

KG  
11366  
v. 474

General Catalogue  
Observations & Reductions  
from 18<sup>h</sup> 49<sup>m</sup> 1874-5  
to 22<sup>h</sup> 17<sup>m</sup>



1874phae.proj.1418.  
G.L. 1874 5  
Observations & Reductions

From <sup>h m</sup> 1849 to 22 <sup>h m</sup> 22

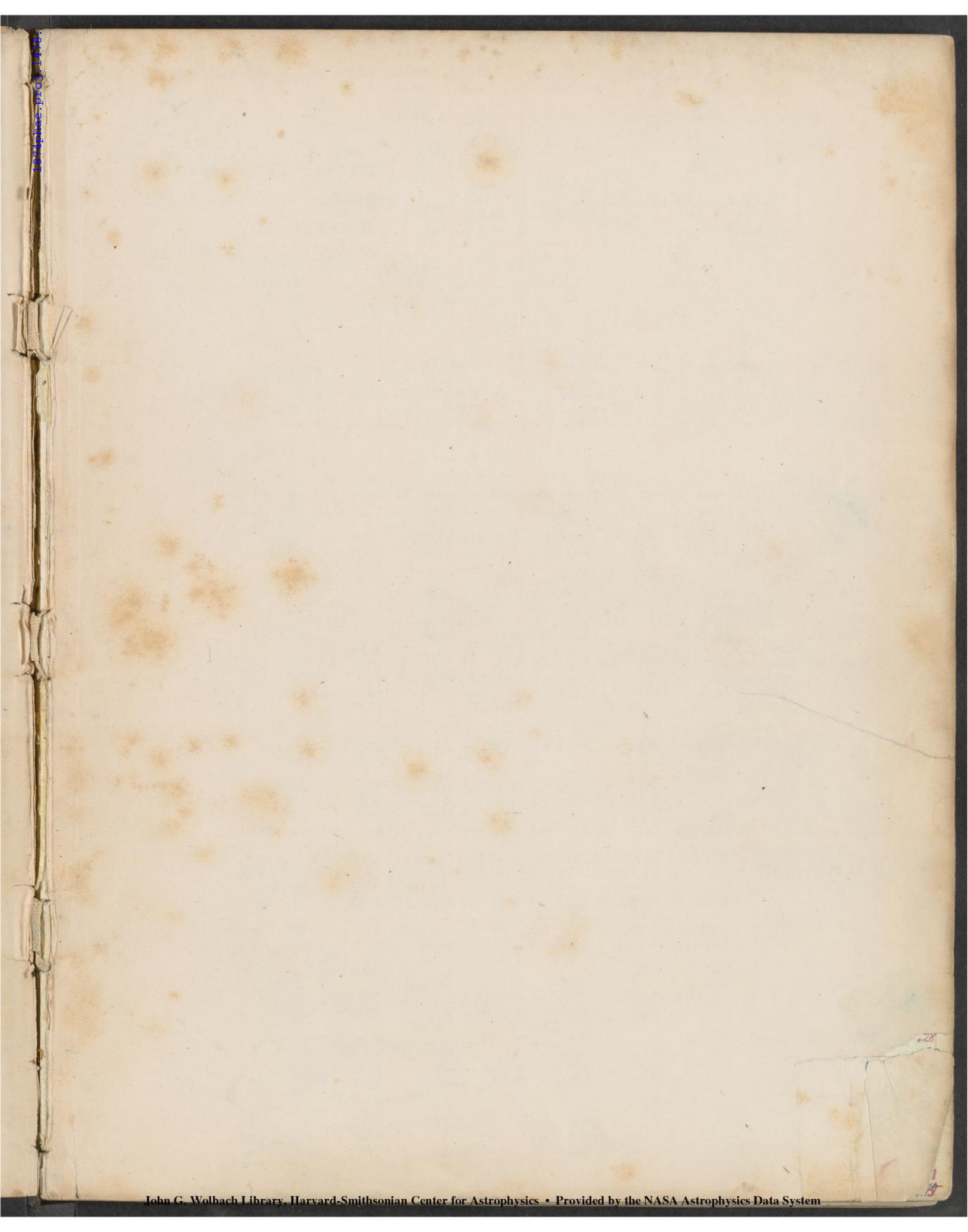


















$\lambda$  Ursa Minor  
19 49 19  
+88° 55'

$\delta = -46.32$

$\sin \delta = -702$

$\cos \delta = 69.13$

1874  
Aug. 25

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$\cos \delta$

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15.23  
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15.94  
16.87  
14.43

15.431  
18.955  
- 3.524

42.70

13.33  
12.24  
13.81  
15.53  
12.27  
14.37  
13.86

13.630  
18.506  
+ 1.24  
- 4.876

51.97

Sept 14

Sept 28

Oct 4

Oct 18

559 51 52 19.4 51 52 19.4 51 52 19.4 51 52 19.4  
538 52 46.0 52 32.8 52 32.8 52 32.8 52 32.8 52 32.8  
551 53 36.9 53 31.1 53 31.1 53 31.1 53 31.1 53 31.1

5410 51 10.10 49 50 40.30 49 40.60 50 40.70 49 40.60 50 40.70 49 40.60 50 40.70  
49 53.99 52 19.40 49 53.99 51 42.35 49 53.99 51 42.35 49 53.99 51 42.35  
49 1.80 49 1.80 49 1.80 49 1.80 49 1.80 49 1.80 49 1.80  
+ 52.19 - 29.60 + 6.83 - 43.52 - 22.59 + 6.25 - 48.14 - 16.67  
- 29.61 - 26.35 - 43.51 - 22.48 + 40.57 - 17.05 + 53.07  
+ 1.89 13.98 + 33.28 + 40.57 14.25 + 53.07 14.24  
49 41.72 49 41.72 49 41.72 49 41.72 49 41.72 49 41.72 49 41.72  
49 53.99 49 53.99 49 53.99 49 53.99 49 53.99 49 53.99 49 53.99  
49 12.27 16.83 49 14.37 19.23 49 13.86 20.16  
3 -16 14.18 -16 13.39 -16 14.07  
+ 1.9 + 1.9 + 1.9  
- 12.80 - 16.40 - 17.20  
55 51.75 55 51.34 55 50.79

- 75.30 - 144.60 - 50.40 - 120.50 - 60.10 - 121.75 + 210.99 - 14.01  
10 - 26.66 10 - 28.0 10 - 28.5  
1 22.1 1 24.9 1 31.1 1 23.9 1 19.1 1 20.3 1 16.2 1 22.7  
43.6 46.6 45.8 46.5 41.6 43.4 35.1 41.4  
65.7 71.5 68.4 70.4 60.7 63.7 51.3 63.8  
11 32.85 11 35.75 11 34.20 11 35.20 11 30.35 11 31.85 11 25.65 11 31.70  
1.87679m 2.16017m 1.70243m 2.08089m 1.77887m 2.08547m 2.32412m 1.14644m  
0.27174m 0.55512m 0.09738m 0.47544m 0.17382m 0.48042m 0.72625m 0.57857m  
11 1.87 11 3.59 11 1.25 11 2.99 11 1.49 11 3.02 11 5.33 11 8.35  
11 30.78 11 32.16 11 32.95 11 32.21 11 28.86 11 28.83 11 30.97 11 30.50  
11 17.37 11 16.19 11 15.90 11 16.14 11 19.49 11 19.52 11 17.88 11 17.80  
16.78 17.57 32 22 32 16

1.78156 1.78156 1.77843 1.77843 1.79944 1.79944  
+ 60.47 + 60.47 + 60.04 + 60.04 + 63.01 + 63.01  
- 8 (-57) 20 - 4 (-31) 15 - 45 (-44) 0  
- 22 - 22 - 21 - 22  
+ 60.17 + 60.03 + 62.35 + 62.06  
12 1.754 16.22 19.24 19.19 19.73 20.59  
13.8 12.5 12.0 11.9 11.6 12.5  
13.1 85 52.35 11.6 51.46 11.6 50.38  
- 16 14.39 23.9 51.03 - 13.42 51.38 - 14.20 12.15 51.24  
+ 1.91 + 2.01 11.24 + 2.05  
- 16 25.19 51.69 - 16.40 51.42 - 17.20 50.81  
24.81 29.85



*Dracopis*  
 h m sec  
 20 0 7  
 +64° 28'  
 -22° 5'  
 long = -38

1874  
 1  
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 9  
 10  
 11  
 12

1 sin 9.95537

1 cos 9.63451  
 1 tan 10.600  
 1 cot 9.74051

1 sec 9.73911

1875  
 0 8.90  
 28 17.41  
 +0.650  
 +1000

9.63451  
 12.552  
 9.76003

con h =  
 con d =  
 tang d = +2.09  
 I = 4.78  
 K = -.035

1874	1874	1874	1874	1874	1875
Aug. 31	Sept. 9	Sept. 12	Sept. 14	Oct. 3	Sept. 9
0 -1.80 0 0.0 59 32.0 2.6 37.8 4.9 41.2 7.4 9.5 12.0 14.8 0 31.0 16.8 36.0 19.2 39.6	0 -4.80 0 5.9 59 31.2 8.4 37.7 10.9 42.0 13.2 15.8 18.0 20.3 0 36.1 22.5 39.7 25.1 45.6	0 -4.40 0 9.0 59 36.1 11.4 41.4 13.5 45.6 16.0 18.6 21.0 23.2 0 26.9 26.0 28.2	0 -4.65 0 9.2 59 32.5 11.5 38.0 14.0 41.0 16.4 18.9 21.3 23.8 0 27.2 26.2 31.0 28.6 35.4	0 -2.76 0 13.2 59 40.0 15.3 45.1 17.8 49.0 20.3 22.7 25.0 27.6 0 34.5 29.5 37.9 32.3 41.6	0 -5.44 0 2.9 59 54.0 30.3 58.2 32.3 28 34.8 37.0 39.4 42.2 0 48.4 44.8 52.5 46.9 56.3
86.9 59 37.0 9.655 0 35.13 9.620	140.1 59 36.96 15.567 0 46.80 15.532	166.9 59 41.16 18.544 0 26.90 18.509	169.9 59 37.16 18.878 0 31.20 18.843	204.0 59 44.70 32.667 0 38.00 22.632	33.59 59 57.67 37.322 0 52.50 37.287
+ 1.56 - 1.00 - 2.10 - 1.54 0 9.62 0 8.08 0 8.73	- 4.44 - 8.4 - 1.48 - 7.36 0 15.53 0 8.17 8.82	- 7.55 - 9.9 - 1.06 - 1.01 0 18.51 0 8.31 8.96	- 8.21 - 9.7 - 1.54 - 10.45 0 18.84 0 8.09 8.74	- 13.23 - .58 - 0.00 - 14.57 0 22.63 0 8.12 8.77 8.154	- 2.513 - 1.20 - 1.824 - 28.20 0 37.29 0 9.09 9.09

55	55	55	55	55	55	35	35
+32.65	-25.48	+38.61	-25.23	+37.38	-8.36	+41.72	-12.32
-2.20	-2.30	-2.33	-2.34	-2.41	-2.40	-2.41	-2.40
1 37.3	2 9.7	1 31.4	2 7.1	1 34.3	1 58.5	1 28.9	1 59.5
46.9	18.7	42.3	17.0	44.8	10.3	40.4	10.3
84.2	28.4	73.7	24.1	79.1	12.88	69.3	12.98
x36 42.10	57.2 14.20	56.4 36.85	57.2 12.05	56.4 39.55	57.2 4.40	56.4 34.65	57.2 4.90
1.51388	1.40620	1.58640	1.40193	1.57264	0.92221	1.62032	1.09061
1.25439	1.14671	1.32721	1.14244	1.31175	0.66132	1.35743	0.83972
+1.796	-1.405	+2.124	-1.388	+2.050	-4.58	+2.288	-6.76
87 0.06	57 0.15	56 57.07	56 57.17	57 0.05	56 57.82	56 57.53	56 58.14
56 58.07	56 58.07	56 58.07	56 58.07	56 58.07	56 58.07	56 58.07	56 58.07
25 48.29	48.20	25 50.26	50.18	25 48.30	48.53	25 50.82	50.21
48.24	50.22	48.42	50.51	48.53	50.51	50.21	55.28
-22 5 25	4 53	-22 5 25	4 53	-22 5 25	4 53	-22 5 25	4 53
1.36860	1.36850	-433	+146	-220	-220	1.36870	1.36850
-1.35631	1.35641	1.36427	1.36417	1.37006	1.36996	1.36640	1.36630
+22.73	+22.72	+23.13	+23.13	+23.44	+23.44	+23.25	+23.24
-22 -21 -13	-32 -23 -14	-29 -15 -1	-31 -20 -03	-31 -20 -03	-31 -20 -03	-31 -20 -03	-31 -20 -03
+2.248	+2.255	+2.281	+2.299	+2.315	+2.333	+2.349	+2.365
44 26 10.77	10.75	26 13.07	13.17	26 11.45	11.96	26 13.70	13.42
+2 6.14	6.97	+52.8	6.15	+71.6	8.04	+64.8	7.36
+ 8.3	-1.71	+ 8.7	-3.66	+ 8.8	-4.34	+ 8.8	-4.77
+1 55.56	28 633	52.49	5.56	5.56	5.56	5.56	5.56
28 631	52.49	5.56	5.56	5.56	5.56	5.56	5.56
+28 6.32	5.61	5.61	5.61	5.61	5.61	5.61	5.61
28 16.32	15.61	15.61	15.61	15.61	15.61	15.61	15.61



1874				1875			
67	8.73	16.3	+17	67	8.09	16.3	
69	8.82	15.6		69	8.95	17.2	
70	8.96	15.4		70	8.78	16.2	
70	8.74	16.2		76	8.73	16.7	
76	8.77	17.0		76	8.98	15.7	
				78	8.90	15.4	
70	8.804	16.10		73	8.872	16.25	
	+1.1	16.09			8.871	16.27	
	8.805						

Sept-8	Sept-14	Sept-28	Oct-4	Oct-5	Oct-10
0 -0.73	0 -50.3	0 34.6	0 -41.8	0 -5.77	0 -30.317
59 36.8	0 25.1	0 34.6	0 13.2	0 23.5	0 2.68
280 40.6	31.5	39.2	44.3	45.2	48.3
36.5 45.9	33.9	42.2	46.8	47.9	50.6
32.9 36.2	36.2	45.8	49.1	50.4	53.2
35.2 38.9	38.9	48.1	51.4	52.8	55.4
37.9 41.0	41.0	50.4	53.9	55.1	58.0
41.1 0 17.1	43.3	53.0	56.4	57.3	6.3
42.4 20.9	45.9	55.4	58.8	59.5	2.6
45.7 24.1	48.3	57.9	61.1	62.3	4.9
47.2 50.5	50.5	60.8	63.5	64.5	8.0
3400	3697	4554	4853	4949	5217.6
0 37.78	0 41.10	0 38.67	0 17.00	0 26.77	0 29.97
37.743	41.078	38.73	24.83	23.53	16.80
	41.043	50.600	53.922	54.989	57.967
		50.565	53.887	54.934	57.921
-25.74	-29.62	-43.52	-44.35	-48.14	
-1.19	-1.05	-87	-1.20	-66	
-1.83	-1.59	-0.96	-0.62	-0.22	
-28.29	-32.26	-45.16	-46.17	-49.02	
0 37.94	0 41.04	0 53.89	0 54.95	0 57.92	
0 8.95	0 8.78	0 8.73	0 8.78	0 8.90	
				8.872	

+56.68	+17.08	+12.51	-36.59	+11.93	-18.13	+36.92	-30.91	+28.22	-28.54	+27.99	-18.84
35- -2.61	35- -2.66	35- -2.80	35- -2.81	35- -2.85							
2 44.9	3 95- 3 10.2	3 38.6	3 41.9	3 27.5	2 52.9	3 31.7	2 59.1	3 31.7	3 0.9	3 28.2	
39 26.1	24.9	56.1	21.6	45.9	11.9	50.1	16.9	51.6	14.9	42.8	
108.8	33.6	38.1	9.67	34	12.46	8.18	18.00	83.3	158	7.08	
37 54.40	38 16.80	38 19.05	38 47.35	38 27.5	38 36.70	38 2.30	38 40.90	38 9.50	38 41.65	38 7.90	38 35.25
1.75343	1.23249	1.09726	1.56836	1.07664	1.25870	1.56726	1.49010	1.45056	1.45545	1.44700	1.27508
1.07346	0.99252	0.85729	1.32339	0.83667	1.01843	1.32729	1.25013	1.21059	1.21528	1.20703	1.03571
+32.62	+9.83	+7.20	+21.06	+4.86	-12.44	+21.25	-17.79	+16.24	-16.42	+16.11	-10.84
38 27.02	38 26.63	38 26.25	38 26.29	38 27.11	38 26.26	38 23.55	38 23.11	38 25.74	38 25.23	38 24.01	38 24.41
44 21.33	21.72	44 22.10	22.06	44 21.24	22.09	44 24.80	25.24	44 22.61	44 23.12	44 24.34	22.94
21.52		22.08				25.02		22.86		24.14	
-88.3	-12.9	-45.3	-56.9								
1.35987	1.35977	1.36441	1.36731	1.36417	1.36407	1.36381	1.36291	1.38530	1.38530	1.38520	
+22.90	+22.90	+22.77	+22.30	+23.13	+23.12	+23.07	+23.06	+24.28	+24.28	+24.28	
-66	-83-06	-03	-70-29	-03	-07	-29	-74-20	-17	-68-17	-17	-63-08
-44	-50	-45	-55	-48	-55	-48	-55	-47	-54	-54	
+21.50	+22.34	+22.24	+22.44	+22.39	+22.37	+22.32	+22.34	+23.64	+23.64	+23.64	
44 43.13	44.86	44 44.34	44.60	44 47.19	47.61	44 45.03	45.46	44 47.98	47.98	47.98	
-16 13.77	12.78	-14.30	13.29	-13.42	12.36	-12.07	11.01	-14.20	12.12	12.12	
+9.9		+1.01		+1.06		+1.06		+1.08			
-13.59		-13.96		-18.38		-18.57		-19.24			
-16 26.37	28 16.76	28.25	16.09	30.74	16.45	29.52	15.51	32.39	15.39	15.39	
	17.69		16.25		16.87		15.94		15.21	15.21	
+28	17.22		16.17		16.66		15.72		15.40	15.40	



B.A.C. 6924  
 in m sec.  
 20 2 30  
 +55° 59'  
 -13° 36'  
 long = -23

1874

1875

2 3077  
 58 5532  
 +1.363  
 +10.52

corr =  
 cond =  
 range = +1.48  
 T = 3.68  
 K = -.027

L sin 2 9.91849

L cos 2 9.74775

L 8 10.600

L 2 9.85375

L 8 9.85235

9.74775  
 .12552  
 9.87327

1874	Aug. 31	Sept. 9	Sept. 12	Sept. 14	Oct. 3	1875	Sept. 7
2 1.680	2 1.509	2 1.460	2 1.475	2 1.465	2 2.23	2 39.0	2 19.0
12.4	54.2	18.2	21.3	21.3	25.8	46.8	28.3
162	56.9	22.0	25.0	76	29.6	44.4	22.9
23.4		29.2	32.4	2 32.8	36.8	51.6	
27.2		33.1	35.8	36.6	40.8	55.6	
31.9		36.7	39.7	40.2	44.3	59.2	
34.5	3 1.5	40.2	43.2	44.0	47.0	62.7	
38.2	5.0	44.7	47.2	47.0	51.6	66.6	
45.7	8.5	58.2	54.4	59.5	59.1	70.8	
49.3		58.8	58.2	64.12	65	75.5	
53.0			2.0			81.5	
3396		4036	3767		3671	3507	
			60		120	3001	
2 30.873	1 54.00	2 8.20	2 36.691	2 7.20	2 40.189	2 12.96	2 20.00
30.846	5.00	39.10	36.664	40.162	3 5.46	2 44.282	2 59.155
			39.673	40.16		44.255	59.128
+ 1.06			- 7.55	- 8.21	- 13.23	- 25.13	
- 2.71	- 0.744	- 1.59	- 7.0	- 6.9	- .41	- .85	
- 1.26		- 1.88	- 1.80	- 1.74	- 1.10	- 2.04	
2 30.85		- 7.21	- 100.5	- 10.64	- 14.74	- 28.02	
		2 36.66	2 39.67	2 40.16	2 44.25	2 59.13	
2 29.59		2 29.45	2 29.62	2 29.52	2 29.51	2 31.11	
2 30.953		30.813	30.983	30.883	30.873		
					29.538		

25	+36.87	-34.13	25	+28.49	-22.41	25	+32.50	25	+31.06	-25.27	25	+31.32	-23.58	5	+39.15
0	-2.20		0	-2.30		0	-2.33	0	-2.34		0	-2.41		0	-2.60
45.3	1 36.9	0 49.0	1 25.3	0 47.1	1 9.0	0 45.6	1 26.4	0 43.9	1 23.7	0 50.3	3 32				
55.9	47.1	59.9	36.6	59.7	20.1	57.7	38.6	53.2	34.9	25.8	23.9				
101.2	54.0	108.9	61.9	106.8	2.91	103.3	68.0	97.1	58.6	30.5	27.1				
8.5	50.60	42.6	42.00	25 54.45	24 30.95	25 53.40	24 14.55	25 51.65	24 46.55	24 29.30	7 15.25	8 13.55			
1.56664	1.58314	1.25469	1.35044	1.57188			1.49220	1.40261	1.49582	1.37199	1.59273				
1.42042	1.38689	1.30844	1.20419	1.36423			1.34455	1.25496	1.34817	1.22434	1.46600				
+26.33	-24.37	+20.34	-16.04	+23.13			+22.11	-17.99	+22.29	-16.76	+29.25				
26 16.93	26 17.63	26 14.79	26 14.91	26 16.53			26 13.76	26 14.51	26 10.84	26 12.54	7 44.50				
+55°															
56 31.42	3072.56	3356	3344	56 31.82			56 34.59	3389.56	3751	35.81	15 38.5				
31.07		33.50					34.22		36.66						
-13 36 16	35 25								36 19 35 38						
1.14410	1.14360								1.14410	1.14380					
-1201		-427					-216		+353		-543				
1.13209	1.13159	1.13985	1.13933	1.14565	1.14515	1.14194	1.14144	1.14763	1.14733	1.13867	1.13837				
+13.55	+13.54	+13.80	+13.78	+13.98	+13.97	+13.87	+13.85	+14.05	+14.04	+13.76	+13.75				
-34	-34	-30	-21	-16	-12	-26	-26	-25	-20	-16	-40	-73			
-02	-03	00	00	00	00	00	00	-02	-04	-04	-33	-48			
+13.10	+13.21	+13.59	+13.66	+13.72	+13.97	+13.62	+13.69	+13.78	+13.86	+13.03	+13.27				
+55 56 44.81	43.93	56 47.15	47.10	56 45.54		56 48.21	47.53	56 51.29	49.67	15 16.88					
+2 6.14	6.64	+5.28	5.80	+7.16	7.69	+6.48	7.01	+5.75	6.30	-16 +14.01	13.42				
+ 5.50	-1.24	+ 5.52	-3.38	+ 5.53	-4.63	+ 5.53	-4.44	+ 5.55	-7.82	+ 5.59					
-11.56		-13.70		-14.35		-14.76		-18.72		-13.45					
+1 55.08	58 39.69	32.10	39.25	52.34		52.25		48.16	39.45	16 26.87	58 50.01				
	39.01		39.20						37.83						
+58 39.35			39.22			38.88			38.64						
58 49.67			49.54			49.20			48.92						



1875

67	30.95	49.7	-36	+105	69	31.11	50.0
69	30.81	49.5			69	30.93	49.9
70	30.98	49.2			70	30.96	49.7
70	30.88	50.4			76	30.91	50.0
76	30.87	49.0			76	30.95	50.0
					78	30.91	50.2
70	30.898	49.56			73	30.96	49.97
	-1	+3				+3	-8
	30.897	49.59				30.963	49.89

[illegible]

5	+ 27.99	- 29.71	5	+ 42.90	- 246	5	+ 37.26	- 13.02	5	+ 34.8	- 32.28	5	+ 33.15	- 5.55	5	+ 32.60	- 14.93
1	- 2.01			- 2.66						- 2.80			- 2.81			- 2.85	
2	133	2 50.1	2	1.9	2 50.1	2	5.8	2 189	2	5.6	2 552	2	2.1	2 35.7	2 4.4	2 43.8	
	34.1	164		20.6	15.0		24.9	8.2		24.7	14.9		25.3	56.1	32.1	58.5	
	47.4	133.5		215	120.7		24.9	11.71		3.03	13.01		34.4	9.18	29.5	10.2	
7	23.70	8 6.75	7	16.75	8 0.35	7	4.95	7 38.55	7	15.15	8 5.05	7	17.20	7 45.90	7 14.75	7 51.15	
1.44700	1.47290	1.63246	1.35141	1.57124	1.11461	1.53377	1.52218	1.52048	0.74459	1.51322	1.17406						
1.32027	1.34617	1.50673	1.20468	1.44451	0.98788	1.40704	1.39375	1.39375	0.61786	1.38647	1.04733						
+ 20.91	- 22.19	+ 32.04	- 16.77	+ 27.83	- 9.72	+ 25.53	- 24.86	+ 24.76	- 2.15	+ 24.35	- 11.18						
7 44.61	7 44.06	7 42.77	7 43.58	7 42.78	7 40.83	7 40.68	7 40.19	7 41.96	7 42.75	7 39.12	7 40.00						
15 374	379	15 556	4.77			15 767	8.16	15 639	6.60	15 04.23	8.35						
3.76		5.78				7.91		6.49		8.79							
36 24	35 41									36 33	35 54						
1.14420	1.14380									1.14420	1.14400						
- 8.77		- 12.3				- 4.50		- 5.69		+ 16.66							
1.13547	1.13503	1.14297	1.14257			1.13970	1.13930	1.13831	1.13811	1.16086	1.16066						
+ 13.66	+ 13.65	+ 13.90	+ 13.88			+ 13.79	+ 13.78	+ 13.76	+ 13.74	+ 14.48	+ 14.48						
- 21	- 63	- 23	- 47	- 63	- 12	- 30	- 69	- 28	- 28	- 52	- 1	- 26	- 53	- 04			
- 36	- 47	- 33	- 45	- 36	- 04	- 33	- 47	- 34	- 42	- 33	- 42	- 33	- 42	- 42			
+ 13.09	+ 12.95	+ 13.10	+ 13.31			+ 13.16	+ 13.03	+ 13.14	13.31	+ 13.89	+ 14.01						
15 16.83	16.74	15 18.66	18.08			15 20.83	21.19	15 19.53	19.91	15 23.12	22.36						
- 16 13.77	13.17	- 14.30	13.69			- 13.42	12.78	- 12.07	11.43	- 14.20	13.58						
+ 16.0		+ 6.1				+ 6.4		+ 8.4		+ 6.5							
- 13.68		- 14.99				- 18.21		- 18.33		- 12.03							
- 16 26.85	58 49.98	28.68	49.98			30.99	49.84	29.76	49.77	32.58	50.54						
	49.89		49.40				50.20		50.15		49.78						
58 49.93			49.69				50.22		49.96		50.16						



*[The page contains several pages of handwritten astronomical observations and calculations, likely from a logbook or notebook. The handwriting is dense and includes various mathematical symbols, dates, and numerical values. Some sections are headed by names like "Aquilae" and "Sagittarii".]*



1875-

Aug. 28	4	54.27		11	21.4
Sept. 2		54.23	-.04	21	
7		54.19	.04	20.8	
12		54.14	.05	20.6	
17		54.09	.05	20.4	
22		54.03	.06	20.3	
27		53.96	.07	20.2	
Oct. 2		53.89	.07	20.2	
7		53.81	.08		
12		53.72	.09		

1875-

5	51.268
11	26.93
21	+3.098
31	+10.392

1875-

69	51.27	25.9
69	51.28	27.0
70	51.30	27.1
76	51.29	27.8
76	51.33	26.5
78	51.27	27.3
79	51.37	27.9
74	51.301	27.14

(7)

1000 9.99991  
 10 12.552  
 10 0.12543

+156  
Sept-8

5.	16.5	1.4	5
	16.6	3.4	
	11.1	5.1	
	10.9		
	18.0		
	21.0		
	22.0	5	39.1
	24.0		41.2
	28.2		43.2
	30.3		
	32.3		
2196			

+49  
Sept-14

11.5	4	59.3
13.5		0.9
15.6		2.8
17.6		
21.7		
23.7		
25.9	5	42.7
27.8		44.8
32.0	x	46.2
34.0		
36.2	x	
2615		

+42  
Oct-4

25.0	5	21.2
27.1		22.8
29.1		24.4
33.3		
35.4		
37.4		
39.4	6	5.8
41.6		7.3
45.6		9.4
47.7		
49.8		
4114		

+32-30  
Oct-5

25.9	5	15.4
28.0		17.4
30.2		19.7
34.1		
36.2		
38.2		
40.2	5	58.9
42.4		1.0
46.5		3.3
48.6		
50.7		
4208		

+31  
Oct-13

29.45	54.6
31.3	0.2
33.6	2.3
37.4	
39.7	
41.9	
43.9	6
46.0	12.2
50.1	14.0
52.2	16.0
54.3	
4603	

+24-12  
Oct-14

29.45	21.4
31.7	22.9
33.8	25.0
37.9	
40.0	
42.0	
44.05	57.2
46.1	
50.2	
52.3	
54.4	
4621	

5	19964	5	41.13	5	33773	5	44.57	5	37400	6	740	5	38255	6	17.70	6	0.03	5	42009	5	23.10		
	19949		-25.75		23758		-29.62		37385		-48.52		38240		-44.09		41830		-48.14		41994		-48.11
4	5418		+0.1	4	5412		+0.1	4	53865		+0.1	4	5384		+0.1	4	5370		+0.1	4	5368		+0.0
	+25.77				+29.64				+73.823				+44.40		-30		+48.13				+48.31		-12
			-2.91				-2.85				-2.58				-2.57		-2.43				-48.22		-2.41
	-35.77		51.30		-29.62		51.30		-43.52		51.29		-44.35		51.29		-48.14				+48.22		51.35
	+ .01				+ .01				+ .081				+ .01				+ .081				+ .081		
	-2.91				-2.85				-2.58				-2.57				-2.43				-2.41		
	-28.67				-32.16				-46.09				-46.91				-50.66				-52.62		
5	1995		536	5	2376		507	5	3738		580	5	3824		578	5	4183		443	5	4199		5.02
	-16	1863		-16	1418			-16	1339			-16	1213			-16	1407			-16	1425		
4	51.28		-18	4	51.30		-18	4	51.29		-18	4	51.33		-18	4	51.27		-18	4	51.37		-18
	-610				-640				-670				-670				-670				-670		
	11	2059		11	2745			11	2769			11	2777		26.41	11	2700			11	2787		
															641								
	+1666		-217		+227		-2080		+1460		-3000		+2055		-2282		-18.19		-32.23		+18.91		-15.19
15-				15-				15-				15-							15-				
	-261				-266				-280				-281				-285				-286		
1	28.8	2	19.0	1	20.1	2	18.2	1	32.5	2	32.0	1	23.9	2	22.4	2	18.3	2	33.7	1	24.4	2	10.7
	465		34.0		369		33.0		48.2		47.2		41.2		38.0		25.0		449		391		23.4
	753		57.8		540		521		807		792		651		604		383		786		638		34.3
16	37.65	17	28.0	16	2830	17	2605	16	40.35	17	39.60	16	32.55	17	30.20	17	19.15	17	39.30	16	31.90	17	17.15
			2880																				
1.22167	1.325722	1.35736	1.31806	1.16435	1.47712	1.31281	1.35532	1.25983	1.50526	1.27669	1.18156												
1.34710	1.40715	1.48279	1.44347	1.28978	1.60253	1.43824	1.48375	1.38526	1.63369	1.40212	1.30699												
+22.24	-28.26	+30.89	-27.76	+19.49	-40.05	+27.43	-30.46	+24.28	-43.02	+25.24	-20.28												
16	37.89	16	37.74	16	37.89	16	37.29	16	37.84	16	37.03	16	37.98	16	37.74	16	37.87	16	37.14	16	37.87		
54	11.54	11.39	54	10.54	9.94	54	11.49	11.20	54	11.63	54	11.39	54	6.52	7.93	54	8.79	8.52					
	11.47		10.24				11.34		11.31					7.22			8.66						
32	50	33	40														32	43	33	29			
1.73780	1.73800																1.73780	1.73800					
	-8.11																						
1.72909	1.72929	1.73663	1.73683	1.73333	1.73353	1.73211	1.73231	1.75451	1.75471	1.74879	1.74899												
-53.39	-53.61	-54.53	-54.56	-54.12	-54.14	-53.76	-53.99	-56.82	-56.85	-56.08	-56.10												
+0.00	-30+0.00	+0.00	-29+0.00	+0.00	-32+0.00	+0.00	-30+0.00	+0.00	-34+0.00	+0.00	-28+0.00												
-24	-37	-22	-36	-25	-40	-22	-37	-34	-40	-22	-34												
-53.82	-53.98	-54.75	-54.92	-54.39	-54.56	-54.18	-54.36	-57.16	-57.24	-56.30	-56.44												
5.36	8.37	5.29	4.56	5.86	5.74	5.81	5.75	3.68	5.19	5.09	4.96												
208	205	202	202	202	202	202	202	202	202	202	202												
15.4	15.4	15.2	15.6	14.3	14.5	14.4	14.5	16.5	15.0	15.1	15.2												
15.4	15.4	15.4	15.4	14.4	14.4	14.4	14.4	15.7	15.7	15.7	15.7												
-16	13.77	15.57	27.03	-14.30	14.13	27.82	-13.42	15.34	27.90	-12.07	14.00	27.51	-14.20	16.16	27.54	-14.19	16.16	27.93					
	1.80	27.04	-1.83	27.39	-1.92	27.78	-1.92	27.78	-1.93	27.45	-1.96	27.83	-1.96	27.83	-1.96	27.83	-1.96	27.83					
	6.10		6.40		6.70		6.70		6.70		6.70		6.70		6.70		6.70						
-16	21.67	27.03	22.53	27.61	22.84	27.54	20.70	26.48	22.86	27.28	27.88												



20 Vulpeculae.

20 4 44

+26 6

 $\gamma = +16^{\circ} 17'$   
 $\delta = +28'$ 

L 9.64339

L 9.95329

L 1.06650

L 0.05929

L 0.05789

1875-

6 46.17

6 25.09

+2.511

+10.52

Coul.

Coul.

Coul. +.119

I = 2.29

K = -.017

1874  
Aug. 31

Sept. 9

Sept. 12

Sept. 14

Oct. 11

1875-  
Sept. 8

6 37.0	6 179	6 371	6 30.7	6 39.9	6 34.0	6 40.6	6 29.7	6 42.6	6 38.3	6 47.0
32.2	26.0	39.3	33.3	42.2	38.7	42.9	32.3	48.6	40.6	48.7
38.5	21.6	41.5	35.4	44.4	37.3	45.1	34.7	50.7	42.1	53.8
44.1		46.2		49.2		49.7		53.1		
42.4		48.4		51.4		52.2		57.7		
44.7		50.7		53.7		54.2		60		
47.0	7 5.0	53.1	7 1.3	56.0	7 7.7	56.5	7 2.9	60.7	10.2	7 3.20
49.3	7.3	58.4	8.6	58.3	10.2	58.9	5.1	65	12.4	19.4
55.9	9.3	63	5.5	60	11.7	64	7.3	72	15.2	23.8
56.2		66		60		66		74		26.2
58.4		68		64		70		77		28.6
49.07		37.91		41.05		41.68		29.95		16.20
6 44.609	6 19.83	58.91	6 38.13	59.05	6 38.66	59.68	6 38.23	65.95	6 49.33	6 48.83
44.592	7 7.20	50.828	7 3.46	53.682	7 7.93	54.255	7 5.10	59.955	7 12.60	7 34.127
		50.811		53.665		54.238		59.938		14.710
+ 1.56		- 4.74		- 7.55		- 8.21		- 14.48		- 25.77
- 2.23		- 2.20		- 2.23		- 2.23		- 18		- 28
- 2.32 + 0.194		- 2.21 + 0.304		- 2.16 + 0.354		- 2.13 + 0.384		- 7.73 + 0.784		- 2.44
- 0.99		- 7.15		- 9.94		- 10.57		- 16.39		- 28.52
6 44.59		6 50.81		6 53.66		6 54.24		6 59.94		7 14.71
6 43.60		6 43.66		6 43.82		6 43.67		6 43.55		6 46.19
6 46.114		46.174		46.234		46.184		46.064		
								43.602		

15	8 +24.78	-22.59	15	96 +18.24	-12.09	15	96 +18.02	-16.25	15	19.62 +22.02	-10.85	15	19.62 +18.62	-12.65	55	+25.90	-19.44
2	-2.20		2	-2.30		2	-2.33		2	-2.34		2	-2.44		2	-2.61	
3	37.9	32.7	3	44.9	38.7	3	43.6	32.9	3	38.3	17.5	3	43.8	21.3	4	15	55.0
	52.1	46.1		59.0	33.4		58.9	38.9		53.5	32.1		56.1	34.0		20.1	150
	90.0	78.8		103.9	52.1		102.5	61.8		91.8	49.6		99.9	55.3		21.6	130.0
217	45.00	183	39.40	173	51.95	183	26.05	173	51.25	183	30.90	173	45.90	183	24.80	173	49.95
1.39410	1.35392	1.26102	1.08243	1.25573	1.21053	1.34282	1.03543	1.29270	1.10209	1.41330	1.28870						
1.45199	1.40184	1.32031	1.14172	1.31364	1.26870	1.40071	1.09332	1.35059	1.15998	1.49211	1.36751						
+28.31	-25.22	+21.40	-13.86	+20.59	-18.57	+25.16	-12.40	+22.42	-14.45	+31.05	-23.31						
18 13.31	18 14.18	18 13.35	18 12.19	18 11.84	18 12.33	18 11.06	18 12.40	18 12.37	18 13.20	59 41.85	59 41.69						
4 35.04	34.14	4 35.00	36.16	4 36.51	36.02	4 37.29	35.95	4 35.98	35.15	23 6.50	6.66						
34.61		35.58		36.26		36.62		35.56		6.58							
+16 15 38	16 32							15 43	16 21	15 23	16 17						
1.22520	1.22560							1.22520	1.22560	1.22510	1.22550						
-11.84		-415		+171		-208		-321		-864							
1.21333	1.21373	1.22105	1.22145	1.22691	1.22731	1.22312	1.22352	1.22199	1.22239	1.21643	1.21683						
-16.34	-16.36	-16.64	-16.65	-16.86	-16.88	-16.72	-16.73	-16.67	-16.69	-16.46	-16.48						
-13	-12	-10	-07	-05	-03	-07	-06	-05	-10	-06	-02	-08	-14	-03	-14	-43	-08
-05	-12	-10	-07	-05	-03	-07	-06	-05	-10	-06	-02	-08	-14	-03	-14	-43	-08
-16.52	-16.53	-16.71	-16.68	-16.83	-16.83	-16.82	-16.75	-16.83	-16.82	-16.72	-16.57						
+26 4 18.52	17.64	4 18.29	19.48	4 19.58	19.09	4 18.47	19.20	4 19.15	18.33	22 49.27	50.09						
+2 6.14	5.53	+3.28	4.64	+7.16	6.51	+2.67	5.83	+8.60	7.92	-16 13.77	14.50						
- 2.81	+1.64	-1.64	-1.80	-1.65	-1.23	-1.65	-1.49	-1.68	-3.67	-11.40							
+1 35.65	6 14.17	55.32	11.61	64.76	14.34	13.85	14.29	53.73	12.88	-16 14.81	6 35.67	23.30					
	18.29		12.40				13.02		12.06	25.77	6 35.49	24.12					
	13.73		12.20				13.65		12.47		6 35.48	23.71					
	14.71		22.42				24.14		22.99			24.23					



1874

67	46.11	24.3
69	46.17	22.7
70	46.23	24.6
70	46.18	24.2
78	46.06	23.0
71	46.50	23.76
	(5)	

1875

69	46.19	23.7
76	46.67	22.8
69	46.19	23.25
	(1)	(2)

Oct-4

7	18.37	13.5
	20.6	15.4
	22.7	17.3
	24.7	
	26.7	
	28.7	
	30.7	
	32.7	
	34.4	5.31
	36.7	5.53
	41.2	5.70
	43.4	
	45.8	
	35.23	

7	32.027	7	15.40
	32.010	7	55.20

-	43.53
-	.20
-	1.62.40
-	45.34
7	32.01
6	46.67

+	16.63	-	23.17
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55	2.80		
4	10.1	4	58.5
	28.8		16.5
	31.9		13.50
59	18.95	0	7.50

1.220.80	1.364.93m
1.299.70	1.443.74m
+19.94	-27.78
59 38.89	59 39.72

23	9.96	8.63
	7.04	

15	31	16	20
1.225.20	1.225.50		
-4.44			
1.220.76	1.221.06		
-16.62	-16.64		

-28	-71	-72
-64	-61	
-17.31	-17.37	
22 52.15	51.26	
-16 13.42	14.20	
-14.69		
28.89	23.26	
	22.37	

+6 22.82



1874phae.proj. 1478

Aquidae.  
20<sup>h</sup> 8<sup>m</sup> 27<sup>s</sup>  
+14° 49'  
+27° 34'  
J = +.46

1874  
Leind 9.40778  
Leind 9.98531  
28 10.460  
28 0.08991

1875-  
8 29.57  
49 4.61  
+2.776  
+10.73  
9.98531  
12.552  
0.11083

corr =  
corr =  
large = +.26  
S  
I = 2.13  
S  
K = -.016

1874	1874	1874	1874	1875	1875
Sept. 12	Sept. 14	Oct. 3	Oct. 11	Sept. 14	Oct. 4
8 24.0 26.3 28.4 32.7 34.8 36.9 39.0 41.2 43.4 47.6 49.7	8 19.3 20.8 22.6 28.8 33.2 35.3 37.5 39.5 41.7 43.9 45.3	8 17.1 19.6 21.3 23.9 26.9 29.1 31.7 34.2 36.8 39.4 42.0	8 21.78 24.0 26.4 28.7 31.3 33.9 36.5 39.1 41.7 44.3 46.9	8 49.1 51.3 53.4 55.9 58.1 60.3 62.5 64.7 66.9 69.1 71.3	8 39.8 41.4 43.2 45.0 46.8 48.6 50.4 52.2 54.0 55.8 57.6
4060 36909 36893	20.90 51.03 37402	19.33 42.56 42075	24.03 1.13 43235 43239	22.20 58.33 1920	34.20 59.20 15464
-7.55 -1.12 -2.31+0466 -9.98 8 36.89	-8.21 -1.12 -2.29+0486 -10.62 8 37.40	-13.23 -1.07 -2.61+0766 -15.31 8 42.07	-14.48 -1.09 -1.88+0.896 -16.45 8 43.24	-29.62 -1.13 -2.58 -32.33 9 1.92	-46.59 -1.11 -2.29 -45.92 9 15.46
8 26.91 8 29.686	8 26.78 29.556	8 26.76 29.536	8 26.79 29.566 26.110	8 29.59	8 29.54

30 +16.01 -2.33 4 51.1 10.2 121.3 35 0.65	30 -14.12 -2.34 4 48.4 48.1 7.0 38.25	30 +18.09 -2.41 4 48.8 4.9 115.4 35 0.70	30 -5.44 -2.41 4 48.8 4.9 113.7 35 0.75	30 +18.06 -2.41 4 48.8 4.9 113.7 35 0.85	30 -17.04 -2.44 4 49.0 3.7 112.7 35 0.90	30 +21.05 -2.44 4 49.0 3.7 112.7 35 0.95	30 -15.58 -2.66 4 49.0 3.7 112.7 35 1.00	30 +20.47 -2.66 4 49.0 3.7 112.7 35 1.05	30 -22.33 -2.66 4 49.0 3.7 112.7 35 1.10	30 -18.72 -2.80 4 49.0 3.7 112.7 35 1.15	30 -43.72 -2.80 4 49.0 3.7 112.7 35 1.20
1.20439 1.29430 +19.69 35 20.3	1.14983 1.23974 -1.034 35 20.8	1.25744 1.34735 +2.225 35 19.9	1.25670 1.34663 -6.69 35 19.6	1.27964 1.36958 +2.221 35 19.0	1.32325 1.41316 -2.342 35 18.9	1.19254 1.28248 +2.589 35 22.2	1.31112 1.42198 -19.16 35 22.3	1.34889 1.45742 +26.42 35 42.6	1.27231 1.38314 -28.82 35 42.8	1.26468 1.37501 -24.16 35 42.9	1.26468 1.37501 -24.16 35 42.9
47 28.01 27.74 32 32 1.47760	47 27.47 28.84 33 31 1.47780	47 28.40 28.84 34 34 1.47780	47 29.29 29.31 34 34 1.47780	47 29.26 29.31 34 34 1.47780	47 29.37 29.37 34 34 1.47780	47 26.11 26.06 32 32 1.47750	47 26.01 26.01 32 32 1.47750	47 0.73 0.60 33 33 1.47750	47 0.47 0.47 33 33 1.47780	47 0.36 0.44 33 33 1.47780	47 1.13 1.13 33 33 1.47780
1.47938 -30.16 -0.3 -0.0 -30.19 +4.46	1.47958 -30.17 -0.3 -0.0 -30.20 +2.716	1.47955 -29.89 -0.4 -0.0 -29.93 +6.09	1.47955 -29.91 -0.2 -0.0 -29.91 +5.41	1.48136 -30.29 -0.4 -0.0 -30.48 +5.75	1.48156 -30.31 -0.3 -0.0 -30.38 +5.75	1.47433 -29.81 -0.6 -0.0 -29.88 +5.60	1.47463 -29.83 -0.3 -0.0 -29.88 +5.61	1.47641 -29.95 -0.5 -0.0 -30.19 +5.63	1.47671 -29.97 -0.7 -0.0 -30.38 +5.64	1.47308 -29.72 -0.5 -0.0 -30.19 +5.64	1.47338 -29.74 -0.5 -0.0 -30.39 +5.64
-9.82 +56.27 +48	-10.01 55.40 5409	-11.07 55.40 5354	-11.15 53.50 5478	-11.15 53.50 5478	-11.39 56.09 52.28	-11.39 56.09 52.28	-11.39 56.09 52.28	-11.39 56.09 52.28	-11.39 56.09 52.28	-11.39 56.09 52.28	-11.39 56.09 52.28
49.58 4.55	53.81 5.05	54.32 5.05	52.38 3.11	52.38 3.11	52.20 2.93	52.20 2.93	52.20 2.93	52.20 2.93	52.20 2.93	52.20 2.93	52.20 2.93



1874  
 70 29.69 4.6  
 70 29.56 3.1  
 76 29.54 3.1  
 78 29.57 2.9  
 74 29.570 3.93  
 + 1 (4) + 2  
 29.591 3.95

1875  
 70 29.59 4.5  
 76 29.54 4.1  
 76 29.55 5.1  
 80 29.53 4.2  
 81 29.65 4.1  
 77 29.572 4.40  
 29.569 (5) 4.36

Oct. 5-2      Oct. 20      Oct. 21  
 9 -544 36.8 58.0 9 -387 10.5 9 168 9 114.8 56.6  
 5.7 57.9 12.7 18.6 13.3 58.2  
 7.7 53.7 14.9 20.9 15.4 58.2  
 12.1 14.0 19.7 3.96 0.2  
 14.2 21.2 22.0 4.13  
 16.3 23.2 24.0 4.00  
 18.6 9 29.6 25.5 9 53.3 26.1 3.98  
 20.8 31.3 27.7 55.4 28.1 3.85  
 24.8 33.7 31.9 57.4  
 26.8 34.0  
 29.1 36.0  
 9 1797 8 51.67 9 2566 9 1870 9 23.74 8 58.63  
 16336 9 3153 9 23327 9 5537 9 23.74 58.30  
 16320 23.311 23.74  
 - 44.35 - 51.66 - 52.18  
 - .15 - .10 - .11  
 - 2.24 - 2.02 - 2.01  
 - 46.77 - 53.78 - 54.30  
 9 16.32 9 23.31 9 23.98  
 8 29.53 8 29.53 8 29.68  
 29.578

+ 24.47 - 1519 + 463 - 32.04 + 25.70  
 15 - 281 15 - 291 15 - 292  
 1 8.3 2 1.2 1 34.3 2 20.8 1 7.1  
 22.9 166 46.7 31.3 20.9  
 31.2 178 81.0 52.1 28.0  
 16 15.60 17 8.90 16 40.50 17 26.05 16 14.00  
 1.38868 1.18756 0.66558 1.50569 1.40993  
 1.49946 1.29239 0.77641 1.61682 1.52076  
 + 31.58 - 19.61 + 5.98 - 41.36 + 33.17  
 16 47.18 16 42.29 16 46.48 16 44.69 16 47.17  
 6 1.17 5 59.06 6 1.87 3.66 6 1.18  
 0.12 2.76  
 32 52 33 38  
 1.47760 1.47780 - 547  
 - 103 - 547  
 1.47181 1.47211 1.47657 1.47677 1.47213 1.47233  
 - 29.64 - 29.65 - 29.96 - 29.98 - 29.66 - 29.67  
 - 08 - 30 - 03 0 - 36 - 14 - 08 - 25  
 - 19 - 31 - 24 - 34 - 17  
 - 29.91 - 29.99 - 30.20 - 30.46 - 29.91  
 5 31.26 29.07 5 31.67 33.20 5 31.27  
 - 16 12.07 13.36 - 15.12 16.45 - 14.07 15.41  
 - 1.29 - 1.33 - 1.34  
 - 1.68 - 1.81 - 1.81  
 - 16 25.04 49 622 341 27.22  
 40.3 494  
 49 5.12 4.17 4.05



1874 phase proj 1478

1874	1875	1876	1877	1878	1879	1880	1881	1882	1883	1884	1885	1886	1887	1888	1889	1890	1891	1892	1893	1894	1895	1896	1897	1898	1899	1900	1901	1902	1903	1904	1905	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	2101	2102	2103	2104	2105	2106	2107	2108	2109	2110	2111	2112	2113	2114	2115	2116	2117	2118	2119	2120	2121	2122	2123	2124	2125	2126	2127	2128	2129	2130	2131	2132	2133	2134	2135	2136	2137	2138	2139	2140	2141	2142	2143	2144	2145	2146	2147	2148	2149	2150	2151	2152	2153	2154	2155	2156	2157	2158	2159	2160	2161	2162	2163	2164	2165	2166	2167	2168	2169	2170	2171	2172	2173	2174	2175	2176	2177	2178	2179	2180	2181	2182	2183	2184	2185	2186	2187	2188	2189	2190	2191	2192	2193	2194	2195	2196	2197	2198	2199	2200	2201	2202	2203	2204	2205	2206	2207	2208	2209	2210	2211	2212	2213	2214	2215	2216	2217	2218	2219	2220	2221	2222	2223	2224	2225	2226	2227	2228	2229	2230	2231	2232	2233	2234	2235	2236	2237	2238	2239	2240	2241	2242	2243	2244	2245	2246	2247	2248	2249	2250	2251	2252	2253	2254	2255	2256	2257	2258	2259	2260	2261	2262	2263	2264	2265	2266	2267	2268	2269	2270	2271	2272	2273	2274	2275	2276	2277	2278	2279	2280	2281	2282	2283	2284	2285	2286	2287	2288	2289	2290	2291	2292	2293	2294	2295	2296	2297	2298	2299	2300	2301	2302	2303	2304	2305	2306	2307	2308	2309	2310	2311	2312	2313	2314	2315	2316	2317	2318	2319	2320	2321	2322	2323	2324	2325	2326	2327	2328	2329	2330	2331	2332	2333	2334	2335	2336	2337	2338	2339	2340	2341	2342	2343	2344	2345	2346	2347	2348	2349	2350	2351	2352	2353	2354	2355	2356	2357	2358	2359	2360	2361	2362	2363	2364	2365	2366	2367	2368	2369	2370	2371	2372	2373	2374	2375	2376	2377	2378	2379	2380	2381	2382	2383	2384	2385	2386	2387	2388	2389	2390	2391	2392	2393	2394	2395	2396	2397	2398	2399	2400	2401	2402	2403	2404	2405	2406	2407	2408	2409	2410	2411	2412	2413	2414	2415	2416	2417	2418	2419	2420	2421	2422	2423	2424	2425	2426	2427	2428	2429	2430	2431	2432	2433	2434	2435	2436	2437	2438	2439	2440	2441	2442	2443	2444	2445	2446	2447	2448	2449	2450	2451	2452	2453	2454	2455	2456	2457	2458	2459	2460	2461	2462	2463	2464	2465	2466	2467	2468	2469	2470	2471	2472	2473	2474	2475	2476	2477	2478	2479	2480	2481	2482	2483	2484	2485	2486	2487	2488	2489	2490	2491	2492	2493	2494	2495	2496	2497	2498	2499	2500	2501	2502	2503	2504	2505	2506	2507	2508	2509	2510	2511	2512	2513	2514	2515	2516	2517	2518	2519	2520	2521	2522	2523	2524	2525	2526	2527	2528	2529	2530	2531	2532	2533	2534	2535	2536	2537	2538	2539	2540	2541	2542	2543	2544	2545	2546	2547	2548	2549	2550	2551	2552	2553	2554	2555	2556	2557	2558	2559	2560	2561	2562	2563	2564	2565	2566	2567	2568	2569	2570	2571	2572	2573	2574	2575	2576	2577	2578	2579	2580	2581	2582	2583	2584	2585	2586	2587	2588	2589	2590	2591	2592	2593	2594	2595	2596	2597	2598	2599	2600	2601	2602	2603	2604	2605	2606	2607	2608	2609	2610	2611	2612	2613	2614	2615	2616	2617	2618	2619	2620	2621	2622	2623	2624	2625	2626	2627	2628	2629	2630	2631	2632	2633	2634	2635	2636	2637	2638	2639	2640	2641	2642	2643	2644	2645	2646	2647	2648	2649	2650	2651	2652	2653	2654	2655	2656	2657	2658	2659	2660	2661	2662	2663	2664	2665	2666	2667	2668	2669	2670	2671	2672	2673	2674	2675	2676	2677	2678	2679	2680	2681	2682	2683	2684	2685	2686	2687	2688	2689	2690	2691	2692	2693	2694	2695	2696	2697	2698	2699	2700	2701	2702	2703	2704	2705	2706	2707	2708	2709	2710	2711	2712	2713	2714	2715	2716	2717	2718	2719	2720	2721	2722	2723	2724	2725	2726	2727	2728	2729	2730	2731	2732	2733	2734	2735	2736	2737	2738	2739	2740	2741	2742	2743	2744	2745	2746	2747	2748	2749	2750	2751	2752	2753	2754	2755	2756	2757	2758	2759	2760	2761	2762	2763	2764	2765	2766	2767	2768	2769	2770	2771	2772	2773	2774	2775	2776	2777	2778	2779	2780	2781	2782	2783	2784	2785	2786	2787	2788	2789	2790	2791	2792	2793	2794	2795	2796	2797	2798	2799	2800	2801	2802	2803	2804	2805	2806	2807	2808	2809	2810	2811	2812	2813	2814	2815	2816	2817	2818	2819	2820	2821	2822	2823	2824	2825	2826	2827	2828	2829	2830	2831	2832	2833	2834	2835	2836	2837	2838	2839	2840	2841	2842	2843	2844	2845	2846	2847	2848	2849	2850	2851	2852	2853	2854	2855	2856	2857	2858	2859	2860	2861	2862	2863	2864	2865	2866	2867	2868	2869	2870	2871	2872	2873	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1873				1874				1875			
55	570			55	459			70	4317	350	
	571	+1			460	+1		76	4314	36.4	
	572	.			461	.		76	4321	32.3	
	573	.			462	.		76	4309	35.0	
	574	.			464	.		81	4310	36.3	
	575	.			465	.					
	577	.			467	.					
	578	.			468	.					
	580	.			470	.					

