KG
11366
v.556

Polaris.

Observations and Reductions.

B_2

From Aug. 24. 1879 to Jan. 1. 1880

15 cos [illegible]

15 cos [illegible]

1 + [illegible]

~~15 [illegible]~~ [illegible]

15 cos [illegible]

15 cos [illegible]

1 + [illegible]

15 [illegible] $= \Delta i$

1 + [illegible]

15 cos [illegible] = [illegible]

15 cos [illegible] 15 cos [illegible] = [illegible]

[illegible] + [illegible] = [illegible]

[illegible]

[illegible]

G/2

1879 Aug 24 | U C. δ m | τ' ρ | τ − δ

0.15854	0.11559	6.73660
8.36723	~~8.36723~~	8.36723
8.52577	8.48282	5.10383

log cos δ = 8.36723
Sin δ = 9.99988
log sin 1s = 4.68557
log. 112.5 = 2.05115
5.10383

2 39.1
47.6
52.7
4 4.8
17.0
23.9
5 39.3
46.7
54.7
7 12.0
17.4
22.5
8 40.0
45.3
49.7
26 24.8
31.8
35.3
27 48.0
56.0
2.0
29 17.2
22.2
29.4
30 40.7
51.8
57.9
32 18.4
22.0
24.4

12 39.94
12 39.94
15 8.20
15 8.20
17 37.58 ×
~~17 37.79~~
20. 3.12
20 3.12
22 32.44
22 32.44
17 36.256

h m s	U C. m s
1 11 37.0	
42.5	11 42.8
48.8	− ~~+5 56.3~~
11 59.7	
9.2	12 8.4
16.2	− ~~5 26.2~~
12 34.8	
42.6	12 41.2
46.3	− ~~4 55.0~~
13 2.5	
8.7	13 9.9
18.5	− ~~4 26.3~~
13 32.4	
36.9	13 37.4
43.0	− ~~3 57.3~~
14 4.5	
9.6	14 9.4
14.0	− ~~3 27.1~~
14 31.0	7
36.5	14 36.7
42.7	− ~~2 58.7~~
14 58.0	
6.3	15 6.8
16.0	− ~~2 28.3~~
15 31.9	~~38.7~~
39.7	15 39.1
45.6	− ~~1 58.7~~
16 5.0	
9.8	16 9.0
12.8	− ~~1 28.7~~
16 33.2	
38.0	16 37.6
41.6	− ~~0 59.1~~
17 3.0	
7.3	17 7.4
12.0	− ~~0 29.3~~
17 29.8	
37.1	17 36.6
42.9	−
17 59.6	
9.3	18 7.9
14.8	−
18 36.0	38.4 ~~39.1~~
39.3	18 ~~[illegible]~~
42.6	−
19 1.0	
6.2	19 5.5
9.3	−
19 24.5	
32.9	19 31.3
36.5	−
19 53.9	
2.9	20 2.1
9.5	−
20 25.8	
34.7	20 34.6
43.4	−
20 54.8	
4.0	21 2.1
7.5	−
21 27.1	
31.3	21 31.3
36.4	−
21 57.4	
1.9	22 2.9
9.4	−
22 31.0	
34.6	22 34.2
37.0	−
22 55.0	
3.0	23 1.8
7.5	−
23 25.7	
33.4	23 32.0
36.8	− 17 36.256

τ' ρ	τ − δ				′	″				
59 50.7	+17 45.5 1065.5	3.02755 1.55332	6.05510 1.15893	M	49	4510 3575	50 20.85	+14.43	~~31.90~~	35.28
1 40.2	15 56.0 956.0	2.98046 1.50623	5.96092 1.06475	M	49	5217 3208	50 24.25	+11.62	~~32.85~~	35.87
2 18.3	15 17.9 917.9	2.96280 1.48857	5.92560 1.02943	M	49	5402 3080	24.82	+10.70	~~32.62~~	35.52
3 13.0	14 23.2 863.2	2.93611 1.46188	5.87222 0.97605	M	49	5620 2896	25.16	+9.46	~~31.90~~	34.52
4 35.9	13 0.3 780.3	2.89226 1.41803	5.78452 0.88835	M	50	162 2619	27.81	+7.73	~~32.07~~	35.54
5 55.5	11 40.7 690.7	2.83929 1.36506	5.67858 0.78241	M	50	685 2318	30.03	+6.06	~~33.91~~	36.09
7 44.5	9 51.7 591.7	2.77210 1.29787	5.54420 0.64803	M	50	1217 1986	32.03	+4.45	~~34.60~~	36.48
9 12.9	8 23.3 503.3	2.70183 1.22760	5.40366 0.50749	M	50	1484 1689	31.76	+3.21	~~33.38~~	34.97
10 0.2	7 36.0 456.0	2.65896 1.18473	5.31792 0.42175	M	50	1827 1531	33.58	+2.64	~~34.77~~	36.22
10 53.2	+6 43.0 403.0	2.60530 1.13107	5.21060 0.31443	M	50	2080 1352	34.32	+2.06	~~35.11~~	36.38
23 53.7	−6 17.5 377.5	2.57692 1.10269n	5.15384 0.25767	M	50	4587 −1267	33.20	+1.81	~~36.21~~	34.01
24 41.5	−7 5.3 425.3	2.62870 1.15447n	5.25740 0.36123	M	50	4592 −1427	31.65	+2.29	~~35.28~~	33.94
25 27.2	−7 51.0 471.0	2.67302 1.19879n	5.34604 0.44987	M	50	4715 −1581	31.34	+2.82	~~35.65~~	34.16
26 16.8	−8 40.6 520.6	2.71650 1.24227n	5.43300 0.53383	M	50	4900 −1747	31.53	+3.42	~~36.60~~	34.95
27 11.5	−9 35.3 575.3	2.75989 1.28566n	5.51978 0.62361	M	50	4992 −1930	30.62	+4.20	~~36.63~~	34.82
28 14.5	−10 38.3 638.3	2.80502 1.33079n	5.61004 0.71387	M	50	5000 −2142	28.58	+5.17	~~35.77~~	33.75
29 30.9	−11 54.7 714.7	2.85412 1.37989n	5.70824 0.81207 1 15 10.29	M	50	5192 −2398	27.94	+6.49 88	~~36.69~~ 39 55.45	34.43
30 30.5	−12 54.3 774.3	2.88891 1.41468n	5.77782 0.88165	M	50	5250 −2598	26.52	+7.61	~~36.57~~	34.13
31 21.5	−13 45.3 825.3	2.91661 1.44238n	5.83322 0.93705	M	50	5312 −2769	25.43	+8.65	~~36.68~~	34.08
32 36.5	−15 0.3 900.3	2.95439 1.48016n	5.90878 1.01261	M	50	5515 −3021	24.94	+10.30	~~38.08~~	35.24

a + 1				a − 1			
2 46.5	+14 49.7	+14 46.1	+17 36.6	26 30.6	−8 54.4	−8 51.5	17 39.1
4 15.2	13 21.0	13 17.0	17 32.2	27 55.3	10 19.1	10 20.0	35.3
5 46.9	11 49.3	11 49.1	17 36.0	29 23.0	11 46.8	11 48.8	36.2
7 17.3	10 18.9	10 20.4	17 36.2	30 50.1	13 13.9	13 17.4	32.7
8 45.0	8 51.2	8 51.4	17 36.4	32 21.6	14 45.4	14 46.6	35.0

17.74
17 35.48
17 35.65
71.13
17 35.56

17.83
17 35.65

8

									8.36687m					2
				oc m			0.15854m	6.73660	9.99988					
						Tm − Ts	8.36687	8.36687m	4.68557					
1879 Sept. 5 S.C.							8.52541m	5.10347m	2.05115					
	h	m	s	m s					~~10383~~					
	13	9	57.6						5.10347m					
			2.7	10 1.6									10 1.6	15 57.0
			9.6	− 5 ~~57.7~~ 57.5			55.1	15 57.0					+5 55.4	
		10	26.4	+5 55.4										
			31.6	10 31.8									10 31.8	57.6
			37.4	− 5 25.9			57.7	57.6					5 25.8	
		10	55.7	5 25.8										
			3.3	11 2.3									11 2.3	58.3
			8.0	− 4 56.4			58.7	58.3					4 56.0	
		11	25.6	4 56.0										
			30.1	11 30.9									11 30.9	57.4
			37.1	− 4 26.1			57.0	57.4					4 26.5	
		11	52.7	4 26.5										
			1.2	12 0.0						′	″		12 0.0	56.9
			6.0	− 3 56.7	0 58.7	+14 58.4	56.7	56.9	M	11	2110	10 50.98	3 56.9	—
10 40.74		12	22.4	3 56.9		898.4		5.90694	2.95347		−3012	−10.24		
4098			30.5	12 29.5	2 3.0	13 54.1			1.47888 M	11	1778	49.81	12 29.5	56.6
~~41.01~~			35.6	− 3 27.6		834.1	57.1	56.6	2.92122		−2797	− 883	3 27.1	
.76		12	53.8	3 27.1	2 34.5	13 22.6		5.84244	1.44663 M	11	1585	48.94		
40.80			0.8	13 0.1		802.6		5.80900	2.90450		−2691	− 818	13 0.1	57.4
			5.6	− 2 57.7	3 29.2	12 27.9	57.8	57.4	1.42991 M	11	1300	47.93	2 57.3	
40.83		13	22.4	2 57.3		747.9		5.74768	2.87384		−2507	− 7.10		
			28.0	13 28.3	4 14.7	11 42.4		5.69316	1.39925 M	11	1040	46.84	13 28.3	56.3
40.58			34.6	− 2 27.3		702.4	55.6	56.3	2.84658		−2356	− 6.26	2 28.0	
		13	54.0	2 28.0	5 5.4	10 51.7			1.37199 M	11	715	45.30		
39.91			58.4	13 59.6		651.7		57.9	2.81405		−2185	− 539	13 59.6	57.9
			6.3	− 1 57.0	5 50.6	10 6.5	56.6	5.62810	1.33996 M	11	535	45.02	1 58.3	
40.35		14	22.7	1 58.3		606.5		5.56566	2.78283		−2033	− 467		
			28.3	14 28.2	6 55.7	9 1.4			1.30824 M	11	205	43.90	14 28.2	56.8
40.18			33.6	− 1 27.6		541.4	55.6	56.8	2.73352		−1815	− 3.72	1 28.6	—
		14	50.0	1 28.6	7 49.3	8 7.8		− 5.46704	1.25893 M	11	027	43.91		
40.90			57.2	14 ~~54.1~~ 57.1		487.8		5.37648	2.68824		−1636	− 3.01	14 57.1	56.1
			4.0	− 0 59.2	8 26.0	7 31.1	56.3	56.1	1.21365 M	10	5778	42.65	0 59.0	
40.07		15	22.3	− 0 59.0		451.1		5.30854	2.65427		−1513	− 2.58		
39.88			26.0	15 27.2	9 13.0	6 44.1		5.21298	1.17968 M	10	5530	41.95	15 27.2	57.6
~~39.90~~			33.4	− 0 30.1		404.1	57.3	56.6	2.60649		−1355	− 2.07	0 29.4	
		15	51.1	− 0 29.4	26 12.5	−10 15.4			1.13190 M	10	−2172	42.35		
37.54			57.7	15 56.9		−615.4		5.57832	2.78916m		+2063	− 4.81	15 56.9	57.9
			2.0	− + 0.4	27 0.6	11 3.5	57.3	56.9	1.31457 M	10	2175	43.99	0 0.0	
38.40		16	22.4	− 0 0.0		−663.5		5.64368	2.82184m		+2224	− 5.59		
			26.6	16 27.3	27 43.3	11 46.2			1.34725 M	10	1960	43.28	16 27.3	57.8
36.95			32.9	− 0 29.8		−706.2	57.5	57.8 5.69786	2.84893		+2368	− 6.33 −	0 29.5	
		16	48.8	− 0 29.5	28 47.0	12 49.9			1.37434 M	10	1870	44.51		
36.99			56.6	16 56.1		−769.9		5.77286	2.88643		+2581	− 7.52	16 56.1	57.0
			2.9	− 0 58.3	29 28.9	13 31.8	57.8	57.0	1.41184 M	10	1770	44.91 −	0 59.1	—
36.55		17	21.3	− 0 59.1		−811.8		5.81890	2.90945m		+2721	− 8.36		
			25.7	17 26.2	30 24.0	14 26.9			1.43486 M	10	1750	46.54	17 26.2	57.4
37.01			31.7	− 1 29.2		−866.9	57.0	57.4 5.87594	2.93797m		+2904	− 9.53 −	1 28.8	
1 15 18.30		17	50.2	− 1 28.8	33 16.2	17 18.1			1.46338 M	10	1510	49.90	88 39	59.29
36.~~18~~			56.6	17 56.1		−1038.1		6.03240	3.01620m		+3480	−13.67	17 56.1	58.0
.23			1.5	− 1 58.3	34 5.0	18 7.9	57.8	58.0	1.54161 M	10	1512	51.60 −	1 58.1	
36.5~~8~~		18	20.0	− 1 58.1		−1087.9		6.07318	3.03659m		+3648	−15.02		
.22			26.5	18 26.0	35 0.0	19 2.9			1.56200 M	10	1647	54.80	18 26.0	58.1
38.~~16~~			31.5	− 1 27.3		−1142.9	58.7	58.1	3.05801m		~~3827~~	−16.58 −	2 27.9	
		18	49.3	− 2 27.9				6.11602	1.58342m		+3833			
			55.0	18 55.1									18 55.1	57.1
			0.9	− 1 57.7			57.4	57.6		15	57.44		2 57.5	
				2 57.5					10878		57.00			
						19)	~~10930~~	10850	57.25		57.08			
							57.53	15 57.10			57.77			10887
											22929			15 57.30
											57.32			

1879 Sept. 6. L.C.

	h m	s	m s
	13 9	54.3	
		5.6	10 4.1
		12.4	–
	10	23.2	
		32.5	10 31.0
		37.3	–
	10	50.9	
11 1.32 11 1.32		2.3	11 0.2
		7.5	–
	11	25.0	
		34.0	11 33.0
		40.1	–
	11	49.0	
		56.3	11 58.3
		9.6	–
	12	24.0	
		31.0	12 30.0
		35.0	–
	12	53.6	
		2.0	13 1.1
		7.6	–
	13	23.2	
13 38.80 13 32.80		38.0	13 34.6
		42.7	–
	13	57.9	
		2.7	14 3.3
		9.4	–
	14	18.4	
		—	14 35.0
		—	–
	14	52.1	
		1.9	15 0.3
		6.8	–
	15	22.0	
		29.0	15 28.7
		35.0	–
	15	50.9	
15 58.14 15 58.14		0.0	15 58.6
		4.8	–
	16	21.7	
		26.2	16 26.9
		32.8	–
	16	49.0	
		56.8	16 56.2
		2.9	–
	17	17.4	
		24.4	17 25.9
		35.9	–
	17	48.3	
		54.3	17 54.8
		1.8	–
	18	18.4	
18 25.44 18 25.44		24.7	18 24.3
		29.9	–
	18	50.7	
		56.7	18 56.6
		2.5	–
	19	18.0	
		25.8	19 26.6
		33.0	–
	19	48.5	
		53.3	19 55.6
		1.9	–
	20	9.6	19.75
		22.6	20 ~~7~~
		27.0	–
	20	42.5	
20 52.70 ~~20 52.44~~		50.3	20 50.1
		57.6	–
	21	18.0	
		25.0	21 24.7
		31.0	–
	21	45.0	
		54.3	21 53.4
		0.8	–
58.08 15 59.28 28.0			15 58.08

$\pi'\delta$	$\pi_n-\delta$	0.15854$_n$ 8.36687$_n$ 8.52541$_n$	~~0.11559~~ ~~8.36687~~ ~~8.48246~~		′	″ 0.73660 8.36687$_n$ 5.10347$_n$			
54 37.7	+21 20.4			M	11	46.85	12 29.78	11 3.92	10 43.12
	1280.4	3.10735	6.21470$_n$			−42.93		−20.80	
56 15.0	19 43.1	1.63276	1.31817	M	11	40.12	19.79	0.45	42.69
	1183.1	3.07302	6.14604$_n$			−39.67		−17.76	
57 32.2	18 25.9	1.59843	1.24951$_n$	M	11	34.87	11.95	10 57.79	42.27
	1105.9	3.04372	6.08744$_n$			−37.08		−15.52	
58 43.5	17 14.6	1.56913	1.19091	M	11	31.50	6.19	56.81	43.23
	1034.6	3.01477	6.02954$_n$			−34.69		−13.58	
59 56.0	16 2.1	1.54018	1.13301	M	11	26.62	11 58.88	54.36	42.61
	× 962.1	2.98322	5.96644$_n$			−32.26		−11.75	
0 45.9	15 12.2	1.50863	1.06991	M	11	22.90	53.48	52.32	41.76
	912.2	2.96009	5.92018$_n$			−30.58		−10.56	
1 41.4	14 16.7	1.48550	1.02365	M	11	19.95	48.67	51.23	41.92
	× 856.7	2.93283	5.86566$_n$			−28.72		−9.31	
2 48.3	13 9.8	1.45824	0.96913	M	11	17.32	43.70	50.84	42.92
	789.8	2.89752	5.79504$_n$			−26.48		−7.92	
3 45.4	12 12.7	1.42293	0.89851	M	11	14.60	39.17	50.03	43.22
	732.7	2.86493	5.72986$_n$			−24.57		−6.81	
4 46.4	11 11.7	1.39034	0.83333	M	11	11.37	33.89	48.85	43.12
	671.7	2.82718	5.65436$_n$			−22.52		−5.73	
5 43.4	10 14.7	1.35259	0.75783	M	10	66.5	10 27.26	46.04	41.25
	614.7	2.78866	5.57732$_n$			−20.61		−4.79	
6 33.2	9 24.9	1.31407	0.68079	M	10	49.0	23.84	45.96	41.91
	564.9	2.75197	5.50394$_n$			−18.94		−4.05	
7 35.4	8 22.7	1.27738	0.60741	M	10	07.0	17.55	43.85	40.64
	502.7	2.70131	5.40262$_n$			−16.85		−3.21	
8 26.2	× 7 31.9	1.22672	0.50609	M	10	02.0	15.35	45.05	42.46
	451.9	2.65504	5.31008$_n$			−15.15		−2.59	
22 46.2	−6 48.1	1.18045	0.41355	M	10	27.75	12.23	41.27	39.16
	408.1	2.61077	5.22154$_n$			+13.52		−2.11	
24 7.9	−8 9.8	1.13612$_n$	0.32501	M	10	25.02	8.60	41.44	38.40
	× 489.8	2.69002$_n$	5.38004$_n$			+16.42		−3.04	
25 19.4	−9 21.3	1.21543$_n$	0.48351	M	10	24.02	5.20	42.84	38.84
	561.3	2.74919$_n$	5.49838$_n$			+18.82		−4.00	
27 6.9	−11 8.8	1.27460$_n$	0.60185 1 15 1000	M	10	23.34	0.95	45.79 88	39 59.61
	668.8	2.82530$_n$	5.65060$_n$			+22.42		−5.68	40.11
28 24.9	−12 26.8	1.35071$_n$	0.75407	M	10	22.12	9 57.08	47.16	
	746.8	2.87320$_n$	5.74640$_n$			+25.04		−7.08	40.08
29 44.2	−13 46.1	1.39861$_n$	0.84987	M	10	19.12	51.42	46.82	
	826.1	2.91703$_n$	5.83406$_n$			+27.70		−8.66	38.16
		1.44244$_n$	0.93753						

1879 Sept 6. U.C

0.15854 6.73660
8.36687 836687
8.52541 5.10347

Identical

h m s – m s
1 12 16.9
20.5 12 20.8
25.0 ~~+5 56.3~~ 4.8 15.6 16.6
– +5 55.8
–
–
13 16.2
22.9 13 22.9
29.7 – 455.0 17.9 18.9
– 456.0
–
–
–
–

' "

	–		56	0.5	+22 17.5			M	49	32.42 +44.85	50 17.27 +22.71	39.98
	14 45.4											
	51.3	14 50.7	58	20.8	19 57.2			M	49	39.82 +40.15	19.97 +18.20	38.17
	55.5	– 3 27.1				17.8	17.8					
3 21.0	15 16.6	3 27.1	59	11.3	19 6.7			M	49	43.50 +38.45	23.95 +16.69	40.64
27.3	24.0	15 22.2										
32.0	26.0	– 2 58.7	0	13.6	18 4.4	20.9	19.7	M	49	47.52 +36.36	23.88 +14.93	38.81
		2 57.5										
			1	8.7	17 9.3	4) 72.2 18 18.05	730 18.25	M	49	51.70 +34.52	26.22 +13.45	39.67
			2	7.2	16 10.8			M	49	55.22 +32.56	27.78 +11.97	39.75
			3	11.0	15 7.0			M	49	58.50 +30.42	28.92 +10.44	39.36

22 17.7		
1337.7	3.12636	6.25272
19 57.4	1.65177	1.35619
1197.4	3.07824	6.15648
19 6.9	1.60365	1.25995
1146.9	3.05952	6.11904
18 4.6	1.58493	1.22251
1084.6	3.03525	6.07050
17 9.5	1.56066	1.17397
1029.5	3.01263	6.02526
16 11.0	1.53804	1.12873
971.0	2.98722	5.97444
15 7.2	1.51263	1.07791
907.2	2.95770	5.91540
	1.48311	1.01887

1 15 18.66

88 39. 59.45

- 1879 Sept. 8 L.C.

0.15854 6.73660
8.36678n 8.36678n
8.52532n 5.10338n

Identical

from 6 to 16

-6 143
-3743
-7413
-4613
-8 253
-5053
-9 191
-5591
-11 37
-6637
-11 468
-7068
-12 314
-7574
-13 598
-8398
-14 580
-8980
-15 444
-9444
-16 299
-9899
-17 165
-10365
-18 167
-10967
-19 33
-11433
-19 465
-11865
-20 358
-12358
-21 181
-12781

h	m s	m s
13	13 56.8	
	2.6	14 3.0
	9.7	-1 57.0
	14 27.0	+1 58.3
	32.5	14 32.4
	37.6	-1 27.4
	14 58.2	·1 28.6
	4.2	15 3.8
	8.9	0 59.2
	15 25.4	+0 59.0
		31.3 ~~4~~
	31.6	15 ~~31.2~~
	36.9	-0 30.1
	15 54.4	+0 29.4
	1.0	16 0.7
	6.4	- +0.4
	16 24.4	-0 0.0
	29.3	16 30.0
	36.2	-0 29.8
	16 52.9	-0 29.5
	57.9	16 58.1
	3.6	-0 58.3
	17 23.5	-0 59.1
	28.8	17 28.8
	34.1	-1 29.2
	17 54.1	-1 28.8
	58.3	17 59.1
	5.0	-1 58.8
	18 20.7	-1 58.1
	27.2	18 27.2
	33.8	-2 27.3
	18 52.7	-2 27.9
	56.8	18 57.7
	3.6	-2 57.7
	19 20.6	-2 57.5
	28.5	19 27.4
	33.1	-3 27.6
	19 50.8	-3 27.1
	54.8	19 55.6
	1.3	-3 57.0
	20 17.0	-3 56.6
	24.9	20 25.3
	33.9	-4 26.6
	20 49.4	-4 26.2
	53.9	20 55.1
	2.0	-4 54.4
	21 18.6	-4 56.0
	25.6	21 25.5
	32.4	-5 25.1
	21 50.9	-5 25.6
	56.1	21 55.9
	0.8	-5 54.3
		-5 55.8

✓

22 14.5	+53 45.87			
	3225.7			
23 41.5	52 18.87			
	3138.7			
24 25.5	51 34.87			
	3094.7			
25 19.3	50 41.09			
	3040.9			
27 8.9	48 56.43			
	2936.3	0.0	1.3	
27 47.0	48 13.32			
	2893.2			
28 31.6	47 28.76	59.8	1.0	
	2848.6			
30 0.0	46 0.32			
	2760.2	3.0	2.8	
30 58.2	45 2.10			
	2702.0			
31 44.6	44 15.76	1.4	0.7	
	2655.6			
32 30.1	43 30.21			
	2610.1	1.1	0.7	
33 16.7	42 43.65			
	2563.5			
34 16.9	41 43.43	0.2	0.5	
	2503.3			
35 3.5	40 56.87			
	2456.7	59.8	59.0	
35 46.7	40 13.65			
	2413.5			
36 36.0	39 24.32	59.6	0.0	
	2364.2			
37 18.3	38 42.09			
	2321.9	0.8	1.0	
			1 15 20.25	
		59.9	59.3	
		0.0	0.2	
		59.8	0.3	
		58.6	59.0	
		58.7	59.1	
		0.7	59.1	—
		0.4	59.9	
		1.6	0.1	
		17) 10254	40	
		16 0.32	0.24	
			10240 0.24	

		′	″					
	M	10	2875	8	40.62	6	28.61	
3.50862		-1	48.13	-2	12.01			7.01724
2.03394n	M	10	2545		40 20		35 20	2.12062n
3.49675		-1	45.25	-2	5.00			6.99350
2.02207n	M	10	2427		40.53		36.19	2.09688n
3.49062		-1	43.74	-2	4.34			6.98124
2.01594n	M	10	2350		41.57		44.25	2.08462n
3.48300		-1	41.93	-1	57.32			6.96600
2.00832n	M	10	2140		42.96			2.06938n
3.46780		-1	38.44					6.93560
1.99312n	M	10	2155		44.57			2.03898n
3.46138		-1	36.98					6.92276
1.98670n	M	10	2042		44.93			2.02614n
3.45463		-1	35.49					6.90926
1.97995n	M	10	1867		46.14			2.01264n
3.44094		-1	32.53					6.88188
1.96626n	M	10	1755		46.97			1.98526n
3.43169		-1	30.58					6.86338
1.95701n	M	10	1795		48.93	7	19.46	1.96676n
3.42416		-1	29.02	-1	24.47			6.84832
1.94948n	M	10	1782		50.33			1.95170n
3.41666		-1	27.49					6.83332
1.94198n	M	10	1660		50.67			1.93670n
3.40883		-1	25.93					6.81766
1.93415n	M	10	1532		51.41			1.92104n
3.39851		-1	23.91					6.79702
1.92383n	M	10	1535		53.00	7	36.42	1.90040n
3.39036		-1	22.35	-1	18.58			6.78072
1.91568n	M	10	1540		54.50		40.59	1.88410n
3.38265		-1	20.90	-1	13.91			6.76530
1.90797n	M	10	1407		54.82		43 90	1.86868n
3.37369		-1	19.25	-1	10.92			6.74738
1.89901n	M	10	1510		57.27		48.87	1.85076n
3.36584		-1	17.83	-1	8.40			40 6.73168
			1.30				88	~~39~~ 0.31
1.89116n			59.96					1.83506n
			59.54					
			0.00					
			24080					
			0.20					

- 1879 Sept. 8   M.C

0.15.854
8.36678
8.52532

6.73660
8.36678
5.10338

Identical

-6 116
-3716
-7 165
-4365
-8 60
-4860
-9 09
-540.9
-9 59.7
-599.7
-10 58.1
-653.1
-11 447
7047
-12 323
-7523
-13 324
-8124
-14 263
-8663
-15 320
-9320
-16 413
-10013
-17 491
-10691
-18 486
-11286
-19 433
-11833
-20 386
-12386
-21 275
-12875
-22 201
13401
-23 143
-13943
-2446
-14446

h	m	s	m s
1	15	46.3	
		51.3	15 51.6
		57.2	- 2 28.3
	16	16.7	2 27.9
		26.5	16 24.3
		29.8	- 1 58.7
	16	43.3	1 58.1
		56.1	16 52.8
		59.1	- 1 28.7
	17	16.1	1 28.8
		23.7	17 23.1
		29.6	- 0 59.1
	17	44.9	+ 0 59.1
		53.4	17 52.3
		58.5	- 0 29.3
	18	16.2	+ 0 29.5
		24.0	18 22.9
		26.6	- 0.3
	18	45.0	- 0 0.0
		52.3	18 51.3
		56.4	- 0 28.8
	19	13.3	- 0 29.4
		20.2	19 20.1
		26.9	- 1 0.4
	19	44.6	- 0 59.0
		52.0	19 51.3
		57.4	- 1′ 28.6
	20	12.5	= 1 28.6
		18.2	20 18.7
		25.3	- 1′ 58.1
	20	44.0	- 1 58.3
		49.4	20 49.9
		56.3	- 2 28.4
	21	11.7	- 2 28.0
		19.0	21 18.5
		24.7	- 2 57.8
	21	42.5	- 2 57.3
		48.3	21 48.1
		53.4	- 3 26.0
	22	9.3	- 3 27.1
		13.5	22 13.5
		17.7	- 3 56.5
	22	43.0	- 3 56.~~5~~9
		52.7	22 49.6
		55.0	- 4 25.8
	23	12.6	- 4 26.5
		20.6	23 19.3
		24.6	- 4 56.4
	23	42.0	- 4 56.0
		46.3	23 46.6
		51.5	- 5 25.1
	24	11.3	- 5 25.8
		17.7	24 17.2
		22.5	- 5 54.5
			- 5 55.4

×

24	33.3	+53 48.~~5~~4	3228.4
25	38.2	52 43.~~6~~5	3163.5
26	27.7	51 54.~~1~~0	3114.0
27	22.6	50 59.~~2~~1	3059.1
28	21.4	50 0.~~4~~3	3000.3
29	14.8	49 ~~7.0~~ 6.9	2946.9
30	6.4	48 15.~~4~~3	2895.3
30	54.0	47 27.~~8~~7	2847.7
31	54.1	46 27.~~7~~6	2787.6
32	48.0	45 33.~~8~~7	2733.7
33	53.7	44 28.~~1~~0	2668.0
35	2.0	43 18.~~8~~7	2598.7
36	10.8	42 1~~1.0~~ 8.9	2530.9
37	10.3	41 11.~~5~~4	2471.4
38	5.0	40 16.~~8~~7	2416.7
39	0.3	39 21.~~5~~4	2361.4
39	49.2	38 32.~~6~~5	2312.5
40	41.8	37 ~~40.0~~ 39.9	2259.9
41	36.0	36 45.~~8~~7	2205.7
42	26.8	35 55.~~5~~4	2155.4

× 19.9	19.5
23.0	22.4
21.5	21.6
22.2	22.2
21.6	21.8
22.6	22.9
22.5	21.9 ~~28.6~~
× 19.7	21.1
22.7	22.7
20.6	20.4
21.5	21.9
20.7	21.2
22.1	21.0
(17.0)	(16.6)
23.8	23.1
22.9	23.3
21.5	20.8
22.7	21.8

		′	″					
3.50899	M	50	46.07	52	58.30	54	46.52	7.01798
2.03431		+2	12.23	+1	48.22			2.12136
3.50017	M	50	47.78		54.76		40.80	7.00034
2.02549		+2	6.98	+1	46.04			2.10372
3.49332	M	50	48.35		51.38		35.77	6.98664
2.01864		+2	3.08	+1	44.39			2.09002
3.48559	M	50	50.42		49.12		31.66	6.97108
2.01091		+1	58.70	+1	42.54			2.07446
3.47716	M	50	51.07					6.95432
2.00248		+1	54.21					2.03770
3.46936	M	50	51.80					6.93872
1.99468		+1	50.19					2.04210
3.46169	M	50	52.60					6.92338
1.98701		+1	46.36					2.02676
3.45449	M	50	54.20					6.90898
1.97981		+1	42.89					2.01236
3.44523	M	50	54.10					6.89046
1.97055		+1	38.53					1.99384
3.43675	M	50	53.65		28.47	54	0.11	6.87350
1.96207		+1	34.82	+1	31.64			1.97688
3.42619	M	50	53.35					6.85238
1.95151								1.95576
3.41476	M	50	56.10					6.82952
1.94008								1.93290
3.40327	M	50	56.90					6.80654
1.92859								1.90992
3.39294	M	50	55.92					6.78588
1.91826								1.88926
3.38323	M	50	57.20					6.76646
1.90855								1.86984
3.37317	M	50	56.32					6.74634
1.89849		+1	10.75					1.84972
3.36408	M	50	56.95		4.80	53	22.32	6.72816
1.88940		+1	7.85	+1	17.52			1.83154
.1 15 19.95	M	50	56.47		88	40	0.13	
3.35409		+1	4.80		1.27		17.03	6.70818
1.87941	M	50	55.92	+1	15.76			1.81156
- 3.34355		+1	1.73	51	57.65		11.59	6.68710
1.86887	M	50	55.07	+1	13.74			1.79048
3.33353		+0	58.94		54.01		6.26	6.66706
1.85885				+1	12.25			1.77044

107.5
109.0
163.1
369.6

1 18 21.74
1 18 21.74

21.50
21.80
21.87
65.17
21.72

17) 3715 ~~18) 3662~~ 3696
18 21.85 ~~21.46~~ 21.74

- 1879 Sept. 10 S.C.

0.15854
8.36669n
8.52523n

6.73660
8.36668n
5.10329n

Identical

h	m	s	m	s
13	10	9.7	10	
		13.2	13	13.4
		17.3	– 5	53.5
	10	36.6	+ 5	55.4
		42.0	10	42.3
		48.3	– 5	25.9
	11	9.6	5	25.8
		12.7	11	13.4
		15.0	– 4	56.4
	11	37.2	4	56.0
		42.4	11	42.1
		46.6	– 4	26.1
	12	6.7	4	26.5
		11.5	12	12.0
		17.7	– 3	56.7
	12	40.0	3	56.9
		43.7	12	44.2
		49.0	– 3	27.6
		–	3	27.11
	16	3.6		
		8.1	16	8.8
		14.8	– +	0.4
	16	32.2	– 0	0.0
		37.2	16	38.0
		44.6	– 0	29.8
	17	2.2	– 0	29.5
		7.2	17	7.3
		12.5	– 0	58.3
	17	29.7	– 0	59.1
		36.4	17	36.2
		42.5	– 1	29.2
	18	0.0	– 1	28.8
		5.5	18	5.4
		10.6	– 1	58.3
	18	28.3	– 1	58.1
		36.6	18	35.6
		42.0	– 2	27.3
	19	0.7	– 2	27.9
		4.0	19	5.7
		12.5	– 2	57.7
		–	2	57.5

24 52.8
57.4
8.0
26 21.4
30.6
32.6
27 56.3
0.1
4.8

										'	"				
				6.9	8.8 8.5										
				8.2	8.1 8.5										
				9.8	9.4 10.5										
				8.2	8.6										
4	55.7	+11	13.80 673.80	8.7	8.9	2.82802 M 1.35325n	11	1092 –5.75	11	5.17 –22.55	10	42.62	5.65607 0.75933n
6	5.3	10	3.24 603.24	11.8	11.3	2.78061 M 1.30584n	11	797 –4.62		3.35 –20.22		43.13	5.56122 0.66451n
6	44.9	9	23.68 563.68			2.75113 M 1.27636n	11	635 –4.03		2.32 –18.90		43.42	5.50226 0.60555n
7	20.7	8	47.80 527.80			2.72263 M 1.24786n	11	527 –3.54		1.73 –17.70		44.03	5.44526 0.54855n
7	56.7	8	12.80 492.80			2.69197 M 1.21720n	11	220 –3.07	10	59.13 –16.49		42.64	5.38394 0.48723n
8	55.0	7	13.57 433.57			2.63719 M 1.16242n	11	642 –2.39		58.03 –14.54		43.49	5.27438 0.37767n
9	34.4	+6	34.13 394.13			2.59472 M 1.11995n	10	5830 –1.96		56.34 –13.18		43.16	5.18944 0.29273n
23	1.2	–6	52.79 412.79			2.61584n M 1.14107	10	3005 –2.11		27.94 +13.84		41.78	5.23168 0.33497n
23	51.2	7	42.79 462.79			2.66549n M 1.19072	10	2890 –2.78		26.12 +15.51		41.63	5.33098 0.43427n
24	37.8	8	29.35 509.35			2.70714n M 1.23237	10	2712 –3.29		23.83 +17.08		40.91	5.41428 0.51757n
25	27.8	9	19.35 559.35			2.74764n M 1.27287	10	2592 –3.97		21.95 +18.74		40.69	5.49528 0.59857n
25	57.5	9	49.02 589.02			2.77026n M 1.29549	10	2573 –4.40		21.35 +19.75		41.10	5.54052 0.64381n
26	53.8	10	45.35 645.35	9.2	8.8	2.80990n M 1.33513	10	2497 –5.29		19.68 +21.64		41.32	5.61980 0.72309n
27	28.0	11	19.57 679.57	8.2	8.5	2.83232n M 1.35755	10	2427 –5.86		18.41 +22.78		41.19	5.66464 0.76793n
28	24.0	12	15.57 735.57			2.86670n M 1.39193	10	2387 –6.87		17.00 +24.66		41.66	5.73340 0.83669n
32	42.2	16	33.79 993.79	9.0	8.2	2.99734n M 1.52257	10	1972 –12.53	10	7.19 +33.31		40.50	5.99468 1.09797n
33	20.3	17	12.80 1032.80	7.0	8.1	3.01368n M 1.53891	10	1992 –13.51		6.41 +34.59		41.00	6.02736 1.13065n
33	57.0	17	48.57 1068.57			3.02886n M 1.55409	10	1910 –14.49		4.61 +35.82		40.43	6.05772 1.16101n
34	38.2	18	29.79 1109.79	7.1	7.3	3.04528n M 1.57051	10	1912 –15.63		3.49 +37.20		40.69	6.09056 1.19385n
35	23.0	–19	14.57 1154.57	8.3	7.7	3.06247n M 1.58770	10	1865 –16.92		1.73 +38.70		40.43	6.12494 1.22823n

8.0 8.2

8.66
962
800
2628
8.76

1 ~~X~~ 15 21.29. 13) 1104 1119

68 ~~40~~ 1.05

16 8.49 8.61

1394
8.71

a – 1			
24 59.4	–8 50.9	– 8 52.1	16 08.5
26 29.2	10 20.7	10 20.8	08.5
28 0.4	11 51.9	11 49.7	10.5

27.5
9.17

— 1879 Sept. 12 S.C.

0.15854
8.36659n
8.52513n

6.73660
8.366~~78~~59n
5.103~~98~~n
19

Identical

595

18 33.8	0 +57 4~~1~~.~~0~~ 4 3460.4			M	10	3835	−2 29.6 −149.6
19 9.9	57 4.~~9~~ 3 3424.3			M	10	3687	−2 55.7 −175.7
20 10.4	3 56 ~~4~~.~~4~~ 8 3363.8			M	10	3545	−3 56.2 −236.2
21 4.5	9 55 ~~10~~.~~3~~ 7 3309.7			M	10	3370	−4 50.3 −290.3
21 49.0	54 25.~~8~~ 2 3265.2			M	10	3242	−5 34.8 −334.8
22 36.7	7 53 3~~8~~.~~1~~ 5 3217.5			M	10	3097	−6 22.5 −382.5
23 22.0	52 52.~~8~~ 2 3172.2			M	10	2952	−7 7.8 −427.8
24 4.9	52 9.~~1~~ 3 3129.3			M	10	2847	−7 50.7 −470.7
24 50.9	51 23.~~9~~ 3 3083.3			M	10	2847	−8 36.7 −516.7
25 38.3	5 50 3~~8~~.~~5~~ 9 3035.9			M	10	2737	−9 24.1 −564.1
26 22.4	1 49 5~~2~~.~~4~~ 8 2991.8	15.6	16.8	M	10	2552	−10 8.2 −608.2
27 10.8	3 49 ~~4~~.~~0~~ 4 2943.4		12.5	M	10	2517	−10 56.6 −656.6
28 20.9	47 53.~~9~~ 3 2873.3	13.6	13.4 11.7	M	10	2380	−12 6.7 −726.7
29 46.0	46 28.~~8~~ 2 2788.2			M	10	2297	−13 31.8 −811.8
30 30.8	3 45 4~~4~~.~~0~~ 4 2743.4	15.6	14.9 13.0	M	10	2212	−14 16.6 −856.6
31 17.2	44 57.~~6~~ 0 2697.0	15.8	15.4 13.0	M	10	2182	−15 3.0 −903.0
31 57.5	6 44 1~~8~~.~~3~~ 7 2656.7	12.8	13.1 16.5	M	10	2237	−15 43.3 −943.3
32 41.3	2 43 3~~3~~.~~5~~ 9 2612.9			M	10	2130	−16 27.1 −987.1
33 36.0	42 38.~~5~~ 2 2558.2	16.4	15.6	M	10	2078	−17 21.8 −1041.8
34 32.4	1 41 4~~2~~.~~4~~ 8 2501.8	14.9	15.3	M	10	2120	−18 18.2 −1098.2

h	m	s	m s
13	14	46.0	
		47.6	14 48.2
		50.9	−1 27.4
	15	9.0	+1 28.6
		14.0	15 14.4
		20.3	−0 59.2
	15	40.8	+0 59.0
		44.9	15 45.5
		52.8	−0 30.1
	16	—	0 29.4
		11.2	16 15.4
		19.5	+ 0.4
	16	36.0	−0 0.0
		42.4	16 42.6
		49.4	−0 29.8
	17	9.6	−0 29.~~7~~5
		14.8	17 14.7
		19.6	−0 58.3
	17	38.7	−10 59.1
		44.8	17 44.1
		48.7	−1 29.2
	18	6.5	−1 28.~~6~~8
		12.0	18 12.1
		17.7	−1 58.3
		—	−1 5~~8~~8.1

X

25	1.9
	4.6
	8.0
26	27.3
	33.3
	37.1
27	56.9
	1.0
	10.4
29	26.9
	30.6
	37.0
31	3.6
	4.4
	5.1

13.86
14.20
14.97
43.03
14.34

13.8   14.0   18.52 / 14.25

1 ~~15~~ 22.13   8) 11.85   11.85
16 14.81   14.81

8.2.3
10.2.9
18.5.2

13 16 14.25

13 16 14.25

a − 1

25 4.8	−8 50.0	−8 52.3	16 12.5
26 32.6	10 17.8	10 20.9	11.7
28 2.8	11 48.0	11 49.8	13.0
29 31.5	13 16.7	13 18.5	13.0
31 4.4	14 49.6	14 47.9	16.5

88 ~~40~~ 1.78

66.7
13.34

							0,15854	~~0,11559~~				6.73660		
							8.36660	~~8,36660~~				8,36660		
1879 Sept. 14	U.C.				T'$_\delta$	T − δ	8.52514	~~8,48219~~				5.10320		
	h	m	s	m s										
	1	12	29.3											
			36.7	12 35.9										
			41.6 –											
		12	59.6											
			5.6	13 4.9										
			9.6 –											
		13	28.8											
13 34.36			35.2	13 34.3										
13 34.36			39.0 –											
		13	56.2											
			3.9	14 3.3			5d5							
			9.8 –											
		14	28.8											
			34.2	14 33.4						′	″			
			37.1 –		5 15.0	+ 13 14.4			M	49?	59.78	50? 26.40	50? 34.46	
		14	57.0			794.4	2.90004	5.80008			26.62	+ 8,00		
			2.3	15 3.2	6 37.8	11 51.6	1.42518	0.90328	M		460	49 28.44	49 34,86	
			10.2 –			711.6	2.85224	5.70448			23.84	+ 6,42		
		15	24.3		8 38.0	9 51.4	1.37738	0.80768	M		952	29.34	33.77	
			30.5	15 31.0		591.4	2.77188	5.54376			19.82	+ 4,43		
			38.2 –		9 33.9	8 55.5	1.29702	0.64696	M		1230	30.44	34.04	
		15	57.3			535.5	2.72876	5.45752			17.94	+ 3,64		
16 1.50			2.3	16 2.3	10 33.2	7 56.2	1.25380	0.56072	M		1672	32.68	35 56	
~~16 1.44~~			7.2 –			476.2	2.67779	5.35558			15.96	+ 2.88		
		16	22.4	~~29.7~~	11 30.4	6 59.0	1.20293	0.45878	M		1910	33.14	35,37	
			31.5	16 ~~30.~~		419.0	2.62221	5.24442			14.04	+ 2.23		
			36.1 –	30.0	24 42.4	− 6 13.0	1.14735	0.34762	M		4390	31.40	33 16	
		16	55.7			373.0	2.57171	5.14342			−12.50	+ 1.76		
			1.4	17 1.0	25 32.0	− 7 2.6	1.09685	0.24662	M		4580	31.64	33.90	
			5.8 –			422.6	2.62593	5.25186			− 14.16	+ 2.26		
		17	25.3	5	26 19.8	− 7 50.4	1.15107	0.35506	M		4652	30.76	33,57	
			31.0	17 ~~30.4~~		470.4	2.67247	5.34494			−15.76	+ 2.81		
			36.3 –	30.9	27 12.9	− 8 43.5	1.19761	0.44814	M		4830	30.76	34,24	
		17	55.1			523.5	2.71892	5.43784			− 17.54	+ 3,48		
			1.4	18 1.0	28 14.3	− 9 44.9	1.24406	0.54104	M		4832	28.52	32,86	
			6.6 –			584.9	2.76708	5.53416			− 19.60	+ 4,34		
		18	23.4		29 11.0	− 10 41.6	1.29222	0.63736	M		4878	27.28	32,50	
18 29.86			29.6	18 29.7		641.6	2.80726	5.61452			− 21.50	+ 5,22		
~~18 29.78~~			36.0 –		30 5.0	− 11 35.6	1.33240	0.71772	M		5034	27.06	33,20	
		18	54.3			695.6	2.84236	5.68472			−23.31	+ 6,14		
			58.7	18 59.2	30 58.0	− 12 28.6	1.36750	0.78792	M		5090	25.82	32,93	
			4.7 –			748.6	2.87425	5.74850			− 25.08	+ 7.11		
		19	23.2		31 49.2	− 13 19.8	1.39939	0.85170	M		4982	23.02	31,13	?
			28.8	19 28.5		799.8	2.90298	5.80596			− 26.80	+ 8,11		
			33.5 –		32 42.0	− 14 12.6	1.42812	0.90916	M		5220	23.63	32,85	
		19	50.4			852.6	2.93075	5.86150			− 28.57	+ 9.22		
			56.2	19 55.9	33 46.8	− 15 17.4	1.45589	0.96470	M		5248	21.74	32.41	
			1.1 –			917.4	2.96256	5.92512			− 30.74	+ 10.67		
		20	20.1		34 46.2	− 16 16.8	1.48770	1.02832	M		5335	20.62	32.72	
			27.1	20 26.6		976.8	2.98981	5.97962			− 32.73	+ 12,10		
			32.7 –		35 43.9	− 17 14.5	1.51495	1.08282	M		5385	19.19	32,76	
		20	48.1			1034.5	3.01473	6.02946			− 34.66	+ 13.57		
20 56.06			57.4	20 55.5	36 40.0	− 18 10.6	1.53987	1.13266	M		5460	18.05	33,13	
20 56.06			1.1 –			1090.6	3.03767	6.07534			− 36.55	+ 15,08		
		21	21.4				1.56281	1.17854						
			27.5 –	21 27.1										
			32.4 –											
		21	49.7											
			55.2	21 55.2		1 15	~~22.72~~						88 40	2,29
			0.7 –											
		22	21.8											
			26.4	22 26.7										
			32.0 –											
		22	47.3											
			55.7	22 55.4										
			3.2 –											
		23	21.0											
23 25.46			26.2	23 26.6										
23 25.46			32.6 –											
		23	50.2											
			55.0	23 55.3										
			0.7 –											
		24	18.0											
			23.4	24 23.3										
			28.5 –											
18 29.45				18 29.44										

- 1879 Sept 15 L. C.

