.88$

$\pm .01$ $\pm .02$

$5.7 - 3.11 - 10.63 - 10.64 - 10.65$

$\pm .01$ $\pm .02$

$$5.5 + 3.9 - 11.87 \quad 5.1 + 1.03 - 12.23$$

$$4.3 + 6.2 - 11.98 \quad 5.3 + 1.96 - 12.44$$

$$7.6 + 5.4 - 11.96 \quad 4.1 + 8.2 - 12.06$$

$$6.8 + 5.2 - 11.94 \quad 7.2 + 8.7 - 12.10$$

$$6.4 + 12.3 - 12.22$$

$$n = 40$$

$$0 = +3.20 - 1.38 \quad n = +43.4 \quad 0 = +2.49 - 1.10 \quad n = +47.5$$

$$+2.04 - 0.77 \quad +3.8 \quad +1.33 - 0.49 \quad +.37$$

$$3.9 + 2.1 - 12.04 \quad 4.0 + 1.09 - 12.40$$

$$4.1 - 1.3 - 11.91$$

$$4.2 + 2.7 - 12.09$$

$$5.4 - 0.1 - 12.03$$

$$5.5 - 0.2 - 11.98$$

$$5.5 - 0.5 - 11.95$$

$$5.8 + 1.3 - 12.12$$

$$4.9 - 2.06 - 12.02$$

$$0 = +3.66 - 1.56 \quad n = +48.2 \quad 0 = +2.63 - 1.18 \quad n = +48.4$$

$$0 = -484 + 204 \quad n = +42 \quad 0 = -587 + 241 \quad n = +41$$

$$-264 + 1.15 \quad +44.5 \quad -367 + 1.52 \quad +44.2$$

$$-3.17 + 1.38 \quad +.44 \quad -420 + 1.75 \quad +48.3$$

$$\sin z = +60 +80 +110 +60 +20 +40 +0 +20 +0 -20 -20 -110 -110 -60 -60 -80 -80 -150$$

P.A.	$\sin z$	P_{eq}	P_{p}	P_{p}	P_{p}			
h	m							
7	3	+05	+0	456	-1	455	+1	456
7	9	+02		455	-4	451	+1	452
7	13	-23		425	+10	135	-5	130
7	18	+25		450	-3	447	+5	452
7	21	+18		436	+7	443	+4	447
7	27	+18		456	-3	453	+4	457
7	38	+24		444	+4	448	+5	453
7	13					(7)	4496	

 $+25 + 44.7 + 05 + 45.5$
 $+24 44.8 + 02 45.1$
 $+18 44.3$
 $+18 45.3$
 $+24 + 44.8 + 11 + 45.1$
 $+6$
 $2 45.3 4 45.4$
 -4
 $-23 + 43.5$
 $-23 + 43.5$
 -6
 $1 42.8$
 $+2.1$
 $+0 45.024$
 44.96
 $7 853$

5	7	-06	+0	450	+1	451	-1	450
5	18	-35		444	+2	446	-8	438
5	23	-54		439	+1	440	-12	428
5	30	+62	+2	(6.8)	+3	(7.1)	+13	(8.4)

7	3	+05	+0	451	-1	450	+1	451
7	9	+02		469	-4	465	+1	466
7	13	-23		448	+10	458	-5	453
7	18	-44		447	+6	453	-10	443
7	21	+18		428	+7	435	+4	439
7	27	+18		451	-3	448	+4	452
7	38	+24		452	+4	456	+5	461

 $(10) 4481$
 $+24 + 45.6 + 05 + 45.0$
 $+02 46.5$
 $+18 43.5$
 $+18 44.8$
 $+24 + 45.6 + 11 + 44.9$
 $+6$
 $1 46.2 4 45.2$
 -1.4
 $-06 + 45.1$
 $-35 + 44.6$
 $-54 + 44.0$
 $-23 45.8$
 $-44 45.3$
 $-06 + 45.1$
 $-29 + 45.8$
 $-19 + 44.6$
 $+10 44.78$
 44.81
 $11 4757$

3	54	+50	+0	443	+3	446	+1	458
3	59	-09		438	+4	442	-2	440
4	6			458	-5	453	+10	463
4	12	+45		448	+0	448	+10	458
4	16	+42		442	-4	438	+10	448
4	21	+40		449	-3	446	+10	456
5	29	+44		440	+1	451	+5	456
5	18	+24		441	+6	447	+14	461
5	25	+68		449	+5	454	+14	468
5	30	+68		447	-3	444	+14	458
5	32	+71		415	+7	422	+12	434
5	48	+57						

 $(11) 45.45$
 $+68 + 44.7 + 50 + 44.6 + 24 + 45.1 - 09 + 44.2$
 $+68 45.4 + 45 45.3$
 $+71 44.4 + 42 44.8$
 $+40 43.8$
 $+44 44.6$
 $+57 42.2$
 $+69 + 44.8 + 76 + 44.9 + 24 + 45.1 - 09 + 44.2$
 $+12$
 $3 46.4 6 45.4 1 45.8 1 43.9$
 -1.0
 $+0$
 -4
 $+1.5$
 $15 49 - 86$
 $+0 44.2 - 20 44.0 - 19 42.1$
 $5 23 - 54$
 $45.0 + 1 45.1 - 11 44.0$
 $17 38 - 93$
 $46.5 - 1.8 44.7 - 20 42.7$
 $17 44 - 91$
 $44.9 - 4 44.5 - 20 42.5$
 $(11) 4400$
 $-54 + 45.1$
 $-86 + 44.0$
 $-93 44.7$
 $-91 44.5$
 $-54 + 45.1$
 -1.3
 $1 48.8$
 $+1.6$
 $-90 + 44.4$
 -1.8
 42.5
 $12 651$
 676
 $+0 45.63$
 45.33

Para $z = +60 + 80 + 40 + 60 + 20 + 40 + 0 + 20 + 0 - 20 - 20 - 40 - 40 - 60 - 60 - 80 - 80 - 100$

P.T. minz				Reg. P.P. P.P.				P.T. minz				Reg. P.P. P.P.								
h	m	minz	Reg. P.P.	P.P.	P.P.	h	m	minz	Reg. P.P.	P.P.	P.P.	h	m	minz	Reg. P.P.	P.P.	P.P.			
4	9	+02	+0	47.0	-1	46.9	+1	47.0				1	13		+0					
7	12	+34		44.3	+2	44.5	+8	45.3				6	40	-70		43.2	+2	43.4	-14	42.9
7	18	+25		46.0	-3	45.7	+6	46.3												(1) 42.00
7	20	+56		44.8	+3	45.1	+12	46.3												
7	26	+18		46.0	-3	45.7	+4	46.1												
7	32	+10		44.1	+7	44.8	+13	46.1												
7	37	+24		42.9	+4	43.3	+5	43.8												
							(7) 45.84													
				+56	+45.1	+34	+44.5	+02	+46.9											
				+60	44.8	+25	45.7	+18	45.7											
						+24	43.3													
				+58	+15.0	+28	+44.5	+10	+46.3											
						+14		+0.3												
+0	45.74			(2) 46.4	(3) 45.2	(2) 46.6														
	45.36			-9	+3	-11														
2	56	+63	+0	47.8	+4	48.5						15	21	-71	+0	32.8	-1	32.9		
3	40	+32	+0	22.9	+2	23.1	+8	23.9				15	49	-86		31.0	-2	30.8	-12	28.9
3	46	-31		27.3	-1	27.2	-7	26.5												
3	54																			
4	6																			
4	12	+45		22.0	-5	21.5	+10	22.5												
4	16	+42		22.9	+0	22.9	+10	23.9												
4	21	+40		23.0	-4	22.6	+10	23.6												
4	29	+44		21.6	-3	21.3	+10	22.3												
4	49	+16		24.8	-1	24.7	+3	25.0												
4	53	-02		25.0	-0	25.0	-1	24.9												
4	54	+03		26.4	+1	26.5	+1	26.6												
5	3	+78		20.0																

1872	Feb. 24	$h = +001$	$h' = +020$	$n = +49$	$c = -08$
Star	RA	S. tang	Seco		
α Aurigae	13 3 + 39	31 + 52.0	13.744	40 - 10.13.44	00
β Aurigae	13 21 + 32	2 + 62.0	13.564	30 .09 .35	
γ Aurigae	13 42 + 32	10 + 63.0	13.364	31 .09 .15	
δ Aurigae	13 53 + 5	33 + 10.0	13.334	45 .08 .36	
ϵ Aurigae	13 58 + 28	20 + 54.0	13.514	26 .09 .34	00
	140			-13.372	-13.372
	7.7 + 3.54	-14.73	-14.73	7.9 - 53.07	+ 9.79 + 9.79
	00	00		00	00

1872	Feb. 24	$h = +001$	$h' = +020$	$n = +49$	$c = -08$
Star	RA	S. tang	Seco		
α Aurigae	13 3 + 39	31 + 52.0	13.744	40 - 10.13.44	00
β Aurigae	13 21 + 32	2 + 62.0	13.564	30 .09 .35	
γ Aurigae	13 42 + 32	10 + 63.0	13.364	31 .09 .15	
δ Aurigae	13 53 + 5	33 + 10.0	13.334	45 .08 .36	
ϵ Aurigae	13 58 + 28	20 + 54.0	13.514	26 .09 .34	00
	140			-13.372	-13.372
	7.7 + 3.54	-14.73	-14.73	7.9 - 53.07	+ 9.79 + 9.79
	00	00		00	00

1872	Feb. 26	$h = +006$	$h' = +027$	$n = +52$	$c = -11$
Star	RA	S. tang	Seco		
α Aurigae	13 3 + 39	31 + 52.0	13.744	40 - 10.13.44	00
β Aurigae	13 21 + 32	2 + 62.0	13.564	30 .09 .35	
γ Aurigae	13 42 + 32	10 + 63.0	13.364	31 .09 .15	
δ Aurigae	13 53 + 5	33 + 10.0	13.334	45 .08 .36	
ϵ Aurigae	13 58 + 28	20 + 54.0	13.514	26 .09 .34	00
	140			-13.372	-13.372
	7.7 + 3.54	-14.73	-14.73	7.9 - 53.07	+ 9.79 + 9.79
	00	00		00	00

1872	Feb. 26	$h = +006$	$h' = +027$	$n = +52$	$c = -11$
Star	RA	S. tang	Seco		
α Aurigae	13 3 + 39	31 + 52.0	13.744	40 - 10.13.44	00
β Aurigae	13 21 + 32	2 + 62.0	13.564	30 .09 .35	
γ Aurigae	13 42 + 32	10 + 63.0	13.364	31 .09 .15	
δ Aurigae	13 53 + 5	33 + 10.0	13.334	45 .08 .36	
ϵ Aurigae	13 58 + 28	20 + 54.0	13.514	26 .09 .34	00
	140			-13.372	-13.372
	7.7 + 3.54	-14.73	-14.73	7.9 - 53.07	+ 9.79 + 9.79
	00	00		00	00

1872	Feb. 27	$h = +004$	$h' = +015$	$n = +44$	$c = +04$
Star	RA	S. tang	Seco		
α Aurigae	13 3 + 39	31 + 52.0	13.744	40 - 10.13.44	00
β Aurigae	13 21 + 32	2 + 62.0	13.564	30 .09 .35	
γ Aurigae	13 42 + 32	10 + 63.0	13.364	31 .09 .15	
δ Aurigae	13 53 + 5	33 + 10.0	13.334	45 .08 .36	
ϵ Aurigae	13 58 + 28	20 + 54.0	13.514	26 .09 .34	00
	140			-13.372	-13.372
	7.7 + 3.54	-14.73	-14.73	7.9 - 53.07	+ 9.79 + 9.79
	00	00		00	00

1872	Feb. 27	$h = +004$	$h' = +015$	$n = +44$	$c = +04$
Star	RA	S. tang	Seco		
α Aurigae	13 3 + 39	31 + 52.0	13.744	40 - 10.13.44	00
β Aurigae	13 21 + 32	2 + 62.0	13.564	30 .09 .35	
γ Aurigae	13 42 + 32	10 + 63.0	13.364	31 .09 .15	
δ Aurigae	13 53 + 5	33 + 10.0	13.334	45 .08 .36	
ϵ Aurigae	13 58 + 28	20 + 54.0	13.514	26 .09 .34	00
	140			-13.372	-13.372
	7.7 + 3.54	-14.73	-14.73	7.9 - 53.07	+ 9.79 + 9.79
	00	00		00	00

1872 Feb 27 $h = +004$ $h' = +056$ $n = +44$
 $h'' = +002$

Star Ra S $\tan \delta$ $\sec \delta$

15 Synes $\times 6.846 + 08$ $35 + 16W 394 - 13.474$ 72 -1275 50 Dracod. C. $\checkmark 6$ 50
 6.80 $6 - 54$ -12750 -12750 51

$7.9 - 53.07 + 10.36 + 10.36 + 10.36$ $\lambda \text{ Mrs. Min. C.}$ $\checkmark 19$ $52 + 69$ $57 + 2.73$ 4
 $+ .00$ 19 $52 + 91$ $64 - 6.30W$ $+ 10.36V$
 $6.8 + 1.64 - 13.47$

$0 = -54.71 + 23.83$ $n = +44$

1872 Feb 28 $h = +003$ $h' = +010$ $n = +53$ $c = -11$
 $h'' = +009$

1 Camel $\checkmark 4.52$ $4.22 + 53$ $38 + 136V 168$ 13.424 72 -181288 00
 2 $4.1529 + 16$ $15 + 29V 104$ 12.944 15 11 $.90$

3 $4.1530 - 3$ $37 - 06V 100$ 12.744 03 11 $.88$

4 $4.635 + 22$ $43 + 142V 108$ 13.064 22 12 $.96$

5 $4.637 + 56$ $32 + 151V 151$ 13.554 80 20 $.95$

6 $4.939 - 3$ $29 - 06V 100$ 12.804 03 11 $.74$

7 $4.847 + 32$ $58 + 65V 119$ 13.204 34 13 $.99$

8 $4.952 + 60$ $15 + 175V 202$ 13.694 93 22 $.91$

9 $4.953 + 443$ $38 + 95V 138$ 13.334 50 15 $.98$

10 $4.955 + 21$ $25 + 39V 107$ 13.034 21 12 $.94$ 00

11 $4.867 + 34$ $7 + 68V 121$ 12.994 36 13 $12.76 + 02$

12 4.86 12.917 12.917 $0 = +220 - 104$ $n = +47$

13 $4.7 + 2.26 - 13.87 - 13.87 - 13.87$ $5.0 - 7.41 - 9.90 - 9.90 - 9.90$ $0 = -747 + 293$ $n = +39$

14 $6.7 + 20.78 - 21.67 - 21.66 - 21.66$ $0 = -8.80 + 360$ $n = +41$

15 4.01 4.01 $0 = +087 - 037$ $n = +43$

16 4.86 4.86 $0 = +1939 - 816$ $n = +42$

17 4.86 4.86 $0 = +087 - 037$ $n = +43$

18 4.86 4.86 $0 = +1939 - 816$ $n = +42$

19 4.86 4.86 $0 = +087 - 037$ $n = +43$

20 4.86 4.86 $0 = +1939 - 816$ $n = +42$

21 4.86 4.86 $0 = +087 - 037$ $n = +43$

22 4.86 4.86 $0 = +1939 - 816$ $n = +42$

23 4.86 4.86 $0 = +087 - 037$ $n = +43$

24 4.86 4.86 $0 = +1939 - 816$ $n = +42$

25 4.86 4.86 $0 = +087 - 037$ $n = +43$

26 4.86 4.86 $0 = +1939 - 816$ $n = +42$

27 4.86 4.86 $0 = +087 - 037$ $n = +43$

28 4.86 4.86 $0 = +1939 - 816$ $n = +42$

29 4.86 4.86 $0 = +087 - 037$ $n = +43$

30 4.86 4.86 $0 = +1939 - 816$ $n = +42$

31 4.86 4.86 $0 = +087 - 037$ $n = +43$

32 4.86 4.86 $0 = +1939 - 816$ $n = +42$

33 4.86 4.86 $0 = +087 - 037$ $n = +43$

34 4.86 4.86 $0 = +1939 - 816$ $n = +42$

35 4.86 4.86 $0 = +087 - 037$ $n = +43$

36 4.86 4.86 $0 = +1939 - 816$ $n = +42$

37 4.86 4.86 $0 = +087 - 037$ $n = +43$

38 4.86 4.86 $0 = +1939 - 816$ $n = +42$

39 4.86 4.86 $0 = +087 - 037$ $n = +43$

$$\text{Prin } Z = +60 +80 +40 +60 +20 +40 +0 +20 +0 -20 -20 -40 -40 -60 -60 -80 -80 -100$$

$$\begin{array}{l} \text{Prin } Z \\ h \text{ m} \\ 6 \ 46 \end{array} \begin{array}{l} -28 \\ +0 \end{array}$$

$$\begin{array}{l} \text{Prin } Z \\ h \text{ m} \\ 6 \ 46 \end{array} \begin{array}{l} -28 \\ +0 \end{array} \begin{array}{l} 26.1 \\ +1.1 \end{array} \begin{array}{l} 27.2 \\ -6 \end{array} \begin{array}{l} 26.6 \\ 26.5 \end{array} \begin{array}{l} (1) \ 26.60 \end{array}$$

$$\begin{array}{l} \text{Prin } Z \\ h \text{ m} \\ 19 \ 52 \end{array} \begin{array}{l} -75 \end{array}$$

$$\begin{array}{l} \text{Prin } Z \\ h \text{ m} \\ 19 \ 52 \end{array} \begin{array}{l} -75 \end{array}$$
82
82
84
$$\begin{array}{l} +0 \ 26.60 \\ 26.60 \end{array}$$

$$19 \ 52 \ -75$$
76
35
11
$$\begin{array}{l} 4 \ 22 \ -19 \\ 4 \ 29 \ +44 \\ 4 \ 30 \ +72 \\ 4 \ 35 \ +34 \\ 4 \ 37 \ -24 \\ 4 \ 39 \ +72 \\ 4 \ 47 \ +16 \\ 4 \ 52 \ -31 \\ 4 \ 53 \ -02 \\ 4 \ 55 \ +36 \end{array} \begin{array}{l} +0 \ 26.5 \\ 25.6 \\ 25.7 \\ 25.7 \\ 27.9 \\ 25.7 \\ 27.4 \\ 28.0 \\ 25.3 \\ 25.4 \end{array} \begin{array}{l} +9 \\ -3 \\ -6 \\ +5 \\ +5 \\ +3 \\ -1 \\ +2 \\ -0 \\ -0 \end{array} \begin{array}{l} 27.4 \\ 25.3 \\ 25.1 \\ 26.2 \\ 28.4 \\ 26.0 \\ 27.3 \\ 28.2 \\ 25.3 \\ 25.4 \end{array} \begin{array}{l} -4 \\ +9 \\ +13 \\ +7 \\ -5 \\ +13 \\ +3 \\ -6 \\ -1 \\ +8 \end{array} \begin{array}{l} 27.0 \\ 26.2 \\ 26.4 \\ 26.9 \\ 27.9 \\ 27.3 \\ 27.6 \\ 27.6 \\ 25.2 \\ 26.2 \end{array}$$

$$\begin{array}{l} 4 \ 41 \ -40 \\ 4 \ 57 \ -82 \\ 6 \ 40 \ -70 \end{array} \begin{array}{l} +0 \ 28.2 \\ 28.3 \\ 26.1 \end{array} \begin{array}{l} -2 \\ +0 \\ +3 \end{array} \begin{array}{l} 28.0 \\ 28.3 \\ 26.3 \end{array} \begin{array}{l} -8 \\ -15 \\ -13 \end{array} \begin{array}{l} 27.2 \\ 26.8 \\ 25.0 \end{array}$$

(2) 26.10

$$\begin{array}{l} +0 \ 26.71 \\ 26.71 \end{array} \begin{array}{l} +1.6 \\ +1.0 \\ +1.8 \\ +1.4 \\ +1.2 \\ +1.6 \end{array} \begin{array}{l} 27.2 \\ 26.3 \\ 26.6 \\ 27.7 \\ 26.2 \\ 27.6 \end{array} \begin{array}{l} -7 \\ +5 \\ +2 \\ -9 \\ +6 \end{array} \begin{array}{l} 27.1 \\ 27.1 \\ 27.1 \\ 27.1 \\ 27.1 \end{array} \begin{array}{l} 12 \ 811 \end{array}$$
19
271
54
$$\begin{array}{l} 6 \ 46 \ -28 \\ 7 \ 11 \ +43 \end{array} \begin{array}{l} +0 \ 26.5 \\ 26.5 \end{array} \begin{array}{l} +1.1 \\ +2 \end{array} \begin{array}{l} 27.6 \\ 26.7 \end{array} \begin{array}{l} -6 \\ +9 \end{array} \begin{array}{l} 27.0 \\ 27.6 \end{array}$$

$$\begin{array}{l} 1 \ 13 \\ 7 \ 12 \ -94 \\ 7 \ 52 \ -75 \end{array} \begin{array}{l} +0 \\ +0 \end{array} \begin{array}{l} 30.6 \\ 30.6 \end{array} \begin{array}{l} -7 \\ -7 \end{array} \begin{array}{l} 29.9 \\ 29.9 \end{array} \begin{array}{l} -1.8 \\ -1.8 \end{array} \begin{array}{l} 28.2 \\ 28.2 \end{array}$$

$$\begin{array}{l} +0 \ 27.30 \\ 27.30 \end{array}$$

$$\begin{array}{l} +4.3 +26.7 \\ +1.0 \\ 1 \ 27.7 \\ -4 \end{array} \begin{array}{l} (2) \ 27.30 \end{array}$$

$$\begin{array}{l} -28 +27.6 \\ -26.9 \\ +4 \end{array}$$

$$-94 +29.9$$

1872 Mar. 1 $h = +002$ $h' = +008$ $n = +48$
 $h' = +008$

Star	RA	S	Tang
α Orionis	436.0 00	+14	47 + 26.382 - 12.87 \checkmark .12 -12.75 00
γ Gemini	26.1 07	+22	32 + 41.105 - 12.96 \checkmark .20 .76
δ Cygnus	6.09 + 59	3	+ 16.7384
ϵ Gemini	26.5 30	+16	30 + 30.107 - 12.87 \checkmark .14 .73
15 Cygnus	6.8 46 + 58	35	+ 16.1394 - 13.58 \checkmark .79 -12.79 00
6.1 + 366	-14.05	-14.05	.2 -16.88 -4.92 -4.92
6.7 + 20.78	-22.90	-22.90	-22.90

RA	S	Tang
22 Camel	6 4	+ 69 22 + 2.66 - 14.05 \checkmark
δ Urs. Min. C.	6 15	+ 3.86 24.36 - 16.86 \checkmark - 4.92 \checkmark
51 Heph.	6 40	+ 87 14 + 20.59 - 22.90 \checkmark
6.0 + 26	-12.87	6.8 + 1.64 - 13.58
6.5 + 30	12.87	(NS) = 52
6.1 + 41	12.96	
6.2 + 32	12.90	
0 = +234 - 1.15	$n = +49$	0 = +102 - 0.47 $n = +46$
+20.46 - 10.00	+49	+19.14 - 9.32 +49

Star	RA	S	Tang	Corr	Result	Final
1872 Mar. 1 $h = +002$ $h' = +009$ $n = +45$ $h' = +008$						
ϵ Gemini	26.5 30	+16	30 + 30.107	-12.87	\checkmark .14	-12.74 00
63 Aurigae	3 39	31	+ 82.395	-13.04	\checkmark .39	.76
64 Aurigae	4 1	9 + 41	6 + 87.396	-13.15	\checkmark .39	.73
δ Gemini	26.5 30	+16	30 + 30.107	-12.87	\checkmark .14	.73
β Can. Min.	3 20 + 8	32	+ 15.118	-12.81	\checkmark .04	.74
ϵ Gemini	26.5 30	+16	30 + 30.107	-12.87	\checkmark .14	.73
α Can. Min.	3 20 + 8	32	+ 15.118	-12.81	\checkmark .04	.74
4.6 33 + 5	33	+ 10.120	-12.76	\checkmark .04	-12.72 00	
4.22					-12.738	-12.738

0 = -17.20 + 7.98	$n = +46$	0 = -18.52 + 8.66 $n = +47$
69 + 38	-12.91	
72 + 41	12.91	
73 + 15	12.81	
76 + 10	12.76	
72 + 26	-12.85	

1872 Mar. 3 $h = +002$ $h' = -013$ $n = +42$
 $h' = +004$

Star	RA	S	Tang
α Aurigae	4.5 1	7 + 45	52 + 108.86 - 13.17 \checkmark .43 -12.74 00
β Tauri	25.3 18 + 28	30	+ 54.90 - 12.97 \checkmark .23 .74
δ Orionis	15.4 25	0	24 + 30.107 - 12.75 \checkmark .00 .75
ϵ Orionis	10.5 26	30	17 - 12.109 - 12.67 \checkmark .01 .68
α Orionis	5.5 32	-2	40 - 105.99 - 12.62 \checkmark .02 .64
α Aurigae	5.6 36 + 49	46	+ 118.397 - 13.13 \checkmark .50 .63
α Aurigae	5.7 42 + 39	7	+ 88.101 - 13.02 \checkmark .34 .65
α Aurigae	5.8 51 + 37	12	+ 76.104 - 13.05 \checkmark .32 -12.73 00
5.49 6 - 40			-12.699 -12.699
5.4 + 3.72	-14.40	-14.40	-14.40
6.7 + 20.78	-20.35	-20.35	-20.35

69.66 \checkmark 5 22	+74 57 + 3.78 \checkmark -14.40 \checkmark	92
51 Heph.	6 40 + 87 14 + 20.59 - 20.35 \checkmark	111
5.4 - 01	-12.75	5.1 + 1.03 - 13.17
5.5 - 02	12.67	5.6 + 1.18 - 13.13
5.5 - 05	12.62	5.4 + 1.10 - 13.15
5.5 - 03	-12.68	(NS) = 41
0 = +375 - 1.72	$n = +46$	0 = +262 - 1.25 $n = +48$
+20.81 - 7.67	+37	+19.68 - 7.20 +37

1872 Mar. 3 $h = +002$ $h' = +040$ $n = +38$
 $h' = +004$

Star	RA	S	Tang
ϵ Gemini	26.5 30	+16	30 + 30.107 - 12.87 \checkmark .14 -12.73 + 01 -12.72
63 Aurigae	3 39	31	+ 82.395 - 13.04 \checkmark .31 .73 + 01 72
64 Aurigae	4 1	9 + 41	6 + 87.396 - 13.14 \checkmark .33 .81 + 00 .81
δ Gemini	26.5 30	+16	30 + 30.107 - 12.87 \checkmark .11 .72 + 00 72
β Gemini	27.3 18 + 28	3	+ 53.117 - 12.95 \checkmark .20 .75 - 00 .75
γ Gemini	27.4 20 + 32	2	+ 62.398 - 12.98 \checkmark .24 .74 - 01 .75
α Can. Min.	3 20 + 8	32	+ 10.120 - 12.75 \checkmark .04 .71 - 01 .72
β Gemini	27.4 20 + 32	20	+ 54.112 - 12.94 \checkmark .22 -12.73 - 02 .75
7.2 - 2.40	-11.91	-11.91	-11.91
7.8 - 2.74	-11.70	-11.70	-11.70
6.8 - 3.81	-11.23	-11.23	-11.23