1				2				2			
-32 -30 Oct. 5				-38 Oct. 20				-42 Oct. 21			
11	180	11	170	11	245	11	130	11	257	11	236
	198				268		148		272		
	218				289		168		293		
	261				320				333		
	282				351				354		
	303				373				378		
	324	11	496		394	12	41		399	12	142
	344		513		415		68		419		168
	385		541		458		79		464		178
	409				480				485		
	430				500				505		
	3334				4103				4158		
11	30309	11	1700	11	37300	12	1487	11	37800	12	2360
	30293		5167		37284		617		37784		16.27
			-4409				-5784				-5214
			+0.4				+0.9				+1.0
	4436		-30		5167		-5218				
	+ .13		-285		+ .09		-261		+ .10		-260
	-2.65	-10	43.12		-2.61		45.17		45.19		2.60
	4108				54.19		3		52.68		43.14
	3029				37.28				37.78		
	4321				43.09				43.10		
			1460				1461				1693
	-16		1213		-16		1510		43.142	-16	1422
			-2.2				-2.2				-2.2
			-380				-290				-290
	53		3223		53		3481		53		3625
+ 1331	- 2136	+ 243	- 2887	+ 1420	- 3817						
53	-281	53	-291	53	-292						
3	146	4	22	3	37	4	110	3	110	4	261
	294		174		174		220		308		394
	420		196		233		330		498		655
58	2200	59	980	58	1165	59	1650	58	2490	59	3275
1.12418	1.32960	1.35083	1.46045	1.15229	1.58512						
1.28854	1.44396	1.46079	1.5748	1.26665	1.69948						
+1732	-2779	+2919	3704	+1848	-8006						
58	3932	58	4201	58	4184	58	3893	58	4338	58	4269
35	50.97	53.66	35	52.49	50.58	35	55.03	54.34			
	52.32			51.54			54.68				
							14	34	15	45	
							1.91800	1.91820			
-565				-98			-540				
1.91225	1.91255	1.91692	1.91722	1.91253	1.91273						
-81.71	-81.76	-82.59	-82.65	-81.76	-81.80						
	+01	-54	+05	+05	-46	+08	+02	-46	+17		
-51	-63	-45	-60	-48	-63						
-1	22.22	-1	22.35	-1	22.29	-1	23.17	-1	22.23	-1	22.27
37	1319	37	1548	37	1375	37	1726	37	1726	37	16.61
-16	12.07	-16	14.37	-16	15.12	-16	17.50	-16	14.07	-16	16.46
	230				238				239		
	330				290				290		
	17.67				2040		3588		19.36		36.62
					33.68		34.15				35.97
					3227		3502				36.30



[illegible]



1.60356	1.60356	1.59943	1.59903
+40.15	+40.14	+39.73	+39.72
-09	-34	-07	-26
-24	-28	-22	-27
+3982	+3979	+3925	+3944
37.06	36.98	36.00	36.16
222		22.3	
149	14.8	13.7	13.9
1415		13.12	
143	13.47	13.3	2.99
-15.12	3.09	-14.07	1241 3.15
+1.65	3.01	+1.66	
-20.50	3.05	-20.60	3.07
3397		3301	



1874phae. p. 1478.

Capricorni  
h 1m 20c.  
20 13 59  
15° 10'  
+59° 33'  
ring = +84

1875

13 59.21  
10 29.15  
31 + 3.375  
10 11.06  
Lind 9.41768m  
Lind 9.98460  
L 12.552  
L 0.11012

Cont =  
Cont =  
Tang = -27  
T = 2.13  
K = -0.16

1875

70 59.28 28.5  
76 59.34 29.7  
76 59.27 28.5  
74 59.29 27.90  
59.296 (3) +0

1875

Sept. 14

Oct. 4

Oct. 5

14 19.3	14 19.4	14 32.8	14 25.8	14 33.7	14 29.9
21.4	16.8	33.0	27.9	35.9	31.9
23.4	18.8	39.1	29.9	37.9	34.3
27.9		41.4		42.2	
29.8		43.5		44.3	
32.0		45.6		46.3	
34.0	14 55.0	47.4	15 13.9	48.6	15 3.9
36.1	57.0	49.9	15.4	50.6	5.1
40.5	58.8	54.2	17.5	54.8	6.8
42.6		56.2		57.1	
44.9		58.3		59.2	
35.17		50.27		51.05	

14 31.973	14 16.77	14 27.80	14 32.03
31.957	14 56.93	15 15.63	15 5.27
	45.684	46.393	

+ .13	+ .11	+ .15
- 29.63	- 43.53	- 44.86
- 3.18	- 2.92	- 2.91
- 32.68	- 46.34	- 47.12
14 31.96	14 45.68	14 46.39
13 59.28	13 59.34	13 59.27
		59.297

+ 1520	- 296	+ 1790	- 2993	+ 1438	- 1886
15- -266	15- -280	15- -281			
0 0.0	0 50.9	0 0.3	1 0.3	0 0.9	0 1.36
15.1	67	15.3	15.3	17.3	50
15.51	117.3	15.8	15.6	18.2	1036
15 7.55	15 58.65	15 7.90	16 7.80	15 9.10	15 51.80

1.18184	1.39724	1.25285	1.47611	1.15776	1.27554
1.29196	1.50736	1.36297	1.58623	1.26788	1.38566
+ 19.59	- 32.16	+ 23.06	- 36.57	+ 18.53	- 24.30
15 27.14	15 26.49	15 30.96	15 29.23	15 27.63	15 27.00

52 38.79	38.14	52 42.61	40.88	52 39.28	39.15
38.96		41.74		39.21	
+ 57 31 20 32 11				31 21 32 4	
1.95524	1.95550			1.95524	1.95547
- 97		- 434		- 569	
1.95427	1.95453	1.95090	1.95116	1.94955	1.94978
- 90.01	- 90.06	- 89.31	- 89.36	- 89.03	- 89.08
+ .03	- .02	+ .09	+ .04	+ .03	- .04
- .01	- .15	- .01	- .16	- .03	- .13

- 14° 54 30.00	- 1 30.13	- 1 29.29	- 1 29.41	- 1 29.04	- 1 29.17
54 8.79	8.27	54 11.90	10.29	54 8.32	8.32
- 16 14.30	16.53	- 13.42	13.77	- 12.07	14.43
- 2.23		- 2.35		- 2.36	
- 3.45		- 2.88		- 2.75	
- 16 19.98	10 28.77	18.65	30.55	17.18	25.50
	28.25		28.94		25.50
- 10 28.51		29.74		25.50	



B. A. C. 7008

20 15 42

+39° 1'

 $\gamma = +3^{\circ} 22'$   $\sin \delta = 0.99908$   
 $\sin \delta = +0.6$ 
log  $\delta = 9.89040$ log  $\delta = 10.460$ log  $\delta = 9.99500$ 

1874

1875-

15 48.40

0 36.58

+2.175

+11.17

9.89040

12.552

0.01592

corr. = 70

corr. = 70

76 42.33

78 43.44

78 43.36

I = 2.66

K = -0.020

1874

43.50

43.43

43.33

43.44

43.36

43.46

43.46

+1.51

43.47

1874  
Sept. 12

Sept. 14

Oct. 3

Oct. 11

1874  
Oct. 121875  
Sept. 14

15 35.3	15 22.0	15 36.0	15 19.4	15 40.2	15 27.15	15 41.15	15 31.8	15 41.0	15 37.9	15 59.815	436
85.0	25.0	38.6	22.8	43.1	29.5	44.3	34.5	44.2	16	2.4	46.0
40.5	27.2	41.2	24.6	45.6	35.2	46.9	36.0	47.0		5.0	47.5
43.9		46.5		50.8		52.2		52.3		10.3	
45.7		49.2		53.6		54.9		55.0		12.0	
51.3		51.8		56.3		57.5		57.6		15.6	
54.0	16 16.3	54.5	16 4.9	59.0	16 3.4	62.16	18.3	62.2	16 18.7	18.4 16	39.3
56.6	19.1	57.2	8.1	16	5.5	29	21.0	2.8	21.2	21.0	37.3
1.7	21.4	2.6	10.2	7.0	7.7	8.1	22.9	8.1	23.1	26.3	39.3
4.5		5.4		9.6		10.9		10.8		28.8	
7.2		7.8		12.3		13.3		13.5		31.5	
38.47		39.08		37.91		33.26		33.31		23.21	
180		180		240		300		300		60	
56.47	15 24.78	57.08	15 22.85	61.91	15 29.26	63.26	15 34.10	63.31	15 37.90	172.1 15	45.70
15 51.336	16 18.98	15 51.891	16 7.40	15 56.282	16 5.53	15 57.509	16 28.78	15 57.555	16 21.00	16 15.645	16 36.77
51.316		51.871		56.262		57.489		57.535		15.625	
- 4.56		- 8.21		- 13.23		- 14.48		- 14.68		- 29.63	
- .38		- .38		- .22		- .30		- .24		- .41	
- 2.06 + 0.115		- 2.03 + 0.145		- 1.64 + 0.535		- 1.75 + 0.725		- 1.43 + 0.745		- 2.23	
- 10.00		- 10.62		- 15.09		- 16.23		- 16.33		- 32.27	
15 51.32		15 51.87		15 56.26		15 57.49		15 57.53		16 15.62	
15 41.32		15 41.25		15 41.17		15 41.26		15 41.18		15 43.35	
15 43.495		43.425		43.395		43.335		43.355		41.736	

20 +26.61	-27.59	+29.56	-15.51	+27.02	-9.25	+23.41	-23.22	+19.65	-23.45	+19.94	-21.33
-2.83	-2.34	-2.41	-2.44	-2.45	-2.46	-2.47	-2.48	-2.49	-2.50	-2.51	-2.52
3 41.3	4 33.9	3 37.2	4 22.2	3 37.9	4 13.2	3 43.7	4 29.5	3 48.8	4 29.1	4 0.4	0 54.1
55.6	47.6	50.0	36.1	49.0	24.8	55.5	41.9	59.7	41.4	18.9	12.9
96.9	81.5	87.2	58.3	86.9	38.0	99.2	71.4	108.5	70.5	19.3	12.9
32.3 48.45	24 40.75	23 43.60	24 29.15	23 43.45	24 19.00	23 49.60	24 35.70	23 51.25	24 35.25	4 9.65	6 35.0
1.42504	1.44078	1.47070	1.59061	1.43169	1.96614	1.36940	1.36856	1.29336	1.37014	1.47625	1.32899
1.42004	1.43575	1.46570	1.18561	1.42667	0.961	1.44636	1.36086	1.25886	1.36574	1.49217	1.34492
+26.31	-27.27	+28.22	-15.33	+26.71	-9.14	+23.14	-22.95	+19.43	-23.13	+31.06	-22.13
24 14.76	24 13.48	24 12.82	24 13.82	24 10.16	24 9.86	24 12.74	24 12.75	24 13.68	24 12.07	4 40.71	5 41.37
+38° 58' 33.59	34.87	58 35.53	34.53	58 38.19	38.49	58 35.61	35.60	58 34.67	36.28	17 7.64	17 6.98
34.23		35.03		38.39		35.61		35.97		7.31	
+3 21 41 22 34								21 47	22 28	21 22 22 15	
0.52920	0.53120							0.52950	0.53100	0.52860	0.53030
+2.05		-1.91		+4.04		-2.98		+3.27		-9.3	
0.53125	0.53325	1.52729	1.52929	1.53324	1.53524	1.52622	1.52822	0.53327	0.53427	0.52767	0.52937
-3.40	-3.41	-3.37	-3.38	-3.41	-3.43	-3.36	-3.37	-3.41	-3.42	-3.37	-3.38
-18	-19	-20	-23	-14	-16	-20	-23	-2	-14	-26	-12
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
-3.58	-3.61	-3.60	-3.58	-3.58	-3.58	-3.58	-3.58	-3.58	-3.58	-3.58	-3.58
+38 58 30.01	31.26	58 31.93	31.09	58 34.47	34.91	58 32.00	31.95	58 31.04	32.58	17 4.00	33.3
+2 7.16	7.02	+6.48	6.34	+5.75	5.61	+5.60	5.46	+5.33	5.18	+4.30	4.16
-14	-2.46	-1.11	-2.82	-1.14	-5.49	-1.14	-6.15	-1.15	-2.16	-1.16	-3.21
+1 53.39	0 23.40	52.35	24.28	48.95	23.42	51.14	23.14	51.85	22.89	16 28.84	0 35.16
	24.65		23.44		23.96		23.69		24.43		34.49
+0 24.02		23.86	23.64	23.64	23.11	23.11	23.11	23.66	23.66	0 34.82	
0 25.19		23.03	23.03	23.03	23.03	23.03	23.03	23.03	23.03		



1875

70 4335 348  
 76 4340 36.2  
 76 4343 36.2  
 80 4338 35.6  
 80 4334 35.0  
 81 4333 35.3  
 77 43363 35.52  
 43362(6) +0

1875

Oct. 4		Oct. 5		Oct. 19		Oct. 20		Oct. 21			
16	132.16	8.8	16	141.15	58.5	16	203.16	15.5	16	14.8	
	15.8	11.1		16.9	1.3		23.5	18.1		17.0	
	18.4	13.5		19.5	3.1		26.0	20.3		19.6	
	23.9			24.8			31.7		37.32	32.0	
	26.5			27.3			34.2		26	34.6	
	29.1			30.0			36.8		30	39.3	
	31.8	16	51.4	32.6	16	41.3	39.4	16	42.7	16	54.1
	34.4		33.7	35.3		44.9	42.1		45.6		56.6
	39.4		35.6	40.6		47.9	47.4		47.8		57.3
	42.5			43.6			50.0			30	50.6
	45.0			46.2			52.6			37	53.3
	32.03			33.09			40.47				
16	29.118	16	11.13	16	0.97	16	17.03	16	17.97	16	17.13
	29.098	16	33.57	16	44.70	16	36.791	16	45.37	16	56.67
			30.062				36.771			16	37.31
											37.296
	- 43.58		- 44.36		- 51.07		- 51.67		- 52.19		
	- 34		- 47		- 37		- 31		- 35		
	- 1.83		- 1.80		- 1.48		- 1.45		- 1.43		
	- 45.88		- 46.63		- 52.92		- 53.43		- 53.97		
16	39.10	16	30.06	16	36.25	16	36.77	16	37.30		
15	43.30	15	43.43	15	48.33	15	43.34	15	43.33		
									43.347		

5	+ 17.99	- 24.45	+ 29.11	- 14.62	5	+ 17.24	5	+ 18.82	- 8.58	+ 20.19	- 19.35
	- 280		- 281			- 290		- 291		- 292	
0	70.0	0	53.0	4	58.6	0	43.8	0	37.9	0	48.8
	28.0		12.8		18.4		24.7		52.9		62
	34.0		12.58		13.7		33.9		90.8		3.20
5	19.50	6	29.0	5	8.65	5	54.50	5	16.95	5	16.00
											5
1.25503	1.38828	1.46404	1.16495	1.28421	1.27462	0.93349	1.30514	1.28668	1.29054	0.94941	1.32106
1.27095	1.40420	1.45996	1.18087	1.30013	1.29054	0.94941	1.32106	1.30260	+ 18.82	- 8.90	+ 20.19
+ 18.66	- 25.36	+ 30.19	- 10.17	+ 19.96	+ 19.82	- 8.90	+ 20.19	- 20.07	5	36.94	5
5	38.16	5	37.54	5	38.84	5	36.85	5	36.47	5	37.43
					39.33						
17	1019	1081	17	9.51	17	11.84	17	11.88	11.85	17	11.41
	10.50			9.26		9.02		11.86			11.16
										21	28
										22	9
										0.52880	0.52030
	- 432		- 569		+ 612		- 89		- 547		
0.52428	0.52598	0.52291	0.52461	0.53472	0.53642	0.52771	0.52941	0.52333	0.52483		
- 3.34	- 3.36	- 3.33	- 3.35	- 3.43	- 3.44	- 3.37	- 3.38	- 3.34	- 3.35		
- 0.9	- 21	- 15	- 23	- 21	- 10	- 14	- 0.9	- 12	- 2	- 11	- 19
- 0.4	- 15	- 01	- 13	- 04	- 0.4	- 10	- 0.4	- 10	- 0.4	- 13	- 13
- 3.47	- 3.66	- 3.57	- 3.53	- 3.57	- 3.50	- 3.50	- 3.50	- 3.49	- 3.58		
17	6.72	7.15	17	5.94	17	8.27	17	8.38	8.35	17	7.92
16	13.42	13.59		12.07	12.24	14.46	14.63	15.12	15.29	14.07	14.24
	17			17							
	17.16			17.23		18.06		18.09		18.12	
- 16	30.73	0	35.99	36.47	36.62	32.69	33.38	35.00	34.97	35.58	34.98
			36.42	29.47							
	- 0	36.20		36.24		35.58		34.98		35.27	



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1875

Sept. 17 17<sup>m</sup>  
 32  
 27  
 Oct. 2  
 7  
 16  
 17  
 22  
 27

4672  
 4662 -10  
 4651 -11  
 4640 -11  
 4629 -11  
 4618 -11  
 4606 -12  
 4594 -12  
 4582 -12

51 42.1  
 42.9 +.8  
 43.6  
 44.2  
 44.7  
 45.1  
 45.4  
 45.5  
 45.6

lcos 98852.1  
 lE 12552  
 lE 0.01073

1875

2 44.546  
 3 +51.27.12  
 4 +2.153  
 5 +11.356

1875

70 44.44 28.3  
 76 44.55 27.3  
 76 44.49 27.3  
 80 44.43 27.8  
 80 44.48 27.5  
 81 44.50 27.0  
 78 44.482 27.53  
 (6)

1875 -42  
 Oct. 4

18 14.18 4.618  
 16.8  
 19.5  
 24.9  
 27.6  
 36.3  
 33.0 18  
 35.5  
 41.0  
 43.7  
 46.9  
 33.28

+ -32 -30  
 Oct. 5

18 15.014 5.9318  
 17.8  
 20.4  
 25.8  
 28.3  
 31.1  
 33.9 18  
 36.5  
 41.8  
 44.6  
 47.2  
 34.24

+ -38 -07  
 Oct. 19

18 21.218 2.4718  
 24.0  
 26.0  
 27.1  
 32.0  
 34.9  
 37.9  
 40.0  
 42.8  
 48.2  
 50.9  
 53.5  
 41.10

+ -34  
 Oct. 20

18 21.818 2.4718  
 24.5  
 27.2  
 32.6  
 35.3  
 37.8  
 40.6 19  
 43.3  
 48.9  
 51.3  
 54.0  
 41.71

+ -42  
 Oct. 21

18 22.318 1.75  
 25.8  
 27.8  
 33.2  
 35.8  
 38.4  
 41.2 18  
 43.9  
 49.3  
 51.9  
 54.5  
 42.33

18 30.255 18 7.13  
 30.235 18 56.60  
 17 46.385 -43.52  
 +43.888 -35  
 -43.58 -180  
 -35 -44.57  
 -1.80 -48  
 -45.68 -1.78  
 18 30.23 18 58.14  
 17 44.65 16 13.39  
 -1730 -2  
 51 27.25 51 27.12

18 25.53  
 18 55.63  
 17 46.381 -44.09  
 -24 -39  
 -1.78 -44.58  
 -51.04  
 -38  
 -1.46  
 -52.91  
 18 37.34 18 066  
 17 44.45 -16 14.19  
 -1830 -1  
 51 38.07 51 27.12

18 25.93  
 18 37.918 19 5.57  
 37.898 -51.57  
 17 46.00 45.98 -32  
 +51.942 -09  
 -51.64 -143  
 -32 44.58  
 -1.43  
 -53.42  
 18 37.90 18 110  
 17 44.48 -16 15.10  
 -1840 -1  
 51 27.50 51 26.77

18 17.50  
 18 38.482 19 0.80  
 38.462 -52.14  
 17 45.796 -35  
 +52.4450 -141  
 -52.19 44.56  
 -36  
 -1.41  
 -53.96  
 18 38.46 18 59.59  
 17 44.50 -16 14.22  
 -1840 -2  
 51 26.77 51 26.77

+ 23.12 -2635 + 2860 -2450 + 1143  
 10 -280  
 4 13.9 0 4.7 4 9.2 0 4.0 4 24.9  
 32.5 24.3 28.5 23.4 40.6  
 46.4 29.0 37.7 27.4 65.5  
 14 23.20 15 14.50 14 18.85 15 13.70 14 37.75  
 32.70

1.36399 1.42079 1.45637 1.38914 1.05808  
 1.37442 1.43152 1.46711 1.39940 1.06878  
 +23.40 -27.01 +29.32 -23.11 +14.72  
 14 46.90 14 47.49 14 48.17 14 48.59 14 44.47

8 1.45 0.86 8 0.18 59.76 8 3.88  
 1.15 7.597

-428 -569 +618  
 0.39842 0.40042 0.39701 0.39901 0.40888 0.41088 0.40185 0.40385 0.39663 0.39903  
 -2.50 -2.51 -2.50 -2.51 -2.56 -2.57 -2.52 -2.53 -2.49 -2.51

-14 -50 -18 -21 -51 -15 -03 -66  
 -66 -03 -64 -03 -63  
 -320 -292 -325 -268 -322  
 58.15 58.14 56.83 59.07 8 6.66  
 44.4 44.6 45.4 45.3  
 -16 13.7 13.7 12.2 12.5 15.3  
 -16 13.7 12.3 15.3  
 -16 13.42 51 27.32 -12.07 12.18 27.15 -14.46 14.58  
 11 13.53 27.31 -14 27.39 -12  
 17.30 -17.50 -18.30  
 -16 30.83 +51 27.31 29.68 27.27 32.88 27.78

+ 2119 -2775 + 2098 -2232  
 10 -291  
 4 14.7 0 5.5 4 15.1 4 5.88  
 28.4 20.9 32.6 18.5  
 44.4 26.4 47.7 13.83  
 14 22.20 15 13.20 14 23.85 15 9.15

1.32613 1.44638 1.32181 1.34869  
 1.33686 1.46711 1.33254 1.35942  
 +21.72 -28.65 +21.50 -22.88  
 14 43.92 14 44.53 14 45.35 14 46.27

8 443 3.80 8 300 8 2.08  
 4.11 2.54  
 30 36 31 21  
 0.40210 0.40450

-85 -547  
 0.40185 0.40385 0.39663 0.39903  
 -2.52 -2.53 -2.49 -2.51

-12 -49 -21 -12 -45 -13  
 -62 -03 -62 -03  
 -326 -277 -323 -268  
 1.14 1.03 59.77 59.41  
 45.5 45.5  
 15.7 15.5 14.3 13.9  
 15.6 14.2  
 -15.12 15.24 27.53 -14.07 14.19 27.18  
 -12 27.39 -12 26.82  
 -18.40 -18.40  
 33.64 27.46 32.59 27.00



$\pi$  Capricorni

h m sec.

20 20 10

-18° 37'

 $I = +61^{\circ} 0'$  $\text{Parallax} = +.87$ 

1874

2 20 6.123

2 37 21.91

2 42 +34.41

2 47 +11.48

L 508 9.50411m

L 600 9.97666

L 61 10.460

L 6 0.08126

1871-  
N.A.

9.864

10.43

+34.41

+11.49

1875

20 9.90

37 12.25

+34.41

+11.49

9.97666

12.552

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Long = -34

I = 217

K = -0.16

Sept-7

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30.8

31.0

31.2

31.4

31.6

31.8

32.0

32.2

32.4

32.6

32.8

33.0

1874

Sept. 12

-1.475

20 37 19

50.5

32.3

32.0

12.5

14.7

16.9

19.0

21.3

23.7

25.9

27.9

29.9

18.59

16.906

16.884

-1.56

+ .16

-2.93

+0.511

-10.33

16.88

6.55

9.991

Sept. 14

-1.465

20 46 19

35.4

57.8

37.3

13.2

15.3

17.5

19.7

21.8

23.9

25.9

27.9

29.9

19.25

17.500

17.884

-8.21

+ .16

-2.91

+0.531

11.96

17.48

6.52

9.961

Oct. 3

-2.276

20 9 22

11.2

13.5

17.9

20.0

22.3

24.4

26.6

28.7

30.8

32.9

35.0

37.1

39.2

41.3

43.4

45.5

47.6

49.7

51.8

53.9

56.0

58.1

60.2

62.3

64.4

66.5

68.6

70.7

72.8

74.9

77.0

79.1

81.2

83.3

85.4

87.5

89.6

91.7

93.8

95.9

98.0

100.1

102.2

104.3

106.4

108.5

110.6

112.7

114.8

116.9

119.0

121.1

123.2

125.3

127.4

129.5

131.6

Oct. 11

-3.64 -3.67

20 10 19

12.5

14.7

16.9

19.0

21.2

23.3

25.4

27.5

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31.7

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35.9

38.0

40.1

42.2

44.3

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48.5

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56.9

59.0

61.1

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80.0

82.1

84.2

86.3

88.4

90.5

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98.9

101.0

103.1

105.2

107.3

109.4

111.5

113.6

115.7

117.8

119.9

122.0

124.1

126.2

128.3

130.4

Oct. 12

-3.02

20 10 6

12.8

14.9

16.9

19.0

21.1

23.2

25.3

27.4

29.5

31.6

33.7

35.8

37.9

40.0

42.1

44.2

46.3

48.4

50.5

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54.7

56.8

58.9

61.0

63.1

65.2

67.3

69.4

71.5

73.6

75.7

77.8

79.9

82.0

84.1

86.2

88.3

90.4

92.5

94.6

96.7

98.8

100.9

103.0

105.1

107.2

109.3

111.4

113.5

115.6

117.7

119.8

121.9

124.0

126.1

128.2

130.3

Sept. 14

-3.03

20 10 6

12.8

14.9

16.9

19.0

21.1

23.2

25.3

27.4



1873			1874				
Sept. 16	20	13.14	37	7.5	70	9.99	10.8
21		13.08		7.7	70	9.96	11.1
26		13.02		7.9	76	9.85	12.2
Oct. 1		12.95		8.1	78	9.88	12.4
6		12.87		8.3	78	9.90	12.5
11		12.79		8.5			
16		12.71		8.7	74	9.916	11.80
21		12.64		8.9			
26		12.56		9.1			

	1875	
70	9.96	11.5
76	9.92	12.6
80	9.88	12.3
81	9.90	12.2
77	9.915	12.15
	(4)	$\frac{+1}{12.14}$

1875				Oct. 20				Oct. 21			
- 418				- 387				- 433			
20	434	20	340	20	513	20	463	20	517	20	396
	453		357		534		480		538		419
	479		379		555		499		560		435
	520				599			21	64		
	541		21		30				26		
	563				43				47		
	585	21	81		64	21	255		69	21	161
	66		103		84		266		90		173
	57		119		128		283		136		197
	74				150				156		
	94				172				178		
3800				2865				2320			
240				240				180			
20	6200	20	3587		465	20	4807		520	20	4167
	56364	21	1010	21	4227	21	2680	21	4727	21	1770
	56348				4211				4711		
- 4350				- 5167				- 5219			
+ .14				+ .13				+ .15			
- 3.04				- 2.29				- 2.77			
- 46.43				- 57.33				- 37.41			
56.35				4.21				4.31			
9.52				9.88				9.90			
								9.915			

[illegible]







1875

70	43.77	30.1
76	43.80	31.9
80	44.04	27.9
80	43.75	30.4
81	43.76	29.8
77	43.770	30.55
	+ 1 (4)	30.57

1875-

Oct. 4				Oct. 19				Oct. 20				Oct. 21			
22	19.2	22	10.6	22	31.7	22	24.0	22	25.0	22	18.2	22	25.7	22	16.4
	19.4		12.3		27.0				27.2		15.2		27.8		19.0
	21.5		14.0		29.2				29.4		16.6		28.9		20.1
	26.6				33.4				33.9				34.2		
	28.0				35.5				36.0				36.5		
	30.2				37.7				38.1				38.7		
	32.4	22	54.8		39.9			22	40.2	22	55.6		40.9	22	41.1
	34.6		56.4		42.0				42.4		57.7		42.6		45.7
	38.9		59.0		46.7				46.8		0.1		47.3		
	41.1				48.6				49.0				49.4		
	43.4				50.9				51.1				51.7		
	33.27				41.56				41.91				42.47		
22	30.245	22	12.30	22	37.782	22	24.00	22	38.100	22	15.00	22	38.609	22	18.77
	30.229		56.73		37.766				38.084		57.80		38.593		43.10
-	43.63			-	51.07			-	51.67			-	52.19		
+	14			+	15			+	13			+	14		
-	3.04			-	2.81			-	2.49			-	2.78		
-	46.43			-	53.73			-	54.33			-	54.83		
22	30.23			22	37.77			22	38.08			22	38.59		
21	43.80			21	44.04			21	43.75			21	43.76		
													43.70		

$+ 17.94 - 2.44 + 13.78$   
 $- 2.80$   
 $2 \ 57.6 \ 3 \ 47.6 \ 2 \ 54.6$   
 $61 \ 2.0 \ 53.8$   
 $17 \ 11.77 \ 109.6 \ 120.4$   
 $57 \ 58.85 \ 18 \ 54.80 \ 18 \ 0.20$   
 $1.25382 \ 1.12308 \ 1.13925$   
 $1.25711 \ 1.52624 \ 1.34244$   
 $+22.96 \ -33.59 \ +17.48$   
 $18 \ 21.61 \ 18 \ 21.61 \ 18 \ 17.68$   
 $55 \ 33.26 \ 32.86 \ 55 \ 29.33$   
 $33.06$   
 $-423$   
 $2,00305 \ 2,00334 \ 2,00456 \ 2,01385$   
 $-100.71 \ -100.77 \ -101.06 \ -100.24$   
 $-1 \ -1 \ 0 \ 0$   
 $+04 \ +0 \ +03 \ -39$   
 $-45 \ -44 \ -58 \ -42$   
 $41.13 \ 41.26 \ 41.48$   
 $57 \ 14.39 \ 14.12 \ 57 \ 10.78$   
 $-16 \ 13.42 \ 15.85 \ -14.46 \ 16.98$   
 $-2.42 \ -2.52$   
 $-1.81 \ -0.19$   
 $-16 \ 17.66 \ 13 \ 32.05 \ 17.15$   
 $31.78$   
 $-13 \ 31.91$   
 $29.93$

$+ 23.10 - 1970 + 11.84 - 4.9$   
 $- 2.91$   
 $2 \ 44.1 \ 3 \ 38.3 \ 2 \ 48.8 \ 3 \ 19.4$   
 $53.8 \ 49.6 \ 2.6 \ 33.0$   
 $9.99 \ 87.9 \ 111.4 \ 52.4$   
 $17 \ 49.95 \ 18 \ 43.95 \ 17 \ 55.70 \ 18 \ 26.20$   
 $1.36361 \ 1.29447 \ 1.29754 \ 0.65225$   
 $1.46680 \ 1.39766 \ 1.40013 \ 1.75544$   
 $+23.30 \ -24.98 \ +25.16 \ -5.69$   
 $18 \ 19.25 \ 18 \ 18.97 \ 18 \ 20.86 \ 18 \ 20.51$   
 $55 \ 30.90 \ 30.62 \ 55 \ 32.51 \ 55 \ 32.16$   
 $30.76$   
 $32.33$   
 $34 \ 38 \ 34 \ 38$   
 $2.00731 \ 2.00745$   
 $-547$   
 $2,00679 \ 2,00754 \ 2,00198$   
 $-101.51 \ -101.58 \ -100.42 \ -100.46$   
 $0 \ 0 \ 0 \ 0$   
 $+08 \ -39 \ +05 \ -45$   
 $-42 \ -52 \ -41 \ -48$   
 $41.82 \ 42.05 \ 40.79 \ 40.95$   
 $57 \ 12.72 \ 12.67 \ 57 \ 13.30 \ 13.11$   
 $-15.12 \ 17.65 \ -14.07 \ 16.61$   
 $-2.53 \ -2.54$   
 $-0.06 \ +0.05$   
 $17.71 \ 30.43 \ 16.56 \ 29.66$   
 $30.38 \ 29.67$   
 $30.40 \ 29.76$



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1875  
 76 17.30 8.8  
 50 17.21 7.8  
 78 17.255 8.30  
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 24 56.9 24 50.4  
 59.0 59.8  
 25 9.4 1.9  
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 15.4 31.4  
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 25 10.891 25 31.53  
 10.873  
~~51.68~~  
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 25 10.87  
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+ 11.19 - 20.64  
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 3 85.6 4 10.3  
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 8 8.35 36.9  
 8 41.75 9 18.45

1.04888 1.31471 m  
 1.11210 1.37498 m  
~~12.94~~ ~~23.88~~  
 8 54.69 8 54.57

13 53.66 53.78  
 53.72

24 51 25 30  
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 1.10216 1.10256  
~~12.65~~ ~~12.66~~

~~0.3~~ ~~0.2~~ ~~0.9~~

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~~13.20~~ ~~13.35~~

13 40.46 40.43

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~~16.88~~

~~16~~ 32.61

7.85

7.82

7.83



*e Delphini*  
h m sec.  
20 27 14  
+10° 53'

$\gamma = +31^\circ 30'$   $\text{lsin } \rho = 9.27602$   
 $\text{Jsin } \gamma = +0.2$   $\text{Lcos } \rho = 9.99212$   
L'E' 10.460  
L'E' 0.09672

1874	1874
Sept. 17	27
11.556	13.94
0 +52.34.55	22 13.88
0 +2.865	27 13.81
0 +11.981	Oct. 2 13.74
	7 13.67
	12 13.60
	17 13.52
	22 13.44
	27 13.36

1874	1874
52' 44.7	70 14.51
45.0	70 14.47
45.3	76 14.45
45.5	76 14.42
45.7	78 14.38
45.8	78 14.43
45.7	0 14.46
45.7	0 14.46
45.7	0 14.46
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X 1874	X 1874	X 1874	X 1874	X 1874	X 1874
Sept. 12	Sept. 14	Oct. 3	Oct. 4	Oct. 11	Oct. 12
27 9.2	27 9.8	27 14.8	27 14.6	27 14.6	27 13.8
11.2	11.9	16.5	16.7	17.7	18.0
13.3	13.9	18.6	18.7	19.9	20.0
17.5	18.1	22.8	23.0	24.1	24.2
19.6	20.2	25.0	25.0	26.1	26.1
21.7	22.3	27.0	27.2	28.3	28.3
23.9	24.4	29.1	29.3	30.3	31.4
26.0	26.5	31.2	31.4	32.5	32.6
30.2	31.7	35.4	35.5	36.7	36.7
32.2	32.9	37.6	37.6	38.8	38.8
34.4	34.9	39.7	39.8	40.9	41.0
23.92	24.56	29.74	29.88	31.08	31.19
27 21.745	27 22.327	27 27.036	27 27.164	27 28.255	27 28.355
27 21.729	27 22.311	27 27.020	27 27.148	27 28.239	27 28.339
27 14.00	27 13.984	27 13.78	27 13.71	27 13.61	27 13.60
+7.73	+8.384	+13.293	+13.44	+14.63	+14.74
-7.41	-8.06	-13.14	-13.35	-14.40	-14.57
-1.09	-1.09	-1.09	-1.09	-1.09	-1.09
-2.44	-2.44	-2.44	-2.44	-2.44	-2.44
-10.09	-10.09	-10.09	-10.09	-10.09	-10.09
27 21.73	27 22.31	27 27.02	27 27.15	27 28.24	27 28.34
27 11.64	27 11.60	27 11.58	27 11.55	27 11.53	27 11.56
27 14.05	27 14.05	27 14.05	27 14.05	27 14.05	27 14.05
+10.33	+10.33	+10.33	+10.33	+10.33	+10.33
+18.91	+18.91	+18.91	+18.91	+18.91	+18.91
-24.66	-24.66	-24.66	-24.66	-24.66	-24.66
+22.93	+22.93	+22.93	+22.93	+22.93	+22.93
-20.80	-20.80	-20.80	-20.80	-20.80	-20.80
+18.44	+18.44	+18.44	+18.44	+18.44	+18.44
-19.26	-19.26	-19.26	-19.26	-19.26	-19.26
+22.83	+22.83	+22.83	+22.83	+22.83	+22.83
-23.80	-23.80	-23.80	-23.80	-23.80	-23.80
+18.19	+18.19	+18.19	+18.19	+18.19	+18.19
-22.78	-22.78	-22.78	-22.78	-22.78	-22.78
+21.49	+21.49	+21.49	+21.49	+21.49	+21.49
-22.78	-22.78	-22.78	-22.78	-22.78	-22.78
1 7.6	1 55.3	1 50.3	1 48.3	1 53.9	1 55.1
20.4	14.8	14.9	15.5	11.6	11.9
22.0	13.0	13.4	16.5	12.7	12.7
x31 11.00	32.5 5.05	31.7 5.70	31.7 5.85	32.8 1.35	32.2 3.50
1.27669	1.39199	1.36040	1.31806	1.28466	1.35857
1.37341	1.48871	1.45712	1.41478	1.38138	1.45323
+23.63	+30.81	+28.65	+23.04	+24.06	+28.82
31 34.63	31 34.24	31 34.35	31 33.86	31 31.94	31 32.22
51 13.72	51 14.11	51 14.00	51 17.06	51 16.15	51 16.15
13.91	14.24	14.49	16.73	16.41	16.43
+31 29 4	+31 29 58				
1.54720	1.54750				
+24.8					
1.54968	1.54998	1.54550	1.54580	1.55169	1.55199
-35.45	-35.48	-35.12	-35.14	-35.62	-35.64
-0.3	-0.4	-0.6	-0.5	-0.4	-0.3
0.0	0.0	0.0	0.0	0.0	0.0
-35.45	-35.54	-35.78	-35.8	-35.73	-35.73
50 38.24	38.57	38.83	39.31	41.41	40.68
52 44.3		44.5	45.5	45.6	45.6
+2 6.1	5.7	5.7	5.2	4.1	4.8
+2 7.16	52 34.19	+6.48	52 34.00	+5.75	45.03471
1.21	5.95	34.52	-1.21	1.88	34.48
+1.98		-10.10		-11.20	
+1 53.95	52 34.35	55.17	34.24	53.30	34.34
52 46.33		46.22	46.32	46.32	46.08



1875- Sept. 27	1711 1705 1698 1691 1684 1679 1669 1661 1653	-06 -07 -07 -07 -07 -08 -08 -08	32	572 575 578 580 582 583 583 582 582	+3 +3 +2 +2 +1 +0 -1 +0	1875- Oct. 27	14421 +52.4633 +2865 +11.384	70 76 80 81 82	1445 1448 1445 1441 1439	466 463 471 468 468	1875- Oct. 27	1445 1448 1445 1441 1439	466 463 471 468 468
1875- Sept. 14	29 344 365 386 424 448 469 490 510 533 573 595 5160	29 250 272 290 28 42 65 86 111 132	29 480 501 522 563 583 66 26 48 88 111 132	29 368 392 408 28 595 58 58 79 100 120 161 183 205	29 553 574 595 58 58 79 100 120 161 183 205	1875- Oct. 19	29 558 578 598 60 63 84 103 126 168 189 210	29 446 474 492 28 68 89 110 131 163 195 216	29 564 584 605 28 68 89 110 131 163 195 216	29 506 533 552 28 68 89 110 131 163 195 216	1875- Oct. 21	29 564 584 605 28 68 89 110 131 163 195 216	29 506 533 552 28 68 89 110 131 163 195 216
1875- Sept. 14	29 344 365 386 424 448 469 490 510 533 573 595 5160	29 250 272 290 28 42 65 86 111 132	29 480 501 522 563 583 66 26 48 88 111 132	29 368 392 408 28 595 58 58 79 100 120 161 183 205	29 553 574 595 58 58 79 100 120 161 183 205	1875- Oct. 19	29 558 578 598 60 63 84 103 126 168 189 210	29 446 474 492 28 68 89 110 131 163 195 216	29 564 584 605 28 68 89 110 131 163 195 216	29 506 533 552 28 68 89 110 131 163 195 216	1875- Oct. 21	29 564 584 605 28 68 89 110 131 163 195 216	29 506 533 552 28 68 89 110 131 163 195 216
1875- Sept. 14	29 344 365 386 424 448 469 490 510 533 573 595 5160	29 250 272 290 28 42 65 86 111 132	29 480 501 522 563 583 66 26 48 88 111 132	29 368 392 408 28 595 58 58 79 100 120 161 183 205	29 553 574 595 58 58 79 100 120 161 183 205	1875- Oct. 19	29 558 578 598 60 63 84 103 126 168 189 210	29 446 474 492 28 68 89 110 131 163 195 216	29 564 584 605 28 68 89 110 131 163 195 216	29 506 533 552 28 68 89 110 131 163 195 216	1875- Oct. 21	29 564 584 605 28 68 89 110 131 163 195 216	29 506 533 552 28 68 89 110 131 163 195 216
1875- Sept. 14	29 344 365 386 424 448 469 490 510 533 573 595 5160	29 250 272 290 28 42 65 86 111 132	29 480 501 522 563 583 66 26 48 88 111 132	29 368 392 408 28 595 58 58 79 100 120 161 183 205	29 553 574 595 58 58 79 100 120 161 183 205	1875- Oct. 19	29 558 578 598 60 63 84 103 126 168 189 210	29 446 474 492 28 68 89 110 131 163 195 216	29 564 584 605 28 68 89 110 131 163 195 216	29 506 533 552 28 68 89 110 131 163 195 216	1875- Oct. 21	29 564 584 605 28 68 89 110 131 163 195 216	29 506 533 552 28 68 89 110 131 163 195 216
1875- Sept. 14	29 344 365 386 424 448 469 490 510 533 573 595 5160	29 250 272 290 28 42 65 86 111 132	29 480 501 522 563 583 66 26 48 88 111 132	29 368 392 408 28 595 58 58 79 100 120 161 183 205	29 553 574 595 58 58 79 100 120 161 183 205	1875- Oct. 19	29 558 578 598 60 63 84 103 126 168 189 210	29 446 474 492 28 68 89 110 131 163 195 216	29 564 584 605 28 68 89 110 131 163 195 216	29 506 533 552 28 68 89 110 131 163 195 216	1875- Oct. 21	29 564 584 605 28 68 89 110 131 163 195 216	29 506 533 552 28 68 89 110 131 163 195 216
1875- Sept. 14	29 344 365 386 424 448 469 490 510 533 573 595 5160	29 250 272 290 28 42 65 86 111 132	29 480 501 522 563 583 66 26 48 88 111 132	29 368 392 408 28 595 58 58 79 100 120 161 183 205	29 553 574 595 58 58 79 100 120 161 183 205	1875- Oct. 19	29 558 578 598 60 63 84 103 126 168 189 210	29 446 474 492 28 68 89 110 131 163 195 216	29 564 584 605 28 68 89 110 131 163 195 216	29 506 533 552 28 68 89 110 131 163 195 216	1875- Oct. 21	29 564 584 605 28 68 89 110 131 163 195 216	29 506 533 552 28 68 89 110 131 163 195 216
1875- Sept. 14	29 344 365 386 424 448 469 490 510 533 573 595 5160	29 250 272 290 28 42 65 86 111 132	29 480 501 522 563 583 66 26 48 88 111 132	29 368 392 408 28 595 58 58 79 100 120 161 183 205	29 553 574 595 58 58 79 100 120 161 183 205	1875- Oct. 19	29 558 578 598 60 63 84 103 126 168 189 210	29 446 474 492 28 68 89 110 131 163 195 216	29 564 584 605 28 68 89 110 131 163 195 216	29 506 533 552 28 68 89 110 131 163 195 216	1875- Oct. 21	29 564 584 605 28 68 89 110 131 163 195 216	29 506 533 552 28 68 89 110 131 163 195 216
1875- Sept. 14	29 344 365 386 424 448 469 490 510 533 573 595 5160	29 250 272 290 28 42 65 86 111 132	29 480 501 522 563 583 66 26 48 88 111 132	29 368 392 408 28 595 58 58 79 100 120 161 183 205	29 553 574 595 58 58 79 100 120 161 183 205	1875- Oct. 19	29 558 578 598 60 63 84 103 126 168 189 210	29 446 474 492 28 68 89 110 131 163 195 216	29 564 584 605 28 68 89 110 131 163 195 216	29 506 533 552 28 68 89 110 131 163 195 216	1875- Oct. 21	29 564 584 605 28 68 89 110 131 163 195 216	29 506 533 552 28 68 89 110 131 163 195 216
1875- Sept. 14	29 344 365 386 424 448 469 490 510 533 573 595 5160	29 250 272 290 28 42 65 86 111 132	29 480 501 522 563 583 66 26 48 88 111 132	29 368 392 408 28 595 58 58 79 100 120 161 183 205	29 553 574 595 58 58 79 100 120 161 183 205	1875- Oct. 19	29 558 578 598 60 63 84 103 126 168 189 210	29 446 474 492 28 68 89 110 131 163 195 216	29 564 584 605 28 68 89 110 131 163 195 216	29 506 533 552 28 68 89 110 131 163 195 216	1875- Oct. 21	29 564 584 605 28 68 89 110 131 163 195 216	29 506 533 552 28 68 89 110 131 163 195 216
1875- Sept. 14	29 344 365 386 424 448 469 490 510 533 573 595 5160	29 250 272 290 28 42 65 86 111 132	29 480 501 522 563 583 66 26 48 88 111 132	29 368 392 408 28 595 58 58 79 100 120 161 183 205	29 553 574 595 58 58 79 100 120 161 183 205	1875- Oct. 19	29 558 578 598 60 63 84 103 126 168 189 210	29 446 474 492 28 68 89 110 131 163 195 216	29 564 584 605 28 68 89 110 131 163 195 216	29 506 533 552 28 68 89 110 131 163 195 216	1875- Oct. 21	29 564 584 605 28 68 89 110 131 163 195 216	29 506 533 552 28 68 89 110 131 163 195 216
1875- Sept. 14	29 344 365 386 424 448 469 490 510 533 573 595 5160	29 250 272 290 28 42 65 86 111 132	29 480 501 522 563 583 66 26 48 88 111 132	29 368 392 408 28 595 58 58 79 100 120 161 183 205	29 553 574 595 58 58 79 100 120 161 183 205	1875- Oct. 19	29 558 578 598 60 63 84 103 126 168 189 210	29 446 474 492 28 68 89 110 131 163 195 216	29 564 584 605 28 68 89 110 131 163 195 216	29 506 533 552 28 68 89 110 131 163 195 216	1875- Oct. 21	29 564 584 605 28 68 89 110 131 163 195 216	29 506 533 552 28 68 89 110 131 163 195 216
1875- Sept. 14	29 344 365 386 424 448 469 490 510 533 573 595 5160	29 250 272 290 28 42 65 86 111 132	29 480 501 522 563 583 66 26 48 88 111 132	29 368 392 408 28 595 58 58 79 100 120 161 183 205	29 553 574 595 58 58 79 100 120 161 183 205	1875- Oct. 19	29 558 578 598 60 63 84 103 126 168 189 210	29 446 474 492 28 68 89 110 131 163 195 216	29 564 584 605 28 68 89 110 131 163 195 216	29 506 533 552 28 68 89 110 131 163 195 216	1875- Oct. 21	29 564 584 605 28 68 89 110 131 163 195 216	29 506 533 552 28 68 89 110 131 163 195 216
1875- Sept. 14	29 344 365 386 424 448 469 490 510 533 573 595 5160	29 250 272 290 28 42 65 86 111 132	29 480 501 522 563 583 66 26 48 88 111 132	29 368 392 408 28 595 58 58 79 100 120 161 183 205	29 553 574 595 58 58 79 100 120 161 183 205	1875- Oct. 19	29 558 578 598 60 63 84 103 126 168 189 210	29 446 474 492 28 68 89 110 131 163 195 216	29 564 584 605 28 68 89 110 131 163 195 216	29 506 533 552 28 68 89 110 131 163 195 216	1875- Oct. 21	29 564 584 605 28 68 89 110 131 163 195 216	29 506 533 552 28 68 89 110 131 163 195 216
1875- Sept. 14	29 344 365 386 424 448 469 490 510 533 573 595 5160	29 250 272 290 28 42 65 86 111 132	29 480 501 522 563 583 66 26 48 88 111 132	29 368 392 408 28 595 58 58 79 100 120 161 183 205	29 553 574 595 58 58 79 100 120 161 183 205	1875- Oct. 19							