0.15854
8.36660 ~~58~~
8.52514

6.73660
8.36660 n
5.10320 n Identical

not copy

		h	m	s
27	5.0	13	16	48.0
	8.0			55.0
28 ~~30~~	15.4			59.7
	40.6		17	27.7
	41.3			28.5
	41.9			29.5
30	0.1		17	48.4
	4.0			53.4
	-13.9			59.7
			18	17.3
				22.7
				27.5
			18	49.0
				54.7
				58.2
			20	48.4
				51.1
				56.2
			21	17.1
				20.7
				24.6

16 54.2
-1 28.7
+1 28.8
17 28.6
-0 59.1
0 59.1.
17 53.8
-0 29.3
0 29.5
18 22.5
- 0.3
-0 0.0
18 54.0
- 28.8
- 29.4

20 51.9
-2 28.4
-2 28.0
21 20.8
-2 57.8
-2 57.3

X 1 15 23.14

					′	″
26 32.6	+ 51 51.2			M	10	3270
27 7.4	51 16.4			M	10	2820
27 49.3	50 34.5			M	10	2695
28 31.0	49 52.8			M	10	2600
29 23.0	49 0.8			M	10	2692
30 4.0	48 19.8			M	10	2382
31 1.9	47 21.9	22.9	23.0	M	10	2300
32 49.0	45 34.8			M	10	2295
33 50.9	44 32.9	27.7	27.7	M	10	2150
34 34.0	43 49.8	23.1	23.3	M	10	2017
35 12.4	43 11.4	22.2	22.5	M	10	2053
36 0.1	42 23.7			M	10	1925
36 37.3	41 4.65	25.2	24.6	M	10	2005
37 15.2	41 8.6		17.1	M	10	1900
38 11.3	40 12.5		20.2	M	10	1895
38 49.3	39 34.5		16.0	M	10	1827
				M	10	1778
		23.5	23.9			121.1 100.7 221.8
		28.0	23.5	13 18		22.18
		7) 1686	1665	13 18		22.18
		18 23.80 94	2407			

X 88 40 2.61

~~a+1~~ a-1

27 9.5	+49 14.3	-10 45.7	-8 52.4	18	17.1
28 ~~30~~ 41.3	47 42.5	-12 17.5	10 21.1		20.2
30 6.0	46 17.8	-13 42.2	11 50.0		16.0

11

- 1879 Sept 17 L. C

0.15854	6.73660
8.36650n	8.36650n
8.52504n	5.10310n

Identical

h	m	s	m s
13	10	20.6	
		25.0	10 25.2
		29.9	+ 5 53.5
		—	+ 5 55.4
		—	
		—	-
	11	23.5	
		27.7	11 28.5
		34.4	- 4 56.4
	11	53.2	+4 56.0
		57.9	11 58.7
		5.0	- 4 26.1
	12	21.7	4 26.5
		28.4	12 28.0
		34.0	- 3 56.7
	12	50.2	3 56.9
		56.3	12 56.3
		2.5	- 3 27.6
	13	21.8	3 27.1~~5~~
		26.0	13 26.6
		32.6	- 2 57.7
	13	50.0	2 57.3
		56.0	13 56.0
		2.0	- 2 27.3
	14	20.2	2 28.0
		24.6	14 25.3
		31.0	- 1 57.0
	14	57.0	1 58.3
		55.9	14 56.1
		1.4	- 1 27.4
	15	20.3	1 28.6
		24.5	15 25.2
		30.7	- 0 59.2
	15	49.3	0 59.0
		54.5	15 54.9
		0.9	- 0 30.1
	16	19.3	0 29.4
		24.2	16 24.5
		29.9	- + 0.4
	16	46.7	- 0.0
		52.5	16 52.0
		56.8	- 0 29.8
	17	18.2	- 0 29.5
		23.9	17 23.6
		28.6	- 0 58.3
	17	46.2	- 0 59.1
		51.6	17 51.6
		57.0	- 1 29.2
	18	17.4	- 1 28.8
		21.2	18 22.1
		27.7	- 1 58.3
	18	45.0	- 1 58.1
		50.0	18 50.5
		56.6	- 2 27.3
	19	15.9	- 2 27.9
		22.0	19 21.7
		27.2	- 2 57.7
			- 2 57.5

494

				′	″
2	42.0	+ 13 41.9 821.9	M	11	2212
3	19.4	13 4.5 784.5	M	11	1965
3	52.0	12 31.9 751.9	M	11	1787
4	30.5	11 53.4 713.4	M	11	1610
5	9.0	11 14.9 674.9	M	11	1312
5	47.0	10 36.9 636.9	M	11	1132
6	22.5	10 1.4 601.4	M	11	907
7	1.4	9 22.5 562.5	M	11	747
7	38.7	8 45.2 525.2	M	11	530
8	16.2	8 7.7 487.7	M	11	437
8	55.0	+7 25.9 445.9	M	11	225
22	28.0	-6 4.1 364.1	M	10	5982
22	33.4	6 9.5 369.5	M	10	2955
23	31.7	7 7.8 427.8	M	10	2892
24	14.3	7 50.4 470.4	M	10	2802

(18.7)	(24.6)
24.9	24.5
24.8	25.2
24.7	24.9
23.9	23.4
24.3	23.9
23.3	24.0
22.3	23.6
23.5	24.7
24.4	24.2
25.0	24.3
24.9	24.5
22.2	22.5
25.3	24.5
22.4	22.8
23.8	24.0
23.2	22.6
24.0	24.2

121.9
120.8
165.1
407.8

13 16 23.99
13 16 23.99

1 15 24.35 17) 4069 ~~18) 4284~~ 4078
16 23.94 ~~23.80~~ 23.99

88 40 3.41

1879 Sept 18 - Lo.C. [illegible] 1m

			π'δ	π − δ								
						0.15854 8.36642n 8.52496n				6.73660 8.36642n 5.10302n		
	h m s	m s										
	18 11 36.2	~~34.5~~	~~Sub~~ 1m Subtract 1m									
	37.1	11 ~~37.2~~ 37.2										
	38.2 —											
	11 52.7											
	59.0	11 58.8										
	4.7 —											
	12 25.3											
12 31.66 ~~12 31.32~~	31.3	12 31.0										
	36.5 —											
	12 54.4											
	1.7	13 0.8										
	6.3 —			57 8								
	13 25.0											
	30.6	13 30.5						′	″			
	36.0 —		59 37.9	+17 48.6			M	11	3720	12 1[illegible].99	11 1.41	10′ 46.93
	13 54.3			1068.6	3.02882	6.05764			−35.79		−14.48	
	0.1	13 59.7	0 53.2	16 33.3	1.55378n	1.16066n	M	11	3178	5.06	10 58.51	46.00
	4.6 —			993.3	2.99708	5.99416			−33.27		−12.51	
	14 22.6		1 48.9	15 37.6	1.52204n	1.09718n	M	11	2850	11 59.90	57.10	45.95
	28.2	14 28.3		937.6	2.97202	5.94404			−31.40		−11.15	
	34.1 —		3 16.0	14 10.5	1.49698n	1.04706n	M	11	2305	51.54	54.56	45.39
	14 53.5			850.5	2.92967	5.85934			−28.49		−9.17	
14 58.60 14 58.60	58.6	14 59.2	4 4.9	−13 21.6	1.45463n	0.96236n	M	11	1975	46.60	52.90	44.75
	5.6 —			801.6	2.90396	5.80792			−26.85		−8.16	
	15 23.2		5 4.0	12 22.5	1.42892n	0.91094n	M	11	1655	41.42	51.68	44.69
	28.6	15 28.4		742.5	2.87070	5.74140			−24.87		−6.99	
	33.4 —		6 6.0	11 20.5	1.39566n	0.84442n	M	11	1248	35.27	49.69	43.82
	15 52.3			680.5	2.83283	5.66566			−22.79		−5.87	
	57.0	15 57.4	7 29.0	9 57.5	1.35779n	0.76868n	M	11	920	29.21	49.19	44.66
	2.9 —			597.5	2.77634	5.55268			−20.01		−4.53	
	16 22.5		8 27.9	8 58.6	1.30130n	0.65560n	M	11	685	24.89	48.81	45.13
	27.2	16 27.5		538.6	2.73127	5.46254			−18.04		−3.68	
	32.7 —		9 14.5	8 12.0	1.25623n	0.56556n	M	11	517	19.65	48.69	45.62
	16 50.2			492.0	2.69197	5.38394			−16.48		−3.07	
	56.7	16 56.6	10 7.3	7 19.2	1.21693n	0.48696n	M	11	317	17.88	48.46	46.01
	2.8 —			439.2	2.64266	5.28532			−14.71		−2.45	
	17 20.1		10 47.9	6 38.6	1.16782n	0.38834n	M	11	082	14.17	47.47	45.46
17 26.76 17 26.76	26.7	17 26.3		398.6	2.60054	5.20108			−13.35		−2.01	
	32.0 —		23 50.3	− 6 23.8	1.12350n	0.30410n	M	10	3302	10 [illegible]0.17	45.87	44.50
	17 56.5			383.8	2.58410	5.16820			+12.85		−1.87	
	58.2	17 59.2	24 58.0	− 7 ~~32.4~~	31.5 n 1.10906	0.27122n	M	10	3115	16.00	46.30	43.71
	3.0 —			452.4	2.65552	5.31104			+15.15		−2.59	
	18 18.0		25 41.9	− 8 15.4	1.18048	0.41406n	M	10	3027	13.68	46.86	43.75
	2 22.3	18 24.2		495.4	2.69496	5.38992			+16.59		−3.11	
	32.3 —		26 42.5	− 9 16.0	1.21992	0.49294n	M	10	2767	9.05	46.29	42.37
	18 49.6			556.0	2.74507	5.49014			+18.62		−3.92	
	54.4	18 54.5	27 25.0	− 9 58.5	1.27003	0.59316n	M	10	2765	7.60	47.70	43.16
	59.4 —			598.5	2.77706	5.55412			+20.05		−4.54	
	19 17.0		28 5.5	− 10 39.0	1.30202	0.65714n	M	10	2732	3.92	48.72	43.54
	20.8	19 22.6		639.0	2.80550	5.61100			+21.40		−5.18	
	30.1 —		28 57.6	− 11 38.1	1.33046	0.71402n	M	10	2545	2.30	48.60	42.55
	19 41.9			691.1	2.83954	5.67968			+23.15		−6.05	
19 52.94 19 52.94	52.5	19 51.6	29 53.0	− 12 26.5	1.36450	0.78210n	M	10	2532	0.32	50.82	43.26
	0.4 —			746.5	2.87303	5.74606			+25.00		−7.06	
	20 16.8				1.39799n	0.84908n						
	21.4	20 22.7										
	29.8 —											
	20 48.6											
	52.8	20 53.3		1 15	24.89					88	40 3.75	
	58.6 —											
	21 18.1											
	23.2	21 23.1										
	28.0 —											
	21 46.3											
	51.6	21 52.8										
	0.5 —											
	22 16.2											
22 22.36 22 22.36	21.4	22 21.2										
	26.0 —											
	22 45.3											
	51.2	22 51.5										
	57.9 —											
	23 17.3											
	23.2	23 23.2										
	29.2 —											
17 26.4164		17 26.464										

1879 Sept. 19. L.C.

			s	m s
	13	10	38.8	
			39.4	10 39.4
			40.0 –	
		11	0.9	
			4.2	11 4.7
			9.0 –	
		11	30.5	
11 35.46 11 35.46			36.2	11 36.2
			41.9 –	
		11	58.0	
			4.0	12 4.1
			10.3 –	
		12	26.5	
			33.4	12 32.9
			38.7 –	
		12	57.9	
			1.2	13 1.8
			6.3 –	
		13	25.5	
			32.5	13 31.5
			36.6 –	
		13	55.0	
14 1.86 14 1.86			1.3	14 1.7
			8.7 –	
		14	25.7	
			32.3	14 32.0
			37.9 –	
		14	56.9	
			2.6	15 2.3
			7.5 –	
		15	25.2	
			28.4	15 29.4
			34.6 –	
		15	55.5	
			0.2	16 ~~2.5~~ 0.5
			5.8 –	
		16	24.9	
~~16 29.82~~ 16 30.02			28.5	16 29.4
			34.8 –	
		16	55.5	
			1.5	17 0.8
			5.4 –	
		17	23.6	
			27.0	17 29.0
			36.3 –	
		17	56.8	
			0.2	18 0.9
			5.8 –	
		18	23.5	
			29.0	18 29.8
			36.8 –	
		18	53.6	
18 59.24 18 59.24			56.7	18 59.0
			4.7 –	
		17	24.0	
			28.8	19 28.9
			34.0 –	
		19	51.3	
			57.4	19 57.6
			4.2 –	
		20	22.0	
			28.4	20 28.3
			33.5 –	
		20	53.2	
			58.7	20 58.1
			2.5 –	
		21	19.2	
21 26.58 21 26.58			24.0	21 25.2
			32.3 –	
		21	51.4	
			56.8	21 56.6
			1.5 –	
		22	19.5	
			24.2	22 24.7
			30.4 –	
16 30.592				16 30.592

T′δ	T−δ		0.15854 8.36642n 8.52496n		′	″		6.73660 8.36642n 5.10302n				
21												
13 34.8	+12 55.8			M	11	2030	11	42.28	10	54.32	10	46.69
	775.8	288975	5.77950			−25.98				−7.63		
5 15.9	11 14.7	1.41471n	0.88252n	M	11	1500		37.60		52.40		46.63
	674.7	282911	5.65822			−22.60				−5.77		
5 53.9	10 36.7	1.35407n	0.76124n	M	11	1275		34.08		51.42		46.28
	636.7	280393	5.60786			−21.33				−5.14		
6 32.4	9 58.2	1.32889n	0.71088n	M	11	1122		31.26		51.18		46.64
	598.2	2.77685	5.55370			−20.04				−4.54		
7 22.0	9 8.6	1.30181n	0.65672n	M	11	842		26.79		50.05		46.23
	548.6	2.73926	5.47852			−18.37				−3.82		
8 14.0	8 16.6	1.26422n	0.58154n	M	11	610		22.78		49.47		46.34
	496.6	2.69601	5.39202			−16.63				−3.13		
9 8.8	7 21.8	1.22097n	0.49504n	M	11	325		18.04		48.46		45.99
	441.5	2.64493	5.28986			−14.79				−2.47		
9 54.5	+6 36.1	1.16989	0.39288n	M	11	165		14.92		48.38		46.39
	396.1	2.59780	5.19560			−13.27				−1.99		
22 41.4	−6 10.8	1.12276n	0.29862n	M	10	3497	10	2.55		47.39		45.65
	370.8	2.56914	5.13828			+12.42				−1.74		
23 34.3	−7 3.7	1.09410n	0.24130n	M	10	3312		8.93		47.31		45.03
	423.7	2.62706	5.25412			+14.19				−2.28		
24 28.3	−7 57.7	1.15202	0.33714n	M	10	3170		5.70		47.70		44.81
	477.7	2.67916	5.35832			+16.00				−2.89		
25 13.7	−8 43.1	1.20412	0.46134n	M	10	3107		3.55		48.59		45.12
	523.1	2.71858	5.43716			+17.52				−3.47		
26 1.2	−9 30.6	1.24354	0.54018n	M	10	2970		0.59		48.81		44.68
	570.6	2.75633	5.51266			+19.11				−4.13		
26 43.5	−10 12.9	1.28129	0.61568n	M	10	2915		8.62		49.68		44.92
	612.9	2.78739	5.57478			+20.53				−4.76		
27 28.0	−10 57.4	1.31235	0.67780n	M	10	2822		6.20		50.24		44.76
	657.4	2.81783	5.63566			+22.02				−5.48		
28 13.3	−11 42.7	1.34279	0.73868n	M	10	2672		3.18		50.26		44.00
	702.7	2.84677	5.69354			+23.54				−6.26		
28 58.3	−12 27.7	1.37173	0.79656n	M	10	2605		.01		51.09		44.00
	747.7	2.87373	5.74746			+25.04				−7.09		
29 45.7	−13 15.1	1.39869	0.85048n	M	10	2530	9	58.67		51.93		43.90
	795.1	2.90042	5.80084			+26.63				−8.03		
30 37.7	−14 7.1	1.42538	0.90386n	M	10	2407		55.70		52.44		43.34
	847.1	2.92793	5.85586			+28.37				−9.10		
31 39.0	−15 8.4	1.45289	0.95888n	M	10	2310		52.67		53.53		43.07
	908.4	2.95828	5.91656			+30.43				−10.46		
		1.48324 n	1.01958n									
	1 15	25.43								88 40		4.11

							0.15854 8.36633 8.52487				6.73660 8.36633 5.10293		
1879	Sept. 23	U.C.		π'δ	$T_u - \delta$								
	h	m s	m s										
	1	12 42.0											
		47.6	12 47.9										
		54.2 –											
		13 16.2											
		20.6	13 20.9										
		26.0 –											
		13 48.2											
	13 51.14	55.0	13 54.3										
	13 51.14	59.6 –											
		14 17.1											
		22.6	14 21.8										
		25.6 –											
		14 43.7							'	"			
		52.1	14 50.8										
		56.7 –		8 4.5	+10 42.1			M	49	4.42	49 25.92	49 31.15	
		15 15.4			642.1	2.80760	5.61520			21.50	+ 5.23		
		19.6	15 19.5	9 16.0	9 30.6	1.33247	0.71813	M	49	7.85	26.96	31.09	
		23.4 –			570.6	2.75633	5.51266			19.11	+ 4.13		
		15 43.6		10 28.2	8 18.4	1.28120	0.61559	M	49	12.17	28.86	32.01	
		49.6	15 49.5		498.4	2.69758	5.39516			16.69	+ 3.15		
		55.4 –		11 26.3	7 21.3	1.22245	0.49809	M	49	14.78	29.56	32.03	
		16 10.7			441.3	2.64473	5.28946			14.78	+ 2.47		
	16 18.80	18.7	16 17.4	12 23.3	6 23.3	1.16960	0.39239	M	49	15.92	28.76	30.62	
	16 18.80	22.8 –			383.3	2.58354	5.16708			12.84	+ 1.86		
		16 42.6		25 1.9	− 6 15.3	1.10841	0.27001	M		42.92	30.35	32.14	
		47.2	16 48.1		375.3	2.57438	5.14876			− 12.57	+ 1.79		
		54.6 –		26 5.3	− 7 18.7	1.099$\overset{u}{2}$5	0.25169	M		42.70	28.01	30.45	
		17 15.2			438.7	2.64217	5.28434			− 14.69	+ 2.44		
		20.0	17 19.5	27 3.2	− 8 16.6	1.16704	0.38727	M		44.55	27.92	31.05	
		23.3 –			496.6	2.69601	5.39202			− 16.63	+ 3.13		
		17 42.5		28. 10.3	− 9 23.7	1.22088	0.49475	M		44.55	25.67	29.70	
		46.5	17 47.1		563.7	2.75105	5.50210			− 18.88	+ 4.03		
		52.2 –		29 3.9	−10 17.3	1.27592	0.60503	M		45.82	25.15	29.98	
		18 10.7			617.3	2.79050	5.58100			− 20.67	+ 4.83		
		18.7	18 17.9	30 10.7	−11 24.1	1.31537	0.68393	M	50	46.95	50 24.04	50 29.97	?
		24.4 –			684.1	2.83512	5.67024			− 22.91	+ 5.93		
		18 39.0		31 2.0	−12 15.4	1.35999	0.77317	M	50	47.75	23.12	29.97	
+	18 46.42	47.8	18 46.9		735.4	2.86652	5.73304			− 24.63	+ 6.85		
	18 46.42	54.0 –		32 20.5	−13 33.9	1.39139	0.83597	M	50	48.05	20.80	29.20	
		19 8.5 –			813.9	2.91057	5.82114			− 27.25	+ 8.40		
		13.9	19 13.5	33 14.9	−14 28.3	1.43544	0.92407	M	50	49.15	20.07	29.63	
		18.0 –			868.3	2.93867	5.87734			− 29.08	+ 9.56		
		19 40.5		34 25.7	−15 39.1	1.46354	0.98027	M	50	49.32	17.87	29.05	
		48.0	19 46.7		939.1	2.97271	5.94542			− 31.45	+ 11.28		
		57.5 –		35 27.3	−16 40.7	1.49758	1.04835	M	50	50.10	16.59	29.28	
		20 9.9			1000.7	3.00030	6.00060			− 33.51	+ 12.69		
		15.3	20 15.5	36 30.7	−17 44.1	1.52517	1.10353	M	50	50.55	14.92	29.27	
		21.2 –			1064.1	3.02698	6.05396			− 35.63	+ 14.35		
		20 38.0		37 31.4	−18 44.8	1.55185	1.15689	M	50	50.82	13.15	29.19	
		44.2	20 44.1		1124.8	3.05108	6.10216			− 37.67	+ 16.04		
		50.2 –		38 28.3	−19 41.7	1.57595	1.20509	M	50	51.02	11.45	29.15	
		21 7.6			1181.7	3.07251	6.14502			− 39.57	+ 17.70		
	21 14.64	14.5	21 14.1	39 26.5	−20 39.9	1.59738	1.24795	M	50	50.92	9.40	28.89	
	21 14.64	20.3 –			1239.9	3.09339	6.18678			− 41.52	+ 19.49		
		21 40.2				1.618$\overset{u}{2}$6	1.28971						
		46.3	21 45.7										
		50.5 –											
		22 4.3											
		15.7	22 13.8		1 15	27.08					88	40 5.49	
		21.4 –											
		22 37.7											
		44.4	22 45.2										
		53.5 –											
		23 7.8											
		12.6	23 12.9										
		18.2 –											
		23 34.8											
	23 41.76	42.4	23 41.7										
	23 41.76	48.0 –											
		24 4.9											
		10.7	24 10.9										
		17.0 –											
		24 33.6											
		37.4	24 38.1										
		43.2 –											
	18 46.552		18 46.552										

1879 Sept. 25 L. C.

0.15854
8.36623n
8.52477n

6.73660
8.36623n
5.10283n Identical

h	m s	m s					
13	10 46.0						
	52.6	10 52.3					
	58.2	± 5 53.5				45.8	47.7
	11 14.8	+ 5 55.4					
	19.0	11 19.9					
	25.8	– 5 25.8	5 25.8			45.8	45.7
	11 41.7	~~5~~ 47.5					
	47.2	11 ~~49.2~~					
	53.6	– 4 56.4				43.9	43.5
	12 10.5	4 56.0					
	17.8	12 17.7					
	24.9	– 4 26.1				43.8	44.2
	12 42.0	4 26.5					
	47.6	12 47.5					
	53.0	– 3 56.7		4 34.2	+12 10.4	44.2	44.4
	13 11.4	3 56.9			730.4		
	17.3	13 16.8		5 22.0	11 22.6		
	21.7	– 3 27.6			682.6	44.4	43.9
	13 44.4	3 27.1		6 15.5	10 29.1		
	46.6	13 47.3			629.1		
	57.0	– 2 57.7		7 26.2	9 18.4	45.0	44.6
	14 11.5	17.5	2 57.3		558.4		
	17.2	14 ~~18.8~~		7 57.2	8 47.4		
	23.7	– 2 27.8			527.4	44.8	45.5
	14 42.2	2 28.0		8 32.9	8 11.7		
	49.5	14 49.1			491.7		
	55.5	– 1 57.0		9 6.3	7 41.3	46.1	47.4
	15 11.0	1 58.3			461.3		
	16.7	15 17.1		9 40.2	7 4.4		
	23.5	– 1 27.4			424.4	44.5	45.7
	15 41.0	1 28.6		10 28.6	+6 16.0		
	43.7	15 44.7			-376.0		
	47.3	– 0 59.2		[21 49.3]	-5 4.7	43.9	43.7
	16 11.3	0 59.0			304.7		
	15.4	16 15.6		24 48.7	8 4.1		
	20.2	– 0 30.1			484.1	45.7	45.0
	16 39.1	0 29.4		25 32.3	8 47.7		
	46.0	16 45.4			527.7		
	57.2	– + 0.4		26 19.5	9 34.9	45.8	45.4
	17 7.6	0.0			574.9		
	12.7	17 13.2		27 4.3	10 19.7		
	19.4	– 0 29.8			619.7	43.4	43.7
	17 38.2	– 0 29.5		27 41.5	10 56.9		
	41.9	17 42.6			656.9		
	47.6	– 0 58.3		28 22.8	11 38.2	44.3	43.5
	18 5.5	– 0 59.1			698.2		
	10.5	18 11.7		29 2.9	12 18.3		
	19.0	– 0 29.2			738.3	42.5	42.9
	18 37.8	– 1 28.8		29 42.7	12 58.1		
	43.0	18 42.8			778.1		
	47.6	– 1 58.3		30 24.2	13 39.6	44.5	44.7
	19 7.6	– 1 58.1			819.6		
	12.5	19 12.1		31 9.0	14 24.4		
	16.2	– 2 27.3			864.4	44.8	44.2
	19 36.0	– 2 27.9		32 0.0	15 15.4		
	40.0	19 41.4			915.4		
	48.2	– 2 57.7				43.7	43.9
	–	2 57.5					
					19)	8469	1 15
						16 44.57	8496
							44.72

	'	"
M	11	22.78
M	11	19.70
M	11	16.07
M	11	14.42
M	11	12.27
M	11	11.17
M	11	9.00
M	11	7.60
M	11	6.75
M	10	39.25
M	10	37.70
M	10	36.67
M	10	35.65
M	10	34.55
M	10	33.15
M	10	33.45
M	10	32.57
M	10	30.80
M	10	30.80
M	10	29.32

225.5
227.1
221.3
175.7
849.6

27.83

13 16 44.72

13 16 44.72

88 40 6.49

1879 Sept. 26 - L.C

0,16056
8,36614n
8,52670n

6.73660
8.36614n
5.10274n

	h m	s	m s	π'δ		$\pi_n-\delta$				′	″						
	13 10	50.9															
		53.0	10 53.5														
		56.5	–														
	11	17.7															
		22.5	11 22.6														
		27.7	–														
	11	44.2															
11 51.36		49.2	11 48.7														
~~11 51.04~~		52.8	–														
	12	12.4															
		20.5	12 19.5														
		25.5	–														
	12	47.7	~~50.9~~														
		51.9	12 52.5														
		58.0	–	0	0.7	+16 46.1			M	11	39.88	12	13.71	11	6.05	10	53.22
	13	15.5				1006.1	3.00264	6.00528			−33.53				−12.83		
		20.1	13 20.4	0	48.0	15 58.8	1.52934	n1.10802n	M	11	36.75		8.99		4.51		52.86
		25.6	–			958.8	2.98173	5.96346			−32.24				−11.65		
	13	46.3		1	35.3	15 11.5	1.50843	n1.06620n	M	11	34.47		5.12		3.82		53.29
		51.6	13 51.2			911.5	2.95976	5.91952			−30.65				−10.53		
		55.8	–	2	27.2	14 19.6	1.48646	n1.02226n	M	11	31.20		0.11		2.29		52.93
	14	6.5				859.6	2.93430	5.86860			−28.91				−9.36		
14 ~~14~~ 18.94		15.7	14 14.9	3	13.1	13 33.7	1.46100	n0.97134n	M	11	28.25	11	55.61		0.89		52.50
14 18.94		20.4	–			813.7	2.91046	5.82092			−27.36				−8.39		
	14	43.0		4	3.9	12 42.9	1.43716	n0.92366n	M	11	26.85		52.50		1.20		53.83
		53.1	14 50.5			762.9	2.88247	5.76494			−25.65				−7.37		
		55.4	–	4	53.2	11 53.6	1.40917	n0.86768n	M	11	23.15		42.15	10	59.15		52.70
	15	13.4				713.6	2.85345	5.70690			−24.00				−6.45		
		17.4	15 17.7	5	48.7	10 58.1	1.38015	n0.80964n	M	11	19.22		41.35		57.09		51.60
		22.4	–			658.1	2.81829	5.63658			−22.13				−5.49		
	15	42.0		7	9.9	9 36.9	1.34499	n0.73932n	M	11	15.07		34.47		55.67		51.45
		46.6	15 47.1			576.9	2.76110	5.52220			−19.40				−4.22		
		52.6	–	7	59.7	8 47.1	1.28780	n0.62494n	M	11	13.55		31.27		55.83		52.31
	16	11.9				527.1	2.72189	5.44378			−13.72				−3.52		
		17.5	16 16.8	8	58.8	7 48.0	1.24859	n0.54652n	M	11	9.33		25.09		53.61		50.84
		21.0	–			468.0	2.67025	5.34050			−15.74				−2.77		
	16	41.9		9	38.0	7 8.8	1.19695	n0.44324n	M	11	7.75		22.17		53.33		51.00
16 46.14		47.4	16 47.7			428.8	2.63225	5.26450			−14.42				−2.33		
16 46.14		53.7	–	10	25.5	+6 21.3	1.15895	n0.36724n	M	11	5.72		18.54		52.90		51.06
	17	7.5				381.3	2.58127	5.16254			−12.82				−1.84		
		15.5	17 14.7	23	8.1	−6 21.3	1.10797	n0.26528n	M	10	39.35	10	26.53		52.17		50.33
		21.2	–			381.3	2.58127	5.16254			+12.82				−1.84		
	17	39.0		24	0.0	−7 13.2	1.10797n	0.26528n	M	10	37.80		23.23		52.37		49.99
		44.1	17 44.4			433.2	2.63669	5.27338			+14.57				−2.38		
		50.2	–	24	44.4	−7 57.6	1.16339	0.37612n	M	10	38.10		22.64		54.16		51.27
	18	12.4				477.6	2.67906	5.35812			+16.06				−2.89		
		16.6	18 16.7	25	26.0	−8 39.2	1.20576	0.46086n	M	10	35.90		18.44		53.36		49.94
		21.2	–			519.2	2.71533	5.43066			+17.46				−3.42		
	18	43.2		26	9.4	−9 22.6	1.24203	0.53340n	M	10	34.47		15.55		53.39		49.38
		48.6	18 48.4			562.6	2.75020	5.50040			+18.92				−4.00		
		53.5	–	26	49.0	−10 2.2	1.27690	0.60314n	M	10	35.30		15.05		55.55		50.96
	19	10.0				602.2	2.77974	5.55948			+20.23				−4.59		
19 15.90		15.7	19 15.8	27	35.9	−10 49.1	1.30644	0.66222n	M	10	34.70		11.87		56.53		51.19
19 15.90		21.7	–			649.1	2.81231	5.62462			+21.83				−5.34		
	19	38.6					1.33901n	0.72736n									
		43.6	19 43.7														
		48.9	–														
	20	8.5															
[illegible]		15.6	20 14.9			1 15	28.06						88		40		6.87
		20.5	–														
	20	36.2															
		42.5	20 41.9														
		47.0	–														
	21	6.3															
		14.3	21 14.1														
		24.7	–														
	21	36.8															
21 41.82		42.6	21 41.9														
21 41.82		46.3	–														
	22	5.1															
		11.2	22 11.0														
		16.8	–														
	22	32.0															
		41.5	22 40.2														
		47.2	–														
16 46.~~0~~832			16 46.832														

1879 Sept. 28. L. C.

			′	″
54	47.8	M	11	58.27
56	3.9	M	11	53.07
56	42.8	M	11	50.35
57	20.5	M	11	48.57
57	59.9	M	11	46.92
59	4.7	M	11	42.12
0	25.1	M	11	37.65

3 320
865 36.8
420

									0.16056 8.36605 8.52661					6.73660 8.36605 5.10265		
	1879 Sept. 29 U.C.				π'δ		π−δ									
	h	m	s	m s												
	1	12	48.7													
			57.9	12 56.9												
			4.0 –													
		13	19.6													
			29.6	13 28.4												
			36.0 –													
		13	51.7													
	13 57.74 13 57.74		58.2	13 58.7												
			6.2 –													
		14	20.3													
			29.0	14 27.7												
			33.7 –													
		14	51.2													
			57.6	14 57.0												
			2.3 –				575									
		15	19.4													
			28.8	15 27.1												
			33.2 –													
		15	49.5									'	"			
			56.3	15 55.7	7	42.1	+11 12.3			M	49	300	49	25.09	49	30.81
			1.2 –				672.3	2.82756	5.65512			22.09		+5.72		
		16	20.6		9	59.0	− 8 55.4	1.35417	0.75777	M	50	860	50	26.60	50	30.23
	16 25.96 16 25.96		27.0	16 26.9			535.4	2.72868	5.45736			18.00		+3.63		
			33.2 –		11	6.0	7 48.4	1.25529	0.56001	M	50	1200		27.75		30.53
		16	49.0				468.4	2.67062	5.34124			15.75		+2.78		
			56.0	16 55.6	12	5.9	6 48.5	1.19723	0.44389	M	50	1480		28.54		30.65
			1.8 –				408.5	2.61119	5.22238			13.74		+2.11		
		17	17.9		25	20.9	− 6 26.5	1.13780	0.32503	M	50	4085		27.86		29.75
			24.6	17 24.5			386.5	2.58715	5.17430			−12.99		+1.89		
			31.0 –		26	31.1	− 7 36.7	1.11357	0.27695	M	50	4205		26.69		29.33
		17	48.3				456.7	2.65963	5.31926			− 15.36		+2.64		
			55.5	17 55.5	27	21.2	− 8 26.8	1.18624	0.42191	M	50	4270		25.66		28.91
			2.8 –				506.8	2.70484	5.40968			−17.04		+3.25		
		18	17.5		28	4.0	− 9 9.6	1.23145	0.51233	M	50	4302		24.54		28.37
			24.5	18 24.5			549.6	2.74005	5.48016			−18.48		+ 3.83		
			31.5 –		28	55.2	−10 0.8	1.26666	0.58275	M	50	4487		24.67		29.24
		18	48.7				600.8	2.77873	5.55746			−20.20		+ 4.57		
+	18 54.52 18 54.52		54.3	18 54.6	29	46.4	−10 52.0	1.30534	0.66011	M	50	4492		23.00		28.38
			0.7 –				652.0	2.81425	5.62850			−21.92		+ 5.38		
		19	16.3		30	40.8	−11 46.4	1.34086	0.73115	M	50	4645		22.70		29.02
			24.0	19 22.8 –			706.4	2.84905	5.69810			−23.75		+ 6.32		
			28.0 –		31	51.0	−12 56.6	1.37566	0.80075	M	50	4650		20.39		28.03
		19	49.0				776.6	2.89020	5.78040			− 26.11		+7.64		
			55.0	19 55.2	32	50.3	−13 55.9	1.41681	0.88305	M	50	4727		19.17		28.02
			1.5 –				835.9	2.92215	5.84430			−28.10		+ 8.85		
		20	18.0		33	46.8	−14 52.4	1.44876	0.94695	M	50	4795		17.08		27.09
			24.3	20 24.0			892.4	2.95056	5.90112			− 30.00		+ 10.09		
			29.6 –		34	46.4	− 15 52.0	1.47717	1.00377	M	50	4860		16.59		28.07
		20	48.4				952.0	2.97864	5.95728			− 32.01		+11.48		
			55.2	20 55.2	35	31.7	−16 37.3	1.50525	1.05993	M	50	4912		15.59		28.19
			1.9 –				997.3	2.99883	5.99766			− 33.53		+12.60		
		21	21.4	~~25.9~~	36	26.0	−17 31.6	1.52544	1.10031	M	50	4895		13.59		27.60
	21 23.52 ~~21 23.46~~		26.2	21 ~~26.2~~			1051.6	3.02185	6.04370			− 35.36		+14.01		
			31.0 –	26.2	37	12.2	−18 17.8	1.54846	1.14635	M	50	4965		12.74		28.00
		21	47.3				1097.8	3.04052	6.08104			− 26.91		+15.26		
			52.3	21 51.8	38	5.3	− 19 10.9	1.56713	1.18369	M	50	4982		10.22		27.00
			55.8 –				1150.9	3.06104	6.12208			− 39.60		+16.78		
		22	14.0		38	52.3	− 19 57.9	1.59725	1.22473	M	50	4917		8.90		27.08
			21.2	22 20.4			1197.9	3.07842	6.15684			−40.27		+18.18		
			25.9 –					1.60503	1.25949							
		22	44.5	22 50.6												
			50.0	22 50.6												
			57.3 –													
		23	14.0						1×15	28.63				88	40	7.73
			19.7	23 19.9												
			26.0 –													
		23	45.5													
	23 50.26 23 50.26		50.2	23 50.9												
			57.0 –													
		24	14.9													
			18.5	24 19.4												
			24.9 –													
		24	43.3													
			51.4	24 50.5												
			56.7 –													
	18 54.400			18 54.400												

1879 Sept. 30 Sc. 6.

	h m	s	m s
	13 11	49.0	
		53.4	11 54.2
		0.3	–
	12	20.0	
		25.0	12 25.0
		29.9	–
	12	48.0	
12 54.04 12 54.04		52.5	12 53.6
		0.3	–
	13	18.3	
		23.3	13 23.6
		29.1	–
	13	48.8	
		53.1	13 53.8
		59.6	–
	14	16.0	
		21.4	14 21.6
		27.5	–
	14	46.7	
		49.7	14 51.0
		56.5	–
	15	17.4	
15 22.28 15 22.28		25.0	15 23.9
		29.3	–
	15	47.3	
		52.5	15 52.5
		57.8	–
	16	16.4	
		23.1	16 22.4
		27.6	–
	16	45.2	
		50.6	16 51.1
		57.5	–
	17	14.0	
		18.2	17 18.5
		23.4	–
	17	40.7	
17 49.12 17 49.12		47.6	17 47.7
		54.8	–
	18	12.6	
		20.7	18 19.2
		24.4	–
	18	43.8	
		49.0	18 49.1
		54.4	–
	19	13.0	
		19.9	19 19.4
		25.3	–
	19	41.3	
		47.6	19 47.5
		53.7	–
	20	10.8	
20 18.06 ~~20 18.00~~		17.4	20 17.4
		24.1	–
	20	42.9	
		47.0	20 48.0
		54.0	–
		–	
		–	21 18.0
		–	
		–	
		–	21 47.6
		–	
		–	
		–	22 15.0
		–	–
	22	44.7	
22 44.60 22 44.60		45.4	22 45.4
		46.0	–
	23	7.8	
		13.9	23 13.4
		18.4	–
	23	37.5	
		40.6	23 41.6
		46.7	–
17 49.620			17 49.620

T'δ	T_m − δ		0.16056 8.36605n 8.52661n		′	″	6.73660 8.36605n 5.10265n			
2 31.3	+15 18.3			M	11	3072	12	1.59	10 59.85	10 49.17
	918.3	2.96298	5.92596			−30.87			−10.68	
4 37.7	13 11.9	1.48959n	1.02861n	M	11	2380	11	50.42	57.18	49.24
	791.9	2.89867	5.79734			−26.62			−7.94	
5 26.9	12 22.7	1.42528n	0.89999n	M	11	2137		46.46	56.28	49.29
	742.7	2.87081	5.74162			−25.09			−6.99	
6 9.6	11 40.0	1.39742n	0.84427n	M	11	1950		43.03	55.97	49.76
	700.0	2.84510	5.69020			−23.53			−6.21	
7 18.5	10 31.1	1.37171n	0.79285n	M	11	1570		36.92	54.48	49.44
	631.1	2.80010	5.60020			−21.22			−5.04	
8 2.0	9 47.6	1.32671n	0.70285n	M	11	1435		34.11	54.59	50.22
	587.6	2.76908	5.53816			−19.76			−4.37	
8 45.4	9 4.2	1.29569n	0.64081n	M	11	1110		29.40	52.80	49.05
	544.2	2.73576	5.47152			−18.30			−3.75	
9 39.1	8 10.5	1.26237n	0.57417n	M	11	978		26.27	53.29	50.24
	490.5	2.69064	5.38128			−16.49			−3.05	
10 13.2	7 36.4	1.21725n	0.48393n	M	11	682		22.17	51.47	48.83
	456.4	2.65935	5.31870			−15.35			−2.64	
11 3.7	+6 45.9	1.18596n	0.42135n	M	11	505		18.70	51.40	49.31
	405.9	2.60842	5.21684			−13.65			−2.09	
24 4.5	−6 14.9	1.13503n	0.31949n	M	10	3870	10	26.10	51.30	49.52
	374.9	2.57392	5.14784			+12.60			−1.78	
25 10.4	−7 20.8	1.10053n	0.25049n	M	10	3630		21.45	51.15	48.68
	441.8	2.64523	5.29046			+14.85			−2.47	
26 12.5	−8 22.9	1.17184	0.39311n	M	10	3522		18.31	51.13	47.83
	502.9	2.70148	5.40296			+16.91			−3.20	
27 6.0	−9 16.4	1.22809	0.50561n	M	10	3392		15.21	52.63	48.71
	556.4	2.74539	5.49078			+18.71			−3.92	
27 58.3	−10 8.7	1.27200	0.59343n	M	10	3190		11.44	52.36	47.67
	608.7	2.78440	5.56880			+20.46			−4.69	
28 38.9	−10 49.3	1.31101	0.67145n	M	10	3045		8.62	52.28	46.94
	649.3	2.81245	5.62490			+21.83			−5.34	
29 28.3	−11 38.7	1.33906	0.72755n	M	10	3007		6.38	53.56	47.38
	698.7	2.84429	5.68858			+23.49			−6.18	
30 20.8	−12 31.2	1.37090	0.79123n	M	10	2947		4.21	54.73	47.58
	751.2	2.87576	5.75152			+25.26			−7.15	
31 12.0	−13 22.4	1.46237	0.85417n	M	10	2830		1.32	55.28	47.12
	802.4	2.90439	5.80878			+26.98			−8.16	
31 56.3	−14 6.7	1.43100	0.91143n	M	10	2727	9	58.80	55.74	46.66
	846.7	2.92773	5.85546			+28.47			−9.08	
		1.45434n	0.95811n							
	1 15 29.07						88	40	8.23	

1879 Oct. 1 L.C.

h m s	m s	m s
13	–	
	–	10 51.0
	–	
	–	
	–	11 23.5
	–	
	–	
11 52.48 11 52.48	–	11 52.0
	–	
	12 16.8	
	23.6	12 23.0
	28.5	–
	12 48.9	
	52.1	12 52.9
	57.8	–
	13 17.4	
	21.4	13 22.3
	28.2	–
	13 45.4	
	50.2	13 51.4
	58.5	–
	14 14.8	
14 21.20	21.4	14 20.9
14 21.20	26.5	–
	14 45.3	
	57.5	14 52.0
	59.2	–
	15 13.7	
	18.2	15 19.4
	26.3	–
	15 42.2	
	48.1	15 48.2
	54.2	–
	16 13.6	
	21.0	16 20.0
	25.3	–
	16 43.7	
16 48.84	48.8	16 48.9
16 48.84	54.1	–
	17 11.9	
	17.7	17 17.9
	24.0	–
	17 45.0	
	48.5	17 49.2
	54.1	–
	18 12.7	
	17.8	18 18.0
	23.6	–
	18 44.5	
	47.5	18 48.7
	54.0	–
	19 12.2	
19 17.64	18.1	19 17.9
19 17.64	23.4	–
	19 42.3	
	45.9	19 47.0
	52.7	–
	20 11.5	
	15.9	20 16.6
	22.5	–
	20 39.3	
	43.7	20 44.5
	50.4	–
	21 9.2	
	14.4	21 14.8
	20.7	–
	21 39.0	
21 44.20	44.3	21 44.1
21 44.20	49.1	–
	22 9.5	
	13.6	22 14.5
	20.3	–
	22 37.2	
	43.5	22 43.1
	48.7	–
16 48872		16 48.872