50 Draco L.C. ✓ ¹⁸ 50	-38.10	-11.23	
δ Draco L.C. ✓ ⁷ 12 + 112 34	-24.00	-11.91 ✓	271
ϵ Draco L.C. ✓ ⁷ 13			
ϵ Draco L.C. ✓ ⁷ 48 + 110 03	-27.40	-11.70 ✓	282
7.6 + 10	-12.75	7.1 + 0.82	-13.04
6.9 + 38	12.87	7.2 + 0.87	13.14
7.2 + 30	12.83	7.2 + 0.84	-13.09
7.2 + 26	-12.82		
0 = -266 + 0.91	$n = +34$	0 = -3.24 + 1.18	$n = +36$
-3.00 + 1.12	+37	-3.58 + 1.39	+39
-4.07 + 1.59	+39	-4.65 + 1.86	+40

83
56
11
 $\sin z = +60 +80 +40 +60 +20 +40 +0 +20 +0 -20 -20 -40 -40 -60 -60 -80 -80 -100$
 $P_{\text{ref}} \sin z$
 $\begin{array}{l} 6 \ 0 \ +46 \\ 6 \ 7 \ +34 \\ 6 \ 30 \ +44 \\ 6 \ 46 \ -28 \end{array}$
 $P_{\text{ref}} \sin z$
 $\begin{array}{l} +0 \ 28.1 +3 \ 28.4 +9 \ (29.3) \\ 26.6 +2 \ 26.8 +7 \ 27.5 \\ 27.6 +3 \ 27.9 +9 \ 28.8 \\ 26.4 +1.1 \ 27.5 -6 \ 26.9 \end{array}$
 $\begin{array}{l} (3) \ 27.43 \\ +46 +28.4 +34 +26.8 \\ +44 \ 27.9 \\ +45 +28.2 +34 +26.8 \end{array}$
 $+0 \ 27.32$
 27.48
 $\begin{array}{l} +10 \ 29.2 \ +8 \ 27.6 \\ -1.9 \ -1.3 \end{array}$
 $6 \ 56 \ +37$
 $+0 \ 27.0 +2 \ 27.2 +8 \ 28.0$
 $4 \ 9 \ +02$
 $28.2 -4 \ 27.8 +1 \ 27.9$
 $4 \ 12 \ +34$
 $28.3 +2 \ 28.5 +7 \ 29.2$
 $4 \ 20 \ +56$
 $27.8 +3 \ 28.1 +1.1 \ 29.2$
 $4 \ 26 \ +18$
 $27.6 -3 \ 27.3 +4 \ 27.7$
 $4 \ 33 \ +60$
 $25.4 +7 \ 26.1 +11 \ 27.2$
 $\begin{array}{l} (6) \ 28.20 \\ +56 +28.1 +37 +27.2 +02 +27.8 \\ +60 \ 26.1 +34 \ 28.5 +18 \ 27.3 \\ +58 +27.1 +36 +27.8 +10 +27.6 \\ +12 \ 27.8 \end{array}$
 $+0 \ 28.23$
 28.20
 $\begin{array}{l} 2 \ 28.3 \ 2 \ 28.6 \ 2 \ 27.8 \\ -1 \ -4 \ +.4 \end{array}$
92
11
 $5 \ 4 \ -06$
 $+0 \ 25.9 +1 \ 26.0 -1 \ 25.9$
 $5 \ 18 \ +24$
 $23.6 +1.1 \ 24.7 +5 \ 25.2$
 $5 \ 25 \ +68$
 $23.1 +6 \ 23.7 +12 \ 24.9$
 $5 \ 30 \ +68$
 $27.8 +5 \ (28.3) +12 \ (29.5)$
 $5 \ 32 \ +71$
 $25.0 -3 \ 24.7 +1.3 \ 26.0$
 $5 \ 36 \ -13$
 $25.6 +9 \ 26.5 -3 \ 26.2$
 $5 \ 42 \ +06$
 $28.8 -1.8 \ 27.0 +1 \ 27.1$
 $5 \ 51 \ +09$
 $25.0 +3 \ 25.3 +2 \ 25.5$
 $\begin{array}{l} +68 +23.7 \\ +71 \ 24.7 \\ +70 +24.2 \\ +15 \ 25.8 \\ +1 \end{array}$
 $+0 \ 25.77$
 25.74
 $\begin{array}{l} +24 +24.7 \\ +24 +24.7 \\ +1 \ 25.3 \ 2 \ 26.4 \ 2 \ 26.0 \\ +.5 \ -6 \ -2 \end{array}$
 $5 \ 22 \ -54$
 $+0 \ 26.8 +1 \ 26.9 -10 \ 25.9$
 $6 \ 40 \ -70$
 $26.0 +2 \ 26.2 -13 \ 24.9$
 $(2) \ 25.40$
 $\begin{array}{l} +.54 +26.9 -70 +26.2 \\ +09 \ 25.3 -13 \ 26.5 \\ +24 +24.7 \\ +08 +26.2 -10 +26.2 \\ +.2 \ 26.4 \ 2 \ 26.0 \\ +.6 \ -2 \ -2 \end{array}$
 $\begin{array}{l} -54 +26.9 -70 +26.2 \\ -54 +26.9 -70 +26.2 \\ -1.2 \ -1.5 \\ 1 \ 25.7 \ 1 \ 24.9 \\ +.7 \ +1.1 \end{array}$
 $9 \ 57.9$
71
82
 $6 \ 56 \ +37$
 $+0 \ 25.7 +2 \ 25.9 +8 \ 26.7$
 $7 \ 3 \ +05$
 $27.6 -1 \ 27.5 +1 \ 27.6$
 $7 \ 9 \ +02$
 $27.0 -4 \ 26.6 +1 \ 26.7$
 $7 \ 11 \ +43$
 $25.8 +2 \ 26.0 +9 \ 26.9$
 $7 \ 18 \ +25$
 $25.4 -3 \ 25.1 +5 \ 25.6$
 $7 \ 21 \ +18$
 $25.7 -3 \ 25.4 +4 \ 25.8$
 $7 \ 33 \ +60$
 $24.8 +7 \ 25.5 +11 \ 26.6$
 $7 \ 37 \ +24$
 $26.2 +4 \ 26.6 +5 \ 27.1$
 $\begin{array}{l} (8) \ 26.62 \\ +43 +26.0 +37 +25.9 +05 +27.8 \\ +60 \ 25.5 +25 \ 25.1 +02 \ 26.6 \\ +24 \ 26.6 +18 \ 25.4 \\ +52 +25.8 +29 +25.9 +08 +26.5 \end{array}$
 $+0 \ 26.74$
 26.62
 $\begin{array}{l} +12 \ 27.0 \ 3 \ 26.6 \ 3 \ 26.7 \\ -1.3 \ +.1 \ +.0 \end{array}$
 $6 \ 50$
 $+0 \ 29.1 -8 \ 28.7 -17 \ 26.7 \checkmark$
 $7 \ 12 \ -94$
 $7 \ 48 \ -93$
 $30.5 -8 \ 29.7 -17 \ 27.5 \checkmark$
 $-1.3 \ 27.1$
 $8 \ 39$

1872	Mar. 11	$h = +002$	$h' = +013$	$m = +38$					
		$h' = +004$							
Star	RA	S	long						
μ Aurigae	$\checkmark 05.15 + 38$	$20 + 79$	$374 - 14.08.4$	$.30$	-13.78	00	$13 + 88$	$39 + 42.49$	$-31.17 \checkmark$
α Aurigae	$\times 05.17 + 45$	$52 + 103$	$86 - 14.20.4$	$.39$	$.81$	00	$16 + 59$	$97 + 46$	$-10.60 \checkmark$
β Aurigae	$\times 05.21 - 8$	$21 - 105$	$87 - 13.66$	$.06$	$.72$	00	5	8	
γ Orionis	$\times 05.22 - 6$	$59 - 12$	$88 - 13.68$	$.05$	-13.73	00	$22 + 17$	$57 + 3.72$	$-15.30 \checkmark$
	5.15				-13.760	-13.760	5	$44 + 107$	$47 - 3.12$
$1.2 + 42.49$	-31.16	-31.16	$5.0 - 7.41$	-10.60	-10.60	00	$18 + 43$	$98 + 24.36$	$-8.93 \checkmark$
$\pm .01$	$\pm .01$					00	6	$41 + 87$	$14 + 20.58$
$5.4 + 3.72$	-15.30	-15.30	$5.6 - 2.58$	-12.86	-12.86	00	51	H	$Cephei$
	00	00				00	1738	$+ 14.68$	$2.58 \checkmark$
$6.7 + 20.78$	-22.01	-22.01	$5.7 - 3.12$	-12.55	-12.55	00	5.2	-15	-13.66
	$.00$	$.00$				00	5.2	-12	-13.68
			$6.2 - 16.88$	-8.93	-8.93	00	5.2	-14	-13.67
						00	\leq		

1872	Mar. 11	$h = +003$	$h' = +011$	$m = +38$					
		$h' = +009$							
μ Aurigae	$\times 05.19 + 41$	$6 + 87$	$396 - 14.03.4$	$.33$	-13.70	00	$7.6 + 10$	-13.75	$7.2 + 87$
δ Gemini	$\times 07.213 + 22$	$13 + 41$	$115 - 13.86.4$	$.16$	$.70$	00	$7.2 + 30$	13.83	13.75
γ Gemini	$\times 07.348 + 28$	$3 + 53$	$117 - 14.00.4$	$.20$	$.80$	00	$7.4 + 20$	-13.79	$7.3 + 75$
α Gemini	$\times 07.427 + 32$	$10 + 63$	$119 - 13.75.4$	$.24$	$[.51]$	00			-13.89
β Can. Min.	$\times 07.533 + 5$	$33 + 10$	$120 - 13.75.4$	$.04$	$.71$	00			
δ Gemini	$\times 07.637 + 28$	$20 + 51$	$122 - 13.87.4$	$.21$	$.66$	00			
λ Gemini	$\times 07.211 + 16$	$46 + 36$	$114 - 13.83.4$	$.11$	-13.72	00	$0 = +42.63$	-17.49	$n = +41$
	7.32				-13.715	-13.715	$+3.86$	-1.63	$+42$
							$+20.92$	-8.34	$+40$
									$0 = +41.46$
									-16.96
									$n = +41$
									$+2.69$
									-1.10
									$+41$
									$+19.45$
									-7.81
									$+40$
									$0 = -7.27$
									$+3.07$
									$n = +42$
									-2.44
									$+0.81$
									$+33$
									-2.98
									$+1.12$
									$+38$
									-16.74
									$+4.74$
									$+2.98$
									-17.91
									$+5.27$
									$+30$

1872	Mar. 14	$h = +012$	$h' = +011$	$m = +37$					
		$h' = +005$							
γ Orionis	$\checkmark 06.00 + 14$	$47 + 26$	$382 - 14.03.4$	$.10$	-12.93	00	22	$5 + 69$	$22 + 2.66$
δ Gemini	$\times 06.17 + 22$	$32 + 41$	$105 - 14.15.4$	$.15$	-12.93	00	18	$13 + 63$	24.36
β Gemini	$\times 06.50 + 16$	$30 + 30$	$107 - 13.08.4$	$.11$	-12.97	00	6	$5 + 15$	$2.66 \checkmark$
γ Orionis	$\checkmark 6.20$				-12.967	-12.967	5	19	$16.88 \checkmark$
$6.1 + 2.66$	-13.96	-13.96	$6.2 - 16.88$	-6.55	-6.55	00	6	$41 + 87$	$14 + 20.58$
$6.7 + 20.78$	-20.68	-20.67				00	51	H	$Cephei$
$\pm .01$						00	$6.0 + 26$	-13.03	$-20.68 \checkmark$
						00	$6.1 + 41$	13.15	
						00	$6.5 + 30$	13.08	
						00	$6.2 + 32$	-13.09	
						00	$0 = +2.34$	-0.87	$n = +37$
						00	$+20.46$	-7.58	$+37$

1872	Mar. 14	$h = +012$	$h' = +008$	$m = +33$					
		$h' = +005$							
α Can. Min.	$\checkmark 05.532 + 5$	$33 + 10$	$120 - 12.92.4$	$.03$	-12.90	00	19	$49 + 110$	$.03 - 27.41$
β Gemini	$\times 05.637 + 28$	$20 + 54$	$122 - 13.15.4$	$.18$	$.97$	00	19	$52 + 91$	$04 - 53.07$
γ Orionis	$\times 05.745 + 24$	$15 + 35$	$115 - 13.26.4$	$.15$	$.97$	00	20	$13 + 77$	$20 - 4.44$
δ Can. Min.	$\times 05.8210 + 9$	$34 + 17$	$123 - 13.00.4$	$.06$	$.94$	00	7	$45 + 74$	$15 + 3.54$
	8.20				-12.937	-12.937			$-15.28 \checkmark$
$7.7 + 3.54$	-15.28	-15.28	$7.8 - 2.74$	-11.98	-11.98	00	$7.5 + 10$	-12.93	
$.00$						00	$8.2 + 17$	13.00	
			$7.9 - 53.07$	$+4.72$	$+4.72$	00	$7.8 + 14$	-12.96	
						00			
			$8.2 - 4.44$	-11.48	-11.48	00	$0 = +3.40$	-2.32	$n = +68$
						00			
						00	$0 = -2.88$	$+0.98$	$n = +34$
						00	-5.32	$+17.68$	$+33$
						00	-4.58	$+1.48$	$+34$

$$\text{Dir } z = +60 +80 +40 +60 +20 +40 +0 +20 +0 -20 -20 -40 -40 -60 -60 -80 -80 -100$$

19 35	5 5 +07	+0 25.5	-1 25.4	+1 25.5	4 59 -82	+0 25.3	+0 25.3	-14 23.9	✓
92	5 16 -06	250 +1 25.1	-1 25.0		5 22 -54	26.1 +1 26.2	-10 25.2		
84	5 9 +77	236 +1.5 24.1	+1.3 25.4		5 44 -91	26.7 -4 26.3	-16 24.9	✓	
76	5 12 +76	24.7 -1 24.6	+1.3 25.9		18 13 -87	13.9 -3 (13.6)	-1.5 (12.1)	✓	
11			(4) 25.45		6 41 -70	22.8 +2 (23.0)	-1.2 (21.8)		
83					17 38 -93	28.1 -1.8 26.3	-16 24.7	✓	
		+77 +24.1		+07 +25.4	-06 +25.1				
		+76 24.6				-54 +26.2	-82 +25.3	(1) 25.20	
		+76 +24.4		+07 +25.4	-06 +25.1	-41	-91 26.3		
		+16		+2	-1	-23 26.3	-89 +26.0		
	+0 20.54					-54 +26.2	-16		
	25.40	2 26.0		1 25.6	1 25.0	-1.1			
		-5		-1	+5	1 25.1	3 24.4	5 27.7	
	4 9 +0.2	+0 26.5	-4 26.1	+1 36.2		+4			
	4 13 +34	26.3 +2 26.5	+6 27.1						
	4 18 +25	25.3 -3 25.0	+5 25.3						
	4 31 +18	26.2 -3 25.9	+4 26.3						
	4 33 +60	22.6 +7 23.3	+1.1 24.4						
	4 37 +24	25.0 +4 25.4	+4 25.8						
	4 11 +43	25.0 +2 25.2	+8 26.0						
		(7) 25.90							
		+60 +23.3 +43 +25.2	+34 +26.5 +12 +26.1						
			+25 25.0	+18 25.9					
			+24 25.4						
		60 28.3 43 25.2	+28 25.6	+10 26.0					
		+1.2	+6	+2					
	+0 25.94	1 24.5	1 24.1	3 26.2	2 26.2				
	25.90	+1.4	-2	-3	-3				
83	6 0 +46	+0 23.8	+3 24.1	+8 24.9	6 5 -45	+0 26.0	+3 26.3	-8 25.5	
56	6 4 +34	22.7 +2 22.9	+6 23.5		18 13 -87	26.8 -3 26.5	-1.5 25.0	✓	
	6 30 +44	25.1 +3 25.4	+8 26.2						
11		(3) 24.87			6 41 -70	25.8 +2 26.0	-1.2 24.8		
		+46 +24.1 +34 +22.9							
		+44 25.4				-45 +26.3	-70 +26.0	-87 +26.5	(2) 25.15
		+45 +24.8 +34 +22.9				-45 +26.3	-70 +26.0	-87 +26.5	
		+7.9				-1.4	-1.4		
	+0 25.00	2 25.8	1 23.6		1 25.4	1 24.6	24.8		25.0
	24.98	-7	+1.4		-4	+4			
82	7 32 +60	+0 24.2	+4 24.9	+10 22.4	19 44 -93	+0 55.9	-8 55.1		
84	7 37 +24	24.1 +4 24.5	+4 24.9		4 53 -75	26.9 -6 26.3	-1.2 25.1		
82					20 13 -87	26.7 -5 26.2	-1.5 24.7	✓	
101	8 10 +54	24.4 +2 24.6	+9 25.5		4 45				
		(3) 24.42							
		+60 +21.9 +24 +24.5				-75 +26.3	-87 +26.2	(1) 25.10	
		+54 24.6				-75 +26.3	-87 +26.2		
		+57 +23.2 +24 +24.5				-1.5	-1.6		
		+1.2				1 24.8	24.6		4 14.6
	+0 24.65	2 24.4	1 25.0			-2			
	24.60	+2	-4						

1872	Mar. 18	$h = -.006$ $h' = +.008$	$h = -.006$	$n = +43$					
Star	RA	S							
β Minior	$x 57.6 38' + 26' 20' + 57.122$	$14.43.4 23$	-14.20	00					
β Cancri	$x 182.70 + 9 34 + .17$	$123.14.26.4 .07$	$.19$						
α Urs. Maj.	$x 283.20 + 61 8 + 1.81$	$125.14.98.4 .78$	$.20$						
γ Cancri	$x 38.4 26 + 20 52 + .38$	$409.14.36.4 .16$	-14.20	00					
	$8.12 - 3.30$		-14.198	-14.198					
ϵ Uris	$\checkmark 8-2$								
ν Uris	$\checkmark 8-16$								
$6.7 + 20.78 - 23.14 - 23.15 - 23.15$	$6.2 - 16.88 - 7.23 - 7.23 - 7.23$								
$7.7 + 3.54 - 15.81 - 15.81 - 15.81$	$7.8 - 2.74 - 12.99 - 12.99 - 12.99$								
$7.9 - 53.07 + 7.88 + 7.88$									

1872	Mar. 19	$h = -.001$ $h' = +.007$	$h = +.002$	$n = +42$					
β Aurigae	$x 58.51 + 37 12 + .76$	$104.14.52.4 32$	-14.20	00					
ν Orionis	$x 6.0 00 + 14 47 + .26$	$38.14.33.4 .11$	$.22$						
γ Geminae	$x 16.1 7 + 22 32 + .41$	$105.14.39.4 .17$	$.22$	00					
	5.97		-14.213	-14.213					
$6.1 + 2.66 - 15.32 - 15.32 - 15.32$									

1872	Mar. 19	$h = -.001$ $h' = +.007$	$h = -.017$	$n = +39$					
6.3	$x 57.0 3 + 39 31 + .82$	$395.14.55.4 32$	-14.23	01	-14.24				
6.4	$x 57.1 9 + 41 6 + .87$	$396.14.54.4 34$	$.20$	01	$.21$				
λ Geminae	$x 37.2 11 + 16 46 + .30$	$114.14.30.4 .12$	$.18$	00	$.18$				
δ Geminae	$x 37.2 12 + 22 13 + .41$	$115.14.35.4 .16$	$.19$	00	$.19$				
ϵ Geminae	$x 22.3 18 + 28 3 + .53$	$117.14.45.4 .21$	$.24$	00	$.24$				
β Can Min.	$x 7.3 20 + 8 32 + .15$	$118.14.22.4 .06$	$.16$	00	$.16$				
δ Geminae	$x 4.4 26 + 32 10 + .63$	$119.14.67.4 .24$	$[.43]$		$[.43]$				
ϵ Can Min.	$x 5.5 33 + 5 33 + .10$	$120.14.23.4 .04$	$.19$	00	$.19$				
δ Geminae	$x 7.6 37 + 28 20 + .54$	$122.14.43.4 .21$	$.22$	00	$.22$				
ϵ Uris	$\checkmark 8-2$								
δ Cancri	$x 182.70 + 9 34 + .17$	$123.14.26.4 .07$	$.19$	01	$.18$				
ν Uris	$\checkmark 8-16$								
α Urs. Maj.	$x 283.20 + 61 8 + 1.81$	$125.14.98.4 .71$	$.25$	01	$.24$				
δ Geminae	$x 4.2 6 + 32 10 + .63$	$119.14.27.4 + 24$	14.210	-14.205	-14.205				
$7.7 + 3.54 - 15.67 - 15.67 - 15.67$	$7.9 - 53.07 + 6.08 + 6.08 + 6.08$								
$8.2 - 4.44 - 12.64 - 12.64 - 12.64$									

1872	Mar. 18								
Star	RA	S							
δ Urs. Min.	$x 18.13 + 86 36 - 16.88$	5	-7.23	\checkmark					256
51.14	$x 41 + 87 14 + 20.58$	5	-23.14	\checkmark					111
52.1374	$x 7 45 + 74 15 + 3.584$	6	-15.81	\checkmark					401
ϵ Uris	$x 19 40 + 69 57 - 2.74$	5	-12.99	\checkmark					282
λ Urs. Min.	$x 19 40 + 52.91 4 - 53.07$	6	$+7.88$	\checkmark					284
$8.2 + 17 - 14.26$	$8.3 + 1.81 - 14.98$								
$8.4 + 38 - 14.36$									
$8.3 + 28 - 14.31$	$n5 = 44$								
$0 = +20.50 - 8.84$	$n = +43$	$0 = +18.97 - 8.17$	$n = +43$						
$+326 - 1.50$	$+46$	$+1.73 - 0.83$	$+48$						
$0 = -17.16 + 7.08$	$n = +41$	$0 = -18.69 + 7.75$	$n = +42$						
$-3.02 + 1.32$	$+44$	$-4.55 + 1.99$	$+44$						
$-53.35 + 22.19$	$+41$	$-54.88 + 22.86$	$+42$						
22.11	$x 6 4 + 69 22 + 2.66$	5	-15.32	\checkmark					383
δ Urs. Min.	$x 6 15 - 16.88$								256
$6.0 + 2.6 - 14.33$	$5.8 + 0.76 - 14.52$								
$6.1 + 41 - 14.39$									
$6.0 + 34 - 14.36$									
$0 = +232 - 0.96$	$n = +41$	$0 = +1.90 - 0.80$	$n = +42$						
6.3	$x 57.0 3 + 39 31 + .82$	$395.14.55.4 32$	-14.23	01	-14.24				
6.4	$x 57.1 9 + 41 6 + .87$	$396.14.54.4 34$	$.20$	01	$.21$				
λ Geminae	$x 37.2 11 + 16 46 + .30$	$114.14.30.4 .12$	$.18$	00	$.18$				
δ Geminae	$x 37.2 12 + 22 13 + .41$	$115.14.35.4 .16$	$.19$	00	$.19$				
ϵ Geminae	$x 22.3 18 + 28 3 + .53$	$117.14.45.4 .21$	$.24$	00	$.24$				
β Can Min.	$x 7.3 20 + 8 32 + .15$	$118.14.22.4 .06$	$.16$	00	$.16$				
δ Geminae	$x 4.4 26 + 32 10 + .63$	$119.14.67.4 .24$	$[.43]$		$[.43]$				
ϵ Can Min.	$x 5.5 33 + 5 33 + .10$	$120.14.23.4 .04$	$.19$	00	$.19$				
δ Geminae	$x 7.6 37 + 28 20 + .54$	$122.14.43.4 .21$	$.22$	00	$.22$				
ϵ Uris	$\checkmark 8-2$								
δ Cancri	$x 182.70 + 9 34 + .17$	$123.14.26.4 .07$	$.19$	01	$.18$				
ν Uris	$\checkmark 8-16$								
α Urs. Maj.	$x 283.20 + 61 8 + 1.81$	$125.14.98.4 .71$	$.25$	01	$.24$				
δ Geminae	$x 4.2 6 + 32 10 + .63$	$119.14.27.4 + 24$	14.210	-14.205	-14.205				
$7.7 + 3.54 - 15.67 - 15.67 - 15.67$	$7.9 - 53.07 + 6.08 + 6.08 + 6.08$								
$8.2 - 4.44 - 12.64 - 12.64 - 12.64$									
$0 = -53.25 + 20.33$	$n = +38$	$0 = -54.41 + 20.83$	$n = +35$						
$-4.62 + 1.61$	$+35$	$-5.78 + 2.11$	$+37$						

1872	Mar. 21	$h = +004$ $h' = +004$	$h' = +007$	$n = +47$
Star	RA	S		
5. Gemini	$\checkmark 26.9$	$56 + 20$	$15 + 38$	$113 14.47.4.18$
63. Auriga	$\times 17.0$	$3 + 39$	$31 + 82$	$395 14.69.4.39$
64. Auriga	$\times 9.1$	$9 + 41$	$6 + 87$	$326 14.69.4.41$
6. Gemini	$\checkmark 17.2$	$11 + 16$	$16 + 30$	$114 14.49.4.14$
5. Gemini	$\times 17.2$	$13 + 22$	$13 + 41$	$115 14.49.4.19$
9. Gemini	$\times 27.3$	$21 + 32$	$2 + 62$	$326 14.59.4.29$
2. Gemini	$\times 7.4$	$27 + 32$	$10 + 63$	$119 14.52.4.29$
	7.12			
2. Gemini	$\checkmark 7.1$	$27 + 32$	$10 + 63$	$119 14.49.4.29$
	9.0 + 2.43	-15.43	-15.44	-15.44
		+ .01	+ .01	

1872	Mar. 21			
Star	RA	S		
5. Gemini	$\checkmark 26.9$	$56 + 20$	$15 + 38$	$113 14.47.4.18$
63. Auriga	$\times 17.0$	$3 + 39$	$31 + 82$	$395 14.69.4.39$
64. Auriga	$\times 9.1$	$9 + 41$	$6 + 87$	$326 14.69.4.41$
6. Gemini	$\checkmark 17.2$	$11 + 16$	$16 + 30$	$114 14.49.4.14$
5. Gemini	$\times 17.2$	$13 + 22$	$13 + 41$	$115 14.49.4.19$
9. Gemini	$\times 27.3$	$21 + 32$	$2 + 62$	$326 14.59.4.29$
2. Gemini	$\times 7.4$	$27 + 32$	$10 + 63$	$119 14.52.4.29$
	7.12			
2. Gemini	$\checkmark 7.1$	$27 + 32$	$10 + 63$	$119 14.49.4.29$
	9.0 + 2.43	-15.43	-15.44	-15.44
		+ .01	+ .01	