Delphinus  
20 29 28  
+14° 15'

$J = +28 \ 8$   $\cos \alpha = 9.39121$   
 $\sin \gamma = +47$   $\cos \delta = 9.98643$   
 $\cos \epsilon = 9.98643$   
 $\cos \zeta = 0.09103$

1874

1875

29 2785  
14 3869  
+2.804  
+12.17

9.98643  
12.582  
0.11195

1874  
corr = 70 27.89 39.8  
cond = 70 27.82 39.3  
20-g = +2.5 76 27.74 38.5  
S 78 27.86 37.6  
T = 2.2 78 27.78 37.8  
K = 3 74 27.818 38.60  
-0.16  $\frac{1}{27.819(5)}$

1874	1874	1874	1874	1874	1875
Sept. 12	Sept. 14	Oct. 4	Oct. 11	Oct. 12	Sept. 14
29 223 246 267 30.9 33.1 35.2 37.2 39.4 43.8 45.8 48.0	29 13.2 15.3 17.3 27.3 31.4 33.6 35.8 37.9 40.1 44.2 46.4 48.5	29 12.4 14.6 16.8 27.3 32.0 36.3 38.4 40.5 42.6 44.9 47.9 50.0 53.3	29 27.9 29.9 31.1 32.4 33.1 34.4 36.4 38.4 41.6 43.8 45.9 48.1 50.0 52.3 54.4	29 28.9 31.0 33.4 35.3 36.6 38.6 41.6 43.9 46.0 48.1 50.4 52.5 54.6	29 35.7 36.7 49.9 51.8 56.0 58.1 0.3 2.4 4.4 8.6 10.9 13.0
3870 29 15.33 29 35.182 29 33.10 35.166	39 3.3 29 35.755 35.739	29 14.60 29 46.10 44.59 29 21.60 40.536 29 54.23 40.520	29 24.88 29 41.664 30 -4.33 41.648	29 35.90 29 41.745 30 26.70 41.929	30 28 29 35.93 0.255 0.239
- 7.56 - 1.12 - 2.40 - 10.08 29 36.17 29 25.09 29 27.874	- 8.22 - 1.12 - 2.38 - 10.72 29 36.74 29 25.02 27.824	- 13.39 - 0.07 - 2.12 - 13.58 29 40.52 29 24.94 27.744	- 14.49 - 0.09 - 2.01 - 16.59 29 41.65 29 25.06 27.864	- 14.68 - 0.07 - 2.60 - 16.73 29 41.73 29 24.98 27.884 25.018	- 29.63 - 1.12 - 2.67 - 32.42 30 0.24 29 27.82

5 +19.85	-17.92	5 +21.15	-10.35	5 +18.94	-13.79	5 +16.83	-22.67	5 +58.4	-38.96	+24.32
-2.33	-2.34	-2.42	-2.44	-2.45	-2.46	-2.47	-2.48	-2.49	-2.50	-2.51
4 10.9	4 37.9	4 10.1	4 48.9	4 13.0	4 32.1	4 17.4	0 5.9	4 32.3	0 25.7	0 3.18
29.4	17.4	27.1	8.2	26.8	8.7	33.8	23.0	45.1	43.8	46.4
40.3	135.3	37.2	117.1	37.8	120.8	51.2	28.9	80.4	69.5	78.5
49 20.15	105 76.5	94 18.60	94 58.55	94 19.90	105 0.40	94 25.60	104 14.45	94 40.20	104 34.75	50 39.25
1.297776	1.25334	1.32531	1.01494	1.27761	1.13956	1.22603	1.35545	0.76641	1.59062	1.38596
1.385779	1.34437	1.41634	1.10597	1.36867	1.23059	1.31711	1.44648	0.85744	1.68165	1.49791
+2448	-22.10	+26.08	-13.06	+23.87	-17.00	+20.78	-27.96	+7.20	-48.05	+31.47
9 41.63	9 45.53	9 44.68	9 45.47	9 42.27	9 43.40	9 46.35	9 46.49	9 47.40	9 46.70	57 10.72
+14° 13 3.72	280 13 3.67	286 13 5.08	495 13 2.00	1.86 13 0.95	1.65 31 3.763					
+28 7 13	8 1	5.02	1.93	1.30	1.30					
1.48810	1.48830	-165	+1026	-262	-262					
+258	-30.95	-30.96	-30.65	-30.67	-31.50	-31.52	-31.29	-31.31	-31.04	-31.06
1.49068	1.49088	1.48645	1.48665	1.49836	1.49856	1.48548	1.48368	1.49195	1.49213	1.48738
-30.95	-30.96	-30.65	-30.67	-31.50	-31.52	-31.29	-31.31	-31.04	-31.06	-30.72
-0.4	-0.4	-0.4	-0.6	-0.3	-0.1	-0.5	-0.7	-0.8	-0.8	-0.8
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
-30.99	-31.00	-30.71	-30.68	-31.68	-31.69	-31.45	-31.39	-31.18	-31.27	-30.89
+14 12 32.73	31.80	12 32.96	32.18	12 33.40	33.26	12 30.55	30.97	12 29.77	30.38	31 6.74
+2 7.16	6.07	+6.48	5.39	+6.32	5.19	+8.60	7.46	+9.33	8.18	-16 14.30
-1.09	+1.48	-1.09	+1.39	-1.13	-0.05	-1.14	-0.35	-1.15	-0.42	-1.25
-10.69		-10.88		-12.22		-12.52		-12.59		-11.41
+1.5538	14 28.11	54.51	27.47	52.97	26.37	54.74	25.49	53.59	25.36	16 26.96
	27.18		26.69		26.23		25.41		25.97	
+14 27.64		27.08	26.47	26.30	25.45		25.66		25.97	



1875  
 270 27.82 39.6  
 276 27.86 38.4  
 280 27.72 40.0  
 280 27.73 38.7  
 281 27.84 39.7  
 282 27.79 38.2  
 278 27.802 39.13  
 27.800 (6) 39.1  
 39.182

1875

Oct. 4	Oct. 19	Oct. 20	Oct. 21	Oct. 25
30 1.3 29 58.5 30 4.18	30 8.4 29 58.4 30 4.53	30 9.6 30 1.8 30 4.33	30 9.6 29 58.230 4.68	30 11.630 0.4
33 0.3	10.3 59.8	11.0 4.4	11.9 0.3	13.7 2.1
5.4 2.3	12.4 1.5	13.3 6.0	13.9 1.8	15.4 3.8
9.6	16.9	14.5	18.1	20.1
11.8	18.3	19.6	20.2	22.2
13.9	21.1	21.7	22.3	24.2
16.0	23.3	23.8 30 38.0	24.4	26.3 30 4.6
18.2	25.3	26.0 40.1	26.4	28.6 49.1
22.4	28.6	30.2 41.8	—	32.9 51.0
24.6	31.8	32.4	—	35.0
26.7	33.8	34.5	—	37.1
153.2	33.0	239.0	26.77	
30 13.927 30 0.37	30 21.091 29 59.90	30 21.727 30 4.07	30 22.30 30 0.180	30 24.336 30 2.10
13.911	21.075	21.711	22.28	24.320
-43.54	-51.04	-51.64	-53.19	-54.34
-1.10	-1.11	-1.10	-1.11	-1.11
-2.41	-2.14	-2.16	-2.14	-2.08
-46.05	-53.35	-53.93	-54.44	-56.53
30 13.91	30 21.07	30 21.71	30 22.28	30 24.32
29 27.86	29 27.72	29 27.78	29 27.84	29 27.79
				27.802
+ 1356	+ 21.19	+ 17.66 - 18.24	+ 22.20	+ 22.24 - 24.89
30 -280	30 -290	30 -291	30 -292	30 -292
0 465	0 342	0 405	0 331	0 352 1 363
19	160	52.1	484	481 495
108.4	87.1	92.6	81.5	84.3 85.8
50 54.20	50 40.55	50 46.30	50 40.75	50 42.15 51 42.90
1.13226	1.32613	1.24699 1.26102	1.34635	1.34713 1.39602
1.24421	1.43808	1.35894 1.37297	1.45830	1.45908 1.50777
+1.55	+2.42	+2.85 - 2.60	+28.73	+28.78 - 32.21
51 11.73	51 7.97	51 9.15	51 9.48	51 16.53 51 10.69
31 36.60	31 40.38	31 39.20	31 38.87	31 37.42 37.66
6	6 53	6 58	6 53	6 54 7 53
1.48800	1.48800	1.48800	1.48800	1.48800 1.48830
-413	+649	-63	-547	-1047
1.48387	1.47445	1.48737	1.48253	1.47753 1.47783
-30.47	-31.22	-30.72	-30.38	-30.03 -30.05
-02 -15	-05 -15	-04 -15 -04	-07 -17	-07 -24 -08
-13	-10	-11	-10	-10 -24
-32.62	-31.37	-30.87	-30.53	-30.20 -30.37
31 59.8	31 9.01	31 8.33	31 8.32	31 7.22 7.29
-16 13.42 14.73	-14.46 15.81	-15.12 16.48	-14.07 15.44	-14.52 15.89
-1.31	-1.35	-1.36	-1.37	-1.37
-12.86	-13.20	-13.20	-13.19	-13.14
-16 27.59	29.01	29.68	28.63	29.03 38.19
				38.26
+14 38.39	40.00	38.65	39.69	38.22



Gr. 3241  
20 30 32  
+72° 6'

$\gamma = -29^{\circ} 43'$   
 $\delta = -49'$

HA, 1874 1875  
2 30 32099 31.889  
3 6 1710 2932  
4 0.210 -0.210  
5 +12.22 +12.22  
6 9.97845  
7 9.48764  
8 10460  
9 9.59224

1874 1875  
30 3307 5 949  
32 34-33 95.9 +10  
34 96.7  
35 97.4  
36 98.0  
37 31.70 35  
38 9.48764  
39 12.552  
40 961816

1875  
30 3339 6 487  
31 3310 -29 46.3  
32 3280 30 474  
33 3248 32 484  
34 3215 33 493  
35 3181 34 501  
36 3145 36 507  
37 31.73 29.2  
38 31.89 29.5  
39 31.73 29.3  
40 31.500 29.33 -34  
41 31.4 -4.2 (3) 29.33  
42 31.4 -4.2 (3) 29.33

1874  
Oct. 4

20 30 34.0  
36.9  
40.2  
43.6  
47.0  
50.2  
53.7 21 6.4  
57.1  
60

36.27  
60  
42.27  
30 46.967 31 6.40  
46.918 30 48.113

1339 -1835 -1449 -1440  
93 -84 -113 -90  
0.52 -0.73 -0.83 -0.24-23  
1484 -0.52 -5.65 -0.03  
30 4692 30 32.21 30 48.11 32.55

30 3208  
31.87  
32.04 2743  
+2 6.87  
+12  
-19.20  
+72 6 1630

Oct. 11 -07

30 30 34.0  
36.9  
40.2  
43.6  
47.0  
50.2  
53.7 21 6.4  
57.1  
60

30 48.113 31 9.63  
30 48.113 31 9.63

1339 -1835 -1449 -1440  
93 -84 -113 -90  
0.52 -0.73 -0.83 -0.24-23  
1484 -0.52 -5.65 -0.03  
30 4692 30 32.21 30 48.11 32.55

30 3246  
(32.25)  
32.50 +2678  
+2 876  
+12  
-20.20  
6 16.54

Oct. 12

30 30 34.0  
36.9  
40.2  
43.6  
47.0  
50.2  
53.7 21 6.4  
57.1  
60

30 48.113 31 9.63  
30 48.113 31 9.63

1339 -1835 -1449 -1440  
93 -84 -113 -90  
0.52 -0.73 -0.83 -0.24-23  
1484 -0.52 -5.65 -0.03  
30 4692 30 32.21 30 48.11 32.55

30 3246  
(32.25)  
32.50 +2678  
+2 876  
+12  
-20.20  
6 16.54

1875  
Oct. 14

30 30 34.0  
36.9  
40.2  
43.6  
47.0  
50.2  
53.7 21 6.4  
57.1  
60

30 48.113 31 9.63  
30 48.113 31 9.63

1339 -1835 -1449 -1440  
93 -84 -113 -90  
0.52 -0.73 -0.83 -0.24-23  
1484 -0.52 -5.65 -0.03  
30 4692 30 32.21 30 48.11 32.55

30 3246  
(32.25)  
32.50 +2678  
+2 876  
+12  
-20.20  
6 16.54

1875  
Oct. 16

30 30 34.0  
36.9  
40.2  
43.6  
47.0  
50.2  
53.7 21 6.4  
57.1  
60

30 48.113 31 9.63  
30 48.113 31 9.63

1339 -1835 -1449 -1440  
93 -84 -113 -90  
0.52 -0.73 -0.83 -0.24-23  
1484 -0.52 -5.65 -0.03  
30 4692 30 32.21 30 48.11 32.55

30 3246  
(32.25)  
32.50 +2678  
+2 876  
+12  
-20.20  
6 16.54

1875  
Oct. 18

30 30 34.0  
36.9  
40.2  
43.6  
47.0  
50.2  
53.7 21 6.4  
57.1  
60

30 48.113 31 9.63  
30 48.113 31 9.63

1339 -1835 -1449 -1440  
93 -84 -113 -90  
0.52 -0.73 -0.83 -0.24-23  
1484 -0.52 -5.65 -0.03  
30 4692 30 32.21 30 48.11 32.55

30 3246  
(32.25)  
32.50 +2678  
+2 876  
+12  
-20.20  
6 16.54

15

1-242  
3 58.7  
5.5  
124.2  
419 2.10

128847 1.33183m  
88807 0.92407m  
18 5450 -7.60  
18 5415

3 5385

-29 43 .5  
1.51660m  
+1031  
1.32691  
+33.65

-0.01 -0.07 -0.06  
+33.58  
72 4 2743  
+2 632 7.50  
+ 1.18 -6.98  
- 19.20  
+1 4830  
6 1573  
6 2795

15

+2.44  
3 59.2  
5.9  
125.1  
194 2.55

1.33183m  
0.92407m  
18 5415

3 5420

43 5  
1.51660m  
-2.58  
1.51402  
+32.66

-0.07 -0.08  
+32.38  
26.78  
+8.60 9.79  
+ 1.19 -7.98  
- 20.20  
+1 49.59  
6 16.34  
2859

15

3 1.0  
9.7  
107  
185 5.35

1.33183m  
0.92407m  
18 5415

3 5420

43 5  
1.51660m  
-2.58  
1.51402  
+32.66

-0.07 -0.08  
+32.38  
26.78  
+8.60 9.79  
+ 1.19 -7.98  
- 20.20  
+1 49.59  
6 16.34  
2859

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-246  
0 8.0  
262  
342  
0 17.10

1.21617 1.42521 1.24824 1.62078 0.56110m  
0.822733 1.03833 0.86040 1.23392 0.17426m  
+6.73 -1092 +7.25 -1714 -149  
0 23.85 -1 23.48 0 19.80 0 19.06 0 16.21

22 2450

24.68  
43 31 43 13 43 35 43 12 43 30  
1.51680m 1.51670m 1.51680m 1.51670m 1.51680m  
-60 412  
1.51620 1.51610 1.51268 1.51258 1.51619  
+32.82 +32.82 +32.56 +32.55 +32.82

-0.04 -0.13 -0.10  
-0.04 -0.12 0.09 -0.03 -0.22 -0.28  
+32.79 +32.63 +32.49 +32.18 +32.78  
22 5724 57.51 61.04 61.47 23 492  
-16 14.30 18.00 -13.42 12.06 -15.12 13.70  
+ 1.30 +1.36  
- 15.20 -19.70  
-16 2820 29.04 - 31.76 29.28 - 35.60 29.82  
29.31 29.71 29.50 29.32

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0.822733 1.03833 0.86040 1.23392 0.17426m  
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+32.82 +32.82 +32.56 +32.55 +32.82

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22 5724 57.51 61.04 61.47 23 492  
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- 15.20 -19.70  
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- 15.20 -19.70  
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- 15.20 -19.70  
-16 2820 29.04 - 31.76 29.28 - 35.60 29.82  
29.31 29.71 29.50 29.32



1874	1874	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	
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1874 phase. 1478

1874phae. pro. 1478

1874										1874										1875									
Cagni.										Cagni.										Cagni.									
2	8.186	Oct. 7	37	9.15	49	700	705	709	711	Oct. 7	37	1199	1186	1173	1160	1147	1124	1100	1098	Oct. 7	37	833	839	843	846	848	849	848	846
37	10	12	17	22	27	32	37	42	47	12	17	22	27	32	37	42	47	52	57	12	17	22	27	32	37	42	47	52	
44°	50'	51.26	51.43	51.60	51.77	51.94	52.11	52.28	52.45	51.26	51.43	51.60	51.77	51.94	52.11	52.28	52.45	52.62	52.79	51.26	51.43	51.60	51.77	51.94	52.11	52.28	52.45	52.62	
2	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	
9.84822	9.84822	9.84822	9.84822	9.84822	9.84822	9.84822	9.84822	9.84822	9.84822	9.84822	9.84822	9.84822	9.84822	9.84822	9.84822	9.84822	9.84822	9.84822	9.84822	9.84822	9.84822	9.84822	9.84822	9.84822	9.84822	9.84822	9.84822		
9.85074	9.85074	9.85074	9.85074	9.85074	9.85074	9.85074	9.85074	9.85074	9.85074	9.85074	9.85074	9.85074	9.85074	9.85074	9.85074	9.85074	9.85074	9.85074	9.85074	9.85074	9.85074	9.85074	9.85074	9.85074	9.85074	9.85074	9.85074		
10.460	10.460	10.460	10.460	10.460	10.460	10.460	10.460	10.460	10.460	10.460	10.460	10.460	10.460	10.460	10.460	10.460	10.460	10.460	10.460	10.460	10.460	10.460	10.460	10.460	10.460	10.460	10.460		
9.95534	9.95534	9.95534	9.95534	9.95534	9.95534	9.95534	9.95534	9.95534	9.95534	9.95534	9.95534	9.95534	9.95534	9.95534	9.95534	9.95534	9.95534	9.95534	9.95534	9.95534	9.95534	9.95534	9.95534	9.95534	9.95534	9.95534	9.95534		

1874										1874										1875									
Oct. 11										Oct. 22										Oct. 4									
37	70	37	1.6	37	15	36	48.2	37	38.6	37	39.1	37	39.1	37	39.1	37	39.1	37	39.1	37	39.1	37	39.1	37	39.1	37	39.1	37	39.1
100	5.6	4.6	7.3	13.2	16.2	19.0	21.8	24.9	28.0	30.9	33.7	36.5	39.4	42.3	45.2	48.1	51.0	53.9	56.8	59.7	62.6	65.5	68.4	71.3	74.2	77.1	80.0	82.9	
129	7.3	7.5	13.2	16.2	19.0	21.8	24.9	28.0	30.9	33.7	36.5	39.4	42.3	45.2	48.1	51.0	53.9	56.8	59.7	62.6	65.5	68.4	71.3	74.2	77.1	80.0	82.9	85.8	
156	13.2	16.2	19.0	21.8	24.9	28.0	30.9	33.7	36.5	39.4	42.3	45.2	48.1	51.0	53.9	56.8	59.7	62.6	65.5	68.4	71.3	74.2	77.1	80.0	82.9	85.8	88.7	91.6	
216	19.0	21.8	24.9	28.0	30.9	33.7	36.5	39.4	42.3	45.2	48.1	51.0	53.9	56.8	59.7	62.6	65.5	68.4	71.3	74.2	77.1	80.0	82.9	85.8	88.7	91.6	94.5	97.4	
245	24.9	28.0	30.9	33.7	36.5	39.4	42.3	45.2	48.1	51.0	53.9	56.8	59.7	62.6	65.5	68.4	71.3	74.2	77.1	80.0	82.9	85.8	88.7	91.6	94.5	97.4	100.3	103.2	
374	30.9	33.7	36.5	39.4	42.3	45.2	48.1	51.0	53.9	56.8	59.7	62.6	65.5	68.4	71.3	74.2	77.1	80.0	82.9	85.8	88.7	91.6	94.5	97.4	100.3	103.2	106.1	109.0	
390	36.5	39.4	42.3	45.2	48.1	51.0	53.9	56.8	59.7	62.6	65.5	68.4	71.3	74.2	77.1	80.0	82.9	85.8	88.7	91.6	94.5	97.4	100.3	103.2	106.1	109.0	111.9	114.8	
420	42.3	45.2	48.1	51.0	53.9	56.8	59.7	62.6	65.5	68.4	71.3	74.2	77.1	80.0	82.9	85.8	88.7	91.6	94.5	97.4	100.3	103.2	106.1	109.0	111.9	114.8	117.7	120.6	
2694	37	4.63	2098	36	5093	6163	37	4263	5677	38	11.50	405	37	5083	6982	37	4393	37	4393	37	4393	37	4393	37	4393	37	4393	37	4393
87244	37	39.70	19073	37	40.36	56027	38	18.80	38	3078	38	3078	38	3078	38	3078	38	3078	38	3078	38	3078	38	3078	38	3078	38	3078	
24669	37	19051	9386	37	9386	12086	37	12086	11629	37	11629	11629	37	11629	11629	37	11629	11629	37	11629	11629	37	11629	11629	37	11629	11629	37	11629
37	9385	9385	9385	9385	9385	9385	9385	9385	9385	9385	9385	9385	9385	9385	9385	9385	9385	9385	9385	9385	9385	9385	9385	9385	9385	9385	9385	9385	
+14872	-1440	-29	-29	-29	-29	-29	-29	-29	-29	-29	-29	-29	-29	-29	-29	-29	-29	-29	-29	-29	-29	-29	-29	-29	-29	-29	-29	-29	
-14.49	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	
-36	-146	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	
-1.46	+0.85	8.22	1.17	+0.85	8.22	1.17	+0.85	8.22	1.17	+0.85	8.22	1.17	+0.85	8.22	1.17	+0.85	8.22	1.17	+0.85	8.22	1.17	+0.85	8.22	1.17	+0.85	8.22	1.17	+0.85	
-16.31	-10.82	-10.82	-10.82	-10.82	-10.82	-10.82	-10.82	-10.82	-10.82	-10.82	-10.82	-10.82	-10.82	-10.82	-10.82	-10.82	-10.82	-10.82	-10.82	-10.82	-10.82	-10.82	-10.82	-10.82	-10.82	-10.82	-10.82	-10.82	
37	24.47	37	1905	37	1905	37	1905	37	1905	37	1905	37	1905	37	1905	37	1905	37	1905	37	1905	37	1905	37	1905	37	1905	37	1905
37	8.26	48	208	37	8.23	48	134	37	10.28	6	3652	37	10.10	37	10.19	37	10.19	37	10.19	37	10.19	37	10.19	37	10.19	37	10.19	37	10.19
37	10.20	37	8.76	37	10.20	37	8.76	37	10.20	37	8.76	37	10.20	37	8.76	37	10.20	37	8.76	37	10.20	37	8.76	37	10.20	37	8.76	37	10.20
+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	
-1910	-1910	-1910	-1910	-1910	-1910	-1910	-1910	-1910	-1910	-1910	-1910	-1910	-1910	-1910	-1910	-1910	-1910	-1910	-1910	-1910	-1910	-1910	-1910	-1910	-1910	-1910	-1910	-1910	
+44	49	5184	49	5010	49	5010	49	5010	49	5010	49	5010	49	5010	49	5010	49	5010	49	5010	49	5010	49	5010	49	5010	49	5010	
+1966	-1521	+2814	-2129	+1340	-2377	-842	-842	-842	-842	-842	-842	-842	-842	-842	-842	-842	-842	-842	-842	-842	-842	-842	-842	-842	-842	-842	-842	-842	
30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	
-2.44	-2.51	-2.51	-2.51	-2.51	-2.51	-2.51	-2.51	-2.51	-2.51	-2.51	-2.51	-2.51	-2.51	-2.51	-2.51	-2.51	-2.51	-2.51	-2.51	-2.51	-2.51	-2.51	-2.51	-2.51	-2.51	-2.51	-2.51	-2.51	
4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	
24.7	56.7	19.1	3.2	0	57.4	1	25.8	1	10.8	1	10.8	1	10.8	1	10.8	1	10.8	1	10.8	1	10.8	1	10.8	1	10.8	1	10.8	1	10.8
36.0	8.2	30.8	15.3	11.4	45.1	2.63	7.9	3.71	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	
6.07	12.49	4.99	18.5	12.28	7.9	3.71	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	
34	30.35	35	2.45	34	24.95	34	9.25	14	140	14	35.45	14	18.55	15	59.05	14	35.50	15	50.15	16	34.60	16	34.60	16	34.60	16	34.60	16	34.60
1.29798	1.18213	1.44932	1.32818	1.12710	1.35736	0.92531	0.92531	0.92531	0.92531	0.92531	0.92531	0.92531	0.92531	0.92531	0.92531	0.92531	0.92531	0.92531	0.92531	0.92531	0.92531	0.92531	0.92531	0.92531	0.92531	0.92531	0.92531	0.92531	
1.25332	1.13744	1.40466	1.28352	1.10306	1.33362	0.97087	0.97087	0.97087	0.97087	0.97087	0.97087	0.97087	0.97087	0.97087	0.97087	0.97087	0.97087	0.97087	0.97087	0.97087	0.97087	0.97087	0.97087	0.97087	0.97087	0.97087	0.97087	0.97087	
+1792	-1370	+2539	-1921	+1269	-2156	-797	-797	-797	-797	-797	-797	-797	-797	-797	-797	-797	-797	-797	-797	-797	-797	-797	-797	-797	-797	-797	-797	-797	
34	48.27																												



1875  
 $\Delta$  10.239  
 $\Delta$  +50.376  
 $\Delta$  +2.043  
 $\Delta$  +12.701

Loc. 8 9.85074  
 L.C. 12.552  
 L.C. 9.97626

$\Delta$  -34  
 Oct. 27  
 -330

37 428.37 432  
 52.7 45.4  
 55.4 48.2  
 38 1.5  
 4.3  
 7.3  
 102.38 34.4  
 13.1 37.0  
 18.9 40.2  
 21.4  
 24.6

37 498 37 45.60  
 38 7255 38 37.20  
 7233

37 11486  
 55757 -5538  
 -34

-5545  
 -33 -123  
 -1.23 10.34.28  
 -3701 2  
 38 723

37 10.22 3945  
 -16 1458  
 +1  
 -2080  
 50 2017  
 4

+21.65 -29.95

-293  
 0 42.9 1 31.5  
 5.8 47.9  
 10.18 49.4  
 15 50.90 16 39.70

1.33546 1.47640m  
 1.30172 1.45266m  
 +20.03 -28.36  
 16 10.93 16 11.34

6 3742 3701  
 37.22

27 57 27 8  
 0.39430m 0.39190m  
 4.95  
 0.39925 0.39685  
 +2.51 +2.49

-12 -26 -25  
 -05 -10  
 +2.34 +2.14  
 6 39.76 39.15  
 34.8  
 15.0 14.3  
 19.6

-16 14.70 50 4.38  
 + 12.458 3.77  
 20.80  
 16 35.38 50 40.7

1874

Cond. = .78 10.20 4.4  
 Cond. = .81 10.27 2.5  
 Lang.  $\rho$  = +0.99 14.50 10.235 3.45  
 I = 2.72  
 H = -0.22

1875

76 10.22 4.3  $\Delta$   
 80 10.10 5.3 8.26  
 80 10.19 4.4 23  
 82 10.18 4.2  
 82 10.22 4.1  
 80 10.182 446 8.245  
 (5) 186  
 +.059

1874.0  $\delta$ 

51.26

1875.0  $\delta$ 

$\Delta$  10.23  
 10  
 19  
 16  
 22  
 10.180  
 229  
 -0.049 3.96



1874

1875

0 41 9  
 + 33° 30'  
 = + 8 53  
 + 10 Linc  
 Lcos  
 L L  
 L L'

6.312	Oct. 7
+29.575	17
+2.427	22
+13.292	27
9.74189	Nov. 6
	11
9.92111	16
.10460	
0.02571	

m	\$	
41	865	
	855	-10
	845	10
	835	10
	825	10
	815	10
	805	10
	795	10
	786	89

29	75.0	
	75.4	+ .4
	75.7	.3
	75.9	.2
	76.0	.1
	76.0	+ 0
	75.9	- .1
	75.7	.2
	75.3	-.4

Oct.	7	41	11.32
	12		11.22
	17		11.12
	22		11.02
	27		10.92
Nov.	1		10.82
	6		10.73
	11		10.63
	16		10.54

30	38.9	
	29.3	+4
	29.7	.4
	29.9	.2
	30.0	.1
	30.0	+0
	29.9	-1
	29.7	.2
	29.4	.3

1874				1875			
X -27				X -29 -07			
Oct. 4				Oct. 11			
-361				-361 -367			
20	41	75	40	380	41	54	40
		9.9			0.0		54.3
		124			2.3		564
		173					534
		198					
		222					
		246	41	488		24.7	41
		271		505		282	
		321		525		331	
		346				357	
		370				381	
2445 41 0.10				2560 40 56.58			
41	32	227	41 50.93	41	23	273	41 45.10
22208				23254			
41	8.7	0		41	8.5	6	
+13.51 -13.35				+14.689 -14.40			
-1.8				-1.9			
-13.39				-14.49			
-1.20				-1.24			
-1.89 +0.53 146.7				-1.75 +0.677 68			
-15.48				-16.48			
41	22.21			41	23.25		
41	6.43	28	693	41	6.77	5.77	
41	9.15	+2	687		9.19	+2	876
-4				-4			
-1720				-1780			
+33 39 5620				29 5620			

Oct. 12				
			X <sup>24</sup>	
			Oct. 21	
			- 230	
41	43	40	57.6	41
	6.6		54.3	
	2.0		56.3	
	140			
	164			
	18.9			
	214	41	33.0	
	239		35.2	
	258		37.2	
	314			
	338			
	2085	40	54.06	
41	18,255	41	35.13	41
	18936			
41	8.37			41
	+10.58		-10.41	+
			-16	
-	10.47			-
-	.15		-156	-
-	1.56	+0.867	6.81	-
-	12.18			-
41	18.94			41
41	676	+3		41
	9187	+2	919	
			-5	

1874			1875 +		
x -15 -07			-42		
Oct. 22			Oct. 4		
-210			-418		
30	40	528	41	40.4	41 256
56		531		42.8	27.8
80		553		48.3	29.6
130				50.2	
155				52.7	
180				55.1	
203	41	388		57.6	42 1.5
228		410		0.1	
278		436		50	
304				78	
328				10.3	
772	40	53.13		60.67	41 27.67
927	41	46.13	41	55.155	42 1.50
7908				55136	
8.554			41	11.38	
9.567		-9.86		+43.76	-43.52
		-10			-28
9.43		-08		-43.54	
.14		-154		-27	-214
1.54	+0.887	6.83		-2.14	9.20
11.11				-45.95	
17.91			41	55.14	
680	1		41	9.19	46 4283
9227	+2	936			-16 1339
		-4			-3
					-1780
					30 1710

[illegible]

35	+ 27.48	- 6.35	35
	- 2.80		
0	15.9	0	53.0
	34.76		13.0
	3.86		2.80
35	25.30	36	4.00
	1.43902	0.802774	1.2
	1.48565	0.84946	1.3
	+ 50.60	- 7.07	
35	55.90	35	56.93
46	52.45	51.42	46
	51.73		
51	37	52	16
0.95310	0.95360		
	- 3.99		
0.94911	0.94961		0.9
	- 8.89		- 8.90
	- 18	- 20	- 1
	- 06	- 16	
	- 9.13	- 9.07	
46	43.32	42.35	46
30	286		
- 16	14.7	13.7	- 16
- 16	14.2		- 16
- 16	13.42	30	11.69
-	11.13	30	10.72
	17.50		
- 16	31.63	30	11.20
			- 16



1875-

$\Delta$  9.239  
 $\delta$  +35.1079  
 $\delta_1$  +2.4297  
 $\delta_2$  +13.294

1874  
 $\text{CEN} = .76$  9.16 9.0  
 $\text{CEN} = .78$  9.20 9.5  
 $\text{CEN} = .81$  9.19 9.23  
 $\text{longd} = +66.12081$   
 $I = 247.79$  9.195 9.25  
 $K = -.019$  (4) (2)

1875

76 9.19 11.2  
 80 9.05 10.1  
 82 9.21 10.3  
 82 9.16 10.1  
 86 9.12 10.0  
 81 9.146 10.34  
 (5)

$\text{L.C.M.}$  9.92111  
 $\text{L.E.}$  12.552  
 $\text{L.S.}$  0.04663

$\times$   
 $-38-.07$   
 Oct. 19

41 474 42 198 41 579 41 415 41 516 41 591 41 581 41 539  
 42 498 42 202 42 553 42 442 42 541 42 510 42 558  
 42 524 42 236 42 558 42 463 42 565 42 33 42 574  
 42 505 42 0.6 42 1.6 42 1.8  
 42 548 42 3.1 42 4.1 42 10.3  
 42 2.2 42 5.4 42 6.5 42 12.7  
 42 4.8 42 8.1 42 8.9 42 15.4 42 33.4  
 42 0.1 42 10.6 42 11.5 42 27.0 42 17.8 42 36.4  
 42 15.1 42 15.4 42 16.6 42 22.8 42 22.9 42 38.4  
 42 14.8 42 17.8 42 19.0 42 25.2 42 25.2  
 42 17.1 42 20.4 42 21.4 42 27.6 42 27.6

$\times$   
 $-4.3$   
 Oct. 25

41 579 41 415 41 516 41 591 41 581 41 539  
 42 553 42 442 42 541 42 510 42 558  
 42 558 42 463 42 565 42 33 42 574  
 42 0.6 42 1.6 42 1.8  
 42 3.1 42 4.1 42 10.3  
 42 5.4 42 6.5 42 12.7  
 42 8.1 42 8.9 42 15.4 42 33.4  
 42 10.6 42 11.5 42 27.0 42 17.8 42 36.4  
 42 15.4 42 16.6 42 22.8 42 22.9 42 38.4  
 42 17.8 42 19.0 42 25.2 42 25.2  
 42 20.4 42 21.4 42 27.6 42 27.6

$\times$   
 $-3.4$   
 Oct. 27

41 579 41 415 41 516 41 591 41 581 41 539  
 42 553 42 442 42 541 42 510 42 558  
 42 558 42 463 42 565 42 33 42 574  
 42 0.6 42 1.6 42 1.8  
 42 3.1 42 4.1 42 10.3  
 42 5.4 42 6.5 42 12.7  
 42 8.1 42 8.9 42 15.4 42 33.4  
 42 10.6 42 11.5 42 27.0 42 17.8 42 36.4  
 42 15.4 42 16.6 42 22.8 42 22.9 42 38.4  
 42 17.8 42 19.0 42 25.2 42 25.2  
 42 20.4 42 21.4 42 27.6 42 27.6

$\times$   
 $-23-.12$   
 Nov. 9

41 579 41 415 41 516 41 591 41 581 41 539  
 42 553 42 442 42 541 42 510 42 558  
 42 558 42 463 42 565 42 33 42 574  
 42 0.6 42 1.6 42 1.8  
 42 3.1 42 4.1 42 10.3  
 42 5.4 42 6.5 42 12.7  
 42 8.1 42 8.9 42 15.4 42 33.4  
 42 10.6 42 11.5 42 27.0 42 17.8 42 36.4  
 42 15.4 42 16.6 42 22.8 42 22.9 42 38.4  
 42 17.8 42 19.0 42 25.2 42 25.2  
 42 20.4 42 21.4 42 27.6 42 27.6

32 50 42 2053 3615 41 44.00 718 42 1.13 1410 41 5563  
 42 2.273 42 5591 42 25.47 42 6527 42 26.67 42 12818 42 36.07  
 41 2234 41 5572 41 6508 41 12799  
 41 11084 41 1076 41 1092 41 10726 41 10726  
 +51.178 -50.92 -54.29 +55.59 -53.39 +52.124 -1.82  
 -28 -28 -28 -22 -22 -15  
 -51.07 -08 -54.34 -55.45 -62.03 -14  
 -30 -183 -30 -1.72 -22 -168 -23 -142  
 -1.83 9.17 -1.72 9.28 -1.68 9.22 -1.42 9.27  
 -53.20 -53.35 -54.35 -54.35 -54.35 -54.35  
 42 2.25 42 5.37 42 6.51 42 6.51 42 12.80  
 41 39.05 41 4395 41 9.21 41 4443 41 9.14 41 4438 41 9.12 41 4331  
 -16 1419 -16 1445 -16 1458 -16 1386  
 -5 -5 -5 -5  
 -1900 -1920 -1920 -1900  
 30 1036 30 1028 30 1010 30 995

-1826 +21.59 -1988 +5.40 -20.14 +17.19 -2325  
 35- 35- 35- 35- 35- 35-

-290 -292 -293 -3.02  
 1 8.3 0 22.2 1 8.5 0 4.1 1 9.8 0 31.7 1 17.3  
 22.4 40.2 25.0 36.3 24.5 40.4 25.5  
 30.7 62.4 33.5 97.6 34.3 72.6 42.8  
 36 15.35 35 31.20 38 16.75 35 48.80 36 17.15 35 34.40 36 21.40  
 36.30

1.26150 1.33425 1.29842 1.073239 1.30406 1.28523 1.36642  
 1.30813 1.35188 1.34525 0.77902 1.35069 1.28191 1.41305  
 -20.33 -24.04 -22.15 -46.01 -22.42 -19.14 -25.87  
 35 55.02 35 55.24 35 54.60 35 54.81 35 54.73 35 55.44 35 55.61

46 53.33 46 53.11 53.75 46 53.54 53.62 46 52.91 52.84  
 53.43 53.58 52.87

51 48 52 33  
 0.95330 0.95380  
 +1974

0.95991 0.96041 0.94309 0.94359 0.95869 0.95859 0.97304 0.97354  
 -9.12 -9.13 -8.77 -8.78 -9.08 -9.09 -9.40 -9.41

-08 -26 -11 -23 -09 -1 -12 -09 -07 -16 -13  
 -18 -07 -18 -05 -08 -04 -08  
 46 43.95 44.16 44.70 44.40 44.36 43.40 43.22

298 300 300 300 298  
 -16 14.1 14.2 14.7 14.4 14.4 13.6 13.4  
 -16 14.1 14.5 14.4 14.4 13.5 13.5

-16 14.46 14.87 -14.52 14.75 10.01 -14.70 15.13 10.07 -13.91 14.36 10.04  
 -43 -43 10.55 -43 10.03 -45 9.86  
 -19.00 -19.00 -19.00

-16 33.89 30 10.06 34.15 10.28 34.33 10.05 33.36 9.95







1875-

Oct. 7	42	40.73	21	34.8	
12	45.72	-21	35.3	-.8	
17	45.57	.21	35.9	.6	
22	45.30	.21	36.4	.5	
27	45.07	.21	36.7	.3	
Nov. 1	44.88	.21	36.9	.2	
6	44.67	.21	37.0	.1	
11	44.46	.21	37.0	+1.0	
16	44.25	.21	36.7	-1	

1870-

4	44.687	
6	+21' 13.09	
24	+1.232	
24	+13.893	
Good	9.68075	
L.C.	.12532	
L.C.	9.80624	

1875

76	44.70	13.2
80	44.61	13.3
82	44.63	13.2
82	44.78	11.8
86	44.40	14.1
81	44.24	13.12
	(5)	

+38

Oct. 20

43	120	43	139	43
	161		183	
	205		213	
	230			
	32.4			
	37.8			
	42.0	42	59.9	
	46.2		41	
	54.9		43	
	59.3			
	65			

35.47

60

43	41.47	43	17.77
43	37.70	44	3.77
	87.668		-51.60
42	45.39.7		-7.0
	+52.2330		

-51.67

-71

-6.68

-53.06

43 37.67

42 44.61

-16 15.10

+1.9

-2320

21 13.32

2

+19.93

-26.07

+22.99

-20.65

+16.98

-17.85

+3.04

-43.43

40

-291

4 56.2

14.2

13.04

45 5.20

45 33.20

1.29951

1.16578

+12.76

40 17.96

40 16.51

37 30.39

31.11

-39

1.29631

+19.78

-09

-01

+19.68

37 50.07

36.3

13.8

14.5

-13.12

+9.34

-23.20

-16 37.39

+21 13.33

+43

Oct. 25

43	145	43	17.0
	205		
	31.7		
	33.8		
	36.0		
	38.2		
	40.4		
	42.5	43	59.9
	44.5		1.1
	46.8		41
	49.0		

36.29

43 17.33

43	40.22	44	0.97
	40.290		-54.29
42	45.18.6		-7.9
	+55.173		

-51.67

-71

-6.68

-53.06

43 37.67

42 44.61

-16 15.10

+1.9

-2320

21 13.32

2

+19.93

-26.07

+22.99

-20.65

+16.98

-17.85

+3.04

-43.43

40

-292

4 58.1

12.5

12.56

45 2.80

45 33.20

1.36154

1.16781

+14.72

40 17.96

40 16.51

37 30.39

31.11

-39

1.28676

+19.35

-13

-14

+19.22

37 50.07

36.6

13.4

12.7

-14.52

+9.3

-23.50

-16 37.09

+21 13.33

+34

Oct. 27

43	15.4	43	19.7
	24.3		
	32.7		
	36.8		
	41.1		
	45.4	43	59.9
	49.9		1.1
	54.5		41
	58		
	72		

45.38

43 24.27

43	41.255	43	56.10
	41.223		-53.9
42	45.10.08		-6.2
	+56.124		

-51.67

-71

-6.68

-53.06

43 37.67

42 44.61

-16 15.10

+1.9

-2360

21 13.07

2

+16.98

-17.85

+3.04

-43.43

40

-233

4 57.8

17.3

13.71

45 8.55

45 33.20

1.22994

1.03621

+10.87

40 17.96

40 16.51

37 28.93

29.43

+501

1.30171

+20.03

-07

-10

+19.91

37 50.07

36.7

12.2

12.6

-14.70

+7.4

-23.60

-16 37.56

+21 13.33

+23 -12

Nov. 9

43	201	43	23.4
	29.3		
	38.3		
	40.6		
	42.9		
	44.8		
	46.9		
	49.1	44	59.9
	51.3		1.1
	53.2		41
	55.1		

42.25

43 24.27

43	46.944	44	30.37
	46.912		-1.82
42	45.58.3		-4.2
	+62.368		

-51.67

-71

-6.68

-53.06

43 37.67

42 44.61

-16 15.10

+1.9

-2360

21 13.07

2

+16.98

-17.85

+3.04

-43.43

40

-302

4 57.8

17.3

13.71

45 8.55

45 33.20

1.25164

1.05791

+11.42

40 17.96

40 16.51

37 28.93

29.43

+1977

1.30151

+20.02

-02

-10

+20.70

37 50.07

37.0

13.1

13.8

-13.91

+7.6

-23.90

-16 36.85

+21 13.33



u Aquarii  
 20 45 55  
 $-9^{\circ} 27'$   
 $+51^{\circ} 50'$   
 $\sin \gamma = +.19$

1874  
 2 45 54.336  
 27 15.35  
 $+3.240$   
 $+13.27$   
 L sin  $\delta$  9.21534m  
 L cos  $\delta$  9.99407  
 L  $\delta$  10.460  
 L  $\delta$  0.09867

1875  
 N.A.  
 45 54.576  
 27 2.08  
 $+3.240$   
 $+13.26$   
 1870-  
 45 54.69  
 27 4.35  
 $+3.240$   
 $+13.23$   
 9.99407  
 10.552  
 0.11959

1874  
 Sept. 27  
 Oct. 2  
 7  
 17  
 22  
 27  
 Dist =  
 Const =  
 Lat  $\delta = -17^{\circ} +0.1$   
 $I = 2.09$   
 $K = -0.16$

1874  
 Sept. 27  
 Oct. 2  
 7  
 17  
 22  
 27  
 54.02  
 53.96  
 53.89  
 53.82  
 53.75  
 53.68  
 53.61  
 -.06  
 .7  
 .7  
 .7  
 .7  
 .7

1874 Oct. 4 -27	1874 Oct. 6 -07	1874 Oct. 10 -07	1874 Oct. 11 -07	1874 Oct. 12 -07	1874 Oct. 15 -21
20 45 54.746 56.5 57.0 31 61 73 94 46 116 137 178 199 26.04 180 80.4 46 7.309 7.293 -13.39 + .05 -2.59 -15.93 7.29 51.36 45 54.60 29 14.0 +0.687 -2.0 -6.50 -9 27 15.63 50 +22.11 -29.32 -24.2 0 10.5 28.8 39.3 50 19.65 1.84459 1.44336 +27.15 50 47.40 -9.0 27 59.05 +51 48 13 49 17 1.86360 +107.2 1.87432 -14.87 +23 -01 -1.85 -9 29 13.90 +2 6.32 -1.91 +1 57.91 27 15.99 16.19 27 16.09	45 54.746 56.5 57.0 31 61 73 94 46 116 137 178 199 26.04 180 80.4 46 7.309 7.293 -13.39 + .05 -2.59 -15.93 7.29 51.36 45 54.60 29 14.0 +0.687 -2.0 -6.50 -9 27 15.63 50 +22.11 -29.32 -24.2 0 10.5 28.8 39.3 50 19.65 1.84459 1.44336 +27.15 50 47.40 -9.0 27 59.05 +51 48 13 49 17 1.86360 +107.2 1.87432 -14.87 +23 -01 -1.85 -9 29 13.90 +2 6.32 -1.91 +1 57.91 27 15.99 16.19 27 16.09	45 54.746 56.5 57.0 31 61 73 94 46 116 137 178 199 26.04 180 80.4 46 7.309 7.293 -13.39 + .05 -2.59 -15.93 7.29 51.36 45 54.60 29 14.0 +0.687 -2.0 -6.50 -9 27 15.63 50 +22.11 -29.32 -24.2 0 10.5 28.8 39.3 50 19.65 1.84459 1.44336 +27.15 50 47.40 -9.0 27 59.05 +51 48 13 49 17 1.86360 +107.2 1.87432 -14.87 +23 -01 -1.85 -9 29 13.90 +2 6.32 -1.91 +1 57.91 27 15.99 16.19 27 16.09	45 54.746 56.5 57.0 31 61 73 94 46 116 137 178 199 26.04 180 80.4 46 7.309 7.293 -13.39 + .05 -2.59 -15.93 7.29 51.36 45 54.60 29 14.0 +0.687 -2.0 -6.50 -9 27 15.63 50 +22.11 -29.32 -24.2 0 10.5 28.8 39.3 50 19.65 1.84459 1.44336 +27.15 50 47.40 -9.0 27 59.05 +51 48 13 49 17 1.86360 +107.2 1.87432 -14.87 +23 -01 -1.85 -9 29 13.90 +2 6.32 -1.91 +1 57.91 27 15.99 16.19 27 16.09	45 54.746 56.5 57.0 31 61 73 94 46 116 137 178 199 26.04 180 80.4 46 7.309 7.293 -13.39 + .05 -2.59 -15.93 7.29 51.36 45 54.60 29 14.0 +0.687 -2.0 -6.50 -9 27 15.63 50 +22.11 -29.32 -24.2 0 10.5 28.8 39.3 50 19.65 1.84459 1.44336 +27.15 50 47.40 -9.0 27 59.05 +51 48 13 49 17 1.86360 +107.2 1.87432 -14.87 +23 -01 -1.85 -9 29 13.90 +2 6.32 -1.91 +1 57.91 27 15.99 16.19 27 16.09	45 54.746 56.5 57.0 31 61 73 94 46 116 137 178 199 26.04 180 80.4 46 7.309 7.293 -13.39 + .05 -2.59 -15.93 7.29 51.36 45 54.60 29 14.0 +0.687 -2.0 -6.50 -9 27 15.63 50 +22.11 -29.32 -24.2 0 10.5 28.8 39.3 50 19.65 1.84459 1.44336 +27.15 50 47.40 -9.0 27 59.05 +51 48 13 49 17 1.86360 +107.2 1.87432 -14.87 +23 -01 -1.85 -9 29 13.90 +2 6.32 -1.91 +1 57.91 27 15.99 16.19 27 16.09







1875<sup>-34</sup>  
 Oct. 27  
 46 401.46 31.3 46 466.46 38.1  
 42.2 33.7 48.8 40.3  
 44.3 35.8 50.8 41.5  
 48.6 55.1  
 50.5 57.1  
 52.4 59.2  
 54.8 47 2.8 112  
 56.8 4.5 33 135  
 1.1 6.9 9.4 15.0  
 3.2 6.6  
 5.1 11.8  
 5796<sup>11</sup> 35.08  
 20 0  
 46 526.4 46 33.60 46 65.08 46 39.87  
 47 40.3 47 15.23 47 59.164 47 15.23  
 526.113 -55.39 59.148 -11.182  
 526.59 +0.6 +0.4  
 - 55.45 - 62.03 - 12  
 + .05 - 263 + .06 - 245  
 - 2.63 4554.70 - 2.45 5480  
 - 58.02 - 64.42  
 52.66 59.15  
 54.64 10 4196 54.73 42.91  
 -16 1458 -16 1386  
 - 22 54.695 - 2.2  
 - 660 - 600  
 37 5.34 27 4.97  
 + 19.07 - 1196 + 19.29 - 14.07  
 30 - 293 30 - 3.02  
 1 45.2 2 268 1 48.2 2 31.0  
 53.9 38.3 52.3 33.5  
 10.1 65.3 100.5 64.8  
 31 32.55 32 32.65 31 58.25 32 32.25  
 1.25035 1.07773 1.28533 1.14829  
 1.39994 1.19732 1.40492 1.36788  
 + 2.112 - 15.75 + 25.40 - 18.53  
 32 15.67 32 16.90 32 15.65 32 13.92  
 9 2732 2855 9 2730 2537  
 19 27.93 26.33  
 48 2 48 44  
 1.86360 1.86370  
 + 584 + 1984  
 1.86864 1.86884 1.88344 1.88334  
 - 73.90 - 73.93 - 76.46 - 76.48  
 + 0.3 - 11 + 0.1 + 0.3 - 10 + 0.2  
 - 11 - 15 - 11 - 15  
 - 1 1398 - 1 1407 - 1 1654 - 1 1661  
 10 4130 4262 10 4384 4198  
 - 16 14.70 17.01 - 13.91 16.29  
 - 2.31 - 2.38  
 - 660 - 600  
 - 16 2361 4.91 - 2229 6.13  
 6.23 4.27  
 27 5.57 5.20







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76 Draconis.