	T'δ	Tn − δ				0.16056 8.36596n 8.52652n		°	"		6.73660 8.36596n 5.10256n				
.17	23 12.0	−6	23.1 383.1	 2.58331	 5.16662		M	10	3615 +12.88	10	2327	10	49.03 − 1.86	10	4717
.24	25 9.7	−8	20.8 500.8	1.10983^{n} 2.69966	0.26918 n 5.39932		M	10	3357 +16.83		16.74		50.40 − 3.18		4722
.29	25 56.3	−9	7.4 547.4	1.22618 2.73830	0.50188 n 5.47660		M	10	3245 +18.40		14.05		50.85 − 3.79		47.04
.76	26 35.0	−9	46.1 586.1	1.26482 2.76797	0.57916 n 5.53594		M	10	3217 +19.70		12.47		51.87 − 4.35		47.52
.44	27 14.1	−10	25.2 625.2	1.29449 2.79602	0.63850 n 5.59204		M	10	3130 +21.02		10.28		52.32 − 4.95		47.37
22	27 51.4	−11	2.5 662.5	1.32254 2.82119	0.69460 n 5.64238		M	10	2992 +22.27		7.65		52.19 − 5.56		46.63
05	28 30.3	−11	41.4 701.4	1.34771 2.84597	0.74494 n 5.69194		M	10	2975 + 23.58		6.17		53.33 − 6.23		47.10
24	29 6.0	−12	17.1 737.1	1.37249 2.86753	0.79450 n 5.73506		M	10	2880 + 24.78		4.02		53.58 − 6.88		46.70
83	29 48.5	−12	59.6 779.6	1.39405 2.89187	0.83762 n 5.78374		M	10	2815 +26.14		2.01		54.29 − 7.70		46.59
31	30 25.1	−13	36.2 816.2	1.41739 2.91180	0.88630 n 5.82360		M	10	2872 +27.44		1.28		56.16 − 8.44		47.72
52	31 4.9	−14	16.0 856.0	1.43832 2.93247	0.92616 n 5.86494		M	10	2702 +28.77	9	58.25		53.79 − 9.28		46.51
.68	31 47.0	−14	58.1 898.1	1.45899 2.95332	0.96750 n 5.90664		M	10	2672 +30.19		56.53		56.91 −10.21		46.70
.83	32 44.4	−15	55.5 955.5	1.47984 2.98023	1.00920 n 5.96046		M	10	2687 +32.12		54.85		58.99 −11.56		47.43
.71	33 16.2	−16	27.3 987.3	1.50675 2.99445	1.06302 n 5.98890		M	10	2575 +33.19		52.56		58.94 −12.34		46.60
.67	34 6.4	−17	17.5 1037.5	1.52097 3.01599	1.09146 n 6.03198		M	10	1995 +34.88		45.07		54.83 −13.63		? (41.20)
94	34 46.3	−17	57.4 1077.4	1.54251 3.03238	1.13454 n 6.06476		M	10	2585 + 36.22		49.63	11	2.07 −14.70		47.37
38	35 24.0	−18	35.1 1115.1	1.55890 3.04731	1.16732 n 6.09462		M	10	2447 +37.48		46.99		1.95 −15.75		46.20
.58	36 11.8	−19	22.9 1162.9	1.57383 3.06554	1.19718 n 6.13108		M	10	2430 +39.09		45.21		3.39 −17.13		46.26
12	36 56.1	−20	7.2 1207.2	1.59206 3.08178	1.23364 n 6.16356		M	10	2392 +40.58		43.34		4.50 −18.45		46.05
.66	37 32.5	−20	43.6 1243.6	1.60830 3.09468	1.26612 n 6.18936		M	10	2325 +41.80		41.43		4.05 −19.59		44.46
				1.62120^{n}	1.29192 n										

1 15 29.39

88 40 8.58

1879 Oct. 2 L.C.			π'δ	π'−δ		0,16056 8,36596n 8,52652n				6.73660 8.36596n 5.10256n		
h	m s	m s										
13	10 51.3											
	55.6	10 55.9										
	0.7	–										
	11 19.6											
	23.6	11 24.1										
	29.0	–										
	11 46.8											
11 54.00	53.6	11 54.0										
11 54.00	1.6	–										
	12 18.7											
	22.2	12 23.0										
	28.0	–										
	12 50.9											
	52.7	12 53.0										
	55.3	–										
	13 16.7											
	20.4	13 20.8										
	25.3	–										
	13 43.8							'	''			
	50.2	13 49.9	7 25.3	+ 9 23.8		5.50226	M	11	1440	11 33,35	10 55.45	10 51.42
	55.6	–		563.8	2.75113	0,60482n			−18,95		−4.03	
	14 15.0	14.21.0	8 2.3	8 46.8	1,27765	5.44330	M	11	1230	30.01	54.59	51.08
~~14 20.84~~	20.3	~~14 23.0~~		526.8	2.72165	0.54586n			−17.71		−3.51	
14 20.44	27.6	–	8 47.4	8 1.7	1,24817	5.36556	M	11	1067	26.86	54.48	51.54
	14 44.8			481.7	2.68278	0.46812n			−16.19		−2.94	
	50.5	14 50.9	9 39.8	7 9.3	1.20930	5.26552	M	11	900	23.43	54.57	52.24
	57.5	–		429.3	2.63276	0.36808n			−14.43		−2.33	
	15 14.1		10 22.0	6 27.1	2.58782	1,15928n 5,17564	M	11	572	18.73	52.71	50.86
	18.4	15 19.6	23 5.4	387.1 −6 16.3		1,11434n 0,27820n			−13.01		−1.85	
	26.2	–	24 57.0	376.3 −8 1.9	2.57553 n	1,10205 + 0.25362 5,15106	M	10	3905	10 26.40	51.70	49.91
	15 44.1			481.9	2.68296	5.36592			+12.65		−1.79	
	49.4	15 50.3	25 31.5	−8 42.4	1.20948	0.46848n	M	10	3792	21.72	54.12	51.18
	57.3	–		522.4	2.71800	5.43600			+16.20		−2.94	
	16 12.2		26 12.9	−9 23.8	1.24452	0.53856n	M	10	3572	18.16	53.28	49.82
	18.7	16 18.7		563.8	2.75113	5.50226			+17.56		−3.46	
	25.2	–	26 53.0	−10 3.9	1.27765	0,60482n	M	10	3587	16.92	54.82	50.79
	16 42.2			603.9	2.78096	5.56192			+18.95		−4.03	
16 48.66	49.7	16 48.5	27 36.0	−10 46.9	1.30748	0.66448n	M	10	3425	13.95	54.55	49.93
16 48.66	53.7	–		646.9	2.81084	5.62168			+20.30		−4.62	
	17 11.7		28 15.6	−11 26.5	1.33736	0.72424n	M	10	3347	1.72	55.22	49.92
	17.2	17 16.8		686.5	2.83664	5.67328			+21.75		−5.30	
	21.6	–	28 54.3	−12 5.2	1.36316	0.77584n	M	10	3340	0.32	56.48	50.51
	17 42.9			725.2	2.86046	5.72092			+23.08		−5.97	
	49.2	17 49.0	29 37.0	−12 47.9	1.38698	0.82348n	M	10	3300	8.62	57.38	50.72
	54.9	–		767.9	2.88530	5.77060			+24.38		−6.66	
	18 12.2		30 10.0	−13 20.9	1.41182	0.87316n	M	10	3190	6.09	57.71	50.24
	18.0	18 18.4		800.9	2.90358	5.80716			+25.81		−7.47	
	25.0	–	30 51.0	−14 1.9	1.43010	0.90972n	M	10	3080	3.88	57.72	49.60
	18 41.6			841.9	2.92526	5.85052			+26.92		−8.12	
	46.4	18 47.0	31 56.0	−15 6.9	1.45178	0.95308n	M	10	3042	2.12	58.72	49.74
	53.1	–		906.9	2.95756	5.91512			+ 28.30		−8.98	
	19 11.0		32 31.5	−15 42.4	1.48408	1.01768n	M	10	2878	9 58.30	59.26	48.85
19 17.64	15.1	19 16.4		942.4	2.97424	5.94848			+ 30.48		−10.41	
19 17.64	23.0	–	33 16.0	−16 26.9	1.50076	1.05104n	M	10	2902	57.34	11 0.70	49.45
	19 44.0			986.9	2.99427	5.98854			+ 31.68		−11.25	
	48.2	19 48.7	34 8.0	−17 18.9	1.52079	1.09110n	M	10	2837	55.20	1.54	49.20
	54.0	–		1038.9	3.01657	6.03314			+ 33.17		−12.34	
	20 13.3				1.54309 n	1.13570n	M	10	2762	52.70	2.54	48.87
	18.5	20 17.7							+ 34.92		−13.67	
	21.2	–										
	20 37.5	–										
	44.2	20 43.9										
	50.0	–										
	21 9.5	–		1 15	29.74					X 88	40 8.93	
	14.0	21 14.1										
	18.7	–										
	21 38.8											
21 44.24	43.9	21 44.3										
21 44.24	50.3	–										
	22 9.0											
	14.9	22 15.1										
	21.5	–										
	22 38.0											
	42.5	22 43.8										
	51.0	–										
16 49.076		16 49.076										

1879 Oct. 3 L.C.

0.16056
8.36596n
8.52652n

6.73660
8.36596n
5.10256n

			′	″
Ry: 25	7.2	M	10	35.57
25	48.3	M	10	34.30
26	20.2	M	10	33.22
27	1.9	M	10	32.57
27	41.3	M	10	32.50
28	42.3	M	10	30.87
29	28.3	M	10	29.52
30	8.2	M	10	28.62
30	45.7	M	10	28.57

26	39.1
	43.6
	49.5
28	8.0
	12.3
	19.4
29	37.5
	44.3
	47.4
31	12.1
	15.8
	19.5
	—
	—
	—

1 15 30.09

a + 1 ~~88~~ 40 9.30

a − 1

26 44.1	− 8 53.0	17 51.1
28 13.2	10 21.8	51.4
29 43.7	11 50.9	52.8
31 15.8	13 19.7	56.1
		17 211.4
	1	17 52.85

1879 Oct. 4. So. C.				T'_δ	$T_n - \delta$		0.16056 8.36587 n 8.52643 n			6.73660 8.36587 n 5.10247 n	
h	m	s	m s								
13	10	46.3									
		54.5	10 53.2								
		58.8	–								
	11	20.4									
		25.7	11 25.6								
		30.8	–								
	11	47.5									
11 53.46		54.8	11 53.8								
11 53.46		59.0	–								
	12	14.0									
		24.2	12 22.5								
		29.3	–								
	12	46.9									
		52.0	12 52.2						' "		
		57.7	–	5 26.0	+ 11 24.7			M	11 2452	11 1.51	10 55.57
	13	17.6			684.7	283550	5.67100		- 23.01	-5.94	
		24.2	13 23.8	6 47.9	10 2.8	1.36193 n	0.77347 n	M	11 1748	10 57.23	52.63
		29.7	–		602.8	2.78017	5.56034		- 20.25	-4.60	
	13	48.2		7 50.5	9 0.2	1.30650 n	0.66281 n	M	11 1502	56.87	53.18
		54.6	13 54.5		540.2	273255	5.46510		- 18.15	-3.69	
		0.8	–	8 47.2	8 3.5	1.25898 n	0.56757 n	M	11 1235	56.10	53.14
	14	16.7			483.5	268440	5.36880		- 16.25	-2.96	
14 23.24		22.7	14 22.1	9 40.2	7 10.5	1.21083 n	0.47127 n	M	11 1017	55.70	53.35
14 23.24		26.8	–		430.5	263397	5.26794		- 14.47	-2.35	
	14	47.6		23 21.7	- 6 31.0	1.16040 n	0.37041 n	M	10 3932	52.46	50.52
		53.2	14 53.2		391.0	259218	5.18436		+ 13.14	-1.94	
		58.8	–	26 6.1	9 15.4	1.11867 n	0.28683 n	M	10 3652	55.19	51.28
	15	16.8			555.4	2.74461	5.48922		+18.67	-3.91	
		22.2	15 22.6	27 10.6	- 10 19.9	1.27104	0.59169 n	M	10 3485	55.68	50.81
		28.8	–		619.9	2.79232	5.58464		+20.83	-4.87	
	15	45.2		28 12.0	11 21.3	1.31875	0.68711 n	M	10 3372	56.56	50.68
		50.0	15 50.5		681.3	2.83334	5.66668		+22.84	- 5.88	
		56.2	–	29 18.1	- 12 27.4	1.35977	0.76915 n	M	10 3242	57.54	50.47
	16	17.1			747.4	2.87355	5.74710		+ 25.12	- 7.07	
		23.3	16 23.1	30 39.5	- 13 48.8	1.39998	0.84957 n	M	10 3252	11 0.37	51.67
		28.9	–		828.8	2.91845	5.83690		+ 27.85	-8.70	
	16	45.9		31 43.8	- 14 53.1	1.44488	0.93937 n	M	10 3039	0.41	50.31
16 51.12		53.0	16 52.6		893.1	2.95090	5.90180		+ 30.02	-10.10	
16 51.12		58.9	–	32 42.0	- 15 51.3	1.47733	1.00427 n	M	10 2998	1.95	50.49
	17	14.5			951.3	2.97832	5.95664		+ 31.97	-11.46	
		21.1	17 20.5	33 47.7	- 16 57.0	1.50475	1.05911 n	M	10 2912	3.30	50.20
		26.0	–		1017.0	3.00732	6.01464		+ 34.18	-13.10	
	17	43.2		34 45.9	- 17 55.2	1.53375	1.11711 n	M	10 2800	4.14	4950
		48.6	17 48.9		1075.2	3.03149	6.06298		+ 36.14	-14.64	
		54.8	–	35 42.7	- 18 52.0	1.55792	1.16545 n	M	10 2827	6.31	50.08
	18	13.8			1132.0	3.05385	6.10770		+ 38.04	-16.23	
		20.0	18 19.4	36 47.5	- 19 56.8	1.58028	1.21017 n	M	10 2842	8.64	50.51
		24.3	–		1196.8	3.07802	6.15604		+ 40.22	-18.13	
	18	45.8		37 49.2	- 20 58.5	1.60445	1.25851 n	M	10 2805	10.34	50.29
		50.8	18 51.3		1258.5	3.09985	6.19970		+ 42.29	-20.05	
		57.4	–	38 50.0	- 21 59.3	1.62628	1.30217 n	M	10 2592	10.26	48.22
	19	15.3			1319.3	3.12034	6.24068		+ 44.34	-22.04	
19 19.42		20.0	19 20.2	39 28.5	- 22 37.8	1.64677	1.34315 n	M	10 2930	14.93	51.59
19 19.42		25.4	–		1357.8	3.13284	6.26568		+ 45.63	-23.34	
	19	44.2				1.65927 n	1.36815 n				
		49.0	19 49.4								
		55.0	–								
	20	11.3									
		16.2	20 16.8		1 15	30.43				88	40 9.70
		22.9	–								
	20	41.7									
		46.3	20 46.2								
		50.7	–								
	21	8.2									
		14.6	21 14.8								
		21.7	–								
	21	42.6									
21 46.50		46.9	21 47.3								
21 46.50		52.5	–								
	22	11.7									
		18.4	22 17.5								
		22.5	–								
	22	41.5									
		46.0	22 46.7								
		52.6	–								
16 50.748			16 50.748								

1879 Oct. 5 - L. C.		π'δ	π'δ	π − δ	0.16056 8.36587n 8.59643n			6.73660 8.36587n 5.10247n		
	h m s	m s								
	13 10 52.3									
	56.7	10 56.4								
	0.2	–								
	11 22.2									
	26.2	11 27.1								
	32.8	–								
	11 50.3									
11 56.22	54.3	11 54.6								
11 56.22	59.3	–								
	12 18.7									
	27.0	12 26.2								
	33.0	–								
	12 52.1									
	55.5	12 56.8						′ ″		
	2.8	–	59 17.2	+ 17 34.9			M	11 45.95	11 10.50	10 56.41
	13 21.7			1054.9	3.02321	6.04643		−35.45	−14.09	
	26.2	13 26.1	0 34.3	16 17.8	1.54864n	1.14889n	M	11 39.85	5.99	53.88
	30.5	–		977.8	2.99025	5.98050		−32.86	−12.11	
	13 50.9		1 19.9	15 32.2	1.51668n	1.08297n	M	11 36.85	5.52	54.52
	55.1	13 55.5		932.2	2.96951	5.93902		−31.33	−11.00	
	0.4	–	2 22.0	14 30.1	1.49594n	1.04149n	M	11 33.07	3.83	54.24
	14 16.0			870.1	2.93957	5.87914		−29.24	−9.59	
14 25.62	27.4	14 25.0	3 9.3	13 42.8	1.46600n	0.98161n	M	11 30.12	2.47	53.90
14 25.62	31.7	–		822.8	2.91529	5.83058		−27.65	−8.57	
	14 48.7		4 7.0	12 45.1	1.44172n	0.93305n	M	11 26.53	0.84	53.43
	54.5	14 54.4		765.1	2.88372	5.76744		−25.71	−7.41	
	0.1	–	5 1.2	11 50.9	1.41015n	0.86991n	M	11 23.17	10 59.28	52.88
	15 19.7			710.9	2.85181	5.70362		−23.89	−6.40	
	26.9	15 27.1	6 4.0	10 48.1	1.37824n	0.80609n	M	11 20.82	57.04	53.72
	34.8	–		648.1	2.81164	5.62328		−21.78	−5.32	
	15 51.2	–	7 19.5	9 32.6	1.33807n	0.72575n	M	11 15.45	56.21	52.06
	54.8	15 55.2		572.6	2.75785	5.51570		−19.24	−4.15	
	59.5	–	7 54.5	8 57.6	1.28428n	0.61817n	M	11 13.30	55.23	51.57
	16 19.9			537.6	2.73046	5.46092		−18.07	−3.66	
	24.0	16 24.2	9 0.4	7 51.7	1.25689n	0.56339n	M	11 11.07	55.22	52.40
	28.6	–		471.7	2.67367	5.34734		−15.85	−2.82	
	16 50.5		10 16.5	6 35.6	1.20010n	0.44981n	M	11 6.82	53.53	51.55
16 53.00	55.0	16 54.4		395.6	2.59726	5.19452		−13.29	−1.98	
16 53.00	57.8	–	23 26.6	− 6 34.5	1.12369n	0.29699n	M	? 4.00	53.26	51.29
	17 15.0			394.5	2.59605	5.19210		+13.26	−1.97	
	21.2	17 21.3	24 20.2	− 7 28.1	1.12248n	0.29457n	M	39.02	54.08	51.54
	27.8	–		448.1	2.65137	5.30274		+15.06	−2.54	
	17 44.4		25 13.2	− 8 21.1	1.17780	0.40521n	M	38.00	54.84	51.66
	47.7	17 49.9		501.1	2.69992	5.39984		+16.84	−3.18	
	57.5	–	25 54.2	− 9 2.1	1.22635	0.50231n	M	36.25	54.47	50.75
	18 16.2			542.1	2.73408	5.46816		+18.22	−3.72	
	21.0	18 21.7	26 34.5	− 9 42.4	1.26051	0.57063n	M	34.90	54.47	50.18
	28.0	–		582.4	2.76522	5.53044		+19.57	−4.29	
	18 46.4		27 21.0	− 10 28.9	1.29165	0.63291n	M	34.65	55.79	50.78
	57.8	18 51.7		628.9	2.79858	5.59716		+21.14	−5.01	
	56.8	–	28 0.6	− 11 8.5	1.32501	0.69963n	M	34.52	56.99	51.33
	19 14.2			668.5	2.82510	5.65020		+22.47	−5.66	
19 19.70	18.5	19 19.3	29 16.5	− 12 24.4	1.35153	0.75267n	M	32.80	57.82	50.47
19 19.70	26.2	–		744.4	2.87181	5.74362		+25.02	−7.35	
	19 40.4				1.39824n	0.84609n				
	46.5	19 46.8								
	53.4	–								
	—									
	20 —	20 19.0		1 15	30.71				88	40 10.10
	—									
	—									
	70 —	20 46.0								
	—									
	—									
	21 —	21 16.5								
	—									
	—									
21 45.88	21 —	21 46.0								
21 45.88	—									
	22 9.7									
	14.8	22 14.6								
	19.8	–								
	22 42.5	–								
	45.5	22 46.3								
16 52.084	50.9	–								
		16 52.084								

35

1879 Oct. 6-7 L.C.

							0.16056 8.36587n 8.52643n			6.73660 8.36587n 5.10247n		
h	m	s	m s									
13	11	0.6										
		1.2	11 1.3									
		2.1 –										
	11	36.0										
		37.0	11 37.0									
		38.0 –										
	12	4.6										
12 4.90		6.7	12 6.7									
12 4.90		8.7 –										
	12	30.8										
		36.5	12 35.6				5745					
		40.4 –										
	12	57.2										
		3.2	13 3.9						′	″		
		11.4 –		.58	5.0	+18 54.9		M	11	50.70		
	13	28.1				1134.9	3.05496					
		34.2	13 34.3	0	2.0	16 57.9	1.58139	M	11	41.70		
		40.5 –				1017.9	3.00771					
	13	57.7		0	31.6	16 28.3	1.53414	M	11	40.30		
		3.2	14 4.1			988.3	2.99489					
		11.4 –		1	18.7	15 41.2	1.52132	M	11	38.87		
	14	27.2				941.2	2.97368					
14 32.76		31.0	14 31.5	2	5.3	14 54.6	1.50011	M	11	34.78		
14 32.76		36.4 –				894.6	2.95163					
	14	57.1		2	47.7	14 12.2	1.47806	M	11	33.00		
		2.7	15 2.6			852.2	2.93054					
		8.1 –		3	31.3	13 28.6	1.45697	M	11	29.70		
	15	24.8				808.6	2.90773					
		30.6	15 31.3	4	31.5	12 28.4	1.43416	M	11	27.32		
		38.4 –				748.4	2.87413					
	15	52.0		5	33.4	11 26.5	1.40056	M	11	21.38		
		0.2	15 59.5			686.5	2.83664					
		6.2 –		8	48.2	8 11.7	1.36307	M	11	13.12		
	16	25.0				491.7	2.69170					
		29.8	16 30.6	9	36.4	7 23.5	1.21813	M	11	11.62		
		37.1 –				443.5	2.64689					
	16	55.9		10	21.6	6 38.3	1.17332	M	11	8.80		
16 59.44		1.1	17 1.0			398.3	2.60021					
16 59.44		6.0 –		23	32.9	−6 33.3	1.12664	M		40.72		
	17	23.2				393.0	2.59439					
		28.4	17 28.7	24	24.3	−7 24.4	1.12082	M		39.45		
		34.6 –				444.4	2.64777					
	17	49.4		25	17.6	−8 17.7	1.17420	M		38.75		
		57.7	17 57.4			497.7	2.69697					
		5.0 –		26	10.2	−9 10.3	1.22340	M		36.88		
	18	21.9				550.3	2.74060					
		27.7	18 27.9	27	5.9	−10 6.0	1.26703	M		35.62		
		34.0 –				606.0	2.78247					
	18	55.3		28	3.0	−11 3.1	1.30890	M		35.20		
		1.0	19 0.3			663.1	2.82158					
		4.5 –		28	57.9	−12 0.0	1.34801	M		33.22		
	19	24.8				720.0	2.85733					
19 28.02		27.8	19 28.1	29	43.4	−12 43.5	1.38376	M		33.52		
19 28.02		31.6 –				763.5	2.88281					
	19	51.5 –					1.40924					
		58.2	19 57.4									
		2.5 –										
	20	20.8										
		26.5	20 26.4			1 15	30.93				88	40 10.50
		31.8 –										
	20	50.2 –										
		58.5 –	20 58.3									
		6.3 –										
	21	19.5										
		25.2	21 25.6									
		32.0 –										
	21	48.4										
21 54.52		53.2	21 54.4									
21 54.52		1.5 –										
	22	18.6										
		23.3	22 23.8									
		29.5 –										
	22	46.9										
		51.0	22 50.5									
		53.7 –										
16 59.928			16 59.928									

1879 Oct. 7-8 L.C				0.16056 8.36578n 8.52634n		6.73660 8.36578n 5.10238n				
h	m s	m s								
13	—									
	—	11 0.0								
	—									
	11 25.0 –									
	31.9	11 31.5								
	37.5 –									
	11 55.3									
12 0.60	59.5	12 0.9								
12 0.60	7.9 –									
	12 24.7									
	31.4	12 31.4								
	38.2 –									
	12 53.5									
	59.6	12 59.2					'	"		
	4.5 –		23 11.4	– 6 14.8		M	10	40.60		
	13 24.4			364.8	2.56205 n					
	29.5	13 30.1	24 17.4	– 7 20.8		M	10	39.52		
	36.4 –			440.8	2.64424					
	13 52.5		24 54.0	– 7 57.4		M	10	37.62		
	58.6	13 59.3		477.4	2.67888					
	6.7 –		25 30.0	– 8 33.4		M	10	36.92		
	14 24.3			513.4	2.71046					
14 29.14	29.2	14 29.2	26 4.6	– 9 8.0		M	10	34.85		
14 29.14	34.2 –			548.0	2.73878					
	14 52.0		26 37.9	– 9 41.3		M	10	35.60		
	59.3	14 58.9		581.3	2.76440					
	5.3 –		27 13.6	– 10 17.0		M	10	34.80		
	15 22.4			617.0	2.79029					
	29.0	15 28.2	27 58.3	– 11 1.7		M	10	34.07		
	33.3 –			661.7	2.82066					
	15 53.2		28 43.1	– 11 46.5		M	10	32.50		
	58.0	15 58.0		706.4	2.84905					
	2.8 –		29 25.1	– 12 28.5		M	10	32.17		
	16 22.5			748.5	2.87419					
	27.5	16 28.2	30 35.6	– 13 39.0		M	10	30.50		
	34.5 –			819.0	2.91328					
	16 52.4		31 40.0	– 14 43.4		M	10	29.32		
16 56.52	58.5	16 58.0		883.4	2.94616					
16 56.52	3.0 –		32 31.3	– 15 34.7		M	10	29.72		
	17 19.0			934.7	2.97067					
	23.7	17 25.0	33 24.3	– 16 27.7		M	10	31.00		
	32.4 –			987.7	2.99463					
	17 48.7		34 22.5	– 17 25.9		M	10	28.80		
	52.6	17 53.4		1045.9	3.01949					
	58.8 –		35 4.2	– 18 7.6		M	10	28.72		
	18 20.7			1087.6	3.03647					
	25.2	18 26.1	35 39.2	– 18 42.6		M	10	28.35		
	32.5 –			1122.6	3.05022					
	18 46.6		36 24.5	– 19 27.9		M	10	28.20		
	52.1	18 52.4		1172.9	3.06926					
	58.5 –		37 3.3	– 20 6.7		M	10	26.75		
	19 15.9			1206.7	3.08160					
19 23.98	21.2	19 22.4	37 43.1	– 20 46.5		M	10	27.35		
19 23.98	30.1 –			1246.5	3.09569 n					
	19 50.0									
	54.0	19 54.5								
	59.6 –									
	20 21.6									
	23.9	20 24.5		1 15	31.09				88	40 10.92
	28.1 –									
	20 47.6									
	55.1	20 54.2								
	0.0 –									
	21 18.5									
	23.6	21 23.5								
	28.5 –									
	21 48.0									
21 52.96	51.9	21 52.6								
21 52.96	58.0 –									
	22 17.8									
	22.8	22 22.5								
	26.8 –									
	22 46.7									
	57.2	22 52.0								
	58.0 –									
16 56.640		16 56.640								

1879 Oct. 12-13 L.C.

0.16056
8.36560n
8.52616n

6.73660
8.36560n
5.10220n

Not copy

		′	″
26 8.8	M	10	3975
27 11.3	M	10	4117
27 58.2	M	10	4035
28 42.0	M	10	3950
29 28.0	M	10	3855
30 18.3	M	10	3685
30 56.9	M	10	3695
31 40.7	M	10	3532
33 7.1	M	10	3492
33 46.7	M	10	3388
34 23.8	M	10	3392
35 6.7	M	10	3405
35 52.3	M	10	3317
36 39.8	M	10	3098
37 27.0	M	10	3092
38 7.2	M	10	3207
38 50.3	M	10	3050
39 35.7	M	10	3157
40 21.7	M	10	3055
—			

27 —
2.2
3.2
28 24.2
27.4
34.5
29 55.0
59.4
3.4
—
—
—
32 49.3
55.3
0.3

1 15 31.38

a + 1
27 2.7
28 28.7
29 59.3

32 55.0

K 88 40 12.84

- 1879 Oct 13 - 14 L.C.
0.16056
8.36560n
8.52616n
6.73660
8.36560n
5.10290n
Identical

h m s m s
13 11 5.8
11.6 11 11.4 11 — 11.4
16.7 +5 55.6
11 34.6 +5 56.2 7.0 7.6
42.5 11 41.8 11 — 41.8
48.4 -5 25.9 7.7 8.2
12 6.7 5 26.4
11.1 12 11.8 12 — 11.8
17.7 -4 55.7 7.5 8.4
12 35.8 4 56.6
40.4 12 41.1 12 — 41.1
47.2 -4 26.2 7.3 8.1 —
13 7.0 4 27.0
10.8 13 10.9 ' " 13 — 10.9
15.0 -3 57.3 57 25.4 +19 42.9 8.2 8.3 M 11 56.47
13 36.3 3 57.4 1182.9
41.9 13 43.5 58 34.0 18 34.3 1' M 11 51.10 13 — 43.5
49.2 -3 26.9 1114.3 10.4 11.1
14 4.4 3 27.6 59 46.5 17 21.8 M 11 46.88
11.9 14 11.8 1041.8 14 — 11.8
19.0 -2 57.2 0 30.9 16 37.4 9.0 9.5 M 11 44.27
14 34.8 2 57.7 997.4
40.2 14 40.6 1 21.0 15 47.3 M 11 41.95 14 — 40.6
46.7 -2 28.3 947.3 8.9 8.9 —
— 2 28.3 2 0.5 15 7.8 M 11 38.55
— 907.8
— 2 38.3 14 30.0 M 11 36.95
— 870.0
— 3 20.0 13 48.3 M 11 34.75
— 828.3
— 4 1.8 13 6.5 M 11 33.07
— 786.5
— 5 4.0 12 4.3 M 11 29.15
— 724.3
— 5 52.9 11 15.4 M 11 25.95
— 675.4
— 6 34.6 10 33.7 M 11 23.42
+ — 633.7
— — 07 7 14.6 9 53.7 M 11 21.95
— 593.7
— 7 52.0 9 16.3 M 11 19.42
— 556.3
— 8 33.9 8 34.4 M 11 17.47
— 514.4
— 9 24.2 7 44.1 M 11 15.05
— 464.1
— 10 40.0 +6 28.3 M 11 12.25
— 388.3
— — 23 15.3 -6 7.0 M 1.80
— — 367.0
— — 24 4.6 6 56.3 M —
27 24.4 — 416.3
27.7 — 24 47.0 7 38.7 M 11.30
36.0 — 458.7
28 59.4 — 25 40.3 -8 32.0 M 15.45
3.3 — 572.0
6.9 —
30 23.1 —
28.5 — ✗ 15 31.47 ✗88 40 13.19
35.4 — a -1
31 50.2 — 27 29.4 —
54.9 —
4.7 — 27 29.4 10 21.1 -10 22.3 17 5.1
— 29 3.2 11 54.9 11 51.5 11.7
— 5.1 30 29.0 13 20.7 13 20.4 8.6
— 11.7 31 56.6 14 48.3 14 49.9 6.7
— 8.6 32.3
— 37.8
— 6.7 89.2
22 59.5 109.3
27 23 3.7
8.9 5 54.8 8.9 7.1 13 17 8.41
-5 56.6 9) 749 672 13 17 8.41
17 8.32 7.47

1879 - Oct. 14 - L.C.

A+, 2 only, in A.R. No. 8.

80 25.3
31.2
35.1

1879 Oct. 15. U.C.

	h	m	s	m s
	1	13	9.0	
			14.3	13 14.4
			19.9	
		13	38.5	
			44.4	13 44.1
			49.3	
		14	10.9	
	14 14.72 14 14.72		16.0	14 15.3
			19.1	
		14	38.8	
			45.6	14 45.1
			51.0	
		15	8.6	
			14.9	15 14.7
			20.5	
		15	39.4	
			44.5	15 44.4
			49.3	
		16	8.0	
			12.5	16 12.5
			17.0	
		16	38.5	
	16 42.68		43.5	16 43.4
4 18.4	16 42.68		48.3	
23.5		17	7.4	
26.8			12.9	17 12.7
5 46.5			17.9	
50.6		17	34.8	
57.2			40.0	17 40.4
7 17.1			46.4	
22.6		18	7.5	
27.0			12.3	18 12.2
8 41.6			16.7	
46.6		18	34.0	
57.5			42.5	18 41.5
10 10.0			48.0	
16.1		19	6.4	
21.7	19 12.06		13.4	19 12.3
	19 12.06		17.2	
		19	36.2	
			42.0	19 41.5
			46.3	
		20	—	
			9.2	20 12.8
			16.4	
		20	32.3	
			—	20 39.4
			46.4	
		21	4.2	
			10.4	21 10.1
			15.8	
		21	31.5	
	21 39.66		39.8	21 38.9
	21 39.66		45.5	
		22	—	
			9.8	22 9.8
			—	
		22	34.9	
			40.0	22 40.1
			45.5	
		23	0.2	
			9.0	23 8.2
			15.3	
		23	32.3	
			36.0	23 36.8
			42.0	
		23	59.6	
	24 7.28		8.0	24 6.8
	24 7.28		12.7	
		24	33.2	
			37.7	24 37.5
			41.5	
		25	2.0	
			6.4	25 7.1
			13.0	
	19 11.280			19 11.280

0.16056
8.36551
8.52607

6.73660
8 36551
5.10211

548

				′	″
6 44.4	+12 26.9 746.9	2.87326	M	49	45.25
7 44.2	11 27.1 687.1	2.83702	M	49	55.02
8 30.6	10 40.7 640.7	2.80665	M	49	57.20
9 16.0	9 55.3 595.3	2.77474	M	49	58.92
10 2.6	9 8.7 548.7	2.73933	M	50	1.42
10 47.2	8 24.1 504.1	2.70252	M	50	3.00
11 34.5	7 36.8 456.8	2.65973	M	50	5.10
12 23.8	6 47.5 407.5	2.61013	M	50	8.32
25 24.7	−6 13.4 373.4	2.57217 n	M	50	11.12
26 11.5	−7 0.2 420.2	2.62346	M	50	36.50
26 54.2	−7 42.9 462.9	2.66549	M	50	37.07
27 44.8	−8 33.5 513.5	2.71054	M	50	37.87
28 30.9	−9 19.6 559.6	2.74788	M	50	38.92
29 19.0	−10 7.7 667.7	2.78369 n	M	50	40.00
			M	50	40.55

a+1

4 22.9	+14 48.4	14 49.6	19 12.5		
5 51.4	13 19.9	13 20.1	11.5		
7 22.2	11 49.1	11 51.9	14.1 15	31.67	88 40 13.72
8 46.6	10 24.7	10 22.9	9.5		
10 15.9	8 55.4	8 53.6	9.5		
			57.1 19 11.42		

1879 Oct. 15–16 L.C.

not copy

A + 1

31 54.3
57.3
7.5
—
—
—
—
—
—
—
—
—
—
—
—

32 44.9
33 41.0
34 19.8
35 5.4
35 44.3

	′	″
M	10	35.52
M	10	34.70
M	10	33.95
M	10	33.95
M	10	33.72

1879 Oct. 19 U.C.

Wth Copy

0.16056
8.36542
8.52598

6.73660
8.36542
5.10202

h	m	s	m s
		–	
		–	14 18.0
		–	
		–	
		–	14 45.0
		–	
1	15	17.6	
15 19.42 15 19.42		21.4	15 21.7
		26.1	
	15	42.0	
		62.0	15 50.9
		58.8	
	16	16.9	
		21.8	16 21.5
		25.7	
	16	39.7	
		47.9	16 47.3
		54.2	
	17	14.9	
		21.3	17 21.5
		28.2	
	17	46.1	
17 51.06 17 51.06		52.1	17 52.1
		58.2	
	18	16.0	
		23.3	18 22.6
		28.5	
	18	45.8	
		51.8	18 51.8
		57.8	
	19	13.6	
		19.0	19 19.3
		25.4	
	-19	41.7	46.9
		46.4	19 ~~46.6~~
		52.7	
	20	13.9	
~~20 18.20~~ 20 17.86		18.3	20 19.3
		25.6	
	20	41.4	
		48.3	20 47.8
		53.7	
	21	9.9	
		16.3	21 16.0
		21.8	
	21	38.3	
		44.8	21 45.0
		52.0	
	22	14.1	
		19.8	22 19.6
		24.8	
	22	46.4	
22 47.10 22 47.10		49.4	22 49.6
		53.0	
	23	10.4	
		15.6	23 15.7
		21.2	
	23	38.3	
		45.8	23 45.6
		52.8	
	24	13.4	
		18.6	24 18.1
		22.4	
	24	41.8	
		49.0	24 47.3
		51.2	
	25	11.3	
~~25 16.52~~ 25 16.54		16.8	25 16.6
		21.8	
	25	36.2	45.0
		45.2	25 ~~44.9~~
		53.5	
	26	9.4	
		15.1	26 15.7
		22.7	
20 18.460			20 18.460

57	49.0	+22 29.5	
		1349.5	3.13017
58	51.5	21 27.0	
		1287.0	3.10958
59	38.3	20 40.2	
		1240.2	3.09349
0	36.6	19 41.9	
		1181.9	3.07258
1	16.9	19 1.6	
		1141.6	3.05751
2	2.4	18 16.1	
		1096.1	3.03985
2	49.2	17 29.3	
		1049.3	3.02090
3	38.4	16 40.1	
		1000.1	3.00004
4	24.3	15 54.2	
		954.2	2.97964
6	1.3	14 17.2	
		857.2	2.93308
6	51.1	13 27.4	
	—	807.4	2.90709
	—	6 15.9	
	—		
	—	-7 17.5	
26	34.4	− 6 15.9	
		375.9	2.57507 n
27	36.0	− 7 17.5	
		437.5	2.64098
28	27.0	− 8 8.5	
		488.5	2.68886
29	13.0	− 8 54.5	
		534.5	2.72795
29	59.6	− 9 41.1	
		581.1	2.76425 n
		1.~~45~~	32.26

	′	″
M	49	19.98
M	49	24.90
M	49	27.98
M	49	30.07
M	49	32.55
M	49	34.85
M	49	38.65
M	49	42.57
M	49	43.70
M	49	57.47
M	49	52.12
M	49	56.65
M	49	57.32
M	49	58.40
M	50	1.95
M	50	4.45
M	50	10.07
M	50	36.68
M	50	39.27
M	50	39.52
M	50	39.38
M	50	40.50

~~8~~8 40 15.29

1879 Oct. 19 S. C.

	h m s	m s
	13 11 21.1	
	25.7	11 25.8
	30.5	–
	11 48.2	
	52.5	11 52.9
	58.0	–
	12 18.1	
12 23.42	22.4	12 23.8
12 23.42	31.0	–
	12 48.0	
	52.9	12 53.9
	0.9	–
	13 15.2	
	20.7	13 20.7
	26.1	–
	13 47.1	
	52.8	13 52.5
	57.5	–
	14 17.2	
	22.0	14 22.4
	27.9	–
	14 45.2	
14 51.42	49.5	14 50.1
14 51.42	55.5	–
	15 15.0	
	20.3	15 20.3
	25.6	–
	15 46.0	
	50.5	15 51.8
	57.0	–
	16 18.7	
	22.7	16 23.2
	28.1	–
	16 42.8	
	48.0	16 48.5
	54.7	–
	17 15.2	
17 20.28	21.2	17 20.8
17 20.28	26.0	–
	17 43.0	
	51.0	17 50.2
	56.5	–
	18 14.4	
	18.0	18 18.7
	23.7	–
	18 43.0	
	47.7	18 48.7
	55.3	–
	19 14.6	
	20.1	19 19.8
	24.7	–
	19 42.1	
19 48.26	49.2	19 48.8
19 48.26	55.2	–
	20 14.0	
	19.6	20 18.9
	23.1	–
	20 39.0	~~43.8~~
	44.6	20 ~~45.1~~ 45.1
	51.7	–
	21 12.5	
	17.7	21 17.7
	23.0	–
	21 41.8	
	45.0	21 46.0
	51.3	–
	22 11.7	
22 16.40	16.7	22 17.2
22 16.40	23.1	–
	22 42.0	
	46.1	22 46.2
	50.5	–
	23 9.7	
	14.6	23 14.9
	20.4	–
17 19.956		17 19.956

0.16056
8.36542n
8.52598n

6.73660
8.36542n
5.10202n

545

m s	m s	
4 17.6	+13 2.4 782.4	2.89343
5 12.0	12 8.0 728.0	2.86213
6 31.1	10 48.9 648.9	2.81218
7 13.1	10 6.9 606.9	2.78312
7 51.5	9 28.5 568.5	2.75473
10 5.7	7 14.3 434.3	2.63779
10 47.5	6 32.5 392.5	2.59384
23 31.7	−6 11.7 371.7	2.57019n
24 25.8	−7 5.8 425.8	2.62921
25 11.5	−7 51.5 471.5	2.67348
25 57.8	−8 31.8 511.8	2.70910
26 42.0	−9 22.0 562.0	2.74974
27 42.0	−10 22.0 622.0	2.79379
28 24.4	−11 4.4 664.4	2.82243
29 9.7	−11 49.7 709.7	2.85107
29 47.1	−12 27.1 747.1	2.87338
30 25.0	−13 5.0 785.0	2.89487
31 6.2	−13 46.2 826.2	2.91709
31 45.2	−14 25.2 865.2	2.93712
32 24.7	−15 4.7 904.7	2.95650n

	′	″
M	11	36.10
M	11	34.25
M	11	32.00
M	11	29.78
M	11	27.37
M	11	26.40
M	11	18.80
M	11	17.67
M	10	50.65
M	10	50.05
M	10	48.18
M	10	46.90
M	10	46.52
M	10	45.87
M	10	44.80
M	10	44.00
M	10	44.58
M	10	42.82
M	10	41.80
M	10	41.05
M	10	40.85

1 15 32.29

88 40 15.51

1879 Oct. 20 – 21 L.C.

							0.16056 8.36533n 8.52589n		6.73660 8.36533n 5.10193n			
	h	m	s	m s								
	13	11	18.8									
			24.0	11 24.0								
			29.2	–								
		11	48.7									
			53.8	11 53.8								
			59.0	–								
		12	18.3									
12 23.46			25.8	12 25.0								
12 23.46			30.8	–								
		12	47.6									
			52.0	12 52.8								
			58.7	–								
		13	17.0									
			21.8	13 21.7						′	″	
			26.3	–	48	22.7	+28 57.0		M	12	40.07	
		13	48.6				1737.0	3.23980				
			53.7	13 54.0	49	44.9	27 34.8		M	12	33.50	
			59.6	–			1654.8	3.21875				
		14	18.4		50	42.4	26 37.3		M	12	30.07	
			23.6	14 23.3			1597.3	3.20339				
			27.8	–	51	28.7	25 51.0		M	12	25.87	
		14	44.7				1551.0	3.19061				
14 51.88			51.3	14 51.2	52	19.0	25 0.7		M	12	22.70	
14 51.88			57.7	–			1500.7	3.17629				
		15	14.0		53	7.7	24 12.0		M	12	18.55	
			20.7	15 20.6			1452.0	3.16197				
			27.0	–	53	50.2	23 29.5		M	12	16.78	
		15	45.8				1409.5	3.14907				
			50.0	15 50.3	54	31.1	22 48.6		M	12	12.72	
			55.2	–			1368.6	3.13628				
		16	16.9		55	18.7	22 1.0		M	12	10.95	
			22.0	16 22.1			1321.0	3.12090				
			27.3	–	56	9.7	21 10.0		M	12	7.00	
		16	45.6				1270.0	3.10380				
			51.3	16 51.0	57	3.3	20 16.4		M	12	2.70	
			56.0	–			1216.4	3.08508				
		17	14.5		57	58.1	19 21.6		M	11	59.35	
17 19.72			20.1	17 19.8			1161.6	3.06506				
17 19.72			24.7	–	58	49.6	18 30.1		M	11	56.45	
		17	42.7				1110.1	3.04536				
			47.5	17 47.8	59	40.4	17 39.3		M	11	52.78	
			53.1	–			1059.3	3.02502				
		18	11.7		0	33.6	16 46.1		M	11	49.78	
			17.3	18 17.9			1006.1	3.00264				
			24.7	–	1	26.5	15 53.2		M	11	46.22	
		18	44.5				953.2	2.97918				
			49.2	18 46.8	2	23.8	14 55.9		M	11	43.12	
							895.9	2.95226				
		19	13.4	–	3	9.5	14 10.2		M	11	41.25	
			20.0	19 19.6			850.2	2.92952				
			25.3	–	4	16.6	13 3.1		M	11	37.25	
		19	40.3				783.1	2.89382				
19 47.84			46.6	19 46.9	5	1.6	12 18.1		M	11	34.90	
19 47.84			53.7	–			738.1	2.86812				
		20	12.7									
			17.7	20 18.1								
			24.0	–								
		20	41.6									
			48.2	20 47.8			1 15	32.32				88 40 15.93
			53.6	–								
		21	11.7									
			17.3	21 17.4								
			23.1	–								
		21	41.5									
			46.0	21 46.3								
			57.4	–								
		22	10.5									
22 15.58			16.2	22 16.3								
22 15.58			22.2	–								
		22	37.9									
			44.3	22 44.5								
			51.3	–								
		23	6.8									
			13.3	23 13.4								
			20.0	–								
17 19.696				17 19.696								