1872	Mar. 21	$h = +004$ $h' = +004$	$h' = +004$	$n = +49$
Star	RA	S		
5. Cancri	$\checkmark 8.8$	$46 + 31$	$41 + 60$	$412 14.51.4.29$
5. Hydras	$\checkmark 8.8$	$49 + 6$	$25 + 11$	$129 14.28.4.05$
1. Virg	$\times 8.8$	$51 + 48$	$32 + 1.13$	$130 14.83.4.05$
1. Virg	$\times 8.8$	$53 + 47$	$39 + 1.11$	$133 14.85.4.54$
	8.82			
	9.0 + 2.43	-15.43	-15.43	-15.43
		+ .00	+ .00	
	9.3 + 7.03	-17.67	-17.67	-17.67
		+ .00	+ .00	

1872	Mar. 21			
Star	RA	S		
5. Cancri	$\checkmark 8.8$	$46 + 31$	$41 + 60$	$412 14.51.4.29$
5. Hydras	$\checkmark 8.8$	$49 + 6$	$25 + 11$	$129 14.28.4.05$
1. Virg	$\times 8.8$	$51 + 48$	$32 + 1.13$	$130 14.83.4.05$
1. Virg	$\times 8.8$	$53 + 47$	$39 + 1.11$	$133 14.85.4.54$
	8.82			
	9.0 + 2.43	-15.43	-15.43	-15.43
		+ .00	+ .00	
	9.3 + 7.03	-17.67	-17.67	-17.67
		+ .00	+ .00	

1872	Mar. 24	$h = +007$ $h' = +001$	$h' = -017$	$n = +44$
Star	RA	S		
64. Auriga	$\checkmark 16.7$	$19 + 41$	$6 + 87$	$326 15.15.4.38$
5. Gemini	$\checkmark 3.3$	$18 + 28$	$3 + 53$	$117 14.96.4.23$
5. Gemini	$\checkmark 3.3$	$20 + 32$	$2 + 62$	$328 15.03.4.27$
2. Gemini	$\checkmark 7.4$	$26 + 32$	$10 + 63$	$119 15.28.4.27$
2. Gemini	$\checkmark 7.6$	$37 + 28$	$20 + 54$	$122 15.03.4.24$
5. Cancri	$\checkmark 8.6$	$37 + 18$	$37 + 34$	$126 14.90.4.15$
2. Gemini	$\checkmark 7.7$	$26 + 32$	$10 + 63$	$119 14.92.4.27$
	7.08			
	7.2 - 2.40	-13.74	-13.74	-13.74
		+ .01	+ .00	
	7.9 - 5.07	+ 9.38	+ 9.38	+ 9.38
		+ .00	+ .00	

1872	Mar. 24			
Star	RA	S		
64. Auriga	$\checkmark 16.7$	$19 + 41$	$6 + 87$	$326 15.15.4.38$
5. Gemini	$\checkmark 3.3$	$18 + 28$	$3 + 53$	$117 14.96.4.23$
5. Gemini	$\checkmark 3.3$	$20 + 32$	$2 + 62$	$328 15.03.4.27$
2. Gemini	$\checkmark 7.4$	$26 + 32$	$10 + 63$	$119 15.28.4.27$
2. Gemini	$\checkmark 7.6$	$37 + 28$	$20 + 54$	$122 15.03.4.24$
5. Cancri	$\checkmark 8.6$	$37 + 18$	$37 + 34$	$126 14.90.4.15$
2. Gemini	$\checkmark 7.7$	$26 + 32$	$10 + 63$	$119 14.92.4.27$
	7.08			
	7.2 - 2.40	-13.74	-13.74	-13.74
		+ .01	+ .00	
	7.9 - 5.07	+ 9.38	+ 9.38	+ 9.38
		+ .00	+ .00	

1872	Mar. 27	$h = +004$ $h' = +004$	$h' = -017$	$n = +42$
Star	RA	S		
5. Gemini	$\checkmark 7.3$	$18 + 28$	$3 + 53$	$117 15.17.4.22$
5. Cancri	$\checkmark 8.3$	$20 + 8$	$32 + 1.55$	$112 15.36.4.06$
2. Gemini	$\checkmark 7.4$	$27 + 32$	$10 + 63$	$119 15.75.4.16$
1. Virg	$\times 8.0$	$20 + 61$	$8 + 1.81$	$125 15.93.4.76$
5. Cancri	$\checkmark 8.4$	$25 + 20$	$52 + 3.85$	$429 15.44.4.16$
5. Cancri	$\checkmark 8.6$	$37 + 18$	$37 + 34$	$126 15.45.4.14$
5. Hydras	$\checkmark 8.7$	$40 + 6$	$53 + 1.20$	$128 15.31.4.05$
5. Cancri	$\checkmark 8.8$	$47 + 31$	$3 + 60$	$142 15.52.4.25$
1. Virg	$\checkmark 8.8$	$51 + 48$	$32 + 1.13$	$130 15.69.4.47$
5. Hydras	$\checkmark 8.8$	$49 + 6$	$25 + 1.10$	$129 15.33.4.05$
2. Gemini	$\checkmark 7.7$	$27 + 32$	$10 + 63$	$119 15.37.4.27$
	8.33			
	9.0 + 2.43	-16.18	-16.18	-16.18
		+ .00	+ .00	
	9.3 + 7.03	-18.41	-18.41	-18.41
		+ .00	+ .00	

1872	Mar. 27			
Star	RA	S		
5. Gemini	$\checkmark 7.3$	$18 + 28$	$3 + 53$	$117 15.17.4.22$
5. Cancri	$\checkmark 8.3$	$20 + 8$	$32 + 1.55$	$112 15.36.4.06$
2. Gemini	$\checkmark 7.4$	$27 + 32$	$10 + 63$	$119 15.75.4.16$
1. Virg	$\times 8.0$	$20 + 61$	$8 + 1.81$	$125 15.93.4.76$
5. Cancri	$\checkmark 8.4$	$25 + 20$	$52 + 3.85$	$429 15.44.4.16$
5. Cancri	$\checkmark 8.6$	$37 + 18$	$37 + 34$	$126 15.45.4.14$
5. Hydras	$\checkmark 8.7$	$40 + 6$	$53 + 1.20$	$128 15.31.4.05$
5. Cancri	$\checkmark 8.8$	$47 + 31$	$3 + 60$	$142 15.52.4.25$
1. Virg	$\checkmark 8.8$	$51 + 48$	$32 + 1.13$	$130 15.69.4.47$
5. Hydras	$\checkmark 8.8$	$49 + 6$	$25 + 1.10$	$129 15.33.4.05$
2. Gemini	$\checkmark 7.7$	$27 + 32$	$10 + 63$	$119 15.37.4.27$
	8.33			
	9.0 + 2.43	-16.18	-16.18	-16.18
		+ .00	+ .00	
	9.3 + 7.03	-18.41	-18.41	-18.41
		+ .00	+ .00	

$$\sin Z = +60 +80 +40 +60 +20 +40 +0 +20 +0 -20 -20 -40 -40 -60 -60 -80 -80 -100$$

P.A. $\sin Z$
h m

6 56 +37
7 3 +05
7 9 +02
7 11 +43
7 13 +34
7 21 +18
7 27 +18

P.A. $\sin Z$
h m

+0 27.5 +2 27.7 +.6 28.3
29.2 -1 29.1 +.1 29.2
29.3 +4 29.7 +.1 29.8
29.4 +2 29.6 +.7 30.3
28.3 +2 28.5 +.6 29.1
27.4 +7 28.1 +.3 28.4
28.8 -3 28.5 +.3 28.8
(7) 29.13

P.A. $\sin Z$
h m

8 59 -43

P.A. $\sin Z$
h m

+0 28.5 +.8 29.3 -8 28.5

(1) 28.50

7 37 +18

31.5 -3 (31.2) +3 (31.5)

+43 +29.6 +37 +27.7 +05 +29.1
+34 28.5 +02 29.7
+18 28.1
+18 28.5

-43 +29.3

+0 29.06
29.05

+43 +29.6 +36 +28.1 +.11 +28.8
+8 +.7 +0.2
1 30.4 2 28.8 4 29.0
-1.3 +.3 +.1

-43 +29.3

-8
1 28.5
+1.6

36.8 72.5
64.0

8 46 +20
8 49 +59
8 51 -11
8 55 -09

+0 27.0 +2 27.2 +3 27.5
26.0 +7 26.7 +10 27.7
28.4 +8 29.2 -2 29.0
27.3 +12 28.5 -2 28.3
(4) 28.12

20 53
8 59 -43
9 19

-1.0

+59 +26.7 +20 +27.2
+59 +26.7 +20 +27.2
+12 +.04
1 27.9 2 27.6
-1.1 +.2

-11 +29.2
-09 28.5
-10 +28.8
-8.2
2 28.6
-8

4 31

7 9 +02
7 18 +25
7 21 +18
7 26 +18
7 37 +24
7 37 +40
7 26 +18

+0 25.7 +4 26.1 +.1 26.2
24.8 -3 24.5 +4 24.9
24.2 +7 24.9 +3 25.2
26.7 -3 26.4 +3 26.7
24.2 +4 24.6 +4 25.0
25.3 +6 25.9 +7 26.6
28.8 -3 (28.5) +3 (28.8)
(6) 25.77

7 12 -94
7 52 -75

+0 26.8 -8 26.8 -1.5 24.6
28.1 -6 27.5 -1.2 26.3

(1) 26.30

+25 +24.5 +0.2 +26.1
+24 24.6 +.18 24.9
+40 25.9
+30 +25.0 +.10 +25.5
+6 +.02
3 25.6 2 25.7
+1 +.0

-7.5 +27.5 -94 +26.1

-7.5 +27.5 -94 +26.1
-1.4 -1.5
1 26.1 24.6
-1.4

6 343

7 18 +25
7 20 +56
7 27 +18
7 20 -52
7 25 +37
7 37 +40
7 40 +58
7 47 +20
7 51 -11
7 49 +59

+0 25.7 -3 25.4 +4 25.8
24.3 +3 24.6 +9 25.5
24.5 -3 (24.2) +.3 (24.5)
24.1 +1.4 25.5 -5 25.0
24.4 +4 24.8 +6 25.4
24.6 +6 25.0 +6 25.6
24.1 -2 23.9 +9 24.8
25.4 +2 25.6 +3 25.9
24.7 +8 25.5 -2 25.3
22.1 +7 22.8 +9 23.7
(9) 25.22

8 53
8 59 -43
9 19

+0 25.6 +8 26.4 -7 25.7
28.3 -1.0

(1) 25.70

7 27 +18

24.8 -3 (24.5) +3 (24.8)

+56 +24.6 +25 +25.4 +20 +25.6 -11 +25.5 -32 +25.5 -43 +26.4
+58 23.9 +37 24.8
+59 22.8 +40 25.0
+58 +23.8 +34 +25.1 +20 +25.6 -11 +25.5 -32 +25.5 -43 +26.4
+11 +.06 +.04 -1.2 -1.6 -1.8
24.9 3 25.7 26.0 25.3 24.9 25.6
+0 -1.3 -1.6 +.1 +.5 -1.2

+0 25.32
25.27

110 35.5
53.6

1871phae.proj.166

1872	Mar 28	$h = +0.04$ $h' = +0.12$ $n = +42$ $c = -0.05$	1872	Mar 28	$h = +0.04$ $h' = +0.12$ $n = +42$ $c = -0.05$
Star	RA	S	Star	RA	S
β Gemini	$+26.530$	$+16.30$	30.104	15.36	$+13.05$
α Centauri	$+26.530$	$+16.30$	30.104	15.36	$+13.05$
β Centauri	$+26.530$	$+16.30$	30.104	15.36	$+13.05$
γ Centauri	$+26.530$	$+16.30$	30.104	15.36	$+13.05$
δ Centauri	$+26.530$	$+16.30$	30.104	15.36	$+13.05$
ϵ Centauri	$+26.530$	$+16.30$	30.104	15.36	$+13.05$
ζ Centauri	$+26.530$	$+16.30$	30.104	15.36	$+13.05$
η Centauri	$+26.530$	$+16.30$	30.104	15.36	$+13.05$
θ Centauri	$+26.530$	$+16.30$	30.104	15.36	$+13.05$
ι Centauri	$+26.530$	$+16.30$	30.104	15.36	$+13.05$
κ Centauri	$+26.530$	$+16.30$	30.104	15.36	$+13.05$
λ Centauri	$+26.530$	$+16.30$	30.104	15.36	$+13.05$
μ Centauri	$+26.530$	$+16.30$	30.104	15.36	$+13.05$
ν Centauri	$+26.530$	$+16.30$	30.104	15.36	$+13.05$
ξ Centauri	$+26.530$	$+16.30$	30.104	15.36	$+13.05$
\omicron Centauri	$+26.530$	$+16.30$	30.104	15.36	$+13.05$
π Centauri	$+26.530$	$+16.30$	30.104	15.36	$+13.05$
ρ Centauri	$+26.530$	$+16.30$	30.104	15.36	$+13.05$
σ Centauri	$+26.530$	$+16.30$	30.104	15.36	$+13.05$
τ Centauri	$+26.530$	$+16.30$	30.104	15.36	$+13.05$
υ Centauri	$+26.530$	$+16.30$	30.104	15.36	$+13.05$
ϕ Centauri	$+26.530$	$+16.30$	30.104	15.36	$+13.05$
χ Centauri	$+26.530$	$+16.30$	30.104	15.36	$+13.05$
ψ Centauri	$+26.530$	$+16.30$	30.104	15.36	$+13.05$
ω Centauri	$+26.530$	$+16.30$	30.104	15.36	$+13.05$
δ Centauri	$+26.530$	$+16.30$	30.104	15.36	$+13.05$
ϵ Centauri	$+26.530$	$+16.30$	30.104	15.36	$+13.05$
ζ Centauri	$+26.530$	$+16.30$	30.104	15.36	$+13.05$
η Centauri	$+26.530$	$+16.30$	30.104	15.36	$+13.05$
θ Centauri	$+26.530$	$+16.30$	30.104	15.36	$+13.05$
ι Centauri	$+26.530$	$+16.30$	30.104	15.36	$+13.05$
κ Centauri	$+26.530$	$+16.30$	30.104	15.36	$+13.05$
λ Centauri	$+26.530$	$+16.30$	30.104	15.36	$+13.05$
μ Centauri	$+26.530$	$+16.30$	30.104	15.36	$+13.05$
ν Centauri	$+26.530$	$+16.30$	30.104	15.36	$+13.05$
ξ Centauri	$+26.530$	$+16.30$	30.104	15.36	$+13.05$
\omicron Centauri	$+26.530$	$+16.30$	30.104	15.36	$+13.05$
π Centauri	$+26.530$	$+16.30$	30.104	15.36	$+13.05$
ρ Centauri	$+26.530$	$+16.30$	30.104	15.36	$+13.05$
σ Centauri	$+26.530$	$+16.30$	30.104	15.36	$+13.05$
τ Centauri	$+26.530$	$+16.30$	30.104	15.36	$+13.05$
υ Centauri	$+26.530$	$+16.30$	30.104		

Star	RA	S							
1872 Apr. 2	$h = -0.04$ $h' = +0.04$	$h' = -0.07$	$0.2 = +2.4$						
086x May	8.320 + 61	8 + 1.81v	-14.814	.43	-14.38	00			
1257	8.425 + 20	52 + .38v	-14.534	.09	.44				
1409	8.637 + 18	37 + .34v	-14.494	.08	.41				
1488	8.740 + 6	53 + .12v	-14.434	.03	.40				
57 Cancri	8.846 + 31	14 + .60v	-14.614	.19	.47				
5 Hydrae	8.849 + 6	25 + .11v	-14.184	.03	.45				
121	8.850 + 48	32 + 1.13v	-14.714	.27	.44				
130	8.955 + 47	39 + 1.10v	-14.744	.26	.48				
133	9.18 + 2	50 + .05v	-14.404	.01	.39				
38 Lynx	9.211 + 37	20 + .76v	-14.604	.18	.42				
83 Cancri	9.212 + 18	14 + .33v	-14.524	.08	.44				
405 Lynx	9.213 + 34	55 + .70v	-14.654	.17	.48				
146	9.639 + 24	21 + .45v	-14.534	.11	.42				
145	9.745 + 26	36 + .50v	-14.584	.12	.46				
149	9.742 + 59	37 + 1.71v	-14.914	.044	.46				
153	9.721 - 8	7 - .14v	-14.474	.03	-14.44	00			
9.0 + 2.43	-15.01 - 15.01	-15.01	8.2 - 4.44	-13.19	-13.19	-13.19			
9.3 + 7.02	-16.03 - 16.03	-16.03	9.4 - 2.75	-13.85	-13.85	-13.85			
9.4 + 2.81	-15.16 - 15.16	-15.16							

1872 Apr. 3	$h = +0.03$ $h' = +0.11$	$h' = -0.03$	$m = +2.5$						
5 Gemini	6.956 + 20	45 + .37v	-14.634	.09	14.54	00			
113	7.211 + 16	46 + .30v	-14.664	.07	.59				
114	7.318 + 28	3 + .53v	-14.694	.13	.56				
117	7.321 + 32	2 + .62v	-14.744	.15	.63				
119	7.426 + 32	10 + .63v	-14.884	.15	(.73)				
120	7.533 + 5	33 + .10v	-14.594	.02	.57				
122	7.637 + 28	20 + .51v	-14.714	.13	14.58	00			
123	7.730				14.57				
124	7.726 + 32	10 + .63v	-14.494	.15	34				
7.8 + 3.53	-15.45 - 15.45	-15.45	7.2 - 2.40	-13.86	-13.86	-13.86			
			7.9 - 52.90	-2.93	-2.93	-2.93			

1872 Apr. 3	$h = +0.03$ $h' = +0.11$	$h' = +0.01$	$m = +2.5$						
126	8.637 + 18	37 + .34v	-14.604	.08	-14.52	00			
127	8.847 + 31	14 + .60v	-14.694	.15	.54				
128	8.849 + 6	25 + .11v	-14.604	.03	.57				
129	8.850 + 48	32 + 1.13v	-14.824	.28	.54				
130	8.955 + 47	39 + 1.10v	-14.914	.27	-14.64	00			
133	8.78				-14.562	-14.562			

Star	RA	S							
1872 Apr. 2									
149x Dec	8.13		-4.44v	-13.19v				502	
150	8.53							415	
151	8.58							415	
152	8.59 + 67	38 + 2.43v	-15.04v					137	
153	8.19 + 61	53 + 7.02v	-16.03v					308	
154	8.27		-2.75v	-13.85v					
155	8.42 + 59	37 + 1.71v	-14.91v						
156	8.23 + 70	23 + 2.81v	-15.16v					418	
8.7 + 1.2	14.43	8.3 + 1.81	-14.81						
8.8 + 1.1	14.48	8.8 + 1.13	14.71						
9.1 + .05	14.40	8.9 + 1.10	14.74						
9.2 + .33	14.52	9.7 + 1.71	14.787						
9.3 - .14	14.47	8.9 + 1.44	-14.78						
9.0 + .09	14.46								

0 = +234 - 0.55	$m = +2.4$	0 = +0.99 - 0.23	$m = +2.3$						
+6.93 - 1.57	+23	+5.58 - 1.25	+22						
+2.72 - 0.70	+26	+1.37 - 0.38	+28						
0 = -4.53 + 1.27	$m = +2.8$	0 = -5.88 + 1.59	$m = +2.7$						
-2.84 + 0.61	+21	-4.19 + 0.93	+22						+0

157 Dec	12	-2.40v	-13.86v					271	
158	12.21							401	
159	12.45 + 74	15 + 3.55v	-15.45v					284	
160	12.52	-52.90v	-2.93v						
6.9 + 37	14.63	7.3 + 0.62	-14.78						
7.2 + 30	14.66	7.6 + 0.54	14.71						
7.6 + 10	14.59	7.4 + 0.58	-14.74						
7.2 + 26	14.63								

0 = +3.29 - 0.82	$m = +2.5$	0 = +2.97 - 0.71	$m = +2.4$						
0 = -2.66 + 0.77	$m = +2.9$	0 = -2.98 + 0.88	$m = +3.0$						
-53.16 + 11.70	+22	-53.98 + 11.81	+22						+0

8.6 + 34	14.60	8.8 + 1.13	-14.82						
8.8 + 11	14.60	8.9 + 1.10	14.91						
8.7 + 22	14.60	8.8 + 1.12	-14.86						

$$\sin z = +60 + 80 + 40 + 60 + 20 + 40 + 0 + 20 + 0 - 20 - 20 - 40 - 40 - 60 - 60 - 80 - 80 - 100$$
[illegible]

Star	RA	S	h	h'	n	1872	Apr. 4	WAR	Star	RA	S	h	h'	n	1872	Apr. 4	WAR	
5. Gemini	113	56	+20	45	.38	✓	14.57	.09	-14.48	00	1374	45	+74	15	3.58	✓	-15.39	401
1. Gemini	114	11	+16	46	.30	✓	14.59	.07	.52		1374	45	+74	15	3.58	✓	-15.39	284
9. Gemini	114	21	+32	2	.62	✓	14.63	.15	.48		1374	45	+74	15	3.58	✓	-15.39	284
2. Can	114	33	+5	33	.10	✓	14.54	.02	.52		1374	45	+74	15	3.58	✓	-15.39	284
3. Gemini	114	38	+28	20	.54	✓	14.71	.13	-14.58	00	1374	45	+74	15	3.58	✓	-15.39	284
1. Aries	114	30	+7	30	.10	✓	14.54	.02	.52		1374	45	+74	15	3.58	✓	-15.39	284
7.7	114	35	+15	39	.15	✓	14.59	.07	.52		1374	45	+74	15	3.58	✓	-15.39	284
7.7	114	35	+15	39	.15	✓	14.59	.07	.52		1374	45	+74	15	3.58	✓	-15.39	284
7.7	114	35	+15	39	.15	✓	14.59	.07	.52		1374	45	+74	15	3.58	✓	-15.39	284

$$0 = +328 - 0.82 \quad n = +25 \quad 0 = +296 - 0.72 \quad n = +24$$

1872	Apr. 6	$h = +009$ $h' = +018$	$\ell' = -.048$	$m = +19$	$c = -.06$	$0 = -53.16 + 12.30$	$n = +.23$	$a = -53.98 + 12.40$	$n = +.23$						
Alt. Maj.	✓	368.850	+48	32 +	1.13	1.15	14.35	✓	21 -	09	14.23	-03	-14.26	8	53
P.N. 134	✓	1369.1	8 +	2 50 +	.05	.10	14.15	✓	01	.06	.20	-01	21	8	59
38.5	✓	1392.2	11 +	57 20 +	.76	.126	-14.21	✓	14	.08	.18	-01	.19	9	10
408.5	✓	1392.13	+34	55 +	.70	.122	-14.23	✓	13	.07	.17	-01	.18	51	53
Alt. Maj.	✓	1393.21	-8	7 -	.14	.101	14.02	✓	03	.06	.11	+00	.11	70	23
Alt. Maj.	✓	1396.34	+10	28 +	.19	.102	14.18	✓	04	.06	.20	+01	.19	21	01
E. Sec. 141.5	✓	1396.39	+11	21 +	.45	.110	-14.25	✓	09	.07	.23	+01	.22	27	70
Alt. Maj.	✓	1397.42	+59	37 +	1.78	.098	14.54	✓	12	.30	+01	.29	9.1	1.13	-14.35
E. Sec. 144	✓	1398.45	+26	36 +	.50	.112	14.28	✓	09	.07	.26	+02	.24	8.8	+1.13
90 + 2.43	✓	1457	-1457	-1457	9.4	-2.75	-13.93	-13.93	-13.93	9.3	±0.8	-14.12	9.3	±0.8	-14.12

$$0 = +240 - 0.45 \quad n = +19 \quad 0 = +130 - 0.22 \quad n = +17$$

$$+699 - 0.99 \quad +14 \quad +589 - 0.76 \quad +13$$

$$+278 - 0.37 \quad +13 \quad +168 - 0.15 \quad +0.98$$

$$+334 - 0.63 \quad +19 \quad +224 - 0.41 \quad +1.87$$

Star	RA	S	h	h'	n	1872	Apr. 10	WAR	Star	RA	S	h	h'	n	1872	Apr. 10	WAR	
1. Aries	114	30	+7	30	.10	✓	14.54	.02	.52		1374	45	+74	15	3.58	✓	-15.39	284
2. Can	114	33	+5	33	.10	✓	14.54	.02	.52		1374	45	+74	15	3.58	✓	-15.39	284
3. Gemini	114	38	+28	20	.54	✓	14.71	.13	-14.58	00	1374	45	+74	15	3.58	✓	-15.39	284
4. Aries	114	30	+7	30	.10	✓	14.54	.02	.52		1374	45	+74	15	3.58	✓	-15.39	284
5. Gemini	114	36	+20	45	.38	✓	14.57	.09	-14.48	00	1374	45	+74	15	3.58	✓	-15.39	284
6. Aries	114	30	+7	30	.10	✓	14.54	.02	.52		1374	45	+74	15	3.58	✓	-15.39	284
7. Aries	114	30	+7	30	.10	✓	14.54	.02	.52		1374	45	+74	15	3.58	✓	-15.39	284
8. Aries	114	30	+7	30	.10	✓	14.54	.02	.52		1374	45	+74	15	3.58	✓	-15.39	284
9. Aries	114	30	+7	30	.10	✓	14.54	.02	.52		1374	45	+74	15	3.58	✓	-15.39	284
10. Aries	114	30	+7	30	.10	✓	14.54	.02	.52		1374	45	+74	15	3.58	✓	-15.39	284

$$0 = +341 - 0.58 \quad n = +17 \quad 0 = +1.73 - 0.30 \quad n = +17$$

$$0 = -5303 + 1202 \quad n = +23 \quad 0 = -5471 + 1230 \quad n = +22$$

$$-4.57 + 0.94 \quad +20 \quad -6.25 + 1.22 \quad +20$$

$$\sin z: +60 +80 +40 +60 +20 +40 +0 +20 +0 -20 -20 -40 -40 -60 -60 -80 -80 -100$$

[illegible]