20 31 31

+82° 4'

$$Z = -39^\circ 41'$$

$$\sin Z = -.64$$

Leind 9.99582

Leind 9.13994

Le 10460

Le 9.24454

1874

$$34.591$$

$$+3' 48.78$$

$$-8.949$$

$$+13.655$$

1875-

$$30.640$$

$$+3' 59.40$$

$$-3.954$$

$$+13.650$$

9.13994

12532

9.26546

Corr. = -0.10

Comp. = +5.6"

Long. = +7.20

I =

K = -1.1

1874

78	30.56	2.4
78	30.20	1.4
78	30.62	0.5
79	30.46	0.9
80	30.90	5.7
80	30.40	1.5
81	31.02	0.8
81	31.21	0.8
82	30.56	1.4

80 30.659 1.04

(9)

1874  
Oct. 10-29 -07  
Oct. 11-23 -07  
Oct. 12-21  
Oct. 15-24  
Oct. 18-17  
Oct. 20

51	18.0	50	163	51	202.50	19.5	51	19.9	50	36.0	51	17.8	50	40.7	51	16.8	51	119.57	14.1	50	38.0	
	267				277			27.6		495		23.0				24.0		21.5		29.0	48.0	
	342				344			34.8		54.6		32.9				31.3		29.0		58.5		
	418				415			41.9				40.9				39.6		29.3				
	423				496			49.9				47.5				46.8		44.2				
	506				573			57.0				54.5				54.1		51.7				
	40	52	7.8		5.6			4.4	52	47.6		2.3	51	44.6		1.4	52	25.6	58.7	51	55.6	
	11.3				12.2			12.4				10.0		52.4		9.1		6.4				
	18.8				19.2			19.4				17.8		7.5		16.4		14.0				
	26.17				26.74			26.73				24.90				23.93		27.69				
	180				180			180				180				180		120				
	44.17	50	46.30		44.74	50	19.50	44.73	50	47.70		42.90	50	40.70	51	41.93	51	119.0	39.69	50	48.14	
51	49.078	52	7.80	51	49.711			51	49.700	52	47.60	51	47.667	51	54.88	51	46.589	52	25.6051	44.100	51	48.60
	49.189				49.822			49.811				47.778				46.700		44.211				
	48.967	-13.88			47.600	-14.41		47.589	-14.58			47.556	-12.75			46.478	-12.76	43.989	-11.48			
	-13.95	-1.51			-14.49	-2.08		-14.68	-1.65			-13.98	-1.51			-12.81	-1.72	-11.57	-1.22			
	-2.03	+1.52			-2.63	+1.67		-2.17	+1.83			-1.69	+2.32			-1.63	+2.81	-1.21	+3.14			
	+1.52	-2.43			+1.67	-2.28		+1.83	-2.12			+2.32	-1.63			+2.81	-1.14	+3.14	-0.81			
	-19.46	51	34.60		-15.45	34.28		-15.02	34.29			-13.15	34.62			-11.63	34.81	-9.64	3.503			
51	48.97			51	49.60			51	49.59			51	47.56			51	46.48		43.99			
51	34.51			51	34.15			51	34.57			51	34.41			51	34.85		34.35			
	30.56	2	1.74		30.20	1	57.97		30.62	1	56.46		30.96	1	57.92		30.90	1	56.54		59.24	
	+2	5.68			+2	8.76		+2	9.40			+2	8.79			+2	9.39		+2	8.81		
	+1.5				+1.5			+1.5				+1.6				+1.6		+1.6		1.6		
	-	20.18			-	20.36		-	20.52			-	21.04			-	21.51		-	21.83		
	+82	3	48.74			47.87			46.84				47.42				46.02			47.85		

20	<sup>8</sup> +62.78	-18.72	+90.21	20	+62.00	-57.90	+66.97	-7.16	20	+34.69	-39.01	+55.94	-11.50								
	-2.43		-2.44		-2.45		-2.46			-2.48		-2.50									
1	14.1	34.9	18.3	1	41.2	25.7	46.7	1	23.9	37.5	30.5	43.2	1	25.0	36.8						
	23.8	38.8	24.5		47.5	32.9	52.5		29.1	43.4	36.6	49.9		28.8	40.5						
	4.29	7.37	4.28		8.87	5.86	9.92		53.0	80.9	67.1	93.1		53.8	77.3						
21	21.45	36.85	21.40	21	44.35	29.30	49.60	21	26.50	40.45	33.55	46.55	21	26.90	38.65						
	1.79782	1.27231	0.75525		1.79239	1.76265	1.52588		0.85496	1.54020	1.59118	1.74772		1.06070							
	1.04236	0.51680	1.19979		1.03693	1.01722	1.07042		0.09245	0.78474	0.83572	0.97226		0.30534							
	+1.02	-3.29	+1.584		+1.089	-1.077	+1.176		-1.188	+6.09	-6.85	+9.82		-2.02							
21	32.07	33.56	34.24	21	40.19	39.43	38.26	21	37.58	39.67	39.70	36.72	21	36.63							
									38.15												
1	15.88	1	14.79	1	11.11				8.16	8.92	1	10.09		9.16	1	8.71	8.65	1	11.63	11.72	
	15.33				8.54				9.62		8.68				11.67						
39	40	46	40	31																	
	1.67880	1.67880																			
	1033																				
	1.66847	1.66847	1.67676	1.67676	1.68331	1.68331	1.68583	1.68583	1.68125	1.68125	1.67886	1.67886									
	+46.61	+46.61	+47.51	+47.51	+48.23	+48.23	+48.51	+48.51	+48.01	+48.01	+47.74	+47.74									
	-30	-20	-02	-61	-65		-29	-31	-25		-34	-21	0		-08	-14	-11		-29	-17	-03
	-04	-05		-04	-05		-04	-05		-04	-05		-05		-05	-05			-04	-05	
	+46.27	+46.54		+46.86	+47.44		+47.90	+47.93		+48.13	+48.46		+47.87		+47.84	+47.46		+47.46	+47.68		
2	2	215	2	1.33	1	59.97	1	56.66	56.85	1	58.22	57.62	1	56.58	56.49	1	59.09	59.40			
+2	56.5	7.33		+8.60	10.18		+9.33	10.92		+8.78	10.37		+9.40	11.01		+8.81	10.43				
+	1.57	-6.63		+1.58	-6.71		+1.59	-6.87		+1.59	-7.39		+1.61	-7.86		+1.62	-8.15				
-	20.18			-20.36			-20.52			-21.04			-21.51			-21.80					
+1	47.04	3	49.19	49.82	47.79	50.40	46.46	47.25	47.33	47.55	46.08	45.99		46.04	48.63		47.40	48.03			
			48.37				47.25			46.95											
							46.85			47.25											
							45.0			47.25											
							59.69			59.69											



1875

76 30.73 0.9  
78 30.28 59.0  
80 29.96 1.0  
80 30.59 1.1  
82 30.51 1.6  
82 30.48 0.5  
86 30.84 0.0

51 30.84 0.59  
(7)

Oct. 21

Oct. 22

Oct. 26

Oct. 4

Oct. 13

Oct. 19

20 51 13.3 30 39.0	51 13.3 50 24.9	51 9.5	51 46.1 51 49.7	51 48.9 51 31.4	51 50.7 51 54.2
222 57.0	22.1 40.8	16.2	53.4	56.1	57.6
29.4 5.6	35.3 54.0	24.3	52 0.9	52.2	6.4
35.7	42.3	32.0	8.5	10.8	13.5
44.0	49.3	38.8	16.2	17.4	21.0
37.7	57.3 52 9.6	46.7	23.6	25.6	28.0
38.7 52 32.0	4.9	53.8 51 49.1	31.6 52 46.9	32.2 52 37.9	36.4
1.0	12.1	52 1.5 52 5.0	38.6 0.3	40.1	42.9
12.0		9.4 16.1	46.1 14.8	49.7	54.0
2750	2646	2322	2650	2833	3068
120	120	120	120	120	120
3950 50 57.86	3846 50 39.70	352.2	1450 51 49.70	1633 51 21.40	1868 52 15.90
51 43.889 52 32.00	51 42.733 52 9.60	51 39.133 52 3.40	52 16.111 53 0.67	52 18.144 52 27.90	52 20.756
43.778	42.622	39.022	16.000	18.033	20.645
-10.47	-9.36	-6.50	-43.52	-48.14	-57.95
-1.72	-1.08	-1.57	-3.02	-2.23	-2.78
-1.65	-1.58	-2.05	-4.354	-4.815	-5.108
+3.31	+3.48	+4.15	+3.00	+2.28	+3.25
-8.81	-7.46	-4.51	-4.27	-4.775	-5.068
51 43.78	51 42.62	51 39.02	52 16.03	52 18.03	52 20.64
51 34.97	51 35.16	51 34.51	51 30.73	51 30.28	51 29.96
31.02	31.21	30.56			
1 58.27	1 58.38	1 59.27	20 52.29	20 52.88	20 53.11
+2 9.19	+2 9.36	+2 9.61	-16 13.39	-16 14.07	-16 14.19
+16	+16	+16	+1.6	+1.7	+1.7
-21.93	-22.06	-22.53	-19.73	-21.48	-22.46
+82 3 47.13	17.28	47.95	4 0.77	3 59.03	4 1.16

20 +5203	-48.11	+62.83	-26.87	20 -2427	+26.41	-45.6	+56.74	-9.76	+48.6
-250	-251	-252	-250	-285	-290				
1 26.7	1 44.5	1 23.0	1 37.7	1 21.8	1 36.3	2 46.6	2 0.2	2 4.63	2 5.80
33.0	47.9	32.2	46.3	30.6	45.4	2.9	2.8	2.9	14.2
59.7	94.4	58.2	84.0	52.4	81.7	115.5	2.20	10.90	13.22
x21 29.85	24 47.20	21 27.60	21 42.00	21 26.20	21 40.85	2 57.75	2 11.00	2 54.50	3 6.10
7.71625	1.68224	1.79817	1.42922	1.38507	1.42177	1.64895	1.75389	1.98945	0.68664
0.96079	0.93678	1.04241	0.67384	0.62966	0.68733	0.91446	1.01925	0.25491	0.95210
+9.14	-8.45	+11.03	-4.72	-4.26	+4.87	-8.21	+10.45	-1.80	+0.89
21 38.99	31 38.75	21 38.63	21 37.28	21 36.58	3 62.62	3 27.9	3 4.95	3 4.30	3 0.34
1 9.36	9.60	1 9.72	11.07	1 11.77	19 45.73	19 45.56	19 43.40	44.05	19 48.01
9.48		10.39		45.64	45.64	43.72			
		40 39	40 25	40 50	40 37				
+11.54	1.67880	1.67870		1.67880	1.67880				
1.69034	1.69034	1.68319	1.68309	1.67753	1.67394	1.67394	1.69664	1.69664	1.68591
+49.02	+49.02	+48.22	+48.20	+47.60	+47.59	+47.20	+49.73	+49.73	+48.52
-20	-23	-17	-30	-22	-05	-04	-55	-15	-29
-04	-05	-04	-05	-04	-05	-44	-44	-47	-42
+48.78	+48.80	+48.88	+48.10	+47.50	+46.72	+46.37	+46.03	+45.23	+48.10
1 88.14	58.40	1 57.60	59.17	1 59.27	20 32.45	32.13	20 32.45	33.30	20 36.11
+2 9.19	10.78	+4.20	10.80	+9.39	11.00	-16 13.42	11.64	-14.20	12.61
+1.54	-8.38	+1.60	-8.41	+1.61	-8.88	+1.78		+1.85	
+1 21.93		-22.06		-22.53		19.73		-21.48	
+1 18.85	46.99	+48.74	46.34	+48.47	47.44	-16 31.37	4	33.86	58.59
	47.25		47.91						59.44
3 47.12			47.12		47.74		4 0.92		59.01
4 0.77			0.77		1.39				1.04



-38 Oct. 20				-43 Oct. 25				-34 Oct. 27				-23 -12 Nov. 9			
51 51.8	51 41.3	51 53.8	51 55.6	51 52.4	51 45.1	51 58.9	51 69	51 52.4	51 45.1	51 58.9	51 69	51 52.4	51 45.1	51 58.9	51 69
52 58.9	52 52	52 1.6	52 0.8	52 9.1	52 13.1	52 19.7	52 29.1	52 13.1	52 19.7	52 29.1	52 39.1	52 26.4	52 40.3	52 52.3	52 62.3
140		8.9		16.1		23.4		31.4		35.6		43.7		50.8	
215		23.4		31.4		39.1		46.1		53.3		59.8		66.1	
29.0		36.8		44.1		51.4		58.7		66.0		73.3		80.6	
36.2	52 48.7	44.1	41.6	51.4	39.1	58.7	26.4	66.0	39.1	73.3	26.4	80.6	40.3	87.9	95.2
43.5		46.2		53.3		60.6		67.9		75.2		82.5		89.8	
51.0		53.9		61.2		68.5		75.8		83.1		90.4		97.7	
312.2		272.9		270.8		314.4		314.4		314.4		314.4		314.4	
120		60		60		60		60		60		60		60	
192.2	51 41.30	212.9	51 55.60	210.8	51 45.10	254.4	51 18.57	254.4	51 18.57	254.4	51 18.57	254.4	51 18.57	254.4	51 18.57
52 2135.6	52 48.70	52 2365.6	52 41.60	52 2342.2	52 39.10	52 2826.7	52 39.67	52 2826.7	52 39.67	52 2826.7	52 39.67	52 2826.7	52 39.67	52 2826.7	52 39.67
2134.5		2334.5		2331.1		2819.6		2819.6		2819.6		2819.6		2819.6	
-51.68	-51.62	-51.35	-54.30	-55.45	-55.39	-62.03	-1.83	-62.03	-1.83	-62.03	-1.83	-62.03	-1.83	-62.03	-1.83
-2.78	-2.73	-3.32	-3.07	-2.37	-2.44	-2.53	-1.65	-2.53	-1.65	-2.53	-1.65	-2.53	-1.65	-2.53	-1.65
+3.81	+3.81	+4.64	+4.64	+4.99	+4.99	+7.24	+7.24	+7.24	+7.24	+7.24	+7.24	+7.24	+7.24	+7.24	+7.24
-51.5		-53.03		-52.83		-57.32		-57.32		-57.32		-57.32		-57.32	
52 2124	30.70	52 2354	30.79	52 2331	30.47	52 2816	31.06	52 2816	31.06	52 2816	31.06	52 2816	31.06	52 2816	31.06
51 30.59		51 30.51		51 30.48		51 30.84		51 30.84		51 30.84		51 30.84		51 30.84	
20 36.96		20 37.52		20 36.80		20 36.30		20 36.80		20 36.30		20 36.80		20 36.30	
-16 15.10		-16 14.45		-16 14.58		-16 13.86		-16 14.58		-16 13.86		-16 14.58		-16 13.86	
+1.7		+1.7		+1.7		+1.8		+1.7		+1.8		+1.7		+1.8	
-22.61		-23.24		-23.45		-24.34		-23.45		-24.34		-23.45		-24.34	
0.95		1.53		0.47		3	54.90	0.47		3	54.90	0.47		3	54.90
+40.6	-27.34	+28.06	-17.74	+38.32	-15.68	+69.70	-11.40	+38.32	-15.68	+69.70	-11.40	+38.32	-15.68	+69.70	-11.40
-291		-292		-293		-302		-293		-302		-302		-302	
2 420	2 541	2 460	2 488	2 485	2 52.7	2 421	3 57.8	2 485	2 52.7	2 421	3 57.8	2 485	2 52.7	2 421	3 57.8
58	128	3.0	11.8	24	11.5	55.2	12.6	11.5	11.5	55.2	12.6	11.5	11.5	55.2	12.6
1028	1269	1030	1216	1039	1242	976	1276	1039	1242	976	1276	1039	1242	976	1276
2 5140	3 345	2 5150	3 080	2 5295	3 210	2 4880	4 380	2 5295	3 210	2 4880	4 380	2 5295	3 210	2 4880	4 380
1.60271	1.43680	1.44809	1.25382	1.58343	1.19535	1.25524	1.05690	1.58343	1.19535	1.25524	1.05690	1.58343	1.19535	1.25524	1.05690
0.86817	0.70226	0.71355	0.51928	0.84889	0.46081	0.55234	0.32236	0.84889	0.46081	0.55234	0.32236	0.84889	0.46081	0.55234	0.32236
+7.38	-5.04	+5.14	-3.31	+7.16	-2.89	+1.14	-2.10	+7.16	-2.89	+1.14	-2.10	+7.16	-2.89	+1.14	-2.10
2 58.78	2 58.41	2 56.67	2 57.47	3 0.01	2 57.31	2 58.57	3 1.70	2 57.31	2 58.57	2 58.57	3 1.70	2 57.31	2 58.57	2 58.57	3 1.70
19 49.57	49.94	19 51.78	50.86	19 48.34	49.14	19 46.71	46.65	19 48.34	49.14	19 46.71	46.65	19 48.34	49.14	19 46.71	46.65
49.75		51.27		48.74		46.68		48.74		46.68		48.74		46.68	
						40 59	40 34			40 59	40 34			40 59	40 34
1.67858	1.67858	1.66924	1.66924	1.68390	1.68390	1.69885	1.69875	1.68390	1.68390	1.69885	1.69875	1.68390	1.68390	1.69885	1.69875
+47.71	+47.71	+46.69	+46.69	+48.30	+48.30	+49.99	+49.97	+48.30	+48.30	+49.99	+49.97	+48.30	+48.30	+49.99	+49.97
-12	-50	-05	-05	-44	-01	-11	-23	-44	-01	-11	-23	-44	-01	-11	-23
-41	-43	-41	-42	-41	-42	-41	-42	-41	-42	-41	-42	-41	-42	-41	-42
+47.18	+47.23	+46.23	+46.26	+48.02	+48.11	+49.46	+49.78	+48.02	+48.11	+49.46	+49.78	+48.02	+48.11	+49.46	+49.78
20 36.75	37.17	18 37.91	37.12	20 36.36	37.25	20 36.17	36.43	20 36.36	37.25	20 36.17	36.43	20 36.36	37.25	20 36.17	36.43
-16 15.12	13.26	-14.52	12.66	-14.70	12.83	-13.91	11.75	-14.70	12.83	-13.91	11.75	-14.70	12.83	-13.91	11.75
+1.86		+1.86		+1.87		+1.96		+1.87		+1.96		+1.87		+1.96	
-22.61		-23.24		-23.45		-24.34		-23.45		-24.34		-23.45		-24.34	
-35.87	0.88	-35.90	2.01	-36.28	0.08	-36.29	59.88	-36.28	0.08	-36.29	59.88	-36.28	0.08	-36.29	59.88
	1.30		1.22		0.97		0.14		0.97		0.14		0.97		0.14
	1.09		1.61		0.52		0.01		0.52		0.01		0.52		0.01



12 Year Cat. 1879 & C. 1874  
 2747 Br 2749 11.88  
 h m sec p d  
 20 53 72 dt -2.41  
 24 +13.71  
 +80° 5'  
 -37° 42'  $\cos \delta$  9.99346  
 $\sin \gamma = -.61$

1874sh  
 $-37^{\circ} 42'$   $\cos$  9.99346  
 $\sin = -.61$   
 $\cos$  9.23607  
 $\sin$  .10460  
 $\cos$  9.24067

[illegible]



[illegible]



1875

76	11.67	56.5
78	11.43	55.1
80	11.35	56.7
80	11.57	57.5
82	11.37	55.0
82	11.70	57.8
86	11.67	56.3

81  $\begin{array}{r} 11.537 \\ - 4 \\ \hline 11.533 \end{array}$   $\begin{array}{r} 56.70 \\ + 5 \\ \hline 56.75 \end{array}$

1675	X	-38		X	-43		X	-34		X	-23 -12					
		Oct. 20			Oct. 23			Oct. 27			Nov. 9					
		-38%			-46.3			-330			-352					
53		53	40.8	53	15.3	53		53	21.2	53		53				
		39.3			41.5				42.3			39.7				
		45.0			44.3				47.2			47.8				
		51.2			53.1				52.2			53.0				
		57.3			59.1				58.8							
54		54	32.0	54	4.9	54		54	4.5	54						
		8.9			11.4				10.8							
		41.8			17.4				16.4			36.3				
		20.9			23.4				23.0			46.3				
		21.3			29.4				28.8			55.8				
									34.7							
		26.73			26.75				27.54							
		240			240				180							
		27.3	53	40.80	47.5	53	24.90	47.5	53	28.10	95.4	53	46.83			
54		30.33	54	32.00	54	52.78	53	56.70	54	1.10	54	10.600	54	46.13		
		29.44			51.89				53.61			10.511				
53		21.30	-51.62	53	8.45	-54.30	53	5.20	53.62	57.22	-55.39	53	6.45	39 -1	-1.83	
		+53.87	-2.17		+56.28	-2.46		+56.35	57.37	-19.4		+6.06	12		-1.32	
					+56.80			+56.37	57.39			+6.14			-1.70	
			+2.52			+3.18			+3.44						+5.20	
-		51.68	53	11.6	-	54.35		11.61	-	55.46		11.63	-	62.03		11.86
-		2.21			-	2.65			-	18.9			-	2.01		
+		2.52			+	3.18			+	3.44			+	5.20		
-		51.84			-	53.82			-	53.91			-	53.84		
54		2.94	2.1	32.78	54	3.19		34.28	54	5.62		33.40	54	10.51		33.11
			-16	1570				14.45				14.58				13.86
53		11.87	+1.6	53	11.87	-16	14.45	53	11.70	-16	14.58	53	11.67		+1.8	
			-22.90					23.50				23.70				24.70
								56.03				56.73		11.539	4	56.35

$$+ 22.23 - 28.97 + 40.38 + 8.8 + 36.19 + 3.49 + 23.77 - 35.53$$

-291				-292				-293				-302			
1	43.2	1	56.3	1	37.6	1	45.1	1	41.7	1	50.6	1	50.3	2	4.8
	2.1		14.2		57.4		6.1		0.9		8.4		0.9		13.8
1	107.3		13.05		95.0		11.5		10.8		11.90		11.12		20.6
1	53.65	2	8.25	1	47.50	1	53.75	1	50.90	1	34.60	1	55.60	2	10.30

134694	146190	160614	0.92324	1.55859	0.54283	1.37603	1.55060 <sub>n</sub>
0.70850	0.82354 <sub>n</sub>	0.96776	0.88483	0.92018	0.90442	0.73762	0.97219 <sub>n</sub>
+5.11	-666	+9.28	+1.93	+8.32	+0.80	+5.47	-8.17
1 58.6	1 58.59	1 56.78	1 57.68	1 59.22	2 03.0	2 1.07	2 2.13

20 1959 49.76 20 5757 5067 20 4913 4805 20 4728 4622  
49.67 5112 48.59 46.45

41 52 41 38  
1.64810, 1.64802m

<sup>-19</sup> 1,64781	<sup>-948</sup> 1,64781	<sup>-948</sup> 1,63852	<sup>-948</sup> 1,63852	<sup>+511</sup> 1,65311	<sup>+511</sup> 1,65311	<sup>+1999</sup> 1,66818	<sup>+1999</sup> 1,66799
+44,45	+44,45	+43,50	+43,50	+44,99	+44,99	+46,57	+46,56

	-04	-34	-08	-15	-33	0	-12	-17	0	-05	-20	-11
	-27		-29	-25		-27	-11		-12	-11		-13
	+44.6		+44.08	+43.10		+43.23	+44.76		+44.88	+46.41		+46.32
21	33.78		33.84	34.67		33.90	33.89		32.92	33.69		32.54
	100			101			108			208		

14.6	14.7	14.8	14.9	15.0	15.1	15.2	15.3	15.4	15.5	15.6	15.7	15.8	15.9	16.0	16.1	16.2	16.3	16.4	16.5	16.6	16.7	16.8	16.9	17.0	17.1	17.2	17.3	17.4	17.5	17.6	17.7	17.8	17.9	18.0	18.1	18.2	18.3	18.4	18.5	18.6	18.7	18.8	18.9	19.0	19.1	19.2	19.3	19.4	19.5	19.6	19.7	19.8	19.9	20.0
14.6	14.7	14.8	14.9	15.0	15.1	15.2	15.3	15.4	15.5	15.6	15.7	15.8	15.9	16.0	16.1	16.2	16.3	16.4	16.5	16.6	16.7	16.8	16.9	17.0	17.1	17.2	17.3	17.4	17.5	17.6	17.7	17.8	17.9	18.0	18.1	18.2	18.3	18.4	18.5	18.6	18.7	18.8	18.9	19.0	19.1	19.2	19.3	19.4	19.5	19.6	19.7	19.8	19.9	20.0

[illegible]

1.77	+	1.78	+	1.78	+	1.78	+	1.78
2290	+	2350	+	2370	+	2440	+	2440
4		58.04		56.78		56.34		
57.53								



*η Capricorni.*20 57 17  
- 20° 21' $\gamma = +62^{\circ} 44'$   
 $\sin \gamma = +.89$ 1874  
L<sub>sin</sub> 9.54127L<sub>cos</sub> 9.97201  
L<sub>E</sub> 10.460  
L<sub>G</sub> 0.07661

1875-

57 17.41  
20 52.48  
+ 3.424  
+ 13.949.97201  
12.552  
0.09753

1874

corr <sub>1</sub> =	.78	17.33	52.4
corr <sub>2</sub> =	.78	17.40	51.9
	.78	17.38	52.1
large <sub>1</sub> =	-.39	17.39	52.8
	.80	17.47	52.8
I =	2.20	17.32	51.7
	.81	17.44	51.0
K =	-.016	17.30	52.2
	.80	17.350	51.74
		17.350	51.75

1874  
Oct. 10

20	57	-280	+283
		-	-
		-	-
		26.2	-
		25.3	-
		30.6	-
		32.8	57 26.3
		33.0	-
		-	-
		-	-

15 2.9	
57 30.580	57 36.30
30.564	

- 13.95	
+ .10	
- 2.80	+0.624
- 16.63	
57 30.56	

57 13.91	
57 17.334	

1874  
Oct. 11

57	16.67	-367
	26.1	-
	22.2	-
	26.7	-
	29.0	-
	31.2	-
	33.4	57 26.3
	35.4	-
	40.0	-
	42.2	-
	44.4	-

34.26	57 3.63
57 31.145	57 48.88
31.129	

- 14.49	
+ .13	
- 2.49	+0.634
- 17.15	
57 31.13	

57 13.98	
17.404	

1874  
Oct. 12

57	16.1	-302
	20.3	-
	22.5	-
	27.0	-
	29.2	-
	31.4	-
	33.8	-
	35.7	-
	40.1	-
	42.3	-
	44.4	-

34.45	57 7.60
57 31.318	57 52.28
31.302	

- 14.68	
+ .11	
- 2.44	+0.654
- 17.34	
57 31.30	

57 13.96	
17.384	

1874  
Oct. 15

57	17.3	-235
	19.4	-
	21.6	-
	26.0	-
	28.2	-
	30.4	-
	32.6	-
	34.9	-
	39.2	-
	41.3	-
	43.6	-

33.45	57 7.43
57 30.409	57 52.28
31.393	

- 13.98	
+ .09	
- 2.63	+0.694
- 16.42	
57 30.39	

57 13.97	
17.394	

1874  
Oct. 18

57	16.1	-224
	18.3	-
	20.5	-
	24.9	-
	27.1	-
	29.2	-
	31.4	-
	33.7	-
	37.0	-
	40.2	-
	42.6	-

32.20	57 7.06
57 29.273	57 46.58
29.257	

- 12.81	
+ .08	
- 2.68	+0.744
- 15.41	
57 29.26	

57 13.85	
17.274	

1874  
Oct. 21

57	16.1	-230
	18.3	-
	20.5	-
	24.9	-
	27.1	-
	29.2	-
	31.4	-
	33.7	-
	37.0	-
	40.2	-
	42.6	-

29.63	57 8.00
57 26.936	57 44.33
26.920	41.37

- 10.46	
+ .08	
- 2.64	+0.784
- 13.02	
57 26.92	

57 13.90	
17.324	

-5.72	+27.51	-17.74	+23.72	-20.91	+22.98	-22.95	+22.21	-17.26	+18.94	-14.43
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40	-2.48	40	-2.44	40	-2.45	40	-2.46	40	-2.48	40	-2.50
4	4.5	3	23.2	4	17.2	3	27.0	4	19.2	3	29.8
	20.9		43.7		37.2		46.4		39.3		47.1
	25.4		6.69		54.4		73.4		58.5		76.9
44	12.70	48	33.45	44	27.20	43	36.70	44	28.25	43	38.45

0.7574	1.43949	1.24895	1.37511	1.32035	1.36135	1.36078	1.34655	1.21085	1.27738	1.15924	
0.88401	1.51610	1.31556	1.45172	1.37696	1.43776	1.43737	1.42316	1.23874	1.35377	1.23588	
-6.82	+32.82	-20.68	+28.30	-24.91	+27.41	-27.38	+26.49	-19.39	+22.59	-17.21	
44	5.88	44	6.27	44	6.53	44	6.86	44	7.17	44	7.49

-20	21	17.53	21	17.52	18.17	21	16.65	15.96	21	17.51	16.52	21	16.14	17.91	21	16.24	14.64
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+62	42	6	41	26	42	20	43	42	20	43	42	20	43	42	20	43	42
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2.03542	2.04355	2.04383	2.05015	2.05043	2.05258	2.05286	2.04794	2.04822	2.05714	2.05742
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-108.50	-110.55	-110.62	-112.24	-112.31	-112.87	-112.94	-111.67	-111.74	-114.06	-114.14
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0	0	0	0	0	0	0	0	0	0	0
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-20	23	216	23	845	887	23	88.91	832	23	1840	950	23	784	973	23	1835	888
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76	17.38	53.5
80	17.42	53.4
80	17.51	51.7
82	17.30	53.1
86	17.41	53.8
81	17.404	53.08
	(5)	+ 5
	+ 2	
	<u>17.406</u>	<u>53.03</u>

1874				1875				1876				1877				1878				1879			
Oct. 22				Oct. 26				Oct. 4				Oct. 18				Oct. 19				Oct. 2X			
20	57	12.57	3.8	57	58	56	58.1	57	58.9	57	45.4	57	54.4	58	18.8	57	58.3	57	53.2	58	24	57	57.4
150		6.0		120		10		53.1		47.3		57.8		21.1	58	45		55.0	46		59.2		
17.2		8.2		142		3.1		53.3		49.1	58	2.2		23.3		2.7		56.8	6.9		1.0		
21.7				18.6				59.6				6.8				7.0			11.3				
23.8				20.8				7.8				8.8				9.4			13.4				
26.0				22.9			58	4.1				11.0				11.5			15.6				
28.0	57	29.7		25.1	57	52.6		6.3	58	18.2		13.2	58	4.7	12.8	58	33.3		10.8	58	39.4		
30.3				27.3		53.2		8.4		26.4		15.3		48.3	16.0		35.3		20.2		39.4		
34.8				31.8		57.0		12.9		22.3		26.7		57.0	24.3		37.2		24.3		42.1		
37.0				33.9				15.1				22.0			22.4				26.5				
32.1				36.1				17.2				24.2			24.6				28.8				
28.56				25.25				28.47				24.10			18.65				17.16				
								240				120			60								
57	25.964	57	6.00	57	22.955	57	0.73	57	44.7	57	47.27	57	121.0	58	21.07	57	126.5	57	55.00	57	59.20		
25.948		57	29.70	57	22.939	57	54.93	58	40.64	58	20.30	58	11.000	58	48.43	58	11.510	58	35.27	58	39.63		
								4.048				10.984				11.484			15.584				
- 9.42				- 6.61				- 43.53				- 50.65			- 52.8				- 55.46				
+ .08				+ .10				+ .15				+ .16			+ .17				+ .12				
- 2.62	+0.804			- 2.65	+0.874			- 3.24				- 3.07			- 3.06				- 2.94				
- 11.96				- 9.06				- 46.67				- 53.56			- 53.97				- 58.28				
57	25.95			57	22.94			58	4.05			58	10.98			58	11.48			58	15.58		
57	13.99			57	13.88			57	17.38			57	17.42			57	17.51			57	17.38		
17.914				17.304																			
12.57				13.930																			

[illegible]



Nov. 9

~~58~~ ~~352~~  
 88.57 59.4  
 11.0 59.1  
 13.3 107  
 17.7  
 19.9  
 22.1  
 24.2 58 55.8  
 26.5 57.8  
 30.8 0.1  
 33.2  
 35.3  
 242.8

58 22.073 57 59.07  
 22.057 58 57.90  
 - 62.03  
 + .13  
 - 2.45  
 - 64.65  
 58 22.106  
 58 17.41  
 7 17.408

+ 20.00 -35.83  
 20  
 - 3.02  
 4 54.6 1 8.0  
 0.3 14.1  
 11.49 2.21  
 24 57.45 26 110.5  
 1.36173 1.55425m  
 1.45926 1.65178m  
 +28.79 -44.85  
 25 26.24 25 26.20  
 2 37.89 37.85  
 37.87  
 41 9 42 23  
 2.04540 2.04577  
 +20.08  
 2.06548 2.06585  
 -116.27 -116.37  
 - 12 - 12  
 +.09 -.02 +22  
 -29 -07  
 -1 56.49 -1 56.24  
 4 34.38 34.09  
 -16 13.91 16.59  
 2.68  
 -3.02  
 -16 19.61 53.99  
 53.70  
 -20 53.84







38' 21.0  
20.0 -1.0  
19.0 1.0  
18.1 1.9  
17.3 .8

1875-  
Oct. 25 59 2658  
30 2674 +36  
Nov. 4 2730 .36  
9 2767 .37  
14 2805 .38

37 62.3  
61.5 -.8  
60.9 .6  
60.4 .5  
60.0 .4

1874

78 22.15 366  
79 22.34 344  
80 22.11 33.8  
81 22.05 34.1  
82 22.21 34.1  
82 22.01 35.3  
80 22.145 (6) 34.70

1875

82 22.14 34.7  
86 22.05 35.3  
84 22.095 35.70  
(12)

1875-  
P 59 22.05 + 67.38 21.38  
+14  
D' 59 22.09 67.38 +0.8  
W 59 21.92 22.2  
D-14 21.92 +2.4  
+1875-  
34  
Oct. 27 -330  
Nov. 9 -352

0 0 46 0 0 102  
105 8.9 180 163  
134 12.1 206 21.8  
16.1 23.3  
18.8 26.4  
21.3 28.9  
24.0 0 248 31.4 0 499  
26.8 28.7 34.0  
29.4 33.3 37.0  
32.1 39.6  
19.24 0 853 254 0 16.07  
0 21.378 0 2893 0 27.67 0 49.90  
21.417 28.778  
26.69 52.7 29.63 +1.29  
-33.46 54.73 -62.23  
+ .80 + .85  
- 462 -5539 -559 -1.183  
- 5928 +8.3 -66.77 +5.6  
0 21.42 0 28.82 +3.1  
59 22.14 22.54 59 22.05 22.27  
2

38 592 733  
-16 1458 1386  
+2.56 +26  
-1930 -2100  
21 3464 21 3507

+12.85 -7.55 +12.71 -21.12

45 -2.93 45 -3.02

2 13.6 2 6.1 2 23.0 2 5.4  
38.35 24.4 40.1 22.0  
5.41 33.5 63.1 27.4  
47 27.05 47 16.75 47 31.55 47 13.70

1.10891 0.87795 1.10415 1.32469  
0.81481 0.58386 0.81006 1.03060  
+6.53 +3.84 -6.46 +10.73  
47 20.52 47 20.59 47 25.09 47 24.43

24 32.77 32.24 24 36.74 36.08  
35 24.83 27.76 35 25.26 23.92  
56 27.28 56 31 56 23.17 56 34  
2.19408 2.19416 2.19408 2.19419  
+579 +2012

2.19925 2.19933 2.21420 2.21431  
+15822 +15824 +163.76 +163.80  
+2 +2 +3 +5  
+0.3 -12 +7 +0.3 -0.8 +0.8  
-14 -14 -15 -13

+2 38.78 +2 38.18 +2 43.68 +2 43.80  
38 596 589 38 695 712  
-16 14.70 11.90 -13.91 11.08  
+2.75 +2.83  
-1930 -2100

-16 37.25 21 32.71 -32.08 34.87  
34.64 35.64  
21 33.67 35.25  
34.68



1874	1874
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*E. Cagnipr.*

17° 4' N	18° 1'	19° 1'	20° 1'	21° 1'	22° 1'	23° 1'	24° 1'	25° 1'	26° 1'	27° 1'	28° 1'	29° 1'	30° 1'	31° 1'	32° 1'	33° 1'	34° 1'	35° 1'	36° 1'	37° 1'	38° 1'	39° 1'	40° 1'	41° 1'	42° 1'	43° 1'	44° 1'	45° 1'	46° 1'	47° 1'	48° 1'	49° 1'	50° 1'	51° 1'	52° 1'	53° 1'	54° 1'	55° 1'	56° 1'	57° 1'	58° 1'	59° 1'	60° 1'	61° 1'	62° 1'	63° 1'	64° 1'	65° 1'	66° 1'	67° 1'	68° 1'	69° 1'	70° 1'	71° 1'	72° 1'	73° 1'	74° 1'	75° 1'	76° 1'	77° 1'	78° 1'	79° 1'	80° 1'	81° 1'	82° 1'	83° 1'	84° 1'	85° 1'	86° 1'	87° 1'	88° 1'	89° 1'	90° 1'	91° 1'	92° 1'	93° 1'	94° 1'	95° 1'	96° 1'	97° 1'	98° 1'	99° 1'	100° 1'	101° 1'	102° 1'	103° 1'	104° 1'	105° 1'	106° 1'	107° 1'	108° 1'	109° 1'	110° 1'	111° 1'	112° 1'	113° 1'	114° 1'	115° 1'	116° 1'	117° 1'	118° 1'	119° 1'	120° 1'	121° 1'	122° 1'	123° 1'	124° 1'	125° 1'	126° 1'	127° 1'	128° 1'	129° 1'	130° 1'	131° 1'	132° 1'	133° 1'	134° 1'	135° 1'	136° 1'	137° 1'	138° 1'	139° 1'	140° 1'	141° 1'	142° 1'	143° 1'	144° 1'	145° 1'	146° 1'	147° 1'	148° 1'	149° 1'	150° 1'	151° 1'	152° 1'	153° 1'	154° 1'	155° 1'	156° 1'	157° 1'	158° 1'	159° 1'	160° 1'	161° 1'	162° 1'	163° 1'	164° 1'	165° 1'	166° 1'	167° 1'	168° 1'	169° 1'	170° 1'	171° 1'	172° 1'	173° 1'	174° 1'	175° 1'	176° 1'	177° 1'	178° 1'	179° 1'	180° 1'	181° 1'	182° 1'	183° 1'	184° 1'	185° 1'	186° 1'	187° 1'	188° 1'	189° 1'	190° 1'	191° 1'	192° 1'	193° 1'	194° 1'	195° 1'	196° 1'	197° 1'	198° 1'	199° 1'	200° 1'	201° 1'	202° 1'	203° 1'	204° 1'	205° 1'	206° 1'	207° 1'	208° 1'	209° 1'	210° 1'	211° 1'	212° 1'	213° 1'	214° 1'	215° 1'	216° 1'	217° 1'	218° 1'	219° 1'	220° 1'	221° 1'	222° 1'	223° 1'	224° 1'	225° 1'	226° 1'	227° 1'	228° 1'	229° 1'	230° 1'	231° 1'	232° 1'	233° 1'	234° 1'	235° 1'	236° 1'	237° 1'	238° 1'	239° 1'	240° 1'	241° 1'	242° 1'	243° 1'	244° 1'	245° 1'	246° 1'	247° 1'	248° 1'	249° 1'	250° 1'	251° 1'	252° 1'	253° 1'	254° 1'	255° 1'	256° 1'	257° 1'	258° 1'	259° 1'	260° 1'	261° 1'	262° 1'	263° 1'	264° 1'	265° 1'	266° 1'	267° 1'	268° 1'	269° 1'	270° 1'	271° 1'	272° 1'	273° 1'	274° 1'	275° 1'	276° 1'	277° 1'	278° 1'	279° 1'	280° 1'	281° 1'	282° 1'	283° 1'	284° 1'	285° 1'	286° 1'	287° 1'	288° 1'	289° 1'	290° 1'	291° 1'	292° 1'	293° 1'	294° 1'	295° 1'	296° 1'	297° 1'	298° 1'	299° 1'	300° 1'	301° 1'	302° 1'	303° 1'	304° 1'	305° 1'	306° 1'	307° 1'	308° 1'	309° 1'	310° 1'	311° 1'	312° 1'	313° 1'	314° 1'	315° 1'	316° 1'	317° 1'	318° 1'	319° 1'	320° 1'	321° 1'	322° 1'	323° 1'	324° 1'	325° 1'	326° 1'	327° 1'	328° 1'	329° 1'	330° 1'	331° 1'	332° 1'	333° 1'	334° 1'	335° 1'	336° 1'	337° 1'	338° 1'	339° 1'	340° 1'	341° 1'	342° 1'	343° 1'	344° 1'	345° 1'	346° 1'	347° 1'	348° 1'	349° 1'	350° 1'	351° 1'	352° 1'	353° 1'	354° 1'	355° 1'	356° 1'	357° 1'	358° 1'	359° 1'	360° 1'	361° 1'	362° 1'	363° 1'	364° 1'	365° 1'	366° 1'	367° 1'	368° 1'	369° 1'	370° 1'	371° 1'	372° 1'	373° 1'	374° 1'	375° 1'	376° 1'	377° 1'	378° 1'	379° 1'	380° 1'	381° 1'	382° 1'	383° 1'	384° 1'	385° 1'	386° 1'	387° 1'	388° 1'	389° 1'	390° 1'	391° 1'	392° 1'	393° 1'	394° 1'</
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7	720	
	726	+
	731	3
	735	4
	738	3
	739	1
	740	+
	739	-
	738	-

corr. 1 =	.77	17.66	9.1
corr. 2 =	.78	17.66	8.7
	.78	17.60	7.8
tangl = +.78 127	.78	17.67	9.9
	.79	17.84	8.9
$\pm 2.62$	.80	17.69	8.5
	.80	17.63	8.6
$K = -.020$	.81	17.70	9.8
	.81	17.69	8.1
	.82	17.65	8.2
	.79	17.659	8.76

[illegible]



1873-  
 17.647  
 +8.527  
 +8.681  
 +17.481  
 1875  
 17.71 -8.3  
 17.70 8.1  
 17.705 8.20  
 (2)

leas 9.89574  
 12.552  
 9.02126

1875  
 Oct. 7 1 2000  
 12 19.90 -10  
 17 19.80 10  
 22 19.70 10  
 27 19.60 10  
 Nov. 1 19.50 10  
 6 19.40 10  
 11 19.30 10  
 16 19.20 10  
 8' 30.9  
 31.0 +6  
 31.5 5  
 31.9 4  
 32.2 3  
 32.4 2  
 32.4 +0  
 32.3 -1  
 32.2 -1