1879 Oct. 23 L.C.

0.16056
8.36524n
8.52580n

6.73660
8.36524n
5.10184n

Identical

h m s m s
15

24

			49 50.2	+27 29.0		M 12	36.78
			51 43.1	25 36.1		M 12	28.40
2 28.9 31.9 57.0			52 20.3	24 58.9		M 12	23.90
			52 56.0	24 23.2		M 12	22.75
			53 36.9	~~22~~ 23 42.3		M 12	20.22
5 25.7 30.1 57.6			54 17.2	23 2.0		M 12	17.30
			55 0.7	22 18.5		M 12	14.05
			55 40.5	21 38.7		M 12	11.05
			56 22.8	20 56.4		M 12	8.02
			57 22.7	19 56.5		M 12	4.27
			58 16.5	19 2.7		M 11	59.82
			59 14.5	18 4.7		M 11	56.35
			59 55.9	17 23.3		M 11	54.20
	16 44.4 49.8 54.1	16 49.4 -0 28.9 -0 29.5	0 38.8	16 40.4	20.5 ~~18.3~~ 19.9	M 11	57.38
			5 4.7	12 14.5		M 11	36.72
+		- 0.7	6 6.7	11 12.5		M 11	33.50

107.2
81.2
188.4
20.93

19 44.3
47.8 | 19 49.0 | 1 ~~15~~ 32.00 | a + 1 | 88 40 17.14
55.0 | - 26.9 | 22.1 | 20.8 | 2 32.6 | + 14 46.6 | + 14 50.2 | 17 | 22.8
20 14.0 | - 2 28.2
19.2 | 20 19.2
24.5 | - 58.0 | 21.2 | 21.3
20 — | - 2 57.9 | 5 31.1 | 11 48.1 | 11 52.3 | 17 | 22.4
22.8
22.4
21 14.0
15.7 | 21 16.1
18.5 | - 58.8 | 17.3 | 19.0
21 42.2 | - 3 57.1
49.0 | 21 48.8
55.1 | - 28.9 | 19.9 | 22.1
22 10.3 | - 4 26.7
16.0 | 22 16.0
21.8 | - 58.7 | 17.3 | 19.4
22 41.2 | 47.0 - 4 56.6 | 20.9 + | 14.32
46.7 | 22 ~~45.3~~ | 7) 136.3 | 18.0 | 7) 142.2 | 20.46
53.0 | 29.0 | 52.3 | 19.47 | 7) ~~17.13~~ | 20.31

1879 Oct. 24 S. C

0.16056
8.36524n
8.52580n

6.73660
8.36524n
5.10184n

373

	h m s	m s
	13 11 18.8	
	23.7	11 23.9
	29.1	–
	11 47.9	
	56.4	11 55.5
	2.1	–
	12 21.8	
12 26.36 12 26 36	28.7	12 27.8
	32.9	–
	12 53.3	
	58.1	12 58.4
	3.7	–
	13 20.2	
	24.7	13 26.2
	33.7	–
	13 49.1	55.5
	56.9	13 ~~54.8~~
	0.5	–
	14 21.0	
	25.1	14 25.4
	30.0	–
	14 50.9	
~~14 55.64~~ 14 55.78	56.5	14 56.4
	1.8	–
	15 18.0	
	25.7	15 24.9
	31.1	–
	15 52.1	
	57.0	15 56.7
	1.1	–
	16 16.9	
	25.5	16 24.9
	32.2	–
	16 50.3	
	55.1	16 54.9
	59.4	–
	17 16.8	
17 23.74 17 23.74	24.9	17 24.0
	30.4	–
	17 43.6	
	50.8	17 51.1
	58.9	–
	18 16.5	
	24.0	18 23.8
	30.8	–
	18 49.5	
	57.9	18 56.8
	3.0	–
	19 13.3	
	18.1	19 19.4
	26.8	–
	19 46.5	
19 51.96 19 51.96	50.5	19 51.3
	56.9	–
	20 16.5	
	23.4	20 22.2
	26.6	–
	20 45.7	
	49.7	20 50.1
	55.0	–
	21 14.4	
	20.0	21 19.8
	25.0	–
	21 48.3	52.7
	53.2	21 ~~51.6~~
	56.6	–
	22 13.3	
~~22 19.66~~ 22 19.88	18.0	22 19.2
	26.2	–
	22 43.9	
	48.8	22 48.6
	53.2	–
	23 12.8	19.1 21
	19.2	23 ~~19.~~
	25.3	–
17 23472		17 23.472

51	14.2	+26 9.3	
		1569.3	3.19571
52	30.0	24 53.5	
		1493.5	3.17421
53	39.0	23 44.5	
		1424.5	3.15366
54	45.5	22 38.0	
		1358.0	3.13290
55	53.6	21 29.9	
		1289.9	3.11056
57	0.8	20 22.7	
		1222.7	3.08732
58	14.0	19 9.5	
		1149.5	3.06051
59	18.1	18 5.4	
		1085.4	3.03559
0	29.8	16 53.7	
		1013.7	3.00591
1	55.2	15 28.3	
		928.3	2.96769
3	13.0	14 10.5	
		850.5	2.92967
4	28.0	12 55.5	
		775.5	2.88958
5	38.0	11 45.5	
		705.5	2.84850
6	41.8	10 41.7	
		641.7	2.80733
7	39.5	9 44.0	
		584.0	2.76641
8	43.0	8 40.5	
		520.5	2.71642
10	0.5	+7 23.0	
		443.0	2.64640
23	36.1	−6 12.6	
		372.6	2.57124 n
25	38.2	−8 14.7	
		494.7	2.69434
26	59.0	−9 35.5	
		575.5	2.76005 n

1 15 31.83

	′	″
M	12	3385
M	12	2837
M	12	2572
M	12	1947
M	12	1575
M	12	1055
M	12	580
M	12	095
M	11	5710
M	11	5700
M	11	4810
M	11	4430
M	11	4012
M	11	3672
M	11	3275
M	11	2998
M	11	2592
M	10	5602
M	10	5253
M	10	5730

88 40 17 52

0.16056
8.36515
8.52571

6.73660
8.36515
5.10175

1879 Oct. 25 UC.

		h m	s	m s
		1 13	17.7	
			19.0	13 18.9
			19.9	–
		13	43.0	
			44.6	13 44.6
			46.2	–
	?	14	21.5	
~~14 16.74~~ 14 16.60			22.9	14 22.9
			24.3	–
		14	43.0	
			45.5	14 4~~xx~~ 5.4
			47.7	–
		15	8.4	
			11.2	15 11.2
			14.0	–
		15	45.5	
			50.5	15 49.5
			52.4	–
		16	11.2	
			15.5	16 14.9
			18.0	–
		16	50.4	
16 47.14 16 47.14	?		52.8	16 52.7
			55.0	–
		17	12.4	
			13.1	17 13.3
			14.5	–
		17	43.8	
			45.6	17 45.3
			46.6	–
		18	7.5	
			9.0	18 9.0
			10.6	–
		18	41.7	
			43.4	18 43.5
			45.3	–
		19	16.0	
19 13.80 19 13.80	?		18.0	19 18.0
			20.0	–
		19	43.0	
			46.0	19 46.4
			50.2	–
		20	7.3	
			12.3	20 12.1
			16.7	–
		20	44.0	
			47.4	20 47.3
			50.6	–
		21	15.4	
			17.5	21 17.3
			19.0	–
		21	45.5	
21 47.84 21 47.84			48.1	21 48.1
			50.7	–
		22	16.0	
			17.9	22 17.6
			19.0	–
		22	47.2	
			48.8	22 48.9
			50.7	–
		23	13.6	
			15.2	23 15.3
			17.0	–
		23	41.9	
			45.2	23 45.1
			48.2	–
		24	15.4	
24 16.00 24 16.00			17.3	24 17.2
			19.0	–
		24	43.0	
			45.2	24 45.2
			47.4	–
		25	15.8	
			17.2	25 17.2
		2	18.5	–
19 16.304 19 16.304				19 16.304

2+2

56	56.8	+ 22 19.5	1339.5	3.12694
57	52.0	21 24.3	1284.3	3.10867
58	47.4	20 28.9	1228.9	3.08952
59	31.4	19 44.9	1184.9	3.07368
0	30.3	18 46.0	1126.0	3.05154
1	17.8	17 58.5	1078.5	3.03282
2	19.2	16 57.1	1017.1	3.00736
3	0.5	16 15.8	975.8	2.98936
3	50.0	15 26.3	926.3	2.96675
4	53.3	14 23.0	863.0	2.93601
5	41.0	13 35.3	815.3	2.91132
6	31.0	12 45.3	765.3	2.88383
7	29.0	11 47.3	707.3	2.84960
9	37.6	9 38.7	578.7	2.76245
10	27.6	8 48.7	528.7	2.72321
11	30.7	7 45.6	465.6	2.66801

1 15 31.75

	′	″
M	49	23.52
M	49	27.25
M	49	29.80
M	49	31.50
M	49	34.25
M	49	40.10
M	49	41.52
M	49	44.37
M	49	48.17
M	49	51.72
M	49	52.80
M	49	56.25
M	50	1.27
M	50	7.35
M	50	10.52
M	50	11.92

88 40 17.70

					0.16056			6.73660			
					8.36575n			8.36575n			
1879 Oct. 25 L.C.					8.52571n			5.10175n			
	h m s	h m s									
13	11 25.6										
	28.5	11 30.4									
	37.1	–									
	11 58.0										
	2.7	12 2.9									
	7.9	–									
	12 28.1										
12 32.14	32.4	12 32.5									
12 32.14	37.0	–									
	12 57.0										
	0.6	13 1.7									
	7.6	–									
	13 28.5										
	33.2	13 33.2						′ ″			
	37.9	–	5 52.7	+11 36.8			M	11 38.85			
	13 54.1			696.8	2.84311						
	2.4	14 1.7	6 57.3	10 32.2			M	11 36.88			
	8.6	–		632.2	2.80085						
	14 27.2		7 41.7	9 47.8			M	11 36.12			
	30.6	14 32.0		587.8	2.76923						
	38.3	–	8 24.7	9 4.8			M	11 33.67			
	14 52.8			544.8	2.73624						
15 1.88	1.1	15 0.9	9 8.9	8 20.6			M	11 30.90			
15 1.88	6.7	–		500.6	2.69949						
	15 27.9		9 49.6	7 39.9			M	11 27.12			
	32.6	15 33.3		459.9	2.66266						
	39.4	–	10 33.8	6 55.7			M	11 26.20			
	15 56.0			415.7	2.61878						
	0.9	16 1.5	23 44.0	−6 14.5			M	10 57.82			
	7.5	–		375.5	2.57461n						
	16 25.1		24 45.3	−7 15.8			M	10 56.95			
	29.6	16 29.9		435.8	2.63929						
	35.0	–	25 33.5	−8 11.0			M	10 56.22			
	16 57.0			484.0	2.68485						
	0.7	17 1.5	26 21.3	−8 51.8			M	10 53.98			
	6.9	–		531.8	2.72575						
	17 23.7		27 18.0	−9 48.5			M	10 54.25			
17 30.42	28.8	17 30.0		588.5	2.76975						
17 30.42	37.6	–	28 2.7	−10 33.2			M	10 55.75			
	17 54.0			633.2	2.80154						
	0.5	18 0.4	28 42.3	−11 12.8			M	10 51.93			
	6.6	–		672.8	2.82789						
	18 27.0		29 22.8	−11 53.3			M	10 52.78			
	30.2	18 30.3		713.3	2.85327						
	33.7	–	30 7.0	−12 37.5			M	10 50.52			
	18 53.7			757.5	2.87938						
	57.7	18 58.3	31 12.3	−13 42.8			M	10 49.50			
	3.4	–		822.8	2.91529						
	19 21.0		31 48.4	−14 18.9			M	10 48.88			
	28.3	19 28.0		858.9	2.93394						
	34.7	–	32 24.2	−14 54.7			M	10 48.55			
	19 51.5			899.7	2.95410						
19 57.36	57.0	19 57.0	33 16.8	−15 47.3			M	10 48.75			
19 57.36	2.4	–		947.3	2.97649n						
	20 22.9										
	27.0	20 27.2									
	31.7	–									
	20 50.3										
	55.5	20 56.3		1 15	31.67					88	40 17.87
	3.2	–									
	21 21.5										
	26.2	21 27.1									
	33.7	–									
	21 49.6										
	54.3	21 55.0									
	1.1	–									
	22 21.4										
22 25.50	24.4	22 24.6									
22 25.50	28.0	–									
	22 50.1										
	56.9	22 56.5									
	2.6	–									
	23 19.4										
	23.0	23 24.3									
	30.5	–									
17 29.460		17 29.460									

0.16056
8.36524
8.52580

6.73660
8.36524
5.10184

1879 Oct. 26 U.C.

	h m s	m s
	1 13 11.0	
	16.8	13 17.6
	24.9 —	
	13 39.9	
	47.7	13 47.8
	55.8 —	
	14 14.0	
14 18.28 14 18.28	16.4	14 18.6
	23.5 —	
	14 41.1	~~6~~
	47.8	14 ~~47.0~~
	52.2 —	47.0
	15 15.2	
	19.4	15 20.4
	26.7 —	
	15 43.5	
	48.2	15 48.2
	53.0 —	
	16 11.4	
	14.3	16 15.6
	21.0 —	
	16 40.5	
16 46.94 16 46.94	46.7	16 47.1
	54.2 —	
	17 10.7	
	16.8	17 16.7
	22.5 —	
	17 40.8	
	46.6	17 47.1
	54.0 —	
	18 11.3	
	22.6	18 20.3
	27.0 —	
	18 39.5	
	45.2	18 45.7
	52.5 —	
	19 7.4	
19 16.40 19 16.40	13.6	19 13.2
	18.7 —	
	19 38.7	
	46.5	19 45.7
	52.0 —	
	20 11.6	
	15.9	20 17.1
	21.5 26.0 —	
	20 38.7	43.8
	43.3	20 ~~40.4~~
	49.3 —	
	21 9.1	
	13.4	21 14.8
	21.9 —	
	21 37.2	
~~21 42.76~~	44.4	21 ~~48.7~~
21 43.30	48.6 —	43.7
	22 6.9	
	13.8	22 13.~~8~~ 1
	18.6 —	
	22 36.8	
	40.4	22 41.1
	46.2 —	
	23 8.2	
	12.9	23 13.3
	18.7 —	
	23 38.1	
	43.7	23 43.6
	49.1 —	
	24 4.8	
24 12.28 24 12.28	11.2	24 11.8
	19.4 —	
	24 34.2	
	40.9	24 40.6
	46.7 —	
	25 5.1	
	12.3	25 12.1
	18.8 —	
19 15.332		19 15.332

					′	″
58 29.7	+20 45.6	1245.6	3.09538	M	49	25.62
59 26.0	19 49.3	1189.3	3.07529	M	49	32.55
0 11.0	19 4.3	1144.3	3.05854	M	49	32.37
0 52.3	18 23.0	1103.0	3.04258	M	49	35.05
1 36.7	17 38.6	1028.6	3.01225	M	49	37.72
2 19.9	16 55.4	1015.4	3.00664	M	49	39.22
3 1.5	16 13.8	973.8	2.98847	M	49	41.70
3 37.0	15 38.3	938.3	2.97234	M	49	43.62
4 30.8	14 44.5	884.5	2.94670	M	49	47.32
5 24.7	13 50.6	830.6	2.91939	M	49	50.30
6 9.5	13 5.8	785.8	2.89531	M	49	52.27
6 49.2	12 26.1	746.1	2.87280	M	49	54.72
7 32.8	11 42.5	702.5	2.84665	M	49	56.60
8 11.5	11 3.8	663.8	2.82204	M	49	58.67
8 56.0	10 19.3	619.3	2.79190	M	50	2.55
10 13.0	9 2.3	542.3	2.73424	M	50	5.52
10 55.5	8 19.8	499.8	2.69880	M	50	7.98
11 37.7	7 37.6	457.6	2.66049	M	50	8.42
12 13.0	7 2.3	422.3	2.62562	M	50	10.52
12 51.9	+6 23.4	383.4	2.58365	M	50	12.40

1 15 31.59

88 40 17.05

1879 Oct. 26 Li. C.

0.16056
8.36515n
8.52571n

6.73660
8.36515n
5.10175n

			h m	s	m s
			13		
				—	
				—	
				—	
				—	
				—	
				—	
			11	31.0	
				34.0	11 34.8
				39.4	
			11	54.4	
				57.8	11 59.0
				4.8	
			12	32.7	
		12 32.46		35.5	12 35.5
		12 32.46		38.2	
				—	
			13	—	13 3.0
				—	
	8 33.2			—	
	38.4		13	—	13 30.0
	42.5			—	
				—	
			14	—	14 1.0
				—	
			14	25.3	
	A−1.5			31.0	14 30.5
				35.2	
			14	55.5	
		~~15 1.18~~		1.4	15 1.2
		15 0.78		6.6	
			15	25.5	
				30.5	15 3~~2~~0.8
				36.3	
			15	54.6	
				0.5	16 0.4
				6.0	
			16	25.5	
				28.2	16 28.7
				32.4	
			16	56.8	
				1.6	17 1.5
				6.0	
			17	23.2	
		17 29.58		—	17 29.3
		17 29.58		35.4	
			17	54.3	
				57.6	17 58.6
				3.8	
			18	24.0	
				30.3	18 29.8
				35.2	
			18	52.9	
				58.1	18 58.5
				4.5	
			19	23.2	
				27.9	19 28.6
				34.6	
			19	52.0	
		19 57.62		57.4	19 57.6
		19 57.62		3.5	
			20	23.0	
				26.7	20 27.8
				33.6	
			20	50.0	
				56.6	20 55.6
				0.3	
		22 25.22	21	20.0	
		22 25.22		24.8	21 24.8
	22 51.2			29.6	
22 55.8	56.0		21	52.6	
				57.8	21 57.1
	0.3			1.5	
	23 18.0				
23 23.2	21.6		22	19.7	
	30.0			24.6	22 25.2
				31.3	
		17 29.212			17 29.212

0	13.0	+17 16.2	
		1036.2	3.01544
1	5.8	16 23.4	
		983.4	2.99273
1	47.0	15 42.2	
		942.2	2.97414
2	31.2	14 58.0	
		898.0	2.95328
3	14.7	14 14.5	
		864.5	2.93676
4	3.0	13 26.2	
		806.2	2.90644
4	51.0	12 38.2	
		758.2	2.87978
5	37.6	11 51.6	
		711.6	2.85224
6	18.4	11 10.8	
		670.8	2.82659
9	58.2	7 31.0	
		451.0	2.65418
10	47.4	+6 41.8	
		401.8	2.60401
24	12.5	−6 43.3	
		1103.3	2.60563 m

	′	″
M	11	55.82
M	11	52.92
M	11	50.45
M	11	46.92
M	11	44.17
M	11	42.58
M	11	39.27
M	11	36.65
M	11	34.70
M	11	24.20
M	11	21.75
M	10	52.22
M	10	50.90
M	10	50.35
M	10	48.67
M	10	47.92
M	10	47.57
M	10	44.67
M	10	46.48

1 45 31.53

× 88 40 18.21

1879 Oct 27

.4 24.1
29.8
34.7
5 60.4
57.4
2.3
7 20.5
25.0
30.0
8 45.5
52.3
57.9
—
—
—

.56	20.5
57	26.5
58	18.2
59	6.6
1	34.3
3	1.2
4	46.2
6	11.4
7	10.8
8	2.5
9	2.1

D.

	'	"
M	49	1562
M	49	2175
M	49	2288
M	49	2600
M	49	3075
M	49	4078
M	49	4530
M	49	5042
M	49	5327
M	49	5498
M	49	5865

1 15

a + 1

4 29.5	+14	50.7	19	20.2
5 56.7	13	21.0		17.7
7 25.2	11	52.0		17.2
8 51.9	10	22.9		14.8
←				69.9
			19	17.47

1879 Oct. 28. L.C.

				0.16056 8.36505n 8.52561n		6.73660 8.36505n 5.10165n				
	h m s	m s								
	13 11 28.7									
	33.0	11 33.5								
	38.7	–								
	11 56.3									
	1.4	12 2.0								
	8.4	–								
	12 25.0									
12 31.78 12 31.78	32.2	12 32.4								
	40.0	–								
	—									
	—	13 6.0								
	—	–								
	13 23.5									
	30.3	13 30.0						′ ″		
	36.1	–	.6 48.7	+10 39.4			M	11 30.70		
	13 55.4			639.4	2.80577					
	2.3	14 1.8	7 2.9	10 25.2			M	11 26.12		
	7.6	–		625.2	2.79602					
	14 26.7		8 10.0	9 18.1			M	11 23.80		
	32.0	14 32.0		558.1	2.74671					
	37.2	–	9 9.4	8 18.7			M	11 21.55		
	14 53.1			498.7	2.69784					
15 0.24 15 0.24	57.5	14 58.2	9 57.7	7 30.4			M	11 20.30		
	4.0	–		450.4	2.65360					
	15 27.8		10 48.7	6 39.4			M	10 51.12		
	29.7	15 29.7		399.4	2.60141					
	31.6	–	23 43.2	– 6 15.1			M	10 50.42		
	15 54.6			375.1	2.57415n					
	58.3	15 59.5	24 44.4	– 7 16.3			M	10 48.88		
	5.8	–		436.3	2.63979					
	16 22.7		25 23.9	– 7 55.8			M	10 41.00		
	27.2	16 28.9		475.8	2.67742n					
	34.9	–					M	10 39.50		
	16 53.6									
	58.3	16 58.2					M	10 39.68		
	2.7	–					M	10 39.60		
	17 24.0									
17 27.30 17 27.30	28.0	17 28.5					M	10 39.45		
	33.6	–								
	17 52.3						M	10 38.32		
	56.1	17 57.1								
	3.0	–					M	10 40.28		
	18 19.8									
	23.0	18 23.8					M	10 38.42		
	28.7	–								
	18 52.8									
	57.4	18 58.1								
	4.0	–								
	19 20.2			1 15	31.35				88	40 18.88
	27.2	19 26.4								
	31.8	–								
	19 52.0									
19 56.38 19 56.38	58.7	19 58.2								
	3.0	–								
	20 20.4									
	24.0	20 25.2								
	31.0	–								
	—									
	—	20 54.0								
	—									
	—									
	—	21 26.0								
	—	–								
	21 50.4									
	53.2	21 54.5								
	57.8	–								
	22 19.8									
22 24.78 22 24.78	25.2	22 26.2								
	33.5	–								
	22 49.7									
	52.9	22 53.6								
	58.2	–								
	23 18.1									
	23.0	23 23.6								
	29.6	–								
17 28.096		17 28.096								

1879 Oct. 29 - U.L.

0.16056
8.36505
8.52561

6.73660
8.36505
5.10165

h	m	s	m s
1	13	16.7	
		23.4	13 22.9
		28.5	–
	13	45.0	
		53.1	13 52.4
		57.0	–
	14	17.2	
14 22.44 14 22.44		22.0	14 22.2
		27.3	–
	14	48.6	
		53.4	14 53.0
		57.9	–
	15	15.4	
		22.3	15 21.7
		27.5	–
	15	46.9	
		53.2	15 52.8
		58.2	–
	16	13.7	
		19.4	16 20.3
		27.8	–
	16	44.3	
16 50.08 16 50.08		49.7	16 50.5
		57.4	–
	17	15.0	
		18.6	17 19.7
		25.6	–
	17	42.2	
		46.4	17 47.1
		52.7	–
	18	11.6	
		15.5	18 16.9
		23.5	–
	18	44.0	
		47.5	18 47.8
		52.0	–
	19	12.3	
19 18.14 19 18.14		18.0	19 18.4
		25.0	–
	19	43.4	
		49.3	19 49.5
		55.9	–
	20	10.2	
		17.5	20 18.1
		26.7	–
	20	42.0	
		47.4	20 47.0
		51.7	–
	21	10.5	
		16.0	21 15.7
		20.5	–
	21	41.0	
21 46.42 21 46.42		46.1	21 46.9
		53.5	–
	22	10.5	
		16.7	22 16.5
		22.3	–
	22	39.8	
		45.4	22 46.0
		52.8	–
	23	9.4	
		16.0	23 16.2
		23.1	–
	23	37.3	
		45.8	23 45.2
		52.6	–
	24	9.8	
24 15.82 24 15.82		14.2	24 15.5
		22.6	–
	24 25	38.2	
		48.4	24 46.5
		52.9	–
	25	8.0	
		16.5	25 15.7
		22.6	–
19 18.580			19 18.580

33

					'	''
58 80	+21 10.6	1270.6	3.10401	M	49	20.80
58 58.0	20 20.6	1220.6	3.08657	M	49	22.72
59 39.5	19 39.1	1179.1	3.07155	M	49	25.40
0 23.2	18 55.4	1135.4	3.05515	M	49	28.28
1 27	18 15.9	1095.9	3.03977	M	49	31.40
1 42.2	17 36.4	1056.4	3.02383	M	49	33.52
2 31.7	16 46.9	1006.9	3.00299	M	49	35.90
3 31.3	15 47.3	947.3	2.97649	M	49	38.48
4 12.6	15 6.0	906.0	2.95713	M	49	42.02
4 57.0	14 21.6	861.6	2.93531	M	49	43.70
5 45.5	13 33.1	813.1	2.91014	M	49	46.18
6 24.3	12 54.3	774.3	2.88891	M	49	48.20
7 2.8	12 15.8	735.8	2.86676	M	49	49.75
7 39.5	11 39.1	699.1	2.84454	M	49	51.02
8 22.2	10 56.4	656.4	2.81717	M	49	54.12
9 1.0	10 17.6	617.6	2.79071	M	49	57.90
9 40.8	9 37.8	577.8	2.76178	M	49	59.52
10 20.1	8 58.5	538.5	2.73119	M	49	59.55
10 56.4	8 22.2	502.2	2.70088	M	50	2.18
11 37.1	+7 41.5	461.5	2.66417	M	50	5.52

1 15 31.32

88 40 19.06

- 1879 Oct. 29 S. C.

0.16056
8.36505n
8.52561n

6.73660
8.36505n
5.10165n

Identical

h	m	s	m s						′	″
13	11	25.6								
		30.0	11 30.7							
		36.6	+ 5 55.6			26.3	26.9			
	11	55.0	+ 5 56.2							
		0.4	12 0.7							
		6.8	− 5 25.9			26.6	27.1			
	12	24.2	5 26.4							
		30.5	12 30.4							
		36.4	− 4 55.7			26.1	27.0			
	12	53.5	4 56.6							
		0.3	12 59.6							
		5.1	− 4 26.2			25.8	26.6			
	13	24.1	4 27.0							
		29.3	13 29.4						′	″
		34.7	− 3 57.3	59 39.0	+ 17 47.5	26.7	26.8	M	11	56.25
	13	54.0	3 57.4				—			
		0.7	14 0.0	0 36.0	16 50.5			M	11	53.35
		5.4	− 3 26.9			26.9	27.6			
	14	23.8	3 27.6	1 7.7	16 18.8			M	11	57.53
		29.6	14 29.5							
		35.1	− 2 57.2	1 37.5	15 49.0	26.7	27.2	M	11	51.02
	14	53.7	2 57.7							
		59.0	14 58.6	2 9.6	15 16.9			M	11	47.85
		3.1	− 2 28.3			26.9	26.9			
	15	23.5	2 28.3	2 45.4	14 41.1			M	11	42.18
		28.2	15 28.8							
		34.6	− 1 58.0	3 12.7	14 13.8	26.8	27.4	M	11	42.90
			1 58.6							
				3 43.4	13 43.1	2388	2435	M	11	42.52
					17	26.53	27.06			
				4 9.4	13 17.1			M	11	40.18
				4 39.6	12 46.9	13 17	24.35	M	11	38.70
				5 5.7	12 20.8	13 17	24.35	M	11	36.50
				5 31.3	11 55.2			M	11	36.15
				6 10.7	11 15.8			M	11	34.08
				6 40.5	10 46.0			M	11	32.70
				7 5.5	10 21.0			M	11	30.65
				7 30.2	9 56.3			M	11	30.58
				8 41.0	8 45.5			M	11	26.08
				9 17.0	8 9.5			M	11	23.48
				9 43.4	7 43.1			M	11	22.75
				10 8.6	+ 7 17.9			M	11	21.78
										26.88
										27.28
										54.16
										27.08
					1 15	31.30				

88 40 19.22

1879 Oct. 30 U.C.

0.16056
8.36505
8.52561

6.73660
8.36505
5.10165

h	m s	m s
1	13 18.8	
	24.9	13 24.8
	30.6 –	
	13 51.6	
	55.7	13 55.9
	0.4 –	
	14 18.7	
14 25.48	27.0	14 26.0
14 25.48	32.2 –	
	14 49.9	
	55.4	14 56.1
	3.0 –	
	15 17.9	
	23.2	15 24.6
	32.7 –	
	15 49.3	
	54.6	15 54.8
	0.4 –	
	16 18.0	
	22.9	16 23.6
	30.0 –	
	16 47.6	
16 53.06	53.8	16 53.4
~~16 53.46~~	58.7 –	
	17 17.1	
	22.0	17 22.1
	27.2 –	
	17 46.6	51.4 ~~3~~
	57.7	17 ~~51.4~~
	55.8 –	
	18 16.2	
	22.8	18 22.9
	29.6 –	
	18 45.9	
	54.0	18 52.9
	58.8 –	
	19 15.9	
19 22.46	22.5	19 21.6
19 22.46	26.5 –	
	19 46.0	
	52.2	19 51.4
	56.0 –	
	20 17.9	
	23.1	20 23.5
	29.5 –	
	20 44.9	
	53.0	20 52.2
	58.8 –	
	21 17.3	
	24.0	21 23.3
	28.7 –	
	21 46.0	
21 52.18	50.0	21 50.6
21 52.18	55.9 –	
	22 16.3	
	23.0	22 22.5
	28.2 –	
	22 46.8	
	53.1	22 52.3
	57.1 –	
	23 13.7	
	23.2	23 22.2
	29.8 –	
	23 44.9	
	50.5	23 50.3
	55.6 –	
	24 12.8	
24 20.44	21.0	24 19.9
24 20.44	26.0 –	
	24 43.6	
	52.0	24 50.5
	56.0 –	
	25 14.8	
	19.2	25 19.3
	23.8 –	
19 22.724		19 22.724

				'	''
55 50.4	+ 23 32.3		M	49	11.30
	1411.3	3.14962			
56 50.1	22 32.6		M	49	15.92
	1352.1	3.13101			
57 34.0	21 48.7		M	49	19.58
	1308.7	3.11684			
58 14.0	21 8.7		M	49	22.20
	1268.7	3.10336			
58 52.0	20 30.7		M	49	24.35
	1230.7	3.09015			
59 30.2	19 52.5		M	49	25.98
	1192.5	3.07646			
0 10.5	19 12.2		M	49	29.10
	1152.2	3.06153			
0 57.9	18 30.8		M	49	31.58
	1110.8	3.04564			
1 32.5	17 50.2		M	49	33.80
	1070.2	3.02946			
2 21.0	17 1.7		M	49	36.92
	1021.7	3.00932			
4 7.7	15 15.0		M	49	42.65
	915.0	2.96142			
4 56.6	14 26.1		M	49	45.58
	866.1	2.93757			
5 30.3	13 52.4		M	49	47.85
	832.4	2.92033			
6 6.0	13 16.7		M	49	48.18
	796.7	2.90129			
6 46.9	12 35.8		M	49	57.40
	755.8	2.87841			
7 27.8	11 54.9		M	49	52.55
	714.9	2.85425			
8 6.2	11 16.5		M	49	54.95
	676.5	2.88027			
8 41.2	10 41.5		M	49	56.25
	641.5	2.80720			
9 18.0	10 4.7		M	49	58.78
	604.7	2.78154			
10 1.0	+ 9 21.7		M	50	0.38
	561.7	2.74950			

1 15 31.28

88 40 19.40

1879 Oct. 30 Sc. C.

h	m	s	m s									
						0.16056 8.36496n 8.52552n			6.73660 8.36496n 5.10156n	Identical		
13	11	33.2										
		34.0	11 34.0									
		34.7	+5 55.6				(29.6)	(~~30.2~~)				
	11	52.6	+5 56.2									
		56.0	11 56.4									
		0.7	-5 25.9				22.3	22.8				
	12	23.2	5 26.4									
		27.4	12 28.3									
		34.4	-4 55.7				24.4°	24.9				
	12	52.7	4 56.6									
		56.7	12 57.9									
		4.2	-4 26.2				24.1	24.9				
	13	21.5	4 27.0									
		26.5	13 26.7								'	''
		32.0	-3 57.3	58	4.1	+19 19.5	24.4°	24.1	M	12	7.72	
	13	51.7	3 57.4									
		55.9	13 56.3	59	13.9	18 10.4			M	12	0.65	
		1.2	-3 26.9				23.2	23.9				
	14	22.7	3 27.6	0	4.2	17 20.1			M	11	57.48	
		26.5	14 27.5									
		33.4	-2 57.2	0	57.1	16 33.2	24.7	25.2	M	11	54.30	
	14	52.0	2 57.7									
		56.8	14 57.0	1	30.0	15 54.3			M	11	52.80	
		2.3	-2 28.3				25.3	25.3				
	15	21.5	2 28.3	2	8.5	15 15.8			M	11	50.55	
		26.0	15 26.4									
		31.8	-1 58.0	2	48.3	14 36.0	24.4	25.0	M	11	47.58	
	15	50.8	1 58.6									
		54.9	15 55.6	3	27.3	13 57.0			M	11	45.75	
		1.1	-1 28.5				24.1	24.4				
	16	19.7	1 28.8	4	28.5	12 55.8			M	11	43.45	
		25.3	16 25.9									
		32.7	-0 59.0	5	4.7	12 19.6	24.9	25.1	M	11	40.88	
	16	49.2	0 59.2									
		54.5	16 54.6	5	46.9	11 37.4			M	11	38.38	
		0.1	-0 28.9				(33.5)	(~~34.1~~)				
	17	20.7	0 29.5~~3~~	6	29.9	10 54.4			M	11	36.05	
		25.2	17 ~~25.8~~									
		31.1	-1 25.7	7	23.2	10 11	25.0	25.7	M	11	33.15	
	17	50.3	-0.7 -0 0.0									
		54.9	17 55.4	8	3.8	9 20.5			M	11	31.75	
		1.6	-0 29.0				26.4	25.8				
	18	19.0	-0 29.6	8	44.3	8 40.0			M	11	29.78	
		23.2	18 23.8									
		29.2	-0 58.7	9	33.7	7 50.6	25.1	24.5	M	11	26.95	
	18	49.0	-0 59.3									
		52.8	18 53.2	10	12.7	7 11.6			M	11	25.25	
		57.9	-1 28.9				24.3	24.2				
	19	17.9	-1 29.0	10	55.5	+6 22.8			M	11	23.98	
		22.2	19 22.5									
		27.5	-1 58.8				23.7	24.1				
	19	47.4	-1 58.4								120.6	
		50.8	19 51.4								125.0	
		56.1	-2 27.9				23.5	23.2			172.0	
	20	17.0	-2 28.2								41.76	
		21.4	20 22.4									
		28.7	-2 58.0				24.4	24.5	13	17	24.57	
		—	-2 57.9				34					

17) 41~~42~~ (1 ~~15~~ 32.26 88 40 19.58

17 24.362

~~18) 44.78~~
~~24.88~~
~~48.19~~
~~25.36~~

17) 41.76
24.56

1879 Nov. 4 L.C.				0.16056 8.36487n 8.52543n		6.73660 8.36487n 5.10147n			
	h m s	m s							
	13 11 18.0								
	21.3	11 ~~21.1~~ 3 21.7							
	25.7								
	11 48.4								
	50.9	11 52.2							
	57.3								
	12 14.0								
12 21.16	18.8	12 20.5							
~~12 21.08~~	25.7								
	12 44.8								
	57.2	12 51.4							
	58.2			9-4					
	13 15.4								
	19.8	13 20.0					'	"	
	24.7		.51 16.2	+26 2.2		M	12	40.28	
	13 46.7			1562.2	3.19374				
	57.5	13 52.1	52 57.7	24 26.7		M	12	33.42	
	58.0			1466.7	3.16634				
	14 14.3		54 21.5	22 56.9		M	12	27.40	
	19.6	14 20.6		1376.9	3.13890				
	28.0		55 33.2	21 45.2		M	12	21.30	
	14 42.9			1305.2	3.11568				
14 50.12	47.0	14 47.6	56 39.3	20 39.1		M	12	18.38	
14 50.12	53.0			1239.1	3.09311				
	15 14.4		57 48.5	19 29.9		M	12	12.75	
	19.8	15 19.1		1169.9	3.06815				
	23.2		59 16.0	18 2.4		M	12	8.98	
	15 43.2			1082.4	3.03439				
	53.0	15 51.2	0 20.8	16 57.6		M	12	2.78	
	57.4			1017.6	3.00758				
	16 14.9		1 31.1	15 47.3		M	12	0.00	
	22.0	16 21.2		947.3	2.97649				
	26.8		2 40.5	14 37.9		M	11	56.75	
	16 41.8	47.8		877.9	2.94344				
	47.8	16 ~~49.5~~	4 7.0	13 11.4		M	11	52.00	
	53.8			791.4	2.89840				
	17 14.3		5 23.4	11 55.0		M	11	47.50	
~~17 19.18~~	19.7	17 19.5		715.0	2.85431				
17 18.84	24.4		6 32.5	10 45.9		M	11	44.12	
	17 42.1			645.9	2.81017				
	45.7	17 47.1	7 44.5	9 33.9		M	11	39.68	
	53.5			573.9	2.75884				
	18 13.2		8 52.8	8 25.6		M	11	37.40	
	18.0	18 18.6		505.6	2.70381				
	24.5		9 53.3	7 25.1		M	11	33.95	
	18 37.8			445.1	2.64846				
	42.0	18 44.1	23 29.5	−6 11.1		M	11	4.92	
	52.4			371.1	2.56949n				
	19 9.5		24 57.7	−7 40.3		M	11	2.28	
	16.5	19 16.2		460.3	2.66304				
	22.5		25 57.0	−8 38.6		M	11	1.28	
	19 41.3			518.6	2.71483				
~~19 46.66~~	48.4	19 47.~~4~~ 7	27 9.5	−9 51.1		M	10	59.50	
19 46.82	54.6	48.1		591.1	2.77166n				
	20 11.3								
	16.0	20 15.8							
	20.0								
	20 42.0								
	51.1	20 49.8 9		1.15	3045				88 40 20.52
	56.5								
	21 14.6								
	18.4	21 18.5							
	22.5								
	21 42.8								
	47.5	21 48.1							
	53.9								
	22 10.3								
~~22 14.90~~	15.4	22 15.7							
22 14.88	21.5								
	22 36.5								
	44.3	22 43.3							
	49.2								
	23 6.0								
	7.6	23 8.~~9~~ 8							
	12.9								
17 18.404		17 18.404							

1879 Nov. 5 ex met.

not copy

h	m	s	m s
17	14	10.7	
		12.0	14 12,1
		13.5 –	
	14	37.0	
		41.2	14 ~~41.9~~ 42.2
		48.4 –	
	15	6.7	
		9.8	15 10,8
		15.8 –	
	15	37.0	
		42.7	15 43.9
		52.1 –	
	16	3.2	
		11.9	16 ~~11.4~~ 10.8
		19.2 –	
	16	34.6	
		39.5	16 40.5
		47.4 –	
	17	12.5	
		19.9	17 18.4
		22.9 –	
	17	39.8	
		44.5	17 44.9
		50.4 –	
	18	11.3	
		16.1	18 15.8
		20.1 –	
	18	40.0	
		44.1	18 ~~45.0~~ ~~44.7~~ 45.0
		51.0 –	
	19	3.2	
		14.5	19 14.0
		22.3 –	

Ch. f.

4	1.2
6	32.7
8	4.2
8	56.6
9	46.0
10	40.6
11	31.0
12	23.7
13	8.8
14	0.2

1 15

	′	″
M	49	46.08
M	49	55.45
M	49	59.52
M	50	2.38
M	50	3.12
M	50	7.22
M	50	8.72
M	50	11.42
M	50	12.60
M	50	16.00
M	50	45.42
M	50	45.78
M	50	47.18
M	50	47.00
M	50	48.15

9.62
13.66
23.28
11.64

14 12,1 5 57,8	20	9.9
14 42,2 5 27,4		9,6
15 10,8 4 57,6		8,4
15 43,9 4 27,6		11,5
16 10,8 3 57,9		8,7
16 40,5 3 28,3		8,8
17 18,4 2 58,5		17 3
17 44,9 2 28,7		13,6
18 15,8 1 58,7		14,5
18 45,0 1 29,3		14,3
19 14,0 0 59,5		13,5
		130,1
	20	11,83

x9

- 1879 Nov. 7. S. C.

h m	s	m s
13		
14	18.6	
	21.3	14 23.1
	29.3	± 2 59.0
14	38.4	+ 2 58.3 4
	45.4	14 44.8 9
	49.5	− 2 29.3
15	15.0	2 28.8
	20.0	15 20.0
	25.0	− 1 58.5
15	45.3	1 59.0
	49.7	15 50.0
	55.0	− 1 28.2
16	12.5	1 29.1
	18.8	16 18.5
	24.2	− 0 59.1
16	44.9	0 59.4
	57.7	16 51.6
	57.1	− 0 30.0
17	13.0	0 29.6
	17.5	17 18.7
	25.6	− 0.2
17	41.7	− 0 0.1
	47.6	17 47.6
	53.4	− 0 29.7
18	14.3	− 0 29.7
	18.4	18 18.6
	23.0	− 0 58.9
18	41.5	− 0 59.5
	47.6	18 48.4
	56.0	− 1 28.0
19	13.4	− 1 29.3
	18.3	19 18.5
	23.8	− 1 58.8
19	40.0	− 1 58.7 6
	44.7	19 46.5
	55.0	− 2 27.5
20	10.7	− 2 28.7
	14.6	20 15.6
	21.4	− 2 57.6
20	37.9	− 2 58.5
	45.2	20 44.3
	49.9	− 3 28.3
21	11.7	− 3 28.3
	16.0	21 16.6
	22.0	− 3 58.2
21	40.1	− 3 57.9
	44.8	21 45.6
	51.9	− 4 27.0
22	9.7	− 4 27.6
	16.5	22 16.7
	23.8	− 4 56.7
22	42.5	− 4 47.1 −4 57.6
	46.7	22 ~~45.4~~
	52.0	− 5 26.5
23	8.9	− 5 27.4
	12.1	23 13.9
	20.8	− 5 55.7
		− 5 57.8

23 31.5	−6 11.4
24 50.7	7 31.6
26 1.6	8 42.5
27 17.2	9 58.1
28 20.1	11 1.0
29 33.0	12 13.9
30 47.8	13 28.7
32 3.0	14 43.9
33 8.8	15 49.7
34 15.0	16 55.9
35 21.4	18 2.3
36 28.5	19 9.4
37 36.6	20 17.5
38 46.0	21 26.9
39 24.7	−22 5.6

0.16056
8.36469n
8.52525n

	22.1	21.5
	(13.7)	(~~13.2~~)
	18.5	19.0
	18.2	19.1
	17.6	17.9
	21.6	21.2
	18.5	18.6
	17.9	17.9
	19.7	19.1
	20.4	19.1
	19.7	19.8
	19.1	17.9
	18.0	17.1
	16.0	16.0
	18.4	18.7
	18.6	18.0
	20.0	19.1
	20.6	19.7
	18.2	16.1
18)	3431	3358
17	19.06	18.66

1 X5 29.40

6.73660
8.36469n
5.10129n

	′	″
M	11	0.90
M	11	0.70
M	10	58.12
M	10	56.07
M	10	55.28
M	10	54.90
M	10	52.40
M	10	52.05
M	10	51.10
M	10	50.42
M	10	50.85
M	10	49.62
M	10	49.40
M	10	50.02
M	10	49.38

9.87
9.45
87.7
54.9
335.8

13 17 18.66

× 88 40 22.61

1879 Nov. 9. L. C.

0.16056
8.36469n
8.52525n

6.73660
8.36469n
5.10129n

	′	″
M	11	50.72
M	11	41.35
M	11	39.42
M	11	37.32
M	11	35.20
M	11	32.90
M	11	31.15
M	11	28.00
M	11	25.40
M	10	55.65
M	10	53.70
M	10	53.18
M	10	51.90
M	10	51.30
M	10	51.20
M	10	49.67
M	10	49.50
M	10	47.98
M	10	47.42
M	10	47.30

1 15 28.71

88 40 23.16

1879 Nov. 10 U.C.

0.16056
8.36469
8.52525

6.73660
8.96469
5.10129

4–4

h	m	s	m s
1	11	1.9	
		3.1	11 3.2
		4.6 –	
	11	27.3	
		34.4	11 33.7
		39.3 –	
	11	59.0	
12 3.26 12 3.26		3.6	12 3.7
		8.4 –	
	12	26.7	
		33.0	12 32.0
		36.2 –	
	12	58.0	
		4.6	13 3.7
		8.5 –	
	13	25.5	
		31.1	13 31.3
		37.4 –	
	13	56.3	
		2.0	14 1.9
		7.3 –	
	14	25.2	
~~14 30.22~~ 14 30.24		30.2	14 29.7
		33.7 –	
	14	54.7	
		58.5	14 59.8
		6.2 –	
	15	24.9	
		28.5	15 28.~~4~~5
		32.2 –	
	15	52.0	
		57.3	15 59.5
		9.2 –	
	16	24.0	
		29.2	16 29.1
		34.0 –	
	16	53.1	
16 58.26 16 58.26		58.5	16 58.8
		4.8 –	
	17	21.7	
		27.4	17 26.7
		31.0 –	
	17	50.4	
		56.6	17 57.2
		4.6 –	
	18	25.0	
		29.2	18 29.6
		34.5 –	
	18	52.3	
		57.3	18 58.4
		3.6 –	
	19	24.7	
~~19 28.34~~ 19 28.32		30.3	19 29.~~[illegible]~~8
		34.5 –	
	19	49.4	
		56.7	19 56.2
		2.4 –	
	20	20.9	
		27.4	20 27.6
		34.4 –	
	20	49.1	
		58.6	20 57.3
		4.3 –	
	21	20.5	
		27.3	21 27.0
		33.1 –	
	21	49.8	
21 56.98 21 56.98		57.2	21 56.9
		3.6 –	
	22	20.2	
		29.5	22 27.4
		32.6 –	
	22	51.7	
		55.2	22 56.3
		20 –	
16 59.412			16 59.412

						'	''
54	12.4	+22 47.0	1367.0	3.13577	M	49	14.07
55	14.6	21 44.8	1304.8	3.11554	M	49	16.62
56	3.7	20 55.7	1255.7	3.09889	M	49	20.90
56	48.7	20 10.7	1210.7	3.08304	M	49	23.42
57	30.5	19 28.9	1168.9	3.06778	M	49	26.00
58	17.5	18 41.9	1121.9	3.04995	M	49	29.08
59	6.9	17 53.5	1073.5	3.03080	M	49	31.10
59	45.9	17 13.5	1033.5	3.01431	M	49	34.00
0	30.8	16 28.6	988.6	2.99502	M	49	37.30
1	25.0	15 34.4	934.4	2.97053	M	49	39.67
2	14.3	14 45.1	885.1	2.94699	M	49	41.60
3	1.1	13 58.3	838.3	2.92340	M	49	44.92
3	42.8	13 16.6	796.6	2.90124	M	49	46.85
4	33.4	12 26.0	746.0	2.87274	M	49	49.38
5	17.5	11 41.9	701.9	2.84628	M	49	50.90
6	0.3	10 59.1	659.1	2.81895	M	49	53.45
6	40.5	10 18.9	618.9	2.79162	M	49	56.50
7	25.0	9 34.4	574.4	2.75921	M	49	57.75
8	11.4	8 45.0	525.0	2.72016	M	50	0.00
8	52.8	8 6.6	486.6	2.68717	M	50	2.52

1 15 28.56

88 40 23.42

– 1879 Nov-10 L.C.