1871pha	1872	Apr. 11	$h = +0.12$ $h' = +0.21$	$h = +0.48$ $h' = +0.21$	$h = +0.19$	1872	Apr. 11	$h = +0.12$ $h' = +0.21$	$h = +0.48$ $h' = +0.21$	$h = +0.19$	1872	Apr. 11	$h = +0.12$ $h' = +0.21$	$h = +0.48$ $h' = +0.21$	$h = +0.19$
Star	RA	S	sec	sec	sec	Star	RA	S	sec	sec	Star	RA	S	sec	sec
2 Mr. Wm.	8.38	4	m			2 Mr. Wm.	8.38	4	m		2 Mr. Wm.	8.38	4	m	
3 Mr. Wm.	8.38	4	m			3 Mr. Wm.	8.38	4	m		3 Mr. Wm.	8.38	4	m	
4 Mr. Wm.	8.38	4	m			4 Mr. Wm.	8.38	4	m		4 Mr. Wm.	8.38	4	m	
5 Mr. Wm.	8.38	4	m			5 Mr. Wm.	8.38	4	m		5 Mr. Wm.	8.38	4	m	
6 Mr. Wm.	8.38	4	m			6 Mr. Wm.	8.38	4	m		6 Mr. Wm.	8.38	4	m	
7 Mr. Wm.	8.38	4	m			7 Mr. Wm.	8.38	4	m		7 Mr. Wm.	8.38	4	m	
8 Mr. Wm.	8.38	4	m			8 Mr. Wm.	8.38	4	m		8 Mr. Wm.	8.38	4	m	
9 Mr. Wm.	8.38	4	m			9 Mr. Wm.	8.38	4	m		9 Mr. Wm.	8.38	4	m	
10 Mr. Wm.	8.38	4	m			10 Mr. Wm.	8.38	4	m		10 Mr. Wm.	8.38	4	m	
11 Mr. Wm.	8.38	4	m			11 Mr. Wm.	8.38	4	m		11 Mr. Wm.	8.38	4	m	
12 Mr. Wm.	8.38	4	m			12 Mr. Wm.	8.38	4	m		12 Mr. Wm.	8.38	4	m	
13 Mr. Wm.	8.38	4	m			13 Mr. Wm.	8.38	4	m		13 Mr. Wm.	8.38	4	m	
14 Mr. Wm.	8.38	4	m			14 Mr. Wm.	8.38	4	m		14 Mr. Wm.	8.38	4	m	
15 Mr. Wm.	8.38	4	m			15 Mr. Wm.	8.38	4	m		15 Mr. Wm.	8.38	4	m	
16 Mr. Wm.	8.38	4	m			16 Mr. Wm.	8.38	4	m		16 Mr. Wm.	8.38	4	m	
17 Mr. Wm.	8.38	4	m			17 Mr. Wm.	8.38	4	m		17 Mr. Wm.	8.38	4	m	
18 Mr. Wm.	8.38	4	m			18 Mr. Wm.	8.38	4	m		18 Mr. Wm.	8.38	4	m	
19 Mr. Wm.	8.38	4	m			19 Mr. Wm.	8.38	4	m		19 Mr. Wm.	8.38	4	m	
20 Mr. Wm.	8.38	4	m			20 Mr. Wm.	8.38	4	m		20 Mr. Wm.	8.38	4	m	
21 Mr. Wm.	8.38	4	m			21 Mr. Wm.	8.38	4	m		21 Mr. Wm.	8.38	4	m	
22 Mr. Wm.	8.38	4	m			22 Mr. Wm.	8.38	4	m		22 Mr. Wm.	8.38	4	m	
23 Mr. Wm.	8.38	4	m			23 Mr. Wm.	8.38	4	m		23 Mr. Wm.	8.38	4	m	
24 Mr. Wm.	8.38	4	m			24 Mr. Wm.	8.38	4	m		24 Mr. Wm.	8.38	4	m	
25 Mr. Wm.	8.38	4	m			25 Mr. Wm.	8.38	4	m		25 Mr. Wm.	8.38	4	m	
26 Mr. Wm.	8.38	4	m			26 Mr. Wm.	8.38	4	m		26 Mr. Wm.	8.38	4	m	
27 Mr. Wm.	8.38	4	m			27 Mr. Wm.	8.38	4	m		27 Mr. Wm.	8.38	4	m	
28 Mr. Wm.	8.38	4	m			28 Mr. Wm.	8.38	4	m		28 Mr. Wm.	8.38	4	m	
29 Mr. Wm.	8.38	4	m			29 Mr. Wm.	8.38	4	m		29 Mr. Wm.	8.38	4	m	
30 Mr. Wm.	8.38	4	m			30 Mr. Wm.	8.38	4	m		30 Mr. Wm.	8.38	4	m	
31 Mr. Wm.	8.38	4	m			31 Mr. Wm.	8.38	4	m		31 Mr. Wm.	8.38	4	m	
32 Mr. Wm.	8.38	4	m			32 Mr. Wm.	8.38	4	m		32 Mr. Wm.	8.38	4	m	
33 Mr. Wm.	8.38	4	m			33 Mr. Wm.	8.38	4	m		33 Mr. Wm.	8.38	4	m	
3															

1872	Apr. 19	$h = +0.10$	$h' = -0.23$	$u = +2.6$	$c = -0.8$
		$h = +0.20$			
Star	RA	δ	sec		
α Leo	10.57	9.50			
β Leo	10.40	9.26	+9 57	18.10	11.17.4
γ Leo	10.30	9.20	+31 20	16.11	11.25.4
δ Leo	10.10	9.10	+11 12	20.10	11.09.4
ϵ Leo	10.00	9.00	+62 26	1.91	11.16.4
ζ Leo	9.50	8.50	+45 11	1.01	11.37.4
η Leo	9.40	8.40	+21 12	3.90	11.19.4
θ Leo	9.30	8.30	+32 14	6.30	11.25.4
ι Leo	9.20	8.20			
κ Leo	9.10	8.10			
λ Leo	9.00	8.00			
μ Leo	8.50	7.50			
ν Leo	8.40	7.40			
ξ Leo	8.30	7.30			
\omicron Leo	8.20	7.20			
π Leo	8.10	7.10			
ρ Leo	8.00	7.00			
σ Leo	7.50	6.50			
τ Leo	7.40	6.40			
υ Leo	7.30	6.30			
ϕ Leo	7.20	6.20			
χ Leo	7.10	6.10			
ψ Leo	7.00	6.00			
ω Leo	6.50	5.50			
α Leo	10.57	9.50			
β Leo	10.40	9.26			
γ Leo	10.30	9.20			
δ Leo	10.10	9.10			
ϵ Leo	10.00	9.00			
ζ Leo	9.50	8.50			
η Leo	9.40	8.40			
θ Leo	9.30	8.30			
ι Leo	9.20	8.20			
κ Leo	9.10	8.10			
λ Leo	9.00	8.00			
μ Leo	8.50	7.50			
ν Leo	8.40	7.40			
ξ Leo	8.30	7.30			
\omicron Leo	8.20	7.20			
π Leo	8.10	7.10			
ρ Leo	8.00	7.00			
σ Leo	7.50	6.50			
τ Leo	7.40	6.40			
υ Leo	7.30	6.30			
ϕ Leo	7.20	6.20			
χ Leo	7.10	6.10			
ψ Leo	7.00	6.00			
ω Leo	6.50	5.50			

1872	Apr. 20	$h = +0.06$	$h' = +0.11$	$u = +1.1$	
		$h' = +0.16$			
Star	RA	δ	sec		
α Leo	10.57	9.50			
β Leo	10.40	9.26	+48 28	1.13	11.08.4
γ Leo	10.30	9.20	+15 16	2.70	11.04.4
δ Leo	10.10	9.10	+2 28	6.40	11.02.4
ϵ Leo	10.00	9.00	+54 23	1.10	11.15.4
ζ Leo	9.50	8.50	+9 26	1.10	11.05.4
η Leo	9.40	8.40			
θ Leo	9.30	8.30			
ι Leo	9.20	8.20			
κ Leo	9.10	8.10			
λ Leo	9.00	8.00			
μ Leo	8.50	7.50			
ν Leo	8.40	7.40			
ξ Leo	8.30	7.30			
\omicron Leo	8.20	7.20			
π Leo	8.10	7.10			
ρ Leo	8.00	7.00			
σ Leo	7.50	6.50			
τ Leo	7.40	6.40			
υ Leo	7.30	6.30			
ϕ Leo	7.20	6.20			
χ Leo	7.10	6.10			
ψ Leo	7.00	6.00			
ω Leo	6.50	5.50			

1872	Apr. 21	$h = +0.10$	$h' = +0.11$	$u = +1.3$	$c = -0.8$
		$h' = +0.20$			
Star	RA	δ	sec		
α Leo	10.57	9.50			
β Leo	10.40	9.26	+48 32	1.13	11.08.4
γ Leo	10.30	9.20	+2 50	2.70	11.04.4
δ Leo	10.10	9.10	+37 20	7.60	10.57.4
ϵ Leo	10.00	9.00	+55 34	7.00	10.95.4
ζ Leo	9.50	8.50	+8 7	1.10	11.05.4
η Leo	9.40	8.40	+24 21	4.50	10.85.4
θ Leo	9.30	8.30	+43 32	9.50	10.93.4
ι Leo	9.20	8.20	+42 8	9.00	10.92.4
κ Leo	9.10	8.10	+31 20	6.10	11.08.4
λ Leo	9.00	8.00	+11 12	2.00	11.02.4
μ Leo	8.50	7.50	+62 26	1.91	11.16.4
ν Leo	8.40	7.40	+45 11	1.01	11.37.4
ξ Leo	8.30	7.30	+21 12	3.90	11.19.4
\omicron Leo	8.20	7.20	+32 14	6.30	11.25.4
π Leo	8.10	7.10			
ρ Leo	8.00	7.00			
σ Leo	7.50	6.50			
τ Leo	7.40	6.40			
υ Leo	7.30	6.30			
ϕ Leo	7.20	6.20			
χ Leo	7.10	6.10			
ψ Leo	7.00	6.00			
ω Leo	6.50	5.50			

1872	Apr. 19	$h = +0.10$	$h' = -0.23$	$u = +2.6$	$c = -0.8$
		$h' = +0.20$			
Star	RA	δ	sec		
α Leo	10.57	9.50			
β Leo	10.40	9.26	+9 57	18.10	11.17.4
γ Leo	10.30	9.20	+31 20	16.11	11.25.4
δ Leo	10.10	9.10	+11 12	20.10	11.09.4
ϵ Leo	10.00	9.00	+62 26	1.91	11.16.4
ζ Leo	9.50	8.50	+45 11	1.01	11.37.4
η Leo	9.40	8.40	+21 12	3.90	11.19.4
θ Leo	9.30	8.30	+32 14	6.30	11.25.4
ι Leo	9.20	8.20			
κ Leo	9.10	8.10			
λ Leo	9.00	8.00			
μ Leo	8.50	7.50			
ν Leo	8.40	7.40			
ξ Leo	8.30	7.30			
\omicron Leo	8.20	7.20			
π Leo	8.10	7.10			
ρ Leo	8.00	7.00			
σ Leo	7.50	6.50			
τ Leo	7.40	6.40			
υ Leo	7.30	6.30			
ϕ Leo	7.20	6.20			
χ Leo	7.10	6.10			
ψ Leo	7.00	6.00			
ω Leo	6.50	5.50			

1872	Apr. 20	$h = +0.06$	$h' = +0.11$	$u = +1.1$	
		$h' = +0.16$			
Star	RA	δ	sec		
α Leo	10.57	9.50			
β Leo	10.40	9.26	+48 28	1.13	11.08.4
γ Leo	10.30	9.20	+15 16	2.70	11.04.4
δ Leo	10.10	9.10	+2 28	6.40	11.02.4
ϵ Leo	10.00	9.00	+54 23	1.10	11.15.4
ζ Leo	9.50	8.50	+9 26	1.10	11.05.4
η Leo	9.40	8.40			
θ Leo	9.30	8.30			
ι Leo	9.20	8.20			
κ Leo	9.10	8.10			
λ Leo	9.00	8.00			
μ Leo	8.50	7.50			
ν Leo	8.40	7.40			
ξ Leo	8.30	7.30			
\omicron Leo	8.20	7.20			
π Leo	8.10	7.10			
ρ Leo	8.00	7.00			
σ Leo	7.50	6.50			
τ Leo	7.40	6.40			
υ Leo	7.30	6.30			
ϕ Leo	7.20	6.20			
χ Leo	7.10	6.10			
ψ Leo	7.00	6.00			
ω Leo	6.50	5.50			

$$\sin z = +.60 +.80 +.40 +.60 +.20 +.40 +0 +.20 +0 -.20 -.20 -.40 -.40 -.60 -.60 -.80 -.80 -1.00$$
[illegible]

$$\sin Z = +60 +80 +40 +60 +20 +40 +0 +20 +0 -20 -20 -40 -40 -60 -60 -80 -80 -100$$
[illegible]

+

$$R_{112} = +60 + 80 + 40 + 60 + 20 + 40 + 0 + 20 + 0 - 20 - 20 - 40 - 40 - 60 - 60 - 80 - 80 - 100$$
[illegible]

$$\sin Z = +60 + 80 \quad +40 + 60 \quad +20 + 40 \quad +0 + 20 \quad +0 - 20 \quad -20 - 40 \quad -40 - 60 \quad -60 - 80 \quad -80 - 100$$
[illegible]

1872 Apr. 30 $h = +0.11$ $h' = +0.11$ $n = +0.06$
 $h' = +0.22$

Star	RA	S						
γ Leo	$+210.01$	$+17$	$22+$	$.31v$	$-8.82v$	$.02$	-8.80	$.00$
α Leo	$+210.02$	$+12$	$35+$	$.22v$	$-8.77v$	$.01$	$.76$	
λ Leo	$+210.210$	$+43$	$32+$	$.95v$	$-8.87v$	$.06$	$.81$	
μ Leo	$+210.215$	$+42$	$8+$	$.90v$	$-8.80v$	$.05$	$.75$	
β Leo	$+210.320$	$+37$	$21+$	$.76v$	$-8.75v$	$.05$	$.74$	
ϵ Leo	$+210.426$	$+4$	$57+$	$.18v$	$-8.73v$	$.01$	-8.72	$.00$
δ Leo	$+210.441$	$+2$	$28+$	$.04v$				
ζ Leo	$+210.524$	$+23$	$+1.40v$				-8.763	-8.763

$10.4 + 4.12 - 8.93 - 8.93 - 8.93$
 $+ .00$
 $12.1 + 4.84 - 9.09 - 9.07 - 9.07$
 $+ .02$

1872 Apr. 30

Star	RA	S						
γ Leo	$+210.01$	$+17$	$22+$	$.31v$	$-8.82v$	$.02$	-8.80	$.00$
α Leo	$+210.02$	$+12$	$35+$	$.22v$	$-8.77v$	$.01$	$.76$	
λ Leo	$+210.210$	$+43$	$32+$	$.95v$	$-8.87v$	$.06$	$.81$	
μ Leo	$+210.215$	$+42$	$8+$	$.90v$	$-8.80v$	$.05$	$.75$	
β Leo	$+210.320$	$+37$	$21+$	$.76v$	$-8.75v$	$.05$	$.74$	
ϵ Leo	$+210.426$	$+4$	$57+$	$.18v$	$-8.73v$	$.01$	-8.72	$.00$
δ Leo	$+210.441$	$+2$	$28+$	$.04v$				
ζ Leo	$+210.524$	$+23$	$+1.40v$				-8.763	-8.763

$0 = +3.88 - 0.16$ $n = +0.4$ $0 = +3.20 - 0.09$ $n = +0.8$
 $+4.60 - 0.30$ $+0.07$ $+3.92 - 0.23$ $+0.07$

1872 May 20 $h = +0.11$ $h' = +0.00$ $n = -0.09$
 $h' = +0.02$

γ Leo	$+210.01$	$+17$	$22+$	$.31v$	$-8.82v$	$.02$	-8.80	$.00$
α Leo	$+210.02$	$+12$	$35+$	$.22v$	$-8.77v$	$.01$	$.76$	
λ Leo	$+210.210$	$+43$	$32+$	$.95v$	$-8.87v$	$.06$	$.81$	
μ Leo	$+210.215$	$+42$	$8+$	$.90v$	$-8.80v$	$.05$	$.75$	
β Leo	$+210.320$	$+37$	$21+$	$.76v$	$-8.75v$	$.05$	$.74$	
ϵ Leo	$+210.426$	$+4$	$57+$	$.18v$	$-8.73v$	$.01$	-8.72	$.00$
δ Leo	$+210.441$	$+2$	$28+$	$.04v$				
ζ Leo	$+210.524$	$+23$	$+1.40v$				-8.763	-8.763

γ Leo	$+210.01$	$+17$	$22+$	$.31v$	$-8.82v$	$.02$	-8.80	$.00$
α Leo	$+210.02$	$+12$	$35+$	$.22v$	$-8.77v$	$.01$	$.76$	
λ Leo	$+210.210$	$+43$	$32+$	$.95v$	$-8.87v$	$.06$	$.81$	
μ Leo	$+210.215$	$+42$	$8+$	$.90v$	$-8.80v$	$.05$	$.75$	
β Leo	$+210.320$	$+37$	$21+$	$.76v$	$-8.75v$	$.05$	$.74$	
ϵ Leo	$+210.426$	$+4$	$57+$	$.18v$	$-8.73v$	$.01$	-8.72	$.00$
δ Leo	$+210.441$	$+2$	$28+$	$.04v$				
ζ Leo	$+210.524$	$+23$	$+1.40v$				-8.763	-8.763

$0 = +1.97 + 0.07$ $n = -0.46$ $0 = +0.88 - 0.06$ $n = +0.75$
 $+1.93 + 0.24$ -1.25 $+0.84 + 0.11$ -1.84

$0 = -4.51 - 0.45$ $n = -1.0$ $0 = -5.60 - 0.59$ $n = -1.1$

1872 May 22 $h = +0.11$ $h' = -0.06$ $n = -0.05$
 $h' = +0.02$

γ Leo	$+210.01$	$+17$	$22+$	$.31v$	$-8.82v$	$.02$	-8.80	$.00$
α Leo	$+210.02$	$+12$	$35+$	$.22v$	$-8.77v$	$.01$	$.76$	
λ Leo	$+210.210$	$+43$	$32+$	$.95v$	$-8.87v$	$.06$	$.81$	
μ Leo	$+210.215$	$+42$	$8+$	$.90v$	$-8.80v$	$.05$	$.75$	
β Leo	$+210.320$	$+37$	$21+$	$.76v$	$-8.75v$	$.05$	$.74$	
ϵ Leo	$+210.426$	$+4$	$57+$	$.18v$	$-8.73v$	$.01$	-8.72	$.00$
δ Leo	$+210.441$	$+2$	$28+$	$.04v$				
ζ Leo	$+210.524$	$+23$	$+1.40v$				-8.763	-8.763

γ Leo	$+210.01$	$+17$	$22+$	$.31v$	$-8.82v$	$.02$	-8.80	$.00$
α Leo	$+210.02$	$+12$	$35+$	$.22v$	$-8.77v$	$.01$	$.76$	
λ Leo	$+210.210$	$+43$	$32+$	$.95v$	$-8.87v$	$.06$	$.81$	
μ Leo	$+210.215$	$+42$	$8+$	$.90v$	$-8.80v$	$.05$	$.75$	
β Leo	$+210.320$	$+37$	$21+$	$.76v$	$-8.75v$	$.05$	$.74$	
ϵ Leo	$+210.426$	$+4$	$57+$	$.18v$	$-8.73v$	$.01$	-8.72	$.00$
δ Leo	$+210.441$	$+2$	$28+$	$.04v$				
ζ Leo	$+210.524$	$+23$	$+1.40v$				-8.763	-8.763

$0 = +4.68 + 0.18$ $n = -0.4$ $0 = +3.58 + 0.17$ $n = -0.5$

$$\sin z = +60 + 80 + 40 + 60 + 20 + 40 + 0 + 20 + 0 - 20 - 20 - 40 - 40 - 60 - 60 - 80 - 80 - 100$$
[illegible]

1872	June 3	$h = *0.15$	$h' = -.005$	$n = -.07$
Star	RA	S	T-RA	P-RA
Virginis	$13^h 03^m - 4^s 52$	$-.09\checkmark$		$-10.13 \checkmark$
17 Can. 179	$13^h 17^m 4 + 39$	$10 + .82\checkmark$		$-10.13 \checkmark$
8 Urs. Maj. 174	$13^h 31^m 9 + 55$	$35 + 1.46\checkmark$		$-10.13 \checkmark$
	13.15		13.2 - 41.84	13.21 - 13.21 - 13.21
			.00	.00

1872	June 3			
Star	RA	S	T-RA	P-RA
2 Urs. M. LC 1	$13^h 38^m 39 - 41.84\checkmark$			$-13.21 \checkmark$
	13.0 - 09 - 10.13	$13.3 + 1.46$	-10.13	
			$9.5 = 0$	
	$0 = -41.75 - 3.08$	$n = -.07$	$0 = -43.30 - 3.08$	$n = -.07$

1872	June 9	$h = *0.15$	$h' = +.000$	$n = -.14$
Star	RA	S	T-RA	P-RA
2 Urs. Maj. 1294	$12^h 28^m 49 + 56$	$38 + 1.52\checkmark$		$-12.80 \checkmark$
12 Can. 179	$12^h 50^m + 39$	$00 + .81\checkmark$		$-12.87 \checkmark$
8 Urs. Maj. 174	$12^h 56^m + 11$	$38 + .21\checkmark$		$-13.92 \checkmark$
17 Can. 179	$13^h 14^m + 39$	$10 + .82\checkmark$		$-12.91 \checkmark$
43 Comae 155	$13^h 16^m + 43$	$27 + .84\checkmark$		$-12.94 \checkmark$
5 Urs. Maj. 174	$14^h 48^m + 59$	$48 + 1.71\checkmark$		$-12.85 \checkmark$
P. XIV. 221	$14^h 50^m + 14$	$57 + .27\checkmark$		$-12.96 \checkmark$
8 Urs. Maj. 174	$14^h 57^m + 40$	$53 + .87\checkmark$		$-12.83 \checkmark$
4 Urs. Maj. 174	$15^h 05^m + 27$	$26 + .52\checkmark$		$-12.92 \checkmark$
3 Lib. 165	$15^h 21^m - 8$	$55 - .16\checkmark$		$-12.97 \checkmark$
Urs. Min. 24	$15^h 31^m + 67$	$49 + 2.45\checkmark$		$-12.46 \checkmark$
U. Protes. 243	$15^h 32^m + 37$	$49 + .78\checkmark$		$-12.89 \checkmark$
2 Urs. Min. 203	$15^h 32^m + 72$	$18 + 3.13\checkmark$		$-12.52 \checkmark$
	14.9 + 2.30	$-12.76 - 12.77 - 12.78$	$13.2 - 41.84 - 18.05 - 18.03 - 18.04$	
	$+ .01 + .02$		$+ .02 + .01$	
	15.2 + 2.45	$-12.46 - 12.47 - 12.48$		
	$+ .01 + .02$			
	15.3 + 3.13	$-12.52 - 12.53 - 12.54$		
	$+ .01 + .02$			

2 Urs. Min. LC 1	$13^h 38^m 39 - 41.84\checkmark$			$-18.05 \checkmark$
Urs. Min. 24	$14^h 56^m + 66$	$26 + 2.30\checkmark$		$-12.76 \checkmark$
	12.9 + 2.1 - 12.92	$12.8 + 1.52 - 12.80$		
	14.8 + 2.7 - 12.96	$12.8 + .81 - 12.87$		
	15.2 - 16 - 12.97	$13.1 + .82 - 12.91$		
	14.3 + 1.1 - 12.95	$14.8 + 1.72 - 12.85$		
		$14.9 + .87 - 12.83$		
		$13.7 + 1.15 - 12.85$		
		$n = -.10$		
	$0 = +2.19 + 0.18$	$n = -.089$	$0 = +1.15 + 0.09$	$n = -.082$
	$+2.34 + 0.48$	-2.12	$+1.30 + 0.37$	-2.31
	$+3.02 + 0.42$	-1.45	$+1.98 + 0.31$	-1.58
	$0 = -41.95 - 5.08$	$n = -.12$	$0 = -42.99 - 5.19$	$n = -.12$

1872	June 11	$h = *0.15$	$h' = -.005$	$n = -.20$
Star	RA	S	T-RA	P-RA
12 Can. 179	$12^h 29^m 56 + 11$	38		
13 Can. 179	$13^h 03^m - 4$	52		
13 Can. 179	$13^h 14^m + 39$	10		
13 Can. 179	$13^h 16^m + 43$	21		
13 Can. 179	$13^h 18^m + 55$	$35 - .19\checkmark$		
U. Virginis 176	$14^h 36^m$	$-.09$	$0 = -13.85$	$+ .02 - 13.87 + .02 13.85 \checkmark$
U. Protes. 212	$15^h 10^m$	$(+ .35)$		
U. Coroneae 2	$15^h 22^m + 27$	$9 + .51\checkmark$	$-13.87 + .05 - 14.04 \checkmark$	18.421
U. Protes. 212	$15^h 33^m + 40$	$46 + .86\checkmark$	$-13.87 + .02 - 13.89 \checkmark$	10.1399
U. Protes. 212	$15^h 38^m + 6$	$50 + .12\checkmark$	$-13.84 + .06 - 13.90 \checkmark$	17.407
	15.34	$+ .12$	$-13.87 + .02 - 13.89 \checkmark$	$0.2 13.91 \checkmark$
			$-14.006 - 14.006$	
			$15.6 - 2.89 - 14.59 - 14.60 - 14.59 -$	
			$+ .01 - .00$	

5 H. Camel. LC 15	$37^m + 70$	$56 - 2.89$	$0 = -14.42 + .17 - 14.59 \checkmark$	364
		$14 + 88 \sim 14.03$		
		$15.6 + 86 - 13.90$		
		$15.7 + 0.2 - 13.88$	$15.5 + 87 - 13.96$	
		$0 = -2.91 - 0.72$	$n = -.25$	$0 = -3.75 - 0.69$
			$n = -.187$	

$\sin Z = +60+80 +40+60 +20+40 +0+20 +0-20 -20-40 -40-60 -60-80 -80-100$

1872

June 3

RA $\sin \delta \cos \delta$ $\tan \delta$ $R_{\delta} R_{\delta}$ P/P $R_{\delta} R_{\delta}$
 δ $R_{\delta} R_{\delta}$ P/P $R_{\delta} R_{\delta}$ P/P $R_{\delta} R_{\delta}$
 13 3
 13 4
 13 19 -23 -0 26.7 +1.2 25.5 -4 25.9

RA $\sin \delta \cos \delta$ $\tan \delta$ $R_{\delta} R_{\delta}$ P/P $R_{\delta} R_{\delta}$
 δ $R_{\delta} R_{\delta}$ P/P $R_{\delta} R_{\delta}$ P/P $R_{\delta} R_{\delta}$
 1 13 -75 -0 35.0 +0 (35.0) -1.1 (36.1)