X -17 Oct. 20	X -24 Oct. 21	X -15 -07 Oct. 22	X 1874 Oct. 26	1875 Oct. 4	X -34 Oct. 27
1 1280 58.71 118 0 320 1 1080 530 1 770 518 1 484 1 30.7 1 596 1 41.7	1 154 1 2.6 145 521 133 529 105 526 57.0 32.7 2 53 45.3	1 180 4.6 170 13.3 160 56.7 130 56.3 55.6 34.7 50 47.2	1 233 23.8 210 23.6 24.3 1 59.3 22 92 35.7 37.3 26.0 39.3	1 258 28.5 27.5 26.4 26.1 1 49.0 52.0 54.0 36.6 39.3 42.2	1 16.8 0 54.86 2592 0 53.90 442 1 3270 1692 1 4473
1 28527 1 58.66 1 27518 1 46.70 1 26436 1 51.66 1 23564 2 2.00 2 4018 2 34.93 2 15362 2 36.57	1 1684 1 16.82 1 16.80 1 16.80 1 16.74 1 16.74 1 16.74 1 16.74 1 16.74 1 16.74	1 16.84 1 16.84 1 16.84 1 16.84 1 16.84 1 16.84 1 16.84 1 16.84 1 16.84 1 16.84	1 16.84 1 16.84 1 16.84 1 16.84 1 16.84 1 16.84 1 16.84 1 16.84 1 16.84	1 16.84 1 16.84 1 16.84 1 16.84 1 16.84 1 16.84 1 16.84 1 16.84	1 16.84 1 16.84 1 16.84 1 16.84 1 16.84 1 16.84 1 16.84 1 16.84
1 14.95 6 507 1 15.02 585 1 15.01 428 1 14.94 6 448 1 17.71 24 4371 1 17.70 4689	1 17.631 +2 881 1 17.701 +2 919 1 17.691 +2 936 1 17.651 +2 961 1 17.611 +2 986 1 17.571 +2 1011	1 17.631 +2 881 1 17.701 +2 919 1 17.691 +2 936 1 17.651 +2 961 1 17.611 +2 986 1 17.571 +2 1011	1 17.631 +2 881 1 17.701 +2 919 1 17.691 +2 936 1 17.651 +2 961 1 17.611 +2 986 1 17.571 +2 1011	1 17.631 +2 881 1 17.701 +2 919 1 17.691 +2 936 1 17.651 +2 961 1 17.611 +2 986 1 17.571 +2 1011	1 17.631 +2 881 1 17.701 +2 919 1 17.691 +2 936 1 17.651 +2 961 1 17.611 +2 986 1 17.571 +2 1011
15 +2623 -2513 15 +3506 +1918 15 +3158 -2522 +2966 15 -3847 +3132 -3891 +3065 -2119	15 -250 15 -250 15 -251 15 -252 15 -250 15 -250 15 -250 15 -250 15 -250 15 -250	15 -250 15 -250 15 -251 15 -252 15 -250 15 -250 15 -250 15 -250 15 -250 15 -250	15 -250 15 -250 15 -251 15 -252 15 -250 15 -250 15 -250 15 -250 15 -250 15 -250	15 -250 15 -250 15 -251 15 -252 15 -250 15 -250 15 -250 15 -250 15 -250 15 -250	15 -250 15 -250 15 -251 15 -252 15 -250 15 -250 15 -250 15 -250 15 -250 15 -250
1 8.3 1 59.1 0 58.4 1 50.2 0 1.1 1 57.8 0 3.3 2 10.0 2 17.9 3 23.1 2 16.8 3 11.3	1 16.5 9.0 9.9 1.1 14.8 11.7 17.4 23.9 36.1 40.9 32.9 26.3	1 16.5 9.0 9.9 1.1 14.8 11.7 17.4 23.9 36.1 40.9 32.9 26.3	1 16.5 9.0 9.9 1.1 14.8 11.7 17.4 23.9 36.1 40.9 32.9 26.3	1 16.5 9.0 9.9 1.1 14.8 11.7 17.4 23.9 36.1 40.9 32.9 26.3	1 16.5 9.0 9.9 1.1 14.8 11.7 17.4 23.9 36.1 40.9 32.9 26.3
16x 1240 172 4.05.16x 4.15 16 55.65 16 7.95 16 4.75 16 5.35 16 10.35 17 16.95 57 2700 58 8200 57 2455 58 1880	1.41850 1.40019 1.54481 1.28285 1.49941 1.40175 1.47214 1.58512 1.49582 1.49010 1.48648 1.52613	1.41850 1.40019 1.54481 1.28285 1.49941 1.40175 1.47214 1.58512 1.49582 1.49010 1.48648 1.52613	1.41850 1.40019 1.54481 1.28285 1.49941 1.40175 1.47214 1.58512 1.49582 1.49010 1.48648 1.52613	1.41850 1.40019 1.54481 1.28285 1.49941 1.40175 1.47214 1.58512 1.49582 1.49010 1.48648 1.52613	1.41850 1.40019 1.54481 1.28285 1.49941 1.40175 1.47214 1.58512 1.49582 1.49010 1.48648 1.52613
1.41914 1.40053 1.54570 1.28319 1.49975 1.40209 1.47237 1.58546 1.49612 1.49038 1.48682 1.52647	1.41914 1.40053 1.54570 1.28319 1.49975 1.40209 1.47237 1.58546 1.49612 1.49038 1.48682 1.52647	1.41914 1.40053 1.54570 1.28319 1.49975 1.40209 1.47237 1.58546 1.49612 1.49038 1.48682 1.52647	1.41914 1.40053 1.54570 1.28319 1.49975 1.40209 1.47237 1.58546 1.49612 1.49038 1.48682 1.52647	1.41914 1.40053 1.54570 1.28319 1.49975 1.40209 1.47237 1.58546 1.49612 1.49038 1.48682 1.52647	1.41914 1.40053 1.54570 1.28319 1.49975 1.40209 1.47237 1.58546 1.49612 1.49038 1.48682 1.52647
16 3865 16 3890 16 3924 16 3946 16 3965 16 3987 16 4003 16 3845 57 5789 57 5754 57 5704 57 5655	6 9.70 9.45 6 9.11 11.89 6 8.80 8.84 6 8.32 9.90 24 4846 4881 24 51.31 5180	6 9.70 9.45 6 9.11 11.89 6 8.80 8.84 6 8.32 9.90 24 4846 4881 24 51.31 5180	6 9.70 9.45 6 9.11 11.89 6 8.80 8.84 6 8.32 9.90 24 4846 4881 24 51.31 5180	6 9.70 9.45 6 9.11 11.89 6 8.80 8.84 6 8.32 9.90 24 4846 4881 24 51.31 5180	6 9.70 9.45 6 9.11 11.89 6 8.80 8.84 6 8.32 9.90 24 4846 4881 24 51.31 5180
0.63008 0.63128 0.64170 1.64290 1.63466 1.63586 0.62905 0.63085 0.62546 0.62726 0.63419 0.63579	-4.27 -4.28 -4.38 -4.39 -4.31 -4.32 -4.26 -4.27 -4.22 -4.24 -4.31 -4.32	-4.27 -4.28 -4.38 -4.39 -4.31 -4.32 -4.26 -4.27 -4.22 -4.24 -4.31 -4.32	-4.27 -4.28 -4.38 -4.39 -4.31 -4.32 -4.26 -4.27 -4.22 -4.24 -4.31 -4.32	-4.27 -4.28 -4.38 -4.39 -4.31 -4.32 -4.26 -4.27 -4.22 -4.24 -4.31 -4.32	-4.27 -4.28 -4.38 -4.39 -4.31 -4.32 -4.26 -4.27 -4.22 -4.24 -4.31 -4.32
-18 -22 -17 -32 -27 -09 -26 -22 -16 -33 -36 -38 -25 -69 -24 -24 -34 -11	-04 -06 -03 -09 -08 -03 -04 -07 -03 -04 -07 -03 -04 -07 -03 -04 -07 -03	-04 -06 -03 -09 -08 -03 -04 -07 -03 -04 -07 -03 -04 -07 -03 -04 -07 -03	-04 -06 -03 -09 -08 -03 -04 -07 -03 -04 -07 -03 -04 -07 -03 -04 -07 -03	-04 -06 -03 -09 -08 -03 -04 -07 -03 -04 -07 -03 -04 -07 -03 -04 -07 -03	-04 -06 -03 -09 -08 -03 -04 -07 -03 -04 -07 -03 -04 -07 -03 -04 -07 -03
6 5.21 4.94 4.38 4.32 4.33 4.33 4.33 4.33 4.33 4.33 4.33 4.33 4.33 4.33 4.33 4.33 4.33	8.2 8.5 9.0 6.1 9.3 9.2 10.0 8.6 16 13.5 13.7 14.4 15.0	8.2 8.5 9.0 6.1 9.3 9.2 10.0 8.6 16 13.5 13.7 14.4 15.0	8.2 8.5 9.0 6.1 9.3 9.2 10.0 8.6 16 13.5 13.7 14.4 15.0	8.2 8.5 9.0 6.1 9.3 9.2 10.0 8.6 16 13.5 13.7 14.4 15.0	8.2 8.5 9.0 6.1 9.3 9.2 10.0 8.6 16 13.5 13.7 14.4 15.0
+2 +8.81 7 5125 +9.19 5080 +9.20 5055 +9.39 5008 16 1342 8 821 -1470 1440 182	-17 8.64 5098 -17 9.02 5374 -18 9.02 5065 -18 9.21 5138 -20 13.62 838 -20 13.62 838	-17 8.64 5098 -17 9.02 5374 -18 9.02 5065 -18 9.21 5138 -20 13.62 838 -20 13.62 838	-17 8.64 5098 -17 9.02 5374 -18 9.02 5065 -18 9.21 5138 -20 13.62 838 -20 13.62 838	-17 8.64 5098 -17 9.02 5374 -18 9.02 5065 -18 9.21 5138 -20 13.62 838 -20 13.62 838	-17 8.64 5098 -17 9.02 5374 -18 9.02 5065 -18 9.21 5138 -20 13.62 838 -20 13.62 838
-22.60 -5.12 -22.60 -5.12 -22.70 -5.22 -23.00 -5.32 -23.00 -5.32 -23.00 -5.32 -23.00 -5.32 -23.00 -5.32 -23.00 -5.32	4604 51.11 4642 52.27 4632 50.60 46.21 50.69 -16 3542 8 8.29 3850 8.09	4604 51.11 4642 52.27 4632 50.60 46.21 50.69 -16 3542 8 8.29 3850 8.09	4604 51.11 4642 52.27 4632 50.60 46.21 50.69 -16 3542 8 8.29 3850 8.09	4604 51.11 4642 52.27 4632 50.60 46.21 50.69 -16 3542 8 8.29 3850 8.09	4604 51.11 4642 52.27 4632 50.60 46.21 50.69 -16 3542 8 8.29 3850 8.09



1874phae.proj.1478

Oqualei.  
21 4 16  
+ 9° 38'  
+ 32° 45'  
sin f = +.54

1874  
L sin d 9.22361  
L cos d 9.99383  
L b 10.460  
L c 0.09843

1875  
4 15.77  
37 45.60  
+ 2.919  
+ 14.27  
9.99388  
12.552  
0.11935

1874  
Cont = .77 15.76 45.2  
Cont = .78 15.71 45.2  
Cont = .79 15.77 45.0  
Cont = .80 15.74 43.9  
Cont = .81 15.75 45.0  
Cont = .82 15.83 46.9  
Cont = .83 15.79 46.1  
Cont = .84 15.73 44.7  
80 15.759 45.25  
+ 1 (8) - 3  
15.760 45.22

1874	Oct. 6	Oct. 12	Oct. 15	Oct. 18	Oct. 20	Oct. 21
21 4 16.0 4 8.6 15.0 10.9 20.1 12.4 24.3 26.5 28.6 30.6 4 43.8 32.7 44.2 34.9 47.7 37.0 41.1 31.38 4 10.30 4 28.527 4 45.70 28.511 45.90 - 13.30 - .05 - 2.33 + 0.589 - 15.68 4 28.51 4 12.83 4 15.769	8.6 10.9 12.4 43.8 44.2 47.7 45.7 36.8 38.6 4.70 36.70 10.46 - .04 - 2.12 + 0.799 - 12.62 4 25.53 4 12.91 15.829	4 9.9 4 15.3 4 17.4 4 2.2 4 14.0 4 4.0 4 13.0 4 2.6 18.5 11.6 17.4 5.0 16.1 6.3 15.1 3.0 20.6 14.6 19.5 6.6 18.2 8.1 17.2 6.5 24.7 23.6 22.4 22.4 21.3 26.5 25.9 24.5 23.3 28.6 27.8 26.6 25.5 30.6 4 43.8 28.7 4 48.0 27.6 4 34.7 32.7 44.2 30.7 50.2 29.8 36.8 34.9 47.7 34.9 52.3 34.0 38.6 37.0 39.3 41.5 39.3 40.4 39.1 31.79 4 12.03 30.63 4 4.60 29.32 4 6.13 28.10 4 4.70 4 28.902 4 46.23 4 27.845 4 26.564 4 20.06 4 25.545 4 36.70 28.884 27.829 26.548 25.529 - 13.98 - .04 - 2.21 + 0.769 - 16.03 4 28.88 4 12.55 15.769	4 9.9 4 15.3 4 17.4 4 2.2 4 14.0 4 4.0 4 13.0 4 2.6 18.5 11.6 17.4 5.0 16.1 6.3 15.1 3.0 20.6 14.6 19.5 6.6 18.2 8.1 17.2 6.5 24.7 23.6 22.4 22.4 21.3 26.5 25.9 24.5 23.3 28.6 27.8 26.6 25.5 30.6 4 43.8 28.7 4 48.0 27.6 4 34.7 32.7 44.2 30.7 50.2 29.8 36.8 34.9 47.7 34.9 52.3 34.0 38.6 37.0 39.3 41.5 39.3 40.4 39.1 31.79 4 12.03 30.63 4 4.60 29.32 4 6.13 28.10 4 4.70 4 28.902 4 46.23 4 27.845 4 26.564 4 20.06 4 25.545 4 36.70 28.884 27.829 26.548 25.529 - 13.98 - .04 - 2.21 + 0.769 - 16.03 4 28.88 4 12.55 15.769	4 9.9 4 15.3 4 17.4 4 2.2 4 14.0 4 4.0 4 13.0 4 2.6 18.5 11.6 17.4 5.0 16.1 6.3 15.1 3.0 20.6 14.6 19.5 6.6 18.2 8.1 17.2 6.5 24.7 23.6 22.4 22.4 21.3 26.5 25.9 24.5 23.3 28.6 27.8 26.6 25.5 30.6 4 43.8 28.7 4 48.0 27.6 4 34.7 32.7 44.2 30.7 50.2 29.8 36.8 34.9 47.7 34.9 52.3 34.0 38.6 37.0 39.3 41.5 39.3 40.4 39.1 31.79 4 12.03 30.63 4 4.60 29.32 4 6.13 28.10 4 4.70 4 28.902 4 46.23 4 27.845 4 26.564 4 20.06 4 25.545 4 36.70 28.884 27.829 26.548 25.529 - 13.98 - .04 - 2.21 + 0.769 - 16.03 4 28.88 4 12.55 15.769	4 9.9 4 15.3 4 17.4 4 2.2 4 14.0 4 4.0 4 13.0 4 2.6 18.5 11.6 17.4 5.0 16.1 6.3 15.1 3.0 20.6 14.6 19.5 6.6 18.2 8.1 17.2 6.5 24.7 23.6 22.4 22.4 21.3 26.5 25.9 24.5 23.3 28.6 27.8 26.6 25.5 30.6 4 43.8 28.7 4 48.0 27.6 4 34.7 32.7 44.2 30.7 50.2 29.8 36.8 34.9 47.7 34.9 52.3 34.0 38.6 37.0 39.3 41.5 39.3 40.4 39.1 31.79 4 12.03 30.63 4 4.60 29.32 4 6.13 28.10 4 4.70 4 28.902 4 46.23 4 27.845 4 26.564 4 20.06 4 25.545 4 36.70 28.884 27.829 26.548 25.529 - 13.98 - .04 - 2.21 + 0.769 - 16.03 4 28.88 4 12.55 15.769	4 9.9 4 15.3 4 17.4 4 2.2 4 14.0 4 4.0 4 13.0 4 2.6 18.5 11.6 17.4 5.0 16.1 6.3 15.1 3.0 20.6 14.6 19.5 6.6 18.2 8.1 17.2 6.5 24.7 23.6 22.4 22.4 21.3 26.5 25.9 24.5 23.3 28.6 27.8 26.6 25.5 30.6 4 43.8 28.7 4 48.0 27.6 4 34.7 32.7 44.2 30.7 50.2 29.8 36.8 34.9 47.7 34.9 52.3 34.0 38.6 37.0 39.3 41.5 39.3 40.4 39.1 31.79 4 12.03 30.63 4 4.60 29.32 4 6.13 28.10 4 4.70 4 28.902 4 46.23 4 27.845 4 26.564 4 20.06 4 25.545 4 36.70 28.884 27.829 26.548 25.529 - 13.98 - .04 - 2.21 + 0.769 - 16.03 4 28.88 4 12.55 15.769

45 + 18.23 - 2.43 0 1.0 1 46.0 14.6 58.6 15.6 104.6 45 7.80 46 32.30 (46) 1.26079 1.23780 m 1.35921 1.33823 m + 2.287 - 2.179 46 30.67 46 30.57 36 17.68 17.84 17.76 + 32 44 1 44 45 1.56820 1.56840 + 5.91 1.57411 1.57431 - 37.51 - 37.53 - .03 - .07 - .13 - .03 - .06 - 37.57 - 37.63 35 40.11 40.22 + 2 5.18 3.87 - 1.31 + 1.15 - 13.12 + 1 5.075 37 30.86 30.97 + 37 30.91 37 45.18	45 + 16.87 - 2.46 0 6.4 1 49.4 0 58.9 1 49.9 0 3.7 1 58.2 0 38.8 1 39.0 15.6 2.9 15.1 4.0 14.9 9.6 13.0 53.3 25.0 112.3 134.0 113.9 18.6 127.8 131.8 92.3 45 12.50 46 36.15 47 7.00 48 6.95 49 9.30 50 3.90 51 5.90 52 46.15 (46) 1.22712 1.23886 1.24624 1.32555 1.33723 1.34467 + 2.116 - 2.174 + 2.15 45 33.66 46 34.41 46 36.15 36 14.69 13.94 36 12.20 14.31 + 7.24 1.57544 1.57564 1.57073 1.57093 1.56842 1.56862 1.58008 1.58028 - 37.62 - 37.64 - 37.22 - 37.23 - 37.02 - 37.04 - 38.02 - 38.04 - .03 - .08 - .08 - .05 - .08 - .04 - .09 - .05 - .04 - .06 - .07 - .03 - .06 - .03 - .06 - .03 - .06 - .03 - .06 - .03 - .06 - .07 - 37.68 - 37.73 - 37.30 - 37.29 - 37.09 - 37.15 - 38.09 - 38.10 35 37.61 36.21 35 34.90 35 36.33 36.91 35 38.22 38.16 + 8.78 7.46 + 9.40 8.07 - 1.32 + .92 - 1.33 + .89 - 13.35 54.11 31.12 54.69 30.32 30.72 40.99 29.59 43.86	45 + 20.43 - 2.50 0 3.7 1 58.2 0 38.8 1 39.0 14.9 9.6 13.0 53.3 18.6 127.8 131.8 92.3 45 9.30 46 3.90 47 5.90 48 46.15 (46) 1.31027 1.32791 1.33890 1.04766 m 1.40870 1.41734 1.41933 1.14609 m + 2.563 - 2.961 + 2.614 - 14.06 45 34.93 46 34.29 46 33.04 46 32.15 46 36 13.42 14.06 36 16.31 16.20 13.74 16.25 43 59 44 39 1.56820 1.56840 + 11.88 1.57411 1.57431 1.58008 1.58028 - 37.51 - 37.53 - 38.02 - 38.04 - .03 - .07 - .13 - .03 - .06 - .07 - .03 - .06 - .03 - .06 - .03 - .06 - .03 - .06 - .03 - .06 - .07 - 37.57 - 37.63 - 38.09 - 38.10 35 37.61 36.21 35 34.90 35 36.33 36.91 35 38.22 38.16 + 8.78 7.46 + 9.40 8.07 - 1.32 + .92 - 1.33 + .89 - 13.35 54.11 31.12 54.69 30.32 30.72 40.99 29.59 43.86	45 + 20.84 - 2.50 0 38.8 1 39.0 13.0 53.3 131.8 92.3 45 5.90 46 46.15 (46) 1.04766 m 1.14609 m + 2.614 - 14.06 46 33.04 46 32.15 36 16.31 16.20 16.25 43 59 44 39 1.56820 1.56840 + 11.88 1.58008 1.58028 - 38.02 - 38.04 - .04 - .06 - .07 - .03 - .06 - .03 - .06 - .03 - .06 - .03 - .06 - .03 - .06 - .07 - 38.09 - 38.10 35 38.22 38.16 + 9.19 7.85 - 13.38 + .89 54.47 32.69 31.60 33.57 30.71 32.63 44.98 46.90
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1875

76	15.50	44.2
78	15.73	46.1
82	15.72	45.2
86	15.74	45.8
80	15.748	45.32
	- 5.41	+ 13
	15.743	45.45

Oct. 22	Oct. 26	Oct. 10	Oct. 4	Oct. 13	Oct. 27
-2.10	-2.85	-2.83	-4.18	-3.17	-3.80
4 12.0 3 58.0 4 9.0 4 10 4 16.5 4 8.5 4 49.6 4 44.7 4 54.0 4 44.5 5 1.1 4 54.0	4 14.0 0.1 11.1 3.0 18.7 10.8 51.7 46.8 56.1 46.6 3.2 55.8	4 16.1 2.0 13.2 3.0 20.8 12.9 53.8 48.6 58.1 48.8 5.3 57.3	4 20.3 2.23 24.4 2.1 4.2 5 2.40 6.3 2.62 10.7 38.6 15.6 5 23.9	4 22.3 2.4 26.5 4 41.0 25.7 40.0 3.4 6.3 2.62 10.7 38.6 15.6 5 23.9	4 24.4 2.6 28.7 4 43.4 29.9 41.6 4.8 10.8 28.0 14.8 32.3 2.4 27.0
4 26.8 9 4 0.03 23.6 9 4 3.00 32.0 4 10.73 23.2 4 46.70 71.5 4 46.63 14.97 4 55.70	4 28.7 2.8 26.5 4 41.0 25.7 40.0 3.4 6.3 2.62 10.7 38.6 15.6 5 23.9	4 30.0 3.0 20.8 12.9 53.8 48.6 58.1 48.8 5.3 57.3	4 32.0 3.2 22.3 2.4 26.5 4 41.0 25.7 40.0 3.4 6.3 2.62 10.7 38.6 15.6 5 23.9	4 34.0 3.4 24.4 2.6 28.7 4 43.4 29.9 41.6 4.8 10.8 28.0 14.8 32.3 2.4 27.0	4 36.0 3.6 26.8 9 4 0.03 23.6 9 4 3.00 32.0 4 10.73 23.2 4 46.70 71.5 4 46.63 14.97 4 55.70
4 24.4 29 24.4 29	4 21.5 36 21.5 36	4 29.0 15 29.0 15	4 20.9 5 20.9 5	4 6.5 0 6.5 0	4 13.6 5 13.6 5
-9.42	-6.61	-13.95	-4.35	-4.81	-5.54
-2.11+0.809	-2.05+0.869	-2.28+0.639	-2.67	-2.55	-2.35
-11.56	-8.71	-16.28	-46.29	-50.75	-57.87
4 24.43	4 21.52	4 29.07	5 2.09	5 6.48	5 13.59
4 12.87	4 12.81	4 12.79	4 15.80	4 15.73	4 15.72
15.789	15.729	15.709			
		12.839			

45	+24.41	-18.82	+18.54	-18.29	+18.36	-33.97	+15.41	-23.96	+19.87	-24.10	+17.91	-11.69
45	-2.87	-2.52	-2.43	-2.43	-2.80	-2.85	-2.93	-2.93	-2.93	-2.93	-2.93	-2.93
0	56.0	1 49.1	0 4.6	1 50.6	0 2.3	2 8.0	2 30.0	3 21.3	2 21.0	3 19.6	2 24.5	3 4.1
11.3	4.8	19.9	6.5	16.4	21.2	46.0	34.5	32.4	30.8	34.5	34.5	15.0
12.3	113.9	2.45	117.1	187	292	760	588	537	504	620	21.1	21.1
46x	3.65	46x 56.95	46x 12.25	46x 58.55	46x 9.35	47x 14.60	27 36.00	28 29.40	27 26.85	28 25.20	27 31.00	28 10.55
1.38757	1.27462	1.26811	1.26221	1.26387	1.53110	1.18780	1.37949	1.29820	1.38202	1.25310	1.06781	1.18710
1.45660	1.37303	1.36654	1.36064	1.36230	1.62953	1.30715	1.47884	1.41755	1.50137	1.37245	1.18710	1.18710
+30.62	-23.61	+23.26	-22.94	+23.63	-42.61	+20.28	-31.54	+26.15	-31.72	+23.53	-18.39	-18.39
46	34.27	46 32.74	46 35.51	46 35.61	46 32.38	46 31.97	27 58.28	27 57.86	27 53.00	27 53.48	27 54.58	27 55.16
36	14.08	15.61	36 12.84	12.74	36 15.97	16.36	54 50.07	50.49	54 55.35	54.87	54 53.77	53.19
14.84	12.79	16.17	16.17	16.17	16.17	16.17	50.28	50.28	55.11	55.11	55.11	55.11
44	2 45 8	43 50	44 41	44 41	44 41	44 41	44 41	44 41	44 41	44 41	44 41	44 41
1.56820	1.56850	1.56810	1.56840	1.56840	1.56840	1.56840	1.56840	1.56840	1.56840	1.56840	1.56840	1.56840
+488	1.57308	157328	156745	1.56765	1.55805	1.55835	1.56440	1.56470	1.58625	1.58655	1.57332	1.57362
-37.42	37.43	37.43	37.43	37.43	37.43	37.43	37.43	37.43	37.43	37.43	37.43	37.43
-05	-08	-03	-03	-06	-03	-03	-12	-11	-02	-50	-05	-03
-03	-06	-01	-06	-04	-04	-07	-39	-39	-39	-39	-39	-39
-37.50	-37.52	-36.98	-37.04	-36.22	-36.35	-37.09	-37.29	-37.29	-37.29	-37.29	-37.29	-37.29
35 36.58	38.09	35 35.86	35.70	35 39.75	39.01	54 12.98	13.20	54 16.38	15.71	54 16.15	15.52	15.52
+2 9.20	7.85	+9.39	8.03	+5.65	4.34	-16	13.42	14.92	-14.20	15.73	-14.70	16.28
-7.35	+8.9	-13.6	+8.9	-13.25	1.02	-1.50	-1.397	-1.397	-1.397	-1.397	-1.397	-1.397
-13.38	37 31.05	32.56	54.65	30.51	51.09	30.84	-46 28.89	37 44.09	29.98	46.40	30.59	45.56
+1 54.47	37 31.05	32.56	54.65	30.51	51.09	30.84	-46 28.89	37 44.09	29.98	46.40	30.59	45.56
+37 31.80	46.47	30.43	46.40	30.97	45.74	44.20	46.11	45.24	45.24	45.24	45.24	45.24



1875

Row 9

5 - 350  
 9.3 4 58.0  
 9.4 0.2  
 17.8 2.0  
 15.9  
 18.0  
 20.0  
 22.1 5 32.3  
 24.2 34.0  
 28.3 36.2  
 30.6  
 32.7  
 22.01

5 20.009 5 0.07  
 20.093 34.17  
 14.9

- 62.03  
 - 6

- 2.16  
 - 64.25

5 1999

4 1574

15.748

+ 17.94 - 14.16

25 - 3.02

2 24.7 3 2.0  
 31.3 16.0

3 6.0 25.0

27 28.00 28 12.50

1.29973 1.15106n

1.41908 1.27041n

+ 26.25 - 18.64

27 54.25 27 53.86

3 54 54.0 54.49

54.30

43 40 44 24

1.56810 1.56830

+ 20.21

1.58831 1.58851

- 38.76 - 38.77

- 04 - 20 - 02

- 15 - 19

- 38.95 - 38.98

54 15.15 15.51

- 16 13.91 15.54

- 1.63

- 1396

+ - 16 2950 37 45.65

46.61

+ 37 45.83



13

3 Pygni

21 7 37

+ 29° 43'

7 = + 12° 40'

Jan 8 = + 22° 25'

1874

34.519 Oct.

+ 42° 11.0.26

+ 2.552

+ 14.602

Nov.

9.69523

9.93876

10460

0.04336

	1874	1875	1876
cost =	77	36.98	346
cost =	79	36.99	53.6
	80	36.96	55.0
long = +57	115.81	37.04	
\$	82	36.94	54.0
$\pm$ = 2.57			
\$	80	36.982	54.30
K = -0.18		(5)	(1)

x 1874										x -21										x -24										x -21										x -15																			
Oct. 16										Oct. 15										Oct. 18										Oct. 21										Oct. 26										Oct. 22									
21	7	86.7	7	26.9	7	36.0	7	25.5	7	35.0	7	23.5	7	28.7	7	19.3	7	31.5	7	18.7	7	28.7	7	19.3	7	31.5	7	18.7	7	28.7	7	19.3	7	31.5	7	18.7	7	28.7	7	19.3	7	31.5	7	18.7	7	28.7	7	19.3	7	31.5	7	18.7							
		38.0		27.9		38.3		27.9		37.4		25.8		31.6		21.3		33.9		21.8		31.6		21.3		33.9		21.8		31.6		21.3		33.9		21.8		31.6		21.3		33.9		21.8		31.6		21.3		33.9		21.8							
		40.4		29.7		40.8		29.7		39.7		27.4		33.4		23.4		36.4		24.0		33.4		23.4		36.4		24.0		33.4		23.4		36.4		24.0		33.4		23.4		36.4		24.0		33.4		23.4		36.4		24.0							
		43.2				45.6				46.9				40.5				43.4				40.5				43.4				40.5				43.4				40.5				43.4				40.5				43.4									
		47.6				48.0				49.2				42.8				45.7				42.8				45.7				42.8				45.7				42.8				45.7				42.8				45.7									
		50.0				50.3				51.5				45.2		16		48.3		56.6		45.2		16		48.3		56.6		45.2		16		48.3		56.6		45.2		16		48.3		56.6		45.2		16		48.3		56.6							
		52.3		6.5		52.6		7	57.2		51.5		7	53.1				50.6		58.6		51.5		7	53.1		56.0		59.0		54.0		57.7		59.0		51.5		7	53.1		56.0		59.0		54.0		57.7		59.0									
		54.0				54.3				54.7				52.3		6.4		53.4		6.6		52.3		6.4		53.4				52.3		6.4		53.4				52.3		6.4		53.4				52.3		6.4		53.4									
		56.0				56.3				56.7				54.2				55.1				54.2				55.1				54.2				55.1				54.2				55.1				54.2				55.1									
		58.0				58.3				58.7				56.0				56.9				56.0				56.9				56.0				56.9				56.0				56.9				56.0				56.9									
		60.0				60.3				60.7				58.0				58.9				58.0				58.9				58.0				58.9				58.0				58.9				58.0				58.9									
		62.0				62.3				62.7				60.0				60.9				60.0				60.9				60.0				60.9				60.0				60.9				60.0				60.9									
		64.0				64.3				64.7				62.0																																													



1875-

1875-

1874.0

1875.0

Oct.	7	89.36	- .08	735	+ .5	2	37.071	34.43	37.03
	12	89.28		740		8	+ 12.54.86	44	01
	17	39.19	.09	744	.4	24	+ 2.55.30	41	36.91
	22	38.11	.08	746	.2	40	+ 14.60.5	49	37.05
	27	39.03	.09	748	.2			39	
	31	38.93	.09	748	0			34.432	37.000
Nov.	6	38.84	.09	74.8	+ 0			519	.071
	11	38.75	.09	74.7	- .1			-.087	-.071
	16	38.66	.09	74.5	-.2				
						Depos	9.93876		

1875- -42.4 -41.8	+31 Oct. 13 -40 -31.7	-24 -12 Oct. 14 -34.5	+30 -10 Oct. 17 -43.0
8 8.8 8 1.2 8	13.3 8. 3.1 8	13.3 8 20.4 8	15.3 8 9.6
11.3 2.2	15.7 5.6	15.7 23.8	17.7 11.4
13.7 3.9	18.2 7.1	18.0 24.8	20.1 14.2
18.4	22.8	22.9	24.8
30.8	25.2	25.1	27.0
23.2	27.6	27.6	29.5
25.6 8 41.2	29.9 8 41.3	29.8 8 41.5	31.9
27.9 45.5	32.3 43.6	32.3	34.2
32.7 58.4	37.0 46.9	37.0	39.0
35.0	39.5	39.4	41.3
37.4	41.5	41.7	43.7
2548	3030	3028	3245

	8	2.10		8	5.27		8	22.83		8	11.73			
8	23.16	8	48.37	8	27.545	8	43.93	8	27.527	8	47.50	8	29.500	
	23.16		<del>48.33</del>		27.527		<del>48.41</del>		27.527		<del>48.11</del>		29.482	<del>49.98</del>
7	39.470		<del>24</del>	7	39.26		<del>18</del>	7	39.24		<del>14</del>	7	39.19	<del>17</del>
	+ 4.3745				+ 4.827				+ 4.827		<del>14</del>		+ 5.029	<del>12</del>
			-233				-219				-214			-212
-	43.55	7	37.05	-	48.15	37.02	-	48.23	36.95	-	50.04			37.09
-	24			-	18		-	20		-	24			
-	2.33			-	2.19		-	2.17		-	2.12			
-	46.12			-	50.52		-	50.60		-	52.13			
8	23.15	59	25.82	8	27.53	28.53	8	27.51	28.49	8	29.48			31.68
		16	1839			16	1407			16	1425			15.44
7	37.03		-7	7	37.01	-7		7	36.91	-7		7	37.05	-7
			-1830			-1920				-1930				-1930
	42	54.43			42	54.56			42	54.34			42	56.04

20	+	21.06	-	25.21	20	+	22.27	-	16.39	20	+	4.70	-	19.97	20	+	17.87
		-2.80					-2.85					-2.86					-2.88
2		38.1	3	28.5	2		32.2	3	18.7	2		53.0	3	28.7	2		35.5
		54.4		47.5			46.5		32.1			8.9		36.9			51.9
		9.08		7.60			7.87		5.88			12.19		5.76			8.74
22		45.40	23	38.00	22		39.35	23	25.40	23		0.95	23	28.80	22		43.70

1.323.46 1.401.57 1.347.72 1.214.03 0.672.10 1.300.38 1.252.12  
1.387.74 1.465.55 1.413.00 1.278.86 0.736.38 1.364.66 1.316.40  
+ 244.2 - 27.23 + 25.53 - 19.00 + 54.5 - 23.16 + 20.73  
23 9.82 23 8.37 23 8.18 23 6.40 23 6.40 23 5.64 23 2.98

59	3853	3998	59	4317	4195	59	4195	4271	4537
	3925			4256			4253		
38	51	39	50			39	13	39	41
1,11140	1,11190					1,11150	1,11180		
-366			+1823			+1226			+1039
1,10774	1,10824	1,12963	1,13013	1,12376	1,12406	1,12189			
-1252	-1283	-1348	-1350	-1330	-1331	-1324			

	-10	-60	-10	-11	-54	-06	0	-53	-09	-07	-45
	-42		-54	-40		-51	-45	-53		-38	
09	-1334	-1352	-1399	-1407	-1375	-1393	-1369				
	2519	2846	2918	2788	2820	2878	3168				
43	132		141		142		144				
-18	120	138	151	138	140	146	173				
16	124		143		143		173				
16	1342	5286	-1420	1482	5516	-1479	1481	5409	-1557	1620	
-	61403	413	-62		5386	-62		5467	-63		
	1830		-1920			-1930			-1950		
-16	3233	42	5349	3402	5451	3411	5438	3570		53	



1874				1874				1875			
77 Draconis				77 Draconis				77 Draconis			
21	7	38		21	7	38		21	7	38	
+77° 37'				+77° 37'				+77° 37'			
7 = -35° 14' leand 9.98978				7 = -35° 14' leand 9.98978				7 = -35° 14' leand 9.98978			
piaz = -58				piaz = -58				piaz = -58			
lens 9.33133 9.33133				lens 9.33133 9.33133				lens 9.33133 9.33133			
26 10460 12552				26 10460 12552				26 10460 12552			
26 945593 945665				26 945593 945665				26 945593 945665			
26 945264				26 945264				26 945264			
X 1874 Oct. 23 -06				X 1874 Oct. 20 -17				X 1874 Oct. 21 -24			
21	7	346	8 458	21	7	346	8 458	21	7	346	8 458
58		549		58		549		58		549	
42		7.6		42		7.6		42		7.6	
91				91				91			
143				143				143			
194				194				194			
240	9	360		240	9	360		240	9	360	
286		368		286		368		286		368	
334		460		334		460		334		460	
2464				2464				2464			
120				120				120			
1264	8	6610		1264	8	6610		1264	8	6610	
8 14044	7	3460		8 14044	7	3460		8 14044	7	3460	
5415				5415				5415			
7 59783				7 59783				7 59783			
+1422	24	-1318		+1422	24	-1318		+1422	24	-1318	
+1447		-160		+1447		-160		+1447		-160	
-13.83		-085		-13.83		-085		-13.83		-085	
-1.25	7	58.67		-1.25	7	58.67		-1.25	7	58.67	
-0.85		-1.919		-0.85		-1.919		-0.85		-1.919	
-15.33				-15.33				-15.33			
8 13.97				8 13.97				8 13.97			
38 563				38 563				38 563			
7 58.64	+2	581		7 58.64	+2	581		7 58.64	+2	581	
7 57.511		+14		7 57.511		+14		7 57.511		+14	
36 1960				36 1960				36 1960			
+144		53.24		+144		53.24		+144		53.24	
8				8				8			
-42.06		-8356	+6469	-42.06		-8356	+6469	-42.06		-8356	+6469
45				45				45			
-241				-241				-241			
3 33.1	3	42.3	3 2.2	3 33.1	3	42.3	3 2.2	3 33.1	3	42.3	3 2.2
39.4		47.2	5.9	39.4		47.2	5.9	39.4		47.2	5.9
725		895	81	725		895	81	725		895	81
348 36.25	48	44.75	48 4.05	348 36.25	48	44.75	48 4.05	348 36.25	48	44.75	48 4.05
1.62387	1.92200	1.81084	0.90472	1.62387	1.92200	1.81084	0.90472	1.62387	1.92200	1.81084	0.90472
1.05980	1.35793	1.24677	0.34065	1.05980	1.35793	1.24677	0.34065	1.05980	1.35793	1.24677	0.34065
-11.48	-258	+1765	+219	-11.48	-258	+1765	+219	-11.48	-258	+1765	+219
48 24.77	48 27.85	48 21.70	48 21.39	48 24.77	48 27.85	48 21.70	48 21.39	48 24.77	48 27.85	48 21.70	48 21.39
+77°	34 2358	2650	34 2665	+77°	34 2358	2650	34 2665	+77°	34 2358	2650	34 2665
-35	13 31	13 22		-35	13 31	13 22		-35	13 31	13 22	
1.60900	1.60890			1.60900	1.60890			1.60900	1.60890		
+610			+26	+610			+26	+610			+26
1.61510	1.61500	1.60926	1.60916	1.61510	1.61500	1.60926	1.60916	1.61510	1.61500	1.60926	1.60916
+41.22	+41.21	+40.67	+40.66	+41.22	+41.21	+40.67	+40.66	+41.22	+41.21	+40.67	+40.66
-21	-62	-82	-50	-21	-62	-82	-50	-21	-62	-82	-50
-11		-11	-09	-11		-11	-09	-11		-11	-09
+4090	+4028	+4008	+4055	+4090	+4028	+4008	+4055	+4090	+4028	+4008	+4055
35 448	678	683	757	35 448	678	683	757	35 448	678	683	757
37 12.2		15.5		37 12.2		15.5		37 12.2		15.5	
+2 7.7	5.4	8.8	8.0	+2 7.7	5.4	8.8	8.0	+2 7.7	5.4	8.8	8.0
+2 66		8.4		+2 66		8.4		+2 66		8.4	
+2 7.5	36 5202		5408	+2 7.5	36 5202		5408	+2 7.5	36 5202		5408
+2 575	7145434	+8810253486	+91910655376	+2 575	7145434	+8810253486	+91910655376	+2 575	7145434	+8810253486	+91910655376
+139	-4.92	+144	-8.22	+139	-4.92	+144	-8.22	+139	-4.92	+144	-8.22
1760	+36 5317	-2290	5447	1760	+36 5317	-2290	5447	1760	+36 5317	-2290	5447
+1 4754	37 485	4735	915	+1 4754	37 485	4735	915	+1 4754	37 485	4735	915



1874		1874		1874		1874		1874		1874		1874		1874	
T. L. L. L.	45.707	Oct. 7	9	47.66	-10	30	48.6	77	48.04	45.3	78	48.13	77	48.04	45.3
21.9	48	12	9	47.56	-10	30	48.6	77	48.04	45.3	78	48.13	77	48.04	45.3
+37° 31'	48	17	9	47.46	-10	30	48.6	77	48.04	45.3	78	48.13	77	48.04	45.3
+4° 52'	48	22	9	47.36	-10	30	48.6	77	48.04	45.3	78	48.13	77	48.04	45.3
Ring = 408	48	27	9	47.26	-10	30	48.6	77	48.04	45.3	78	48.13	77	48.04	45.3
Lat. 9.78461	48	31	9	47.15	-10	30	48.6	77	48.04	45.3	78	48.13	77	48.04	45.3
Long. 9.89934	48	36	9	47.05	-10	30	48.6	77	48.04	45.3	78	48.13	77	48.04	45.3
L.C. 10460	48	41	9	46.95	-10	30	48.6	77	48.04	45.3	78	48.13	77	48.04	45.3
L.C. 0.00397	48	46	9	46.84	-10	30	48.6	77	48.04	45.3	78	48.13	77	48.04	45.3

X 1874		X -24		X -17		X -24		X -15 -07		X 1874	
Oct. 6 -07	9	Oct. 18 -24	9	Oct. 20 -17	9	Oct. 21 -24	9	Oct. 22 -07	9	Oct. 26 -08	9
468.9	398	447	283	435	330	426	326	413	289	384	245
482	419	472	313	461	353	450	357	440	316	411	268
487	443	481	338	487	379	477	377	466	340	437	288
489	452	482	352	489	389	479	389	477	340	437	288
489	452	482	352	489	389	479	389	477	340	437	288
12	14	14	14	14	14	14	14	14	14	14	14
38.10	175	3.0	31.1	1.7	10	194	0.4	10	9.9	220	54.7
6.3	203	5.6	340	4.3	221	32	11.8	21	23.7	5.3	371
11.6	223	10.9	363	9.4	245	8.4	14.2	7.3	260	4.4	396
14.1	13.3	13.3	12.0	12.0	11.0	11.0	10.0	10.0	10.0	7.0	396
16.5	16.0	16.0	14.6	14.6	13.5	13.5	12.6	12.6	12.6	9.6	396
3126	3040	3497	3381	3867	4149	4149	4149	4149	4149	4149	4149
300	300	300	300	300	300	300	300	300	300	300	300
12.6	41.90	4.0	31.20	6.49	35.46	6.38	35.38	6.26	31.80	59.49	26.70
10	1.145	10	0.364	10	0.364	10	0.364	10	0.364	10	0.364
1.125	-13.20	0.344	-12.76	0.344	-11.48	0.344	-10.40	0.344	-9.80	0.344	-8.80
9	47.68	-13	47.44	-18	47.40	-13	47.38	-18	47.36	-12	47.36
+13.44	-09	+12.81	-172	+11.64	-169	+10.67	-166	+9.59	-160	+8.59	-156
-13.30	45.75	-12.81	45.68	-11.56	45.74	-10.46	45.75	-9.42	45.74	-8.42	45.74
-1.21	-1.97	-1.97	-1.97	-1.97	-1.97	-1.97	-1.97	-1.97	-1.97	-1.97	-1.97
-1.97	+0.925	-1.97	+0.675	-1.97	+0.705	-1.97	+0.735	-1.97	+0.765	-1.97	+0.795
-15.48	-15.48	-15.48	-15.48	-15.48	-15.48	-15.48	-15.48	-15.48	-15.48	-15.48	-15.48
10	1.12	28	44.29	10	0.34	4108	9	59.04	4275	9	59.04
45.64	+2	548	+2	939	+2	881	+2	919	+2	919	+2
9	48035	-1920	48035	-2050	48055	-2070	48085	-2070	48115	-2080	48145
+37	30	3637	30	2967	30	3156	30	3175	30	2957	30
+19.24	-18.99	+29.16	-33.44	+23.60	-22.94	+22.68	-13.89	+25.47	-26.59	+27.88	-3.05
-243	-248	-250	-250	-250	-250	-250	-250	-250	-250	-250	-250
3	34.9	4	12.8	3	26.8	4	29.0	3	33.0	4	19.4
44.9	22.4	39.4	41.3	41.1	26.9	41.9	19.6	43.0	35.1	41.8	12.3
798	35.2	66.2	703	741	463	718	286	730	564	696	130.6
53	39.90	54	17.60	53	33.10	54	35.15	53	37.05	54	23.15
1.284	21	1.278	52	1.464	79	1.524	27	1.372	91	1.360	59
1.288	18	1.285	24	1.468	76	1.528	24	1.376	88	1.364	56
+19.42	-19.16	+29.43	-33.73	+23.82	-23.15	+22.89	-14.01	+25.71	-26.83	+27.63	-3.08
53	59.32	53	58.44	54	2.53	54	1.40	54	0.87	54	0.00
+37	4903	4991	28	4582	4695	28	4748	4835	28	4956	4835
+41	51	33	52	11	0.68970	0.69080	+256	+29	+1203	+509	+509
0.68970	0.69080	0.69226	0.69336	0.68999	0.69109	0.70113	0.70283	0.69449	0.69589	0.68913	0.68993
-4.96	-4.98	-4.92	-4.94	-4.90	-4.91	-5.03	-5.04	-4.95	-4.96	-4.89	-4.90
-0.9	-21	-0.9	-22	-37	-29	-14	-25	-13	-21	-0.5	-17
-11	-13	-10	-14	-11	-13	-11	-13	-11	-13	-11	-12
-5.16	-5.20	-5.24	-5.37	-5.15	-5.17	-5.22	-5.22	-5.23	-5.23	-5.19	-5.02
28	43.84	44.71	40.58	41.58	42.83	43.18	44.29	42.84	43.91	41.71	40.78
30	48.5	49.8	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
+2	4.6	3.8	8.2	7.7	6.8	5.7	7.2	9.2	8.4	9.7	9.8
+2	4.2	5.7	7.2	6.4	5.7	7.2	9.2	8.4	9.7	9.8	9.8
+2	5.18	30	29.66	+9.40	9.20	29.28	+8.87	8.61	30.24	+9.19	28.82
-19	499	3850	-20	5.28	30.28	-20	5.48	31.09	-20	5.48	31.09
1920	3.98	-20.50	-20.50	-20.50	-20.50	-20.50	-20.50	-20.50	-20.50	-20.50	-20.50
+1	45.79	30	30.08	48.70	29.78	47.91	30.66	48.29	31.85	48.09	29.01
30	45.30	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00



[illegible]



1874 phase: 11478  
by sec  
+ 38° 53'  
+ 3° 30'  
sin  $\gamma = +0.6$

1874  
Lind 9.79778  
Lcos 9.89122  
Lb 10.460  
Lb' 9.99582

1875-  
12 30.43  
52 16.90  
+ 2.354  
+ 14.89  
9.89122  
12.552  
0.01674

1874  
Coord = .76 30.36 16.8  
Coord = .77 30.36 15.9  
Coord = .80 30.37 16.5  
Coord = .80 30.35 17.2  
Coord = .81 30.49 18.2  
I = 2.65 .81 30.43 16.5  
K = -0.20 .82 30.33 16.1  
Coord = .80 30.384 16.60  
+ 0.01 = 1  
30.384 16.59

1874 Oct. 3			1874 Oct. 6			1874 Oct. 18			1874 Oct. 20			1874 Oct. 21			1874 Oct. 22		
12	27.7	30.3	12	11.5	12	130	12	26.8	12	11.2	12	12	25.5	12	11.0	12	23.4
	30.3	32.9		14.9				29.5		13.9			28.1		14.2		26.9
	38.1	40.8		17.2				32.1		16.2			30.8		16.2		28.7
	40.8	42.4						37.4					36.0				34.0
	46.2	48.7	12	51.8				40.1					38.8				36.8
	54.3	56.7		55.2				42.8		12	57.8		44.0	13	3.0		39.3
	59.3			57.2				48.0			2.4		46.7		5.4	12	42.0
				59.4				53.2			4.3		52.0		8.4		44.6
								56.1					54.6				49.8
								58.8					57.2				52.7
	47.83	12	14.63					47.02	12	13.76			45.51	12	13.80		43.23
12	43.482	12	54.73	12	43.491	18	1.13	12	42.745	13	2.16	12	41.373	18	4.80	12	39.300
	43.462				43.471			42.725					41.353				39.280
	- 13.23				- 13.30			- 12.81					- 11.55				- 9.41
	- 22				- 22			- 18					- 14				- 17
	- 200	+ 0.354			- 194	+ 0.414		- 141	+ 0.644				- 166	+ 0.714			- 162
	- 15.40				- 15.46			- 14.40					- 13.35				- 11.20
12	43.46				12	43.47		12	42.72			12	41.35			12	39.28
12	28.01				12	28.01		12	28.02			12	28.14			12	28.08
12	30.364				30.364			30.374				30.444				30.424	

30	+ 26.95	- 11.25	30	+ 27.99	- 17.64	30	+ 28.98	- 19.42	30	+ 30.07	- 23.43	30	+ 26.64	- 25.16	30	+ 21.04	- 17.30
1	- 2.41		1	- 2.43		1	- 2.48		1	- 2.50		1	- 2.50		1	- 2.51	
1	55.5	2	35.8	1	56.0	2	41.9	1	56.8	2	45.4	1	57.9	2	48.1	2	41.6
	8.0		47.6		7.8		51.5		9.9		57.4		9.4		59.4		54.0
	123.5		83.4		123.8		93.4		126.7		102.8		127.3		107.5		95.6
32	1.75	32	41.70	32	1.90	32	46.70	32	3.35	32	51.40	32	0.85	32	52.95	32	10.90
1.446165	1.05115	1.44720	1.24460	1.446210	1.28825	1.447813	1.36977	1.42553	1.40071	1.32305	1.23805	1.40717	1.39653	1.31887	1.23387	1.40717	1.39653
1.40717	1.04707	1.44282	1.24232	1.45792	1.28407	1.44395	1.36559	1.42135	1.39653	1.31887	1.23387	1.40717	1.39653	1.31887	1.23387	1.40717	1.39653
+ 28.67	- 11.15	+ 27.92	- 17.47	+ 28.70	- 19.24	+ 29.78	- 23.21	+ 26.39	- 24.92	+ 20.84	- 17.13	+ 28.67	- 11.15	+ 27.92	- 17.47	+ 28.70	- 19.24
32	30.42	32	30.55	32	29.62	32	29.25	32	32.05	32	31.16	32	32.63	32	29.74	32	32.04
32	30.42	32	30.55	32	29.62	32	29.25	32	32.05	32	31.16	32	32.63	32	29.74	32	32.04
+ 38.1																	
50	17.93		17.80	50	18.73		19.12	50	16.30		17.19	50	17.72		18.61	50	18.31
	17.86				18.92		16.74		16.74		18.16		18.92		19.52	50	16.61
+ 3	29.55	30	35														
0.54660	0.54810																
+ 62.9																	
0.55289	0.55439	0.55271	0.55427	0.55918	0.55068	0.54693	0.54843	0.55871	0.56021	0.55181	0.55331	0.55289	0.55439	0.55271	0.55427	0.55918	0.55331
- 3.87	- 3.88	- 3.57	- 3.58	- 3.62	- 3.64	- 3.52	- 3.53	- 3.54	- 3.63	- 3.56	- 3.57	- 3.87	- 3.88	- 3.57	- 3.58	- 3.62	- 3.64
- 21	- 19	- 03	- 20	- 21	- 08	- 21	- 23	- 10	- 24	- 27	- 14	- 18	- 25	- 17	- 21	- 27	- 08
- 06	- 08	- 06	- 06	- 08	- 06	- 06	- 09	- 06	- 06	- 09	- 06	- 06	- 09	- 06	- 07	- 07	- 08
- 3.84	- 3.69	- 3.83	- 3.74	- 3.89	- 3.83	- 3.82	- 3.76	- 3.78	- 3.89	- 3.74	- 3.73	- 3.84	- 3.69	- 3.83	- 3.74	- 3.89	- 3.83
+ 38.50	14.09	14.11	50	14.90	15.38	50	12.41	13.36	50	13.90	14.85	50	14.53	15.63	50	12.87	13.95
+ 2	57.5	5.61		+ 57.8	5.04		+ 9.40	9.26		+ 8.81	8.66		+ 9.19	9.04		+ 9.20	9.05
- 18.77	- 14	- 3.88		- 14	- 4.31		- 15	- 5.67		- 15	- 5.84		- 15	- 5.92		- 15	- 5.99
- 18.77				- 19.22			- 20.56			- 20.13			- 20.81			- 20.88	
+ 1	46.84	52	0.93		45.84		0.74		48.69		1.10		48.23		2.76		1.04
			0.95				1.22				2.05				3.86		2.12
+ 52	0.94						0.98				1.57				3.31		1.58
52	15.83						15.84				16.96				18.20		16.97



1875

78	30.40	18.2
79	30.36	16.9
80	30.41	18.2
82	30.43	18.1
80	30.400	17.85
	<u>-2.44</u>	<u>+3</u>
	30.398	17.88

1874

Oct. 26

12	20.5	12	7.6
	23.0		10.0
	23.8		11.6
	21.0		
	33.7		
	36.4		
	39.0	12	37.6
	41.6		1.2
	47.0		3.7
	49.8		
	32.4		
400.2	12	9.73	
12	36.382	13	0.83
	36.362		
-	6.61		
-	.23		
-	1.54		+0.814
-	8.38		
12	26.36		
12	27.98		
	30.334		
	28.039		

1875

Oct. 4

Oct. 4

Oct. 13

	22.0		3.17
13	5.0	13	
	7.6		
	10.4		
	15.6		
	18.1		
	20.9		
	23.6	13	
	26.2		
	31.4		
	34.0		
	36.7		
	22.95	13	
13	20.864	13	
	21.844		
-	48.15		
-	.26		
-	2.03		
-	50.44		
13	20.84		
12	30.40		