				0.16056 8.36469n 8.525~~16~~n 25			6.73660 8.36469n 5.10129n		Identical,
h	m s	m s							
13	11 12.0								
	19.1	11 18.4							
	24.2	+5 56.0			14.4	15.8			
	11 43.7	+5 57.4							
	48.3	11 49.4							
	54.2	-5 26.9			16.3	16.9			
	12 11.7	5 27.5							
	19.2	12 18.3							
	24.0	-4 57.0			15.3	15.9			
	12 43.5	4 57.6							
	49.2	12 48.9							
	54.1	-4 27.0			15.9	16.8			
	13 12.0	4 27.96							
	17.6	13 17.3						′ ″	
	22.3	-3 56.2	55 25.4	+21 49.6 7	13.8	15.8 —		M 12 21.62	
	13 44.8	3 58.2	+	13097 7					
	48.6	13 48.5	56 22.4	20 52.6				M 12 16.18	
	52.1	-3 27.5		12527 160	16.0	16.8			
	14 9.8	3 28.3	56 59.1	20 15.9				M 12 14.50	
	16.6	14 16.5		12160 8					
	23.2	-2 59.0	57 35.3	19 39.7	15.5	14.8		M 12 11.60	
	14 39.2	2 58.3		1179.8 6					
	45.0	14 45.7	58 18.5	18 56.5				M 12 9.52	
	53.0	-2 29.3		11366 2	15.0	14.5			
	15 8.7	2 28.8	59 3.8	18 11.8				M 12 7.40	
	15.1	15 15.1		10913 4					
	21.6	-1 58.5	59 43.7	17 31.3	13.6	14.1		M 12 4.10	
	15 39.0	1 59.0		10514 2					
	44.5	15 44.8	0 22.9	16 52.X				M 12 1.90	
	51.0	-1 28.2		10122 9	13.30	13.9 —			
	16 11.0	1 29.1	1 7.2	16 7.8				M 11 58.40	
	16.2	16 16.6		967.9 1					
	22.5	-0 59.1	2 5.0	15 10.8	15.7	16.0		M 11 53.65	
	16 40.8	0 59.4		910.1 8					
	45.5	16 45.9	2 47.3	14 27.7				M 11 53.42	
	51.3	-0 30.0		867.8 9	15.9	15.5			
X	17 8.2	0 29.6 2	3 31.2	13 43.8				M 11 51.50	
	13.7	17 14.9		823.9 4					
	20.7	- 0.2	4 2.7	13 12.8	14.0	14.2		M 11 49.60	
	17 37.9	-0 0.0		7924 6					
	43.8	17 44.1	4 36.5	12 38.X				M 11 47.35	
	50.6	-0 29.7		7586 6	14.4	14.4			
	18 7.8	-0 29.7	5 14.5	12 0.5				M 11 45.42	
	11.7	18 12.5		7206 2					
	18.1	-0 58.9	5 50.9	11 24.X	13.6	13.0		M 11 43.22	
	18 38.6	-0 59.5		684.2 2					
	44.0	18 44.2	6 20.9	10 54.X		—		M 11 42.55	
	56.0	-1 28.0		654.2 7	16.2	14.9			
	19 6.5	-1 29.3	6 58.4	10 16.6				M 11 39.70	
	14.9	19 13.3		616.7 2					
	18.6	-1 58.8	7 39.9	9 35.X	14.5	14.6		M 11 38.08	
	19 35.8	-1 58.70		575.2 5					
	43.9	19 43.5	8 18.6	+8 56.X				M 11 36.25	
	49.2	-2 27.5		+536.5	15.5	14.3			
	20 6.0	-2 28.7						16.24	
	13.2	20 13.2						14,82	
	20.4	-2 57.6			15.6	14.7		14,62	
		-2 58.5						14 62	
					2845	1 15×	28.42	60 30	88× 40 23.58
				17	1497	2868 15.08		15,08	

1879 Nov. 11 L.C.

0.16056
8.36460n
8.52516n

6.73660
8.36460n
5.10120n

		′	″
32 17.3	M	10	48.95
33 25.5	M	10	48.25
34 13.9	M	10	47.72
34 57.4	M	10	47.52
35 39.9	M	10	47.58
36 14.5	M	10	46.88
36 49.7	M	10	45.88
37 18.5	M	10	45.80
37 50.1	M	10	46.02
38 26.4	M	10	47.42
39 2.3	M	10	45.72
39 38.7	M	10	45.25

1 15 28.16 88 40 23.90

31 55.7
1.0
5.3

a + 1 a − 1

32 0.7 − 14 51.8 17 8.9

						0.16056		6.73660				
						8.36451n		8.36451n	* Ex minute			
1879 Nov 15 L.C.						8.52507n		5.10111n				
h	m	s	m s									
13	10	58.6										
		4.4	11 4.0									
		9.1	–									
	11	28.0										
		33.9	11 33.5									
		38.6	–									
	11	56.8										
12 3.18		2.7	12 2.6									
12 3.18		8.4	–									
	12	26.6										
		33.1	12 32.7									
		38.4	–									
	12	57.7										
		3.3	13 3.1					#	′	″		
		8.4	–	23	14.8	– 6 13.9		R	16	33.35		
	13	26.0				373.9	2.57276n					
		32.2	13 32.4	24	45.4	– 7 44.5		R	16	0.50		
		39.0	–			464.5	2.66699					
	13	56.8		26	9.5	– 9 8.6		R	16	58.28		
		2.0	14 1.6			548.6	2.73926					
		6.1	–	27	23.8	– 10 22.9		R	16	56.78		
	14	26.1				622.9	2.79442					
~~14 31.90~~		33.0	14 32.1 0	30	0.8	– 12 59.9		R	16	54.90		
14 31.94		37.1	–			779.9	2.89204					
	14	57.1		31	19.0	– 14 18.1		R	16	53.32		
		2.3	15 2.5			858.1	2.93354					
		8.0	–	32	34.2	– 15 33.3		R	16	48.00		
	15	26.4	31.2			933.3	2.97002					
		31.6	15 ~~30.9~~	33	48.9	– 16 48.0		R	16	49.82		
		35.7	–			1008.0	3.00346					
	15	55.4		34	59.0	– 17 58.1		R	16	49.25		
		1.2	16 1.0			1078.1	3.03266					
		6.3	–	36	15.4	– 19 14.5		R	16	49.08		
	16	24.5				1154.5	3.06239					
		30.8	16 30.4	37	42.0	– 20 41.1		R	16	47.98		
		36.0	–			1241.1	3.09381					
	16	54.5		38	51.9	– 21 51.0		R	16	48.32		
17 0.58		0.6	17 0.5			1311.0	3.11760n					
17 0.58		6.3	–					R	16	49.35		
	17	24.8										
		31.2	17 30.6									
		35.7	–									
	17	54.4										
		0.5	18 0.4									
	1	6.4	–									
	18	25.1	30.2									
		29.7	18 ~~36.9~~									
		35.9	–									
	18	53.4				1 15	27.13				88	40 25.29
		59.3	18 59.0									
		4.2	–									
	19	22.4										
~~19 30.46~~		28.3	19 28.6									
19 29.12		35.2	–									
	19	54.0										
		59.2	19 58.9									
		3.5	–									
	20	23.9										
		28.7	20 28.9									
		34.0	–									
	20	53.0										
		58.7	20 58.7									
		4.3	–									
	21	22.0										
		26.9	21 27.3									
		32.9	–									
	21	51.3										
~~21 58.20~~		56.6	21 56.8									
21 56.86		2.5	–									
	22	18.6	25.7									
		26.4	22 ~~32.4~~									
		32.2	–									
	22	50.0										
		55.0	22 55.8									
		2.3										
17 0.864			17 0.864									

0.16056
8.36451
8.52507

6.73660
8.36451
5.10111

1879 Nov-16 U C.

h	m	s	m s
1	12	47.6	
		53.3	12 53.8
		0.5	–
	13	19.8	
		26.3	13 25.4
		30.2	–
	13	51.2	
13 55.36		55.4	13 56.2
		2.0	–
	14	20.7	
		26.0	14 25.9
		31.0	–
	14	50.0	
		55.5	14 55.5
		1.0	–
	15	22.4	
		26.7	15 27.0
		31.8	–
	15	48.2	
		54.3	15 54.7
		1.5	–
	16	16.3	
16 24.78		22.7	16 22.6
		28.7	–
	16	48.2	
		54.0	16 54.5
		1.3	–
	17	19.2	
		25.7	17 25.1
		30.5	–
	17	47.0	
		52.1	17 53.0
		0.0	–
	18	17.9	
		22.4	18 22.7
		27.7	–
	18	45.4	
18 52.04		52.6	18 51.6
		56.7	–
	19	20.4	
		22.0	19 21.9
		23.4	–
	19	44.6	
		57.1	19 51.0
		57.3	–
	20	16.2	
		20.9	20 21.0
		25.9	–
	20	46.2	
		51.6	20 51.4
		56.3	–
	21	15.4	
21 20.28		20.0	21 20.0
		24.7	–
	21	42.7	
		49.0	21 49.0
		55.3	–
	22	13.0	
		20.4	22 20.0
		26.6	–
	22	43.5	
		48.5	22 48.7
		54.0	–
	23	14.3	
		19.7	23 19.3
		24.0	–
	23	42.1	
23 48.46		47.4	23 47.7
		53.5	–
	24	12.5	
		17.2	24 18.2
		24.9	–
	24	43.0	
		47.5	24 48.4
		54.7	–
18 52.184			18 52.184

57 29.4	+21 22.8	
	1282.8	3.10816
58 40.2	20 12.0	
	1212.0	3.08350
59 40.0	19 12.2	
	1152.2	3.06153
0 38.5	18 13.7	
	1093.7	3.03890
1 29.6	17 22.6	
	1042.6	3.01812
2 16.2	16 36.0	
	996.0	2.99826
3 6.7	15 45.5	
	945.5	2.97566
4 0.1	14 52.1	
	892.1	2.95041
4 50.3	14 1.9	
	841.9	2.92526
5 39.4	13 12.8	
	792.8	2.89916
6 35.3	12 16.9	
	736.9	2.86741
7 21.1	11 31.1	
	691.1	2.83954
8 6.2	10 46.0	
	646.0	2.81023
8 53.3	9 58.9	
	598.9	2.77735
9 36.0	9 16.2	
	556.2	2.74523
10 22.2	8 30.0	
	510.0	2.70757
11 7.4	7 44.8	
	464.8	2.66727
11 50.2	7 2.0	
	422.0	2.62531
12 35.3	+6 16.9	
	376.9	2.57623
25 3.6	−6 11.4	
	371.4	2.56984 n

1 15 27.96

	'	"
M	49	17.35
M	49	22.50
M	49	24.92
M	49	28.90
M	49	31.55
M	49	33.88
M	49	36.10
M	49	39.08
M	49	41.75
M	49	44.72
M	49	47.88
M	49	49.42
M	49	51.90
M	49	53.82
M	49	55.85
M	49	59.05
M	49	59.72
M	50	2.45
M	50	5.02
M	50	29.20

88 40 25.49

- 1879 Nov. 16 - L.C.

0.16056
8.36442n
8.52498n

6.73660
8.36442n
5.10102n
Identical

h	m	s	m s						'	"	
13	10	58.7									
		4.5	11 4.9								
		11.5	+5 56.0			0.9	2.3				
	11	28.6	+5 57.4								
		33.7	11 34.0								
		39.6	-5 26.9			0.9	1.5				
	11	57.9	5 27.5								
		3.1	12 3.4	*							
		9.3	-4 57.0			0.4	1.0				
	12	28.3	4 57.6								
		33.0	12 33.5								
		39.3	-4 27.0			0.5	1.4				
	13	1.4	4 27.9								
		3.4	13 3.9						'	"	
		7.0	-3 56.2	2	24.4	0.1	2.1	M	11	56.28	
	13	27.9	3 58.2				-				
		31.6	13 32.5	4	0.6			M	11	50.42	
		38.0	-3 27.5			0.0	0.8				
	13	55.6	3 28.3	4	40.7			M	11	47.80	
		1.0	14 1.6								
		8.3	-2 59.0	5	31.9	0.6	59.9	M	11	45.08	
	14	26.1	2 58.3								
		31.4	14 31.7	6	9.6			M	11	43.38	
		37.7	-2 29.3			1.0	0.5				
	14	36.0	2 28.8	6	50.3			M	11	41.75	
		2.3	15 1.9								
		7.5	-1 58.5	7	34.0	0.4	0.9	M	11	38.52	
	15	26.7	1 59.0								
		33.1	15 32.3	8	19.7			M	11	37.28	
		37.1	-1 28.2			0.5	1.4 -				
	15	56.2	1 29.1	8	54.5			M	11	35.02	
		0.5	16 1.6								
		8.2	-0 59.1	9	33.3	0.7	1.0	M	11	34.25	
	16	25.3	0 59.4								
		29.5	16 29.9	10	16.8			M	11	31.40	
		34.8	-0 30.0			59.9	59.5				
	16	55.0	0 29.6	24	46.2			M	11	20.2	
		0.2	17 0.8								
		7.3	-0 0.2	25	40.3	0.6	0.8	M	11	07.2	
	17	24.3	-0 0.0								
		30.9	17 30.2	26	23.5			M	10	59.35	
		35.3	-0 29.7			0.5	0.5				
	17	55.2	-0 29.7	27	1.2			M	10	58.22	
		0.9	18 1.2								
		7.4	-0 58.9			2.3	1.7	M	10	58.22	
	18	23.5	-0 59.5								
		29.6	18 29.5	[illegible]				M	10	57.70	
		35.4	-1 28.0			1.5	0.2				
	18	55.0	-1 29(0).3					M	10	57.20	
		59.7	19 X0								
		5.2	-1 58.8			1.2	1.3				
	19	26.4	-1 58.7					M	10	56.55	
		29.7	19 29.6					M	10	55.58	
		32.8	-2 27.5			2.1	0.9				
	19	54.0	-2 28.7						1.66		
		58.2	19 59.1						0.70		
		5.0	-2 57.6			1.5	0.6		0.70		
		—	-2 58.5						0.75		
		—		× 1 15	27.77 19)	11556	11587 ~~2~~ ^{3}		381	×	88 40 25.67
		—				0.82	0.96		0.95		
		—									
		—									
		—									
		—									
		—									
		—									
		—									
		—									
		—									
		—									
		—									
		—									
		—									
		—									
		—									

1879 Nov 17. UL

0.16054
8.36442
8.52496

6.73660
8.36442
5.10102

Identical.

		h	m	s	m s								
		1	12	47.7									
	+5	57.6		52.6	12 53.7								
				0.8	-5 58.0				51.7	51.5			
			13	17.0	+5 57.8					48.8			
		27.2		23.0	13 23.6								
				30.8	-5 26.7				50.3	51.0			
			13	46.2	5 27.4					49.6			
	4	57.5		52.2	13 52.3								
				58.5	-4 56.8				49.1	49.9			
			14	18.2	4 57.6					50.0			
		27.5		25.3	14 25.2								
				32.0	-4 27.2				52.4	52.8			
			14	52.0	4 27.6					50.8			
	3	57.8		59.0	14 58.5			4				′	″
				4.4	-3 57.0	59	12.5	+19 38.~~6~~	(55.5)	(56.4)	M	49	22.42
			15	15.8	3 57.9			+11784 7					
		28.2		20.8	15 21.0	0	20.2	18 30.~~8~~			M	49	28.48
				26.5	-3 27.4			11107 6	48.4	49.3			
3	52.1		15	46.5	3 28.3	1	24.3	17 26.~~8~~		49.4	M	49	31.30
	57.3	2	58.4	52.2	15 53.3			10466 1					
	1.5			1.2	-2 58.1	2	17.8	16 33.3	51.4	51.8	M	49	34.80
5	21.7		16	19.5	2 58.5			9931 0					
	27.2	28.7		25.5	16 24.8	3	5.9	15 45.~~2~~			M	49	36.65
	33.5			29.3	-2 28.8			9450 2	53.3	53.2			
6	51.0		16	48.3	2 28.7	4	27.7	14 23.~~4~~			M	49	41.18
	56.3	1	58.7	54.4	16 54.3			8632 5					
	1.6			0.2	-1 58.6	5	58.4	12 52.~~7~~	52.9	53.0	M	49	46.18
8	20.5		17	18.2	1 58.7			7725 0					
	26.6	29.3		23.3	17 23.4	7	22.9	11 28.~~2~~			M	49	51.12
	32.2			28.6	-1 29.0			6880 7	52.4	52.7			
9	48.2		17	30.0	1 29.3	8	44.2	10 6.~~8~~			M	49	55.32
	53.4	0	59.4	55.3	17 55.1			6067 2					
	1.8			0.0	-1 0.5	10	26.7	8 24.~~4~~	(55.6)	(54.6)	M	49	59.45
			18	17.9	0 59.5			5042 88					
		+	29.6	22.5	18 22.8	11	22.1	7 27.~~8~~			M	50	0.82
				28.0	-0 29.3			4488 0	52.1	52.5			
			18	46.3	0 29.7	12	22.9	+6 28.~~2~~			M	50	5.08
		=0	0.0	48.1	18 48.2			+3880	48.0	48.42		~~51.30~~	
				50.3	- -0.2							~~51.62~~	
					0.~~1~~0			11) 5620		6 ~~5158~~ 9		~~51.13~~ ~~1.25~~	
								185109		~~52.35~~ 51.45 8145 50.91		~~51.42~~	
												50.22 50.87 50.93 51.80 20362 50.91	

a +1		1 15	26.56	88 40 ~~25~~.87
3 57.0	+14 54.1	+14 51.8	18 48.8	
5 27.5	13 23.6	13 22.1	49.6	
6 56.3	11 54.8	11 53.7	50.0	
8 26.4	10 24.7	10 24.4	50.8	
9 54.5	8 56.6	8 54.9	49.4	

– 1879 Nov. 21 – L. C.

Not copy

Identical

h	m s	m s
13	—	
	—	
	—	
	—	
	—	
	—	
	—	
	—	
	—	
	—	
	—	
	—	
	—	
	—	
	—	
	—	
	—	
	—	
14	21.3	
	25.4	14 25.1
	28.5	– 2 59.0
14	44.8	+ 2 58.3
	53.4	14 52.4
	58.9	– 2 29.3
15	20.5	2 28.8
	26.2	15 26.5
	32.7	– 1 58.5
15	47.3	1 59.0
	52.4	15 52.2
	56.9	– 1 28.2
16	16.5	1 29.1
	25.2	16 24.6
	32.1	– 0 59.1
16	49.2	+ 0 59.4
	55.3	16 55.2
	1.1	– 0 30.0
17	16.8	+ 0 29.6
	26.0	17 25.3
	33.0	– – 0.2
17	48.5	– 0.0
	57.3	17 56.0
	2.3	– 0 29.7
18	13.2	– 0 29.7
	22.5	18 21.4
	28.5	– 0 58.9
18	40.6	– 0 59.5
	48.0	18 48.0
	55.4	– 1 28.0
19	16.4	– 1 29.3
	24.0	19 23.5
	30.0	– 1 58.8
19	50.0	– 1 58.7
	57.0	19 57.2
	4.6	– 2 27.5
20	12.4	– 2 28.7
	17.0	20 19.9
	30.3	– 2 57.6
	—	– 2 58.5
	—	
	—	
21	12.4	
	20.7	21 19.7
	26.0	– 3 58.2
21	43.3	– 3 57.9
	51.0	21 49.6
	54.6	– 4 27.0
22	—	– 4 27.6
	—	
	—	
22	22.0	
	23.4	22 25.3
	30.4	– 5 26.5
22	44.9	– 5 27.4
	55.1	22 55.2
	5.0	– 5 57.8

23 25.8	– 6 23
24 58.6	7 35.6
26 30.2	9 7.2
28 32.2	11 9.2
30 12.4	12 49.4
32 11.4	14 48.4
33 40.8	16 17.8
35 27.8	18 4.8
37 34.5	20 11.5
39 6.1	21 43.1

24.1	23.4
21.7	21.2
25.~~5~~0	25.5
20.4	21.3
23.7	24.0
25.2	24.8
25.1	25.~~2~~3
(26.3)	(26.3)
22.5	21.9
20.0	18.7
24.7	24.8
(29.7)	(28.5)
22.3	21.4
21.5	21.8
22.6	22.0
13) 29~~93~~88	2960
~~23.02~~ 22.98	2277

1 15 24.19

13) 2961
22.77

88 40

v	′	″
M	11	1405
M	11	975
M	11	792
M	11	785
M	11	352
M	11	275
M	11	220
M	10	5932
M	11	070
M	11	030

23.08
22.68
22.50
68.26
22.75

- 1879 Nov. 23 L. C.

h m s m s
13

0.16056
8.36424n
8.52480n

6.73660
8.36424n
5.10084n

Identical

not copy

			′	″
23	3.0	M	11	1002
24	40.2	M	11	780
25	58.3	M	11	608
28	41.4	M	11	4.65
30	3.4	M	11	325
31	29.1	M	11	288
33	2.1	M	11	0.28
34	14.5	M	11	035
35	25.0	M	11	5942
36	53.6	M	11	5848
38	4.4	M	11	5878
39	14.3	M	11	5838
		M	11	5850

3_0 2_2 2_1 2_0 1_2 1_1 1_0

22.08
19.87
41.95
20.97

19 45.0
49.1 19 49.8
55.4 – 2 27.5 22.3 21.1
20 14.2 – 2 28.7
21.7 20 20.9
26.9 – 2 57.6 – 2 58.5. 23.3 22.4
20 42.4 49.6
50.9 20 ~~52.9~~ × 15 23.13 × 88 40 27.92
55.5 – 3 28.3 21.3 21.3
21 14.3 – 3 28.3
21.3 21 21.4
28.7 – 3 58.2 23.2 23.5
21 41.0 – 3 57.9
46.1 21 47.0
53.8 – 4 27.0 20.0 19.4
22 10.5 – 4 27.6
18.0 22 17.9
25.3 – 4 56.7 21.2 20.3
22 41.0 – 4 57.6
47.5 22 47.3
53.4 – 5 26.5 20.8 19.9
– 5 27.4

7) 1521 1479
2173 21.13

1879 Nov. 24 U.C.

0.16056
8.36424
8.52480

6.73660
8.36424
5.10084

	h	m	s	m s
	1	12	27.7	
			32.2	12 33.5
			40.5 –	
		12	58.6	
			9.0	13 7.3
			14.3 –	
		13	32.0	
13 36.16			36.4	13 37.0
			42.6 –	
		13	59.4	
			5.2	14 5.3
			11.3 –	
		14	29.5	
			39.2	14 37.7
			44.4 –	
		15	2.6	
			8.0	15 7.8
			12.7 –	
		15	29.5	
			38.3	15 37.1
			43.5 –	
		15	59.9	
16 6.32			5.0	16 5.0
			10.0 –	
		16	28.7	
			36.4	16 36.5
			44.3 –	
		16	59.3	
			3.8	17 5.2
			12.6 –	
		17	27.8	
			34.2	17 34.0
			40.0 –	
		17	58.2	
			4.7	18 5.8
			14.6 –	
		18	28.6	
18 34.94			35.9	18 35.2
			41.2 –	
		18	59.0	
			5.2	19 4.7
			10.0 –	
		19	25.4	
			36.7	19 35.0
			42.0 –	
		19	55.7	
			59.3	20 08
			7.4 –	
		20	26.4	
			32.0	20 33.0
			40.5 –	
		20	57.3	
21 2.24			2.6	21 2.6
			7.8 –	
		21	29.3	
			33.4	21 33.6
			38.2 –	
		21	56.0	
			0.7	22 1.2
			6.9 –	
		22	25.2	
			31.5	22 31.8
			38.8 –	
		22	59.3	
			3.6	23 3.8
			8.6 –	
		23	25.5	
23 31.08			32.3	23 31.7
			37.3 –	
		23	51.7	
			0.6	23 59.7
			6.9 –	
		24	23.4	
			26.2	24 28.4
			35.7 –	
18 34.148				18 34.148

3 – 3

m s				'	"
55 28.7	+23 5.4		M	49	12.20
	1385.4	3.14158			
56 20.5	22 13.6		M	49	16.20
	1333.6	3.12503			
57 20.0	21 14.1		M	49	20.35
	1274.1	3.10520			
58 7.2	20 26.9		M	49	22.78
	1226.9	3.08881			
58 46.3	19 47.8		M	49	25.35
	1187.8	3.07474			
59 30.3	19 3.6		M	49	28.68
	1143.6	3.05827			
0 14.0	18 20.1		M	49	30.78
	1100.1	3.04143			
0 54.0	17 40.1		M	49	34.38
	1060.1	3.02535			
1 35.4	16 58.7		M	49	35.60
	1018.7	3.00805			
2 15.9	16 18.2		M	49	38.12
	978.2	2.99043			
3 1.1	15 33.0		M	49	40.40
	933.0	2.96988			
3 46.0	14 48.1		M	49	42.92
	928.1	2.96759			
4 32.7	14 1.4		M	49	45.70
	841.4	2.92500			
5 12.3	13 21.8		M	49	46.28
	801.8	2.90407			
5 52.3	12 41.8		M	49	49.30
	761.8	2.88184			
6 46.5	11 47.6		M	49	57.50
	707.6	2.84979			
7 33.5	11 0.6		M	49	53.95
	660.6	2.81994			
8 27.5	10 6.6		M	49	57.10
	606.6	2.78290			
9 25.0	9 9.1		M	50	0.60
	549.1	2.73965			
10 15.3	8 18.8		M	50	3.52
	498.8	2.69793			
12 22.9	+ 6 11.2				
	371.2	2.56961			

1 15 22.88

88 40 28.04

1879 Nov 25. U.C

	h	m	s	m s
	1	12	33.0	
			34.0	12 34.2
			35.5	–
		12	59.4	
			5.4	13 5.9
			13.0	–
		13	28.0	
13 35.12 13 35.12			33.5	13 33.6
			39.3	–
		14	1.4	
			6.4	14 6.1
			10.5	–
		14	30.1	
			35.4	14 35.8
			42.0	–
		14	58.5	
			4.1	15 4.3
			10.4	–
		15	31.2	36.2
			35.0	15 ~~33.0~~
			42.3	–
		16	0.2	
~~16 4.72~~ 16 5.36			4.9	16 5.3
			10.8	–
		16	29.5	
			35.3	16 35.4
		1	41.5	–
		16	59.4	
			5.5	17 5.6
			12.0	–
		17	29.6	
			34.0	17 35.1
			41.7	–
		17	58.5	
			4.8	18 4.9
			11.3	–
		18	30.0	
18 34.86 18 34.86			36.3	18 36.1
			42.0	–
		18	59.5	
			4.6	19 3.7
			7.1	–
		19	27.6	
			35.9	19 34.5
			40.1	–
		19	57.5	
			2.8	20 2.8
			8.1	–
		20	25.6	
			34.0	20 32.4
			37.6	–
		20	57.6	
21 2.44 21 2.44			1.9	21 2.5
			8.0	–
		21	24.8	
			33.2	21 32.4
			39.1	–
		21	56.9	
			1.2	22 2.1
			8.1	–
		22	25.8	
			33.3	22 32.9
			39.5	–
		22	57.2	
			3.0	23 3.6
			9.0	–
		23	24.9	
23 32.42 ~~23 32.34~~			31.7	23 ~~31.6~~ 5 31.9
			39.0	–
		23	55.9	
			5.7	24 2.5
			7.9	–
		24	25.7	
			31.0	24 31.2
			36.8	–
18 33.912				18 33.912

0.16056
8.36424
8.52480

3-3

59	5.3	+19 28.6 1168.6	3.06767
1	49.8	16 44.1 1004.1	300178
3	47.2	14 46.7 886.7	2.94778
5	23.1	13 10.8 790.8	2.89807
7	17.8	11 16.1 676.1	2.83001
9	24.7	9 9.2 549.2	2.73973
11	0.8	+7 33.1 453.1	2.65619
24	45.3	− 6 11.4 371.4	2.56984 n
26	53.9	− 8 20.0 500.0	2.69897
28	33.9	− 10 0.0 600.0	2.77815 n

6.73660
8.36424
5.10084

	′	″
R	49	23.42
R	49	33.18
R	49	38.98
R	49	44.12
R	49	50.12
R	49	56.02
R	50	0.55
R	50	27.00
R	50	30.25
R	50	32.30

1 15 22.42

88   88 40 28.30

– 1879 Nov. 25 L. C.

0.16056
8.36424n
8.52480n

not copy

6.73660
8.96424n
5.10084n

Identical

h	m s	m s
13		

Obj 8-180

3-5

15	15.6	15
	20.0	15 21.2
	27.9	− 1 58.5
15	46.6	+1 59.0
	50.4	15 51.4
	57.3	− 1 28.2
16	13.4	+1 29.1
	17.2	16 19.3
	25.3	− 0 59.1
16	45.0	+0 59.4
	49.1	16 49.5
	54.4	− 0 30.0
17	13.3	+0 29.6
	18.8	17 18.6
	23.8	− 0 0.2
17	42.5	− 0.8
	49.2	17 48.6
	54.0	− 0 29.7
18	14.6	− 0 29.7
	19.0	18 19.5
	24.8	− 0 58.9
18	42.1	− 0 59.5
	49.0	18 48.5
	54.4	− 1 28.0
19	13.0	− 1 29.3
	17.7	19 18.1
	23.7	− 1 58.8
19	41.8	− 1 58.7
	47.5	19 47.6
	53.4	− ~~2 28.7~~
		2 28.7

					′	″
3 18.8	+14 0.7			M	12	58.88
4 26.7	12 52.8			M	12	55.20
5 12.7	12 6.8			M	12	52.48
6 10.8	11 8.7			M	12	49.80
6 53.7	10 25.8			M	12	47.82
7 36.3	9 43.2			M	12	45.38
8 21.2	8 58.3	19.7	20.2	M	12	43.32
9 3.0	8 16.5			M	12	40.88
		19.6	20.5			
9 50.0	7 29.5			M	12	38.58
10 34.9	6 44.6	18.4	18.7	M	12	37.48
11 13.0	6 6.5			M	12	36.20
		19.5	19.1			
11 46.5	5 33.0			M	12	33.80
12 34.1	4 45.4	18.~~8~~ 4	18.6	M	12	31.65
13 13.4	4 6.1			M	12	29.92
		18.~~3~~ 9	18.9			
13 46.3	3 33.2			M	12	27.95
14 38.3	2 41.2	~~18.4~~ 20.6	20.0	M	12	26.85
25 39.9	−8 20.4			M	12	7.02
		~~16.5~~ 20	19.2			
26 43.3	9 23.8			M	12	6.50
27 25.0	10 5.5	~~16.9~~ 19.3	19.4	M	12	3.42
28 10.2	10 50.7	~~15.1~~ 20	18.9	M	12	3.65

10) ~~18.12~~ 19.50 | 19.34
17 ~~18.12~~ 19.50

1 15 22.19 19.34

10) 19.35
19.35

19.42
19.28
38.70
19.35

88 40 28.44

3

1879 Nov. 26 U.C (minutes doubtful)

0.16056
8.36415
8.52471

6.73660
8.36415
5.10075

	h m s	m s
	1 12 24.3	
	29.5	12 30.4
	37.5	
	12 55.2	
	3.1	13 2.1
	7.9	
	13 26.4	~~30.7~~
13 31.26	31.0	13 ~~31.0~~
~~13 31.20~~	35.6	31.0
	13 57.2	
	1.9	14 1.7
	6.0	
	14 24.4	
	31.5	14 31.1
	37.5	
	14 55.9	
	0.0	15 0.4
	5.2	
	15 21.2	
	26.3	15 27.3
	34.3	
	15 53.5	
15 58.50	0.8	15 59.6
15 58.50	4.4	
	16 23.0	
	27.4	16 28.1
	34.0	
	16 52.2	
	57.0	16 57.1
	2.0	
	17 19.9	
	26.9	17 ~~25.4~~
	30.2	25.3
	17 52.4	
	55.6	17 56.3
	0.9	
	18 20.5	
18 26.68	25.4	18 26.2
~~18 26.76~~	32.6	
	18 50.9	
	57.0	18 57.2
	3.7	
	19 23.1	
	28.2	19 28.4
	34.0	
	19 57.1	
	59.0	19 59.0
	1.0	
	20 20.7	
	26.5	20 26.3
	31.6	
	20 51.6	
20 58.14	59.5	20 59.4
20 58.14	7.0	
	21 22.0	
	29.8	21 28.6
	34.0	
	21 52.2	
	57.1	21 57.4
	2.9	
	22 22.2	
	26.3	22 25.9
	29.2	
	22 53.1	
	57.5	22 58.0
	3.5	
	23 22.0	
23 25.80	26.5	23 27.2
23 25.80	33.0	
	23 45.6	
	53.4	23 52.0
	57.0	
	24 21.4	
	25.0	24 25.9
	31.2	
18 28.064		18 28.064

5-5

						′	″
58	26.7	+20 1.4 1201.4	3.07969	M		49	2222
59	43.0	18 45.1 1125.1	315119	M		49	2690
0	31.3	17 56.8 1076.8	303213	M		49	2960
1	24.0	17 4.1 1024.1	3.01034	M		49	3265
2	11.8	16 16.3 976.3	2.98958	M		49	3592
2	58.5	15 29.6 929.6	296830	M		49	3842
3	46.9	14 41.2 881.2	2.94507	M		49	4130
4	38.9	13 49.2 829.2	2.91866	M		49	4418
5	25.9	13 2.2 782.2	2.89332	M		49	4620
6	9.1	12 19.0 739.0	2.86864	M		49	4852
6	53.1	11 35.0 695.0	2.84198	M		49	5098
7	39.2	10 48.9 648.9	2.81218	M		49	5352
8	31.1	9 57.0 597.0	2.77597	M		49	5570
9	14.0	9 14.1 554.1	2.74359	M		49	5720
10	22.0	8 6.1 486.1	2.68673	M		50	1.32
11	28.3	6 59.8 419.8	2.62304	M		50	405
24	46.8	−6 20.7 380.7	2.58058 n	M		50	3078
25	46.7	−7 18.6 438.6	2.64207	M		50	3042
26	47.6	−8 19.5 499.5	2.69854	M		50	3222
27	39.7	−9 11.6 551.6	2.74162 n	M		50	3298

1 15 21.98

88 40 28.58

1879 Nov. 29

Ch. f.

5

- 1879 Nov 29. S. C.

0.16056
8.36405n
8.52471n

6.73660
8.36400n
5.10075n

Identical

h	m	s	m s
13	10	43.8	
		45.0	10 44.9
		46.0	– 5 56.0
	11	7.7	+5 57.4
		10.0	11 10.7
		14.5	– 5 26.9
	11	35.4	5 27.5
		40.0	11 40.8
		47.0	– 4 57.0
	12	4.2	4 57.6
		12.5	12 11.5
		17.9	– 4 27.0
	12	37.3	4 27.9
		41.9	12 41.7
		46.0	– 3 56.2
	13	6.0	3 58.2
		12.5	13 12.7
		19.5	– 3 27.5
	13	36.0	3 28.3
		39.5	13 41.2
		48.0	– 2 59.0
	14	6.2	2 58.3
		11.5	14 11.4
		16.4	– 2 29.3
	14	37.2	2 28.8
		42.8	14 42.0
		46.1	– 1 58.5
	15	4.4	1 59.7⁰
		13.3	15 ~~11.6~~ 11.6
		17.2	– 1 28.2
	15	33.7	1 29.1
		40.5	15 40.3
		46.6	– 0 59.1
	16	0.0	0 59.4
		10.8	16 9.0
		16.1	– 0 30.0
	16	33.4	0 29.6
		37.0	16 39.0
		46.5	– 0.2
	17	5.4	– 0 0.0
		10.7	17 10.2
		14.5	– 0 29.7
	17	30.4	– 0 29.7
		40.3	17 38.0
		43.3	– 0 58.9
	18	3.0	– 0 59.5
		8.2	18 8.7
		14.8	– 1 28.0
	18	32.2	– 1 29.3
		36.0	18 38.1
		46.0	– 1 58.8
	19	2.7	– 1 58.7
		8.5	19 8.0
		12.7	– 2 27.5
	19	33.7	– 2 28.7
		37.8	19 38.1
		42.9	– 2 57.6
		—	– 2 58.5

A9 to 30

3-3

0	18.8	+16 20.8⁹ +980.9
1	24.8	15 14.8⁹ 914.9
2	10.2	14 29.4⁵ 869.5
2	57.8	13 41.8⁹ 821.9
3	55.0	12 44.6⁷ 764.7
4	46.2	11 54.4⁵ 714.5
5	26.6	11 13.X² 673.2
6	12.0	10 27.6⁷ 627.7
7	2.0	9 37.6⁷ 577.7
7	51.0	8 48.6⁷ 528.7
8	43.2	7 56.4⁵ 476.5
9	30.0	7 9.6⁷ 429.7
10	8.0	6 31.6⁷ 391.7

40.9	42.3
37.6	38.2
37.8	38.4
38.5	39.4
37.9	39.9 –
40.2	41.0
40.2	39.5
40.7	40.2
40.5	41.0
39.8	40.7 –
39.4	39.7
39.0	38.6
38.8	39.0 ~~38.6~~
40.5	40.5
39.1	38.5 –
40.7	39.4
39.3	39.4
40.5	39.3
40.5	39.6
19) 78⁵19	7545
16 ~~41.15~~ 39.57	39.71
	19) 7546
	39.72

× 1 15 20.34

× 88 40 29.65

	′	″
M	12	12.08
M	12	10.20
M	12	3.58
M	12	2.60
M	11	58.68
M	11	56.90
M	11	55.70
M	11	52.22
M	11	57.20
M	11	46.22
M	11	18.47
M	11	17.39
M	11	16.50

39.64
40.48
39.26
39.42
15880
39.70

1879 Nov. 30 U.C.

h	m s	m s
1		
	12 —	12 19.0
	—	
	—	
	12 40.6	
	48.4	12 47.3
	52.9	
	13 16.4	
13 17.92 13 17.92	19.1	13 19.6
	23.2	
	13 42.2	
	46.8	13 47.7
	54.2	
	14 8.2	
	15.6	14 16.0
	24.2	
	14 41.8	
	45.5	14 46.6
	52.4	
	15 10.9	
	15.7	15 16.3
	22.4	
	15 38.4	
~~15 46.16~~ 15 46.18	47.9	15 ~~46.9~~ 47.0
	54.6	
	16 10.4	
	16.5	16 16.4
	22.3	
	16 38.0	
	45.6	16 44.6
	50.2	
	17 6.4	
	10.3	17 11.9
	19.1	
	17 41.0	
	47.6	17 47.3
	53.4	
	18 10.9	
18 14.30 18 14.30	16.0	18 15.7
	20.3	
	18 37.2	
	45.5	18 44.1
	49.6	
	19 6.4	
	13.2	19 12.5
	18.0	
	19 34.8	
	43.0	19 42.1
	48.4	
	20 9.7	
	13.5	20 13.9
	18.6	
	20 37.6	
20 43.12 20 43.12	43.9	20 43.9
	50.1	
	21 4.3	
	12.1	21 11.8
	19.0	
	21 37.4	
	44.1	21 43.9
	50.3	
	22 9.2	
	16.0	22 14.9
	19.5	
	22 31.4	
	40.8	22 39.0
	44.7	
	23 3.2	
23 10.60 23 10.60	10.2	23 9.5
	15.2	
	23 36.2	
	41.9	23 41.1
	45.1	
	24 3.1	
	7.8	24 8.5
	14.7	
18 14.420		18 14.420

0.16056
8.36405
8.52461

2 30.2	+15 44.2		
	944.2	297506	M 49 4012
3 50.3	14 24.1		M 49 4320
	864.1	293656	M 49 4440
4 32.2	13 42.2		
	822.2	2.91498	M 49 4565
5 11.2	13 3.2		
	783.2	2.89387	M 49 4988
5 51.2	12 23.2		
	743.2	2.87111	M 49 5052
6 44.3	11 30.1		
	690.1	2.83891	M 49 5345
7 35.4	10 39.0		
	639.0	280550	M 49 5628
8 21.0	9 53.4		
	593.4	2.77335	M 50 038
9 41.4	8 33.0		
	550.0	2.74036	M 50 7.50
10 40.2	7 34.2		
	454.2	2.65725	M 50 538
11 36.9	+ 6 37.5		
	397.5	2.59934	M 50 3155
24 32.1	− 6 17.7		
	377.7	2.57715 n	M 50 3390
25 34.5	− 7 20.1		
	440.1	264355	M 50 3388
26 15.6	− 8 1.2		
	481.2	2.68233	M 50 3248
27 1.2	− 8 46.8		
	526.8	2.72165	M 50 3532
27 51.1	− 9 36.7		
	576.7	2.76095	M 50 3650
28 46.3	− 10 31.9		
	631.9	280065	M 50 3678
29 32.5	− 11 18.1		
	678.1	2.83129	M 50 3750
30 24.1	− 12 9.7		
	729.7	2.86314	M 50 3805
31 12.6	− 12 58.2		
	778.2	2.89109 n	

6.73660
8.36405
5.10065

' ''

1 15 20.06

88 40 29.81

7.

1879 Nov 30. L.C.

0.16056
8.36405n
8.52461n

6.73660
8.36405n
5.10065n

h m s m s
13

3 7.0
4 49.0

' "
M 12 58.20
M 12 54.85

3 34.4
36.6
40.0

Alto

17 58.9
6.4
10.8

18 5.4

1 15 19.76

88 40 29.96

a + 1

3 37.0 11 54.3 1.6 31.3

10

22 30.6
35.0
40.5

22 35.4

1879 Dec 1 U.C.

	m	s	m s
7	12	13.3	
		14.0	12 14.1
		14.9 –	
	12	37.5	
		43.8	12 43.8
		50.0 –	
	13	6.4	
13 13.40		13.0	13 12.8
13 13.40		19.0 –	
	13	36.2	
		43.0	13 42.7
		48.8 –	
	14	6.6	
		13.9	14 13.6
		20.2 –	
	14	37.5	
		42.2	14 42.4
		47.5 –	
	15	6.9	
		12.1	15 12.7
		19.2 –	
	15	37.2	
15 42.38		42.5	15 42.5
15 42.38		47.8 –	
	16	5.8	
		10.8	16 11.5
		18.0 –	
	16	33.9	
		43.2	16 42.8
		49.4 –	
	17	5.8	
		10.5	17 10.9
		16.5 –	
	17	36.1	
		40.3	17 40.9
		46.2 –	
	18	5.5	
18 10.58		10.3	18 10.4
18 10.58		15.5 –	
	18	35.9	
		41.6	18 40.7
		44.7 –	
	19	4.1	
		9.8	19 10.0
		16.2 –	
	19	35.5	
		39.5	19 39.8
		44.5 –	
	20	4.2	
		9.6	20 9.7
		15.2 –	
	20	32.1	
20 38.88		38.0	20 38.0
20 38.88		43.9 –	
	21	3.0	
		8.5	21 8.5
		14.0 –	
	21	33.0	
		37.1	21 38.4
		45.0 –	
	22	0.9	
		6.5	22 6.9
		13.2 –	
	22	31.1	
		38.4	22 38.0
		44.4 –	
	23	1.0	
23 7.18		6.9	23 6.6
23 7.18		11.9 –	
	23	29.8	
		37.2	23 36.5
		42.5 –	
	24	1.7	
		7.7	24 7.9
		14.4 –	
18 10.484			18 10.484

4—4

			0.16056 8.36405 8.52461
1	41.5	+16 29.0	
		989.0	2.99520
3	51.9	14 18.6	
		858.6	2.93379
5	35.3	12 35.2	
		755.2	2.87806
7	22.4	10 48.1	
		648.1	2.81164
9	1.3	9 9.2	
		549.2	2.73973
11	9.4	7 1.1	
		421.1	2.62439
24	25.0	−6 15.5	
		375.5	2.57461n
27	48.5	−9 38.0	
		578.0	2.76193
29	27.1	−11 16.6	
		676.6	2.83033
30	54.7	−12 44.2	
		764.2	2.88321n

6.73660
8.36405
5.10065

	′	″
R	49	34.10
R	49	38.65
R	49	44.88
R	49	49.40
R	49	54.25
R	50	0.00
R	50	26.40
R	50	30.20
R	50	32.28
R	50	32.92

1 15 19.45

88 40 30.11

- 1879 Dec. 1 - L. C.