-0 25.90
 25.90
 4

-23-25.5
 -4
 25.9
 +0

-75-35.0
 -1.2
 33.83

12 49 -25 -0 36.0 +4 25.6 -4 26.0
 12 50 +0.6 23.4 +2 23.2 +1 23.1
 12 56
 13 4 +0.6 22.2 -6 22.8 +1 22.7
 13 6 +2.4 24.0 -6 24.6 +4 24.2
 14 48 -3.0 23.3 -6 23.9 -5 24.4
 14 50 +4.6 24.2 -5 24.7 +7 24.0
 14 57 +0.3 24.6 +6 24.0 +1 23.9
 14 59 +2.6 25.9 +5 25.4 +4 25.0
 15 10 +7.8 26.2 -1 26.3 +12 25.1
 15 13 -4.3 24.0 -2 24.2 -7 24.9
 15 20 +0.8 26.6 +0 26.6 +2 26.4
 15 21 -5.0 24.0 +1 23.9 -8 24.7

1 13 -75 -0 35.0 +0 (35.0) -1.1 (36.1)
 14 56 -41 -0 23.4 -1 23.5 -9 24.2

(1) 24.20

+7.8 -26.3 +4.6 -24.7 +2.9 -24.6 +0.6 -23.2
 +2.6 25.4 +0.6 22.8
 +0.3 24.0
 +0.8 26.6
 +7.8 -26.3 +4.6 -24.7 +2.5 -25.0 +0.6 -24.2
 +1.3 +.8 +.4 +.1
 1 25.0 1 23.9 2 24.6 4 24.1
 +.4 -.7 +.0 -.5

-25-25.6 -4.3 -24.2
 -30 23.9 -5.0 23.7
 -.4 23.5
 -28-24.8 -4.4 -23.9
 -5.8 -2.8
 2 25.3 3 24.7
 +.7 +.1

13 59.2

12 50
 12 56
 13 3
 13 4
 13 6
 13 18 +50.09 -19
 14 9 +4 43.0
 14 36 +74.67 -0.9 +4 43.0 -0.7 +42.3 +1.2 43.5
 14 48
 14 57

1 13
 14 51
 14 56
 15 37 -92.38 -2.89 +4 46.5 *0.2 +46.3 -1.6 44.7 ✓

15 10
 15 26 +0.2 1.00 +88 45.3 -0.6 +44.7 +1 44.8
 15 29 +26.96 +57 44.8 -0.6 44.2 +4 44.6
 15 33 +0.3 1.00 +86 45.3 -1.0 44.3 +1 44.4
 15 38 +58.81 +12 37.9 +0.3 38.2 +9 (39.1)

(4) 44.32

+7.4 +42.3 +5.8 + +26 +44.2 +0.2 +44.7
 +0.3 44.3
 +7.4 +42.3 +26 +44.2 +0.2 +44.5

-92 +46.3

-92 +46.3

+4 44.30 1 43.5
 44.32 +.8
 1 44.7 2 44.5
 -.4 -2

4 172

1871phae

1872	June 13	$h = +0.05$ $h' = +0.15$ $h'' = +0.20$	$h' = +0.09$	$a = -20$	1872	June 13			
Star	Ra	S	T-Ra	P-P	Star	Ra	S	T-Ra	P-P
	h^m	s	s	s		h^m	s	s	s
d. Bootis	14.1 5	+25 41	+1.48	0	-14.54	-0.05	-14.49	✓ 10 14.59	00
137	14.2 12	+51 57	+1.28	0	-14.40	+0.00	-14.40	✓ 26 14.66	00
189	14.3 21	+1.30	0	-14.29	+0.02	-14.31	✓ 26 14.57	00	
	(14.22)	(+1.19)							
462	14.8 48	+59 49	+1.71	0	-14.20	+0.03	-14.23	✓ 34 14.57	00
	14.35							-14.598	-14.598
	14.9 + 4.76	-13.58	-13.59	14.8	-5.10	-15.43	-15.44	-15.44	
		-0.00	-0.00			-0.00	-0.00		
							</		

$$0 = +4.28 + 0.90 \quad n = \pm 21 \quad 0 = +3.33 + 0.72 \quad n = \pm 22$$

$$0 = -5.58 - 0.95 \quad n = \pm 17 \quad 0 = -6.53 - 1.13 \quad n = \pm 17$$

1872	June 18	$h = +0.10$ $h' = +0.26$	$h = +0.18$	$n = -20$
453	13 424 + 60	37 + 1.78 ✓ 0 = -	13.53 - 0.4 - 13.49 ✓ 36	- 13.85 00
179	(13 28) 13 528 + 0	(+ .89) 00 + .00 ✓	- 13.98 ⁵ + 0.1 - 13.96 ✓ 00	13.96 00 - 13.905 - 13.905
	13 45			

1872	June 19	h = +0.25 h' = +0.41	h' = +0.28	n = -19	c = -10
	13	+1.19 0 =	-13.36 +0.00	-13.36	3853
181	+3 13.7 43 +49 56	+1.19 -1.05	-13.36 +0.00	-13.36	✓ 23 -15.17 4 01
182	2.2 13.8 49 +19 2	+3.51 1.06	-13.64 +0.03	-13.67	✓ 07 11 85 01
183	+1 13.9 55 +2 9	+0.04 1.00	-13.84 +0.02	-13.86	✓ 01 10 97 00
	(74 - 10)	(+ 77)			71
d. Bootis	-1.4 14.1 4 +25 41	+1.48 0.11	-13.56 -0.05	-13.51	✓ 09 11 71 00
c. Bootis	-2.4 14.2 12 +51 57	+1.28 0.62	-13.31 +0.00	-13.31	✓ 24 16 71 -01
187	14.20 8				13.8 +35 -13.67
190	-3.7 14.3 21	+1.30 1.64	-13.34 +0.02	-13.36	✓ 25 16 71 -01
140	14.8 48				13.9 +04 -13.66
15	15				13.8 +20 -13.76
					13.7 +1.19 -13.36
					14.2 +1.28 -13.31
					14.3 +1.30 -13.26
					14.1 +1.26 -13.34
					n = -40
					0 = +1.94 +0.61 n = -31
					+4.56 +1.47 -32
					0 = +0.88 +0.19 n = -22
					+3.50 +1.04 -30

$$0 = +1.94 + 0.61 \quad n = -31 \quad 0 = +0.58 + 0.19 \quad n = -22$$

$$+4.56 + 1.47 \quad -32 \quad +3.50 + 1.04 \quad -30$$

$$0 = -3.32 - 0.90 \quad n = -27 \quad 0 = -4.38 - 1.22 \quad n = -30$$

$$-2.53 - 0.53 \quad -27 \quad -3.59 - 0.95 \quad -26$$

$$\text{Run 7} = +60+80 +40+60 +20+40 +0+20 +0-20 -20-40 -40-60 -60-80 -80-100$$

$P.A.$	$\sin Z \cos Z$	$\tan \delta$	$R_g - R_{\text{ref}}$	$P'P''$	$R_g R_{\text{ref}}$
14	5	+29.96	+1.18	---	+0.3
14	12	-17.98	+1.28	---	+0.7
14	21	-17.98	+1.30	---	+0.8
14	48	-30.95	+1.71	---	-2.6

46.

$P.A.$	$\sin Z \cos Z$	$\tan \delta$	$R_g - R_{\text{ref}}$	$P'P''$	$R_g R_{\text{ref}}$
14	9	-58.81	+4.76	---	+0.7
14	49	-85.52	-5.10	---	+1.1

$$13 \quad 24 -31.95 + 1.78 \quad \text{---} \quad \text{---} \quad +1.6$$

$$13 \quad 28 +67.74 + .00 + 4 \quad 44.78 + 0.0 + 44.74 + 1.1 \quad 45.8$$

$$+4 \quad \begin{matrix} 45.84 \\ 44.85 \\ 45.80 \end{matrix}$$

$$+0$$

$$13 \quad 42 -13.99 + 1.19 + 4 \quad 83.5 + 0.3 + 44.1 - 2 \quad 43.9$$

$$13 \quad 43$$

$$13 \quad 49 +39.92 + .35 + 4 \quad 45.3 + 0.1 \quad 45.4 + .6 \quad 46.0$$

$$13 \quad 55 +64.76 + .04 + 4 \quad 41.4 + 0.4 \quad 41.8 + 1.0 \quad 42.8$$

$$14 \quad 4 +29.96 + .48 \quad 43.9 + 0.3 \quad 44.2 + .5 \quad 44.7$$

$$14 \quad 12 -17.98 + 1.28 \quad 44.5 + 0.7 \quad 45.2 - .3 \quad 44.9$$

$$2 \quad 14$$

$$14 \quad 21 -17.98 + 1.30 \quad 43.0 + 0.8 \quad 43.8 - .3 \quad 43.5$$

$$+64 + 41.8$$

$$+39 + 45.4$$

$$+29 \quad 44.2$$

$$+64 + 41.8$$

$$+34 + 44.8$$

$$+ .6$$

$$+4 \quad \begin{matrix} 44.39 \\ 44.38 \end{matrix} \quad \begin{matrix} 1 \\ 1 \end{matrix} \quad \begin{matrix} 42.9 \\ 42.9 \end{matrix} \quad \begin{matrix} +1.1 \\ +1.1 \end{matrix}$$

$$2 \quad \begin{matrix} 45.4 \\ -1.0 \end{matrix}$$

$$(6) \quad 44.30$$

$$-13 + 44.1$$

$$-17 \quad 45.2$$

$$-17 \quad 43.8$$

$$-16 + 44.4$$

$$-3 \quad -6$$

$$3 \quad 44.1 \quad 1 \quad 45.2 \quad 1 \quad 43.9$$

$$+ .3 \quad - .8 \quad + .5$$

$$14 \quad 1 -38.92 + 2.14 + 4 \quad 45.1 + 0.7 + 45.8 - 6 \quad 45.2$$

$$14 \quad 9 -58.81 + 4.76 \quad 44.2 + 0.7 \quad 44.9 - 9 \quad 44.0$$

$$14 \quad 26 -91.40 - 3.12 \quad 46.5 + 0.3 \quad 46.8 - 14 \quad 46.8$$

$$15 \quad 53$$

$$14 \quad 18 \quad -2.34 \quad + 2.7$$

$$(2) \quad 44.60$$

$$-91 + 48.2$$

$$-91 + 48.2$$

$$8 \quad 351$$

1872	June 27	h = +0.55	h' = +0.05	n = -22	1872	June 27	h = +0.55	h' = +0.05	n = -22
Star	Ra	S	T-Ra	P-P	Star	Ra	S	T-Ra	P-P
14.20	13.8+1.3	182 + .35	0 = -8.75	+0.03	14.1	13.8+1.3	182 + .35	0 = -8.75	+0.03
	13.9+1.2	183 + .04	-8.84	+0.02		13.9+1.2	183 + .04	-8.84	+0.02
	14.1+1.0	148 + .48	-8.71	-0.05		14.1+1.0	148 + .48	-8.71	-0.05
	15.0 - .9	465 + .52	-8.73	+0.00		15.0 - .9	465 + .52	-8.73	+0.00
	(15.00)	(-48)				(15.00)	(-48)		
	15.2 - .1	201 + .87	-8.78	-0.02		15.2 - .1	201 + .87	-8.78	-0.02
	15.7 - .6	213 + .28	-8.77	+0.01		15.7 - .6	213 + .28	-8.77	+0.01
	15.7 - .6	214 + .28	-8.80	-0.02		15.7 - .6	214 + .28	-8.80	-0.02
	15.8 - .7	215 + .28	-8.73	+0.01		15.8 - .7	215 + .28	-8.73	+0.01
	15.9 - .8	219 + .52	-8.69	-0.04		15.9 - .8	219 + .52	-8.69	-0.04
	15.72 - 16.0 - .9	220 + 1.66	-8.37	+0.15		15.72 - 16.0 - .9	220 + 1.66	-8.37	+0.15
15.11					15.11				
	13.58	+0.04	0 = -8.86			13.58	+0.04	0 = -8.86	
	15.40	+2.8	-8.88			15.40	+2.8	-8.88	
	15.51	+2.8	-8.73			15.51	+2.8	-8.73	
	15.59	+2.0	-8.79			15.59	+2.0	-8.79	
	14.59	+0.20	-8.73			14.59	+0.20	-8.73	
	15.10	+0.7	-8.76			15.10	+0.7	-8.76	
	15.52	+0.2	-8.62			15.52	+0.2	-8.62	
	15.59	+1.66	-8.52			15.59	+1.66	-8.52	
	15.30	+1.4	-8.67			15.30	+1.4	-8.67	
	15.20	+5.7	-8.60			15.20	+5.7	-8.60	
1872	June 30	h = +0.55	h' = +1.41	n = -34	1872	June 30	h = +0.55	h' = +1.41	n = -34
15.17	14.8+1.4	462 + 1.71	0 = -4.27	+0.03	14.8	14.8+1.4	462 + 1.71	0 = -4.27	+0.03
	14.9+1.3	199 + .87	-4.57	+0.04		14.9+1.3	199 + .87	-4.57	+0.04
	15.8+0.4	470 + 1.96	-4.10	-0.06		15.8+0.4	470 + 1.96	-4.10	-0.06
	(16.00)	(+7.4)				(16.00)	(+7.4)		
	17.2-1.0	237 + .26	-4.45	+0.01		17.2-1.0	237 + .26	-4.45	+0.01
	17.2-1.0	239 + .75	-4.37	-0.04		17.2-1.0	239 + .75	-4.37	-0.04
	17.5-1.3	240 + 1.30	-4.56	+0.06		17.5-1.3	240 + 1.30	-4.56	+0.06
17.30					17.30				
	17.36					17.36			
	17-37					17-37			
16.23					16.23				
	14.8					14.8			
	15.8					15.8			
	17.5					17.5			
	16.0					16.0			
	17.36					17.36			
	17-37					17-37			
	17.30					17.30			
	17.36					17.36			
	17-37					17-37			
	17.30					17.30			
	17.36					17.36			
	17-37					17-37			
	17.30					17.30			
	17.36					17.36			
	17-37					17-37			
	17.30					17.30			
	17.36								

1872	July 1	h = +10	165	-41-40	0 = 00	1872	July 1	h = +10	165	-41-40	0 = 00			
Star	RA	S	S	T-RA	P-P	T-RA	Star	RA	S	S	T-RA	P-P	T-RA	P-P
15.0	148.3 14 48	462	+1.71	0 =	1.58	+0.3	-1.41	15.0	148.3 14 48	462	+1.71	0 =	1.58	+0.3
	152.9 15 9	466	+0.9	-	2.22	+0.2	-2.24		152.9 15 9	466	+0.9	-	2.22	+0.2
	152.9 15 10	201	+0.67	-	1.96	-0.2	-1.94		152.9 15 10	201	+0.67	-	1.96	-0.2
	160.7 15 59	220	+1.66	-	1.32	+1.5	-1.47		160.7 15 59	220	+1.66	-	1.32	+1.5
	16.1 16 5	221	+1.01	-	1.48	+1.0	-1.68		16.1 16 5	221	+1.01	-	1.48	+1.0
15.35	16.2 16 12	223	-0.8	-	1.94	+0.4	-1.98	15.35	16.2 16 12	223	-0.8	-	1.94	+0.4
	16.3 16 16	225	+0.35	-	1.81	+0.2	-1.83		16.3 16 16	225	+0.35	-	1.81	+0.2
	16.3 16 19	473	+0.26	-	1.80	+1.4	-1.94		16.3 16 19	473	+0.26	-	1.80	+1.4
16.40	16.4 16 22	475	+1.46	-	1.58	-0.9	-1.49	16.40	16.4 16 22	475	+1.46	-	1.58	-0.9
	16.4 16 25	228	+0.40	-	1.83	-0.6	-1.74		16.4 16 25	228	+0.40	-	1.83	-0.6
	16.6 16 38	232	+0.81	-	1.63	+0.2	-1.65		16.6 16 38	232	+0.81	-	1.63	+0.2
	16.8 16 46	478	+0.27	-	1.84	+0.5	-1.89		16.8 16 46	478	+0.27	-	1.84	+0.5
	16.8 16 53	234	+0.60	-	1.63	+0.21	-1.69		16.8 16 53	234	+0.60	-	1.63	+0.21
16.10	15.1 +0.8 -2.24	15.2 +2.45	114 +0.9	105	+10 -1.04	16.10	15.1 +0.8 -2.24	15.2 +2.45	114 +0.9	105	+10 -1.04			
	16.2 -0.8 -1.98	16.3 +4.07	0.33 -0.2	0.35	-1 -0.34		16.2 -0.8 -1.98	16.3 +4.07	0.33 -0.2	0.35	-1 -0.34			
	16.4 +4.0 -1.77	16.5 +2.61	0.98 -0.4	1.02	-3 -1.01		16.4 +4.0 -1.77	16.5 +2.61	0.98 -0.4	1.02	-3 -1.01			
	16.8 +2.7 -1.89	16.6 +4.59	0.29 -0.6	0.35	-6 -0.35		16.8 +2.7 -1.89	16.6 +4.59	0.29 -0.6	0.35	-6 -0.35			
	16.1 +1.7 -1.94	170 +7.39	0.99 -0.9	0.90	-8 -0.91		16.1 +1.7 -1.94	170 +7.39	0.99 -0.9	0.90	-8 -0.91			
16.10	148 +1.71 -1.67	0 = +2.28	122 = -40	0 = +1.89	44 = -47	16.10	148 +1.71 -1.67	0 = +2.28	122 = -40	0 = +1.89	44 = -47			
	16.0 +1.66 -1.47	3.90 +1.62	-41	+2.57	+114 -46		16.0 +1.66 -1.47	3.90 +1.62	-41	+2.57	+114 -46			
	16.4 +1.66 -1.49	2.44 +0.5	-39	+1.05	+47 -45		16.4 +1.66 -1.49	2.44 +0.5	-39	+1.05	+47 -45			
	16.4 +1.66 -1.49	4.42 +1.62	-36.7	+3.03	+113 -37		16.4 +1.66 -1.49	4.42 +1.62	-36.7	+3.03	+113 -37			
	16.4 +1.66 -1.49	1.17 +2.87	-48.2	+5.78	+239 -46		16.4 +1.66 -1.49	1.17 +2.87	-48.2	+5.78	+239 -46			
1872	July 3	h = +0.77	0.83	120	-39.48	1872	July 3	h = +0.77	0.83	120	-39.48			
15.8 +5 15 57	218	+0.29	0 =	2.39	+1.00	+2.39	15.8 +5 15 57	218	+0.29	0 =	2.39	+1.00	+2.39	
15.9 4 15 52	219	+0.52	+2.46	-0.4	+2.50	-18	15.9 4 15 52	219	+0.52	+2.46	-0.4	+2.50	-18	
15.9 4 15 55	471	+1.43	+2.87	+2.1	+2.76	-52	15.9 4 15 55	471	+1.43	+2.87	+2.1	+2.76	-52	
16.0 3 15 59	220	+1.66	+2.93	+1.5	+2.78	-58	16.0 3 15 59	220	+1.66	+2.93	+1.5	+2.78	-58	
16.1 2 16 8	222	-0.6	+2.23	-0.1	+2.24	+28	16.1 2 16 8	222	-0.6	+2.23	-0.1	+2.24	+28	
16.3 2 16 16	225	+0.35	+2.47	+0.2	+2.45	-42	16.3 2 16 16	225	+0.35	+2.47	+0.2	+2.45	-42	
16.3 16 19	473	+0.26	+2.52	+1.4	+2.38	-09	16.3 16 19	473	+0.26	+2.52	+1.4	+2.38	-09	
16.4 16 22	475	+1.46	+2.70	-0.5	+2.79	-51	16.4 16 22	475	+1.46	+2.70	-0.5	+2.79	-51	
16.4 16 22	226	+1.87	+2.78	-0.2	+2.80	-65	16.4 16 22	226	+1.87	+2.78	-0.2	+2.80	-65	
16.4 16 25	228	+0.40	+2.44	-0.6	+2.50	-14	16.4 16 25	228	+0.40	+2.44	-0.6	+2.50	-14	
16.5 2 16 30	230	+0.92	+2.69	+0.2	+2.67	-32	16.5 2 16 30	230	+0.92	+2.69	+0.2	+2.67	-32	
16.6 3 16 38	232	+0.81	+2.61	+0.2	+2.59	-28	16.6 3 16 38	232	+0.81	+2.61	+0.2	+2.59	-28	
16.7 4 16 43	477	+1.54	+2.81	+0.4	+2.77	-54	16.7 4 16 43	477	+1.54	+2.81	+0.4	+2.77	-54	
16.8 6 16 53	234	+0.60	+2.60	+0.1	+2.59	-21	16.8 6 16 53	234	+0.60	+2.60	+0.1	+2.59	-21	
16.289	15.8 + 4.78	+3.83	+0.3	+3.86	+0.4 +3.87	16.289	15.8 + 4.78	+3.83	+0.3	+3.86	+0.4 +3.87			
	16.2 + 4.07	+3.28	+0.0	+3.29	+0.1 +3.30		16.2 + 4.07	+3.28	+0.0	+3.29	+0.1 +3.30			
	16.5 + 2.61	+3.19	-0.2	+3.17	-0.2 +3.17		16.5 + 2.61	+3.19	-0.2	+3.17	-0.2 +3.17			
	16.6 + 4.09	+3.91	-0.3	+3.68	-0.2 +3.69		16.6 + 4.09	+3.91	-0.3	+3.68	-0.2 +3.69			
	17.0 + 7.39	+4.44	-0.6	+4.68	-0.5 +4.69		17.0 + 7.39	+4.44	-0.6	+4.68	-0.5 +4.69			
15.9 +1.43 +2.76	0 = +4.03	+1.47	n = -33	15.9 +1.43 +2.76	0 = +4.03	+1.47	n = -33							
16.0 +1.66 .78	3.82	+1.40	-37	16.0 +1.66 .78	3.82	+1.40	-37							
16.4 +1.46 .78	2.36	+0.78	-33	16.4 +1.46 .78	2.36	+0.78	-33							
16.4 +1.46 .78	4.34	+1.29	-20	16.4 +1.46 .78	4.34	+1.29	-20							
16.7 +1.54 .72	7.09	+2.29	-24	16.7 +1.54 .72	7.09	+2.29	-24							
16.3 +1.50 +2.81	0 = +3.19	+1.24	n = -33	16.3 +1.50 +2.81	0 = +3.19	+1.24	n = -33							
16.2 +1.54 +2.84	+2.48	+1.02	-40	16.2 +1.54 +2.84	+2.48	+1.02	-40							
	+1.02	+0.37	-35		+1.02	+0.37	-35							
	+3.00	+0.91	-39		+3.00	+0.91	-39							
	+5.75	+1.94	-35		+5.75	+1.94	-35							
		+1.2	-34.4			+1.2	-34.4							
15.8 + 4.78	16.5 -3.93	+0.80	-0.2	+0.78	15.8 + 4.78	16.5 -3.93	+0.80	-0.2	+0.78					
16.2 + 4.07	16.5 -3.93	+0.80	-0.2	+0.78	16.2 + 4.07	16.5 -3.93	+0.80	-0.2	+0.78					
16.5 + 2.61	16.5 -3.93	+0.80	-0.2	+0.78	16.5 + 2.61	16.5 -3.93	+0.80	-0.2	+0.78					
16.6 + 4.09	16.5 -3.93	+0.80	-0.2	+0.78	16.6 + 4.09	16.5 -3.93	+0.80	-0.2	+0.78					
17.0 + 7.39	16.5 -3.93	+0.80	-0.2	+0.78	17.0 + 7.39	16.5 -3.93	+0.80	-0.2	+0.78					

[illegible]

[illegible]

1871phae

1872

July 16

h = -01 + 015

m = -28

c = -07

Star

Ra

S

Tang. ac I-R.t.

P.P. P.P.

P.P.