Oct. 14

Oct. 17

Oct. 27

30 +26.65 -24.45

10 -280

1 38.4 2 49.7 3 20.2 4 0.9

11.4 1.9 38.8 18.2

12.9.8 11.6 54.0 19.1

32 4.90 32 55.80 13 29.50 14 9.55

1.425 70 1.388 28 1.421 52 1.384 10 2

+ 36.60 - 24.22

32 31.30 32 31.55

50 17.05 16.77

29 58 30 49

0.54680 0.54850

-47

0.54633 0.54803

-3.52 -3.53

-18 -24 -15

-06 -09

-3.76 -3.77

50 13.29 13.00

+2 9.39 9.24 -16 13.42

-15 -6.24

-2.13

+1 48.11 52 1.40

1.11

1.25

+52 1.25

16.14 16.14

+ 16.06 - 24.51

10 -285

3 26.8 4 9.7 3 14.9 4 7.5 3 12.0 4 14.9 3 7.9 4 1.0

40.7 21.7 27.9 20.8 26.8 28.6 22.0 15.8

67.5 34.4 42.8 28.3 38.8 43.5 29.9 16.8

13 33.75 14 15.70 13 31.40 14 14.15 13 19.40 14 21.75 13 14.95 14 5.40

1.205 75 1.389 34 1.452 86 1.344 39 1.442 64 1.499 14 1.506 71 1.261 39

1.222 49 1.406 08 1.469 60 1.361 15 1.457 38 1.575 86 1.523 65 1.268 15

+ 16.69 - 25.47 + 22.47 + 22.80 - 32.50 + 33.37 - 18.54

13 50.44 13 52.23 13 50.89 13 52.18 13 48.30 13 48.90 13 48.34 13 49.86

8 57.91 58.12 8 57.46 56.17 9 0.15 59.40 9 0.01 58.49

58.01 38.81 59.77

29 46 30 28

0.54640 0.54780

+1835

0.56475 0.56615 0.55875 0.56015 0.55693 0.55933 0.55101 0.55271

-3.67 -3.68 -3.62 -3.63 -3.60 -3.62 -3.56 -3.57

-07 -70 -15 -21 -71 -13 -20 -77 -26 -27 -31 -08

-54 -64 -51 -63 -46 -42 -40 -42 -39 -25

-8.28 -14.47 -4.34 -4.39 -4.26 -4.30 -4.02 -3.90

8 53.62 53.65 8 53.12 51.78 8 55.89 54.90 8 55.99 54.59

-14.20 14.37 -14.19 14.36 -15.57 15.74 -14.70 14.87

-17.17

-21.18

-21.44

-22.30

-16 35.45 52 18.18 35.54 17.58 37.21 18.68 37.17 18.82 17.42

18.20

16.91

18.18

18.12



1874		1874		1874		1874	
<i>Bepphi</i>	34.259	Oct. 7	15	36.77	19	876	76
<i>h m sec</i>	13 36	12	12	35.98	19	886	77
<i>+62° 3'</i>	15.121	17	17	35.38	20	894	80
<i>-19° 40'</i>	15.121	22	22	35.18	20	901	80
<i>long = -34</i>	15.121	27	27	34.98	20	907	81
		Nov. 1	1	34.77	21	912	81
		6	6	34.56	21	918	82
		11	11	34.35	21	916	82
		16	16	34.13	22	917	80
<i>long</i>	9.64614						
<i>long</i>	9.64090						
<i>long</i>	9.640						
<i>long</i>	9.64550						

X 1874		X 1874		X 1874		X 1874		X 1874		X 1874	
Oct. 23	-06	Oct. 6	-07	Oct. 18	-24	Oct. 20	-17	Oct. 21	-24	Oct. 22	-07
15 412	15 18.615	15 412	15 18.615	15 397	14 56.615	15 38.3	15 100	15 38.1	15 16.1	15 36.1	15 12.5
432	236	432	236	419	1.0	405	13.1	396	21.0	384	13.7
452	27.5	451	27.5	443	5.7	427	17.0	418	23.7	406	19.0
473		472		462		451		439		426	
499		494		487		470		460		451	
528		516		509		493		480		473	
540	16 10.2	538	16 10.2	528	16 5.0	513		505	16 13.2	496	15 5.7
564	141	560	141	551	10.2	536		526	17.6	517	1.6
583	193	583	193	575	14.7	558		550	21.4	539	5.7
4477	15 23.10	4446	15 34.80	4372	15 1.10	4238	15 10.36	4145	15 20.26	4053	15 15.73
15 49744	16 14.53	15 49400	16 20.90	15 48578	16 9.96	15 47089		15 46056	16 17.40	15 45033	16 1.66
49711		49367		48545		47056		46023		45000	
15 35.931		15 35.880		15 35.833		15 35.785		15 35.738		15 35.691	
+13.7580		+13.557		+13.421		+11.921		+10.9481		+9.873	
-13.23	-13.17	-13.30	-13.21	-13.44	12.81	-11.50	-11.48	-10.65	-10.39	-9.41	-9.35
-52	-42	-52	-32	-43	-45	-32	-32	-43	-45	-40	-28
-1.65	-02.13	-1.54	-0.103	-1.07	+0.367	-0.99	+0.447	-0.95	+0.487	-0.91	+0.527
-15.40	-1.65	-10.36	-1.74	-14.31	-1.07	-12.86	-0.99	-11.83	-0.95	-10.72	-0.91
15 49.71	15 34.34	15 49.71	34.15	15 48.55	34.26	15 47.06	34.27	15 46.02	34.23	15 45.00	34.31
15 34.31		15 34.01		15 34.24		15 34.20		15 34.19		15 34.28	
15 35.747		35.447		35.677		35.637		35.627		35.617	
1 2066		2223		1947		2236		2187		2108	
+2 581		+2 548		+2 939		+2 881		+2 919		+2 936	
+9		+9		+9		+9		+9		+9	
-2020		-2070		-2310		-2320		-2340		-2340	
+62 3 717		3 791		3 676		3 887		3 856		3 774	
20 +26.64	-24.79	20 +14.60	-31.50	20 +47.48	-21.38	20 +33.73		20 +25.80	-31.34	20 +29.30	-16.63
1 27.7	1 59.0	1 34.0	2 2.2	1 16.5	1 37.6	1 13.9	1 44.1	1 27.9	1 2.8	1 25.0	1 52.8
36.4	8.2	41.3	9.9	25.0	6.7	38.5	48.2	35.8	9.9	35.9	2.9
6.41	127.2	753	121	415	124.63	224	92.3	63.7	127	609	115.7
121 32.05	360 21	37.65	6.05	20.75	215	16.20	46.15	31.85	6.35	30.45	57.85
1.42553	1.39428	1.16435	1.49831	1.67651	1.83071	1.52802	1.41162	1.49610	1.46687	1.22089	
1.20103	1.16978	0.93985	1.27381	1.45201	1.10551	1.30352	1.18612	1.27960	1.24237	0.97639	
+15.89	-14.78	+8.71	-18.79	-12.32	-12.75	+20.12	+10.35	-18.69	+17.48	-9.92	
21 47.94	21 48.82	21 46.36	21 47.26	21 47.07	21 44.40	21 44.32	21 47.20	21 47.66	21 47.78	21 47.93	
+62°											
1 041	59.53	1 199	1.09	0 59.28	58.95	1 803	1 115	0.69	1 042	0.42	
59.47		1.54		59.11		2	0.92		0.42		
19 40 35 40 3											
1.31360	1.31340										
+641		+626		+260		+36		+1219		+533	
1.32001	1.31981	1.31986	1.31966	1.31620	1.31600	1.31396	1.31376	1.32579	1.32559	1.31893	1.31873
+20.89	+20.88	+20.89	+20.87	+20.71	+20.70	+20.61	+20.60	+21.17	+21.16	+20.84	+20.83
-15	-19	-13	-05	-18	-21	-50	-34	-09	-24	-28	
-04	-06	-05	-06	-04	-06	-04	-05	-04	-03	-04	
-20.90	+20.69	-20.79	+20.60	-20.17	+20.55	-20.33	+20.59	+20.92	+20.61	+20.71	
1 21.11	20.22	22.78	21.69	19.40	19.50	28.36	22.14	21.61	21.03	21.13	
3 268		274		296		29.9	300		301		
+2 6.7	6.6	4.6	5.7	18.2	10.1	2.5	7.9	8.4	9.1	9.0	
+2 6.1		5.1		10.1		2.5	8.1		9.1		
+2 7.2	3 747	6.2	8.08	11.2	6.69	8.61	8.77	8.77	10.2	7.68	
+2 5.75	6.56	+5.18	6.00	+9.40	10.24	+8.81	9.65	+9.19	10.03	9.24	
+8.1	-5.08	+8.2	-5.58	+8.4	-7.88	+8.4	-8.08	+8.4	-8.55	+8.5	
20.20	3 702	-20.70	7.53	-23.00	6.71	-23.20	15.81	-23.40	15.81	-23.40	
1 3636	3 2214	45.30	22.15	47.24	21.83	48.45	22.92	48.45	22.92	48.45	



1870-  
 35.696  
 +3.2177  
 +1.5437  
 +15.123

lost 9.67090  
 28 12.552  
 28 9.79642

1875

Oct. 7 15 3772  
 12 3710 -19  
 17 3690 20  
 22 3670 20  
 27 3650 20  
 Nov. 1 3629 21  
 6 3608 21  
 11 3587 21  
 16 3566 21

3 43.7  
 44.7  
 45.6  
 46.3  
 46.9  
 47.3  
 47.7  
 47.8  
 47.9

1875

78 35.78 23.9  
 79 35.66 24.0  
 80 35.53 22.5  
 85 35.64 22.8  
 80 35.665 23.30  
 (4)

X 1874  
 Oct. 26 -21 -08

15 333.4 5.90  
 35.4 4.5  
 38.0 7.2  
 40.0  
 42.1  
 44.4  
 46.5 15 5.76  
 48.8 2.6  
 50.9 6.9

3794 15 3.36  
 15 42.156 16 2.387  
 42.123  
 15 35.031  
 +1.4411

- 6.61 -6.50  
 - 5.4 -4.0  
 - 0.75 +0.687 -1.7  
 - 7.91 -0.75  
 15 42.12 34.30

15 342.2  
 35.657

1 2.114  
 +2 9.61  
 +.9  
 -24.00  
 3 7.65

20 +38.60 -20.17  
 -2.82

1 19.9 1 55.2 2 28.1 3 5.6 2 48.1 3 11.4 2 48.1 3 21.2 2 46.7 3 17.7 2 43.8 3 12.2  
 29.0 4.9 47.6 24.6 2.1 23.7 3.81 3.0 1.9 3.31 5.23 2.0  
 48.0 13.1 157 31.2 110.2 3.51 101.2 5.82 108.6 5.08 7.71 3.32  
 21x 24.00 22 0.05 2 37.85 15.10 2 55.10 3 17.55 2 50.60 3 29.10 2 34.30 3 25.40 2 48.55 3 16.60

1.58659 1.30557  
 1.36209 1.08107  
 +23.02 -12.05  
 21 47.02 21 48.00

1 1.33 4.35  
 0.84  
 40 43 40 7  
 1.31370 1.31340  
 1.31332 1.31302  
 +20.57 +20.56

-33 -26 -09  
 -0.4 -0.6  
 +20.20 +20.61  
 21.53 20.76  
 30.6  
 9.1 9.8  
 7.5  
 10.6

+2 9.39 10.24 7.77  
 + 8.5 9.11 7.00 -16 13.42  
 - 24.00 +3.55 7.38  
 +1 24.24 12.50

1875  
 Oct. 4

Oct. 13  
 16 173.15 58.6 16 19.1 15 5.38 16 19.0 16 5.3 16 28.8 16 5.2  
 19.2 2.1 5.49 21.0 30.9 8.8  
 21.3 5.8 21.9 0.6 23.4 33.2 13.0  
 23.8 25.4 25.4 27.5 35.4 37.5  
 25.8 27.5 29.9 32.2 16 5.31 42.0 16 5.04  
 28.1 30.4 16 4.10 30.3 16 5.56 34.3 5.4 44.2 5.35  
 32.5 34.8 34.6 32.2 34.0 2.3 46.5 5.50

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16 173.15 58.6 16 19.1 15 5.38 16 19.0 16 5.3 16 28.8 16 5.2  
 19.2 2.1 5.49 21.0 30.9 8.8  
 21.3 5.8 21.9 0.6 23.4 33.2 13.0  
 23.8 25.4 25.4 27.5 35.4 37.5  
 25.8 27.5 29.9 32.2 16 5.31 42.0 16 5.04  
 28.1 30.4 16 4.10 30.3 16 5.56 34.3 5.4 44.2 5.35  
 32.5 34.8 34.6 32.2 34.0 2.3 46.5 5.50

233.2 15 2.17 129.4 15 5.727 24.92 16 5.30 33.83 16 9.00  
 16 25.911 16 4.100 16 25.880 16 5.917 16 27.689 16 5.760 16 37.589 16 5.397  
 25.878 25.847 27.656 37.586  
 15 37.085 15 37.081 15 36.9189 15 36.097  
 +48.8+3 +48.8+4 +50.7+7 +61.479

- 48.15 -48.14 - 48.23 -48.11 - 50.08 -48.99 - 60.97 -1.091  
 - 6.0 -5.9 - 6.5 -4.5 - 8.1 -5.7 - 5.8 -5.3  
 - 1.33 -1.31 - 1.31 -2.6 - 1.19 -2.1 - 0.37  
 - 50.10 -13.5 - 52.19 -13.1 - 52.08 -11.9 - 61.92 -0.37  
 16 25.88 35.80 16 25.85 35.72 16 27.66 35.70 16 37.58 35.75

15 35.78 15 35.66 15 35.58 15 35.64

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+ 23.74 - 15.09 + 28.61 - 33.29 + 22.39 - 29.91 + 28.59 - 16.38

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 1 19.9 1 55.2 2 28.1 3 5.6 2 48.1 3 11.4 2 48.1 3 21.2 2 46.7 3 17.7 2 43.8 3 12.2  
 29.0 4.9 47.6 24.6 2.1 23.7 3.81 3.0 1.9 3.31 5.23 2.0  
 48.0 13.1 157 31.2 110.2 3.51 101.2 5.82 108.6 5.08 7.71 3.32  
 21x 24.00 22 0.05 2 37.85 15.10 2 55.10 3 17.55 2 50.60 3 29.10 2 34.30 3 25.40 2 48.55 3 16.60

1.374548 1.17869 1.45652 1.52231 1.35005 1.47582 1.45621 1.21481  
 1.17190 0.97511 1.25294 1.31873 1.14647 1.27224 1.25263 1.01053  
 +14.83 -9.44 +17.90 -20.83 +14.01 18.72 +17.89 -10.25  
 3 9.90 2 8.11 3 8.50 3 8.27 3 8.31 3 7.68 3 6.34 3 6.35

19 3840 40.24 19 39.85 40.08 19 40.04 40.67 19 42.01 42.00  
 39.32 39.96 40.35  
 40 53 40 31  
 1.31380 1.31360  
 +1842 +1241 +1061 +1720  
 1.33222 1.33202 1.32621 1.32601 1.32441 1.32421 1.33100 1.33080  
 +21.49 +21.48 +21.20 +21.19 +21.11 +21.10 +21.43 +21.42

-12 -55 -15 -17 -63 -24 -10 -59 -19 -17 -30 -05  
 -44 -50 -42 -53 -41 -48 -17 -20  
 +20.93 +20.93 +20.61 +20.62 +20.60 +20.63 +21.10 +21.17  
 19 59.33 20 1.17 20 0.46 0.50 0.64 1.10 47.7 15.4 15.5  
 3 44.9 45.1 45.6 45.6 45.6 45.6 45.6 45.6 45.6 45.6 45.6  
 -16 14.4 16.3 15.4 15.4 15.4 15.4 15.4 15.4 15.4 15.4 15.4  
 -16 15.3 15.4 15.4 15.4 15.4 15.4 15.4 15.4 15.4 15.4 15.4  
 -16 14.2 3 22.99 14.3 23.94 14.2 22.24 14.2 22.24 14.2 22.24 14.2 22.24  
 -14.2 0.13.24 24.83 -14.19 13.22 23.98 -15.57 14.60 22.70 -15.48 14.60 22.81  
 + 9.6 + 9.7 + 9.7 + 9.7 + 9.7 + 9.7 + 9.7 + 9.7 + 9.7 + 9.7 + 9.7 + 9.7  
 -23.10 23.91 -23.30 23.96 -23.80 22.47 -25.90 22.77  
 -16 36.34 36.32 36.32 36.32 36.32 36.32 36.32 36.32 36.32 36.32 36.32 36.32







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5892	52	340		Nov 4	19	15.58		52	94	
5762	+ .70	326	- 1.1	9	16.49	+ .91		8.8	- .6	
6035	.73	313	13	14	17.40	.91		8.4	.4	
6112	.77	30.1	12	19	18.32	.92		8.1	.3	
6193	.81	29.0	1.1	24	19.25	.93		7.9	.2	
6276	.83	28.0	1.8							
6363	.87	27.1	.9							







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 78 3563 0.9  
 79 3567 1.5  
 80 3580 2.1  
 86 3564 0.9  
 81 35685 1.35  
 $-8(4) + 2$   
 35677 1.33

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Oct. 13			Oct. 14			Oct. 17			Nov. 9		
22	13822	73	22	13722	71	22	13622	108	22	27022	186
	159	91		159	93		177	125		294	208
	180	117		182	113		200	140		314	225
	224			226			246			360	
	247			248			268			383	
	270			271			289			404	
	293	22 497		293	22 537		312	22 592		429	22 580
	313	521		316	554		335	90		450	02
	358	540		360	574		379	34		494	20
	381			382			401			519	
	404			405			424			538	
	2969			2979			3187			4451	
22	26991	22 937	22	27082	22 923	22	28973	22 1243	22	40464	22 2063
	26974	22 5193		27065	22 5550		28956	23 120		40447	23 007
-	4815		-	4823		-	5008		-	6203	
+	13		+	14		+	18		+	14	
-	332		-	330		-	326		-	292	
-	5734		-	5739		-	5816		-	6481	
22	2697		22	2706		22	2896		22	4045	
21	3563		21	3567		21	3580		21	3564	
										35685	

+	1762	-	2494	+	1785	-	2842	+	1654	-	3223	+	1983	-	1961
20	-285			20	-286			20	-288			20	-302		
4	534	0	447	4	533	0	502	4	549	0	561	4	545	0	425
	42		531		49		28		54		86		593		484
	1176		998		1222		1130		1226		1247		1140		909
24	5850	25	4990	25	110	25	5650	25	130	26	235	24	5700	25	4545
1.24601	1.39690	1.25164	1.45362	1.21864	1.50826	1.29732	1.29245								
1.33761	1.48850	1.34324	1.54522	1.31014	1.59986	1.38892	1.38408								
+21.76	-30.80	+22.04	-35.09	+20.42	-39.80	+24.49	-34.20								
25-26.56	25-19.10	25-23.14	25-21.41	25-21.72	25-22.55	25-21.49	25-21.23								
2	3221	3075	2	3479	3316	2	3337	3420	2	3314	3288				
	31.48			33.92			33.78			33.01					
41	11	42	2			41	9	41	57						
2.08323	2.08349					2.08323	2.08346								
	+1857						+1078								
2.10180	2.10206	2.09573	2.09602	2.19401	2.09427	2.10380	2.10403								
-12642	-12649	-12466	-12475	-12417	-12424	-12700	-12706								
-	2	-	1	-	2	-	2								
+05	-35	+17	-	+05	-30	+19	+07								
-75	-12	-	00	-00	-14	-29	-05								
-2	714	-2	652	-2	536	-2	474	-2	484	-2	421	-2	724	-2	716
4	3935	3727	4	4015	3780	4	3821	3841	4	4038	3994				
-16	1420	1676		1419	1676		1557	1816		1391	1663				
-	256		-	254		-	259		-	272					
-	582		-	575		-	553		-	413					
-16	2258	21	193	2251	266	2369	190	2076	6114						
			5985		637		210		070						
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-	21	089			148		205		092						







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 Oct 7 23 20.67  
 12 21.01 +34  
 17 21.37 .36  
 22 21.74 .37  
 27 22.13 .39  
 Nov 1 22.53 .40  
 6 22.93 .40

22 40.1  
 38.9 -1.2  
 37.7 1.2  
 36.4 1.0  
 35.7 1.0  
 34.9 .8  
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 22 27.86 1.37  
 Nov 27 28.24 39  
 6 28.64 40  
 29.04 40

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 22 21.1  
 20.1 -1.0  
 19.1 1.0  
 18.3 .8  
 17.5 .8  
 79 23.72 19.7  
 80 23.87 17.7  
 86 23.69 17.7  
 82 23.760 18.37  
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 24 23 53.7  
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27.23 23 59.17  
 24 30.256 24 53.67  
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23 23.1 29.26  
 +6.719 +1.08  
 - 62.04 -1.83  
 + .98 +.64  
 - 5.55 +.36  
 - 66.61 -5.55  
 24 30.30 13.90 23.90

23 23.69  
 52.18  
 -16 138.6  
 + 3.5  
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 37 175.2

+ 31.09 - 23.41  
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 40.4 15.3  
 66.3 16.7  
 31 33.15 31 8.35

1.49262 1.36940  
 1.14412 1.02090  
 -13.94 +10.49  
 31 19.21 31 1.884

9 3086 3049  
 51 2819 2781  
 12 13 12 40  
 2.13398 2.13411  
 +20.61  
 2.15459 2.15472  
 +142.76 +142.80  
 + .03 + .03  
 +1.7 +.05 +.09  
 -0.9 -0.7  
 +2 22.572 22.55  
 52.01 52.36  
 17.1  
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[illegible]



1874

.76 2.42 41.3  
 .81 2.36 44.6  
 .82 2.38 43.3  
 .86 2.36 46.7  
 .81 2.380 43.07  
 (4) (3)

1875

.78 2.59 44.3  
 .79 2.48 44.1  
 .80 2.37 43.4  
 .86 2.32 43.7  
 .81 2.472 43.88  
 (4)

1874.0  $\delta$ 

1.62  
 56  
 58  
 56  
 1.580  
 .573  
 +.007

27.05

1875.0  $\delta$ 

2.59  
 48  
 50  
 32  
 2.473  
 .371  
 +.102

42.76

1875

30 -10  
 Oct. 17  
 -430  
 27 1/2 27 1/2 1.2  
 42.6 13.3 52.8 6.0  
 45.4 18.8 55.6 9.9  
 48.6 58.9  
 51.2 28 1.4  
 54.6 5.0  
 57.5 28 7.6 8.0 28 5.6  
 7.3 13.0 10.9 11.3  
 3.8 17.0 13.9 15.9  
 6.8 16.7  
 3119 22.37  
 180 180  
 4919 27 13.10 43.7 27 5.70  
 27 54.64 28 12.33 28 4.856 28 10.93  
 54.603 4.815  
 27 3.231 -50.00 27 18.75 -1.85  
 +57.34 51.39 -8.3 +62.946 -6.3  
 -50.08 -29 -35  
 -1.18 27 2.64 -62.04 +0.52  
 -0.84 +.97 2.64  
 -52.10 +.52  
 27 54.60 28 4.81  
 17 2184 2351  
 27 2.50 -16 1544 27 2.32 -16 1386  
 +12 +13  
 -2420 -2730  
 0 4340 0 4365

+41.54 -1789 +5916 -6.07

5 -288  
 0 30.2 0 57.9 0 23.7 0 35.2  
 460 12.8 32.9 4.1  
 1.62 13.7 5.66 11.93  
 5 38.10 6 53.35 5 28.30 5 39.65

1.61847 1.35261 1.77203 0.78319  
 1.27769 0.91183 1.43125 0.44241  
 +18.75 -8.16 +26.99 -2.71  
 5 57.05 5 57.19 5 55.29 5 56.88

16 51.30 51.16 16 53.06 51.47  
 51.23 52.21  
 38 20 37 48

+1093 +2068  
 1.49013 1.48993 1.49988 1.49968  
 +30.91 +30.90 +31.61 +31.60

-30 -30 -06 -61 -35 -1  
 -08 -15 -03 -06  
 30.53 +30.65 +30.97 +31.53  
 17 21.80 22.80 24.03 23.00  
 7.0 10.1

16 14.8 14.8 13.9 1.79  
 16 14.8 13.9  
 16 15.57 0 43.38 -13.91 12.53 44.20  
 + 13.2 14.25 43.40 +1.38 43.17  
 24.20 -27.30  
 -16 38.45 +0 43.39 39.83 43.68



1874-1875

p. bygnii  
21 29 16  
+45° 2'

T = -2° 39'  
J = -0.5

1874  
29 16.77  
2 22.78  
+ 2.251  
+ 15.771

1875  
29 16.77  
2 22.78  
+ 2.251  
+ 15.771

1874  
29 16.77  
2 22.78  
+ 2.251  
+ 15.771

1874	1874	1874	1874	1874	1874
Oct. 3	Oct. 18	Nov. 8	Oct. 13	Oct. 14	Oct. 17
29 12.6 29 39 29 11.9 29 0.7 28 57.1 28 45.0 29 49.9 29 42.1 29 49.9 29 34.4 29 51.8 29 39.7	29 11.9 29 3.3 29 10.7 28 57.1 28 45.0 29 49.9 29 42.1 29 49.9 29 34.4 29 51.8 29 39.7	29 11.9 29 3.3 29 10.7 28 57.1 28 45.0 29 49.9 29 42.1 29 49.9 29 34.4 29 51.8 29 39.7	29 11.9 29 3.3 29 10.7 28 57.1 28 45.0 29 49.9 29 42.1 29 49.9 29 34.4 29 51.8 29 39.7	29 11.9 29 3.3 29 10.7 28 57.1 28 45.0 29 49.9 29 42.1 29 49.9 29 34.4 29 51.8 29 39.7	29 11.9 29 3.3 29 10.7 28 57.1 28 45.0 29 49.9 29 42.1 29 49.9 29 34.4 29 51.8 29 39.7
3311	3231	2208	2608	2610	2809
29 30.100 29 7.73 29 29.373 29 3.56 29 15.618 29 47.40 30 7.318 30 34.40 30 7.342 30 19.20 30 9.151	29 29.373 29 3.56 29 15.618 29 47.40 30 7.318 30 34.40 30 7.342 30 19.20 30 9.151	29 15.618 29 47.40 30 7.318 30 34.40 30 7.342 30 19.20 30 9.151	29 15.618 29 47.40 30 7.318 30 34.40 30 7.342 30 19.20 30 9.151	29 15.618 29 47.40 30 7.318 30 34.40 30 7.342 30 19.20 30 9.151	29 15.618 29 47.40 30 7.318 30 34.40 30 7.342 30 19.20 30 9.151
29 14.574 29 16.791	29 14.60 29 16.851	29 14.58 29 16.831 14.573	29 16.77	29 16.75	29 16.70 16.747

20 +2237 -21.16 +25.81 -18.26 +28.22	20 +22.06 -27.07 +30.46 -1184 +2750 -3073
2 -2.41 2 42.9 2 2.6 2 41.7 2 0.9	3 21.6 4 9.0 3 18.1 3 32.1 3 14.2 4 8.6
14.8 54.4 13.9 53.3 8.9	35.2 22.0 27.8 8.0 30.0 24.2
17.9 97.3 16.5 95.0 98	5.68 370 409 1211 4.42 3.38
22 8.95 22 48.65 22 8.25 22 47.50 22 4.90	3 28.40 4 15.58 3 20.45 4 4.55 3 22.10 4 16.90
1.34964 1.32552 1.41177 1.26150 1.45856	1.34361 1.43249 1.44837 1.07336 1.43933 1.45756
1.30350 1.27985 1.36563 1.31533 1.40113	1.31836 1.40724 1.43848 1.04810 1.41408 1.46281
+20.12 -19.03 +23.21 -16.42 +25.18	+20.82 -25.54 +28.74 -11.17 +25.95 -28.97
22 27.27 22 29.62 22 31.46 22 31.08 22 30.08	3 42.23 3 49.96 3 42.19 3 42.38 3 48.05 3 47.91
+45° 0' 19.28 1873 0 16.89 17.27 0 18.27	18 59.13 58.39 18 59.16 58.97 19 03.0 04.4
-2 40 58 39 18 40 59 39 20	40 20 39 33 40 26 39 31
0.43120 0.42650	0.42930 0.42710
+696	+1269
0.43816 0.43346 0.43340 0.42928 0.43806 0.43326	0.44806 0.44586 0.44199 1.43979 0.44060 0.43810
+2.74 +2.71 +2.72 +2.69 +2.74	+2.81 +2.79 +2.77 +2.75 +2.76 +2.74
-13 -18 -12 -18 -19 -09 -21 -24	-23 -75 -20 -25 -70 -04 -20 -77 -26
-03 -08 -03 -08 -03 -08 -03 -08	-53 -64 -50 -60 -48 -60 -48 -60
+2.58 +2.51 +2.51 +2.52 +2.50	+2.45 +1.95 +2.02 +2.11 +2.08 +1.88
+45° 0 21.86 21.24 0 19.40 19.79 0 20.77	19 1.18 1.34 19 1.18 1.08 19 2.38 2.32
+2 57.5 5.87 +4.40 9.52 +11.08 11.21	-16 4.20 11.06 -14.19 14.05 -15.57 15.15
+ -19.83 -4.06 +2.10 -6.38 +1.13 -7.97	+ -22.63 -22.77 -23.18 -23.18 -23.18 -23.18
+1 46.04 2 790 47.37 677 7.16 47.47	-16 36.69 2 24.52 24.26 24.31 23.74
+2 7.59	2 24.08 24.31 23.74



♈ Aquarii  
h m s  
21 31 6  
-8° 25'  
+50 48  
Danz = +77

Lsin  $\delta$  9.16545uLcos  $\delta$  9.99530L $\delta$  10 46.0L $\delta$  0.09990L $\delta$  0.09664

1874

1878-

1874

1875

31 5.49

24 49.39

+3.178

+15.92

Corr = .76

Corr = .80

.86

langl = -.15

I = .208

K = -.016

.76

.80

.86

.81

+1 (3) -1

5.794

49.21

.78

.79

.80

.79

-5(3) +8

5.855

50.20

.78

.79

.80

.79

-5(3) +8

5.855

50.20

1874

Oct. 3

-276

31 61 30

82 58.5

103 0.5

14.4

16.5

18.6

20.6

22.8

27.0

29.1

31.2

30.48

31 18.618

18.602

-13.23

+ 4.0

- 2.78

- 15.98

31 18.60

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Oct. 18

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31 5.5

7.4

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28.3

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19.81

18.009

17.993

-12.80

+ 3

- 2.61

- 15.38

31 17.99

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1874

Nov. 8

-146

31 57.030

53.1

53.2

52.4

15

35

56 31

7.7

11.9

13.9

16.1

27.89

240

38.9

31 4.536

4.520

+ 0.34

+ 2

- 2.33

- 1.97

31 4.52

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1875-

Oct. 13

-317

31 44.531

46.0

48.4

52.4

54.8

58.0

58.0

32 9.1

1.2

5.3

7.6

9.4

38.69

240

62.9

31 39.30

32 11.17

56.975

- 46.16

+ 5

- 3.03

- 57.14

31 56.97

31 5.83

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Oct. 14

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31 44.631

46.0

48.4

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54.8

58.0

58.0

32 9.1

1.2

5.3

7.6

9.4

62.77

240

62.9

31 39.30

32 11.17

56.975

- 46.16

+ 5

- 3.01

- 57.20

31 57.05

31 5.85

31 5.85

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$$-17^{\circ} 14'$$

$\ell \cos \rho$	9.98885
$\ell \ell$	.10460
$\ell \ell$	0.08465

2.64 0.08139

Oct. 6

Oct. 18

Nov. 8  
146

1845-  
Oct. 14

Oct. 17

[illegible]

$33 \begin{array}{r} -22 \\ 9.0 \\ 11.3 \\ 13.5 \\ 17.7 \\ 19.9 \\ 22.0 \\ 24.2 \\ 26.4 \\ 30.8 \\ 32.9 \\ 35.0 \end{array}$ 
 $33 \begin{array}{r} 1.2 \\ 2.2 \\ 4.9 \end{array}$ 
 $33 \begin{array}{r} 4.3 \\ 4.4 \\ 4.6 \end{array}$

$24.27$

$33 \begin{array}{r} 22.064 \\ 22.048 \end{array}$ 
 $33 \begin{array}{r} 2.48 \\ 44.70 \end{array}$

$-12.80$   
 $+$   
 $-2.80$   
 $-15.53$   
 $33 \begin{array}{r} 22.05 \end{array}$

$33 \begin{array}{r} 6.52 \\ 9.854 \end{array}$

$32$   $54.732$   
 $56.8$   
 $57.9$   
 $3.2$   
 $5.5$   
 $7.7$   
 $9.7$   $23$   
 $12.0$   
 $16.2$   
 $18.5$   
 $20.6$   
 $26.38$   
 $18.0$   
 $8.38$   $32$   
 $33$   $8.618$   $33$   
 $8.602$   
 $+$   $0.34$   
 $+$   $4$   
 $-$   $2.51$   $+0.82$   
 $-$   $2.13$   
 $33$   $8.60$   
 $33$   $6.47$   
 $9.804$

2340  
 484 33  
 50.5  
 32.6  
 56.9  
 59.1  
 12  
 33 34  
 53  
 98  
 120  
 142  
 3135  
 300  
 135 33  
 1227 34  
 1211  
 4824  
 11  
 3.22  
 51.35  
 1.21  
 986

502	33	38.9
522		40.9
544		42.9
55.8		
0.8		
3.0		
52	34	14.4
0.3		16.6
11.4		18.0
13.9		
16.1		
2736		
240		
336	33	40.83
4 2055	34	16.33
3039		
5028		
.13		
3.25		
53.20		
3.04		
9.80		

Handwritten calculations for the 1990-1991 season, showing a series of numbers and operations:

15  
+ 2.17  
- 40.73  
- 132

35  
- 2.41  
1 20.1 2 7.2 3 12.4  
40.0 21.2 29.  
6.0 38.4 42.1  
36x 30.05 37x 14.20 40x 21.05

23 47.7 131 66.0  
1 131 44.2 140 125  
1 26.8 1 15.7 1 12.5  
+ 0.6 1 1.0 1 1.0  
20 30 35 40 43 47  
50.2 36 49.0 1 2.1  
14 2.57 12.81 2.0 16.66  
76.2 0.66

9 34 28 35 7  
1.989.99 1.990.19  
+ 710  
1.997.09 1.997.29 1.996.78  
- 99.33 - 99.38 - 99.26  
0 0  
+ 0.4 - 0.3 + 0.1 0  
- 0.4 - 0.7 - 1.0  
- 1 39.33 - 1 39.44 - 1 39.66  
15 54.04 52.25 21 58.02  
+ 2 57.3 3.68 40.0 + 5.18  
- 2.07 + 8.23 - 2.08  
- 7.81 46.03 - 7.69  
+ 1 55.87 13 56.8 1 55.47  
54.2  
- 13 57.28 45.10

[illegible]



1875-

Nov. 9

~~352~~  
 34 1.7 34 33.2  
 3.9  
 6.0  
 10.3  
 12.5  
 14.6  
 16.8  
 18.9  
 23.2  
 25.4  
 27.5  
 16.08

34 14.18 34 33.20  
 14.602

- 6.204  
 + -11  
 - 2.87  
 - 6.180  
 34 14.60

33 9.80  
 9.163

- 18.58  
 15-  
~~302~~  
 3 34.6  
 40.2  
 1 7.48  
 18 37.40

1.269.05  
 1.374.62  
 - 23.69  
 18 13.71

55 24.36

34 49  
 1.990.10  
 + 20.81

2.010.91  
 - 102.55

- 1  
 + 25 - 17  
 - 22

- 1 42.73

57 809

- 16 13.91 16.50

- 2.59

- 6.82

- 16 23.92

+ 51 31.41







1873

Oct. 17		Nov. 9	
36	20.8	36	22.5
	23.0		24.3
	25.1		26.1
	29.6		41.0
	31.7		43.8
	33.8		45.4
	35.9	37	1.8
	38.2		4.3
	42.5		6.3
	44.8		56.3
	46.8		58.7

37.23

4999

36	338.36	36	24.30	36	18.47
	338.20	37	4.13	36	45.445
					45.429
-	60.08	-	62.04		
+	15	+	12		
-	3.25	-	2.93		
-	53.18	-	64.85		
36	33.82	36	45.43		
35	40.64	35	40.58		

40.590

+	09.54	-	30.29	+	26.97
30	-288	30	-3.02		
0	19.7	1	10.2	0	2.4
	32.3		22.0		8.2
	52.0		32.2		10.6
30	26.00	31	16.10	30	5.30

0.97955	1.48130	1.43088
1.07960	1.58135	1.54095
+12.01	-38.14	+34.75
30	38.0130	37.96

7	49.66	7	51.70
	47.63		

46	38	47	28
2.02883	2.02910		

+	11.17	+	20.86
2.04000	2.04027	2.04969	

-	109.65	-	109.72	-	112.12
-	1	-	1	-	1

+	2	-	0.2	+	18	+	14	+	86.13
-	06	-	18	-	01				

-	49.70	-	49.73	-	52.00
9	3936	9	3934	9	4370

-	16	15.57	18.10	-	13.91	16.56
-	25.3			-	26.5	

-	7.67			-	22.6	
-	16	25.77	26	5.3	22.82	

			5.1			
-	26	5.12				

652







1870	1875	1874.0	1875.0
2 2774	Oct. 7 38 5.57	5986	2.78
+18.1030	12 5.51	77	79
+2.946	17 5.45	88	82
+16.338	22 5.39	0.68	
	27 5.33	5981	79
	Nov. 1 5.27	83	
	6 5.20	59872 <sup>38</sup>	2.75
	11 5.13	828	774
	16 5.06	+0.44	+0.21
		+0.10	
Cost 9.99425		5396	10.30
18 1.2552			
26 0.11977			

1874	1875	1874	1875	1874	1875	1874	1875	1874	1875
Nov. 10	Oct. 13	Oct. 14	Oct. 17	Oct. 28	Nov. 9				
237 44637	310 38 41138	288 38 41338	338 38 43338	305 38 43338	491 38 54538	463			
467	326	432	432	328	388	483			
488	348	454	455	340	405	522			
530	496	496	496	532	39	531			
531	531	531	531	532	595	51			
572	537	538	538	556	14	72			
593 38	166 558 39	190 559 39	154 574 39	73 574 39	3.7	94			
13	183	580	170	597	58	153			
34	203	21	194	40	99	155			
46	41	42	61	120	179	179			
97	64	64	85	141	202	202			
3887	4111	4119	6124	3175	2601				
240	180	180		305	180				
6287 37	32.80 5911 38	3193 5919 38	25.53 5919 38	3233 38	175 38	38.40			
8757155 38	18.40 53736 39	2087 53809 39	17.27 53809 39	730 39	1591 39	7282			
57139	+480 53720	-4814 53793	-4811 53657	-5000	1575	7266			
38 1.87	-03 550	-05 5428	-04 5445	-05 38	532	5165			
-473	+48.22	+48.381	-12 +50.21	-10 +56.25	-06	+62.12			
+ 4.75 37	5987	-4816 38	2.81 -50.09	2.77 83	-255	62084			
- 2	-05	-5	-07	8	-255	6			
- 2.04 +0.906	-273	-27	-268			238			
- 2.69	-5094	-5100	-5284			6458			
37 5714 15	5954 38	5372 34	4317 38	5379	4238 38	5566			
+2 1030	-16 1407	-16 1425	-16 1544	158	16 1544	39			
37 5733	-15 38	278	-15 38	279	-15 38	279			
58 2776	-1500	-1630	-1640	-1650	-15 38	279			
+9 17	5334	15 1190	18 1033	18 1033	18 1033	9.97			
5	+2635	-2125	+2281	-2713	+1828	-2346			
5	-270	45	-285	-286	45	-288			
1 30.1	1 496	2 536	1 568	2 574	1 489	2 344			
45.2	19	6.8	94	39	22	482			
75.3	1115	1224	1262	1153	1171	826			
16 3765	46 5575	48 120	47 310	47 5765	46 5855	47 4130			
1.38650	1.32736	1.35813	1.43945	1.26198	1.37033	1.36810			
1.48209	1.42595	1.47790	1.55322	1.38175	1.49010	1.48787			
+30.31	-2648	3006	-3575	+24.09	-30.91	+30.71			
7 1599	6 11.14	47 25.81	47 25.45	47 27.19	47 26.74	47 26.29			
15 4039	16 3718	35 2254	35 2290	35 2116	2161	35 2206			
		2272	2138			2237			
	3 8	4 13			3 4	13 53			
	1577350	1577350			1577350	1577370			
+88	+1896		+1286		+1124				
1.57448	1.57478	1.59246	1.59276	1.58636	1.58666	1.58474			
-37.54	-37.56	-39.12	-39.15	-38.58	-38.61	-38.44			
-05 -10	-04	-04	-41 -06	-02	-45 -05	-05			
-05	-28	-45	-30	-44	-27	-35 -01			
3964	3944	3966	3880	3910	3886	3889			
15 5754	34 4310	4324	4226	4257	4230	4353			
90	18	266	267	268	268	269			
63	16	165	156	158	165	167			
+2 10.55	9.07	-16 1420	18 1104	-1419	15741010	15741010			
- 1.48	+1.34	1503761118	-157	1035	-158	1715965			
- 1500	5361	1630	-1640	-1650	-1650	588			
+1 5407	16 5649	16 3206	+18 1111	3216	10.22	3365			
9.95137						9.76			



67

1874

1875

1874

1875

8 Capricorni

21 40 7

-16° 41'

7 = +59° 4' 19.45801

Jung = +86

large 9.98132

-L 6 10460

-L 5 108592

-L 8 108266

40 842

41 3657

+ 3.318

+ 16.13

9.98132

12.552

0.10684

corr =

76 8.41 36.9

corr =

80 8.41 36.3

corr =

82 8.41 36.2

lang = -30

I = 2.15

K = -0.16

81 8.410 36.47

+ 3 (3) -6

8.413 36.53

78 8.36 34.8

79 8.49 37.2

80 8.46 36.4

79 8.437 36.13

-14 (3) +23

8.423 36.70

1874

1874

1875

Oct. 3

Oct. 18

Nov. 10

Oct. 13

Oct. 14

Oct. 17

40 83 39 374 40 77 40 11 39 429.89 386 40 469 40 395.40 471.40 378.40 488.40 409.40  
 105 04 9.8 23 321 405 491 412 492 39.6 579 421  
 127 2.8 122 54 542 427 571 432 573 41.6 581 438  
 170 163 553 576 576 576 576 576 576 576 576 576  
 191 185 06 57.6 57.6 57.6 57.6 57.6 57.6 57.6 57.6 57.6  
 212 20.7 27 57.7 57.7 57.7 57.7 57.7 57.7 57.7 57.7 57.7  
 233 40 384 40 438 41 18.9 41 18.9 41 18.9 41 18.9 41 18.9 41 18.9  
 256 383 22.7 40 438 41 18.9 41 18.9 41 18.9 41 18.9 41 18.9 41 18.9  
 278 382 294 40 438 41 18.9 41 18.9 41 18.9 41 18.9 41 18.9 41 18.9  
 320 314 314 40 438 41 18.9 41 18.9 41 18.9 41 18.9 41 18.9 41 18.9  
 342 334 334 40 438 41 18.9 41 18.9 41 18.9 41 18.9 41 18.9 41 18.9  
 2337 2272 2711 2568 3587 3181

40 21.245 40 0.20 40 20.655 40 3.26 40 2.827 39 40.60 40 59.709 41 20.73 40 59.882 41 28.60 41 51.645 41 19.80  
 21229 20639 2811 59693 59866 1629  
 -13.23 +12.80 +4.75 -48.16 -48.24 -50.09  
 +8 +7 +.04 +9 +10 +13  
 -299 +0.328 -282 +0.998 -251 +0.808 -326 -324 -5138 -321  
 -16.14 -15.53 -2.289 -5133 -5138 -5317  
 40 2123 40 20.64 40 2.81 40 59.69 40 59.87 41 1.63  
 40 5.09 5.09 5.09 40 8.36 8.49 8.46  
 40 8.408 8.408 8.408 8.408 8.408 8.408

0 +21.04 -14.46 +17.39 -24.98 +22.23  
 4 -241 4 23.9 0 8.0 4 33.8 0 24.9 4 31.1  
 41.9 27.1 51.1 45.1 48.7  
 65.8 35.1 84.9 70.0 79.8  
 4 32.90 4 17.55 4 42.45 4 35.00 4 39.90

1.32305 1.16017 1.24030 1.39759 1.34694  
 1.40597 1.24609 1.32622 1.48357 1.42960  
 +23.62 -17.62 +21.19 -30.43 +26.89  
 4 58.52 4 59.93 5 36.4 5 4.55 5 6.77

-16° 42' 10.17 11.58 42 15.29 16.20 42 18.44  
 +59 2 26 3 10 2 35 3 28 2 33  
 1.98083 1.98106 1.98089 1.98115 1.98089  
 +138 +277 +59  
 1.98821 1.98844 1.98366 1.98392 1.98178  
 -97.32 -97.37 -96.31 -96.36 -95.89  
 +07 -02 +03 +04 -12 +09 +07 -07  
 -13 -01 -14 -02 -14 -02 -14 -02  
 -1 37.38 +37.38 -1 36.41 -1 36.29 -1 35.96  
 -16 43 47.55 48.93 43 51.70 52.49 43 54.40  
 +2 57.5 36.8 +940 7.27 +10.55 8.23  
 -207 +7.62 -213 18.57 -232 +9.98  
 -851 -756 -675 +9.98  
 +1 55.17 -41 52.38 59.71 51.99 +2 2.08  
 5376 5278 5238 5232 5232 5232  
 31.25 31.25 31.25 31.25 31.25 31.25

+18.41 -21.02 +20.25 -28.72 +19.51 -18.16  
 45 -285 45 -286 45 -288 45 -288  
 0 47.9 1 40.2 0 49.4 1 52.0 0 48.2 1 35.4  
 57.7 49.6 1.3 2.0 1.2 46.8  
 105.6 89.8 111.0 115.0 109.4 84.7  
 45 52.80 46 44.90 45 53.50 46 57.50 45 54.70 46 42.35  
 1.26505 1.32263 1.30643 1.45818 1.29026 1.25912  
 1.37189 1.42947 1.41327 1.56323 1.39710 1.26596  
 +23.54 -26.88 +25.90 -86.73 +24.95 -23.28  
 46 16.34 46 18.02 46 21.40 46 20.77 46 19.65 46 19.12  
 23 27.99 29.67 23 33.05 32.42 23 31.30 30.77  
 28.83 32.73 31.03 31.03  
 2 5 2 57 2 7 2 54  
 1.98072 1.98097 +1290 +1131  
 +1902 +1902 +1902 +1902 +1902 +1902  
 1.99974 1.99999 1.99362 1.99387 1.99203 1.99228  
 -99.94 -99.94 -98.54 -98.60 -98.18 -98.24  
 -99.94 -99.94 -98.54 -98.60 -98.18 -98.24  
 +05 -13 +07 +06 -12 +12 +05 -13 +05  
 -13 -25 -13 -28 -13 -24  
 -1 40.03 -1 40.18 -1 38.61 -1 38.76 -1 38.27 -1 38.44  
 25 8.02 9.85 25 11.66 11.18 25 9.57 9.21  
 -16 14.20 16.65 -14.19 16.64 -15.57 18.04  
 -245 -245 -245 -245 -245 -245  
 -917 -917 -917 -917 -917 -917  
 -16 25.82 33.84 -25.74 37.40 -26.77 36.54  
 35.67 36.19 37.16 36.18 36.36







11<sup>2</sup> Cagnani  
for 1st sec.  
21 42 11  
 $+48^{\circ} 44'$   
 $\lambda = -6^{\circ} 21'$   
Jeniz = -11

1874	1874
8.8368 Oct. 7	10.87
10.83676 12	10.26
10.210 17	10.15
10.6377 22	10.03
	9.91
	9.79
9.87601 Nov. 1	9.66
	9.53
9.81926 16	9.39
10.460	
9.92386	
9.92060	

43	5.79
	5.88
	5.86
	6.03
	6.09
	6.13
	6.17
	6.19
	6.20

Conc = -0.11	76	10.32	54.8
Conc = +0.53	80	10.57	54.6
Sec = +1.52	84	10.55	53.8
Lang = +1.14	88	10.49	53.7
	86	10.62	53.0
	86	10.58	54.8
K = -0.23	83	10.562	54.45