0.16056
8.36405
8.52461

6.73660
8.36405
5.10065

Identical

h	m s	m s
13	10 33.0	
	35.8	10 36.8
	41.7	±5 56.0
	10 58.0	+5 57.4
	3.9	11 4.1
	10.5	– 5 26.9
	11 30.0	5 27.5
	36.7	11 36.2
	42.0	– 4 57.0
	12 0.8	4 57.6
	6.0	12 6.2
	11.8	– 4 27.0
	12 29.7	4 27.9
	34.4	12 34.7
	40.0	– 3 56.2
	13 0.1	3 58.2
	4.6	13 4.4
	8.5	– 3 27.5
	13 28.9	3 28.3
	33.9	13 34.4
	40.3	– 2 57.0
	14 0.0	2 58.3
	4.3	14 04.9
	10.4	– 2 29.3
	14 28.4	2 28.8
	33.4	14 33.4
	38.5	– 1 58.5
	14 58.6	1 59.0
	4.0	15 3.7
	8.6	– 1 28.2
	15 26.3	1 29.1
	33.4	15 33.3
	40.2	– 0 58.1
	15 57.0	0 59.4
	2.5	16 2.2
	7.1	– 0 30.0
	16 26.8	+ 0 29.6
	30.3	16 31.8
	38.4	– 0.2
	–	– 0.0

2 - 2

4	7.9	+12	24.4
5	33.7	10	58.6
6	28.2	10	4.1
7	15.6	9	16.7
8	5.1	8	27.2
9	0.8	7	31.5
9	50.4	6	41.9
10	30.0	+6	2.3

32.8	34.2
31.0	31.6
33.2	33.8
33.2	34.1
30.9	32.9 –
31.9	32.7
33.4	32.7
34.2	33.7
31.9	32.4 –
31.9	32.8
32.4	32.7
32.2	31.8
31.6	31.8
13) 4206	4271
16 32.35	32.85
	13) 42.72
	32.86

	′	″
M	12	55.80
M	12	57.35
M	12	48.80
M	12	46.62
M	12	43.78
M	12	41.20
M	12	39.58

33.32
32.88
32.28
98.48
32.83

1 15 19.13

88 40 30.27

Identical

− 1879 Dec. 2 L. C.

h	m s	m s
13	10 29.9	
	30.8	10 30.9
	31.9	+ 5 56.0
	10 57.7	+ 5 57.4
	3.2	11 3.1
	8.4	− 5 26.9
	11 26.7	5 27.5
	32.4	11 32.5
	38.4	− 4 57.0
	11 56.6	4 57.6
	1.4	12 1.7
	7.2	− 4 27.0
	12 26.0	4 27.9
	33.0	12 33.0
	40.0	− 3 56.2
	12 55.3	3 58.2
	1.7	13 1.0
	6.0	− 3 27.5
	13 24.0	3 28.3
	31.3	13 30.4
	35.9	− 2 59.0
	13 57.1	2 58.3
	2.3	14 2.1
	7.0	− 2 29.3
	14 25.6	+ 2 28.8
	31.1	14 30.9
	35.9	− 1 58.5
	14 56.2	1 59.0
	2.0	15 1.3
	5.7	− 1 28.2
	15 23.7	1 29.1
	29.3	15 29.8
	36.3	− 0 59.1
	15 53.9	0 59.4
	0.1	15 59.7
	5.0	− 0 30.0
	16 22.3	0 29.6
	27.4	16 27.7
	33.5	− − 0.2
	16. 54.2	− 0.8
	58.0	16 58.6
	3.7	− 0 29.7
	17 21.0	− 0 29.7
	27.5	17 27.6
	34.4	− 0 58.9
	17 52.2	− 0 59.5
	57.2	17 57.2
	2.2	− 1 28.0
	18 21.5	− 1 29.3
	27.7	18 27.5
	33.2	− 1 58.8
	18 50.9	− 1 ~~59.3~~ 58.7
	57.3	18 ~~56.6~~
	1.7	− 56.6
	19 23.4	− 2 27.5 2 28.7
	28.0	19 27.9
	32.4	− 2 57.6
		− 2 58.5

.0	37.8	+ 15 51.~~3~~5
		9 1.5 15 0.0
1	29.3	~~14 59.8~~
		9000
2	9.9	14 19.~~2~~4
		8594
2	49.7	13 39.~~4~~6
		8196
3	28.6	13 0.~~5~~7
		7807
4	11.5	12 17.~~6~~8
		7378
4	50.4	11 38.~~7~~9
		6989
5	32.6	10 56.~~5~~7
		6567
6	12.0	10 17.~~1~~3
		6173
6	52.7	9 36.~~4~~6
		5766
7	38.5	8 50.~~6~~8
		5308
8	20.9	8 8.~~2~~4
		4884
8	58.5	7 30.~~6~~8
		4508
9	44.1	6 45.~~0~~2
		+405.2

2 − 2

0.16056 8.36405n 8.52461n	
26.9	28.3
30.0	30.6
29.5	30.1
28.7	29.6
29.2	31.2
28.5	29.3
29.4	28.7
31.4	30.9
29.4	29.9
29.5	30.4
28.9	29.2
29.7	29.0
27.5	27.~~8~~7
28.9	28.9
28.7	28.1
29.2	27.9
28.7	28.8
29.1	27.9
30.3	29.4
19) 553.5	547.8
16 29.13	28.83
	19) 555.9 29.26

1 15 18.44

6.73660
8.36405n
5.10065n

	′	″
M	12	6.52
M	12	3.48
M	12	2.48
M	11	59.68
M	11	57.52
M	11	57.25
M	11	52.58
M	11	50.82
M	11	47.68
M	11	46.52
M	11	44.50
M	11	42.52
M	11	41.22
M	11	38.48

29.96
29.84
28.58
28.50
116.88
29.22

88 40 30.56

1879 Dec. 3 L.C.

L	m	s
13		

1879 Dec 4 U C.

ℓ 1	m	s	m s
		–	
		–	12 6.5
		–	
	12	29.2 –	
		36.7	12 36.1
		42.4 –	
	12	58.9	
13 6.24		6.5	13 6.2
13 6.24		13.3 –	
	13	29.7	
		36.8	13 36.3
		42.4 –	
	14	0.0	
		6.7	14 6.1
		11.6 –	
	14	29.0	34.4
		33.8	14 ~~36.1~~
		40.4 –	
	15	0.2	
		6.2	15 5.8
		11.0 –	
	15	29.2	
~~15 35.68~~		35.8	15 35.2
13 34.94		40.5 –	
	15	59.4	
		4.3	16 5.0
		11.4 –	
	16	27.5	
		33.9	16 34.3
		41.4 –	
	16	58.1	
		2.4	17 3.2
		9.2 –	
	17	29.4	
		37.8	17 36.1
		41.0 –	
	17	57.8	
18 3.72		3.2	18 2.7
18 3.72		7.0 –	
	18	27.4	
		33.3	18 32.7
		37.4 –	
	18	57.5	
		3.0	19 3.9
		11.2 –	
	19	29.4	
		33.0	19 33.9
		39.3 –	
	19	56.0	
		2.3	20 2.4
		8.8 –	
	20	26.0	
20 31.86		32.7	20 32.1
20 31.86		37.5 –	
	20	56.8	
		1.5	21 1.3
		5.7 –	
	21	24.2	
		29.5	21 29.6
		35.0 –	
	21	55.1	
		58.7	21 59.0
		2.3 –	
	22	25.4	
		30.3	22 31.0
		37.4 –	
	22	56.0	
22 59.92		1.0	23 0.9
22 59.92		5.7 –	
	23	25.0	
		30.2	23 30.9
		37.5 –	
	23	52.2	
		58.0	23 57.8
		3.1 –	
18 3.484			18 3.484

0.16056
8.36396
8.52452

0 14.5	+17 49.0	1069.0	3.02898
1 44.8	16 18.7	978.7	2.99065
2 34.5	15 29.0	929.0	2.96802
3 22.0	14 41.5	881.5	2.94522
4 3.7	13 59.8	839.8	2.92418
4 46.2	13 17.3	797.3	2.90162
5 30.2	12 33.3	753.3	2.87697
6 18.9	11 44.6	704.6	2.84794
7 3.0	11 0.5	660.5	2.81987
7 46.5	10 17.0	617.0	2.79029
8 37.9	9 25.6	565.6	2.75251
9 21.8	8 41.7	521.7	2.71742
10 5.7	7 57.8	477.8	2.67925
11 2.4	+7 1.1	421.1	2.62439
24 11.3	−6 7.8	367.8	2.56561 n
25 8.1	−7 4.6	424.6	2.62798
25 58.5	−7 55.0	475.0	2.67669
26 45.7	−8 42.2	522.2	2.71784
27 36.0	−9 32.5	572.5	2.75778
28 22.6	−10 19.1	619.1	2.79176 n

1 15 17.35

6.73660
8.36396
5.10056

	′	″
M	49	33.82
M	49	37.95
M	49	41.70
M	49	44.10
M	49	46.72
M	49	49.00
M	49	57.62
M	49	52.95
M	49	54.88
M	49	58.08
M	50	0.58
M	50	2.65
M	50	3.82
M	50	6.50
M	50	32.42
M	50	33.95
M	50	34.70
M	50	35.15
M	50	36.22
M	50	37.52

88 40 30.97

- 1879 Dec 4 - Ls.Co.

0.16056
8.36405n
8.52461n

6.73660
8.36405n
5.10065n

Identical

h	m	s	m s
13	10	13.6	
		18.4	10 19.0
		25.0	– 5 56.0
	10	34.7	+5 57.4
		44.1	10 44.8
		50.6	– 5 26.9
	11	8.7	5 27.5
		14.1	11 13.9
		18.9	– 4 57.0
	11	39.3	4 57.6
		43.4	11 44.3
		50.2	– 4 27.0
	12	7.5	4 27.9
		15.0	12 14.1
		19.9	– 3 56.2
	12	40.0	3 58.2
		45.9	12 45.5
		50.5	– 3 27.5
	13	8.3	3 28.3
		13.5	13 13.9
		20.0	– 2 59.0
	13	40.8	2 58.3
		45.1	13 46.0
		52.2	– 2 29.3
	14	6.6	2 28.8
		12.5	14 12.9
		19.7	– 1 58.5
	14	40.0	1 59.0
		44.0	14 45.3
		52.0	– 1 28.2
	15	8.2	1 29.1
		14.6	15 14.5
		20.6	– 0 59.1
	15	40.8	0 59.4
		45.3	15 45.4
		50.2	– 0 30.0
	16	9.6	0 29.6
		14.2	16 14.6
		20.0	– 0.2
	16	37.3	– 0.0.0
		43.0	16 43.6
		50.4	– 0 29.7
	17	6.4	– 0 29.7
		11.0	17 11.4
		16.7	– 0 58.9
	17	38.7	– 0 59.5
		43.3	17 44.0
		50.0	– 1 28.0
	18	6.0	– 1 29.3
		12.5	18 12.2
		18.0	– 1 58.8
	18	36.8	– 1 58.7
		43.4	– 18 42.9
		48.4	– 2 27.5
	19	8.3	– 2 28.7
		12.3	19 12.8
		17.7	– 2 57.6
			– 2 58.5

A+1

1	22.9
	23.9
	24.7
2	46.8
	51.6
	0.7
4	18.1
	21.0
	28.5
5	42.8
	49.0
	55.9
7	24.8
	25.4
	26.0

0	28.2	+ 15 45.~~4~~ 8	945.8 8.3
1	30.7	14 4~~2.9~~	883.3 8.3
2	15.7	13 5~~4.9~~	838.3
3	20.1	12 53.~~5~~ 9	773.9 4.9
4	10.0	12 ~~3.6~~	724.0 6
4	55.4	11 18.~~2~~	678.6 40.3
5	33.7	10 ~~39.9~~	640.3 8
6	16.2	9 57.~~4~~	597.8 5.2
6	48.8	9 ~~24.8~~	565.2 6.3
7	37.7	8 35.~~9~~	516.3 8
8	23.2	7 50.~~4~~	470.8 6
9	13.4	7 0.~~2~~	420.6 5
9	58.5	6 15.~~1~~	375.5

15.0	16.4 16.4
14.7	12.3 15.8
10.9	11.5 16.8
11.3	12.2 14.2
(10.3)	12.3
13.0	13.8
12.9	12.2
15.3	14.8
11.4	11.9
13.5	14.4
13.6	13.9
15.4	15.0
14.4	14.6
13.9	13.9
12.5	11.9
16.0	14.7
13.4	13.5
15.4	14.2
15.2	14.3
18) 244.8	19) 257.7
16 13.60	13.56
	23) 321.0

	′	″
M	12	18.32
M	12	14.15
M	12	12.35
M	12	8.72
M	12	5.82
M	12	3.85
M	12	1.27
M	11	59.90
M	11	57.58
M	11	56.25
M	11	53.38
M	11	57.35
M	11	48.68

14.48
13.58
14.10
13.75
55.91
13.98

321.0
13.96

×1 15 16.97

× 88 40 ~~30.19~~ 30.09

a+1

1 23.8	45 10.2	14 49.8	+14 52.6	16	16.4
2 53.0	46 46.6	13 20.6	13 22.8		15.8
4 22.5	48 8.9	11 51.1	11 54.3		16.8
5 49.2	49 35.6	10 24.8	10 25.0		14.2
7 25.4	51 11.8	8 48.2	8 55.3		20.7

1879 Dec-6-Lo. Cr

0

0.16056
8.36387n
8.52443n

6.73660
8.36387n
5.10047n

Identical

h	m	s	m s							'	''
13	10	14.0									
		17.4	10 18.5								
		24.2	± 5 56.0				14.5	15.9			
	10	39.0	+ 5 57.4								
		46.4	10 45.8								
		52.0	− 5 26.9				12.7	13.3			
	11	10.6	5 27.5								
		15.7	11 16.4								
		23.0	− 4 57.0				13.4	14.0			
	11	40.3	4 57.6								
		46.2	11 46.2								
		52.2	− 4 27.0				13.2	14.1			
	12	9.6	4 27.9								
		16.3	12 15.5								
		20.6	− 3 56.2	7	5.6	+ 9 8.2	11.7	13.7	M	11	49.42
	12	40.2	3 58.2								
		46.8	12 46.4	8	12.3	8 1.5			M	11	46.45
		52.1	− 3 27.5				13.9	14.7			
	13	10.7	3 28.3	10	2.0	6 11.8			M	11	41.22
		14.5	13 15.4								
		20.9	− 2 59.0	23	21.6	− 7 7.8	14.4	13.7	M	11	14.65
	13	39.7	2 58.3								
		45.5	13 45.1	24	21.5	8 7.7			M	11	12.92
		50.0	− 2 28.3				14.4	13.9			
	14	8.3	2 28.8	25	15.2	9 1.4			M	11	11.25
		15.4	14 15.1								
		21.6	− 1 58.5	26	1.7	9 47.9	13.6	14.1	M	11	9.75
	14	39.5	1 59.0								
		44.0	14 45.0	26	55.1	10 41.3			M	11	9.82
		51.4	− 1 28.2				13.2	14.1			
	15	8.4	1 29.1	27	54.0	11 40.2			M	11	7.72
		15.3	15 14.8								
		20.5	− 0 59.1	28	47.5	12 33.7	13.9	14.2	M	11	7.58
	15	39.1	0 59.4								
		43.3	15 43.7	29	45.4	13 31.6			M	11	6.88
		48.7	− 0 30.0				13.7	13.3			
	16	8.3	0 29.6	30	35.2	14 21.4			M	11	5.65
		12.7	16 13.4								
		19.3	− 0.2	31	34.9	15 21.1	13.2	13.4	M	11	4.70
	16	36.5	− 0 0.6								
		43.7	16 43.0	32	30.4	16 16.6			M	11	4.02
		48.9	− 0 29.7				13.3	13.3			
	17	6.2	− 0 29.7	33	19.5	17 5.7			M	11	3.80
		12.9	17 12.6								
		18.7	− 0 58.9	34	10.0	17 56.2	13.7	13.1	M	11	2.75
	17	37.0	− 0 59.5								
		42.7	17 42.9	35	0.2	18 46.4			M	11	2.85
		49.0	− 1 28.0				14.9	13.6			
	18	6.7	− 1 29.3	35	57.9	19 44.1			M	11	2.60
		12.2	18 12.5								
		18.7	− 1 58.8	36	53.1	20 39.3	13.7	13.8	M	11	2.80
	18	37.8	− 1 58.7								
		42.5	18 43.5	37	48.2	21 34.4			M	11	2.72
		50.1	− 2 27.5				16.0	14.8			
	19	7.5	− 2 28.7							14.20	
		13.5	19 13.3							14.10	
		19.0	− 2 57.6				15.7	14.8		13.46	
			− 2 58.5							14.25	

19) 26.31
16 13.85

(1 15× 15.52
~~26.57~~
~~13.98~~
19) 26.58
13.99

5601
14.00

88× 40 31.56

16.4
15.8
16.8
14.2
20.7

1879 Dec. 7 U.C.

	h	m	s	m s
	1	11	51.3	
			56.0	11 55.8
			0.2	
		12	23.2	
			27.4	12 28.1
			33.7	
		12	52.0	
12 56.68 12 56.68			55.4	12 56.6
			2.4	
		13	18.7	
			27.5	13 26.4
			33.0	
		13	51.8	
			55.6	13 56.5
			2.2	
		14	20.2	
			25.3	14 25.2
			30.2	
		14	50.2	
			55.8	14 55.4
			0.3	
		15	17.5	
15 24.84 15 24.84			25.5	15 24.7
			31.1	
		15	49.0	
			55.9	15 55.2
			0.6	
		16	18.0	
			23.1	16 23.7
			29.9	
		16	48.3	
			54.9	16 54.9
			1.4	
		17	18.1	
			25.4	17 24.9
			31.2	
		17	47.4	
17 53.96 17 53.96			53.6	17 53.5
			59.6	
		18	18.4	
			23.5	18 23.8
			29.5	
		18	48.0	
			52.4	18 52.7
			57.8	
		19	17.8	
			24.3	19 23.7
			29.0	
		19	46.8	
			53.5	19 53.1
			58.9	
		20	17.6	
20 23.00 20 23.00			23.9	20 23.6
			29.4	
		20	47.6	
			51.8	20 52.6
			58.3	
		21	16.6	
			21.6	21 22.0
			27.9	
		21	45.2	
			51.5	21 51.4
			57.5	
		22	15.8	
			21.2	22 21.7
			28.0	
		22	44.3	
22 50.82 22 50.82			50.4	22 50.2
			56.0	
		23	15.2	
			20.4	23 20.4
			25.5	
		23	44.0	
			50.3	23 50.4
			57.0	
17 53.860				17 53.860

			0.16056 8.36387 8.52443		6.73660 8.36387 5.10047	
					'	"
0	58.2	+16 55.7		M	49	34.62
		1015.7	3.00677			
2	20.2	15 33.7		M	49	39.70
		933.7	2.97021			
3	3.0	14 50.9		M	49	41.65
		890.9	2.94983			
3	52.0	14 1.9		M	49	44.18
		841.9	2.92526			
4	44.7	13 9.2		M	49	47.12
		789.2	2.89719			
5	35.8	12 18.1		M	49	50.05
		738.1	2.86812			
6	48.8	11 5.1		M	49	53.70
		665.1	2.82289			
7	43.8	10 10.1		M	49	56.05
		610.1	2.78540			
8	27.4	9 26.5		M	49	58.05
		566.5	2.75320			
9	7.9	8 46.0		M	49	58.70
		526.0	2.72099			
9	57.3	7 56.6		M	50	1.52
		476.6	2.67815			
10	44.0	7 9.9		M	50	3.42
		429.9	2.63337			
24	12.0	− 6 18.1		M	50	30.35
		378.1	2.57761 n			
25	51.4	− 7 57.5		M	50	33.08
		477.5	2.67897			
26	39.4	− 8 45.5		M	50	34.12
		525.5	2.72057			
27	31.3	− 9 37.4		M	50	34.92
		577.4	2.76148			
28	31.0	− 10 37.1		M	50	36.38
		637.1	2.80421			
29	21.5	− 11 27.6		M	50	37.53
		687.6	2.83734			
30	14.8	− 12 20.9		M	50	37.42
		740.9	2.86976			
31	1.5	− 13 7.6		M	50	38.38
		797.6	2.90179 n			

1 15 15.18

88 40 31.67

						0.16056 8.36387n 8.52443n		6.73660 8.36387n 5.10047n			
1879 Dec. 8. Le. C.											
h	m	s	m s								
13	10	1.4									
		6.9	10 7.0								
		12.6	–								
	10	27.6									
		33.3	10 33.5								
		39.6	–								
	10	58.5									
11 4.58		2.6	11 3.6								
11 4.58		9.6	–								
	11	28.9									
		34.7	11 34.7								
		40.4	–								
	11	57.6							′	″	
		4.0	12 4.1								
		10.8	–	0	59.8	+15 1.1		M	12	14.42	
	12	27.5				901.1	2.95477				
		33.3	12 33.3	2	9.5	13 51.4		M	12	8.30	
		39.0	–			831.4	2.91981				
	12	57.2		3	4.2	12 56.7		M	12	7.85	
		2.0	13 1.7			776.7	2.89025				
		6.0	–	3	56.5	12 4.4		M	12	5.12	
	13	25.9				724.4	2.85998				
13 32.02		30.0	13 30.8	4	46.9	11 14.0		M	12	2.18	
13 32.02		36.5	–			674.0	2.82866				
	13	54.5		5	36.3	10 21.6		M	12	0.15	
		3.8	14 2.6			624.6	2.79560				
		9.5	–	6	45.5	9 15.4		M	11	56.02	
	14	26.3				545.4	2.73672				
		30.5	14 31.7	8	24.5	7 36.4		M	11	50.62	
		38.2	–			456.4	2.65935				
	14	54.9		9	22.0	+6 38.9		M	11	48.62	
		0.8	15 1.0			398.9	2.60086				
		7.4	–								
	15	26.0									
		30.9	15 31.1								
		36.4	–								
	15	55.9									
16 0.90		0.0	16 1.5								
16 0.90		8.5	–								
	16	26.7									
		30.4	16 31.2								
		36.4	–								
	16	34.5									
		59.2	16 59.7								
		5.3	–								
	17	24.0									
		29.8	17 29.6								
		34.9	–								
	17	54.9				1 15	14.24				88 40 31.98
		0.4	18 0.6								
		6.4	–								
	18	24.1									
18 28.96		28.0	18 28.7								
18 28.96		34.1	–								
	18	54.0									
		58.9	18 58.9								
		3.9	–								
	19	22.8									
		26.4	19 27.0								
		31.7	–								
	19	53.6									
		58.7	19 59.1								
		5.0	–								
	20	23.5									
		29.1	20 28.7								
		33.5	–								
	20	53.8									
20 58.06		58.1	20 58.4								
20 58.06		3.3	–								
	21	23.0									
		26.5	21 27.7								
		33.7	–								
	21	50.4									
		55.5	21 56.4								
		3.4	–								
16 0.904			16 0.904								

1879 Dec. 9 U C.

	h	m	s	m s
	1	11	46.9	
			50.8	11 51.3
			56.2	
		12	17.1	
			23.5	12 23.1
			28.8	
		12	45.4	
12 52.04 12 52.04			50.8	12 50.5
			55.3	
		13	19.5	
			24.3	13 23.9
			27.9	
		13	45.8	
			51.6	13 51.4
			56.9	
		14	14.0	
			21.4	14 20.5
			26.0	
		14	45.5	
			51.3	14 50.9
			56.0	
		15	16.4	
15 20.10 15 20.10			20.0	15 20.6
			25.3	
		15	42.4	
			49.3	15 49.0
			55.3	
		16	15.0	
			19.6	16 19.5
			23.9	
		16	43.3	
			49.3	16 49.1
			54.7	
		17	11.7	
			15.9	17 16.5
			22.0	
		17	42.0	
17 47.90 17 47.90			47.0	17 48.0
			55.0	
		18	12.9	
			19.0	18 18.7
			24.2	
		18	41.4	
			46.3	18 47.2
			53.8	
		19	10.0	
			15.7	19 15.4
			20.4	
		19	38.3	
			45.2	19 44.6
			50.4	
		20	9.6	
20 16.20 20 16.20			17.3	20 17.6
			25.8	
		20	41.7	
			49.0	20 48.1
			53.5	
		21	9.9	
			14.6	21 15.3
			21.3	
		21	43.4	
			47.4	21 47.8
			52.6	
		22	9.1	
			16.1	22 15.1
			20.0	
		22	37.8	
22 45.40 22 45.40			42.0	22 43.3
			50.2	
		23	8.2	
			15.0	23 14.2
			19.4	
		23	40.6	
			47.0	23 46.6
			52.2	
17 48.328				17 48.328

0.16056
8.36387
8.52443

0	20.2	+17 28.1	1048.1	3.02040
1	52.7	15 55.6	955.6	2.98028
2	51.0	14 57.3	897.3	2.95294
3	49.5	13 58.8	838.8	2.92366
4	42.9	13 5.4	785.4	2.89509
5	36.5	12 11.8	731.8	2.86439
6	45.6	11 2.7	662.7	2.82132
7	40.0	10 8.3	608.3	2.78412
8	31.7	9 16.6	556.6	2.74554
9	37.5	8 10.8	490.8	2.69090
10	53.0	6 55.3	415.3	2.61836
24	10.9	− 6 22.6	382.6	2.58274 n
26	55.4	− 9 7.1	547.1	2.73807
27	46.9	− 9 58.6	598.6	2.77714
28	43.7	−10 55.4	655.4	2.81651
29	47.9	−11 59.6	719.6	2.85709
30	49.0	−13 0.7	780.7	2.89248
31	50.4	−14 2.1	842.1	2.92536
32	44.9	−14 56.6	896.6	2.95260
33	45.0	−15 56.7	956.7	2.98078 n

1 15 13.63

6.73660
8.36387
5.10047

	′	″
M	49	36.48
M	49	40.62
M	49	43.85
M	49	47.22
M	49	50.72
M	49	52.70
M	49	55.92
M	49	58.22
M	50	0.30
M	50	4.52
M	50	7.78
M	50	34.35
M	50	37.25
M	50	38.30
M	50	39.22
M	50	40.32
M	50	40.20
M	50	40.95
M	50	42.05
M	50	43.32

88 40 32.21

1879 Dec. 12 U.C.

				0.16056 8.36378 8.52434		6.73660 8.36378 5.10038				
	h m s	m s								
	1 11 —									
	33.6	11 38.0								
	42.4 –									
	11 58.0									
	4.8	12 4.4								
	10.3 –									
	12 26.3									
12 34.86	30.4	12 32.7								
12 34.86	41.3 –									
	12 58.5									
	4.0	13 4.5								
	11.0 –									
	13 28.4									
	34.0	13 34.7						'	''	
	41.6 –		57 0.1	+20 33.9			M	49	19.32	
	13 58.2			1233.9	3.09128					
	7.0	14 6.6	58 16.8	19 17.2			M	49	25.68	
	14.5 –			1157.2	3.06341					
	14 28.8		59 31.3	18 2.7			M	49	30.68	
	36.5	14 37.1		1082.7	3.03451					
	46.0 –		0 38.6	16 55.4			M	49	36.20	
	15 0.5			1015.4	3.00664					
15 5.20	7.0	15 6.8	2 0.0	15 34.0			M	49	41.25	
15 5.20	13.0 –			934.0	2.97035					
	15 25.9		3 16.4	14 17.6			M	49	42.95	
	33.8	15 33.2		857.6	2.93328					
	40.0 –		4 27.4	13 6.6			M	49	47.12	
	15 55.9			786.6	2.89575					
	2.0	16 2.3	5 44.4	11 49.6			M	49	52.28	
	9.1 –			709.6	2.85101					
	16 28.0		6 59.7	10 34.3			M	49	54.22	
	37.4	16 36.5		634.3	2.80229					
	44.1 –		8 7.0	9 27.0			M	49	56.60	
	16 59.7			567.0	2.75358					
	4.6	17 6.3	9 26.4	8 7.6			M	50	0.82	
	14.7 –			487.6	2.68806					
	17 29.8		10 35.2	6 58.8			M	50	5.48	
17 36.30	37.0	17 36.8		418.8	2.62201					
17 36.30	43.7 –		23 57.0	− 6 17.0			M	50	31.52	
	17. 58.7			377.0	2.57634 n					
	9.0	18 7.7	25 56.0	− 8 22.0			M	50	34.10	
	15.4 –			502.0	2.70070					
	18 28.4		27 29.0	− 9 55.0			M	50	35.95	
	34.2	18 34.2		595.0	2.77452					
	40.0 –		28 56.7	− 11 22.7			M	50	37.58	
	18 54.0			682.7	2.83423					
	1.9	19 4.2	30 20.5	− 12 46.5			M	50	39.45	
	16.6 –			766.5	2.88451					
	19 27.7		31 37.6	− 14 3.6			M	50	40.50	
	32.8	19 33.6		843.6	2.92614					
	40.2 –		33 3.6	− 15 2.96			M	50	41.50	
	19 53.7			902.9	2.95564					
20 2.58	58.9	20 0.7	34 44.0	− 17 10.0			M	50	42.48	
20 2.58	9.4 –			1030.0	3.01284 n					
	20 24.9									
	31.9	20 33.1								
	42.4 –									
	20 55.0									
	0.5	21 1.3		1 15	12.14					88 40 32.79
	8.4 –									
	21 23.0									
	29.3	21 30.1								
	38.0 –									
	21 56.3									
	4.4	22 4.0								
	11.2 –									
	22 21.9									
22 31.18	31.6	22 31.0								
22 31.18	39.5 –									
	22 57.2									
	58.1	22 58.7								
	6.7 –									
	23 24.8									
	32.8	23 32.1								
	38.8 –									
17 34.024		17 34.024								

							0.16056 8.36378n 8.52434n		6.73660 8.36978n 5.10038n		
1879 Dec.	12	So.C.									
h	m	s	m s								
13	9	46.7	a								
		52.0	9 51.8								
		56.8	–								
	10	14.8									
		19.7	10 19.8								
		24.9	–								
	10	48.0									
10 51.92		52.8	10 53.2								
10 51.92		38.7	–								
	11	15.7				5 – 5					
		20.2	11 20.4								
		25.3	–								
	11	48.3									
		55.0	11 54.4						'	"	
		0.0	–	54	58.0	+20 49.5		M	12	36.98	
	12	13.6				1249.5	3.09674				
		21.0	12 20.4	56	24.4	19 23.1		M	12	33.08	
		26.5	–			1163.1	3.06562				
	12	41.5		57	43.7	18 3.8		M	12	28.10	
		48.4	12 48.0			1083.8	3.03495				
		54.1	–	59	5.0	16 42.5		M	12	22.75	
	13	12.0				1002.5	3.00108				
13 18.62		16.0	13 16.7	0	22.7	15 24.8		M	12	18.25	
13 18.62		22.1	–			924.8	2.96605				
	13	41.4		1	42.2	14 5.3		M	12	13.98	
		48.7	13 48.3			845.3	2.92701				
		54.7	–	3	4.5	12 43.0		M	12	9.72	
	14	14.0				763.0	2.88252				
		19.8	14 19.7	4	15.2	11 32.3		M	12	6.22	
		25.3	–			692.3	2.84029				
	14	48.5		5	33.4	10 14.1		M	12	1.45	
		48.5	14 48.8			614.1	2.78824				
		54.4	–	6	42.8	9 4.7		M	11	59.12	
	15	12.0				544.7	2.73616				
		17.3	15 17.7	7	52.4	7 55.1		M	11	33.68	
		23.9	–			475.1	2.67678				
	15	40.0		8	59.1	6 48.4		M	11	50.42	
15 47.08		47.0	15 47.1			408.4	2.61109				
15 47.08		54.3	–	22	14.7	−6 27.2		M	11	23.28	
	16	10.3				387.2	2.58794n				
		16.0	16 16.4	25	12.3	−9 24.8		M	11	19.88	
		22.8	–			564.8	2.75189				
	16	39.5		27	0.8	−11 13.3		M	11	18.95	
		45.4	16 45.4			673.3	2.82821				
		51.3	–	28	47.6	−13 0.1		M	11	16.25	
	17	8.0				780.1	2.89215				
		15.3	17 15.7	30	15.9	−14 28.4		M	11	15.75	
		23.7	–			868.4	2.93872				
	17	40.8		31	35.2	−15 47.7		M	11	14.55	
		47.2	17 47.2			947.7	2.97667				
		53.7	–	32	54.5	−17 7.0		M	11	13.32	
	18	9.0				1027.0	3.01157				
18 15.38		13.8	18 13.8	34	45.9	−18 58.4		M	11	12.98	
18 15.38		18.5	–			1138.4	3.05629n				
	18	39.5									
		45.8	18 45.5								
		51.2	–								
	19	8.7									
		14.3	19 14.7			1 15	11.82				88 40 32.99
		21.2	–								
	19	38.8									
		43.7	19 44.3								
		50.3	–								
	20	8.5									
		13.2	20 13.8								
		19.6	–								
	20	36.3									
20 44.48		41.2	20 42.5								
20 44.48		50.0	–								
	21	8.0									
		12.7	21 14.6								
		23.0	–								
	21	40.6									
		46.6	21 47.2								
		54.3	–								
15 47.496			15 47.496								

Sec Obs -

1879 Dec. 15

h m s m s
1

A +1

2 19.2
24.1
28.7
—
—
—

5 17.7
23.6
29.7
—
—
—

8 18.7
23.5
28.5

17 10.6 —
15.8 17 17.1
24.8 —
—
—
—
—
—

18 42.0 —
48.4 18 47.7
52.8 —
—
—
—
—
—
—

20 8.6 —
16.0 20 15.6
22.2 —
—
—
—
—
—
—
—
—
—
—
—
—

23 8.3 —
13.0 23 13.0
17.7 —
—
—
—

56 40.5
57 56.0
58 44.4
59 30.7
0 21.5
1 35.0
3 22.9
4 27.4
6 9.8
7 37.9
8 57.8
9 41.1
18 18.0
19 10.5
19 57.2
20 55.7

M 49 18.18
M 49 22.78
M 49 26.28
M 49 28.50
M 49 32.72
M 49 35.75
M 49 41.35
M 49 45.05
M 49 51.00
M 49 54.95
M 49 57.88
M 50 0.22
M 50 2.25
M 50 8.72
M 50 9.28
M 50 19.32
M 50 20.90
M 50 21.98
M 50 25.12

a +1
2 24.0 +14 53.3 17' 17.3

5 23.7 16 54.9 18.6

8 23.6 8 55.8 19.4

3)55.3
17 18.43

– 1879 Dec. 15 L.C.

0.16056
8.36364_n
8.52425_n

6.73660
8.36369_n
5.10029_n

Identical

h	m	s	m s							′	″	
13	9	37.5										
		42.2	9 42.7									
		48.3	±5 56.0				38.7	40.1				
	10	3.3	+5 57.4									
		9.9	10 9.5									
		15.3	−5 26.9				36.4	37.0				
	10	33.8	5 27.5									
		39.7	10 39.6									
		45.4	−4 57.0				36.6	37.2				
	11	4.4	4 57.6									
		9.2	11 9.9									
		16.1	−4 27.0				36.9	37.8				
	11	33.3	4 27.9									
		38.2	11 38.7									
		44.5	−3 56.2	0	58.0	+14 39.5	34.9	36.9	M	12	1295	
	12	3.4	3 58.2									
		9.2	12 9.4	2	9.2	13 28.3			M	12	948	
		15.7	−3 27.5				36.9	37.7				
	12	33.8	3 28.3	2	50.0	12 47.5			M	12	750	
		39.2	12 38.8									
		43.4	−2 59.0	3	35.6	12 1.9	37.8	37.1	M	12	435	
	13	3.2	2 58.3									
		7.6	13 8.2	4	19.8	11 17.7			M	12	232	
		13.7	−2 29.3				37.5	37.0				
	13	34.2	2 28.8	5	4.3	10 33.2			M	12	058	
		37.4	13 38.3									
		43.3	−1 58.5	6	22.0	9 15.5	36.8	37.3	M	11	5678	
	14	2.2	1 59.0									
		7.7	14 8.2	7	11.5	8 26.0			M	11	5448	
		14.6	−1 28.2				36.4	37.3				
	14	32.5	1 29.1	7	58.8	7 38.7			M	11	5145	
		36.4	14 37.6									
		44.0	−0 59.1	8	53.3	6 44.2	36.7	37.0	M	11	4912	
	15	1.8	0 59.4									
		7.0	15 7.9	22	54.4	−7 16.9			M	11	2055	
		14.8	−0 30.0				37.9	37.5				
	15	33.1	0 29.6	23	54.6	8 17.1			M	11	1875	
		37.4	15 37.7									
		42.6	− 0.2	24	37.5	9 0.0	37.5	37.8?	M	11	1820	
	16	0.4	−0 0.0									
		6.4	16 6.5	25	16.0	9 38.5			M	11	1735	
		12.7	−0 29.7				36.8	36.8				
	16	30.5	−0 29.7	25	55.0	10 17.5			M	11	1652	
		37.4	16 37.0									
		43.1	−0 58.9	26	37.0	10 59.5	38.1	37.5	M	11	1582	
	17	1.2	−0 59.5									
		5.7	17 6.5	27	23.0	11 45.5			M	11	1488	
		12.7	−1 28.0				38.5	37.2				
	17	32.4	−1 29.3	28	7.4	12 29.9			M	11	1372	
		37.7	17 38.0									
		43.8	−1 58.8	28	47.7	13 10.2	39.2	39.3	M	11	1370	
	18	2.1	−1 58.7									
		6.5	18 7.0	29	29.7	13 52.2			M	11	1275	
		12.4	−2 27.5				39.5	38.3				
	18	31.0	−2 28.7								37.80	
		36.8	18 36.9								37.28	
		43.0	−2 57.6				39.3	38.4			37.30	
		–	−2 58.5								38.30	
				×1	15	9.62	19) 7124	7150			15068	88 40 33.69
							15 37.49	37.63			37.67	
								19) 7151				
								37.64				

1879 Dec. 16

h	m	s	- m s
1	11	17.9	-
		21.9	11 21.8
		25.7	-
		–	
		–	
		–	
		–	
		–	
		–	
	12	42.0	-
		47.0	12 48.0
		55.1	-

d_{+1} 4.5.

A. 1.2.

–
–
–
–
–
–
–
–
–
6 57.9
52.9
53.9 –
8 16.8
21.8
29.0

			′	″
5	45.5	M	49	51.65
7	1.6	M	49	55.00
7	47.7	M	49	58.98
8	46.5	M	50	0.70
9	43.0	M	50	4.02
10	37.8	M	50	6.05
11	32.7	M	50	9.05
12	20.2	M	50	9.72

a + 1

+

6 52.9 + 10 25.5 17 18.4
8 22.5 8 55.8 18.3
d

1879 Dec. 17			U.C.
h	m	s	m s
1	11	10.7	
		14.3	11 15.1
		20.4	
	11	42.8	
		47.0	11 48.1
		54.5	
	12	11.5	
12 16.78 12 16.78		16.6	12 16.9
		22.7	
	12	40.2	
		47.1	12 47.2
		54.4	
	13	10.5	
		15.0	13 16.6
		24.2	
	13	40.0	
		45.7	13 45.7
		51.5	
	14	10.3	
		15.0	14 15.2
		20.3	
	14	37.2	
14 44.52 14 44.52		41.9	14 42.8
		49.4	
	15	8.3	
		14.0	15 14.2
		20.3	
	15	39.4	
		44.8	15 44.7
		49.8	
	16	8.2	
		14.0	16 14.1
		20.2	
	16	39.7	
		43.5	16 43.7
		47.8	
	17	7.4	
17 13.24 17 13.24		13.6	17 13.0
		18.1	
	17	37.6	
		44.0	17 44.1
		50.8	
	18	6.0	
		10.2	18 11.3
		17.8	
	18	35.7	
		43.8	18 43.3
		50.3	
	19	7.3	
		11.7	19 12.3
		17.8	
	19	38.8	
19 43.34 19 43.34		43.4	19 43.4
		48.0	
	20	9.3	
		13.9	20 14.8
		21.2	
	20	37.5	
		43.1	20 42.9
		48.2	
	21	8.8	
		14.0	21 14.0
		19.3	
	21	37.7	
		44.4	21 44.6
		51.7	
	22	3.3	
22 12.52 22 12.52		11.1	22 10.2
		16.3	
	22	36.4	
		42.6	22 41.6
		45.7	
	23	6.5	
		10.6	23 12.2
		19.6	
17 14.080			17 14.080

0.16056
8.36369
8.52425

2	32.9	+14 41.2	
		881.2	2.94507
4	25.4	12 48.7	
		768.7	2.88576
5	8.1	12 6.0	
		726.0	2.86094
5	54.4	11 19.7	
		679.7	2.83232
6	42.2	10 31.9	
		631.9	2.80065
7	25.5	9 48.6	
		588.6	2.76982
8	15.0	8 59.1	
		539.1	2.73167
8	57.1	8 17.0	
		497.0	2.69636
9	54.0	7 20.1	
		440.1	2.64355
10	57.0	6 23.1	
		383.1	2.58331
23	33.0	− 6 18.9	
		378.9	2.57852 n
24	45.7	− 7 31.6	
		451.6	2.65475
25	29.2	− 8 15.1	
		495.1	2.69469
26	9.9	− 8 55.8	
		535.8	2.72900
26	55.9	− 9 41.8	
		581.8	2.76477
27	38.3	− 10 24.2	
		624.2	2.79532
28	28.0	− 11 13.9	
		673.9	2.82860
29	15.0	− 12 0.9	
		720.9	2.85787
30	1.8	− 12 47.7	
		767.7	2.88519
30	47.1	− 13 33.0	
		813.0	2.91009 n
		1 15	8.33

6.73660
8.36369
5.10029

	′	″
M	49	41.10
M	49	47.90
M	49	49.65
M	49	51.95
M	49	54.65
M	49	56.70
M	49	57.15
M	50	1.08
M	50	3.98
M	50	6.90
M	50	31.32
M	50	32.08
M	50	33.55
M	50	34.08
M	50	35.85
M	50	36.48
M	50	36.58
M	50	37.22
M	50	38.18
M	50	38.70

88 40 34.02

– 1879 Dec. 17 S.C.