16.25

16.0 16 59

220

+16.6 +194

+5.01

+15 +4.86

-16.01 -14.14.26

+12.439

16.15

472

+4.07

0 = +5.69

+04 +5.73

472

16.1 16 59

221

+1.06 +1.42

+4.96

+10 +4.86

-28.01 -10.44.48

-01.92

16.36

472

+4.59

+5.77

+20 +5.97

476

16.2 16 59

475

+1.46 +1.77

+4.77

-09 +1.86

-41.00 -12.44.33

.33

16.59

16.34

+6.75

+0.87

+6.74

295

16.4 +316

226

+1.57 +2.12

+4.90

-02 +1.92

-52.00 -15.44.55

.41

16.22

16.72

+2.95

+00

2.95

92

16.9 -216

233

+1.74 +1.01

+4.61

+06 +4.55

-05.00 -07.44.43

.43

16.57

16.95

+29

16.93

240

+1.30 +1.64

+4.53

+06 +4.77

-36.01 -11 +4.30

.29

4.380

4.377

4.378

16.66

16.30

16.30

16.36

16.38

I	II	I	II
16.9 +17 +4.55	16.2 +4.04 +5.73 +01	+5.72	+00 +5.73
16.0 +1.66 +4.86	16.6 +4.89 +5.97 +00	5.97	+00 +5.97
16.1 +1.01 +4.86	17.0 +7.34 +6.77 +00	6.77	+00 +6.77
16.4 +1.46 +4.86	0 = +3.90 +1.67	m = -2.30	
16.4 +1.47 +4.92 +16	+4.42 +1.42	-2.32	
17.5 +1.30 +4.77	+7.17 +2.16	-2.30	
16.8 +1.46 +4.86	0 = +2.61 +.88	m = -2.33	
16.8 +1.54 +4.90	+3.13 +1.12	-2.35	
m = -2.38	+5.88 +1.12	-2.33	
		-2.33	

1872	July 20	h = -056 + 002	m = -25	c = -07	1872	July 20	h = -056 + 002	m = -25	c = -07
Star	Ra	S	Tang. ac I-R.t.	P.P. P.P.	Star	Ra	S	Tang. ac I-R.t.	P.P. P.P.
16.7	16.7 +9 16 42	477	+1.54 +1.83	+2.70	+04 +4.66	16.52	477	+4.10	16 59
	16.59	460	+1.56 +1.92	+4.70	+24 +4.46	16.22	477	+4.10	16 59
	16.4 16 59	237	+1.26 +1.03	+4.42	+01 +4.41	16.38	477	+4.10	16 59
	16.4 16 59	239	+1.75 +1.25	+4.44	-04 +4.45	16.11	477	+4.10	16 59
	16.4 16 59	242	+1.44 +1.75	+4.49	+05 +4.44	16.39	477	+4.10	16 59
	16.4 16 59	240	+1.30 +1.64	+4.74	+06 +4.68	16.25	477	+4.10	16 59
	16.4 16 59	249	+1.04 +1.44	+4.34	-20 +4.54	16.18	477	+4.10	16 59
	16.4 16 59	246	+1.53 +1.13	+4.42	+03 +4.39	16.18	477	+4.10	16 59
	16.4 16 59	252	+1.26 +1.61	+4.59	-02 +4.61	16.11	477	+4.10	16 59
	16.4 16 59	260	+1.80 +1.28	+4.58	+02 +4.56	16.09	477	+4.10	16 59
	16.4 16 59	264	+1.65 +1.19	+4.54	+08 +4.46	16.08	477	+4.10	16 59
	16.4 16 59								

I	II	I	II
17.1 +26 +4.41	+17.0 +7.34 +6.60	+00	+6.09
17.7 +53 +4.39	+16.5 +2.50 +5.92	+00	+6.95
18.8 +60 +4.26	+17.6 +2.58 +5.14	+00	+5.14
17.9 +48 +4.42	+18.2 +16.88 +9.28	+00	+9.28
16.7 +1.57 +4.66	0 = +6.86 +1.67	m = -2.26	
17.5 +1.84 +4.42	+2.02 +1.39	-2.30	
17.5 +1.30 +4.68	+2.10 +1.72	-3.4	
17.1 +1.09 +4.54	+16.40 +4.77	-2.29	
17.9 +1.26 +4.61	0 = +6.02 +1.20	m = -2.25	
17.7 +1.32 +4.60	+16.18 +3.67	-2.36	
17.7 +1.20 +4.60	+1.26 +1.65	-4.27	
m = -2.20	+15.56 +4.62	-3.0	
		-3.10	

1872 July 21 h = -009
 Star RA in tang. T-RA P-P T-RA
 20 53

1872 July 21
 Star RA S tang. T-RA P-P T-RA

1872 July 22 h = -009-007 $\alpha = 27^\circ e = -00$

16.1 +1.0 16 4	221 + 1.01 0 = + 4.36	+ 10 + 4.26	- 27 - 01 + 3.99	3.91	16 36	+ 4.59	0 = + 4.95	- 20 + 5.15	476
16.2 +.9 16 12	223 - .08 + 3.96	+ .04 + 3.92	- 02 - 01 + 3.94	.93	16 59	+ 7.34	+ 5.84	+ 04 5.88	235
16.3 +.8 16 19	472 + .26 + 4.11	+ 14 + 3.97	- 07 - 01 + 3.90	.89	17 38	+ 2.58	+ 4.67	+ 08 4.59	483
16.4 +.7 16 25	228 + .40 + 4.08	+ .01 + 4.09	- 11 00 + 3.98	.98	17 44	+ 3.12	+ 4.89	+ 09 4.72	484
16.32 16.4 +.5 16 38	232 + .80 + 4.16	+ .02 + 4.14	- 22 00 + 3.92	.92	18 14	+ 4.88	+ 6.87	+ 08 5.89	256
16.9 +.2 16 52	283 + .17 + 4.07	+ .06 + 4.01	- 05 00 + 3.96	.96	18 39	- 20.73	- 1.78	+ 87 = 265	391
16.1 0 17 9	237 + .26 + 4.02	+ .01 + 4.11	- 07 00 + 3.94	.94					
17.7 - 6 17 41	246 + .53 + 3.43	+ .03 + 4.04	- 14 00 + 3.90	.90					
17.9 - 8 17 53	252 + 1.26 + 4.30	- .02 + 4.32	- 34 + 01 + 3.98	3.98					
18.5 - 14 18 33	260 + .80 + 4.25	+ .02 + 4.23	- 22 + 01 + 4.01	4.02					
17.82 18.5 - 17 18 45	264 + .65 + 4.17	+ .08 + 4.19	- 18 + 01 + 3.91	3.92					
17.14				3.950					

16.2 - 05 + 3.92	16.6 + 4.45 + 5.15 + 00 + 5.15	+ 01	+ 5.16	18.2 + 16.88 + 8.92	- 14.9	+ 01	* 1.50
16.3 + 26 + 3.97	17.0 + 7.34 + 5.84 + 00 + 5.80	+ 00	+ 5.80	18.6 - 20.73 = 265.02	+ 1.84		
16.9 + 17 + 4.01	17.6 + 2.58 + 4.59 + 01 + 4.58	+ 00	+ 4.59				
17.2 + 26 + 4.01	17.7 + 3.12 + 4.72 + 01 + 4.71	+ 00	+ 4.72				
16.6 + 15 + 3.98							

16.4 + 1.01 + 4.26
 16.6 + .51 + 4.14
 17.9 + 1.26 + 4.32
 18.5 + .80 + 4.23
 17.3 + 0.99 + 4.24
 17.7 + 0.96 + 4.23
 n = -32 - 01

0 = + 4.44 + 1.18
 + 7.19 + 1.82
 + 2.43 + 6.82
 + 2.97 + 8.48
 - 2.55 - 2.60

0 = + 36.2 + 0.82
 + 6.37 + 1.56
 + 1.61 + 3.5
 + 2.10 + 4.98
 - 2.38

0 = -2088 - 5.49
 - 11.2 n = -32

0 = -21.70 - 5.74
 - 11.2 n = -32

$\lambda =$ +60+80 +40+60 +20+40 +0+20 +0-20 -20-40 -40-60 -60-80 -80-100

$R\alpha$ $\sin i \cos z$ $\tan \delta$ $R\beta - R\gamma$ $P - P$ $R\alpha - R\beta$
 $\frac{L}{20}$ $\frac{53}{53}$

$R\alpha$ $\sin i \cos z$ $\tan \delta$ $R\beta - R\gamma$ $P - P$ $R\alpha - R\beta$

476
235
483
484
256
891

16	4	-05	1.00	+1.01	+4	43.0	+	0.1	+43.1	-0.1	+43.0
16	12	+73	.88	- .58		43.5	-	0.1	+43.4	+1.0	44.4
16	19	+47	.88	+ .26		44.5	-	1.4	+43.1	+0.6	43.7
16	25	+35	.93	+ .40		43.9	-	1.3	+42.6	+0.5	43.1
16	38	+06	1.00	+ .50	?	43.3	+	0.3	+43.6	+0.1	43.7
16	52	+54	.84	+ .17		42.1	-	0.1	+42.0	+0.7	42.7
17	9			+ .26			-	0.4			
17	41			+ .53		42.7	-	0.3			
17	53			+ 1.26			-	0.5			
18	33			+ .80			-	0.1			
18	48			+ .85			-	0.1			

16	36	-58.81	+ 4.59	+ 1.1	"2.6	+ 0.3	+42.9	-0.8	+42.1	
16	59	-64.76	+ 7.34		42.1	+	0.4	+42.5	-0.9	41.2
17	38		+ 2.58			+	0.8			
17	44		+ 3.12			+	0.4			
18	14		+ 16.84			+	0.7			
18	39		- 20.73			+	1.2			

(6) 4343 4343

(2) 41.65 41.65

		+73	+43.11	+47	+43.1	+35	+42.6	+06	+43.6	-05	+43.1
			+54	+42.0							
		+73	+43.11	+50	+42.5	+35	+42.6	+06	+43.6	-05	+43.1
			+ 1.1		+ .7		+ .5		+ .1		- .1
4' 43.02			+44.5		+43.2		+43.1		+43.7		+43.0
42.99	8		4.5		8.4		3.1		3.7		3.0
			- 1.5		- .2		- .1		- .7		0

		-58	+42.9		-64	+42.5					
		-58	+42.9		-64	+42.5					
			- .9		- 1.0						
			+ 42.0		+41.5						
			2.0		1.5						
			+ 1.0		+ 1.5						

$\lambda =$

+60+80	+40+60	+20+40	+0+20	+0-20	-20-40	-40-60	-60-80	-80-100
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RA $\sin^2 \cos^2$ tang. R_{ref} R_{ref} R_{ref} R_{ref} R_{ref} R_{ref} R_{ref} R_{ref} R_{ref}

6 22
16 57

RA $\sin^2 \cos^2$ tang. R_{ref} R_{ref} R_{ref} R_{ref} R_{ref} R_{ref} R_{ref} R_{ref} R_{ref}

6 22
15 21
16 59

13 4

14 57 +03 1.00 + .87 --- + 0.6

16 8 +.72 .69 - .06 + 4 43.0 + 0.7 + 43.2 + 1.0 + 44.2

16 12 +.73 .68 - .08 43.9 - .01 43.8 + 1.0 44.8

16 19 +.47 .88 + .26 --- - 1.4

16 25 +.35 .93 - .10 43.4 - 1.3 42.1 + 0.5 42.6

16 28 + 2.61 44.7 + 0.6 44.8

17 28 -17 98 + 1.30 47.5 + 0.6 48.1 - 0.2 47.9

17 30 + 1.44 --- + 0.8 48.8

17 36 -06 1.00 + 1.04 44.1 + 0.9 45.0 - 0.1 44.9

18 33 + .80 --- + .01

18 45 + .65 --- + 0.1

(4) 44.12 44.12

+72 +43.2 +.17 +.35 +42.1 -17 +1.51 -17 +1.81

+73 +43.8 --- -16 +1.50 -06 +1.50

+72 +43.5 +.11 +.35 +42.1 -11 +1.65 -12 +1.2

+73 +43.8 +.11 +.35 +42.1 -11 +1.65 -12 +1.2

10 +44.6 +.2 44.7 +46.3

9.2 2.7 12.6

- .6 + 1.3 - 2.3

4'44.23
43.94

-53 +44.2 -64 +44.0 -59 +45.8

-56 +44.11

-45 +44.8

-56 +44.8

-57 +44.5 -64 +44.0 -59 +45.8

-57 +44.5 -64 +44.0 -59 +45.8

+43.7 +43.0

14.8 3.0

+3 +1.0

(5) 43.60 43.60

1872	July 28	h = -0.02 + 0.15	n = -24	e = .00	1872	July 28			
Star	Ra	S	T-Pa	P-P	T-Pa	Ra	S	T-Pa	P-P
	L	m				L	m		
	16.4.6/6	21	221	+ 1.01	+ 3.29	+ 10	2.911	2.89/6	15
	16.2.5/6	12	223	- .08	+ 2.94	+ 04	2.902	2.89/6	28
	16.3.4/6	19	473	+ .26	+ 3.13	+ 14	2.903	2.89/6	32
	16.4.3/6	22	226	+ 1.87	+ 3.14	- 02	2.903	2.89/6	36
	16.4.3/6	25	228	+ .40	+ 2.99	- 01	2.903	2.89/6	50
	16.6.1/6	38	232	+ .81	+ 3.11	+ 07	2.903	2.89/6	54
16.39	16.7.0/6	43	477	+ 1.54	+ 3.23	+ 04	2.903	2.89/6	58
	16.8.1/6	46	478	+ .27	+ 3.06	+ 05	2.903	2.89/6	62
	16.9.2/6	52	233	+ .17	+ 3.03	+ 06	2.903	2.89/6	66
	17.1.4/7	4	480	+ .86	+ 3.33	+ 24	2.903	2.89/6	70
	17.2.5/7	9	237	+ .26	+ 3.05	+ 01	2.903	2.89/6	74
	17.2.5/7	11	239	+ .75	+ 3.04	- 04	2.903	2.89/6	78
17.12	17.5.8/7	28	240	+ 1.30	+ 3.26	+ 06	2.903	2.89/6	82
	16.72						2.922		
	16.2	-08	+2.90	16.3	+4.07	+3.82	+00	+3.82	
	16.3	+26	+2.99	16.5	+2.61	+3.58	+00	+3.58	
	16.4	+40	+3.00	16.6	+4.59	+3.98	+00	+3.98	
	16.8	+27	+3.01	17.0	+7.34	+4.44	+10	+4.44	
	16.9	+7	+2.97						
	17.1	+26	+3.04						
	16.6	+21	+2.98						
	16.1	+1.01	+3.19						
	16.4	+1.47	+3.16						
	16.7	+1.57	+3.19						
	17.5	+1.30	+3.20						
	16.8	+1.43	+3.22						
	17.0	+1.58	+3.26						
1872	July 29	h = +0.02 + 0.20	n = -22	e = .00	1872	July 29			
	Ra	S	T-Pa	P-P	T-Pa	Ra	S	T-Pa	P-P
	L	m				L	m		
	15.9.0/5	52	219	+ 0.52	+ 3.24	+ 04	3.172	3.19/6	15
	16.1.8/6	5	221	+ 1.01	+ 3.54	+ 10	3.172	3.19/6	28
	16.1.8/6	8	222	- .06	+ 3.12	+ 00	3.172	3.19/6	36
	16.2.7/6	12	223	- .08	+ 3.18	+ 04	3.172	3.19/6	50
	16.4.5/6	22	226	+ 1.87	+ 3.39	+ 16	3.172	3.19/6	54
	16.4.5/6	25	228	+ .40	+ 3.25	+ 01	3.172	3.19/6	58
16.18	16.7	16	38	232	+ .81	+ 3.22	+ 02	3.20	3.19/6
	17.1	2/7	4	480	+ .86	+ 3.61	+ 24	3.37	3.19/6
	17.2	3/7	9	237	+ .26	+ 3.22	+ 01	3.21	3.19/6
	17.3	3/7	11	239	+ .75	+ 3.28	+ 04	3.32	3.19/6
	17.5	6/7	28	240	+ 1.30	+ 3.56	+ 06	3.50	3.19/6
	17.5	6/7	30	242	+ 1.44	+ 3.53	+ 05	3.48	3.19/6
	17.6	7/7	36	244	+ 1.08	+ 3.19	+ 20	3.39	3.19/6
	17.7	8/7	47	240	+ .53	+ 3.33	+ 03	3.30	3.19/6
	17.8	9/7	51	248	+ 1.53	+ 3.45	+ 07	3.38	3.19/6
17.46	17.9	10/7	53	252	+ 1.26	+ 3.55	+ 07	3.57	3.19/6
	16.91								
	16.1	-06	+3.12	16.2	+4.07	+4.10	+02	+4.12	
	16.2	-05	+3.14	16.5	+2.61	+3.76	+01	+3.77	
	17.1	+26	+3.21	16.6	+4.59	+4.06	-01	+4.05	
	17.5	+53	+3.30	17.0	+7.34	+4.62	-01	+4.61	
	16.8	+1.6	+3.19	17.5	+2.50	+3.82	-02	+3.80	
				17.6	+2.58	+3.83	-02	+3.81	
				17.7	+3.12	+3.87	-02	+3.85	
	16.4	+1.87	+3.41						
	17.5	+1.30	+3.30						
	17.5	+1.44	+3.48						
	17.6	+1.04	+3.39						
	17.7	+1.03	+3.38						
	17.8	+1.26	+3.57						
	17.8	+1.44	+3.48						
	17.9	+1.38	+3.50						
	n = -21 - 01								
	0 = +3.91	+9.3	n = -24	0 = +2.66	+6.9	n = -26.5	0 = -5.34	-6.6	n = -12
	+2.44	+5.5	-24	+1.20	+3.9	-28.7	-3.88	-7.4	-19
	+4.42	+8.2	-19	+3.18	+6.6	-20.19			-2.5
	+7.18	+1.92	-20.2	+8.93	+1.9	-20.19			
	+2.34	+6.1	-26.8	+1.09	+3.8	-3.4			
	+2.42	+6.2	-26	+1.17	+3.8	-3.2			
	+2.86	+6.6	-22	+1.71	+9.2	-2.5			
	-2.30		-23.6			-2.88			
						-2.82			
	0 = -5.34	-6.6	n = -12	0 = -5.34	-6.6	n = -12	0 = -5.34	-6.6	n = -12
	-3.88	-7.4	-19	-3.88	-7.4	-19	-3.88	-7.4	-19
	0 = -6.59	-8.8	n = -14	0 = -6.59	-8.8	n = -14	0 = -6.59	-8.8	n = -14
	-5.13	-7.3	-19.20	-5.13	-7.3	-19.20	-5.13	-7.3	-19.20

[illegible]

1872	July 30	$h = +0.57 + 0.64 \quad \eta = -29 \quad \theta = .50$					
Star	RA	S	tang.	T.R.A.	P.P.	T.R.A.	(P.P.)
17.40	17.2 + 5.14	11	239	+0.75	0 = +4.37	-0.57	+4.41 - .22
17.50	17.6 + 1.14	36	244	+1.04	= +4.23	-20	4.53 - .30
17.90	17.7 + 0.14	41	246	+1.53	+4.43	+0.3	4.40 - .15
18.00	17.9 + 2.14	53	252	+1.26	+4.64	-0.07	4.66 - .37
	18.1 + 4.18	03	255	+1.55	+4.47	+0.04	4.43 - .16
	17.70						

I				II			
17.7	+0.3	+1.10	17.5 + 2.50 + 4.91 + 0.2	+4.96	+0.01	+4.95	
18.1	+0.3	+1.113	17.6 + 2.58 + 4.95 + 0.2	+4.97	+0.01	+4.96	
17.9	+0.54	+4.41	17.8 + 3.13 + 5.15 + 0.2	+5.17	+0.01	+5.16	
			17.9 + 4.32 + 5.65 + 0.0	+5.65	-0.01	+5.64	

17.6	+4.04	+4.53
17.9	+1.26	+4.66
17.7	+1.15	+4.59

$$\eta = -29$$

$$\eta = -29.02$$

$$0 = +1.96 \pm 5.67 \quad \eta = -28.32$$

$$-2.04 \pm 5.6 \quad -28.7$$

$$+2.59 \pm 5.6 \quad -29$$

$$+3.78 \pm 1.24 \quad -33$$

$$-29.2$$

$$-30.2$$

$$0 = +1.30 \pm 3.6 \quad \eta = -27.32$$

$$+1.43 \pm 3.7 \quad -26$$

$$+1.98 \pm 3.7 \quad -29$$

$$+3.17 \pm 1.05 \quad -33$$

$$-30.0$$

1872	July 30						
Star	RA	S	tang.	T.R.A.	P.P.	T.R.A.	(P.P.)
4.210	17 32	4.22	+2.50	0 = +5.10	+1.6	4.94 + 0.7	4.62
4.23	17 38	4.24	+2.58	+5.03	+0.8	4.95	4.63
4.25	17 44	4.25	+3.13	+5.24	+0.9	5.15	4.64
4.29	17 55	4.29	+4.32	+5.88	+2.3	5.65	4.65
4.270							
4.246		4.246					

17.5	+2.50	+4.91
17.6	+2.58	+4.95
17.8	+3.13	+5.15
17.9	+4.32	+5.65

$$13 = \begin{matrix} +60+80 & +40+60 & +20+40 & +0+20 & +0-20 & -20-40 & -40-60 & -60-80 & -80-100 \end{matrix}$$

RA	dist	corr.	tang.	$P - P_0$	$P_1 - P_0$	$P_2 - P_0$	$P_3 - P_0$	$P_4 - P_0$	RA	dist	corr.	tang.	$P - P_0$	$P_1 - P_0$	$P_2 - P_0$	$P_3 - P_0$	$P_4 - P_0$
17 11	11	+0.0	1.00	+0.75	+4.48	-0.9	+4.38	+0.1	17 32	32	-141.89	+2.50	+6.13	+0.5	+43.5	-0.6	+42.9
17 36	36	-0.6	1.00	+1.04	43.2	+0.9	44.1	-0.1	17 38	38	-141.89	+2.58	42.1	+0.8	43.2	-0.6	42.6
17 41	41	+2.5	97	+1.53	42.8	-0.3	42.5	+0.3	17 44	44	-50.86	+3.13	44.3	+0.4	44.7	-0.7	44.0
17 53	53	-16	99	+1.26	42.2	+0.5	42.7	-0.2	17 55	55	-57.82	+4.32	43.7	+0.2	43.9	-0.8	43.1
18 3	3	+24	97	+55	43.3	+0.2	43.5	+0.3									
							(5) 43.42	43.42							(4) 43.15	43.15	

$$\begin{matrix} +25 +42.5 +0.9 +4.38 & -0.6 +44.1 \\ +24 +43.5 & -16 +42.7 \end{matrix}$$

$$\begin{matrix} -141 +43.5 \\ -141 +43.2 \\ -50 +44.7 \\ -57 +43.9 \\ -49 +43.8 \end{matrix}$$

$$\begin{matrix} +24 +43.0 +0.9 +4.38 & -11 +43.1 \\ +.4 & +.1 \\ +43.4 & +44.0 \\ 43.30 & 9 & 6.8 & 4.0 & 6.4 \\ & & -.1 & -.7 & +.1 \end{matrix}$$

$$\begin{matrix} -7 \\ +43.1 \\ 12.4 \\ +.2 \end{matrix}$$

		I		II		I		II						
168	+24	+7.38	16.6	+4.39	+8.53	+0.9	+8.56	16.5	-3.93	+6.28	+0.9	+6.35	+1.10	+6.38
169	+17	+7.41	17.0	+7.34	+8.21	+0.6	+9.21	17.4	-5.50	+5.91	-0.9	+5.82	-0.6	+5.85
171	+26	+7.38	17.5	+2.50	+8.01	+0.2	+8.05	18.5	-4.38	+6.33	-1.0	+6.23	-0.7	+6.26
182	+40	+7.53	17.6	+2.58	+7.78	+0.1	+7.82	18.6	-20.71	+2.66	-1.1	+2.55	-0.8	+2.58
173	+28	+7.12	17.7	+3.12	+8.05	+0.1	+8.05							

1872	Aug. 4	$h = +1.04 + 140$ $+1.05$	$m = -17.2 = 00$ $+16$	14.820 14.778					
	16.4 +5 16 22	226 + 1.87 = 0 + 15.04 ✓ - 02 + 15.06 = 32	1.07 + 14.40 14.97	16 59	+ 7.34	$D = 5$ 15.98	$-0.09 + 14.07$		235
	16.4 +5 16 25	1228 + 0.10 + 14.87 = 01 14.88 - 07	+ 07 14.81 .88	15 22	- 3.72	+ 14.18	+ 0.08 14.18		92
	16.6 +3 16 38	232 + .51 + 14.86 = 02 14.84 - 14	+ 04 14.70 .74	17 32	+ 2.50	+ 15.52	+ 18.09 15.36 + 01		482
	16.7 +2 16 42	477 + 1.54 + 15.03 + 04 14.99 - 26	+ 03 14.73 + 3 .89	17 38	+ 2.58	+ 15.35	+ 0.08 15.27		483
16.60	16.9 0 16 52	233 + .17 + 15.00 + 06 14.94 - 08	.00 14.91 .91	12			+ 6.51 ✓		
	17.5 -6 17 28	240 + 1.30 + 15.28 + 06 15.22 - 22	- 08 15.00 .92						
17.60	17.7 -8 17 41	246 + .53 + 15.04 + 03 15.01 - 09	- 11 15.92 .81						
	16.84								

	I	II		I	II
16.4 + 1.4 + 14.88	17.0 + 7.34 + 15.72 + 0.0 + 15.93	- .01 + 15.92 + 1.4	17.4 - 3.72 + 14.18	- .04 + 14.14	- .05 + 14.13
16.9 + 1.7 + 14.94	17.5 + 2.50 + 15.30 + .85 + 15.31	- .06 + 15.30			
17.7 + 5.3 + 15.01	17.6 + 2.58 + 15.27 - .06 + 15.21	- .07 + 15.20			
19.0 + 3.7 + 14.94					
	0 = +6.97 + 9.97 + 14. = -16		0 = -4.09 - .80 n = - .20		
16.4 + 1.67 + 15.06 + 16	+2.13 + 3.74 + 0.7 = -21				
16.7 + 1.59 + 14.99	+2.21 + .27 = -12	16.3			
17.5 + 1.30 + 15.22					
16.9 + 1.57 + 15.09	0 = +3.77 + 8.3 + 14 = -17		0 = -6.29 - .96 n = -1.8		
16.9 + 1.67 + 15.22	+ .93 + 2.1 + 0.7 = -30				
n = -12 - .01	+1.01 + .11 = -11				

[illegible]

$\eta = +60+50 \quad +40+60 \quad +20+40 \quad +0+20 \quad +0-20 \quad -20-40 \quad -40-60 \quad -60-80 \quad -80-100$

	RA	sinZ	cosZ	tanq.	$R_p R_q$	P-P	$R_p R_q$	P-P	$R_p R_q$	RA	sinZ	cosZ	tanq.	$R_p R_q$	P-P	$R_p R_q$	P-P	$R_p R_q$
476	16 38	+06	1.00	+0.81	+4 43.5	-0.3	+43.8	+0.1	43.9	16 36	-58	1.81	+4.59	+4 43.5	-0.3	+43.5	-0.8	42.7
235	17 36	-06	1.00	+1.04	40.6	+0.9	43.4	-0.1	41.4	16 59	-64	1.76	+3.31	42.0	+0.4	42.5	-0.9	41.5
482	17 41	+25	97	+1.53	42.1	-0.3	41.8	+0.3	42.1	17 32	-44	89	+2.50	43.2	+0.5	43.6	-0.6	43.0
483	17 57	-25	97	+1.53	55.7	-0.1	53.6			17 38	-44	89	+2.58	43.4	+0.8	44.2	-0.6	43.6
484	17 53	-16	99	+1.26	42.1	+0.5	42.6	-0.2	42.4	17 41	-50	86	+3.12	44.5	+0.1	44.7	-0.6	44.1
485	16 43	-25	97	+1.54	42.1	+0.5	42.6	-0.3	42.3	17 55	-57	82	+4.32	-	+0.2			
					(5)	42.42	42.42									(5)	42.98	42.98
					+25	+41.8	+0.6	+43.8	-0.6	+41.5	-25	+53.6	-58	+43.5	-64	+42.9		
					-16	+42.6				-25	+42.6	-44	+43.6					
					+25	+41.8	+0.6	+43.8	-11	+42.0	-25	+53.6	-49	+44.0	-64	+42.9		
						+4												
					41' 42.76	+42.2	+43.9	+41.8		+55.2	+45.3	+41.9						
					42.70	2.2	3.7	3.6		+42.2	13.2	1.9						
						+ .5	- 1.2	+ .9		+5	- .6	+ .8						
235	16 38	+06	1.00	+1.51	43.7	+0.2	+43.9	+0.1	+44.0	16 59	-64	1.76	+3.31	43.4	+0.4	+43.8	-0.9	+42.4
92	16 43	-25	97	+1.54	42.7	+0.5	43.2	-0.3	42.9	17 22	-89	45	-3.72	43.9	+0.5	44.0	-1.1	42.7
482	16 46	+46	88	+2.57	43.0	+0.4	43.4	+0.6	44.0	17 32	-44	89	+2.50	43.5	+0.5	44.0	-0.6	43.4
483	16 52	+54	84	+1.74	42.5	-0.1	42.4	+0.7	43.1	17 38	-44	89	+2.58	42.6	+0.8	43.1	-0.6	42.8
484	17 4	+03	1.00	+1.86	44.0	-0.4	43.3	+0.6	43.3	17 44	-50	86	+3.12	43.3	+0.3	43.6	-0.6	43.0
485	17 9	+47	88	+2.6	44.6	-0.4	44.2	+0.6	44.8	17 55	-57	82	+4.32	-	+0.2			
256	17 11	+09	1.00	+1.75	44.5	-0.9	43.6	+0.1	43.7	18 44	-70	71	+4.55		+0.8			
491	17 28	-14	98	+1.30	44.1	+0.6	44.7	-0.2	44.5	18 36	-89	92	+2.18	42.3	+2.5	44.8	-0.5	44.3
391	17 30	-22	97	+1.44	-	+1.0	1			18 39	-77	63	-20.73	44.2	+1.2	45.3	+1.0	43.0
273	17 36	-06	1.00	+1.04	43.5	+0.9	44.4	-0.1	44.3	19 18	-51	86	+3.25	-	+0.1			
284	17 41	+25	97	+1.53	43.1	-0.3	42.8	+0.3	43.1	19 52	-73	68	+53.44	-	+0.4			
	17 53	-16	99	+1.26	-	+0.5												
	18 1	+54	84	+1.77	42.5	+0.5	43.0	+0.7	43.7									
	18 33	+06	1.00	+1.50	42.8	+0.1	42.9	+0.1	43.0									
	18 45	+16	99	+1.65	42.9	+0.1	43.0	+0.2	43.2									
	19 19	+64	1.76	+1.25	-	-0.5												
					(13)	43.66	43.66									(6)	43.15	43.16
					+46	+43.1	+25	+42.8	+0.6	+43.9	-17	+44.7	-25	+43.2	-44	+43.8	-89	+44.0
					+54	+42.4			+0.3	+43.3	-06	+44.4	-39	+44.8	-44	+43.1	-77	+45.3
					+47	+44.2			+0.9	+43.6	-16		-50	+43.6				
					+54	+43.0			+0.6	+42.9								
									+16	+43.0								
					+50	+43.2	+25	+42.8	+0.8	+43.3	-11	+44.5	-32	+44.0	-46	+43.7	-70	+44.5
						+ .7	+ .4											
					4' 43.55	+43.9	+43.2	+43.4	+44.3		+43.5	+43.0	+43.5					
					43.50	17	15.6	3.2	17.0	8.6	7.0	9.0	7.0					
						- .3	+ .4	+ .2	- .7	+ .1	+ .6	+ .8						