X 1874  
Oct. 3

X 24  
Oct. 18

Nov. 4

Nov. 7

Nov. 8

Nov. 10

42 5.3	42 9.7	42 4.4	41 5.43	41 5.31	41 3.74	41 5.0	41 4.30	41 4.86	41 35.3	41 46.4	41 56.7
8.4	12.0	7.5	8.3	5.3	8.7	5.3	4.3	5.28	38.7	48.5	
11.4	14.7	10.8	0.2	5.9	4.23	5.6	4.20	5.60	41.0	5.25	
17.7		17.0		5.6		8.7		2.0		5.87	
20.8		20.0		8.7		3.5		5.5		1.9	
22.9		23.0		11.8		8.7		8.5		5.0	
27.2	42 49.9	26.3	42 49.8	13.0	42 30.2	11.8	42 37.1	11.7	42 33.0	8.0	
30.3	29.9	29.4	30.3	18.0	33.3	13.0	41.7	14.8	30.3	11.2	
36.5	56.5	35.9	35.8	24.4	33.8	21.3	44.0	21.0	38.6	17.4	
39.7		38.8		27.5		24.6		24.2		20.6	
42.8		42.1		30.7		27.4		27.3		23.8	
26.40		25.52		31.06		27.64		27.34		29.50	
				180		180		180		240	
42 24.000	42 53.10	42 23.200	42 53.96	42 11.873	42 33.10	42 8.764	42 40.98	42 8.764	42 53.96	42 53.00	42 56.70
23.977	-13.19	23.177	-12.76	11.850	-1.93	8.741	+1.21	9.491	+0.87	4.977	+4.81
42 10.475	-25	42 10.192	-27	42 9.721	-1.8	42 9.643	-21	42 9.620	-1.7	42 9.545	-23
+13.573	-09	+13.046	-176	+2.134	-1.85	-0.989	-1.5	-0.813	-1.24	-4.57	-1.19
+13.54	-209	+13.07	8.39	+2.15	-1.85	-0.88	-1.27	-0.12	8.43	-4.57	8.37
42 8.36											
-13.23		-12.80		-1.96		+1.82		+0.38		+4.75	
-31		-26		-2.0		-31		-1.17		-1.17	
-209	+0.120	-1.76	+0.950	-1.35	+0.860	-1.27	+0.940	-1.24	+0.970	-1.19	+1.020
-15.63	41 52.65	-14.82	51.43	-3.51	52.60	-0.06	51.65	-1.08	52.09	+3.39	52.57
42 23.98	+2 58.1	42 23.18	+2 9.39	42 11.85	+2 9.40	42 8.74	+2 10.22	42 9.47	+2 11.32	42 4.98	+2 10.50
	+3		+2		+3		+3		+3		+3
42 8.35	-20.40	42 8.36	-23.00	42 8.34	-24.80	42 8.48	-24.90	42 8.54	-25.00	42 8.37	-25.10
42 10.5648	43 38.36	10.44	43 38.02	10.44	43 37.50	10.38	43 37.27	10.42	43 38.71	10.44	43 38.07
		57		55		49		62		58	
+11.87	-29.10	+25.60	-29.76	+32.07	-21.23	+23.00	-32.17	+31.16	-26.99	+8.30	
40		40		40		40		40		40	
-2.41		-2.48		-2.63		-2.65		-2.68		-2.70	
0 48.1	1 21.8	0 37.4	1 23.7	0 32.0	1 16.9	0 39.6	1 25.1	0 32.8	1 19.7	0 50.3	
57.0	30.2	46.1	32.3	39.4	22.0	48.8	34.1	41.7	28.1	0.2	
105.1	53.0	83.5	56.0	71.4	38.9	88.4	59.2	74.5	47.8	11.05	
8.00	52.55	41.7	26.00	40.0	41.75	41.7	28.00	40.0	35.70	41.7	28.00
1.07445	1.46389	1.40824	1.47363	1.50610	1.32695	1.36173	1.07715	1.49360	1.42275	0.91908	
0.99831	1.38775	1.35210	1.39749	1.40670	1.24755	1.38283	1.42803	1.41420	1.34333	0.83968	
+9.96	-24.42	+8.148	-24.97	+26.71	-17.68	+19.16	-26.62	+25.95	-22.05	+6.91	
41 2.31	41 1.58	41 3.23	41 2.03	41 2.41	41 1.77	41 3.36	41 2.27	41 3.20	41 1.85	41 2.16	
+48° 41 45.84	46.77	41 45.12	45.32	41 45.94	46.58	41 44.99	45.54	41 45.15	46.50	41 46.19	
-6 21 15 20 41											
0.80710	0.80640										
+7.45		+2.78		+10.85		+14.67		+7.05		+8.9	
0.81455	0.81385	0.80988	0.80918	0.81795	0.81725	0.82177	0.82107	0.81435	0.81345	0.80819	4.80727
+6.52	+6.51	+6.45	+6.44	+6.58	+6.56	+6.63	+6.62	+6.52	+6.51	+6.43	
-0.4	-17 -23	-17	-23 -24	-27	-23 -17	-14	-23 -27	-26	-25 -18	-2	-05
-0.3	-0.4	-0.2	-0.4	-0.2	-0.4	-0.2	-0.4	-0.3	-0.4	-0.3	
+6.45	+6.24	+6.26	+6.16	+6.28	+6.40	+6.48	+6.31	+6.24	+6.25	+6.138	
41 52.29	53.01	57.38	51.48	52.23	52.98	51.46	51.85	51.39	52.79	52.57	
43 57.2		59.8		44 1.6		1.7		1.8		1.9	
+2 45	42	8.4	8.3	9.4	8.6	10.2	9.8	10.4	9.0	9.3	
+2 45		8.4		9.0		10.5		9.7		9.3	
+2 50	37.88	38.05	38.05	36.91		36.95		37.76		37.76	
+2 57.5	59.860	+9.40	9.47815	+9.19	9.48366	+10.10	10.393734	+11.08	11.3739.16	+10.5510.85	
+2 59.388		+2.7	-6.48	+2.29	-8.28	+2.29	-8.38	+2.29	-8.48	+2.30	-5.58
+2 20.40	43 35.24	-23.07	38.10	-24.80	37.28	-24.90	37.14	-25.00	38.46	-25.10	38.32
+1 20.40		38.10	38.10	38.10	38.10	38.10	38.10	38.10	38.10	38.10	38.10



1875

Oct. 7	42	1277		43	756	+10
12		12.66	.11		726	
17		12.55	.11		774	.8
22		12.43	.12		78.1	.7
27		12.31	.12		757	.6
Nov. 1		12.19	.12		722	.5
6		12.06	.13		79.5	.3
11		12.93	.13		79.7	.2
16		11.80	.13		79.9	.2

1875

10.573	.78	10.60	54.5
+43.53.38	.79	10.43	55.0
+2.210	.80	10.52	53.7
+16.519	.84	10.49	54.8
	.80	10.510	54.50
			(4)
less 9.81926			
12.552			
9.94478			

1875

1875

Oct. 13	Oct. 14	Oct. 17	Nov. 4
-31	-24 -12	-30 -10	-25
42 42442	42 426 42	42 445 42	42 538 42
45.4	45.5	47.5	57.0
48.6	48.6	52.5	43.6
55.0	54.8	56.8	0.0
58.1	58.0	0.1	6.3
1.1	1.1	3.0	9.5
43 43	43 44 43	43 61 43	43 158 43
212	12.6	24.1	39.0
243	15.5	26.6	40.8
264	18.3	38.7	42.7
13.7	17.0	18.6	28.4
17.0	20.0	22.0	31.6
19.9			
31.32	31.23	27.40	25.94
300	300	240	120
13.2	12.3	34.0	139.4
42 3430	42 26.63	42 40.53	42 39.67
43 1.200	43 1.118	43 3.091	43 12.673
43 23.97	43 1.095	43 3.068	43 40.83
4.177	-48.14	-48.11	-50.01
42 12.653	42 12.631	42 12.654	42 12.650
+48.53.5	+48.48.8	+50.57.3	-1.02.7
+48.56	+48.49	+50.54	-1.54
-206	-204	-197	-15.4
42 10.63	10.49	10.60	10.535
-48.16	-48.24	-50.09	-60.32
-36	-39	-49	-30
-2.06	-2.04	-1.94	-1.34
-50.58	-50.67	-52.55	-62.16
43 1.18	43 1.10	43 3.07	43 12.65
-16 1407	-16 14.25	-16 15.44	-16 15.00
+3	+3	+3	+3
42 10.60	42 10.43	42 10.52	42 10.49
+48.5 43 54.58	43 54.77	43 53.77	43 54.73
+2690	-22.77	+34.49	-14.35
20	20	20	20
-2.85	-2.86	-2.88	-2.98
1 515	1 42.7	1 53.0	1 84.7
61	58.9	94	50.9
1176	85.9	1026	69.2
21 58.80	22 42.95	21 51.30	22 34.60
22 42.95	22 34.60	22 1.20	22 42.80
21 49.80	22 42.70		
1.42975	1.35736	1.53769	1.15680
1.37453	1.30214	1.48347	1.10163
+23.69	-20.05	+30.37	-12.64
22 22.49	22 22.90	22 31.67	22 21.96
0 2586	2545	0 2668	2639
25.66	26.54	26.90	27.28
21 49	21 5	21 58	21 4
0.80770	0.80690	0.80790	0.80630
+1.906	+1.294	+1.136	+1.546
0.82676	0.82596	0.82064	0.81984
+6.71	+6.71	+6.62	+6.60
-19	-51	-14	-32
-30	-40	-28	-39
+6.22	+6.17	+6.02	+6.16
3208	31.62	32.70	32.55
44 16.8	17.0	17.4	17.4
-16 183	14.8	15.7	15.2
-16 18.0	15.5	15.7	15.2
-16 18.5	15.7	15.2	15.2
-16 14.20	13.89	13.88	13.88
+31	+31	+31	+31
23.52	24.43	24.46	24.46
-16			



14 Pegasi

21 44 18

+29° 36'

γ = +12° 47'

μ = +22

1874

L  
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L 9.69368

L 9.93927

L 10.460

L 0.04387

L 0.04061

1874

Oct. 18

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44 17.1

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-13

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-15.62

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1875

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+2.649

+16.62

9.93927

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Nov. 8

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13.0

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1873

Oct. 14

Oct. 17

44	55.644	45.0	48	45	4.3
45	54.9	47.2			4.3
	8.0	47.0			8.4
	7.3				6.8
	9.7				9.1
	12.1	45	32.9		11.5
	14.3		35.6		13.9
	19.2		34.5		16.3
	21.5				
	24.0				
	22.71		576		
	12.6				
	107.1	44	47.07		
45	9.736	45	35.33	45	11.520
	9.718				11.502
	-48.24				50.09
	-20				24
	-2.41				2.34
	-50.85				52.70
45	9.72		45	11.50	
	44.18.87		44	18.80	
				18.83	

+	22.67	-	25.59	+	47.5
23	-256		30	-288	
4	4.99	0	45.5	0	8.5
	3.0		12		25.4
	11.49		106.7		33.9
29	57.45	30	53.35	30	16.95
1.35545		1.40807		0.67669	
1.42024		1.47286		0.4148	
+26.32		-29.71		+5.37	
30	23.77	30	33.64	30	22.46

50	24.58		24.71	52	25.89
	24.64				
46	9	47	5	46	29
1.11560		1.11620		1.11580	
+12.99				+11.43	
1.12859		1.12919		1.12723	
-13.44		-13.46		-13.40	
-12	-57	-16		0	-04
-74	-13			-04	
-14.30		-13.75		-13.44	
52	1028	1096		52	1245
-16	14.19	14.81		-16	15.57
	16.2				16.20
-21.89	19			-21.50	
-16	35.60	34.38		37.70	
		35.06			
	35	34.67		34.75	



	1874
L	
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1875-  
46 2881  
8 20.93  
+ 3.279  
+ 16.74  
  
9.98665  
.12552  
0.11214

1574

corr <sub>k</sub> =	80	2882	
corr <sub>p</sub> =	82	2884	
	85	2884	213
large <sub>p</sub> = -25	86	2882	
±	88	2874	20.4
	84	28812	20.85
K = -.016		+ 4(5)	+ 0 (2)
		28816	

1874  
Oct. 18

Nov 4

Nov. 7

Nov. 8

Nov. 10

1873-  
Oct. 1

46  $\begin{array}{r} - 228 \\ 282 \\ \hline 304 \\ 326 \\ \hline 367 \\ 390 \\ \hline 411 \\ 433 \\ \hline 454 \\ 495 \\ \hline 517 \\ 536 \end{array}$

$$\begin{array}{r} 46 \quad 193 \quad 4 \\ 220 \\ \hline 24.3 \end{array}$$

16 174 4  
195  
216  
258  
280  
300  
321  
342  
386  
407  
428

6. 6.0 46  
7.4  
9.3

~~14.6~~ -2  
 14.2 46  
 16.3  
 18.3  
 22.7  
 24.8  
 27.0  
 29.0 46  
 31.1  
 33.4  
 37.6  
 39.7

$$\begin{array}{r} 1.4 \\ 3.9 \\ \hline 5.3 \end{array}$$

18. ~~12.2~~ - 1.4  
12.946  
16.0  
18.3  
22.6  
24.6  
26.7  
28.8 46  
31.0  
35.1  
37.3  
39.5

46

3.1	46
3.2	
7.2	19

25.7

54.1

56.2

58.3

10.4 45  
12.6  
14.8  
21.0  
23.1  
25.3  
27.5  
31.6  
33.8  
36.0

$$\begin{array}{r} 360 \\ 18.7 \\ 0.8 \end{array} \quad 47$$

~~820~~ - 315  
 7.3 46  
 9.4  
 11.6  
 15.8  
 18.0  
 20.1  
 22.2 44 3  
 24.3 3  
 28.7 4  
 30.8  
 33.0

$$\begin{array}{r} 4518 \\ 46 \overline{) 41.073} \\ \underline{41.057} \\ - \\ + 12.49 \\ - 2.49 \\ - 1.552 \\ 46 \overline{) 41.06} \\ 46 \overline{) 2554} \\ 46 \overline{) 2881} \end{array}$$

$46 \quad 21.86$   
 $47 \quad 4.05$   
 $+0.489$

$$\begin{array}{r} 3307 \text{ 4} \\ 630.064 \\ 30048 \\ - 1.95 \\ + 4 \\ - 2.58 \text{ +} \\ - 4.49 \\ 463005 \\ 4628.56 \\ 288.39 \end{array}$$

6 7.56 46

0699 46

77

2961 46  
26.918 46  
26902  
1.32<sup>3</sup>  
2.54 + 0.7  
1.0534  
26.90  
25.75  
56

3.60  
53.63 46

139

+

+

-

-

4

4

$$\begin{array}{r} 2938 \\ 27.709 \\ 27.693 \\ \hline 0.033 \\ 4 \\ 2.52 \\ 2.15 \\ \hline 27.69 \\ 25.54 \\ 28819 \end{array}$$

$$\begin{array}{r} 5.16 \\ 48.57 \\ \hline 53.73 \end{array}$$

2551 45  
23.191  
23.175  
4.95  
4  
2.50 +0.7  
2.29  
23.17  
25.46  
28724

58.50

47 2

2

+

79

-

47

46

$2212$   $487$   
 $20109$   $47$   
 $0083$   
 $4816$   
 $8$   
 $3.22$   
 $7.30$   
 $20.09$   
 $28.79$

$5$   
 $+19.21$   
 $-22.98$  (unc)  $+22.50$   
 $35.2$  (30)  
 $-2.18$   
 $1$   $23.6$   $2$   $14.9$   $1$   $19.5$   
 $44.1$   $32.7$   $37.5$   
 $6.7$   $47.6$   $57.0$   
 $136$   $32.55$   $37.25$   $23.80$   $31+$   $28.50$   
 $1.283.53$   $1.36/35.5$   $1.338.18$   
 $1.374.78$   $1.45260$   $1.44017$   
 $+23.10$   $-28.85$   $+27.53$   
 $58.1$   $57.55$   $26$   $53.45$   $31$   $56.03$   
 $14$   $920$   $7.10$   $9$   $7.70$   
 $9$   $8.15$   
 $56$  (34)  $27$  (35)  $17$   
 $+281$   $+1091$   
 $+05$   $.50$   $+07$   $+07$   
 $-05$   $-07$   $-04$   
 $+2$   $9.10$   $+9.19$   
 $-$   $2.05$   $-2.18$   
 $-$   $8.83$   $-7.84$   
 $+1$   $58.52$   $59.17$

$+2332$     $-26.71$     $+22.55$     $-20.56$     $+24.66$   
 30    $-265$    30    $-268$    30    $-270$   
 1 17.8 2 20.9 1 46.0 2 24.1 1 19.6  
 37.8 39.2 7.2 45.0 38.8  
 55.6 6.1 113.2 49.1 58.4  
 31 + 27.80 32 30.05 31 + 56.60 32 34.55 31 + 29.20  
 1.36773 1.42667 1.35315 1.31951 1.39252  
 1.45572 1.57466 1.44114 1.40730 1.48057  
 +28.56 -32.71 +27.61 -25.55 +30.24  
 31 56.36 31 57.34 32 24.21 2 200.31 57.44  
 9 8.01 8.99 9 35.86 9 11.09  
 8.50  
 29 21 30 23 29 30 30 27 29 22  
 1.93819 1.93849 1.93833 1.93851 1.93822  
 +14.76 +7.11 +9.0  
 1.95295 1.95325 1.94544 1.94562 1.93912  
 -89.73 -89.79 -88.19 -88.23 -88.92  
 +07 +03 +10 7.07 +01 +06 +08  
 -04 -07 -06 -08 -04  
 -1 29.70 -1 29.76 -1 28.18 -1 28.25 -1 26.88  
 10 37.71 38.75 11 4.04 10 37.97  
 +10.10 7.91 +11.08 +10.55  
 = 2.19 7.07 -2.22 -2.23  
 -7.64 -7.61 -7.49 -7.49  
 +2 0.24 8 37.47 125 279 0.83

$$\begin{array}{r}
 + 19.24 - 18.59 \\
 10 \quad - 2.65 \\
 2 \quad 40.5 - 3 \quad 80.0 \\
 \quad 50.4 \quad \quad 89.8 \\
 \quad 9.09 \quad \quad 69.8 \\
 12 \quad 45.45 \quad 13 \quad 34.90 \\
 1.28421 \quad 1.26928 \\
 1.39631 \quad 1.38145 \\
 + 24.91 \quad - 24.07 \\
 13 \quad 10.36 \quad 18 \quad 1.083 \\
 50 \quad 22.01 \quad \quad 22.49 \\
 \quad 22.24 \\
 28 \quad 34 \quad 29 \quad 44 \\
 1.93817 \quad 1.93833 \\
 + 19.16 \\
 1.95724 \quad 1.95749 \\
 - 90.63 \quad - 90.68 \\
 + 0.5 - 43.04 \\
 - 42 \quad - 54 \\
 -1 \quad 31.00 -1 \quad 31.18 \\
 51 \quad 53.01 \quad \quad 53.66 \\
 -16 \quad 44.26 \quad 16.56 \\
 - \quad 2.36 \\
 -10.45 \\
 -16 \quad 27.01 \quad 8 \quad 20.02 \\
 \quad \quad \quad 20.02
 \end{array}$$



1875

78 2879 203  
 80 2895 206  
 86 2876 196  
 86 2880 227  
 82 28825 2080  
 - 18(4)  
 28807

1875

Oct. 17		Nov. 8		Nov. 11	
47	9.4 47	10 47	20.7 47	13.3 47	21.6 47
	11.6	23	22.8	15.6	23.6
	13.6	44	24.7	16.9	25.6
	14.8		29.0		29.0
	20.0		31.0		31.0
	22.1		33.2		33.1
	24.2	47 33.0	35.6		36.1
	26.4	34.5	37.6		38.4
	30.7	36.1	41.9		42.8
	32.7		44.0		44.9
	34.9		46.1		47.1
	24.34		36.65		37.82
47	22.127	47 26.3	47 33.318	47 15.27	47 49.03
	22.111	47 34.53	33.302	47 33.927	34.27
	- 32.09		- 61.72	47 33.911	34.25
	+ .11		+ 7		
	- 3.18		- 2.89		
	- 5.16		- 64.54		
47	22.11	47 33.30		47 33.91	
46	28.95	46 28.76		46 28.46	
				28.825	

+ 19.50 - 1240 + 1805  
 10 - 288  
 2 40.2 3 211 2 46.9  
 57.7 33.8 50.9  
 91.9 54.9 97.8  
 12 45.95 13 21.45 12 48.90  
 1 29003 1.09342 1.25648  
 1.40220 1.20539 1.36865  
 +2525 -16.05 +2337  
 13 11.20 13 11.40 13 12.27  
 50 2285 23.05 50 2392  
 2295  
 28 58 29 39 29 11  
 1.93811 1.93830 1.93816  
 +1148 +1950  
 1.94959 1.94978 1.95766  
 -89.04 -89.08 -90.71  
 +05 -40 +02 +04 -13  
 -39 -48 -17  
 -1 29.88 -1 39.34 -1 30.84  
 51 52.23 52.59 51 54.76  
 -16 15.57 17.96 -13.37 15.87  
 -23.9 -8.99  
 -10.23 -8.82  
 -16 28.19 8 20.42  
 20.78  
 20.60

- 1510  
 10 - 3.03  
 3 31.7  
 39.8  
 71.3  
 13 35.75  
 1.17898  
 1.29115  
 -19.55  
 13 16.20  
 50 27.85  
 29 48  
 1.93833  
 +1144  
 1.94977  
 -89.08  
 7.03 -19  
 -22  
 -1 29.27  
 51 57.12  
 -16.22 16.73  
 -2.51  
 -8.82  
 25.55

1966

2267



1874 1874

16 Pegasi + 19.764 Oct. 27 47 2.80  
+ 2.5° 20' 3' Sinj = +.29  
y = +17°  
J. 9.63135  
L. 9.95609 9.95609  
C. 10.134 10.134  
S. 0.5743 0.08161

Dec. 1 6  
1874  
84 2248 15.1  
85 2249 16.3

1874  
Nov. 4  
21 47 100.47 3.647  
12.3 6.0  
14.6 7.6  
19.1 13.9  
21.4 18.4  
23.7 20.6  
26.0 47 44.4 23.0  
28.3 40.7 23.3  
32.8 49.0  
35.2  
37.4  
2608 1032 2070

1874  
Nov. 7  
21 47 100.47 3.647  
12.3 6.0  
14.6 7.6  
19.1 13.9  
21.4 18.4  
23.7 20.6  
26.0 47 44.4 23.0  
28.3 40.7 23.3  
32.8 49.0  
35.2  
37.4  
2608 1032 2070

1875-17 47 24.95  
Oct. 27 47 24.88 .07  
Nov. 11 24.81 .07  
6 24.75 .08  
11 24.68 .09  
16 24.50 .08  
21 24.43 .07  
26 24.35 .08  
Dec. 1 24.28 .07  
6 24.21 .07

1875-  
2 22.490  
3 22.485  
4 22.480  
5 22.475  
6 22.470  
7 22.465  
8 22.460  
9 22.455  
10 22.450  
11 22.445  
12 22.440  
13 22.435  
14 22.430  
15 22.425  
16 22.420  
17 22.415  
18 22.410  
19 22.405  
20 22.400  
21 22.395  
22 22.390  
23 22.385  
24 22.380  
25 22.375  
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27 22.365  
28 22.360  
29 22.355  
30 22.350  
31 22.345  
32 22.340  
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36 22.320  
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63 22.185  
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69 22.155  
70 22.150  
71 22.145  
72 22.140  
73 22.135  
74 22.130  
75 22.125  
76 22.120  
77 22.115  
78 22.110  
79 22.105  
80 22.100  
81 22.095  
82 22.090  
83 22.085  
84 22.080  
85 22.075  
86 22.070  
87 22.065  
88 22.060  
89 22.055  
90 22.050  
91 22.045  
92 22.040  
93 22.035  
94 22.030  
95 22.025  
96 22.020  
97 22.015  
98 22.010  
99 22.005  
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1875-17 47 24.95  
Oct. 27 47 24.88 .07  
Nov. 11 24.81 .07  
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75 22.125  
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87 22.065  
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89 22.055  
90 22.050  
91 22.045  
92 22.040  
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94 22.030  
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96 22.020  
97 22.015  
98 22.010  
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1875-17 47 24.95  
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Nov. 11 24.81 .07  
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26 24.35 .08  
Dec. 1 24.28 .07  
6 24.21 .07

1875-  
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64 22.180  
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67 22.165  
68 22.160  
69 22.155  
70 22.150  
71 22.145  
72 22.140  
73 22.135  
74 22.130  
75 22.125  
76 22.120  
77 22.115  
78 22.110  
79 22.105  
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82 22.090  
83 22.085  
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85 22.075  
86 22.070  
87 22.065  
88 22.06



1874 1875- 1874  
48 57.35  
37 25.48  
+ 2.815  
+ 16.81  
Cond = 80 57.47 25.4  
Cond = 84 57.34 25.3  
85 57.51 25.4  
largd = +1.16 58 54.39 26.1  
8 88 54.31 25.5  
t = 3.64  
K = -.027 84 54.404 25.54  
(5) -1  
25.53

1874 1875- 1874  
Wind 9.91669  
Lc 9.75165  
Lc 10.460  
Lc 9.85625  
Lc 9.85299  
9.75165  
12.5521  
9.87717

Oct. 18	Nov. 4	Nov. 7	Nov. 8	Nov. 10	Oct. 14
-227	-173	-291	+1.159 -146	-150	-340
48 55.0 48	337 48	216 48	328 48	226 48	34.7 49
	376	252	342	261	38.2
	411	287	447	290	41.9
	484		465		30.3
49 6.0 20x	521	45.4	43.0	41.5	39.6
3.7 39	536	48.9	48.6	43.0	41.1
7.3 20		524	52.3	48.9	45.1
11.0 34.49 34.0	594 48	56.1 49	56.0 49	52.4	48.5 50
14.5 22	3.0	58.8	59.7	56.0	52.2
21.9 39	10.2	7.2	34.1	3.2	59.4
25.4 20	14.1	10.7		6.9	3.3
29.0 16	17.6	14.4		10.7	4.2
	3728	4013	2616	3563	3748
	240	180		180	120
48 55.00	6128 48	5813 48	43.66	5363 48	4948 49
7.275 49	37.350 48	55.709 49	30.96	48.755	49 4982 50
7.248	55.672	52818	53.293	48.728	44.55
-12.79	-1.95	+1.3013	+0.33	+4.75	-48.25
-33	-25	-39	-21	-22	-50
-1.68 +0.335	-1.16 +0.855	-1.07 +0.945	-1.04 +0.975	-0.97 +1.045	-1.94
-14.80	-336	-0.1423	-0.92	+3.56	-50.69
49 7.25	48 55.68	48 52.82	48 53.29	48 48.73	49 44.95
48 52.45	46 52.32	48 52.68	48 52.37	48 52.29	48 54.26
48 54.65	54.335	49 54.505	54.385	54.305	
			52.384		

+12.7	-30.03	+30.55	-6.99	+9.18	-88.12	+27.42	-14.48	+10.49	+23.48	-23.42
15	45	45	45	45	45	45	45	45	25	
-2.46	-2.63	-2.65	-2.68	-2.70					-2.86	
2 26.3	2 57.4	2 12.3	2 40.0	2 27.3	2 1.1	2 14.5	2 44.3	2 24.5	3 32.9	4 8.8
34.0	5.3	18.1	45.3	35.9	8.9	21.9	53.1	34.2	45.0	23.0
60.3	12.27	30.4	85.3	63.2	100	36.4	97.4	58.7	80.8	31.8
347 30.15 48	1.35 47.2	15.20 47.2	42.65 47.2	31.60 47.2	5.00 47.2	18.20 47.2	48.70 47.2	29.35	28 40.40	29 15.90
108884	1.47756	1.48501	0.84448	0.96284	1.58115	1.48807	1.16047	1.02078	1.37070	1.36959
494183	1.33055	1.33800	0.69747	0.81583	1.43414	1.29106	1.01376	0.87377	1.24787	1.24678
+875	-2.141	+2.178	-4.98	+6.54	-27.17	+19.50	-10.32	+7.48	+17.70	-17.65
47 38.90	47 39.94	36.98 47	37.67 47	38.14 47	37.83 47	37.70 47	38.38 47	36.83	38 58.10	28 58.25
35 9.95	8.9135	11.37	10.68	35 10.21	10.5235	10.65	9.97 35	11.52	53 50.25	50.10
8.93	77.03		10.36		10.31				50.17	
-13 14 37	14 6				14 49	14 18	14 38		15 8	14 32
1.13200	1.13180				1.13210	1.13180	1.13200		1.13230	1.13200
+282		+1095		+1481	+715		+90		+1307	
1.13482	1.13462	1.14295	1.14275	1.14681	1.14661	1.14925	1.13895	1.13290	1.14537	1.14507
+13.64	+13.63	+13.90	+13.89	+14.02	+14.02	+13.78	+13.77	+13.58	+13.98	+13.97
-0.4	-22 -23	-23	-20 -1	-2	-25 -36	-19	-19 -05	-03 -10	-14	-75 -14
-07	-09	-07	-08	-07	-06	-07	-08		-55	-64
+13.63	+13.31	+13.60	+13.80	+13.93	+13.60	+13.32	+13.64	+13.48	+13.29	+13.19
155 35 2298	21.72	35 2497	24.48	35 2414	24.12	35 2417	23.61	35 2500	54 384	3.29
+2 940	9.97	+9.99	9.79	+10.10	10.70	+10.08	11.69	+10.55	11.16	
+57	-9.94	+6.0	9.16	+6.00	9.43	+6.01	9.50	+6.61	9.64	
-23.40		-23.94		-26.24		-26.31		-26.45		
+1 46.22	37 920	43.82	87.9	44.46	860	45.38	95.5	44.71	-16 37.86	37 25.68
	7.94		830		858		8.99			25.43
+37 85	25.38		85.4	25.35	85.9	25.40	9.27	26.08	9.71	25.52
										25.55



1875

79	5426	256
80	5429	249
80	5434	263
86	5447	263
86	5427	257
82	54326	2576
	- 215	+ 13
	54324	2579

Oct. 17			Oct. 20			Nov. 8			Nov. 11		
49	-430		49	-384		49	-273		49	-275	
	49	78	49	265	49	52	49	360	49	266	49
		113		302		86		396		290	
		144		339		114		432		320	
49.08	398			410				504			
6.84	432			448				541			
6.90	469			483				578			
6.96	506	50	0.5	520	50	6.0		1.2	50	172	
6.82	541		3.8	557		92		5.0		21.1	
6.84	1.4		9.1	3.0		12.3		12.6		23.1	
7.00	5.2			66				162			
6.76	8.6			164				19.8			
				3524				3359			
				180				300			
46.90	49	11.27		5324	49	8.40		6359	49	2920	
46.87	50	4.47	49	48.400	50	9.17	49	57809	50	2047	
49 46.87				48373				57772			
- 5209			- 5170			- 6142			- 6264		
- 63			- 56			- 40			- 40		
- 186			- 177			- 119			- 1180		
- 5258			- 5403			- 6331			- 6417		
49 46.87			49 48.37			49 5778			49 5844		
48 54.29			48 54.34			48 54.47			48 54.27		
									54326		

+ 35.63	- 17.60	+ 40.00	- 20.77	+ 28.61	- 22.66	+ 29.83	- 23.51
25	- 288		- 291		- 3.02		- 3.02
3 21.8	4 1.9	3 16.8	4 3.0	3 28.9	4 6.8	3 28.8	4 6.7
88.4	180	82.4	18.9	39.9	17.4	38.4	18.8
602	199	492	219	688	242	642	255
28 30.10	29 9.95	28 24.60	29 10.95	28 34.40	29 12.10	28 32.10	29 12.75
1.65182	1.241551	1.60206	1.31744	1.40652	1.35526	1.47460	1.37125
1.42894	1.12268	1.47723	1.19461	1.33369	1.23243	1.35182	1.24842
+ 26.55	- 1326	+ 30.15	- 15.65	+ 21.56	- 17.08	+ 22.48	- 17.72
28 56.95	28 56.69	28 54.75	28 53.30	28 53.96	28 53.02	28 54.58	28 53.03
53 51.40	51.6653	53.60	53.05	53 52.39	53.33	53 53.77	53.32
51.53		53.32		52.86		53.54	
						15 16 14 35	
						1.13240	1.13200
+ 185		+ 85		+ 1955		+ 1149	
1.14385	1.14355	1.13315	1.13285	1.15185	1.15155	1.14387	1.14347
+ 13.93	+ 13.92	+ 13.59	+ 13.58	+ 14.19	+ 14.18	+ 13.93	+ 13.91
21	- 73	- 17	- 41	- 80	- 11	- 23	- 36
- 49	- 59	- 48	- 59	- 22	- 25	- 21	- 41
+ 13.13	+ 13.26	+ 12.70	+ 12.88	+ 13.76	+ 13.81	+ 13.49	+ 13.52
54 453	492	54 64630	593	54 615	714	54 726	684
- 16 15.57	14.91	- 15.12	14.46	- 13.37	12.68	- 14.22	13.53
+ 66		+ 66		+ 69		+ 69	
- 24.88		- 25.40	26.44	- 27.66		- 27.85	
- 16 39.79	37 24.74	39.86	26.71	40.34	25.81	41.38	25.88
	25.13		26.07		26.80		25.46
+ 37 24.93			26.50		26.30		25.67



u Cephei  
21 30 40  
+56° 2'  
γ = -13° 39'  
δ = -23

1874  
L  
S  
A  
B  
C  
D  
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Z

1876-  
50 4115  
1 11.05  
+ 2.012  
+ 16.93

1874  
cond = 80 41127 10.7  
cond = 84 41124 11.2  
85 40890 10.7  
86 41107 12.1  
86 41110 11.8  
+ 3.68  
± = 3.68  
K = -0.27  
84 41.092 11.50  
+0 (5) 0

Laird 9.91874

Leop 9.74719  
L 10.460  
L 9.85179

9.74719  
12.552  
9.87271

L 9.84883

Examine date

Nov. 24

Nov. 7

Nov. 8

Nov. 10

1875  
Oct. 14

50 320 30 18.850	50 350 14 50	50 46 50	50 49 50	50 50 50	50 51 30
35.7	35.0	17.1	31.6	28.2	47.4 51
30.3	22.3	21.0	33.4	34.7	57.5
46.8	24.8	24.4	35.4	57.5	53.7
50.5	38.9	32.0	37.3		31.8
54.0	40.7	35.7	38.0		33.8
57.8	42.6	39.1	40.8		33.6
51 8.3	44.4	42.7	42.7		37.4
14	46.1	46.6	44.6		39.2
9.0	48.0	54.0	46.4		41.1
12.5	50.0	57.8			43.0
16.1		14			
35.51	38.27	37.18	35.12	32.01	34.93
24.0		60			
50 54.100 51 12.26 50 42.522	50 4.80	50 43.18 50 7.50	50 40.022 49 54.30	50 35.567 50 51.33	51 31.735 51 4.07
54.073	42.495	39.228	40.995	35.540	32.28
- 12.79	- 1.95	+ 1.323	+ 1.233	+ 4.75	- 4.825
- 33	- 26	- 40	- 22	- 22	- 51
- 1.69 +0.322	- 1.17 +0.892	- 1.01 +0.942	- 1.04 +0.972	- 0.98 +1.032	- 1.95
- 14.81	- 3.88	- 0.2334	- 0.93	+ 3.55	- 50.71
50 54.07	50 42.49	50 39.23	50 39.99	50 35.54	51 31.73
50 39.26	50 39.11	50 39.08 38.9	50 39.06	50 39.09	50 41.02
50 41.272	41.122	41.47 = 40.902	41.072	41.102 39.120	

15 20	20	20	20	20	0
+ 32.14	- 18.16	+ 37.72	+ 81.75	+ 45.72	- 15.76
- 24.8	- 26.3	- 26.5	- 26.8	- 26.8	- 28.6
3 27.1	4 3.4	3 22.8	3 26.1	3 16.1	4 44.2
35.7	11.9	27.3	35.1	23.5	58.0
6.28	15.3	50.1	61.2	39.6	10.22
823 31.40	244 76.5	23 25.05	23 30.60	23 19.80	244 30.5
1 1.50705	1.25712	1.57657	1.50174	1.66011	1.197562
1.35884	1.11091	1.42510	1.35027	1.50864	1.04609
+ 33.85	- 12.91	+ 26.61	+ 22.40	+ 32.26	- 11.12
33 54.25	23 54.74	23 57.66	23 53.00	23 53.06	23 51.93
+ 53.85					
58 54.10	53.61	58.5669	58 55.35	58 56.29	58 56.42
13 38 36	37 59		38 47	38 4	38 4
1.14540	1.14510		1.14550	1.14510	1.14560
+ 28.4	+ 10.98	+ 14.85	+ 71.8	+ 90	+ 13.11
1.14824	1.14794	1.15638	1.16025	1.15268	1.15871
+ 14.07	+ 14.06	+ 14.33	+ 14.46	+ 14.21	+ 14.41
- 25	- 27	- 28	- 25	- 52	- 17
- 10	- 12	- 10	- 10	- 10	- 12
+ 13.72	+ 13.86	+ 13.88	+ 14.11	+ 13.59	+ 13.81
155 59 78.2	74.7	59 10.57	59 9.46	59 9.88	59 10.23
+ 2	9.97	+ 9.19	+ 10.10	+ 10.08	+ 10.55
+ 23.82	- 6.39	- 2.61	- 2.63	- 2.63	- 2.63
+ 1 46.15	0 53.97	43.68	43.4	45.26	44.60
0 53.79	10.72	54.25 11.18	53.80 10.73	55.14 12.07	54.83 11.76



1875

79	41.02	12.2
80	41.09	10.1
80	41.12	11.4
86	41.16	10.6
86	41.09	12.0
82	41.076	11.32
	<u>-1.5</u>	<u>+1</u>
	41.076	11.33

Oct. 17			Oct. 20			Nov. 8			Nov. 11		
51	-430		51	-387		51	-273		51	-275	
	26.2	54.5		13.1	50		22.3	51		31.1	51
	28.1	58.0		16.9	34.6		25.9	31.1		34.0	51
	30.2	62		20.6	37.4		29.7	38.0		38.0	56.8
	31.8			28.0	40.5		31.0				59.3
	33.6			31.4			40.6			37.9	2.5
	35.3			35.2			44.8			41.6	
	37.4			38.8	51		48.2			45.3	
	39.1			42.6	13.6		52.0			49.1	
	40.9			49.9	17.4		59.3			52.6	
				53.5	20.9		2.9				
				57.2			6.9				
	30.26			387.2			36.96			22.65	
							120				
51	33.622	50 57.57	51	35.200	50 37.50	51	48.96	51 34.37	51	45.300	50 59.53
	33.595			35.173	51 17.30		44.504			45.273	
							44.372				
	- 50.09			- 51.69 <sup>10</sup>			- 61.72			- 62.67	
	- .64			- .57			- .40			- .41	
	- 1.84			- 1.78			- 1.20			- 1.10	
	- 52.60			- 52.05			- 63.32			- 64.18	
51	33.59		51	35.17		51	44.48		51	45.27	
50	40.99		50	41.12		50	41.16		50	41.09	
										41.076	

+ 36.05			+ 57.70			+ 1790			+ 10.14			+ 45.77		
0	-288		0	-291		0	-302		0	-303		0	-303	
4	37.0		4	37.3	4	42.1	4	58.7	4	38.4		4	38.4	
	32.1			34.3		5.9	1.3			40.0			40.0	
	5.91			52.6		11.50	128.0			6.84			6.84	
4	44.55		4	26.30	4	57.50	5	4.00	4	34.20		4	34.20	
1.55691			1.76118		1.25285	1.00604			1.66058			1.66058		
1.42962			1.63387		1.12356	0.87875			1.53329			1.53329		
+26.89			+43.04		+18.35	+4.56			+34.14			+34.14		
5	11.44		5	9.34	5	10.85	5	11.56	5	8.34		5	8.34	
17	36.91		17	39.01	37.50	17	36.79		17	40.01		17	40.01	
				38.25										
			39	22	38	51								
			1.14580		1.14550									
	+11.60			+88		+19.59				+11.48			+11.48	
1.15720			1.14668		1.14638	1.16536			1.15728			1.15728		
+14.36			+14.02		+14.33	+14.63			+14.36			+14.36		
	-33	-50		-85	-1.12	-08		-03	-34				-52	-80
	-66			-62		-69		-31					-28	
	+13.34			+12.53		+13.56		+14.29					+13.06	
17	50.28		17	51.56		51.06	17	51.68		17	53.51		17	53.51
-16	15.57	11.91	-16	16.12	14.46		-13.37	12.68		-14.22	13.53		-14.22	13.53
	16			16										
	-24.95			-25.48				-27.81					-28.01	
-16	39.86			39.94		11.62		40.49					40.54	
						11.12								

1 1042

11.37

1059

1203







1875				1874				1875			
6	"	Oct-6	51	6	"	Nov-4	52	80	1824	38.4	
48.7	+7	11	2036	615	+13	54	1873	38.8	1822	41.5	
49.4	7	16	2008	628	12	55	1853	39.2	1823	40.1	
49.9	.5	21	1979	640	11	56	1878	39.3	1828	39.2	
50.4	.5	26	1948	651	10	85	18680	39.10	1834	39.6	
		31	1916	661	9		(3)		1857	39.9	
		Nov-5	1882	670	7				83	18387	39.78
		10	1848	677	6					(6)	
		15	1813	683	4						
			1777	687							

-38				-43				-25				-23				-28			
Oct-20				Oct-25				Nov-4				Nov-8				Nov-11			
52	-387	52	270	52	-463	52	240	52	-260	52	350	52	-243	52	333	52	254	52	254
			336				309				387				399		305		305
			38.7				39.5				40.6				40.2		35.0		35.0
12.44	8.9			140	146			160				250	215			14.6			
10	12.1			16	18.2	53	4.6	23.6	53	7.1	1.23	24.7				24.9	52	56.9	
56	16.1	53	5.1	92	22.0		11.6	26.4		12.5	1.32	28.4				28.7		5.3	
03	19.1		100	78	25.4		18.8	30.5		19.4	0.76	31.4				32.0		9.5	
60	23.2		17.4	74	28.9			34.4			0.44	35.0				35.0			
34	26.5			52	30.80			17.65	52	39.10			52	39.47		19.39	52	30.30	
12.345	52	33.10		52	14.74	53	11.67	52	19.611	53	13.10		21.34			52	31.544	53	3.97
52	12.293	53	10.83	52	14.69			19.559					21.082			52	21.492		
52	12.293	53	14.7																
-58.70				-54.37				-60.33				-61.72				-62.67			
-1.27	-57.69			-152	-54.33			-85	-1-027			-90	-1-1.72			-90	-1-2.53		
-1.10	-125			-0.57	-141			-0.10	-82			+0.38	-76			+0.59	-92		
-54.07				-56.46				-61.28				-62.24				-62.98			
52	12.29	-1.10		52	14.69	-0.57		52	19.56	-0.10		52	21.08	+0.38		52	21.49	+0.59	
51	18.18	-1578.25		51	18.23	18.38		51	18.37	18.38		51	18.84	18.98		51	18.51	18.61	

2080	1985	2128	2031	2183
-16 1510	-16 1445	-16 1500	-16 1378	-16 1411
+1.3	+1.3	+1.4	+1.3	+1.4
-2570	-2670	-2840	-2880	-2920
6 4130	6 4000	6 3928	6 3959	6 3991
-2076	-5829	-1606	-5693	-1949
0	53	53	0	0
-291	-292	-298	-302	-303
0 28	0 16.8	0 38.8	0 6.6	0 12.2
12.1	30.7	16.9	15.7	10.8
199	47.5	13.67	22.0	13.00
0 995	0 23.75	0 8.35	0 22.90	0 11.00
1.31723m	1.76708m	1.20575m	1.75534m	1.28981m
0.90578m	1.35563m	0.79430m	1.34389m	0.87836m
-8.05	-22.68	-6.23	-22.07	-7.56
0 1.90	0 1.07	0 2.12	0 2.39	0 2.16
22 46.45	47.28	22 46.23	22 46.96	46.19
46.86			46.08	44.48
+89	-713	+1568	+1960	
1.53509	1.53499	1.52707	1.52697	1.54988
+34.28	+34.27	+33.66	+33.65	+35.47
				+35.46
				+35.79
-06	-33	-52	-03	-04
-03	-06	-01	-01	-26
+341.9	+33.69	+33.62	+33.41	+33.01
23 2064	2097	23 1985	23 2137	21.20
-16 15.12	13.64	-14.62	-15.15	-13.37
+1.48		+1.48	+1.48	11.83
2570		-26.70	-28.40	+28.89
3934	4130	39.74	40.11	42.07
	41.63			39.30
	41.46			39.13
				39.22
				39.58
				39.98
				39.90
				39.94



1974 phae. prs.j. 14  
P. Picis Australis  
21 m sec.  
- 29° 3'  
+ 71° 26'  
sing. = + 98°

1874

L  
L  
L  
L  
L

L in 0 9.68625m

L cos 9.94161

L 10.143

L 0.04304

1875-  
53 3920  
3 920  
+ 3.460  
+ 17.07  
  
9.94161  
12552  
006713

$\text{const} =$   
 $\text{comp} =$   
 $\text{largel} = -.56$   
 $t = 2.36$   
 $k = -.018$

1874

Nov. 7

Nov. 8

Nov. 10

Nov. 18

1875-  
Oct. 14

Oct. 17

2153 23.1  
23.6  
28.0  
32.7  
35.0  
37.4  
39.8  
42.1  
46.7  
49.2  
51.6

$+1 = 146 - 146$   
 53    230 53  
       253  
       277  
       325  
       348  
       370  
       393 53  
       418  
       465  
       488  
       572

186	53	-150	192	53
211			218	
233			241	
			290	
			312	
			336	
580			360	
08			384	
84			431	
			457	
			478	

89 53  
108  
130  
-184  
144  
169  
191  
238  
264  
287  
310  
334  
381  
405  
428

$\begin{array}{r} 15.6 \\ 18.0 \\ 19.8 \end{array} \begin{array}{l} 54 \\ \\ \end{array}$

18.6	54	11.2
20.8		13.4
23.3		15.3
27.9		
30.4		
32.6		
35.0	54	46.3
37.4		49.0
42.0		57.3
44.5		
46.8		

4112  
53 37.382  
37364

4081 53  
53 38100 54  
38082

21.00 3701 53  
0.73 53 33.645  
33627

0.90      31510  
5328.645  
28627

7.80      3397      54  
54      30882      54  
30864

2593	54	13.30
22.664	54	48.87
22646		

$$\begin{array}{r} + 1.34 \\ + .15 \\ - 2.89 \\ - 1.43 \\ \hline 53 \quad 37.36 \end{array}$$
$$\begin{array}{r} + 0.33 \\ + 8 \\ - 2.84 + 0.5 \\ - 2.46 \\ \hline 53 \quad 38.08 \end{array}$$
$$\begin{array}{r} + 4.45 \\ + 8 \\ - 2.84 + \\ + 1.99 \\ \hline 53 \quad 33.63 \end{array}$$
$$\begin{array}{r} + 9.71 \\ + 9. \\ - 2.72 \\ + 7.08 \\ 53 \quad 28.63 \end{array}$$
$$\begin{array}{r} - 48.25 \\ + 19 \\ - 3.64 \\ - 51.70 \\ \hline 54 \quad 30.86 \end{array}$$
$$\begin{array}{r} 50.10 \\ 24 \\ 3.60 \\ 53.46 \\ \hline 32.65 \end{array}$$

53 35.90  
78  
53 39.21

53 35.62

39.08

$$\begin{array}{r} 53 \ 35.62 \\ 39.08 \\ \hline \end{array}$$

53 35.91  
39.17  
38.675

53 39.16

39.19

S									
+	28.15	-	12.92	+	17.10	-	22.63	+	22.74
20			20				20		
<del>-2.65</del>				<del>-2.88</del>				<del>-2.70</del>	
4	41.9	0	28.0	4	57.9	0	41.9	4	55.7
	58.2		45.9		16.8		60.1		11.6
	100.1		73.9		13.4		102.0		22.3
4 <sup>24</sup>	58.05	25	36.95	25	73.5	25	51.00	25	3.65

$$\begin{array}{r} 25 \\ + 10.84 \\ - 277 \\ \hline 0 \quad 8.3 \\ 23.2 \\ 315 \\ 25 \quad 15.75 \end{array}$$

$$\begin{array}{r} + 1888 \\ 5 - \end{array} \quad \begin{array}{r} - 2692 \\ 5 - \end{array} \quad \begin{array}{r} + 1936 \\ 5 - \end{array} \quad \begin{array}{r} - 1621 \\ 5 - \end{array}$$

144948	1.1126	1.23300	1.35468	1.35679
145252	1.15430	1.27604	1.37721	1.39983
+3108	-1427	+1888	-2499	+25.11
25 2718	25 3268	25 2623	25 2601	25 2876
21.13				
2 3278	3433	2 3788	37.66	2 4041
33.55		37.77		
+71 22 43	23 20	23 0	23 44	22 52
2.22839	2.22863	2.22851	2.22880	2.22847
+1492		+722		+91
2.24331	2.24355	2.23573	2.23602	2.22938
-175.11	-175.21	-172.08	-172.20	-169.58
- 3	- 3	0	0	0
+18	+03 +04	+07	+01 +11	+11
-14	-02	-02	-02	-15
-2 5510	-2 5321	-2 5276	-2 5211	-2 4962
5 2788	29.55	5 30.09	29.77	5 3003
+2 10.10	75.9	+1208	8.54	+10.55
- 251	+14.15	- 254	+14.22	- 256
-2.92		-2.85		-2.72
+2 467	3 2321	5.67	2435	5.27
	24.88		2408	
-3 24.04			2421	5.01

1.03503  
1.07807  
+ 1197  
23 27/22  
2 3937  
23 9  
2.22859  
+ 883  
2.23742  
- 172.75  
0  
+ 03  
- 03  
-2 52.75  
5 3212  
+ 10.92  
- 263  
- 222  
6.07

1.27600	1.43008	1.28691	1.20998
1.34313	1.49721	1.35404	1.27691
+2204	-31.42	+2260	-1892
6 3799	6 3803	6 3972	6 3972
43 4964	4968	43 5135	5083
49.66		51.09	
22 28	23 21		
2.22831	2.22867		
+1317		+1168	
2.24148	2.24184	2.23999	2.24035
-17438	-17452	-17678	-17392
- 2	- 2	- 3	- 3
+08	-14 +10	+08	-16 +04
-19	-33	-18	-28
-2 54.51	-2 54.72	-2 53.91	-2 54.11
46 44.15	44.40	46 45.26	45.00
-16 14.19	16.90	-15.87	18.30
- 2.71		-2.73	
-6.52		-6.21	
-16 25.42	3 75.7	24.51	20.75
	78.2		24.49
2605	3 76.9		20.1



1874

85 34.21 7.0  
86 39.08 7.1  
87 39.08 7.7  
87 39.17 9.0  
86 39.135 7.70  
0 (14) -0

1875

79 39.16 7.7  
80 39.19 9.6  
80 39.28 8.0  
84 39.20 7.8  
86 39.27 7.5  
86 39.20 10.2  
83 39.217 8.62  
+ 1.16  
39.218

Oct. 20

54 20.154 8.7 54 22.4 11.0  
24.4 13.1  
29.6  
32.0  
34.4  
36.9 54 4.75  
38.9 4.99  
43.8 5.5  
46.4  
48.5

37.74 54 10.93  
54 34.36 54 44.57 54 42.76 55 5.70  
34.18

- 51.40  
+ 22  
- 3.66  
- 53.04  
54 34.32

53 39.28

Nov. 4

26.0  
28.6 54 20.3 54 31.0 22.2  
33.3 24.1  
38.0  
40.3  
42.8  
45.1 55 3.9  
47.5 5.3  
52.1 7.7  
54.5  
56.9

47.01 54 22.20  
54 42.76 55 5.70  
42.78

- 60.33  
+ 15  
- 3.34  
- 63.52  
54 42.72

53 39.20

Nov. 8

24.3  
30.1 54 25.9 54 32.4 27.7  
34.4 29.0  
39.3  
41.8  
44.1  
46.6 54 53.0  
49.0 56.0  
53.4 59.9  
55.8  
58.3