D.16056
8.96369n
8.52425n

6.73660
8.36369n
5.10029n

Identical

h	m	s	m s							ʹ	ʺ
13	9	18.6									
		22.5	9 22.7								
		27.1 –	5 56.0				18.7	20.1			
	9	46.6	+5 57.4								
		51.2	9 50.9								
		54.8 –	5 26.9				17.8	18.4			
	10	16.0	5 27.5								
		18.9	10 20.7								
		27.1 –	4 57.0				17.7	18.3			
	10	43.0	4 57.6								
		46.4	10 49.5			3					
		59.0 –	4 27.0			–	16.5	17.4 –			
	11	13.0	4 27.9			3					
		21.3	11 21.0								
		28.8 –	3 56.2	59	29.5	+15 49.3	17.2	19.2	M	12	24.53
	11	49.6	3 58.2								
		52.7	11 52.9	0	32.3	14 46.5			M	12	20.85
		56.4 –	3 27.5				20.4	21.2			
	12	16.2	3 28.3	1	9.0	14 9.8			M	12	18.65
		21.7	12 21.9								
		27.7 –	2 59.0	1	54.0	13 24.8	20.9	20.2	M	12	16.68
	12	44.5	2 58.3								
		52.5	12 51.2	2	45.5	12 33.3			M	12	13.82
		56.7 –	2 29.3				.20.5	20.0			
	13	15.4	.2 28.8	3	22.0	11 56.8		–	M	12	11.95
		18.6	13 19.9								
		25.6 –	1 58.5	4	3.2	11 15.6	18.4	18.9	M	12	10.60
	13	48.2	1 59.0								
		57.0	13 50.2	4	40.9	10 37.9			M	12	8.20
		56.3 –	1 28.2				18.4	19.3			
	14	13.6	1 29.1	5	27.9	9 50.9			M	12	5.22
		19.3	14 19.0								
		24.0 –	0 59.1	6	4.0	9 14.8	18.1	18.4	M	12	4.05
	14	42.2	0 59.4								
		48.0	14 48.1	6	49.2	8 29.6			M	12	2.28
		54.0 –	0 30.0				18.1	17.7			
	15	14.8	0 29.6	7	32.7	7 46.1			M	11	59.12
		21.0	15 20.9								
		27.0 –	– 0.2	8	11.8	7 7.0	20.7	20.~~8~~9	M	11	58.32
			– 0.0	8	51.8	6 27.0	13) 244.4 15 18.80	249.9 19.22 2500 1923	M	11	56.55 18.55 20.15 19.04 57.74 19.25

1 15 7.89

88 40 34.12

Ag 65

85

1879 Dec. 18 U.C.

h m s m s
1 10 56.8
44 11 4.0
10.8 –
11 31.5
36.4 11 37.0
43.2 –
12 1.8
12 5.72 6.5 12 6.4
12 5.72
11.0 –
12 33.4
38.0 12 37.7
41.8 –
12 59.0
3.3 13 3.5
8.3 –
13 31.3
35.2 13 34.6
37.3 –
13 (57.6
1.5 14 2.9
3.3
9.3) –
14 27.0
14 32.70 34.8 14 34.2
14 32.70
40.7 –
14 59.0
4.7 15 4.2
9.0 –
15 (22.0
28.3 15 27.6
29.0
31.0) –
16 2.0
6.0 16 5.4
8.2 –
16 (18.0
25.9 16 30.5
36.0
42.3) –
16 57.2
17 2.78 2.3 17 2.0
17 2.78
6.5 –
17 24.3
32.0 17 31.6
38.6 –
17 59.2
5.1 18 4.4
9.0 –
18 25.4
29.4 18 27.4
1
18 59.3 –
3.4 19 4.1
9.7 –
19 26.4
19 32.30 30.8 19 31.4
19 32.30
37.0 –
19 59.5
4.5 20 4.8
10.5 –
20 27.3
33.7 20 33.8
40.5 –
20 58.2
5.7 21 4.6
9.8 –
21 26.3
33.7 21 32.8
38.5 –
21 54.1
22 0.90 0.6 22 0.3
22 0.90
6.3 –
22 23.1
27.3 22 28.7
35.6 –
22 49.2
57.6 22 58.1
17 2.880 5.5 – 17 2.880

0.16056
8.36369
8.52425

5 — 5

6 15.5 +10 47.4
647.4 2.81117
7 25.9 9 37.0
577.0 2.76118
8 35.0 8 27.9
507.9 2.70578
9 18.1 7 44.8
464.8 2.66727
10 0.1 7 2.8
422.8 2.62613
(10 49.3) 6 13.6
373.6 2.57241
23 13.2 – 6 10.3
370.3 2.56855
24 8.5 – 7 5.6 n
425.6 2.62900
24 46.9 – 7 44.0
464.0 2.66652
25 27.5 – 8 24.6
504.6 2.70295
26 6.7 – 9 3.8
543.8 2.73544
27 1.0 – 9 58.1
598.1 2.77677
27 44.0 – 10 41.1
641.1 2.80693
28 28.3 – 11 25.4
685.4 2.83594
29 14.2 – 12 11.3
731.3 2.86410
30 1.0 – 12 58.1
778.1 2.89104
30 56.0 – 13 53.1
833.1 2.92070
31 44.4 – 14 41.5
881.5 2.94522
32 34.5 – 15 31.6
931.6 2.96923
33 16.9 – 16 14.0
974.0 2.98856
34 5.4 – 17 2.5
1022.5 3.00966
n

1 15 7.45

6.73660
8.36364
5.10029

' ''
M 49 56.05
M 50 1.60
M 50 4.58
M 50 8.58
M 50 8.00
M 50 34.92
M 50 35.98
M 50 35.15
M 50 37.05
M 50 37.22
M 50 37.95
M 50 39.42
M 50 39.38
M 50 37.58
M 50 41.15
M 50 42.42
M 50 43.58
M 50 42.55
M 50 43.65
M 50 42.82

88 40 34.21

1879 Dec.20			L.C.				0.16056 8.36369n 8.52425n		6.73660 8.36369n 5.10029n		
h	m	s	m s								
13	9	11.7									
		18.9	9 18.4								
		24.5 –									
	9	41.3									
		47.5	9 48.7								
		57.4 –									
	10	10.8									
10 18.32		16.6	10 16.6								
10 18.32		22.5 –									
	10	44.0									
		48.3	10 48.8								
		54.0 –									
	11	13.7									
		18.0	11 19.1						'	''	
		25.6 –		0	56.8	+ 14 18.4		M	12	18.52	
	11	44.0				858.4	2.93369				
		47.0	11 47.0	1	53.3	13 21.9		M	12	15.82	
		50.0 –				801.9	2.90412				
	12	10.4		2	40.3	12 34.9		M	12	14.00	
		17.2	12 17.2			754.9	2.87789				
		24.0 –		3	27.3	11 47.9		M	12	11.15	
	12	40.4				707.9	2.84997				
12 46.84		49.5	12 47.9	4	14.0	11 1.2		M	12	8.45	
12 46.84		53.9 –				661.2	2.82033				
	13	6.4		5	2.0	10 13.2		M	12	5.92	
		13.2	13 14.0			613.2	2.78760				
		22.3 –		5	47.0	9 28.2		M	12	4.50	
	13	43.6				566.2	2.75450				
		47.0	13 48.1	6	30.0	8 45.2		M	12	1.52	
		53.6				525.2	2.72032				
	14	8.9 –		7	15.4	7 59.8		M	11	59.98	
		17.8	14 16.8			479.8	2.68106				
		23.8 –		7	57.0	7 18.2		M	11	57.98	
	14	41.0				438.2	2.64167				
		44.6	14 45.7	8	45.2	6 30.0		M	11	55.90	
		51.4 –				390.0	2.59106				
	15	8.2		21	26.2	– 6 11.0		M	11	30.50	
15 15.60		15.1	15 14.8			371.0	2.56937n				
15 15.60		21.2 –		22	32.5	– 7 17.3		M	11	27.85	
	15	41.0				437.3	2.64078				
		46.0	15 46.7	23	14.2	– 7 59.0		M	11	26.80	
		53.2 –				479.0	2.68034				
	16	8.5		23	56.9	– 8 41.7		M	11	24.95	
		13.4	16 14.0			521.7	2.71742				
		20.1 –		24	48.9	– 9 33.7		M	11	23.95	
	16	42.6				573.7	2.75868				
		47.3	16 47.5	25	34.5	– 10 19.3		M	11	24.98	
		52.6 –				619.3	2.79190				
	17	7.4		26	14.8	– 10 59.6		M	11	22.22	
		13.2	17 12.8			659.6	2.81928				
		17.7 –		27	0.5	– 11 45.3		M	11	23.95	
	17	36.1				705.3	2.84837				
17 43.40		42.0	17 42.6	27	45.3	– 12 30.1		M	11	21.40	
17 43.40		49.6 –				750.1	2.87512n				
	18	5.8									
		8.8	18 10.1								
		15.4 –									
	18	39.0									
		43.0	18 44.0			1 15	5.30				88 40 34.58
		50.0 –									
	19	9.5									
		14.7	19 14.7								
		20.0 –									
	19	35.7									
		41.0	19 41.0								
		46.2 –									
	20	8.0									
20 12.06		12.0	20 12.3								
20 12.06		16.8 –									
	20	34.6									
		40.0	20 41.9								
		57.2 –									
	21	2.2									
		9.9	21 10.4								
		19.0									
15 15.244			15 15.244								

1879 Dec. 21 U.C.

0.16056
8.36369
8.52425

6.73660
8.36369
5.10029

5-5

	h	m	s	m s
	1	10	57.1	
			59.0	10 58.9
			6.6	
		11	27.8	
			32.5	11 32.1
			35.9	
		11	54.7	
~~12 0.82~~			0.9	12 2.0
12 0.76			10.4	
		12	24.9	
			33.3	12 31.4
			36.0	
		12	53.7	4
			59.5	12 59.~~7~~
			4.9	
		13	24.0	
			31.4	13 30.2
			35.1	
		13	48.7	
			55.8	13 55.8
			2.8	
		14	20.0	
14 28.06			28.5	14 27.5
14 28.06			34.0	
		14	51.7	
			58.8	14 58.2
			4.2	
		15	23.0	
			28.3	15 28.6
			34.4	
		15	52.2	
			56.9	15 57.9
			4.5	
		16	17.4	
			27.3	16 25.4
			31.5	
		16	50.9	
16 57.10			54.5	16 55.9
16 57.10			2.3	
		17	24.4	
			31.3	17 30.6
			36.2	
		17	44.7	
			57.2	17 55.7
			5.3	
		18	18.4	
			24.7	18 25.4
			33.2	
		18	49.5	
			55.0	18 54.9
			0.3	
		19	15.4	
19 23.98			22.8	19 22.3
19 23.98			28.6	
		19	48.0	
			51.0	19 52.8
			59.5	
		20	18.4	
			23.7	20 24.5
			31.4	
		20	48.6	
			54.9	20 54.6
			0.2	
		21	17.6	
			26.4	21 25.1
			31.2	
		21	49.8	
21 53.30			54.8	21 55.2
21 53.30			0.9	
		22	13.5	
			18.7	22 19.8
			27.2	
		22	44.0	
			52.0	22 51.8
			59.4	
16 56.652				16 56.652

1	32.6	+ 15 24.0	
		924.0	2.96567
2	43.2	14 13.4	
		853.4	2.93115
3	36.7	13 19.9	
		799.9	2.90304
4	24.1	12 32.5	
		752.5	2.87651
5	11.5	11 45.1	
		705.1	2.84825
6	22.2	10 34.4	
		634.4	2.80236
7	10.0	9 46.6	
		586.6	2.76834
7	56.0	9 0.6	
		540.6	2.73288
8	51.5	8 5.1	
		485.1	2.68583
9	47.0	7 9.6	
		429.6	2.63306
10	36.0	6 20.6	
		380.6	2.58047
23	15.6	− 6 19.0	
		379.0	2.57864 n
24	13.3	− 7 16.7	
		436.7	2.64018
24	58.0	− 8 1.4	
		481.4	2.68251
25	45.8	− 8 49.2	
		529.2	2.72362
26	35.3	− 9 38.7	
		578.7	2.76245
27	22.0	− 10 25.4	
		625.4	2.79616
28	7.7	− 11 11.1	
		671.1	2.82679
29	2.7	− 12 6.1	
		726.1	2.86100
30	3.6	− 13 7.0	
		787.0	2.89597 n

1 15 4.89

	′	″
M	49	45.58
M	49	49.12
M	49	57.90
M	49	54.68
M	49	58.45
M	50	1.95
M	50	5.75
M	50	6.78
M	50	9.15
M	50	10.70
M	50	12.68
M	50	37.98
M	50	39.60
M	50	41.30
M	50	42.20
M	50	42.88
M	50	42.30
M	50	43.08
M	50	43.62
M	50	45.75

88 40 34.65

1879 Dec. 23 U.C

0.16056
8.36360
8.52416

6.73660
8.36360
5.10020

	h m s	m s
	1 10 36.1	
	40.8	10 41.6
	48.0 –	
	11 7.0	
	11.6	11 12.0
	17.5 –	
	11 36.3	
11 41.88 11 41.88	43.7	11 42.5
	47.5 –	
	12 4.0	
	10.8	12 11.0
	18.1 –	
	12 33.5	
	43.1	12 42.3
	50.3 –	
	13 1.6	
	11.8	13 9.7
	15.7 –	
	13 36.0	
	41.7	13 41.5
	46.8 –	
	14 4.1	
14 11.22 14 11.22	12.5	14 11.7
	18.4 –	
	14 37.2	
	42.0	14 42.3
	47.6 –	
	15 5.3	
	11.3	15 10.9
	16.0 –	
	15 33.5	
	42.8	15 41.6
	48.4 –	
	16 7.0	
	11.7	16 12.8
	19.6 –	
	16 34.7	
16 41.50 16 41.50	41.0	16 40.8
	46.8 –	
	17 4.4	
	11.3	17 10.8
	16.8 –	
	17 34.8	
	40.0	17 41.5
	49.6 –	
	18 4.8	
	9.4	18 9.6
	14.5 –	
	18 31.5	
	38.5	18 38.1
	47.4 –	
	19 4.0	
19 10.04 19 10.04	10.4	19 10.6
	17.5 –	
	19 36.5	
	40.4	19 41.2
	46.6 –	
	20 4.8	
	11.2	20 10.7
	16.2 –	
	20 32.5	
	38.3	20 39.4
	47.4 –	
	21 3.6	
	9.2	21 8.9
	13.8 –	
	21 38.2	
21 39.62 21 39.62	42.0	21 42.6
	47.7 –	
	22 3.0	
	7.4	22 8.1
	13.8 –	
	22 33.2	
	39.0	22 39.1
	45.0 –	
16 40.852		16 40.852

55 23.5	+21 17.3 1277.3	3.10629	M 49 18.62
56 58.8	19 42.0 1182.0	3.07262	M 49 24.60
58 12.7	18 28.1 1108.1	3.04458	M 49 29.50
59 20.0	17 20.8 1040.8	3.01737	M 49 32.90
0 27.5	16 13.3 973.3	2.98825	M 49 36.38
1 31.2	15 9.6 909.6	2.95885	M 49 40.45
2 41.0	13 59.8 829.8	2.91897	M 49 44.35
3 48.0	12 52.8 772.8	2.88807	M 49 48.85
4 56.8	11 44.0 704.0	2.84757	M 49 57.62
6 3.0	+10 37.8 637.8	2.80468	M 49 57.72
22 58.6	– 6 17.8 377.8	2.57726 n	M 50 32.42
24 32.0	– 7 51.2 471.2	2.67321	M 50 34.12
26 2.9	– 9 22.1 562.1	2.74981	M 50 35.95
27 25.7	– 10 44.9 644.9	2.80949	M 50 36.68
28 53.5	– 12 12.7 732.7	2.86493	M 50 37.75
30 31.0	– 13 50.2 830.2	2.91918	M 50 40.07
31 52.9	– 15 12.1 912.1	2.96004	M 50 40.50
33 36.5	– 16 55.7 1015.7	3.00677	M 50 40.75
35 9.5	– 18 28.7 1108.7	3.04481	M 50 41.55
36 47.4	– 20 6.6 1206.6	3.08156 n	M 50 41.70

1 15 3.38

88 40 34.92

0.16056
8.36360 n
8.52416 n

6.73660
8.36360 n
5.10020 n

1879 Dec. 25 L.C.

	h	m	s	m s
	13	9	4.1	
			12.1	9 12.9
			22.5	
		9	36.0	
			47.0	9 46.3
			55.8	
		10	11.0	
10 15.12 10 15.12			15.9	10 16.9
			23.8	
		10	34.2	
			43.4	10 42.1
			48.8	
		11	12.8	
			17.0	11 17.4
			22.4	
		11	37.0	
			46.0	11 45.1
			52.4	
		12	4.2	
			12.5	12 12.1
			19.5	
		12	38.9	
~~12 44.36~~ 12 44.16			44.1	12 44.5
			50.4	
		13	8.2	
			15.0	5 13 16.1
			22.0	
		13	36.4	
			42.2	13 44.0
			53.5	
		14	4.0	
/			12.4	14 11.7
			18.7	
		14	36.0	
			43.2	14 42.6
			48.7	
		15	6.2	
15 11.88 15 11.88			12.2	15 13.1
			20.8	
		15	34.0	
			40.0	15 41.5
			50.4	
		16	8.4	
			10.5	16 10.5
			17.5	
		16	33.7	
			40.0	16 40.4
			47.6	
		17	6.4	
			11.0	17 12.4
			19.8	
		17	30.5	
17 40.86 17 40.86			39.4	17 39.3
			48.0	
		18	4.5	
			11.1	18 11.5
			19.0	
		18	31.8	
			41.0	18 40.7
			49.3	
		19	2.7	
			6.9	19 9.2
			18.0	
		19	33.5	
			38.0	19 38.5
			44.0	
		20	1.8	
20 9.86 20 9.86			7.4	20 9.6
			19.6	
		20	33.9	
			41.0	20 41.3
			49.0	
		21	0.5	
			10.7	21 10.7
			21.0	
15 12.416				15 12.416

3	36.8	+11 15.6	
		675.6	2.82969
5	35.6	9 36.8	
		576.8	2.76103
7	2.9	8 9.5	
		489.5	2.68975
8	25.3	6 47.1	
		407.1	2.60970
21	37.2	− 6 24.8	
		384.8	2.58524
24	16.4	− 9 4.0	n
		544.0	2.73560
25	49.5	− 10 37.1	
		637.1	2.80421
27	21.2	− 12 8.8	
		728.8	2.86261
28	57.5	− 13 45.1	
		825.1	2.91651
30	40.2	− 15 27.8	
		927.8	2.96745
32	14.1	− 17 1.7	
		1021.7	3.00932
33	47.2	− 18 34.8	
		1114.8	3.04720
35	22.9	− 20 10.5	
		1210.5	3.08296
37	0.4	− 21 48.0	
		1308.0	3.11661 n
—	—		
—	—		
—	—		
—	—	1 15 1.55	
—	—		
—	—		

	'	''
M	12	9.40
M	12	3.80
M	12	1.72
M	11	53.80
M	11	28.25
M	11	23.78
M	11	23.42
M	11	21.60
M	11	19.48
M	11	19.08
M	11	17.30
M	11	18.72
M	11	17.55
M	11	16.10

88 40 35.29

1879 Dec. 26

h	m	s	U.C. m s
1	10	23.0	
		31.4	10 32.0
		41.7	—
	10	57.0	
		5.0	11 4.8
		12.5	—
	11	27.0	
11 34.32 11 34.32		33.2	11 34.0
		41.8	—
	12	7.6	
		8.0	12 8.8
		16.7	—
	12	—	12 32.0
		—	—
	12	57.2	
		3.6	13 4.2
		11.7	—
	13	26.4	
		32.0	13 31.8
		37.1	—
	13	57.9	
~~14 3.49~~ 14 3.48		1.5	14 0.~~5~~8
		9.1	—
	14	26.3	
		33.0	14 35.2
		46.2	—
	14	57.3	
		6.0	15 5.4
		18.0	—
	15	24.3	
		31.0	15 31.2
		38.4	—
	15	53.2	
		1.6	16 0.8
		7.6	—
	16	28.5	
16 32.36 16 32.36		34.7	16 35.7
		43.9	—
	16	54.8	
		2.3	17 1.5
		7.5	—
	17	27.0	
		32.0	17 32.6
		38.7	—
	17	55.6	
		1.1	18 2.4
		10.5	—
	18	22.8	
		30.7	18 30.4
		37.8	—
	18	51.1	
~~19 1.46~~ 19 1.30		57.4	18 57.~~5~~4
		3.7	—
	19	24.9	
		33.0	19 ~~33.3~~ 32.6
		39.9	—
	19	56.5	
		2.8	20 3.7
		11.8	—
	20	25.1	
		30.6	20 30.7
		36.3	—
	20	52.5	
		59.5	20 59.7
		7.2	—
	21	18.6	
~~21 28.68~~ 21 28.62		26.2	21 26.3
		34.2	—
	21	50.8	
		56.0	21 ~~57.1~~ 56.8
		3.7	—
	22	21.5	
		27.4	22 29.6
		40.0	—
16 32.~~688~~ .~~048~~ 016			16 32.688 016 a+

			0.16056 8.36360 8.52416		6.73660 8.36360 5.10020	
					′	″
54	44.2	+21 47.8		M	49	17.52
		1308.5	3.11677			
56	11.9	20 20.1		M	49	26.20
		1220.8	3.08664			
57	23.9	19 8.8		M	49	27.80
		1148.8	3.06024			
58	53.8	17 38.2		M	49	33.20
		1058.9	3.02485			
0	7.2	16 24.8		M	49	37.78
		985.5	2.99366			
1	32.0	15 0.0		M	49	43.48
		900.7	2.95458			
3	3.0	13 29.0		M	49	45.92
		809.7	2.90832			
4	31.0	12 1.0		M	49	55.22
		721.7	2.85836			
5	46.7	10 45.3		M	49	55.58
		~~644~~.0	2.80346			
6	56.0	+9 36.0		M	49	59.52
		576.7	2.76095			
23	4.0	6 32.0		M	50	33.15
		631.3	2.80024 n			
24	28.4	−7 56.4		M	50	37.22
		475.7	2.67733			
25	52.0	−9 20.0		M	50	37.05
		559.3	2.74764			
27	22.5	−10 50.5		M	50	40.98
		649.8	2.81278			
28	58.3	−12 26.3		M	50	42.50
		745.6	2.87251			
30	35.5	−14 3.5		M	50	45.20
		842.8	2.92572			
33	5.8	−16 33.8		M	50	44.18
		993.1	2.99699 n			
—	—					
—	—					
—	—					

1 15 1.17

88 40 36.37

					0.16056 8.36360 8.52416		6.73660 8.36350 5.10010		
1879 Dec. 27		U.C.							
h	m s	m s							
1	10 25.7								
	29.4	10 30.0							
	34.8								
	10 53.6								
	2.2	11 0.8							
	6.7								
	11 25.0								
11 31.60 11 31.60	33.4	11 32.7							
	39.8								
	11 56.6								
	2.5	12 2.9		3—3					
	9.6								
	12 26.0								
	31.3	12 31.6					′ ″		
	37.5		4 5.5	+12 23.7		M	49 4848		
	12 57.2			743.7	2.87140				
	2.0	13 2.1	5. 54.7	10 34.5		M	49 5445		
	7.1			634.5	2.80243				
	13 22.2		7 21.0	9 8.2		M	49 5908		
	31.5	13 31.0		548.2	2.73894				
	39.2		9 11.1	+7 18.1		M	50 4.22		
	13 53.3			438.1	2.64157				
14 0.04 14 0.04	59.3	14 0.0	23 48.4	−7 19.2		M	50 3202		
	7.3			439.2	2.64266 n				
	14 19.9		24 12.2	−7 43.0		M	50 3388		
	28.9	14 28.6		463.0	2.66558				
	36.9		25 37.1	−9 7.9		M	50 3500		
	14 52.0			547.9	2.73870				
	57.0	14 58.5	27 0.4	−10 31.2		M	50 3695		
	6.5			631.2	2.80017				
	15 20.4		28 49.0	−12 19.8		M	50 3790		
	27.4	15 27.3		739.8	2.86911				
	34.1		30 24.8	−13 55.6		M	50 4078		
	15 53.6			835.6	2.92200				
	3.7	16 2.3	32 20.7	−15 51.5		M	50 4038		
	9.5			951.5	2.97841				
	16 20.7		34 20.1	−17 50.9		M	50 4188		
16 28.66 16 28.66	27.8	16 27.2		1070.9	3.02975				
	33.2		35 55.0	−19 25.8		M	50 4260		
	16 49.7			1165.8	3.06662				
	57.8	16 57.8	37 54.3	−21 25.1		M	50 4260		
	5.9			1285.1	3.10894 n				
	17 22.7		— —						
	28.2	17 28.7							
	35.2		— —						
	17 50.7								
	1.9	18 0.5	— —						
	8.9								
	18 22.7		— —	1 15	0.38			88	40 35.54
	29.9	18 29.5							
	35.9		— —						
	18 49.2								
18 59.20 18 59.20	59.2	18 58.6	— —						
	7.5								
	19 23.5								
	28.3	19 28.9							
	34.8								
	19 48.2								
	0.7	19 58.5							
	6.5								
	20 23.0								
	27.9	20 28.5							
	34.7								
	20 49.8								
	58.8	20 57.7							
	4.5								
	21 21.2								
21 26.50 21 26.50	25.0	21 26.0							
	31.8								
	21 46.0								
	54.3	21 54.3							
	2.6								
	22 19.0								
	25.6	22 26.0							
	33.4								
16 29.200		16 29.200							

1879 Dec. 29			V. C		0.16056 8.36351 8.52407		6.73660 8.36351 5.10011		
	h m s	m s							
	1 10 22.4								
	26.6	10 27.2							
	32.5								
	10 52.7								
	57.8	10 57.7							
	2.6								
	11 20.7								
11 27.40	27.8	11 27.8							
11 27.40	34.9								
	11 52.7								
	57.5	11 58.5							
	5.2								
	12 21.1								
	25.6	12 25.8					′ ″		
	30.8		2 31.7	+ 13 52.9		M	49 39.90		
	—			832.9	2.92059				
	—	12 57.0	3 49.3	12 35.3		M	49 44.08		
	—			755.3	2.87812				
	—		5 3.0	11 21.6		M	49 47.50		
	—	13 26.0		681.6	2.83353				
	—		8 7.8	8 16.8		M	49 55.80		
	—			496.8	2.69618				
13 56.74	—	13 58.0	9 22.8	9 1.8		M	49 59.12		
13 56.74	—			421.8	2.62511				
	14 24.3		22 44.5	− 6 19.9		M	50 26.72		
	28.7	14 28.5		379.9	2.57967 n				
	32.5		24 36.0	− 8 11.4		M	50 29.05		
	14 47.8			491.4	2.69144				
	53.1	14 54.2	25 48.7	− 9 24.1		M	50 30.50		
	1.8			564.1	2.75136				
	15 —		27 9.4	− 10 44.8		M	50 31.95		
	—	15 28.0		644.8	2.80942				
	—		28 49.6	− 12 25.0		M	50 32.45		
	—			745.0	2.87216				
	—	15 53.0	30 18.4	− 13 53.8		M	50 34.25		
	—			833.8	2.92106				
	16 21.9		31 49.7	− 15 25.1		M	50 34.95		
16 25.94	27.3	16 27.0		925.1	2.96619				
16 25.94	31.7		33 11.6	− 16 47.0		M	50 36.32		
	16 52.2			1007.0	3.00303				
	56.8	16 57.2	34 42.3	− 18 17.7		M	50 36.35		
	2.5			1097.7	3.04048				
	17 18.6		36 15.3	− 19 50.7		M	50 36.30		
	23.5	17 24.5		1190.7	3.07580				
	31.3		38 2.6	− 21 38.0		M	50 36.18		
	17 49.0			1298.0	3.11327				
	54.0	17 54.7	39 40.0	− 23 15.4		M	50 35.40		
	1.0			1395.4	3.14470				
	18 19.0		42 22.1	− 25 57.5		M	50 34.65		
	25.3	18 24.7		1557.5	3.19243				
	29.9		44 9.5	− 27 44.9		M	50 33.90		
	18 45.5			1664.9	3.22139				
18 53.86	51.0	18 51.7	45 42.5	− 29 17.9					
18 53.86	58.5			1757.9	3.24499 n				
	19 17.8								
	23.6	19 23.3							
	28.4								
	19 47.8								
	54.8	19 54.9		1 14	58.63			88	40 35.87
	2.0								
	20 17.2								
	22.4	20 23.1							
	29.6								
	20 47.9								
	54.0	20 54.3							
	1.0								
	21 17.9								
21 22.92	24.2	21 24.1							
21 22.92	30.2								
	21 45.0								
	50.4	21 50.9							
	57.3								
	22 17.3								
	21.8	22 22.2							
	27.5								
~~16 25.372~~		16 24.572							

1879 Dec. 30

U.C

0.16056
8.36351
8.52407

6.73660
8.36351
5.10011

Identical

		h	m	s	m s			m s					'	''
		1	10	18.7										
1	58.0			23.3	10 23.2									
				27.7 –	58.0				21.2	21.0	21.2			
			10	46.7	+5 57.8									
	27.6			52.5	10 53.0									
				57.9 –	26.9				19.9	20.4	20.6			
			11	17.3	5 27.4									
4	57.8			24.4	11 24.4									
				31.4 –	57.1				21.5	22.0	22.2			
			11	45.3	4 57.6									
	27.7			57.8	11 51.6			3–3						
				57.6 –	26.9				18.5	19.2	19.3			
			12	15.0	4 27.6									
3	58.1			23.7	12 22.4								'	''
				28.4 –	58.1	0	41.0	+15 36.6	20.5	20.3	20.5	M	49	37.48
			12	45.0	3 57.9									
	28.4			51.7	12 52.0	2	25.9	13 54.7				M	49	43.32
				59.3 –	27.9				19.9	20.3	20.4			
			13	14.8	3 28.3	3	36.5	12 44.1				M	49	46.30
2	58.6			21.3	13 21.8									
				29.4 –	58.7	4	53.7	11 26.9	20.5	20.3	20.4	M	49	49.88
			13	47.0	2 58.5									
	28.8			51.3	13 52.1	6	6.8	10 13.8				M	49	52.42
				58.0 –	28.9				21.0	20.8	20.9			
1	58.8		14	17.5	2 28.7	7	16.6	9 4.0				M	49	57.80
				23.0	14 23.6									
				30.4 –	58.7	8	27.2	7 53.4	22.3	22.3	22.20	M	50	1.52
	29.4		14	49.0	1 58.7									
				53.4	14 55.0	28	53.2	12 32.6				M	50	36.55
				25 –	29.4				(24.4)	(24.3)	(24.4)			
+0	59.5				1 29.3	30	29.7	14 9.1	9) 185.3	10) ~~21.09~~	1879	M	50	37.72
						31	54.5	15 33.9	16 20.59	~~21.04~~		M	50	38.55
	29.7									1866				
						33	30.5	17 9.9		20.73	20.88	M	50	39.10
-0	0.0					35	51.0	19 30.4				M	50	40.72
						37	53.8	21 33.2				M	50	41.05
						–	–						20.58	
						–	–						20.92	
													150	
													20.75	
						–	–							
						–	–							
						–	–	1 14	57.68					
						–	–							
						–	–							

88 40 36.00

Identical

1879 Dec. 31 L. C.

h	m	s	m s
13	9	10.5	
		14.5	9 15.0
		20.0	– +5 56.0
	9	44.5	+5 57.4
		49.0	9 49.9
		56.1	– 5 26.9
	10	10.2	5 27.5
		18.6	10 17.4
		23.4	– 4 57.0
	10	43.2	4 57.6
		48.2	10 48.5
		54.1	– 4 27.0
	11	7.7	4 27.9
		14.0	11 14.7
		22.5	– 3 56.2
	11	36.0	3 58.4
		45.0	11 46.3
		57.8	– 3 27.5
	12	10.1	3 28.3
		14.9	12 14.7
		19.0	– 2 59.0
	12	40.4	2 58.3
		47.9	12 47.3
		53.7	– 2 29.3
	13	12.9	2 28.8
		16.7	13 17.0
		21.4	– 1 58.5
	13	40.3	1 59.0
		47.1	13 46.4
		51.8	– 1 28.2
	14	8.6	1 29.1
		14.7	14 15.9
		24.4	– 0 59.1
	14	34.9	0 59.4
		39.5	14 40.2
		46.1	– 0 30.0
	15	6.5	0 29.6
		13.7	15 13.8
		21.1	– – 0.2
	15	34.6	– 0 0.0
		40.8	15 41.1
		47.8	– 0 29.7
	16	8.7	– 0 29.7
		13.3	16 14.3
		20.8	– 0 58.9
	16	40.0	– 0 59.5
		44.2	16 44.5
		49.3	– 1 28.0
	17	8.7	– 1 29.3
		16.0	17 15.9
		23.1	– 1 58.8
	17	40.1	– 1 58.7
		45.4	17 45.8
		51.8	– 2 27.5
			– 2 28.7

~~X~~ 14

0	24.8	+14 49.5
1	51.7	13 22.6
2	51.0	12 23.3
3	35.0	11 39.3
4	42.8	10 31.5
5	36.3	9 38.0
6	34.3	8 40.0
7	27.1	7 47.2
8	15.5	6 58.8
23	31.9	–8 17.6
24	31.0	9 16.7
25	20.2	10 5.9
26	5.0	10 50.7
27	39.0	12 24.7
28	32.0	13 17.7

11.0	12.4
16.8	17.4
14.4	15.0
15.5	16.4
(10.9)	12.9 –
11.8	12.6
13.7	13.0
16.6	16.1
15.5	16.0
14.6	15.5
15.0	15.3 –
10.2	(9.8)
13.6	13.8
11.4	11.4
15.4	14.8
16.5	15.2
17.1	17.2
(18.3)	17.1
16) 2291	18) 2618
15 14.32	14.54
	17) 2521
	14.83

	′	″
M	12	19.25
M	12	13.12
M	12	11.88
M	12	9.30
M	11	30.30
M	11	2.98
M	11	0.10
M	10	57.48
M	10	56.00
M	10	27.25
M	10	23.35
M	10	22.70
M	10	22.75
M	10	19.38
M	10	18.25

14.82
14.75
14.92
.249
14.83

×

35.

0.16056
8.36351
8.52407

6.73660
8.36351
5.10011

1880 Jan. 1			U.C.
h	m	s	m s
1	10	4.8	
		11.3	10 11.4
		18.0	
	10	34.3	
		43.0	10 41.9
		48.5	
	11	2.0	
11 11.30 11 11.30		10.8	11 10.4
		18.3	
	11	37.0	
		43.3	11 43.2
		49.2	
	12	2.6	
		9.6	12 9.6
		16.7	
	12	33.9	
		40.5	12 40.7
		47.7	
	13	3.0	
		9.0	13 9.6
		16.8	
	13	33.2	
13 39.74 13 39.74		39.3	13 39.5
		46.0	
	14	3.8	
		8.7	14 9.3
		15.4	
	14	33.9	
		39.7	14 39.6
		45.3	
	14	58.9	
		5.7	15 ~~4.6~~ 6.0
		18.3	
	15	34.2	
		40.3	15 40.8
		47.8	
	16	2.5	
~~16 8.42~~ 16 8.10		7.8	16 7.9
		13.5	
	16	32.2	
		38.4	16 38.5
		44.8	
	17	1.3	
		6.5	17 7.3
		14.2	
	17	31.5	
		37.3	17 37.5
		43.6	
	18	2.5	
		7.7	18 7.9
		13.5	
	18	31.5	
18 37.74 18 37.74		37.2	18 38.0
		45.2	
	19	0.4	
		7.5	19 7.4
		14.4	
	19	31.5	
		37.0	19 37.9
		45.2	
	20	1.4	
		6.9	20 7.3
		13.5	
	20	31.8	
		36.8	20 37.1
		42.7	
	21	0.9	
21 7.40 21 7.40		6.5	21 7.3
		14.4	
	21	32.6	
		38.4	21 38.6
		44.8	
	22	0.2	
		6.0	22 6.7
		14.0	
16 8.920			16 8.920

5—5

						′	″
4	39.0	+ 11 29.9 689.9	2.83879		M	49	50.80
6	21.1	9 47.8 587.8	2.76923		M	49	53.78
7	36.9	8 32.0 512.0	2.70927		M	49	58.82
9	11.0	6 57.9 417.9	2.62107		M	50	3.30
22	36.2	− 6 27.3 387.3	2.58805 n		M	50	2.978
24	28.0	− 8 19.1 499.1	2.69819		M	50	3.088
25	43.9	− 9 35.0 575.0	2.75967		M	50	3.330
27	13.9	− 11 5.0 665.0	2.82282		M	50	3.418
28	35.0	− 12 26.1 746.1	2.87280		M	50	3.582
30	12.5	− 14 3.6 843.6	2.92614		M	50	3.730
31	41.5	− 15 32.6 932.6	2.96970		M	50	3.782
33	26.1	− 17 17.2 1037.2	3.01586		M	50	3.905
36	16.3	− 20 7.4 1147.4	3.05971		M	50	4.005
37	45.0	− 21 36.1 1296.1	3.11264		M	50	3.930
39	21.4	− 23 12.5 1392.5	3.14380		M	50	3.902
41	22.5	− 25 13.6 1513.6	3.18001		M	50	3.958
43	0.5	− 26 51.6 1611.6	3.20726		M	50	3.810
44	31.0	− 28 22.1 1702.1	3.23099		M	50	3.755
45	22.0	− 29 13.1 1753.1	3.24381 n		M	50	3.690

1 14 55.72

88 40 36.23

1880 Jan 2. U. C

0.16056
8.36351
8.52407

6.73660
8.36351
5.10011

h i	m	s	m s
		—	
		—	10 0.0
		—	
		—	
		—	10 30.0
		—	
	10	56.4	
11 1.10 11 1.10		0.6	11 1.0
		6.0	
	11	24.5	
		24.0	11 30.0
		36.6	
	11	57.4	
		5.2	12 4.5
		10.9	
	12	26.3	
		30.4	12 31.8
		38.6	
	12	57.8	
		1.9	13 2.7
		8.4	
	13	26.1	
13 32.32 13 32.32		31.9	13 32.8
		40.5	
	13	54.0	
		1.8	14 1.6
		9.0	
	14	27.4	
		31.6	14 32.7
		39.1	
	14	56.5	
		2.7	15 2.9
		9.5	
	15	27.2	
		32.3	15 32.0
		36.4	
	15	56.7	
16 2.18 16 2.18		2.0	16 2.0
		7.2	
	16	24.3	
		30.6	16 31.0
		38.2	
		—	
		—	17 3.0
		—	
		—	
		—	17 35.0
		—	
		—	
		—	18 1.0
		—	
	18	25.8	
18 31.24 18 31.24		30.3	18 30.7
		35.9	
	18	53.0	
		58.2	18 59.5
		7.3	
	19	23.6	
		30.0	19 30.0
		36.4	
	19	52.7	
		57.5	19 58.6
		5.5	
	20	22.9	
		31.3	20 30.3
		36.8	
	20	52.4	
20 5944 20 59.44		58.9	20 59.3
		6.5	
	21	24.0	
		30.8	21 30.4
		36.5	
	21	52.4	
		57.5	21 58.6
		6.0	
16 1.256			16 1.256

					′	″
5	29.0	+ 10 32.2		M	49	50.38
		632.2	2.80085			
6	41.5	9 19.7		M	49	54.05
		559.7	2.74796			
7	47.5	8 13.7		M	49	53.05
		493.7	2.69346			
8	47.5	7 13.7		M	49	38.38
		433.7	2.63719			
9	44.4	6 16.8		M	50	168
		376.8	2.57611			
22	26.2	− 6 25.0		M	50	26.25
		385.0	2.58546 n			
24	33.3	− 8 32.1		M	50	28.28
		512.1	2.70935			
25	48.3	− 9 47.1		M	50	30.10
		587.1	2.76871			
27	1.8	− 11 0.6		M	50	30.92
		660.6	2.81994			
28	12.2	− 12 11.0		M	50	32.18
		731.0	2.86392			
29	38.4	− 13 37.2		M	50	34.10
		817.2	2.91233			
30	55.4	− 14 54.2		M	50	35.98
		894.2	2.95143			
32	17.7	− 16 16.5		M	50	34.98
		976.5	2.98967			
33	30.4	− 17 29.2		M	50	35.38
		1049.2	3.02086			
35	5.4	− 19 4.2		M	50	36.98
		1144.2	3.05850 n			

1 14 54.76

88 40 36.32

all checked

1880 Jan. 3 Ulo

	h	m	s	m s
	1	9	53.2	
			2.3	10 1.3
			8.5 –	
		10	29.5	
			35.9	10 35.5
			41.2 –	
		10	57.9	
11 2.84 11 2.84			3.7	11 4.0
			10.3 –	
		11	25.1	
			30.8	11 32.1
			40.5 –	
		11	56.6	
			1.4	12 1.3
			6.0 –	
		12	23.1	
			33.7	12 32.1
			39.4 –	
		12	54.7	
			1.4	13 0.4
			5.2 –	
		13	33.2	
13 34.10 13 34.10			36.4	13 37.1
			41.8 –	
		14	6.0	
			7.7	14 7.7
			9.3 –	
		14	28.0	
			33.3	14 33.2
			38.4 –	
		14	52.0	
			1.8	15 1.2
			9.8 –	
		15	26.6	
			32.6	15 31.9
			36.6 –	
		15	54.0	
16 0.82 16 0.82			58.5	15 59.0
			4.4 –	
		16	22.2	
			31.0	16 30.7
			38.8 –	
		16	55.1	
			0.3	17 1.3
			8.6 –	
		17	27.7	
			34.6	17 33.5
			38.3 –	
		17	52.5	
			2.0	18 1.5
			10.1 –	
		18	27.5	
18 31.86 18 31.86			34.1	18 33.7
			39.4 –	
		18	55.1	
			2.3	19 1.3
			6.5 –	
		19	24.9	
			28.6	19 29.3
			34.3 –	
		19	54.2	
			0.0	20 0.1
			6.0 –	
		20	23.3	
			32.3	20 30.5
			35.8 –	
		20	52.9	
20 59.76 20 59.76			2.0	21 0.6
			6.8 –	
		21	23.5	
			28.8	21 29.1
			35.0 –	
		21	54.0	
			58.2	21 58.5
			3.3 –	
16 1.876				16 1.876

			0.16056 8.36351 8.52407
5	5.1	+10 56.8	
		656.8	2.81743
6	46.1	9 15.8	
		555.8	2.74492
7	29.8	8 32.1	
		512.1	2.70935
8	17.8	7 44.1	
		464.1	2.66661
9	31.7	6 30.2	
		390.2	2.59129
22	16.6	– 6 14.7	
		374.7	2.57368 n
26	20.2	– 10 18.3	
		618.3	2.79120
27	58.5	– 11 56.6	
		716.6	2.85528
29	32.9	– 13 31.0	
		811.0	2.90902
31	19.2	– 15 17.3	
		917.3	2.96251
32	55.3	– 16 53.4	
		1013.4	3.00578
34	31.9	– 18 30.0	
		1110.0	3.04532
36	6.0	– 20 4.1	
		1204.1	3.08066
37	45.7	– 21 43.8	
		1303.8	3.11521
39	29.7	– 23 27.8	
		1407.8	3.14854
41	11.3	– 25 9.4	
		1509.4	3.17880
42	49.0	– 26 47.1	
		1607.1	3.20604
44	3.7	– 28 1.8	
		1681.8	3.22577
45	47.0	– 29 45.1	
		1785.1	3.25166 n
1	14	5~~4~~3.83	

	′	″
	6.73660 8.36351 5.10011	
M	49	54.08
M	49	57.88
M	49	59.72
M	50	3.35
M	50	6.70
M	50	30.12
M	50	35.78
M	50	35.32
M	50	35.80
M	50	37.10
M	50	38.85
M	50	38.92
M	50	39.80
M	50	40.20
M	50	40.48
M	50	40.72
M	50	39.75
M	50	37.92
M	50	35.95
88	40	36.40

Feb. 16
" 21
" 24
" 27
Mar. 3
" 5
" 10
" 12
" 18
" 20
" 25
Apr. 6
" 15
" 19
" 20
" 22
" 23
" 26
" 30
May 6
June 26
" 30
July 1
" 2
" 3
" 10
Aug. 24
Sept. 14
" 23
" 24
Oct. 15
" 19
Sep 29

Polaris - 1879

U. C.

88°

		+	40					+				6		+						✓						×
Feb. 16	+5	51.42	5	25.52	4	56.22	4	27.72	3	56.72	3	27.72	2	56.82	2	28.52	1	59.52	1	28.92	0	59.12	0	28.52	0+	1.02
	40 15		~~12~~ 15.7	15.2						×				59.15												
" 21	40 14	53.15	14.3	23.25		57.05		29.55		59.85		28.85		~~58.75~~		27.95		56.05		29.35	0	58.35		28.35		+0.75
				14.9																						
" 24	13	55.94	13.6	26.44		55.34		27.34		56.44		26.24		58.84		28.44		57.64		29.24	1	0.64		30.34		
				13.6																						
" 27	13	53.96		25.46		55.56		24.66		54.76		25.96		57.26		28.36		59.26		30.06		0.26		30.66		
				12.8																						
Mar. 3		51.45	~~53.18~~	22.95	~~24.72~~	52.95	~~55.42~~	25.65	~~26.98~~	59.45	~~57.38~~	27.05	~~27.16~~	57.55	57.84	26.65	~~27.98~~	57.65	~~58.02~~	26.65	~~28.84~~	3.05	~~0.28~~	31.05	~~29.78~~	0.05
	12		40 13	11.9																						
" 5		52.92		24.92		56.72		27.62		57.02		28.42		58.12		27.72		58.52		29.02		0.32		30.02		
	11			11.5																						
" 10		54.36		25.76		56.66		26.06		56.66		26.86		59.46		27.56		58.26		28.76	1	0.26		28.06		1.56
	10			10.1																						
" 12		53.98		26.08		54.98		24.78		56.88		27.38		57.58		26.98		58.78		28.78	0	59.08		29.58		
	9			9.5										58.96												
" 18		52.76		24.56		54.06		25.76		58.26		25.66		~~57.06~~		28.66		58.26		28.06		57.76		28.16		0.66
	8			7.9																						
" 20 +		56.16	~~54.04~~	27.36	~~25.74~~	57.46	~~56.98~~	28.76	~~26.52~~	56.76	~~57.12~~	27.76	~~27.22~~	58.76	~~58.20~~	28.16	~~27.82~~	58.46	~~58.46~~	29.36	0	57.66	~~59.02~~	30.46	~~29.26~~	
	7 53.610		40 9	7.3				26.790						58.190						28.820	28.80					
" 25		55.12		26.22		55.62		29.12		57.02		27.72		55.32		28.82		58.62		29.02	1	0.02		28.02		
	5			5.7																						
Apr. 6		58.22		27.72		58.72		25.82		56.72		25.02		54.12		27.72		56.72		28.42	0	59.62		30.42		1.02
	2			2.0																						
" 15		57.37		28.37		56.47		25.77		54.27		26.87		58.07		28.97		58.77		27.97	0	58.57		29.57		
	39 59		39	59.0																		17				
" 19		55.77		25.37		53.87		25.77		56.97		27.57		58.27		28.57		57.97		30.07	0	59.~~07~~		29.57		
	58			57.8																						1.04
" 20		55.44	56.38	25.24	26.58	53.64	56.06	26.44	26.58	57.44	56.48	26.64	26.76	56.34	56.42	26.64	28.14	59.34	58.28	28.64	0	58.54	59.16	29.64	29.44	~~0.64~~
	58		40 0	57.4																	28.62					
" 22		50.84		25.64		56.04		25.24		54.34		28.34		58.44		26.84		58.04		27.74	0	57.94		30.04		1.34
	57			56.8																						
" 23		53.41		23.51		52.81		27.71		55.71		25.61		57.61		24.41		56.61		27.71	0	57.71		30.21		4.01
	57 ✓			56.5																						
" 26		55.76		23.26		49.16		24.66		53.26		26.86		56.96		26.76		52.06		32.06	0	58.66		30.96		
	56			55.7																						0.65
" 30		58.75		28.75		57.25		26.75		56.65		27.75		57.65		28.25		54.95		25.15	0	59.85		28.85		~~0.95~~
	55			54.7																						
May 6		54.07	54.57	22.87	24.81	54.97	54.05	22.67	25.41	56.47	55.29	26.37	26.99	57.37	57.61	25.77	26.41	56.87	55.71	27.87	0	59.57	58.75	29.47	29.91	0.17
	+ 53 55.47		39 56	53.0				25.995						57.015						28.465	28.11					
June 26		53.23		24.73		53.23		24.93		56.43		25.93		56.63		26.83		57.83		28.83	0	59.23		29.13		0.23
	46			46.4																						
" 30		52.11		24.61		54.61		25.71		53.31		27.21		56.81		27.31		58.31		28.11	1	0.11		28.91		0.51
	46			46.4						✓																
July 1		54.67		24.47		53.47		25.77		53.87		29.27		57.97		26.07		57.07		29.07 ✓	0	58.97		28.47		
	46			46.4																						
" 2		50.19		23.69		53.59		25.19		56.69		27.09		56.59		26.89		57.59		30.29	0	58.29		29.19		0.99
	46			46.5																						
" 3		55.84	53.61	23.84	24.27	53.44	54.47	25.64	25.45	55.14	55.89	25.54	27.01	56.14	56.83	27.14	26.85	57.04	57.57	28.84	0	58.24	58.97	28.04	28.75	0.34
	47 +		39 46	46.6																	29.03					
" 10		52.28		23.48		55.58		25.38		54.68		27.18		57.98		26.98		58.78		28.28	0	58.78		27.78		
	47 ✓			47.0																						
Aug. 24		53.46		27.86		53.06		26.36		58.86		26.86		57.56		29.46		57.16		27.26	0	58.66		28.86		
	55			55.4																						
Sept. 14		53.54		24.54		55.14		26.14		56.04		26.24		58.44		27.14		59.44		28.44	0	58.54		28.44		
	40 2		40	2.2																						
" 23		58.65		28.65		52.25		24.75		55.75		27.05		57.05		29.15		58.45		27.05	0	59.45		28.65		
	5			5.4																						
" 24		57.50	55.09	26.60	25.51	55.70	54.75	26.70	25.87	57.40	56.55	27.30	26.93	58.70	58.35	27.50	28.05	58.80	58.53	29.90	0	58.90	58.87	29.90	28.73	
	× 6 54.41		39 59	5.8				25.657						57.587						28.607	28.19					
Oct. 15		56.88		27.18		55.98		26.18		56.58		26.88		58.78		27.88		58.58		30.88	0	59.08		29.78		
	14			13.6																						
" 19	6	0.46		33.46		56.76		27.56		56.96		31.16		56.86		26.36		53.86		26.66	0	59.16		29.86		
	15			15.2												28.50										
Sep 29	5	58.50		~~27.00~~		~~56.70~~		~~27.70~~		~~58.40~~		~~28.30~~		~~59.70~~		~~28.90~~		~~59.80~~		~~30.80~~		~~59.90~~		~~30.90~~		00.80
				7.7																						