1871ph	1872	Aug. 7	h = +123 +135	m = -23 @ = .00	1872	Aug. 7	h = +123 +135	m = -23 @ = .00	1872	Aug. 7	h = +123 +135	m = -23 @ = .00	
Star	RA	S	Long.	TR	CP	P.P.	Star	RA	S	Long.	TR	CP	P.P.
166	+9.16	38	232	+0.81	0 = +22.97	+02	22.95	19	+12	+22.76	+22.88	18	59
167	8.16	48	477	+1.54	+23.04	+04	23.03	35	+11	22.68	+13	92	18
168	7.16	46	478	+2.7	0 = +22.40	+05	22.85	06	+09	22.99	.88	18	52
169	6.16	52	233	+1.7	+22.92	+06	22.86	04	+08	22.82	.90	17	32
171	4.17	4	480	+5.6	+23.25	+24	23.01	20	+05	22.81	.86	17	38
172	3.17	9	237	+2.6	+22.93	+01	22.92	06	+04	22.86	.90	17	44
172	3.17	11	239	+7.5	+23.01	+05	23.06	17	+04	22.89	.93	18	14
175	0.17	28	240	+1.30	+23.31	+06	23.25	30	+40	22.95	.95	18	35
176	1.17	36	244	+1.04	+22.91	+20	23.11	24	+01	22.87	.86	18	39
177	4.17	51	248	+1.53	+23.23	+07	23.16	35	+05	22.81	.87	18	39
179	4.17	53	252	+1.26	+23.28	+02	23.30	29	+05	23.01	.96	18	39
180	5.18	1	254	+0.17	+23.05	+02	23.03	04	+07	22.99	.92	18	39
181	6.18	3	255	+0.55	+23.13	+04	23.09	13	+08	22.96	.88	18	39
185	10.18	33	260	+0.80	+23.19	+02	23.17	18	+13	22.99	.86	18	39
187	12.18	45	264	+0.65	+23.33	+08	23.25	15	+16	23.10	.94	18	39
1813	17.55												
185	+2.7	+22.85	17.0	+7.34	+24.57	+02	+24.59	+06	+24.63	22.90	17.0	-5.18	+21.85
169	+4.7	+22.86	17.5	+2.50	+23.33	+04	+23.32	+00	+23.36	17.4	-3.72	+22.02	+02
171	+2.6	+22.92	17.6	+2.58	+23.46	+05	+23.41	-01	+23.45	18.6	-20.73	+22.85	+17
170	+1.7	+23.03	17.7	+3.12	+23.67	+06	+23.61	-02	+23.65				
172	+2.2	+22.91	18.6	+2.18	+13.53	+17	+13.36	-13	+13.40				
167	+1.54	+23.03	18.2	+16.88	+26.90	+12	+26.78	-09	+26.81				
175	+1.30	+23.25	0 = +7.12	+1.65	n = -24	0 = +6.01	+1.96	n = -24	0 = -5.40	-1.04	n = -190	-6.07	-1.26
176	+1.04	+23.11	+2.28	+41.07	-21	+1.17	+19.07	-22	-3.94	-91	-23	-5.05	-1.19
179	+1.53	+23.15	+2.36	+50	-21	+1.25	+2.8	-22	-20.93	-3.23	-21	-20.04	3.65
179	+1.26	+23.30	+2.90	+70	-24	+1.79	+4.8	-27			-192		
175	+1.33	+23.17	+1.96	+40	-23	+1.81	+2.3	-28			-2.10		
179	+1.33	+23.17	+1.66	+3.87	-23	+1.55	+3.64	-28					
1872	Aug. 8	h = +113 +118											
171	+6.17	4	460	+0.84	0 = +26.31	+24	+26.07	22	+07	+26.85	25.92	18	59
172	5.17	9	237	+2.6	+26.01	+01	26.00	07	+06	25.93	.99	18	59
172	5.17	11	239	+7.5	+26.08	+04	26.12	19	+06	25.93	.99	18	59
175	2.17	28	240	+1.30	+26.33	+06	26.27	34	+02	25.93			

Star	R.A.	δ	tang. δ	T.Ra	P.P	T.Ra -P.P
	h m					
	13 19					
	13 43					
	13 49					
	14 10					
	14 21					
	14 30					

1872	Aug 9 WAX	$n = 100$					
	15 30						16 22
	15 45						
	15 59						
	16 16						
	16 22						

[illegible]

1872 Sept 10
Star Ware $h = -0.001$
RA δ tang. δ

18	59
19	3
19	10
19	25
19	30
19	34
19	40
19	44
20	5
20	18
20	20
20	27

1872 Sept 10
Star RA δ tang. δ

19	13
19	19
19	49
20	13
20	31

1872 Sept 10
Wm. Harkness $h = -0.001$

18	59
19	3
19	10
19	25
19	30
19	34
19	40
19	44
20	5
20	18
20	20
20	27

19	13
19	19
19	49
20	13
20	31

Ra	S	long.
18	59	
19	3	
19	10	
19	25	
19	30	
19	34	
19	40	
19	44	
20	5	
20	18	
20	20	
20	27	

18	59
19	3
19	10
19	25
19	30
19	34
19	40
19	44
20	5
20	18
20	20
20	27

Ra	S	long.
19	13	
19	19	
19	49	
20	13	
20	31	

19	13
19	19
19	49
20	13
20	31

1872
StarSept 12
Wave

RA

 δ Long.
 δ

h	m
18	59
19	13
19	10
19	30
19	33
19	40
19	44
19	57
20	4
20	17
20	20
20	27
20	37
20	41

1872

Star

Sept. 12
Wave

RA

 δ Long.
 δ

h	m
19	49
20	13
20	31
20	53

1872
Wm Harkness

Sept 12

h	m
18	59
19	3
19	10
19	30
19	33
19	40
19	44
19	57
20	4
20	17
20	20
20	27
20	37
20	41

h	m
19	49
20	13
20	31
20	53

1872 Sept. 18
War
Star RA S tang.
2 m
20 17
20 19
20 30
20 40
20 53
21 01

1872 Sept. 18
War.
Star RA S tang.
S

1872 Sept. 19
War
22 29
22 33
22 38
22 44
22 58
23 7
23 10
23 18
23 28
23 31

23 13
23 24
23 33

1872 Sept. 19
Wm Harkness
22 29
22 33
22 38
22 44
22 58
23 7
23 10
23 18
23 28
23 31

23 13
23 24
23 33

1872	Oct 2	h = +0.04 - 0.07	m = -0.03	c = .00	1872	Oct 2	h = +0.04 - 0.07	m = -0.03	c = .00
Star	RA	S	T-RA	P-P	Star	RA	S	T-RA	P-P
185 +1.9 18 33	260 + 0.80	0 = -8.19	+0.02	-8.21	8.222	18 14	+16.88	0 = -	-8.22
187 1.7 18 45	264 + .65	-8.14	+0.07	8.21	8.23	18 23	+2.95	-8.27	-1.19
188 1.6 18 49	+1.68	-8.07	+0.12	8.19	8.24	18 23	+3.21	-7.91	+1.18
189 1.5 18 51	492 + .96	-8.14	+0.03	8.17	8.20	18 36	+2.18	-7.87	+0.30
197 7 19 41	278 + .99	-8.13	+0.08	8.21	8.24	18 39	-20.73	-	-24.19
202 20 10	288 + 1.05	-27.55	+0.04	27.59	28.02	18 56	+2.92	-7.99	+1.10
1913 202 +2.20 11	501 + .45	-8.19	-0.01	8.18	8.19	19 45	-3.55	-8.26	+0.37
216 1.2 21 35	515 + 1.53	-8.26	-0.08	8.18	8.23	19 49	+2.75	-7.95	+0.06
217 1.3 21 42	517 + 1.14	-8.09	+0.04	8.13	8.16	19 52	+5.57	-9.91	-1.58
219 1.5 21 55	519 + .22	-8.31	-0.01	8.30	8.31	20 3	-4.05	-8.41	-1.15
810 22.1 1.7 22 4	315 + .64	-8.22	+0.04	8.26	8.28	20 13	+4.45	-7.90	+0.15
2172 22.3 -1.9 22 15	523 + .20	-8.17	+0.04	8.21	8.22	20 25	-3.50	-8.26	-0.09
20.37					8.240	21 40	+2.86	-8.24	-0.02
40					8.230	21 47	-3.37	-8.05	+0.17
18.8 +6.5 -8.21	18.4 +2.95 -8.08 +0.1 -8.07	+0.1 -8.07			22 1	+1.89	-7.67	+0.16	
20.2 +4.5 -8.18	18.4 +3.21 -8.09 +0.1 -8.08	+0.1 -8.08			22 7	+3.02	-8.14	+0.02	
21.9 +2.3 -8.30	18.6 +2.18 -8.17 +0.1 -8.16	+0.1 -8.16							
22.3 +2.0 -8.21	18.9 +2.92 -8.09 +0.1 -8.08	+0.0 -8.09							
20.8 +3.8 -8.23	19.8 +2.75 -8.01 +0.0 -8.01	+0.0 -8.01							
	19.9 +3.14 -8.33 +0.0 -8.33	+0.0 -8.33							
	20.2 +1.05 -8.05 +0.0 -8.05	+0.0 -8.05							
	21.7 +2.86 -8.22 -0.0 -8.22	-0.1 -8.23							
	22.0 +1.89 -7.83 -0.0 -7.83	-0.1 -7.84							
	22.1 +3.02 -8.16 -0.1 -8.17	-0.1 -8.17							
185 +1.68 -8.19	20.2 +4.0 -7.50	0 = +2.77 +0.16	n = -0.6	0 = +1.65 +1.1	n = -0.7	0 = -3.93 -4.0	n = -1.0	0 = -4.81 -4.0	n = -0.9
187 +1.5 -8.18	21.6 +1.53 -8.18	+2.83 +.15	-0.5	+1.95 +1.0	-0.5	-4.43 -0.3	-0.1	-5.31 -0.8	-0.1
21.7 +1.14 -8.13	21.7 +1.14 -8.13	+1.80 +0.7	-0.4	+9.2 +0.2	-0.2	-3.88 +0.6	+0.1	-4.76 +0.1	+0.0
20.1 +1.22 -11.11	21.7 +1.22 -11.11	+2.54 +1.5	-0.6	+1.66 +0.9	-0.5	-3.75 +0.1	+0.0	-4.63 -0.5	-0.1
19.7 +1.26 -8.18	21.7 +1.26 -8.18	+2.37 +.22	-0.9	+1.49 +1.7	-1.1		-0.25		-0.28
24 19.7 +1.26 -8.18	21.7 +1.26 -8.18	+5.06 -1.0 -6.2	+0.2	+5.18 -1.5 -6.2	+0.2				
n = -0.6		+4.07 +.18	-0.4	+3.19 +1.3	-0.4				
1872 Oct 3	h = +0.03	n = -0.03							
206 20 37	294 + 1.00	0 = -8.04	+0.05	8.12	8.16	20 53	+3.61	0 = -7.95	+0.09
207 20 41	296 + 0.28	-8.02	+0.14	8.16	8.16				
20.65									
20.7 +2.8 -8.16	20.5 +3.61 -8.04 +0.0 -8.04	+0.0 -8.04			20.5 +3.61 -8.04				
20.6 +1.00 -8.12	0 = +3.33 +.12	n = -0.3							
n = -0.4	0 = +2.61 +.08	n = -0.3							
1872 Oct 9	h = +0.04 - 0.02	n = -0.09							
185 +4.18 33	260 + .80	0 = -7.77	+0.02	-7.79	7.72	18 14	+14.88	0 = -	-0.03
188 +1.18 45	264 + .65	-7.76	+0.07	-7.83	7.76	18 23	+2.95	-7.74	-1.14
188 +1.18 49	+1.68	-7.66	+0.12	-7.78	7.63	18 23	+3.21	-7.40	+1.18
189 +0.18 51	492 + .96	-7.83	+0.03	-7.86	7.79	18 36	-20.73	-8.56	+0.27
197 -3 19 12	495 + .20	-7.67	+0.04	-7.91	7.89	18 56	+2.92	-7.60	+1.10
193 -4 19 19	274 + .05	-7.65	+0.03	-7.88	7.88				
1892					7.778				
12.7 +6.5 -7.83	18.4 +2.95 -7.53 +0.0 -7.55	+0.0 -7.55			18.6 -20.73 -8.29 +0.0 -8.29				
19.2 +2.0 -7.91	18.4 +3.21 -7.58 +0.0 -7.58	+0.0 -7.58							
193 +0.5 -7.88	18.9 +2.92 -7.70 +0.0 -7.70	+0.0 -7.70							
19.1 +3.0 -7.87									
18.5 +8.0 -7.78	0 = +2.65 +.32	n = -1.2	0 = +1.63 +.27	n = -1.7	0 = -2.103 -4.2	n = -2.0	0 = -2.205 -4.7	n = -2.1	0 = -2.205 -4.7
18.8 +1.68 -7.78	+2.91 +.29	-1.0	+1.68 +.24	-1.3	-1.14 -0.7	-1.14	-1.14	-0.7	-1.14
189 +0.6 -7.86	+2.62 +.17	-0.93	+1.60 +.12	-0.8					
18.7 +1.32 -7.82									
18.7 +1.32 -7.82									
n = -0.5									

1872	Oct 10	h = +0.07 +0.19	m = -0.10 @ +0	1872	Oct 10	h = +0.07 +0.19	m = -0.10 @ +0
Star	RA	δ	Tang.	T.R.A.	P.P.	T.R.A.	P.P.
18.8 + 5 18 51	492 + 0.96 0 =	-7.71	+0.03	-7.74	-0.01	+0.01	-7.734
19.0 3 18 59	269 - 0.09	-7.74	+0.08	-7.74	+0.00	+0.01	-7.75
19.1 2 19 3	444 + .72	-7.72	+0.02	-7.74	-0.01	+0.00	-7.75
19.2 1 19 12	445 + .20	-7.68	+0.04	-7.72	-0.00		-7.72
19.06 19.2 1 19 14	274 + 1.33	-7.59	+0.11	-7.70	-0.01		-7.71
19.3 + 0 19 19	274 + .05	-7.64	+0.03	-7.70	-0.00		-7.70
19.4 - 1 19 26	275 + .53	-7.69	+0.01	-7.70	-0.01		-7.71
19.5 2 19 27	276 + 1.25	-7.63	+0.04	-7.70	-0.01	+0.00	-7.71
19.7 4 19 46	449 + .75	-7.70	+0.05	-7.75	-0.01	-0.01	-7.76
19.7 4 19 41	278 + .99	-7.65	+0.08	-7.73	-0.01	-0.01	-7.74
19.55 - 19.7 - 4 19 44	280 + .15	-7.72	+0.01	-7.73	-0.00	-0.01	-7.73
19.33							-7.725
19.0 - 0.9 - 7.74	18.9 + 2.92 - 7.66 + 0.00	-7.66					-7.729
19.2 + 2.0 - 7.72	19.5 + 5.32 - 7.66 + 0.00	-7.66					-7.730
19.3 + 0.0 - 7.70	19.9 + 53.44 - 7.66 + 0.00	-7.66					
19.7 + 0.5 - 7.73		-7.13					
19.3 + 0.8 - 7.72							
18.9 + 9.6 - 7.74	0 = +2.84 + 0.6 n = -0.2	-0.1		0 = +1.79 + 0.6 n = -0.3	-0.1		
19.2 + 1.23 - 7.70	+5.24 + 0.6	-0.1		+4.19 + 0.6	-0.1		
19.5 + 1.25 - 7.70	+53.36 + 0.2	-0.2		+5.31 + 0.2	-0.2		
19.7 + 0.5 - 7.73		-0.13			-0.17		
19.3 + 1.13 - 7.72							
n = 0							
1872 Oct 12	h = +0.07 - 0.43	m = +0.04 @ = 0.00					
20.2 + 9 20 10	285 + 1.05 0 =	-7.31	+0.04	-7.35	+0.04	-0.04	-7.268
20.3 8 20 18	289 + .83	-7.20	+0.04	-7.24	+0.03	-0.03	-7.31
20.6 5 20 37	294 + 1.00	-7.28	+0.05	-7.33	+0.04	-0.02	-7.21
20.15 20.7 + 4 20 41	296 + .28	-7.13	+0.14	-7.27	+0.01	-0.02	-7.29
21.5 - 4 21 32	544 + .83	-7.29	+0.06	-7.35	+0.03	+0.02	-7.26
21.6 5 21 35	515 + 1.53	-7.47	+0.08	-7.39	+0.06	-0.02	-7.32
21.9 8 21 55	519 + .22	-7.34	+0.01	-7.33	+0.01	-0.03	-7.33
21.78 22.1 - 1.0 22 41	313 + .64	-7.32	+0.04	-7.36	+0.03	+0.04	-7.33
21.11							-7.325
20.7 + 2.8 - 7.27	20.5 + 3.61 + 7.63 + 0.01	-7.62	+0	-7.63			-7.296
21.9 + 2.2 - 7.33	21.3 + 1.89 - 7.29 + 0.00	-7.29	-1	-7.28			
22.1 + 6.4 - 7.36	21.4 + 2.75 - 7.46 + 0.00	-7.46	-1	-7.46			
21.6 + 1.38 - 7.32	22.0 + 1.89 - 7.38 + 0.00	-7.38	-1	-7.39			
20.2 + 1.0 - 7.35	0 = +3.23 - 30 n = +0.9	-0.5		0 = +2.42 - 0.2 n = +1.1	-0.1		
20.6 + 1.0 - 7.33	+1.51 + 0.8	+0.70	+0.8	-1.1			
21.6 + 1.53 - 7.39	+2.37 - 14	+0.06	+1.56	-1.0	+0.07		
20.8 + 1.19 - 7.36	+1.51 - 0.6	+0.04	+0.0	-0.3	+0.02		
n = -1.4		+5.63		+0.04			
1872 Oct 14	h = +0.01 + 0.6	m = +0.5 @ = 0.00					
18.5 + 4 18 33	260 + .80 0 =	-6.67	+0.02	-6.69	+0.04	+0.01	-6.605
18.7 2 18 45	264 + .65	-6.61	+0.07	-6.68	+0.03	+0.00	-6.65
18.8 1 18 49	492 + .96	-6.46	+0.12	-6.58	+0.08		-6.60
18.72 18.9 + 0 18 51	269 - .09	-6.64	+0.03	-6.67	+0.05		-6.62
19.0 3 19 12	276 + 1.25	-6.56	+0.07	-6.63	+0.06	-0.01	-6.63
19.23 18.94							-6.59
18.6 + 8.0 - 6.69	18.4 + 2.95 - 6.92 + 0.00	-6.92	+0.00	-6.92			-6.601
18.7 + 6.4 - 6.68	18.4 + 3.21 - 6.79 + 0.00	-6.79	+0.00	-6.79			-6.601
19.0 - 0.8 - 6.63	18.6 + 2.18 - 6.57 + 0.00	-6.57	+0.00	-6.57			-6.601
18.8 + 4.5 - 6.67	18.0 + 2.92 - 6.71 + 0.00	-6.71	+0.00	-6.71			-6.601
18.8 + 1.68 - 6.58	19.3 + 3.29 - 6.71 + 0.00	-6.71	+0.00	-6.71			-6.601
19.2 + 1.83 - 6.66	0 = +2.70 - 0.2 n = +1.0	-0.2		0 = +1.53 - 30 n = +1.4	-0.2		
19.5 + 1.25 - 6.63	+2.70 - 12	+0.04	+1.2	-1.0			
19.2 + 1.42 - 6.62	+1.73 - 20	+0.11	+0.8	-1.0	+0.06		
18.8 + 1.68 - 6.58	+2.70 - 12	+0.04	+1.2	-1.0			
19.2 + 1.83 - 6.66	+1.73 - 20	+0.11	+0.8	-1.0	+0.06		
19.5 + 1.25 - 6.63							
19.2 + 1.42 - 6.62							

$\eta =$ +60+80 +10+60 +20+110 +0+20 +0-20 -20-40 -40-60 -60-80 -80-100

RA $\sin \delta \cos \delta$ tang R_{eq} R_{p} $P^1 P$ R_{eq} R_{p} R_{eq} R_{p}
 19 14 -19 .98 + 1.33 +7 46.0 +0.7 +46.7 -0.4 +46.3
 19 19 +64.76 + .05 45.5 -0.5 45.0 +1.0 46.0
 19 33 -13 .99 + 1.19 45.6 +1.3 46.9 -0.2 46.7
 19 40 +09 .100 + .75 45.8 +0.2 46.0 +0.2 46.2
 19 41 -04 .100 + .99 46.2 +0.4 46.6 -0.1 46.5
 19 44 +53 .82 + .15 - - -0.2 + (5) 45.94 45.94

RA $\sin \delta \cos \delta$ tang R_{eq} R_{p} $P^1 P$ R_{eq} R_{p} R_{eq} R_{p}
 19 18 -51.86 + 3.29 + 2. - +0.1
 19 52 -73.68 + 53.44 48.1 -0.4 +47.7 -13 +46.4
 (1) 46.40 46.40

+64 +44.0 + .7

+0.9 +44.0 -19 +46.7

-73 +47.7

+64 +45.0 + 1.1

+0.9 +46.0 -12 +46.7

-73 +47.7

+7 46.03 +46.1

+44.2 +46.5

-1.3 +46.4

46.02(6) .61

+42 19.5

6.4

- .1

+1.8 - .5

- .4

19 3 +11.99 + .72 +7 - - -0.8
 19 12 +51.86 + .20 - - -0.3
 19 19 +64.76 + .05 44.5 -0.5 +44.0 +1.0 +45.0
 19 33 -13 .99 + 1.19 - - -1.3
 19 40 +09 .100 + .75 46.0 +0.2 46.2 +0.2 46.4
 19 41 -04 .100 + .99 46.2 +0.4 46.6 -0.1 46.5
 (3) 45.97 45.97

19 18 -51.86 + 3.29 + 2. 46.4 +0.1 +46.5 -0.8 +45.7
 19 45 -89 .85 - 3.55 44.4 +0.6 +43.8 +5.0 -19 41.90
 19 49 -16 .88 + 2.75 46.3 +0.8 47.1 -0.7 46.4
 19 52 -73.68 + 53.44 45.2 -0.4 44.8 -13 44.5
 +6 45.8
 (3) 45.53 45.53

1.64 +44.0

+0.9 +46.2 -0.4 +46.6

-51 +46.5 -73 +44.8 -89 +45.0

+7 45.87 +64 +44.0

+0.9 +46.2 -0.4 +46.6

-46 +47.1 -48 +46.8 -73 +44.8 -89 +45.0

45.75 + 1.1

+ .2 - .1

- .8 - 1.4

+45.1

+46.4 +46.5

+46.0 +43.4

(6) .51

6.4 6.5

12.0 3.4

+ .2

- .8 - .9

- .4 + 2.2

20 18 +04 .100 + .83 +4 - - -0.2
 20 37 -64 .100 + 1.20 51.7 +0.2 +51.7 -0.1 +51.6
 20 41 +45 .89 + .28 51.2 -0.2 51.0 +0.8 51.8
 20 42 -25 .97 + 1.55 52.0 +0.2 52.2 -0.5 53.7
 22 15 +51 .86 + .20 51.4 +0.2 51.6 +1.0 52.6
 22 18 -16 .99 + 1.26 52.8 +0.2 52.6 -43 52.3
 22 26 -63 .99 + 1.18 52.4 +0.6 52.4 -43 52.1
 22 37 +22 .97 + .57 48.6 -0.2 48.4 +0.4 48.8
 22 38 +02 .100 + .87 52.8 -0.5 52.8 +0.0 52.8
 22 40 +33 .94 + .42 52.0 -0.4 +52.0 +0.7 52.7
 22 52 +01 .100 + .89 53.0 +0.5 53.5 +0.0 53.5
 22 58 +47 .88 + .26 53.0 -0.6 52.4 +0.9 53.3
 (10) 52.64 52.64

20 33 -53.84 + 3.61 + 1. 53.1 +0.6 +53.7 -1.0 +52.7
 22 24 -85.47 - 4.13 55.2 +0.6 +55.8 -2.0 56.6
 22 32 -51.86 + 3.27 53.4 +0.8 54.2 -1.0 53.2
 22 45 -39 .92 + 2.20 52.5 +1.0 53.5 -0.8 52.7
 22 49 -86 .50 - 4.89 56.4 +0.7 57.0 -2.0 56.6
 55.6

+45 +51.0 +22 +45.4 +0.2 +52.8 -0.4 +51.7 -25 +54.2 -53 +53.7

-88 +55.8

+51 +51.6 +33 +52.0 +0.1 +53.5 -1.6 +52.6 -39 +53.5 -51 +54.2

-86 +57.0

+47 +52.4 -13 +52.4

+4.8 +51.7 +27 +52.2 +0.1 +53.1 -1.1 +52.2 -32 +53.8 -52 +53.9

-87 +56.4

+ .9 + .6 0 - .2 - .7 - 1.0

+52.6 +50.8 +53.1 +52.0 +53.1 +52.9

(14) 7.8 1.2 6.2 6.2 6.2 5.8

- .2 + 1.6 - .7 + .4 - .7 - .5

Star	RA	S	long.	T.Ra	P.O.	T.Ra (P.O.)
1872	h = -0.19 -0.16					
10	20.74	15	+13	0 = -20.72	+0.02	-20.74 + 0.01
11	20.98	17	+56	-20.98	-0.05	20.93 + 0.04
14	20.97	22	+26	-20.97	+0.06	21.03 + 0.02