48.55 54 27.47  
54 44.18 54 35.57 54 44.18

- 61.72  
+ 15  
- 3.28  
- 64.85  
54 44.12

53 39.27

Nov. 11

27.57  
30.6 54 30.1 33.4  
35.9  
40.4  
42.7  
44.9  
47.1 55 13.7  
49.7 15.8  
54.3 18.0  
56.7  
59.1

49.46 54 30.10  
54 44.96 55 15.83  
44.96

- 62.64  
+ 15  
- 3.23  
- 65.75  
54 44.95

53 39.20

39.217

+ 23.41 - 15.23 + 20.54 - 22.96 + 16.67 - 11.43 + 14.86 - 30.87

5- -2.91 1 54.8 1 -2.98 2 24 1 -3.02 1 47.9 -3.03 2 14.0  
22.9 8.5 16.7 8.8 22.6 54.7 32.5 23.1  
3 2.6 12.33 2.67 11.2 37.6 10.26 54.5 37.1  
6 16.30 7 16.5 6 13.35 7 5.60 6 18.80 6 57.30 6 27.25 7 18.55

1.36940 1.18270 1.31260 1.36097 1.22194 1.05306 1.17202 1.48954  
1.43653 1.24783 1.37973 1.42810 1.28707 1.12518 1.23715 1.55667  
+27.32 -17.78 +23.98 -26.80 +19.16 -13.34 +17.34 -36.03  
6 48.62 6 48.87 6 37.33 6 38.80 6 38.26 6 37.96 6 44.59 6 43.32

43 55.27 55.32 43 48.98 50.45 43 49.91 49.61 43 56.24 54.17  
55.39 49.71 49.76 53.20

22 39 23 30  
2.22834 2.22871  
+11.51

+94 +1574 +1966  
2.22925 2.22961 2.24405 2.24441 2.24797 2.24833 2.23985 2.24022  
-169.53 -169.67 -175.41 -175.55 -177.00 -177.15 -173.72 -173.87

- 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1  
+13 -14 +05 +09 4.01 +12 +07 -04 +13 +05 +02 +22  
-18 -28 -07 -13 -08 -11 -09 -14

-2 49.59 -2 49.91 -2 53.46 -2 53.63 -2 57.07 -2 57.29 -2 53.81 -2 53.84  
46 44.86 45.3 46 44.44 46.08 46 46.78 46.90 46 50.05 48.01

-16 15.12 17.88 -15.15 17.95 -13.37 16.23 -14.22 17.09  
-2.76 -2.63 -2.86 -4.30 -4.10  
-5.91 -4.39

-16 23.79 3 8.65 22.57 7.01 20.53 7.51 11.24  
9.22 6.65 7.43 9.20  
3 8.93 7.83 7.47 10.22



1874 phase prod. 1478

Aquarii  
31 36 48  
2° 45'  
18 48 8  
long = +71

1874  
L sin 8.68104n  
L cos 9.99950  
L 10 460  
L 10 410  
L 10 084

1875  
56 5891  
15 2920  
+ 3.106  
+ 1721  
9.99950  
12.552  
2.12502

1874  
Cont = 76 51.94 29.2  
Cond = 77 84 29.7  
80 88 28.9  
84 94 29.6  
85 88 29.1  
86 83 28.5  
87 86 29.0  
K = -0.05 82 50.86 29.14  
+0 (7) -0

1874	Oct. 6	Oct. 10	Oct. 18	Nov. 4	Nov. 7	Nov. 8
21 56 515 56 535 546 495 15 39 60 57 50 121 142 164 2828 240 428 56 57 3.891 57 3.876 - 1330 + 1 - 276 +0.346 - 16.05 57 3.88 56 47.83 56 50.936	43.6 56 44.5 47.6 02 23 44 65 57 86 126 148 168 2286 180 486 56 57 4.418 57 4.403 - 13.96 + 1 - 272 +0.386 - 16.67 57 4.40 56 47.73 50.836	484 56 451 473 02 1.1 3.2 57 200 74 115 138 156 2752 240 352 56 57 3.200 57 3.185 - 12.79 + 1 - 2.63 +0.976 - 15.41 57 3.18 56 47.77 50.876	56 39.3 56 417 432 480 502 523 57 200 219 285 04 2.5 4.6 3943 180 5743 56 57 52.209 57 52.184 - 194 + 1 - 2.43 +0.676 - 4.36 56 52.19 56 47.83 50.936	267 56 284 300 408 449 470 480 57 84 106 12.5 574 594 1.4 4793 60 5393 56 57 49.027 57 49.012 + 1.304 + 1 - 239 +0.716 - 1.0829 56 49.01 56 47.83 50.876	254 56 273 293 446 467 487 57 33 574 7.1 - - - 449 57 48.780 48.44 19.76 + 0.283 + 1 - 2.38 +0.726 - 2.04 56 48.76 49 56 47.72 48.26 57	

5 +18.33 -24.01 5 -243 3 54.9 -11.4 1263 5 9 3.15 94 1.26316 1.36724 +23.30 9 26.45 9 46 3870 445 6 56 1.76160 +752 1.76912 -58.77 +0.00 -12 -58.89 247 3649 +2 5.18 -13.13 +1 50.33 45 -45 46.44 45 29.27	-24.01 5 -243 4 48.1 4.9 1130 56.50 94 1.38039 1.48449 -30.51 9 25.99 9 37.64 46 7 49 1.76180 1.76932 -58.79 +0.01 -12 -58.93 47 3783 +5.65 -13.10 50.83	+19.16 5 -243 3 57.5 12.9 1304 52.20 94 1.28240 1.38650 +24.38 9 29.42 9 41.07 46 41.13 1.75218 1.75238 -56.52 +0.01 -12 -56.63 47 37.74 +3.93 -12.90 47.00 46.91 46.95 29.44	-23.08 5 -248 4 50.7 6.8 1175 58.75 94 1.36324 1.46784 -29.05 9 31.45 9 41.07 46 42.50 1.75238 1.76447 -56.54 +0.01 -12 -58.25 47 43.35 +9.40 -12.90 54.68	+21.80 5 -248 3 55.0 12.5 1275 53.90 94 1.26951 1.37361 -23.64 9 30.26 9 41.91 46 42.30 1.76467 1.77267 -58.17 +1107 +59.25 1.76467 1.77267 -58.17 +1107 +59.25 46.67 45.55 46.11 29.40	-18.60 5 -263 4 45.8 2.0 1078 53.90 94 1.26951 1.37361 -23.64 9 30.26 9 41.91 46 42.30 1.76467 1.77267 -58.17 +1107 +59.25 46.67 45.55 46.11 29.40	+23.88 5 -263 3 53.3 8.9 1222 53.90 94 1.26221 1.37361 -23.07 9 30.13 9 41.78 46 42.30 1.77287 1.77659 -59.27 +1499 -59.27 47.26 46.29 46.77 29.44	-18.29 5 -265 4 45.8 0.6 1064 53.20 94 1.26221 1.37361 -23.07 9 30.13 9 41.78 46 42.30 1.77287 1.77659 -59.27 +1499 -59.27 47.26 46.29 46.77 29.44	+21.60 5 -265 3 55.1 12.3 1274 37.0 94 1.21032 1.31116 -20.47 9 30.38 9 42.03 46 42.31 1.77669 1.77669 -58.78 +1499 -58.78 46.55 46.05 46.30 29.40	-16.23 5 -268 4 42.4 59.3 1017 50.85 94 1.21032 1.31116 -20.47 9 30.38 9 42.03 46 42.31 1.77669 1.77669 -58.78 +1499 -58.78 46.55 46.05 46.30 29.40	-15.28 5 -268 4 42.4 59.3 1028 51.40 1.18412 1.28496 -19.27 9 32.13 43.42 43.42 1.76884 1.76884 -58.73 +1499 -58.73 46.55 46.05 46.30 29.40
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1874

 $18\frac{1}{5}$ 

1878-

1875-

76	21.74	34.4	49	2181	348	2	21.78		Oct.	7	59	2484		55	19.7	
77	.80	35.2	80	84	35.2	P	-55	34.75		12		24.79	.05		19.7	+ .0
78	.79	35.5	80	84	35.8	d <sub>2</sub>	+ 3.083			17		24.73	.06		19.7	.0
79	.80	35.1	81	89	35.7	d <sub>1</sub>	+ 17.338			22		24.68	.05		19.8	.1
84	.81	36.0	86	72	35.2	46				27		24.62	.06		18.9	.1
85	.76	35.9	86	83	35.1				Nov.	1		24.56	.06		24.0	.1
86	.79	36.2	86	84	36.9					6		24.50	.06		20.2	.2
86	.74	35.2								11		24.44	.06		20.4	.2
87	.78	34.8	83	21810	3553	P	9.99994			16		24.38	.06		20.6	.2
				(7)			12.552									
88	21.779	35.37					0.12506									

Nov. 8 - 15

Nov. 10<sup>-20</sup>

1874  
-13  
Nov. 18

$$\begin{array}{r} 1875 \\ -2412 \\ \hline 0634 \end{array}$$

$\times - .30 - 10$   
Oct. 17

-38  
Oct. 20

59	74	58	532	59	3.9	58	332	58	589	58	468	0	0.9	59	55.7	0	24	59	534	0	4.1	59	56.5
	94		536		6.0		568		0.9		488		0.8		59.3		4.5		532		6.3		58.4
	115		573		8.1		585		3.0		508		4.9		59.6		6.6		54.1		8.3		12
	156				12.2				7.1				8.9				10.8				12.3		
	176				14.2				9.2				10.9				12.8				14.4		
	187				16.3				11.2				13.0				14.9				16.4		
	218	59	460		18.2	59	322		133				15.2	0	31.0		16.9	0	28.4		18.5	0	30.8
	23.9		480		20.3		342		134				17.2				19.1		30.3		20.5		32.9
	28.1		488		24.6		360		185				21.3				23.2		31.9		24.9		34.5
	30.2				26.6				216				23.3				25.3				26.8		
	32.2				28.6				237				25.3				27.3				28.8		
	2174				1790				1838				1435				1638				1811		

[illegible]

$15^s + 2540$	$-27.17$	$+19.44$	$-17.86$	$+22.45$	$+15.44$	$-17.96$	$+19.66$	$-15.31$	$+18.09$	$-16.21$
$15^s - 2.08$		$-2.70$		$-2.77$	$0 - 2.86$		$-2.88$		$-2.91$	
$2.5$	$0$	$8.3$	$4$	$9.0$	$4$	$55.9$	$4$	$5.7$	$0$	$2.95$
$18.7$		$26.0$		$26.0$		$14.1$		$20.0$	$0$	$2.20$
$31.2$		$34.3$		$35.0$		$13.00$		$2.57$	$0$	$2.22$
$10.60$	$24.2$	$17.15$	$19.4$	$17.50$	$20.5$	$5.00$	$19.4$	$12.85$	$0$	$2.21$
$1.40483$	$1.43409$	$1.28870$	$1.25188$	$1.35122$	$1.18865$	$1.25431$	$1.29358$	$1.18498$	$1.25744$	$1.20976$
$1.50611$	$1.53637$	$1.38978$	$1.35316$	$1.45250$	$1.31411$	$1.37977$	$1.41904$	$1.31044$	$1.38290$	$1.35344$
$+32.07$	$-34.31$	$+24.55$	$-22.53$	$+28.35$	$+20.61$	$-23.78$	$+26.25$	$-20.44$	$+24.10$	$-21.64$
$18$	$42.64$	$19$	$42.84$	$19$	$42.05$	$19$	$42.45$	$19$	$41.20$	$0$
					$0$	$58.41$	$0$	$53.62$	$0$	$55.11$
									$0$	$57.70$
									$0$	$57.41$

56	5432	5449	56 5370	5410	56 5285	38	806	727	38 0680	676	38 955	906
	5440		5390				766		678		930	
			17 10	17 58	16 56		16 48	17 32				
			173390	173410	173380		173380	173400				
			+93		+906		+1330		+1184		+105	
	+730						174710	174730	174564	174584	173485	173505
	174110	174430	173483	173503	174286		-5586	-5589	-5567	-5570	-5431	-5433
	-5510	-5550	-5430	-5433	-5532							
	+030	-95	+040	+020	-14	+040	-070	-14	+010	+020	-12	+010
	-10	-01	-13	-13	-46	-46	-09	-19	-07	-18	-08	-18
	-5520	-5551	-5443	-5448	-5578	-5578	-5595	-5608	-5574	-5588	-5435	-5457
	4952	5000	4813	4858	4863	39	401	333	204	264	394	337
	391		392		396	565	197		197		198	
	164	109	385	94	80	-16	157	164	171	171	159	162
	106		42		80	-16	160		171		161	
						-16	1419	55 3517	-1557	17553519	-1512712	3596
	+2	1108	9245328	+1055	8705233	+1092	901	3517	-198	3529	-200	3559
		184	44345376	-1186	44452376	-191	+484	1616	3451		1490	
		1302		-1290		-1250		1500		1510		
	F1	5624	5352	5580	5255	5661	5212	16	3116	3484	3265	3524
			12									



										1874.0										1875.0									
										18.66										21.81									
										.72										.84									
										.71										.84									
										.72										.79									
										.73										.72									
										.6468										.83									
										.71										.84									
										.66																			
										.70																			
										18.717699										21.810									
										.695										.778									
										+ .022										+ .032									
										52.09										34.75									
1875.0										+ .23										+ .23									
Oct. 25										Nov. 4										Nov. 8									
0 6.9 0										14.2 0										12.5 59									
8.6										16.2										1.45									
10.9										18.4										1.65									
15.0																				2.9									
17.0																				2.21									
19.1																				2.41									
21.0																				2.63									
23.1																				2.82 0									
25.2																				3.05									
27.3																				3.25									
31.4																				3.45									
209.3										27.29										2888									
																				2989									
0 19.027										0 16.27										0 24.809									
19.012										-54.34										-1 -0.28									
59 24.64										+0.01										59 24.52									
+54.37										+60.27										+61.97									
-54.37										-286										-274									
+50.1										+0.03										+0.00									
-2.86										-2.74										-2.69									
-57.22										-63.07										-65.32									
0 19.01										39 4.30										0 24.79									
+16 14.45										-16 13.50										335									
59 21.79										-18										59 21.72									
-14.90										-14.70										-14.40									
55 33.48										55 34.95										55 34.78									
																				5									
+ 2.76										+ 23.88										- 22.02									
0 -2.92										0 -2.98										0 -3.02									
0 48.1										0 21.2										0 30.5									
2.9										2.65										38.3									
11.10										4.77										68.8									
0 53.50										0 23.85										0 34.40									
0.44091										1.37523										1.34282									
0.56637										1.50349										1.46828									
+ 3.68										+31.88										+22.67									
0 59.18										0 55.73										0 57.07									
38 10.83										38 7.38										38 8.72									
										7.10										8.49									
-6.78										+15.90										+19.80									
1.72702										1.74970										1.75360									
-53.34										-56.20										-56.70									
.00										+0.00										+0.00									
-13										-02										-04									
-33.44										-56.2										-56.5									
39 4.30										3.60										3.46									
19.9										20.1										20.3									
11.156										1.65										1.48									
-14.156										16.5										15.0									
-16.1452										-15.15										-13.37									
3.01										2.05										2.08									
14.90										14.70										14.42									
-16 31.43										-31.90										-29.85									
55 35.73										35.25										35.11									



1874

i Pegasi  
22 1 121  
+24° 44'  
Z = +17° 39'  
Zin Z = +30

Oct.	7	11.15	43	685	
	12	11.09	.06	690	.05
	17	11.03	.06	695	.05
	22	10.97	.06	699	.04
	27	10.90	.07	702	.03
Nov.	1	10.83	.07	704	.02
	6	10.76	.07	706	.02
	11	10.68	.08	706	.00
	16	10.60	.08	706	.00

1844  
 $\begin{array}{r} 2 \quad 8.734 \\ + 43.49.56 \\ \hline dt \quad + 2.788 \\ dt \quad + 17.444 \end{array}$

$\ell \sin \delta$  9.62159  
 $\ell \cos \delta$  9.95821  
 $\ell \delta$  10.460  
 $\ell \delta'$  0.06281  
 $\ell \delta''$  0.05955

cond =  
cond =  
tangle = 146 1.10  
8  
T = 227  
K = -0.27

1874  
Oct. 27

Oct. 6 - 17 - 07

Oct. 10 <sup>-21 -07</sup>

Oct. 24<sup>th</sup> 18<sup>th</sup>

Nov. 4<sup>-16</sup>

Nov. 7 <sup>-18 -10</sup>

22				23				24				25				26				27																	
110	1	49.1	110	1	45	1	116	0	360	1	103	59	59.10	59.10	487	0	5620	463	110	1	49.1	110	1	45	1	116	0	360	1	103	59	59.10	59.10	487	0	5620	463
133		77	133		65		140		382		126			15	383		383	481	133		77	133		65		140		382		126			15	383		383	481
166		96	166		83		162		578		149			3.8	334		06	50.9	166		96	166		83		162		578		149			3.8	334		06	50.9
201			201				206				193			8.2			5.1		201			201				206				193			8.2			5.1	
223			223				229				216			10.6			7.5		223			223				229				216			10.6			7.5	
244			244				252				240			12.7			9.7		244			244				252				240			12.7			9.7	
268	1	441	268	1	450		275	1	418		362	1	460	15.0			120		268	1	441	268	1	450		275	1	418		362	1	460	15.0			120	
293		460	293		402		298		488		284		488	174			143		293		460	293		402		298		488		284		488	174			143	
338		483	338		422		342		458		330		50.2	21.9			186		338		483	338		422		342		458		330		50.2	21.9			186	
363			363				366				362			24.1			210		363			363				366				362			24.1			210	
385			385				389				376			26.5			234		385			385				389				376			26.5			234	
2714			2702				2775				2631			2008			2267		2714			2702				2775				2631			2008			2267	
														60			120																				
1	24.673	1	24.564	1	25.227	1	25.210	1	23.918	1	23.901	1	12.800	1	12.800	1	9.700		1	24.673	1	24.564	1	25.227	1	25.210	1	23.918	1	23.901	1	12.800	1	12.800	1	9.700	
24636	-1336		24547	-1325			-1387		23901		-12.75		12.753		-1.92		9.683	+123	24636	-1336		24547	-1325			-1387		23901		-12.75		12.753		-1.92		9.683	+123
11.198	-12		11.16	-08			-10		11.02		-11		10.798		-07		10.74	-08	11.198	-12		11.16	-08			-10		11.02		-11		10.798		-07		10.74	-08
+13488			+1339	-08			+14.18		-08		+12.88		+14.7302		-1.06		-11		+13488			+1339	-08			+14.18											

40	16.94	-21.46	18.03	-25.57	27.23	-18.57	24.82	-24.31	21.24	40	20.94								
0	2.5	0	45.5	4	59.8	0	50.1	4	49.6	0	41.6	4	54.4	0	50.4	4	58.0	0	59.5
	14.1		57.4		11.9		2.3		49.6		41.6		54.4		7.5		3.9		11.1
	166		103.9		131.7		112.4		112.0		96.0		121.9		114.8		126.0		130.6
40	8.30	40	52.45	40	5.85	40	56.20	40	56.00	40	48.00	40	0.95	40	57.40	40	3.00	40	5.30

122891	133163	125300	140773	143505	126881	192850	138578	132715	132098
139172	139444	131881	147034	149786	133162	199131	144859	138670	138058
49.58	-24.50	+20.84	-29.55	+31.47	-21.46	-28.09	+24.36	+24.02	
40 27.88	40 26.65	40 26.69	40 26.65	40 27.47	40 26.54	40 27.31	40 27.36	40 28.32	

+24° 42'	20.47	21.70	42'	21.66	21.70	42'	20.88	21.81	42'	18.71	19.04	42'	20.99	42'	19.03
	21.08			21.68			21.34			18.87					
+17° 38'	1	38	44							37	54	38	50	37	56
	1.26250	1.26280								1.26250	1.26280	1.26250			1.26290
	+1282			+760			-936			+290		+1112			+1509
	1.27532	1.27562	1.27015	1.27045	1.25314	1.25344	1.26540	1.26570	1.27362						1.27199
	-1885	-1886	-1863	-1864	-1791	-1793	-1843	-1844	-1835						-1897

-06	-09	-03	-07	-19	-13	=	-15	-20	-07	=	-13	-21	-12	=	-09	-24	=	-09
50	-03	-07	-07	-13	-03	=	-15	-02	-07	=	50	-03	-07	=	50	-03	=	-03
-1851	-1898	-1855	-1898	-1855	-1898	=	-1821	-1808	-1855	=	-1855	-1859	-1855	=	-1855	-1859	=	-1808
42	156	272	281	284	290	=	367	379	367	=	367	379	367	=	367	379	=	367
44	82		84			=	88		88	=	96		96	=	96		=	96
+2	60	55	56	55	55	=	55	50	55	=	94	92	92	=	81		=	102
+2	632	43	4855	4452	4846	=	565	492	4839	=	940	866	866	=	919	840	=	1010
-	73	559	4971	1337	4855	=	73	1754	4951	=	74	2554	4911	=	79	845	=	179
-	1860	-116	1860	1860	1860	=	1920		2000	=	2000		2000	=	2090		=	2170
+1	4699	43	4913	4565	4850	=	4872	4895	4866	=	4866	4888	4888	=	4750		=	4831
						=				=				=			=	



1873-

1875

1874

11,522  
+11,522  
+2,788  
+17,446  
+17,446

Coord 9,95821  
L 12,532  
B 0,08393

Oct.	7	1	1422		44	274	
	12		1416	-06		27.9	+3
	17		1409	.07		28.4	5
	22		1403	.06		28.8	4
	27		1396	.07		29.1	3
Nov.	1		1389	.07		29.3	2
	6		1382	.07		29.5	2
	11		1375	.07		29.5	0
	16		1367	.08		29.5	+0
	21		1360	.07		29.4	-0
	26		1353	.07		29.2	2
Dec.	1		1346	.07		28.9	3
	6		1339	.07		28.5	-4

76	1167	66
77	48	60
78	53	64
79	51	63
80	50	73
81	48	57
82	44	115
83	53	51
84	11,499	5,99

(8)

1874

1875

1874

Nov. 8  
+15  
-146

Nov. 10  
-20  
-150

Oct. 14  
-24  
-12

Oct. 17  
-30  
-10

Oct. 18  
-35  
-08

Oct. 19  
-38  
-07

22.0	538.0	418.0	523.0	576.1	490.1	41.7	57.8	414.1	51.3	40.4	52.2	51.0
58.1	44.0	44.0	346	39.6	57.2	43.3	53.1	432	53.7	42.4	54.3	53.0
64	46.0	56.9	41.6	53.4	45.2	55.4	55.4	45.1	55.9	44.4	56.4	55.0
49		1.6		57.9		59.8			8.4		1.0	
72		3.9		0.3		2.1			2.7		3.3	
95		6.0		2.6		4.4			4.9		5.6	
11.7		8.3		4.9	2	3.2	2	16.4	7.2	2	17.9	35.1
13.9		10.6		2.1		5.6		18.6	9.5		10.1	36.9
18.5		15.1		17.7		7.5		20.2	14.0		14.7	38.6
20.8		17.4		14.0		15.7			16.3		16.8	
23.1		19.7		16.1		18.1			18.5		19.1	
223.9		246.4		268.2		288.5		234.4		241.1		
120	43.83	180		240		240		180		180		
103.9	0	39.33		28.2	1	43.47	48.5	1	43.23	54.4	1	53.00
10.445		6.036		2	2.564	2	5.43	2	4.409	2	4.945	2
10.428	+0.37	6.019	+4.81	2	2.547	-48.11	4.392	2	4.928	2	5.538	2
10.732	-0.07	10.7069	-0.09	1	14.13	-11	14.09	1	14.08	1	14.076	1
-0.3029		-4.684		1	14.842	-13	15.030	1	15.085	1	15.448	1
+0.38	1	8.74	4.75	8.78	-48.25	11.59	-50.10	11.55	-50.67	11.57	-51.10	11.5565
0.07					.16		2.0		.20		.21	
1.99+0.798		1.96+0.828			2.61		2.57		2.56		2.54	
1.73		2.77			51.02		52.87		53.43		53.85	
10.48	41	5780	1	2.55	0	4284	2	4.362	2	4.93	2	4.963
10.48	+2	1732	1	16	14.25	-9	11.52	-16	15.44	-16	15.04	-16
8.70	-9	8.74	-9	1	11.53	-9	11.52	-9	11.50	-9	11.69	-9
11.988	-2100	11.528	-2100		-2110			-2140		-2150		-2160
+24.0	43	4.722	43	4.729	44	6.59	44	5.88	44	6.28	44	6.74
+2.51												
35	+31.11											
35	-2.68											
4	53.2											
7.0												
120.3												
540	0.10											
1.43947												
1.49904												
+31.55												
40	81.65											
42	1670											
37	53											
1.26250												
+733												
1.26983												
-18.61												
14	15	-29										
41	57.80											
10.6												
10.8												
12.8												
+2	11.08	10.28										
2100												
+1	49.28	47.08										



1875

77	1153	6.7
79	52	58
80	50	66
80	69	67
80	53	58
84	53	61
85	52	53
86	52	50
92	149	57
83	11534	5.97

(9)

+ -38 Oct. 20				+ -25 Nov. 4				+ -23 Nov. 8				+ -26 Nov. 11				-04 Dec. 2			
1	525	1	372	2	0.7	1	528	2	20	1	518	2	30	1	579	1	22.9		
	546		39.6		2.9		545		4.1		545		5.7		59.5		24.1		
	56.9		41.5		5.3		56.3		6.4		56.6		7.5		1.5		26.4		
2	14				9.8				110				120						
	3.8				12.0				13.4				14.3						
	5.9				14.4				15.8				16.5						
	8.3	2	16.8		16.7	2	15.0		18.0	2	36.1		18.8	2	31.5		5.15		
	10.5		19.0		18.9		19.1		20.2		37.8		21.1		33.3		53.4		
	15.0		27.0		23.4		19.1		24.4		34.8		25.4		35.5		55.6		
	17.1				25.6				27.0				28.0						
	17.5				27.9				29.3				30.2						
	24.55				15.76				17.19				18.22						
	18.0																		
	6.55	1	39.43		1	54.53		1	54.30		1	59.63		1	24.57				
2	5.955	2	18.93	2	14.327	2	17.07	2	15.627	2	37.90	2	16.564	2	33.43	1	16.420	1	53.50
	5.938		57.70		14.310		-0.28		15.610		-1.73		16.547		-2.56		16.403		-2.94
1	1405		-17	1	13.85		-12	1	13.79		-11	1	13.75		-13	1	13.46-4		-0.2
	+5.89				+6.046				+6.182				+6.280				+6.2956		
	-31.70		11.54	-	60.33		11.58	-	61.72		11.50	-	62.69		11.63	-	2.94		11.52
	-18				12				12				13				1.92		
	-2.53				2.33				2.27				2.23				1.92		
	-54.41				62.78				64.11				65.03				4.91		
2	5.94	0	43.44	2	19.31		44.53	2	15.61		42.11	2	16.55		42.60	2	16.40		41.06
	-16	15.10			-16	15.70			-16	13.12			-16	14.11			-16		11.93
1	11.53		-9	1	11.53		-9	1	11.50		-9	1	11.53		-10	1	11.49		-10
	-21.70				-22.40				-22.50				-22.50				-21.50		
	44	5.74			44	6.23			44	5.59			44	4.99			44	6.33	
+ 26.52 - 12.98 + 19.80 - 27.4 + 21.33 - 22.27 + 16.93 - 16.87 - 8.15 - 37.08																			
20	-2.91			20	-2.98			20	-3.02			20	-3.03			20	-3.15		
1	3.8	1	53.0	1	16.5	1	44.8	1	16.1	2	9.5	1	25.0	2	14	1	54.8	2	31.9
	21.3		10.0		24.7		57.4		25.9		18.3		32.0		13.6		55.9		29.7
	37.1		125.0		41.2		9.62		4.20		27.8		52.0		13.0		13.7		61.6
21	13.55	22	25.0	21	20.60	21	48.10	21	21.00	22	13.90	21	26.00	22	7.50	21	56.85	22	31.30
1.42357	1.11327	1.29664	0.43745	1.32899	1.34742	1.22866	1.22712	0.91116	1.56914	1.50750	1.19700	1.38040	0.52148	1.41272	1.43143	1.31237	1.31085	0.99489	1.65287
+32.16	-15.70	+24.01	-33.2	+28.77	-27.01	+20.53	-20.46	-9.88	-44.96	21	43.71	21	46.80	21	46.61	21	44.78	21	46.87
1	26.4	1.55	1	3.74	3.57	1	1.48	1.46	1	18.2	1.31	1	1.38	2.01					
	20.7			3.66			1.47			1.56			1.69						
37	25	38	14										38	9	38	43			
1.26230	1.26260												1.26250	1.26280					
+108													+4181						
1.26338	1.26368	1.27824	1.27854	1.28214	1.28244	1.27889	1.27419	1.30431	1.30461	-18.34	-18.35	-18.98	-18.99	-19.15	-19.16	-18.79	-18.80	-20.15	-20.17
-14	-31-03	-08	-13	-09	-20-10	-06	-16-06	-1	-47-28	-17	-28	-08	-11	-08	-13	-08	-13	-28	-37
-18.65	-18.66	-19.14	-19.10	-19.32	-19.39	-18.93	-18.99	-20.44	-20.52	43.99	42.89	44.60	44.47	42.16	42.07	44.289	42.32	40.94	41.19
28.7		29.4		29.5		29.5		28.8		15.3	15.99	16.04	16.03	13.37	14.28	53.8	52.9	52.9	52.9
15.3	14.2	15.2	15.1	12.6	12.6	13.1	12.5	12.3	12.4	15.12	15.99	6.30	5.20	15.15	16.04	6.16	6.03	6.03	6.03
-16	15.12	15.99	6.30	-15.15	16.04	6.16	-13.37	14.28	53.8	-14.22	15.13	5.26	-12.65	13.59	5.55	-9.4	4.69	-21.80	5.67
-16	21.70			-21.40		6.09	-21.50		5.23	-22.50			-21.80						
-16	37.69	5.75	38.44	6.09			36.78			37.63		4.97	35.39						



1874 phase prob. 1478

1874		1874		1874		1874	
Pearl	5.6624	Oct. 7	5.329	34	5.85	Corr =	.76
sec	+34.4303	12	5.324		5.86	Corr =	.77
2 3 54	+3.028	17	5.319		5.87		.78
+5° 35'		22	5.314		5.88	range =	+10.1050
+36 48		27	5.308		5.88		.82
range = +60.44	8.98808	Nov. 1	5.302		5.87		.88
		6	5.296		5.86		.80
		11	5.290		5.85		
		16	5.284		5.83		
log p	9.99793						
log	10.460						
log	0.10253						
log	0.09927						

1874		1874		1874		1874	
Oct. 4	Oct. 17	Oct. 10	Oct. 18	Oct. 27	Nov. 18		
22 3 543 3	429 3	477 3	460 3	397 3	40.1 3	308 3	23.0
564	460	530	569	41.8	42.1	33.1	24.8
584	471	545	590	43.7	43.7	34.9	27.0
26	26	3.1	3.1	1.9	37.2	39.0	
47	46	5.1	4.0	4.0	37.4	41.0	
68	67	7.2	6.0	6.0	39.4	43.0	
88 4	196	88 4	222	8.1	15 4	45.7 4	2.8
110	216	233	9.3	10.0	36	47.2	3.1
130	236	245	11.4	14.2	7.7	47.3	7.3
171	170	176	13.3	16.3	9.8	53.4	
190	190	197	15.6	18.4	11.8	53.6	
254.2	253.5	259.7	245.9	353.8	474.4		
180	180	180	180	300			
74.2 3	45.00	73.5 3	49.88	65.9 3	41.73	65.38 3	41.96
4 6.745 4	21.53	4 6.682 4	23.53	4 5.991 4	30.00	3 59.436 4	20.90
6.729	-1336	6.666	-1325	5.975	-1275	59.420	-622
3 53.32	-03	3 53.30	-02	3 53.18	-02	3 53.08	-02
+13.41	-270	+13.37	-07	+13.97	-07	+6.34	-08
-1339	3 50.64	-1339	50.65	-13.96	50.63	-12.79	50.65
-270	+0.328	-268	+0.348	-264	+0.368	-256	+0.368
16.12	16.01	16.01	16.01	16.01	16.01	16.01	16.01
4 6.73 32	56.12	4 6.67	55.77	4 5.97	52.45	3 59.42	52.34
+2 6.87	+2 54.8	+2 54.8	+2 56.8	+2 9.39	+2 9.39	+2 9.39	+2 9.39
3 50.61	-15	3 50.66	-15	3 50.60	-15	3 50.60	-15
3 53.638	-1540	3 53.688	-1550	3 53.628	-1570	3 53.628	-1580
+5 34	4609	34	4425	34	4454	34	4433
45	+21.74	45	+16.85	45	-16.65	45	+19.28
-24.2	-24.3	-24.3	-24.3	-24.3	-24.3	-24.3	-24.3
3 34.1 4	19.0	3 41.7 4	22.1	3 39.3 4	30.4	3 34.4 4	36.9
47.5	32.9	53.7	36.6	52.6	44.9	49.1	50.1
81.6	51.9	95.4	58.7	91.9	75.3	83.5	87.0
348 40.80	49.24	25.95 48.3	47.70	49.4	29.35 48.3	45.95 49.4	37.65 48.3
1.33726	1.16997	1.22660	1.22141	1.28511	1.33365	1.38489	1.38039
1.43977	1.37250	1.2713	1.32397	1.38764	1.43618	1.48742	1.48292
+27.53	-18.73	+21.34	-21.08	+24.47	-27.30	+30.72	-31.11
3.33 49	7.22 49	9.04 49	8.27 49	10.42 49	10.35 49	12.47 49	12.39 49
33 40.02	41.13	33 39.31	40.08	33 37.93	38.00	33 35.88	35.96
40.57	37.70	37.97	37.97	35.92	35.92	34.97	34.97
136 46 34	47 19	1.63360	1.63380				
+12.89	+7.71	-933	+291	-551	-42.47	-42.49	-42.49
1.64649	1.64669	1.64191	1.64151	1.62427	1.62447	1.63651	1.63671
-44.31	-44.33	-43.78	-43.81	-42.10	-42.12	-43.30	-43.32
-02	-13	-01	-13	-02	-14	-02	-03
-11	-13	-11	-13	-11	-14	-11	-12
40.44	40.48	43.90	43.95	42.23	42.28	43.66	43.69
52 55.58	56.66	55.41	56.13	55.70	55.72	52.44	52.47
34 58.4	58.5	58.5	58.6	58.7	58.7	58.8	58.8
12 22	17	31	20	29	30	62	62
+2 6.32 34	45.05	+5.18	37.24 63	+5.65	41.94 29	+9.42	79.03 97
14.5 48	46.13	-14.6	46.43 35	-14.6	46.43 31	-1.47	1.36 46.68
15.40	2.16	1.550	1.550	1.570	1.570	1.570	1.570
+1 49.47	34 45.59	48.22	43.99	48.59	44.30	52.1	44.66



1875				1875				1875			
Oct.	7	3 <sup>m</sup>	56.64	85	17.5		2	52.652	79	53.67	2.2
	12		56.54		17.6	+1	1	+35.959	80	63	1.9
	17		56.54		17.7	"	1	56 + 2.028	80	80	2.9
	22		56.44		17.8		1	56 + 17.568	80	64	0.9
	27		56.43		17.8	+0			81	63	1.7
Nov.	1		56.37		17.7	-1			84	59	1.8
	6		56.31		17.6	"					
	11		56.25		17.5	"			81	53.660	1.90
	16		56.19		17.3	-2					(6)
				Lcorr 9.999793							
				L.C. 12.552							
				L.C. 012345							

1875-12				-35-08				-38-07				-38				-43				-25			
Oct. 14				Oct. 18				Oct. 19				Oct. 20				Oct. 25				Nov. 4			
4	32.5	4	26.1	4	34.8	4	26.9	4	35.4	4	32.9	4	35.8	4	27.4	4	38.5	4	35.3	4	44.3	4	33.8
	34.5		27.5		36.9		28.3		37.3		34.1		37.8		29.3		40.5		37.3		46.3		36.1
	36.6		30.0		39.0		29.9		39.4		35.8		39.9		31.4		42.6		39.0		48.4		38.2
	40.8				43.0				43.4				44.1				46.7				52.6		
	42.8				45.2				45.7				46.2				48.7				54.5		
	44.8				47.2				47.8				48.3				50.9				56.6		
	46.9				49.3	5	22.9		50.0	5	17.3		50.4	5	9.6		53.6	5	6.0		58.4	5	12.2
	49.2				51.4		24.4		52.0		18.9		52.5		11.8		55.8		7.8		60.8		14.6
	53.2				55.5		26.2		56.2		20.8		56.5		13.7		59.1		9.7		64.8		16.8
	55.1				57.6				58.3				58.6				61.2				67.0		
	59.3				59.7				60.3				60.7				63.3				69.1		
	49.37				51.96				46.61				47.08				43.95				38.31		
		4	27.87			4	28.37			4	34.27			4	29.37			4	37.20			4	36.03
4	44.882			4	47.236			4	47.827			4	48.255			4	50.844			4	56.45		
	45.66		-48.11		47.220		-50.38		47.811		-57.11		48.239		-57.70		50.848		-54.84		56.629		-0.28
3	56.57		-0.2	3	56.53		-0.4	3	56.52		-0.4	3	56.51		-0.4	3	56.45		-0.4	3	56.33		-0.3
	+48.30		-12		+50.69		-0.8		+51.29		-0.7		+51.73		-0.4		+54.40		-0.4		+60.30		-0.3
			-292				-288				-287				-286				-280				-268
-	48.25	3	53.70	-	52.67			-	51.10			-	53.72			-	54.84			-	60.83		
-	3			-	4			-	4			-	4			-	5			-	3		
-	2.92			-	2.88			-	2.87			-	2.86			-	2.80			-	2.68		
-	51.20			-	53.57			-	54.01			-	54.60			-	57.22			-	63.04		
4	44.87	51	35.12	4	47.22		35.49	4	47.81		36.19	4	48.24		34.92	4	50.85		35.21	4	56.63		35.71
	-16	14.25			-16	15.07			-16	14.19			-16	15.00			-16	14.45			-16	15.00	
3	53.67			3	53.63			3	53.80			3	53.64			3	53.63			3	53.59		-17
	35		-17.00				-17.10				-17.10				-17.20				-17.20				-17.00
	24		2.27		54.35		1.72		54.35		3.30		54.35		1.02		54.35		1.96		54.35		1.20
		5			5				5				5				5				5		
	+17.01				+18.87	-	37.26		+13.56	-	31.17		+18.88	-	23.35		+13.66	-	16.97		+20.61	-	17.89
35?				25				30				25				30			25				
(30)	-286				-288				-290				-291				-292				-298		
0	0.3			4	56.4	1	11.4	0	2.9	1	2.1	4	58.3	0	53.8	0	4.5	0	43.0	4	57.8	0	47.9
	12.2				12.3		26.0		17.4		16.8		12.4		8.1		20.9		1.0		3.7		53.2
	12.5				12.87		37.4		20.3		18.9		130.7		12.19		23.4		10.60		12.15		10.31
35	6.25			30	4.85	26	18.70	30	10.15	31	7.45	30	5.35	31	2.95	30	12.70	30	53.00	30	0.75	30	57.55
(30)					(31)																		
1.23070				1.27577	1.57124	1.13226	1.49374	1.27600	1.36829	1.13540	1.22968	1.31408	1.25212										
1.35410				1.39932	1.69469	1.25571	1.61719	1.39945	1.49174	1.25890	1.35315	1.43753	1.37557										
	+22.60				+2507		-49.57		+18.02		-41.42		+25.09		-31.02		+18.15		-22.55		+27.39		-23.67
30	28.85			30	28.42	30	27.19	30	28.17	30	28.03	30	30.44	30	29.93	30	30.85	30	30.45	30	28.14	30	27.80
47	19.50			52	18.93		19.16	52	20.18		20.32	52	17.91		18.42	52	17.50		17.90	52	20.21		20.55
					19.04				20.25				18.16				17.70				20.38		
57	18			46	16	47	31													46	13	47	3
				1.63360		1.63380														1.63350		1.63370	
					+390				+910				+114				-659				+1601		
	1.64699			1.63750		1.63770		1.64270		1.64290		1.63474		1.63494		1.62701		1.62721		1.64951		1.64971	
	-44.38				-43.40		-43.43		-43.92		-43.94		-43.13		-43.15		-42.37		-42.39		-44.62		-44.64
	-01	-02			-02	-13	-06		-01	-13	-05		-02	-10	-03		-04		-10	-01		-04	-01
	-01				-01		-18		-03		-17		-01		-14		-03		-13		-00		-05
46	44.38				43.43		43.67		43.86		44.16		43.16		43.32		42.89		42.53		44.64		44.20
35	33.12			51	33.50		33.49		32.22		32.16		34.75		35.10		35.06		35.37		35.57		35.86
	17.6				17.7				17.7				17.8				17.8				17.6		
-16	17.5				17.8		17.8		18.5		18.5		18.9		17.3		18.3				18.1		18.2
-16	17.5				17.8				18.5				18.9		17.1		17.4				18.1		
-16	14.79	38	2.20		14.77	35	190		14.76	16.20	2.92		15.12	16.87	0.68		14.52	16.27	1.59		15.15	16.92	1.65
	17.4		15.91		17.3		16.50		17.4		2.86		1.75		1.03		1.75		1.90		1.77		1.93
	17.0				17.10		1.89		17.10				1.72				1.72				1.70		
-16	32.91				33.60				33.50		2.89		34.07		0.85		33.47		174		33.92		1.79



1874 phase proj. 1478

7 Cephei  
22 6 31  
+57° 35'  
-15° 12'  
long = -266.512

1874 1874

28.018	Oct. 7	6	31.16	34	7.17
+34.4988	12		31.02		7.28
+2.673	17		30.89		73.9
+17.635	22		30.73		74.8
	27		30.60		75.7
	Nov. 1		30.48		76.4
	6		30.29		77.0
	11		30.13		77.5
	16		29.96		77.8

log p 9.52922  
log 10.460  
log 9.83382  
log 9.83056

Corad = .76 31.18 8.1  
Corad = .77 .04 .42  
tanged + 1.58 167.80 .14 8.8  
I = 3.85 .82 .07 8.2  
K = -0.29 .80 .09 7.4  
(6) 4.77

1874

1874	1874	1874	1874	1874	1874
Oct. 4	Oct. 6	Oct. 10	Oct. 18	Oct. 27	Nov. 8
22 6	22 6	44 6	7 6	2 6	6 6
261	261	428	11	18.2	9.9
297	297	523	14.6	21.8	13.7
377	377	378	36.2	29.6	21.5
413	413	417	40.2	33.6	25.3
451	451	456	44.2	37.4	29.0
489	489	484	47.8	41.3	33.0
529	529	523	51.9	45.0	36.9
56	56	56	55.4	48.9	40.7
84	84	84	59.4	52.9	44.4
			63	56.9	48.4
			7.2	60	52.3
317.2	317.2	321.1	36.50	351.2	320.6
180	180	180	120	60	60
497.3	497.3	501.1	485.0	411.3	373.82
45.200	45.200	45.555	44.091	54.83	30.145
451.71	451.71	45.526	44.062	37.53	30.116
31.242	31.242	31.087	30.876	30.6759	30.242
+13.935	+13.935	+14.486	+13.1920	+6.746	-0.180
-13.39	-13.39	-13.96	-12.59	-6.33	-1.20
-47	-47	-45	-36	-52	-23
-2.20	-2.20	-2.05	-1.84	-1.57	-1.28
-16.06	-16.06	-16.46	-14.99	-8.42	-1.10
6 48.17	6 48.17	6 48.5	6 48.6	6 48.35	6 48.35
6 29.11	6 29.11	6 29.07	6 29.07	6 28.93	6 28.93
31.183	31.183	31.143	31.143	31.003	31.093
+57 34 5076	+57 34 5076	+57 34 5076	+57 34 5076	+57 34 5076	+57 34 5076
+34.34	+34.34	+34.45	+36.93	+28.22	+25.14
-25.63	-25.63	-21.38	-10.74	-2.53	-2.68
-4.35	-4.35	-2.43	-2.48	-2.53	-2.68
4 33.5	4 33.5	4 28.9	4 29.0	4 29.4	4 29.4
40.3	40.3	37.2	38.9	42.7	46.0
73.8	73.8	66.1	67.9	75.8	83.1
449.3690	449.3690	498 33.05	494 33.95	494 37.90	494 41.55
1.53580	1.53580	1.33001	1.59028	1.63100	1.45086
1.36562	1.36562	1.16383	1.42410	0.86482	1.28438
+33.42	+33.42	+23.50	+26.55	-7.32	+19.25
0.32 49 58.67	0.32 49 58.67	49 56.55	50 53.42	50 50.50	49 57.15
32 48.03	32 48.03	32 51.80	32 47.85	32 51.20	32 49.78
48.85	48.85	52.36	47.93		
15 12 30	15 12 30	12 33	11 59	12 29	12 29
1.19470	1.19470	1.19470	1.19440	1.19460	1.19460
+129.7	+129.7	+29.3	+29.3	+54.4	+74.1
1.20767	1.20767	1.18501	1.19763	1.19733	1.18916
+16.13	+16.13	+15.33	+15.76	+15.75	+15.46
-29 -15	-29 -15	-28 -26	-36 -26	-19 -33	-16 -30
-14 -01	-14 -01	-14 -01	-14 -01	-14 -01	-14 -01
+15.71	+15.71	+14.71	+15.26	+15.73	+15.62
33 37.4	33 37.4	63.71	31.1	63.3	54.0
35 11.1	35 11.1	12.4	14.1	15.7	17.3
+2 63.2	+2 63.2	+5.65	+9.40	+9.42	+11.08
+62 -3.56	+62 -3.56	+63 -4.86	+64 -6.86	+65 -8.16	+69 -9.76
21.20	21.20	-22.50	-24.20	-25.80	-27.40
45.74	45.74	42.78	45.84	44.27	44.37
34 50.43	34 50.43	51.15	49.29	50.60	49.77
35 8.16	35 8.16	8.78	8.78	8.78	8.78



1875

Oct. 7	6	3337		35	307
12		3334	-13		319
17		3311	13		330
22		3297	14		340
27		3283	14		348
Nov. 1		3268	15		355
6		3252	16		361
11		3236	16		366
16		3219	17		370

1875

2	31091	80
3	+35.752	80
4	+2.073	80
5	+17.636	84
6		85
7		85
8		85
9		82
10		31.132
11		8.82
12		(6)
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		
31		

1875

31.04	9.2
26	8.1
16	9.0
09	8.8
08	9.4
16	8.2
31.132	8.82
(6)	

X 1875

Oct. 18

-480

14.6

53

9.2

16.6

20.5

24.3

28.3

32.2

36.1

40.0

43.9

47.8

51.7

55.6

59.5

63.4

67.3

71.2

75.1

79.0

82.9

86.8

90.7

94.6

98.5

102.4

106.3

110.2

114.1

118.0

121.9

125.8

129.7

133.6

137.5

141.4

145.3

149.2

153.1

157.0

160.9

164.8

168.7

172.6

176.5

180.4

184.3

188.2

192.1

f 1875

Oct. 19

-453

14.6

53

9.2

16.6

20.5

24.3

28.3

32.2

36.1

40.0

43.9

47.8

51.7

55.6

59.5

63.4

67.3

71.2

75.1

79.0

82.9

86.8

90.7

94.6

98.5

102.4

106.3

110.2

114.1

118.0

121.9

125.8

129.7

133.6

137.5

141.4

145.3

149.2

153.1

157.0

160.9

164.8

168.7

172.6

176.5

180.4

184.3

188.2

192.1

f 1875

Oct. 20

-387

14.6

53

9.2

16.6

20.5

24.3

28.3

32.2

36.1

40.0

43.9

47.8

51.7

55.6

59.5

63.4

67.3

71.2

75.1

79.0

82.9

86.8

90.7

94.6

98.5

102.4

106.3

110.2

114.1

118.0

121.9

125.8

129.7

133.6

137.5

141.4

145.3

149.2

153.1

157.0

160.9

164.8

168.7

172.6

176.5

180.4

184.3

188.2

192.1

f 1875

Nov. 4

-260

14.6

53

9.2

16.6

20.5

24.3

28.3

32.2

36.1

40.0

43.9

47.8

51.7

55.6

59.5

63.4

67.3

71.2

75.1

79.0

82.9

86.8

90.7

94.6

98.5

102.4

106.3

110.2

114.1

118.0

121.9

125.8

129.7

133.6

137.5

141.4

145.3

149.2

153.1

157.0

160.9

164.8

168.7

172.6

176.5

180.4

184.3

188.2

192.1

f 1875

Nov. 7

-250

14.6

53

9.2

16.6

20.5

24.3

28.3

32.2

36.1

40.0

43.9

47.8

51.7

55.6

59.5

63.4

67.3

71.2

75.1

79.0

82.9

86.8

90.7

94.6

98.5

102.4

106.3

110.2

114.1

118.0

121.9

125.8

129.7

133.6

137.5

141.4

145.3

149.2

153.1

157.0

160.9

164.8

168.7

172.6

176.5

180.4

184.3

188.2

192.1

f 1875

Nov. 8

-243

14.6

53

9.2

16.6

20.5

24.3

28.3

32.2

36.1

40.0

43.9

47.8

51.7

55.6

59.5

63.4

67.3

71.2

75.1

79.0

82.9

86.8

90.7

94.6

98.5

102.4

106.3

110.2

114.1

118.0

121.9

125.8

129.7

133.6

137.5

141.4

145.3

149.2

153.1

157.0

160.9

164.8

168.7

172.6

176.5

180.4

184.3

188.2

192.1



[illegible]







1875-

Oct.	7	10	14	24	2	14.207	.77	14.25	17.7	.79	14.25	19.0
	12		15.41	4.5	0-24	18.40	.78	.18	18.6	.80	.22	19.5
	14		15.36	4.7	St + 3.153		.80	.17	17.9	.80	.38	18.6
	22		17.31	4.9	20 + 17.776		.82	.25	19.2	.80	.27	19.7
	27		17.26	5.1	de		.86	.16	17.0	.84	.18	18.6
Nov.	1		17.21	5.3			.88	.18	18.7	.85	.22	19.1
	6		17.15	5.6			.82	14.198	18.18	.81	14.253	19.08
	11		17.19	5.9								
	16		17.03	6.2								
					l cos	9.99532						
					l b	.12552						
					l b	0.12084						

[illegible]



1874phae.proj.1478.







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