Star	RA	S	long.	T.Ra	P.O.	T.Ra (P.O.)
0.9	+13	10	+54	-20.50	+0.00	-20.50
1.4	+26	12	+192	-20.50	+0.00	-20.50
1.1	+19	13	+241	-21.10	+0.00	-21.10
1.1	+56	15	+315	-21.14	+0.01	-21.13
		2.3	+234	-21.00	+0.02	-20.98
		2.4	+9.12	-21.25	+0.02	-21.23

Star	RA	S	long.	T.Ra	P.O.	T.Ra (P.O.)
1872	h = -0.22 -0.15					
10	20.74	15	+13	0 = -20.72	+0.02	-20.74 + 0.01
11	20.98	17	+56	-20.98	-0.05	20.93 + 0.04
14	20.97	22	+26	-20.97	+0.06	21.03 + 0.02

Star	RA	S	long.	T.Ra	P.O.	T.Ra (P.O.)
10	20.74	15	+13	0 = -20.72	+0.02	-20.74 + 0.01
11	20.98	17	+56	-20.98	-0.05	20.93 + 0.04
14	20.97	22	+26	-20.97	+0.06	21.03 + 0.02

Star	RA	S	long.	T.Ra	P.O.	T.Ra (P.O.)
10	20.74	15	+13	0 = -20.72	+0.02	-20.74 + 0.01
11	20.98	17	+56	-20.98	-0.05	20.93 + 0.04
14	20.97	22	+26	-20.97	+0.06	21.03 + 0.02

Star	RA	S	long.	T.Ra	P.O.	T.Ra (P.O.)
10	20.74	15	+13	0 = -20.72	+0.02	-20.74 + 0.01
11	20.98	17	+56	-20.98	-0.05	20.93 + 0.04
14	20.97	22	+26	-20.97	+0.06	21.03 + 0.02

Star	RA	S	long.	T.Ra	P.O.	T.Ra (P.O.)
10	20.74	15	+13	0 = -20.72	+0.02	-20.74 + 0.01
11	20.98	17	+56	-20.98	-0.05	20.93 + 0.04
14	20.97	22	+26	-20.97	+0.06	21.03 + 0.02

Star	RA	S	long.	T.Ra	P.O.	T.Ra (P.O.)
10	20.74	15	+13	0 = -20.72	+0.02	-20.74 + 0.01
11	20.98	17	+56	-20.98	-0.05	20.93 + 0.04
14	20.97	22	+26	-20.97	+0.06	21.03 + 0.02

Star	RA	S	long.	T.Ra	P.O.	T.Ra (P.O.)
10	20.74	15	+13	0 = -20.72	+0.02	-20.74 + 0.01
11	20.98	17	+56	-20.98	-0.05	20.93 + 0.04
14	20.97	22	+26	-20.97	+0.06	21.03 + 0.02

$\lambda =$ +60+80 +140+60 +20+140 +0+20 +0-20 -20-140 -140-60 -60-80 -80-100

RA	lim	cor	Tang	R _g -R _p	P-D	R _g -R _p	R _g	RA	lim	cor	Tang	R _g -R _p	P-D	R _g -R _p	R _g
345	0	56	+58.81	+13	+4	50.3	+0.3	1	1	-60	80	+5.14	+0.6	+4	52.0
19	1	4	+22.94	+56		52.2	+0.2	1	12	-92	38	+2.81	-0.3	+1	52.5
346	1	24	+46.88	+26		51.5	-0.2	1	16	-42	80	+2.41	+0.5		52.3
347								1	24	-50	86	+3.15	+0.7		51.1
36								2	18	-111	91	+2.34	+0.7		52.3
459								12	9	-86	50	-4.76	+0.7		54.9
38								2	25	-50	86	+3.12	+0.3		53.2

(3) 52.33 52.23

(6) 51.60 51.60

+58 +50.6 +22 +52.4
 +46 +51.3

-60 +52.6 -72 +52.2 -86 +53.6
 -12 +52.8
 -50 +51.8
 -111 +53.0
 -50 +53.5

+52 +50.9 +22 +52.4
 +1.1 +.5
 +52.0 +52.9
 4.0 2.9
 +.3 -.6

-49 +52.8 -72 +52.2 -86 +53.6
 -1.6
 +52.6 +50.6
 13.0 0.6
 -3 +1.7

+4 52.33
 51.24 (9)

510	20	42	-25.97	+1.55	+4	51.0	+0.2	2	+51.2	-0.6	+50.6
418	20	49	+26.46	+52		52.0	+0.1	52.1	+0.6	52.7	
308	21	10	+09.100	+77		52.2	+0.7	50.9	+0.3	51.2	
525	21	16	-31.94	+1.89		52.2	+1.0	53.2	-0.8	52.4	
325	21	32	+01.100	+83		52.4	-0.6	57.8	+0.1	51.9	
433	22	37	+22.97	+57		50.0	-0.2	49.8	+0.5	50.3	
338	22	40	+33.94	+42		52.6	-0.2	+50.6	+0.7	51.3	
340	22	56	+01.100	+89		51.4	+0.5	51.9	+0.0	51.9	
	22	58	+47.88	+26		51.9	-0.6	57.3	+1.0	52.3	
	0	12	+79.4	+17		51.4	+0.1	51.5	+1.8	53.3	
	0	25	-31.94	+1.90		53.7	-0.3	53.4	-0.8	52.6	
	0	31	+21.97	+55		52.2	-0.2	52.0	+0.5	52.5	
	0	33	-23.97	+1.47		52.8	+0.6	53.4	-0.5	52.9	
	0	41	-25.97	+1.55		51.2	+0.8	52.0	-0.6	51.4	

(14) 51.95 51.95

(5) 51.22 51.22

+79 +51.5 +47 +51.3
 +22 +49.8 +0.1 +51.8
 +33 +52.6 +0.1 +51.9
 +22 +52.0

-25 +51.2 -58 +51.6 -80
 -31 +53.2 -116 +51.4
 -34 +53.4 -51 +52.0
 -23 +53.4 -53 +52.2
 -25 +52.0
 -29 +52.4
 -30 +52.6 -52 +52.8

-92 +53.8
 -56 +52.7
 -59 +55.3

+79 +51.5 +47 +51.3 +26 +51.1 +0.5 +50.6
 +1.7 +1.0 +.6 +.1
 51.75 +53.2 +52.3 +57.7 +57.3
 51.76 (9) 3.2 2.3 6.8 4.5
 -1.5 -.6 0 +.1

-7 -1.1
 +51.96 +51.2
 11.4 4.8
 -.2 +.5

321	22	10	+77.63			+4	49.6	+0.5	50.1	+1.8	+51.9
150	22	15	+57.86				49.4	+0.2	49.6	+1.1	50.7
525	22	18	-10.99				49.7	+0.2	50.2	-0.4	49.8
325	22	37	+22.97				50.2	-0.2	50.0	+0.5	50.5
433	22	38	+02.100				-	-0.8			
338	22	40	+33.94				49.6	-0.2	49.6	+0.8	50.4
5	22	56	+01.100				50.4	+0.5	50.9	+0.0	50.9
171	22	58	+47.88				50.3	-0.6	49.7	+1.0	50.7
340	0	12	+79.61				48.6	+0.1	48.7	+1.8	50.5
	0	31	+21.97				52.0	-0.2	49.8	+0.5	50.3
	0	33	-23.97				50.7	+0.6	51.3	-0.5	50.8
	0	41	-25.97				50.6	+0.8	51.4	-0.6	50.8

(11) 50.66 50.66

(6) 51.23 51.23

residuals -.3 +.2 +.4
 +79 +50.1 +51 +49.6 +22 +50.0 +1.1
 +79 +48.7 +47 +49.7 +33 +49.6
 +24 +49.8

-.4 -.2
 -16 +50.2 -23 +51.3 -19 +51.2
 -25 +51.4 -51 +52.3
 -39 +52.3 -56 +51.4
 -34 +52.8 -53 +53.7
 -30 +51.9 -52 +52.1
 -1.1

-88 +54.11
 -86 +52.5
 -92 +51.0
 -89 +53.0

+4 50.82
 50.82
 +78 +49.4 +49 +49.6 +26 +49.8
 +1.0 +.6

1872	Nov. 19	h = -30° - 020'	m = +22° - 00'	1872	Nov. 19	h = -30° - 020'	m = +22° - 00'
Star	RA	S	Tang.	P.Ra	P.P	P.Ra	P.P
20.8 +8 20 49	507	+0.52	0 = -24.11	+0.04	-24.17	+0.04	-24.17
21.0 6 21 1	302	+0.78	-24.12	+0.04	-24.16	+0.04	-24.16
21.2 4 21 10	305	+0.77	-24.20	+0.05	-24.25	+0.05	-24.25
21.00 21 16	306	+1.89	-24.54	+0.01	-24.55	+0.01	-24.55
21.5 7 21 32	514	+0.83	-24.18	+0.06	-24.24	+0.06	-24.24
21.6 +0 21 35	515	+1.53	-24.35	-0.08	-24.27	-0.08	-24.27
21.7 -1 21 42	517	+1.44	-24.32	+0.04	-24.36	+0.04	-24.36
21.9 3 21 55	519	+0.22	-24.16	+0.07	-24.16	+0.07	-24.16
22.0 4 21 59	311	-0.02	-24.04	+0.02	-24.00	+0.02	-24.00
22.1 5 22 04	315	+0.64	-24.17	+0.04	-24.21	+0.04	-24.21
22.2 -6 22 10	522	-0.15	-24.68	-0.03	-24.05	-0.03	-24.05
21.86 21.60							
20.8 +1.2 -24.14	20.5 +3.61 -24.63	-0.4 -24.67	-0.3 -24.66	21.4 -2.81 -23.56	-0.1 -23.57	+1.00 -23.56	
21.9 +2.2 -24.16	20.9 +5.72 -25.77	-0.2 -25.79	-0.2 -25.79	21.8 -3.37 -23.39	+0.0 -23.39	+0.01 -23.38	
22.0 -0.2 -24.06	21.1 +6.35 -25.12	-0.2 -25.14	-0.1 -25.13				
22.2 -1.5 -24.05	21.4 +2.75 -24.80	-0.1 -24.81	-0.0 -24.80				
21.7 +1.4 -24.11	21.7 +2.86 -24.64	+0.0 -24.64	+0.1 -24.63				
21.3 +1.5 -24.55	22.0 +1.89 -24.42	+0.1 -24.41	+0.1 -24.41				
21.6 +1.3 -24.37	22.1 +3.02 -24.76	+0.1 -24.75	+0.2 -24.74				
21.7 +1.14 -24.36							
21.5 +1.52 -24.39							
n = +20 +0.1	0 = +3.47 -56 n = +16	+30	+23	0 = +2.09 -27 n = +13	+33	+24	
	+5.68 -1.68	+23	+23	+4.20 -1.40	+33	+24	
	+4.41 -1.03	+23	+23	+3.03 -1.74	+24	+24	
	+2.01 -1.70	+23	+23	+1.23 -1.41	+33	+24	
	+2.82 -5.3	+20	+18	+1.34 -2.4	+18	+18	
	+1.71 -30	+18	+18	+1.37 -0.2	+05	+05	
	+2.68 -64	+22	+22	+1.50 -3.5	+23	+23	
	+1.22 -20	+22	+22	+2.40 -2.88	+24	+24	
22.2 +1.0 22 15	523	+0.20	-24.79	+0.04	-24.83	+0.04	-24.83
22.3 +1.9 22 18	524	+1.26	-25.04	+0.04	-25.08	+0.04	-25.08
22.4 +1.8 22 26	319	+1.18	-24.86	+0.15	-25.01	+0.15	-25.01
22.6 +0.6 22 37	322	+0.57	-24.96	+0.01	-24.97	+0.01	-24.97
22.42 22.6 22 38	528	+0.87	-25.49	+0.03	-25.54	+0.03	-25.54
22.7 +0.5 22 40	323	+0.42	-24.88	+0.05	-24.93	+0.05	-24.93
22.9 +0.3 22 56	327	+0.89	-24.60	+0.04	-24.94	+0.04	-24.94
23.0 +0.2 22 58	329	+0.26	-24.89	+0.00	-24.89	+0.00	-24.89
24.0 -0.8 0 1	1	+0.34	-24.94	+0.03	-24.97	+0.03	-24.97
24.3 -0.9 0 3	337	+1.01	-25.14	-0.03	-25.11	-0.03	-25.11
24.2 -1.0 0 12	4	-0.17	-24.79	+0.01	-24.80	+0.01	-24.80
24.5 -1.3 0 31	8	+0.53	-24.98	+0.01	-24.99	+0.01	-24.99
23.7 24.6 -1.4 0 33	10	+1.47	-25.17	+0.00	-25.17	+0.00	-25.17
23.1 23.25							
22.3 +2.0 -24.33	22.1 +3.02 -25.31	-0.3 -25.34	-0.4 -25.35	22.8 -4.89 -24.16	-0.1 -24.17	-0.02 -24.18	
22.7 +4.0 -24.93	22.5 +3.27 -25.65	-0.2 -25.67	-0.3 -25.68	0.1 -4.84 -24.44	+0.4 -24.40	+0.3 -24.41	
22.9 +2.6 -24.89	22.8 +2.80 -25.27	-0.1 -25.28	-0.2 -25.29	0.5 -2.82 -24.43	+0.5 -24.38	+0.04 -24.39	
0.2 -1.7 -24.80	0.1 +4.08 -25.57	+0.4 -25.47	+0.3 -25.48				
23.0 +1.8 -24.88	0.4 +1.40 -25.17	+0.5 -25.12	+0.4 -25.13				
22.6 +2.9 -24.88	0.6 +3.56 -25.55	+0.5 -25.50	+0.4 -25.51				
22.3 +1.26 -25.08	0 = +2.84 -0.48 n = +17	+26	+26	0 = +1.79 -2.6 n = +20	+29	+29	
22.4 +1.18 -25.01	+3.09 -0.81	+26	+26	+2.09 -0.59	+29	+29	
0.1 +1.01 -25.11	+2.02 -0.43	+21	+21	+0.97 -0.20	+21	+21	
22.5 +1.87 -25.17	+3.90 -1.01	+16	+16	+3.85 -0.39	+10	+10	
23.3 +1.23 -25.09	+1.72 -0.26	+15	+15	+0.67 -0.04	+06	+06	
	+3.38 -0.64	+19	+19	+2.33 -0.42	+18	+18	
		+190	+190		+196	+196	
Nov. 17	0 = +2.99 +6.3 n = +21	+25	+25	0 = -4.16 +1.14 n = +27	+20	+20	
	+3.24 -0.82	+25	+25	-4.92 +1.02	+20	+20	
	+2.17 -0.39	+18	+18	-2.85 +0.46	+16	+16	
	+4.05 -0.99	+25	+25		+210	+210	
	+1.87 -0.44	+23	+23				
	+3.85 -0.73	+21	+21				
		+220	+220				
	0 = +1.59 -0.34	+21	+21	0 = -5.10 +1.43 n = +26	+20	+20	
	0 = +1.84 -0.33	+28	+28	-6.32 +1.29	+20	+20	
	+0.77 -0.10	+13	+13	-4.25 +0.71	+17	+17	
	+2.60 -0.70	+26	+26		+210	+210	
	+0.97 -0.14	+30	+30				
	+2.12 -0.44	+20	+20				

1872	Nov. 21	h = -0.32 + 0.18 = -0.14 + 24.0 = 0.0	1872	Nov. 21	h = -0.32 + 0.18 = -0.14 + 24.0 = 0.0
RA	Dec	RA	Dec	RA	Dec
20.7 + 0.7 20 41	296 + 0.28 0 = -25.60 + 1.14 - 25.74 + 0.01 - 25.67 25.66	20.8 + 0.6 20 49	507 + .52 - 25.72 + 0.06 - 25.78 + 0.12 + 0.01 - 25.66 .65	21.0 + 0.4 21 1	302 + .78 - 25.86 + 0.04 - 25.90 + 0.19 + 0.01 - 25.71 .70
21.2 + 2.2 21 10	305 + .77 - 25.87 + 0.08 - 25.93 + 0.18 + 0.00 - 25.75 .75	21.7 - 3.2 21 42	517 + 1.14 - 25.84 + 0.04 - 25.88 + 0.27 - 0.01 - 25.61 .62	21.9 + 5.2 21 53	519 + .22 - 25.75 + 0.02 - 25.75 + 0.05 - 0.01 - 25.70 .71
21.9 + 5.2 21 53	311 - .02 - 25.87 + 0.02 - 25.89 + 0.00 - 0.01 - 25.69 .70	22.0 6 21 59	315 + .64 - 25.83 + 0.04 - 25.87 + 0.15 - 0.01 - 25.72 .73	22.1 - 7 22 04	21.8 3.37 - 24.88 + 0.01 - 24.87 + 0.02 - 24.85
22.1 - 7 22 04	21.8 3.37 - 24.88 + 0.01 - 24.87 + 0.02 - 24.85	22.2 11 22 04	21.8 3.37 - 24.88 + 0.01 - 24.87 + 0.02 - 24.85	22.3 11 22 04	21.8 3.37 - 24.88 + 0.01 - 24.87 + 0.02 - 24.85
22.3 11 22 04	21.8 3.37 - 24.88 + 0.01 - 24.87 + 0.02 - 24.85	22.4 11 22 04	21.8 3.37 - 24.88 + 0.01 - 24.87 + 0.02 - 24.85	22.5 11 22 04	21.8 3.37 - 24.88 + 0.01 - 24.87 + 0.02 - 24.85
22.6 11 22 04	21.8 3.37 - 24.88 + 0.01 - 24.87 + 0.02 - 24.85	22.7 11 22 04	21.8 3.37 - 24.88 + 0.01 - 24.87 + 0.02 - 24.85	22.8 11 22 04	21.8 3.37 - 24.88 + 0.01 - 24.87 + 0.02 - 24.85
22.9 11 22 04	21.8 3.37 - 24.88 + 0.01 - 24.87 + 0.02 - 24.85	23.0 11 22 04	21.8 3.37 - 24.88 + 0.01 - 24.87 + 0.02 - 24.85	23.1 11 22 04	21.8 3.37 - 24.88 + 0.01 - 24.87 + 0.02 - 24.85
23.2 11 22 04	21.8 3.37 - 24.88 + 0.01 - 24.87 + 0.02 - 24.85	23.3 11 22 04	21.8 3.37 - 24.88 + 0.01 - 24.87 + 0.02 - 24.85	23.4 11 22 04	21.8 3.37 - 24.88 + 0.01 - 24.87 + 0.02 - 24.85
23.5 11 22 04	21.8 3.37 - 24.88 + 0.01 - 24.87 + 0.02 - 24.85	23.6 11 22 04	21.8 3.37 - 24.88 + 0.01 - 24.87 + 0.02 - 24.85	23.7 11 22 04	21.8 3.37 - 24.88 + 0.01 - 24.87 + 0.02 - 24.85
23.8 11 22 04	21.8 3.37 - 24.88 + 0.01 - 24.87 + 0.02 - 24.85	23.9 11 22 04	21.8 3.37 - 24.88 + 0.01 - 24.87 + 0.02 - 24.85	24.0 11 22 04	21.8 3.37 - 24.88 + 0.01 - 24.87 + 0.02 - 24.85
24.1 11 22 04	21.8 3.37 - 24.88 + 0.01 - 24.87 + 0.02 - 24.85	24.2 11 22 04	21.8 3.37 - 24.88 + 0.01 - 24.87 + 0.02 - 24.85	24.3 11 22 04	21.8 3.37 - 24.88 + 0.01 - 24.87 + 0.02 - 24.85
24.4 11 22 04	21.8 3.37 - 24.88 + 0.01 - 24.87 + 0.02 - 24.85	24.5 11 22 04	21.8 3.37 - 24.88 + 0.01 - 24.87 + 0.02 - 24.85	24.6 11 22 04	21.8 3.37 - 24.88 + 0.01 - 24.87 + 0.02 - 24.85
24.7 11 22 04	21.8 3.37 - 24.88 + 0.01 - 24.87 + 0.02 - 24.85	24.8 11 22 04	21.8 3.37 - 24.88 + 0.01 - 24.87 + 0.02 - 24.85	24.9 11 22 04	21.8 3.37 - 24.88 + 0.01 - 24.87 + 0.02 - 24.85
25.0 11 22 04	21.8 3.37 - 24.88 + 0.01 - 24.87 + 0.02 - 24.85	25.1 11 22 04	21.8 3.37 - 24.88 + 0.01 - 24.87 + 0.02 - 24.85	25.2 11 22 04	21.8 3.37 - 24.88 + 0.01 - 24.87 + 0.02 - 24.85
25.3 11 22 04	21.8 3.37 - 24.88 + 0.01 - 24.87 + 0.02 - 24.85	25.4 11 22 04	21.8 3.37 - 24.88 + 0.01 - 24.87 + 0.02 - 24.85	25.5 11 22 04	21.8 3.37 - 24.88 + 0.01 - 24.87 + 0.02 - 24.85
25.6 11 22 04	21.8 3.37 - 24.88 + 0.01 - 24.87 + 0.02 - 24.85	25.7 11 22 04	21.8 3.37 - 24.88 + 0.01 - 24.87 + 0.02 - 24.85	25.8 11 22 04	21.8 3.37 - 24.88 + 0.01 - 24.87 + 0.02 - 24.85
25.9 11 22 04	21.8 3.37 - 24.88 + 0.01 - 24.87 + 0.02 - 24.85	26.0 11 22 04	21.8 3.37 - 24.88 + 0.01 - 24.87 + 0.02 - 24.85	26.1 11 22 04	21.8 3.37 - 24.88 + 0.01 - 24.87 + 0.02 - 24.85
26.2 11 22 04	21.8 3.37 - 24.88 + 0.01 - 24.87 + 0.02 - 24.85	26.3 11 22 04	21.8 3.37 - 24.88 + 0.01 - 24.87 + 0.02 - 24.85	26.4 11 22 04	21.8 3.37 - 24.88 + 0.01 - 24.87 + 0.02 - 24.85
26.5 11 22 04	21.8 3.37 - 24.88 + 0.01 - 24.87 + 0.02 - 24.85	26.6 11 22 04	21.8		

$\mu =$ $+60+80$ $+140+60$ $+20+40$ $+0+20$ $+0-20$ $-20-110$ $-40-60$ $-60-80$ $-80-100$

RA	int	cos δ	tang δ	Ry	Rz	P-P	Reg-P	Rz	Ry	RA	int	cos δ	tang δ	Ry	Rz	P-P	Reg-P	Rz	Ry
20 41	+15.89	+0.28	+4	48.8	-0.2	+48.6	+10	+48.6		20 53	-61.79	+5.72	+4	49.8	+0.1	+50.2	-14	+48.8	
20 49	+26.96	+52		46.6	+0.1	46.7	+0.6	47.3		21 8	-58.81	+4.55	-	-	+0.9				
21 1	+0.7	1.00	+78	31.4	+0.1	31.5	+0.2	31.7		21 40	-48.87	+2.86		50.5	+0.8	51.3	-1.1	50.2	
21 10	+0.4	1.00	+77	49.0	+0.4	49.7	+0.2	49.9		21 47	-52.85	+3.37		53.6	+0.6	54.2	-1.2	53.8	
21 42	-11.99	+1.14		49.8	+1.0	50.8	-0.3	50.5		22 1	-34.94	+1.89		50.6	+0.5	52.1	-0.8	50.3	
21 55	+50.86	+22		47.5	-0.4	47.1	+1.1	48.2		22 7	-49.87	+3.02		50.8	+0.9	51.7	-1.1	50.6	
21 59	+69.72	+02		47.3	-0.1	47.2	+1.6	48.8											
22 4	+17.98	+64		50.8	-0.9	49.9	+0.4	50.3											

(7) 49.23 49.55

(14) 50.22 50.22

+69	+47.2	+145	+48.0	+26	+46.7	+0.7	+31.5	-11	+50.8	-34	+52.1	-58	+56.2	-61	+50.2
+50	+47.1					+0.9	+49.7					-48	+51.3		
						+1.7	+49.9					-49	+51.7		
+69	+47.2	+117	+47.8	+26	+46.7	+1.1	+43.7	-11	+50.8	-34	+52.1	-40	+53.1	-61	+50.2
	+1.5		+1.0		+1.6		+3								
4' 50.04															
49.59	10	+48.71	+48.8	+47.3					+50.5	+57.4	+52.0	+48.9			
		48.7	97.6	47.3					50.5	51.4	45.6	48.9			
		+1.3	+1.2	+2.7					-1.5	-1.4	-2.0	+1.1			

21 32	+04.00	+83	+4	49.7	-0.6	+49.1	+0.1	49.2		21 23	-47.88	-2.81	+0	52.6	+0.1	+52.4	-11	51.4	
21 42	-11.99	+1.14		48.6	+1.0	49.6	-0.3	49.3		22 1	-34.94	+1.89		48.7	+1.5	50.2	-0.8	49.4	
21 55	+50.86	+22		48.7	-0.4	48.3	+1.1	48.4		22 7	-49.87	+3.02		49.0	+0.9	49.9	-1.1	48.8	
21 59	+69.72	+02		50.1	-0.1	50.0	+1.6	51.6		22 20	-88.46	-4.13		50.9	+0.6	50.5	-2.0	48.3	
22 4	+17.98	+64		49.9	-0.9	50.8	+0.4	51.2		23 23	-92.38	-2.75		52.2	+0.8	52.8	-2.0	49.2	
22 10	+77.63	+15		49.4	+0.5	49.9	+1.8	51.7		0 40	-30.95	+1.73		48.9	+0.7	49.6	-0.7	48.9	
22 15	+51.86	+20		49.4	+0.2	49.6	+1.2	50.8											
22 18	-16.99	+1.26		49.4	+0.2	49.6	-0.4	49.2											
22 26	-13	+1.18		50.9	+0.6	51.5	-0.3	51.2											
23 19	+34.94	+42		49.0	+0.2	49.2	+0.8	50.0											
0 56	+58.81	+13		48.2	+0.3	48.5	+1.3	49.8											
1 4	+22.97	+36		50.6	+0.2	50.8	+0.5	51.3											

(11) 50.32 50.32

(14) 49.62 49.68

+69	+50.0	+50	+48.3	+31	+49.2	+0.4	+49.1	-11	+49.6	-34	+50.2	-47	+52.7	-58	+51.5
+77	+49.9	+51	+49.6	+22	+52.8	+1.7	+50.8	-16	+49.6	-30	+49.6	-69	+49.9	-82	+52.8
		+58	+48.5					-8							
+73	+49.9	+53	+48.8	+28	+50.0	+1.0	+49.9	-13	+49.6	-32	+49.9	-48	+51.3	-90	+52.1
	+1.6		+1.2		+1.6		+1.2		-1.3		-1.9		-1.0		
+4 50.13		+51.5	+50.0	+50.6	+50.1	+49.3	+49.2	+50.8							
50.11	(15)	103.0	150.0	101.5	100.3	98.6	98.4	100.6							
		-64	+1	-5	0	+8	+9	-2							

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