✓

✓

Polaris - 1879

													Date	
×			×			×			×			×		
+5 57.40	5 31.70	4 53.40	4 ~~30.20~~ 30.90	4 5.10	3 26.80	3 1.40	2 23.60	2 3.00	1 31.00	1 7.30	0 32.80		Oct. 25	Feb. 1
40 18 57.73	40 17.6 27.53	56.73	28.33	3 54.93	27.13	2 59.73	28.23	1 58.63	28.23	0 55.03	29.63	0 2.13	" 26	" 2
18 55.68 19	18.0 57.63 26.18 40 17 19.0	29.21 56.38	55.86 25.58	27.57 56.88	58.09 25.78	27.55 58.28	59.03 28.08	1 26.83 58.88	58.99 31.48	1 29.65 1.68	0.45 30.78	30.57 0.18	" 29	" 2
57.92	26.82	56.72	26.62	58.12	27.92	59.12	29.32	2 0.62	31.32	0 59.82	29.82	1.12	" 30	" 2
19 56.21	19.3 25.71	55.71	27.41	55.71	28.11	57.51	29.71	1 59.61	30.91 ~~31.01~~	0 59.91	30.31	0.61	Nov. 10	Mar. 3
23 58.38	23.3 26.78	55.98	26.28	56.68	25.18	57.48	29.58	1 57.68	27.08	0 59.18	29.48	0.58	" 16	" 5
25 6 0.65	25.4 26.85	57.15	28.85	56.45	26.35	57.05	29.15	57.65	28.95	1 0.15	28.35		" 24	" 1
28 5 59.71 28 ~~58.10~~	28.0 58.57 28.01 40 25 28.2	5 26.83 0.31	57.17 27.81 27.552	27.39 58.11	57.01 22.61	✓ 3 ~~0.71~~ 57.71 27.43 58.402	58.41 28.61	29.27 58.51	58.81 28.31 29.482	0 29.33 58.81	59.57 29.01	29.39 ×	" 25	" 12
58.10 57.66	25.96	4 57.06	26.36	56.96	27.66	0.76	28.46	59.96	30.96	1 2.76 ~~3.06~~	31.76	1.86	" 26	" 18
28 55.42	28.5 27.12	54.82	26.72	58.42	27.82	2 58.12	27.42 ~~27.52~~	58.02	29.82	1 2.52 ✓	27.12		" 30	" 20 55.
30 56.38	29.7 26.68	57.68	27.78	56.88	28.08	57.78	27.98	58.98	27.68	0 59.58	29.58	0.08	Dec. 1	" 25
30 56.98	30.0 27.38	57.28	27.18	57.38	29.08 ~~25.38~~	57.68	28.28	58.48	29.18	1 0.28	27.38	0.78	" 4	Apr. 6
31 58.06 32	30.9 56.90 25.76 40 30 31.6	26.58 57.26	56.82 27.46	27.10 57.36	57.40 28.66	27.52 58.46	58.56 29.16	28.28 58.66	58.82 30.16	0 29.56 58.96	0.88 28.96	28.96 0.36	" 7	" 15
57.03	25.23	57.83	24.43	56.93	27.83	57.43	27.73	59.33	28.83	59.23	31.83	0.33	" 9	" 19
32 56.02	32.0 29.62	5 1.32	29.52	59.32	27.42	56.92	27.22	2 0.82	31.72	57.52	27.72		" 12	" 20
33 58.98	32.7 25.98	4 57.18	26.88	57.48	28.38	58.88	31.28	1 59.88	29.38	59.98	30.38	1.08	" 17	" 22
34 58.88	34.0 25.88	56.48	25.18	59.38	28.28	59.98	28.68	58.68	35.28	57.48	32.38	0.88	" 18	" 23
57.316 34 57.75 35	34.1 57.73 24.55 40 34 34.6	[illegible].65	57.49 25.25 26.676	57.23 26.25 ~~56.95~~	58.01 26.45	3 27.67 0.85 58.6836	58.84 29.15	28.81 58.45	59.43 28.05 30.106	30.65 58.75	58.59 31.25	30.71 0.75	× 21	" 26
59.25	28.85	58.35	29.85	58.55	31.15	2 59.35	29.15	58.55	29.95	59.25	28.05	0.05	" 23	" 30
35 6 0.69	34.9 27.89	58.69	23.89	4 0.69	28.49	3 0.89	31.89 ~~32.19~~	57.49 ✓	27.29	1 1.49	31.89		" 26	May 6
35 5 59.20	35.3 28.40	56.50	26.30	3 57.60	27.10	2 58.20	29.20	2 0.60	30.70	1.90	26.90	2.00	" 27	June 2
35 57.37 36 59.128	35.5 59.13 26.77 40 35	27.98 56.77	57.58 26.07 26.528	26.53 58.77	58.90 27.57	28.58 58.57 59.2925	59.25 26.57	1 29.28 56.07	58.18 30.37 29.578	0 29.58 56.57	59.80 31.57	29.60	" 29	" 3
~~57.52~~	~~27.02~~	~~58.52~~	~~25.72~~	~~59.32~~	~~28.22~~	~~59.32~~	~~29.42~~	~~59.62~~	~~29.32~~	~~1 1.32~~	~~28.12~~	~~1.02~~	Jan. 1	July 1
~~6 1.26~~	31.26	5 0.26	31.26	56.76	29.46	58.56	28.46	59.66	28.56	0 58.36	29.26		" 2	" 2
6 0.58	26.38	4 57.88	29.78	4 0.58	29.78	3 1.48	24.78	54.18	28.68	1 0.68	29.98	2.88	" 3	" 3
														" 10
														Aug. 24 Sept. 14
														" 2 " 24 Oct. 1
														" 19 Sep 2

✓ ✓

Polaris 1879

ate	U.C.													
1.25	Feb. 16	-5 5558	-5 2688	-4 5838	-4 ~~2588~~ 2622	-3 5628	-3 2698	-2 5788	-2 2688	-1 5728	-1 2858	-0 5838	-0 2888	
26	" 21	~~5865~~ 5705	2715	5565	2625	5605	2715	5785	3035	5685	2815	5675	3015	
29	" 24	5396	2596	5506	3056	5816	2686	5966	2936	5606	2646	-1 1.16	2946	-0 0.16
30	" 27	5544	2474	5564	2714	5644	2704	5654	2694	-2 0.64	2794	-0 5724	2994	0.44
.10	Mar. 3	5705 ~~5614~~	2545 ~~2604~~	5585 ~~5612~~	2695 ~~2736~~	5435 ~~5626~~	2745 ~~2710~~	5885 ~~5816~~	2825 -1 ~~2836~~	5965 ~~5810~~	2475 ~~2718~~	5495 ~~5770~~	2855 ~~2940~~	
16	" 5	5428	2558	5588	2648	5808	2798	5738	2788	5768	3008	5948	2938	1.18
24	" 10	5574	2684	5714	2694	5714	2694	5754	2774	5844	2744	5884	2944	
25	" 12	5532	2612	5532	2512	5602	2572	5582	2762	5682	2812	5952	3132	1.52
26	" 18	5414	2554	5434	2424	5754	2504	5604	2754	5814	2864	5844	~~2994~~ 2924	
30	" 20	4 X 5544 5498 55.007	2504 2582	5914 5636	2794 2614 26.~~880~~ 840	5714 5718	2734 2660	5914 5718 57.670	2984 2812	5894 5800 ~~58.080~~	3164 2918 28.180	5684 5862	2854 2972	0.04 +0.0782
.1	" 25	~~5498~~ 5478	2478	5448	2518	5698	2818	~~5588~~ 5598	2868	-2 0.98	~~2788~~ 2758	5978	3098	2.08
4	Apr. 6	5558	2738	5668	2718	5618	2798	5698	2708	-1 5628	2738	-1 1.38	3008	
7	" 15	5493	2623	5523	2493	5663	2923	5733	2743	5793	3013	-0 5903	2983	2.13
9	" 19	5453	2733	5633	2683	5753	2623	5733	2753	5793	2853	5753	3033	0.93
12	" 20	5576 5516	2756 2666	5496 ~~5534~~ 5524	2626 2608	5666 5680	2466 2726	5826 5716	2776 2770	5836 5830	2876 2854	5896 5934	2856 2956	
17	" 22	5406	2606	5496	2596	-4 0.56	2266	5936	2756	5906	2586	5716	2766	
18	" 23	5369	2279	5439	2579	-3 5769	2609	5739	2669	5709	2859	-1 0.19	2669	
21	" 26	5074	2284	5404	2504	5604	3034	5534	2764	5574	2714	-0 5754	2804	0.04
23	" 30	~~5225~~ 5215	2595	5705	2755	5595	2575	5675	2925	5905	3025	-1 1.25	3055	
26	May 6	5753 5245 53.775	2313 2415	5553 5519	2603 2607 26.075	5523 5709	2753 2647	5453 5667 56.925	2703 2763	5753 5769 ~~57.995~~	2773 2791 28.195	-0 5933 5909	2933 2845	+0.305
27	June 26	5447	2447	5497	2477	5597	2657	5687	2757	5827	2887	5887	2947	
29	" 30	5519	~~2519~~ 2619	5599	2459	5709	2569	5599	2779	5639	2799	5689	2989	
n.t	July 1	5153	~~2073~~ 2173	5503	2543	5633	2843	5653	2773	5933	2753	-1 0.93	3093	0.73
2	" 2	5401	2391	5431	2491	5631	2701	56~~2~~3 1	2701	5701	2661	-0 5871	3011	
3	" 3	5306 5365	~~2356~~ 2426 2357	5406 5487	2476 2489	5686 5651	2596 2673	5706 5653	2766 2755	5756 5771	2786 2777	5826 5873	3066 3021	
	" 10	5512	2402	5552	2422	5542	2422	5692	2742	5792	2882	5872	2872	0.22
	Aug. 24	5574	2554	5794	2664	5504	2584	5834	2584	5504	2924	-1 2.14	3164	0.34
	Sept. 14	5386	2586	5716	2596	5726	2576	5766	2606	5716	2646	-0 5906	2976	0.26
	" 23	5155	2435	5515	2635	5865	2725	5915	2755	5755	2895	-1 0.15	2695	0.35
	" 24	5610 5447 54.063	2500 2495	5650 5645	2550 2573 25.313	5620 5651	2600 2581	5740 5789 57.223	3180 -2 2773	0.80 5769 ~~57.703~~	2960 2861 28.193	0.80 0.17	2840 2909	0.20 -0.003
	Oct. 15	5582	2622	5552	2552	5692	2882	5852	2762	-1 5882	2812	1.52	3022	1.02
	" 19	5724	2644	5814	2884	5964	2714	5724	3114	-2 1.14	2654	-0 5754	2934	0.84
	Sep 29	5510	2400	5550	2450	5520	2500	5640	3080	5980	2860	5880	2740	

Polaris 1879

a. l.

-6 0.90	-5 28.90	-5 0.90	-4 28.80	-3 59.00	-3 32.60	-3 1.30	-2 31.80	-2 1.00	-1 37.00	-0 55.80	-0 30.10	-0 1.70	Oct. 25
-5 56.77	25.27	-4 56.47	28.27	57.97	25.77	-2 57.77 ~~58.47~~	28.37	-1 59.47	28.47 ~~25.07~~	-1 1.77	30.37		" 26
57.12	57.57 27.92	26.95 56.92	57.59 26.62	27.61 57.62	58.23 27.42	28.35 57.92	58.69 28.32	29.45 57.12	59.51 28.42	-0 27.83 59.52	59.23 30.92	30.19	" 29
56.58	27.78	57.18	~~27.58~~	59.48	29.58	59.78	27.88	-2 0.58	29.48	-1 0.78	28.68		" 30
56.89	27.99	57.49	27.59	57.89	28.19	56.79	30.39 ~~30.49~~	-1 58.99	30.19	-0 57.79	27.29		Nov. 10
56.22	26.02	55.52	27.12	54.52 56.52	27.82	56.82	27.82	59.22	28.82	58.82	29.72		" 16
54.25	25.55	57.55	29.65	57.65	27.05	59.45	28.45	58.85	26.65	-1 0.85	30.65	1.05	" 24
57.29 56.908	56.25 28.59	27.19 57.99	57.15 29.69 27.968	28.33 58.99	58.11 28.19	28.17 58.49 58.408	58.27 28.59	28.65 58.49	59.23 28.89 ~~29.658~~	28.81 0.59	59.77 29.79	29.21 2.19 ~~-0.308~~	X 25
57.84	23.94	59.14	29.94	57.84	29.34	-3 0.54	31.34	58.24	28 30.94	0.34	29.14	-0.218	" 26
54.08	26.68	55.08	24.58	-4 0.48	29.48	-2 57.38	29.48	59.48	27.68	-0 58.08	29.68	1.28	" 30
57.42	26.02	56.12	27.52	-3 56.42	27.92	58.02	27.52	59.22	29.32	59.52	30.22		Dec 1
54.32	27.42	57.42	27.52	55.52	26.12	57.82	28.62	58.92	30.42	-1 0.42	29.22		" 4
56.54	56.04 26.54	26.12 56.34	56.82 27.84	27.48 57.54	57.56 28.14	28.20 58.74	58.50 29.74	29.34 59.24	59.02 29.84	-0 29.64 58.84	59.44 29.94	29.64	" 7
58.27	25.87	54.97	26.77	59.47	26.97	59.77	29.27	56.27	27.07	58.87	30.37		" 9
58.08	24.68	56.98	29.98	56.08	27.28	59.08	26.68	59.58	30.18	-1 0.18	33.68	2.78	" 12
58.12	27.52	56.12	30.52	59.92	28.82	-3 0.72	29.32	58.22	29.22	-0 57.22	30.02		" 17
55.22	25.82	57.42	29.92	-4 1.72	30.92	1.92	28.52	-2 1.22	24.52	-1 1.52	28.72		" 18
55.15 56.504	56.97 23.15	25.41 58.55	56.81 28.45 28.304	-3 29.13 57.95 ~~58.298~~	59.03 27.85	-2 28.37 56.15 59.014	59.53 25.65	-1 27.89 58.25	58.71 28.75 28.794	-0 27.95 59.05	59.37 33.95	31.35 ~~-0.109~~ +2.06	X " 21
58.25	27.25	-5 1.75	28.05	58.55	27.85	-3 0.35	27.75	57.25	28.75	-1 0.65	29.95		" 23
56.91	24.11 24.41	-4 53.61	27.01	58.01	31.01	59.91 0.61	24.71 24.81	57.71	29.71	-0 59.91	28.81	3.01	" 26
56.80	25.30	56.80	28.50	59.30	29.30	-2 59.70	29.40	-2 0.30	31.30	59.50	28.60		" 27
57.63 57.398	57.40 26.33	25.82 59.53	57.92 29.73 28.322	28.32 58.53	58.60 30.33	30.12 58.73 59.672	59.85 27.13	27.77 0.13	58.85 30.13 29.972	29.97 59.93	0.00 32.63	30.00 2.43 ~~-0.3~~ -0.848 +0.00	" 29

L.

+5

56.907

55.69

Polaris. 1879

S.C. +

		×						×						×						×						×	Date
t.25	+5	5675	5	2675	4	5595	4	2845	3	5635	3	2565	2	5735	2	2805	1	5555	1	2815	0	5395	0	3145	0	095	Feb. 22
26		5610	40	14.0 2480		5740		2570		5640		2330		5740		2770		5680		2910	1	0.10		2790		070	" 24
29		5790		13.5 2770		5810		2940	4	0.10		2990		5700		3060	2	0.50		2790		0.60		3170 ~~[illegible]~~		130	Mar. 2
30		5631 56[illegible]		12.0 2731		5691		2931	3	5671		2541		5451		2611	1	5531		2831	0	5491		2861			" 5
.10		5670	~~5675~~	11.3 2430	~~2617~~	5870	~~5741~~	2810	~~2819~~	5980	~~5787~~	2630	~~3~~ ~~2611~~	0.60	~~5777~~	2860	2 ~~2821~~	1.60	~~5795~~	2990	~~2867~~	5430	~~5817~~	2900	3041	2.20	" 8
16		5756		10.5 2616		5786 ~~5726~~		2666		5626		2626	2	5776		2676		026		3016	1	076		2846			" 13
24		5628		9.1 2668		5768		2608		5538		2678		5718		2648	1	5778		2908	0	5918		3098		368	" 18
25		5729 ~~5399~~		7.8 3089		5579		2939		5649		2839	3	0.69		3129		5939		3039		5739		2759			" 19
26		5748		7.3 2528		5528		2708		5648		2728	2	5718		2818		5788		2798		5998		2858		1.38	" 23
30	56.907	5670 ~~57.507~~	~~5640~~	6.2 2640	~~2728~~	5490	~~5618~~	2550 27.567	~~2694~~	5630	~~5618~~	2750	~~2724~~	5650 57.817	~~5786~~	2680	~~2790~~	5860	~~5878~~	2860 28.957	~~2924~~	5810	~~5908~~	2880	~~2888~~	0.80	" 30
.1		5821		4.0 2481		5621		2451		5651		2561		5611		2821		5871		2771		5941		2861			Apr. 6
4		5732 ~~5402~~		1.8 2652		5522		2492		5532		2452		5742		2932		5782		2772		5912		2902			" 8
7		5478	39	~~59.5~~ 1.2 2538		5538		2578		5608		2788		5838		2838		5858		2948		5908		3008		0.18	" 13
9		5331	39	59.5 2581		5581		2351		5641		2531		5581		2661		5801		2961		5941		2771			" 14
12		5456	~~5498~~	59.1 2516	2558	5586	5570	2286	2420	5846	5656	2806	2628	5976	5750	2956	2842	5896	5842	2786	2848	5766	5894	3036	2916		" 19
7		5694		57.6 2714		5594		2564		5504		2504		5584		2604		5554		2784		5794		2914		1.94	" 20
18		5562		57.2 2532		5472		2432		5432		2862		5602		2632		5842		2892	1	0.02		3002			" 22
21 .06		5607		56.7 2357		5547		2567		5527		2697		5807		2377		5767		2807		0.27		2917			" 23
23		~~5479~~ .38		56.3 ~~2457~~ 54.3 .18		~~5564~~ .28		~~2984~~ .48		~~5744~~ .58		~~2759~~ .18		~~5789~~ 48		~~2819~~ 2778		~~5684~~ .48		~~2939~~ 2898	0	~~5788~~ .58		~~2959~~ .18		~~109~~ 0.68	May 1
26	55.669	5530 ~~55.730~~	5570	2540	2512	5620	5532	2420 25.0[illegible]9	2586	5620	5568	2540	2664	5750 57.[illegible]39	5738	2750	2656	5800	5722	2920 28.539	2860	5870	5890	3030	2956	0.20	" 5
27		5624		53.2 2624		5504		2514		5684		2664		5764		2794		5834		2874		5794		2884		004	" 6
29		5602		52.9 2412		5672		2512		5602		2722		5712		2742		5872		2812		5902		2802		042	" 7
		5290		52.7 2610		5510		2520		5370		2850		5790		2720		5860		2840		5890		2970			" 29
		5417		48.4 2397		5427		2487		5637		2627		5727		2767		5867		2937		5907		2967		017	June 1
		5374	5461	47.9 2354	2479	5374	5497	2374	2481	5444	5575	2464	2665	5614	5721	2624	2729	5884	5863	2794	2851	5874	5873	2874	2899		" 26
		5592		46.4 2592		5392		2572		5492		2472		5352		2872 ~~2802~~		5762		2812		5812		2882		032	July 1
		5431		46.7 2381		5571		2571		5521		2531		5721		2631		5731		2781		5801		2871		041	" 2
		5537		46.5 2457		5557		2577		5767		2717		5697		2797		5677		2827		5857 ~~5227~~		2927			" 6
		5616		46.8 2476		5636		2286		5696		2736		5986		2896		5936		2876		5966		2686			Aug " 5
		5517 55.000	5539	46.8 2577	2497	5497 5517	5571	2547 24.900	2499	5627	5621	2677	2627	5707 57.270	5733	2917	2809	5897	5801	2827 28.380	2825	5867	5735	4 28[illegible]7	2839	0.27	" 9
		5397		46.9 2327		~~5477~~		2597		5597		2617		5747		2727		5737		2797		5857		2927			" 10
		5650		47 2650 52.9		5550		2560		5740		2550		5540		2600		5870		2890		5790		2850			Aug. 14

Polaris 1879

L.C. +

× +5 5398	+5 2708 39 54.6	+4 5788	× +4 2508	+3 59.78	+3 28.08	× 6 +2 5~~[illegible]~~98	2 23.48	1 54.78	× 1 23.08	0 57.78	0 29.38 0	× Sept. 6
49.26	27.66 40 3.7	55.46	25.66	55.96	26.76	58.16	27.26	58.06	29.06	58.96	29.86	0.16 „ 18
51.19	52.98 25.89 4.0	26.08 54.39	55.60 26.49	25.76 57.69	57.36 28.79	27.06 59.09	57.42 28.89	26.58 58.59	57.50 28.29	1 1.19 27.46	30.09 29.42 58.88	1.19 „ 19
53.33	24.23 6.8	58.13	27.33	54.33	26.43	55.63	31.93	56.33	29.13	0 59.73	30.03	„ 26
55.42	24.62 8.2	56.02	26.02	55.82	28.02	58.62	25.72	57.12	27.22	58.52	31.12	1.92 „ 30
57.87	25.37 8.5	56.87	25.87	55.97	26.57	57.47	27.97	56.87	29.47	1 0.67	28.87	Oct. 1
53.18	24.98 8.9	55.08	26.08	56.08	28.28	59.18	2808 ~~26.08~~	58.18	29.48	0 58.78	30.38	0.58 „ 2
× 57.55 54.225	55.47 25.15 9.6	24.87 56.95	56.61 28.25 26.235	26.71 58.55	56.15 26.95	27.25 56.25 57.425	57.43 28.65	28.07 57.55	57.21 28.15 28.075	1 0.25 28.69	27.65 29.61 59.59	„ 4
55.68	24.98 10.0	57.48	25.88	55.28	25.98	56.58	27.08	57.68	24.98	0 56.88	27.88	„ 5
58.63	22.93 10.4	53.23	24.33	56.03	25.63	55.83	28.43	57.33	28.63	1 0.43	29.33	„ 6-7
56.64	25.14 10.8	53.74	25.24	57.44	26.54	57.34	27.44	57.74	28.44	0 58.64	28.44	„ 7-8
54.16	27.06 15.4	56.16	26.06	59.26	27.46	57.56	29.86	59.66	28.16	56.76	31.46	„ 19
55.70	56.16 25.90 15.8	25.20 54.70	55.46 26.90	25.68 58.00	57.20 25.70	26.26 56.40	56.74 28.50	28.26 59.10	58.30 29.40	27.92 57.60	28.70 29.16 58.06	„ 20-21
59.57	27.97 17.4	55.67	25.07	57.27	2797 ~~28.67~~	58.07	27.07	58.57	26.77	58.57	28.57	„ 24
59.06	26.56 17.8	56.96	27.76	56.26	27.76	57.46	28.56	56.16	27.96	59.56	27.96	„ 25
54.41	30.21 18.2	53.71	26.21	59.21	28.21	58.71	28.01	5841 56.41	28.81	1 0.51	27.71	„ 26
54.60	26.10 18.8	55.70	27.10	58.10	26.30	56.10	29.90	58.40	28.60	0 59.20	29.90	„ 28
× 56.70 56.515	56.87 26.20 21.4	27.41 57.90	55.99 27.00 26.455	26.63 58.40	57.85 26.30	27.45 57.80 57.185	57.63 30.80	28.87 59.30	57.77 27.20 27.695	27.87 57.20	3060 59.01 ~~28.70~~ 28.61	Nov. 4
56.86	27.36 25.2	58.26	28.16	57.76	28.46	59.26	2886 ~~27.76~~	58.36	2966 ~~27.46~~	59.86	30.46	0.36 „ 15
53.90	27.40 31.9	57.30	26.20	56.80	27.60	59.20	30.10	58.30	29.20	59.90	29.80	Dec. 8
55.70	27.70 32.8	54.30	27.10	53.10	27.10	59.50	30.80	59.20	27.80	58.70	29.80	0.40 „ 12
56.84	26.54 34.5	58.64	26.44	56.14	28.24	58.04	27.34	2 1.24	27.14	58.44	29.54	0.44 „ 20
59.52 56.564	56.56 26.12 35.2	27.02 55.52	56.80 30.32 27.644	27.64 55.02	55.76 27.32	3 0.32 27.74 59.264	59.26 27.92	6132 1 ~~56.32~~ 28.98	58.68 28.42 28.444	1 0.72 28.50	59.52 29.82 29.88	„ 25

✓ ✓

Polarie 1879

L.C. -

	×			×			×			×				
1.6	-5 5865	-5 2235	-4 5795	-4 2435	-3 5715	-3 2695	-2 5895	-2 2575	-1 5605	-1 3155	-0 5885	-0 2885	×	Feb 22
18	5260	2330	5340	2220	5780	2860	5600	2890 ~~2910~~	-2 030	2880	-1 160	2970		" 24
19	-6 080	2780	5680	2410	5730	2850	-3 310	3530	260	3000	080	3110		Mar. 2
26	-5 5399	2479	5559	2709	5939	2669	-2 56.19	2589	-1 5859	2949	-0 5879	2769	-0 059	" 5
30	5760 ~~56.73~~	2760 ~~25.74~~	5800 ~~56.35~~	2800 ~~25.15~~	5680 ~~57.69~~	2830 ~~27.81~~	5800 ~~58.45~~	2720 ~~28.65~~	5890 ~~57.24~~	2950 ~~29.87~~	5870 ~~57.15~~	3140 ~~29.75~~		" 8
.1	5574	2774	5674	2694	5634	2794	5884	2734	5694	2994	-1 044	2824	114	" 13
2	5762	2862	5762	2792	5792	2682	5812	3072	5642	2742	-0 5692	2702		" 18
4	5891	2891	5991	2791	5891	2421	5681	2601	5791	2721	-1 301	3061	231	" 19
5	5622	2622	5722	2522	5682	2712	5852	2752	5792	2822	-0 5862	3042		" 23
-7	× 5620 ~~56.94~~ 56.833	2620 ~~27.54~~	5620 ~~57.54~~	2520 ~~26.64~~ 25.899	5470 ~~5500~~ ~~54.60~~	2690 ~~26.60~~	5730 ~~54.92~~ 58.183	2790 ~~27.90~~	5830 ~~57.50~~	2870 ~~28.30~~ 29.083	5920 ~~59.64~~	2840	~~28.94~~ + 0.697	" 30
-8	5349	2549	5449	2429	5509	2679	5439	2779	-2 029	3099	-1 169	2949	029	Apr. 6
9	5538	2438	5538	2248	5538	2598	5538	2638	-1 5888	2868	-0 5808	3198	248	" 8
-21	5652	2652	5652	2642	5752	2682	5862	2722	5882	2872	5802	2742		" 13
24	5419	2519	5519	2389	5479	2649	5619	2689	5749	2629	5869	2969	029 ~~229~~	" 14
5	5674 ~~55.26~~	2674 ~~25.66~~	5674 ~~55.66~~	2704 ~~24.82~~	5654 ~~55.86~~	2704 ~~26.62~~	5654 ~~56.22~~	2804 ~~27.26~~	5604 ~~58.30~~	2904 ~~28.74~~	0.04 ~~59.74~~ 59.14	2814 ~~28.3~~	0.74	" 19
6	5576	2676	5476	2536	5416	2806	5626	2616	5636	2766	5866	2996		" 20
8	5508	2508	5608	2468	5548	2648	5668	2598	5788	2838	5908	3008	168	" 22
.4	5533	2633	5633	2603	5583	2543	5653	2533	5853	2883	5893	2723	083	" 23
15	~~5571~~ 56.12	26~~21~~ .62	~~5671~~ 57.12	~~2671~~ 27.12	~~5661~~ 57.02	27~~41~~ .82	57~~31~~ .72	27~~11~~ .52	~~5561~~ 56.02	28~~01~~ .42	58~~21~~ .62	~~2791~~ 28.32		May 1
.8	× 5500 55.46 55.361	2500 25.96	5500 55.86	2610 25.86 25.341	5300 55.10	2620 26.80	5800 57.04 56.626	2730 26.46	5830 57.42	2920 28.621	-1 040 59.14 28.50	2990	29.10 − 0.331	" 5
12	5666	2466	5666	2516	5616	2446	5796	2726	5766	3006	-0 5866	3026		" 6
20	5578	2578	5578	2468	5588	2828	5588	2778	5778	2828	5898	2908		" 7
25	5680	2480	5680	2380 ~~2640~~	5590	2510	5690	2730	5560	2860	5920	2930	070	" 29
	5613	2513	5613	2473	5513	2613	5753	2683	5743	2873	5863	2923		June 1
	5336 55.75	2406 25.09	5436 55.95	2436 25.07	5456 55.53	2586 25.97	5606 56.87	2716 27.27	5736 57.17	$26\overset{4}{5}6$ 28.45	5696 58.49	2996 29.57	0.06	" 26
	5608	2508	5508	2518	5548 ~~5528~~	2518	5678	2718	5778	2758	5898	2878		July 1
	5349	2449	5249	2439	5519	2629	5679	2709	5769	2859	5959	2979		" 2
	5713	2523	5613	2483	5593	2733	5783	2893	5773	2823	5853	2973	003	" 6
	5764	2264	5294	2424	5094	2814	5854	3024	-2 104	2814	-1 334	3004	014	" 5
	× 55.73 56.01 55.880	2573 24.63	5573 54.47	2523 24.77 24.6~~57~~60	5633 54.73	2703 26.79	5643 57.27 57.070	2763	-1 5833 58.45 28.21	2943 28.410	-0 5873 28.39 59.83	2893	29.45 +0.070	" 9
	5523	2523	5523	2403	5463	2503	5733	2733	5843	2853	5893	2783	033	" 10
	5250	2210	5440	2610	5770	2830	5810	2910	5720	2840	5680	3010	150	Aug 14

155ª

L.C. —

Polaris 1879

X			X			X			X			X	
-5 5532	-5 2662	-4 5202	-4 2162	-3 5752	-3 2752	-2 5852	-2 2622	-1 5672	-1 2782	-0 5812	-0 2882	-0 052	Sept 6
5674	2504	5474	2634	5664	2684	5624	2514	5614	2804	5774	3274		„ 18
5411	54.78 2601	25.00 5461	54.20 2751	25.12 5771	56.84 2701	26.94 5831	57.70 2841	27.24 5921	57.54 3031	28.62 5841	58.00 3021	29.94	„ 19
5337	2417	5507	2727	5507	2807	5687	2897	-2 157	2987	5757	2787	087	„ 26
5198	2378	5578	2538	5798	2838	5838	2778	-1 5788	2978	5948	2958		„ 30
5423	2563	5523	2593	5563	2773	5813	2903	5983	2913	-1 033	2903	003	Oct. 1
5472	2602	5522	2502	5482	2862	5962	2732	5792	2932	-0 5992	2772		„ 2
5695 54.415	54.05 2675	25.27 5655	55.57 2405 ~~26.325~~	25.53 5545 25.325	55.79 2605	27.77 5865 58.015	58.33 2945	-2 28.51 0.55	59.55 2865 28.985	29.35 5815	59.09 29.75	28.79 185 −0,125	„ 4
5422	2252	5392	2442	5392	2692	5472	2722	-1 5962	2962	5782	2922	232	„ 5
5057	2387	5447	2567	5837	2647	5747	2817	-2 037	2797	5747	2877	107	„ 6-7
5336	2586	5596	2686	5756	2786	5786	2576	-1 5576	2946	5676	2836	136	„ 7-8
5494	2624	5724	2604	5774	2514	5894	2884	5984	2874	5874	3024	084	„ 19
5370	53.76 2480	24.66 5660	55.64 2660	25.92 5770	57.06 2810	26.90 5840	57.48 2720	27.44 5990	59.10 2710	28.58 5820	57.80 2810	28.94 010	„ 20-21
5563	2513	5573	2923 ~~2813~~	5633	2663	5873	2783	5593	3333	-1 033	2763	053	„ 24
5484	2704	5514	2554	5764	2684	5774	2754	5854	2884	084	3094	054	„ 25
5399	2659	5599	2789	5559	2639	5859	2839	5939	2929	059	2939	009	„ 26
5550	2530	5810	2640	5790	2590	5710	3010	5830	3000	0 5570	2900	040	„ 28
5050 53.925	54.09 2490 2484	25.83 5730	56.45 2970 26.835	4 27.53 010	57.51 3140	27.43 5740 57.695	57.91 2200	28.57 5780	57.99 2570 29.005	1 29.43 020	59.53 2870	29.13 110 −0,8[illegible]5	Nov. 4
5494	~~3154~~	5594	2644	3 5784	2804	5804	2774	5814	29.34 ~~3604~~	0 5954	2974	3	„ 15
5550	2680	5750	2780	5820	2610	5800	2780	5970	2870	5880	3030	060	Dec. 8
5970	2710	5500	2630	5680	2720	5800	2630	5970	2820	5790	2890		„ 12
5516	2666	5706	2576	5946	2876	5486	2736	5756	3226	5876	3146		„ 20
5828 56.716	56.72 2888	28.20 5718	56.54 2608 26.[illegible]76 4	26.48 5678	57.82 2828	27.68 5908 57.596	57.60 2688	27.22 5998	59.02 2798 29.296	30.64 5808	58.62 2908	29.90 068 −0.008 −0.016	„ 25

Polaris. 1880

U.C. +

8 8

	1 X			X			X			X	2.92		X	Date
t6	+ 5 57.52	5 27.02	4 58.52	4 25.72	3 59.32	3 28.22	2 59.32	2 29.42	1 57.62	1 29.32	1 ~~1.32~~	0 28.12	0 1.02	Jan 1
	40 36	40 36.2												
18	6 1.26	31.26	5 0.26	31.26	56.76	29.46	58.56	28.46	59.66	28.56	0 58.36	29.26		" 2
	36	36.3												
19	0.58	26.38	4 57.88	29.78	4 0.58	29.78	3 1.48	24.78	54.18	28.68	1 0.68	29.98	2.88	" 3
	36	36.4				26.82								
26	5 58.32	26.42	56.92	28.12	3 57.42	~~24.82~~	2 56.32	27.32	58.32	30.12	0.72	31.12	0.52	Mar. 1
	31	31.2												
30	58.66	59.27 25.66	27.35 55.96	57.91 27.76	28.53 56.86	58.19 27.96	28.05 57.66	58.67 28.46	27.69 59.56	58.27 31.96	0 57.76	31.76 30.05	3.76	" 18
	26	40 33 26.5									29.73 59.77	30.80		
t.1	58.00	27.80	57.40	26.00	57.70	26.70	56.20	25.50	56.50	29.50	58.30	~~34.20~~		Apr. 9-10
	19	19.4												
2	54.79	27.49	54.49	25.29	56.69	27.69	58.79	28.69	56.69	32.29	59.39	29.09		" 11-12
	19	19.0			58.5									
4	56.58	26.48	55.88	27.48	58.18	24.38	55.68	28.68	58.08	27.98	59.68	31.48	2.08	" 12-13
	18	18.3												
5	56.54	24.94	57.94	28.04	58.84	28.54	57.24	27.14	58.94	28.64	58.64	30.44	0.34	" 20
	16	16.2				29.04								
6-7	56.34	56.45 25.84	26.51 57.04	56.55 25.84	26.53 58.24	57.93 ~~29.14~~	27.29 58.54	57.29 26.84	27.37 59.04	57.85 25.54	28.79 59.74	59.15 30.34 31.11	X	" 21
	16 57.859	40.18 15.8		27.529			57.979			29.259				
7-8	55.75	25.65	56.15	27.35	56.35	27.95	57.05	29.25	57.25	30.85	58.15	29.35	0.55	" 27
	14	14.1												
19	57.01	25.91	55.41	28.11	59.11	26.51	56.41	27.51	57.81	28.81	1 1.31	31.21		May 4
	12	12.4												
-21	57.76	27.98	57.58	26.28	56.08	28.08	58.18	27.18	57.68	28.98	0 59.78	31.28		" 6
	12	11.8												
24	6 0.28	28.38	57.08	28.28	58.08	27.38	57.58	27.48	58.48	29.68	1 0.08	29.38	1.08	" 9
	11	11.0												
25	5 55.94	57.35 23.04	26.19 56.74	56.59 26.74	27.35 56.74	57.27 27.74	27.53 57.74	57.39 27.94	27.87 58.64	57.97 28.24	29.31 0.54	59.97 30.24 30.29		" 20
	9	40.12 8.7												
26	54.58	24.38	55.28	27.68	58.28	26.78	57.58	28.88	58.18	28.48	0 56.68	30.68		" 23
	8	8.1												
28	55.55	25.35	57.75	24.05	55.75	26.65	57.05	29.15	57.95	30.65	57.55	28.75		" 24
	8	7.9					57.61							
4	55.41	25.51	55.31	26.31	58.11	27.21	~~57.51~~	28.31	58.51	28.71	59.71	29.81		" 27
	8 57.32	7.6				25.92		28.62		28.82				
15	~~57.72~~	27.72	57.22	27.32	55.52	~~22.62~~	57.52	~~28.42~~	58.52	~~28.52~~	1 1.02	28.92		" 31
	7	7.0												
.8	56.48	55.95 26.38	25.87 55.68	56.25 26.28	26.33 57.38	57.01 26.78	26.01 57.88	57.51 29.48	28.95 58.28	58.29 29.98	0 58.38	58.67 29.38 29.51	X	June 2
	7 56.607	40 8 6.6		26.840			57.460			29.320	29.27			
12	55.61	26.61	55.91	26.71	56.31	27.71	57.01	29.81	58.51	27.51	59.01	28.81	2.01	" 3
	7	6.5				26.98								
20	54.57	24.87	55.67	25.17	58.17	~~27.61~~	58.77	28.37	58.37	27.87	58.67	28.97	0.37	" 10
	6	5.8												
25	56.74	26.14	55.24	22.44	56.34	27.34	56.74	27.14	58.74	29.14	1 0.34	29.14	1.74	" 15
	5	5.4												
	55.03	25.63	57.83	28.03	58.63	25.63	56.13	28.13	58.33	27.73	0.83	29.43		" 17
	5	5.2												
	55.76	55.54 25.86	25.82 56.56	56.24 26.86	25.84 56.86	57.26 27.06	27.08 57.36	57.20 28.06	28.30 58.86	58.56 29.96	0 59.86	59.74 29.86 29.24		" 21
	5	40 6 5.2									28.44			
	55.68	25.68	54.58	26.88	56.78	26.68	57.78	27.88	57.78	28.28	58.98	30.08		" 24
	5	5.2			56.17									
	54.57	25.57	56.17	26.37	~~52.87~~	26.67	57.47	28.37	58.07	28.57	59.27	29.67		" 26
	5	5.2												
	56.19	25.99	56.19	25.39	56.39	26.89	57.69	27.79	57.99	29.39	59.19	29.59		" 27
	5	5.2												
	56.43	26.33	56.83	26.53	57.33	27.83	57.93	28.53	58.93	28.13	58.63	29.43	0.13	" 28
	5	5.2												
	55.47	55.67 24.87	25.69 55.57	55.87 28.67	26.77 56.27	55.93 28.27	27.27 57.47	57.67 27.47	28.01 58.27	58.21 29.17	28.71 58.77	58.97 28.97 29.55	0.47	X July 4
	5 55.605	40 5 5.3		26.305			57.435			28.575				
	56.11	25.91	56.41	27.01	4 0.41	24.11	57.91	27.91	58.01	28.21	59.51	29.21		" 7
	5	5.5												
	55.61	28.91	59.41	26.11	3 56.01	28.91	58.21	29.31	54.91	30.91	1 0.71	29.91	0.11	" 29
	8	8.1								28.50				
	57.60	26.90	57.30	26.70	56.00	25.00	57.90	27.80	58.30	~~28.70~~	0 59.80	30.00	0.80	Aug 1
	9	8.7												
	57.08	25.08	57.38	26.08	57.78	28.88	57.88	29.18	59.28	27.38	56.18	30.68 [illegible]		" 5
	9	9.6												

107

Polaris 1880

UC+

88

–5	5 57.74	5 32.54	4 59.54	4 28.44	3 59.64	3 29.84	2 54.84	2 21.44	1 56.64	1 24.34	0 56.14	0 30.84	0 2.90	Aug. 15	Jan. 1
40 12	56.83	11.8	27.87	58.01	26.87	57.99	27.35	57.35	27.13	57.43	27.91	58.47	30.13		
	58.10	40 9 29.60 26.0	5 2.20	28.70	4 0.50	25.30	56.10	27.50	57.50	28.60	58.50	28.80		Sept. 28	" 2
26	54.50	29.50 27.8	4 54.50	29.40	3 55.10	29.50	58.10	29.30	2 1.20	28.70	58.50 2.58	30.80	0.60	Oct. 3	" 3
28 6	0.78	27.58	59.78	27.38	54.98	22.28	56.98	29.78	0.48	30.78	1 ~~5.88~~	31.38	2.38	" 5	Mar. 1
29 6	0.12 ~~59.53~~	285 285 8.12 ~~27.53~~ 31.	7.52 ~~56.93~~	7.32 ~~26.73~~	9.72 ~~57.13~~	8.52 ~~27.73~~	82 ~~59.23~~	9.12 ~~28.53~~	72 1 ~~58.13~~	8.52 ~~27.73~~	0.02 ~~57.43~~	9.12 ~~28.53~~	0.52	" 11	" 18
31 6	4.70	59.64 28.20	28.60 59.50	58.70 27.70	28.10 59.20	57.90 26.90	3 2.10	58.62 27.50	1 53.90	58.36 29.00	0 58.70	0.32 29.50	29.92 0.20	X " 20	Apr. 9
34	40 30	34.3		27.484	23.39	26.50	57.984	28.64		28.484 29.10					
5	59.39	30.09	58.69	~~22.99~~	59.29	30.29	0.99	30.19	57.09	28.09	1 0.49	30.99	1.79	Nov. 3	" 11-12
39 6	~~57.464~~ 0.55 58.234	39.4 24.95 41.4	56.35	29.55	59.15	28.65	2 59.65	29.75	56.95	31.55	0 58.55	31.16		" 8	" 12-13
41 5	58.23	30.03 42.4	59.13	27.73	57.33	27.83	58.93	29.03	59.93	28.43	57.03	30.23		" 11	" 20
42 ✓	58.16	29.26 43.4	56.86	26.46	57.06 ~~56.36~~	29.66	58.76	26.26	2 2.26	33.36	1 2.26	30.06	0.56	" 14	" 21
43 6	0.22	59.31 28.12	28.49 58.92	57.99 26.72	26.69 59.82	58.39 30.32	29.35 58.22	59.31 27.22	1 59.32	59.11 29.52	0 59.72	0.01 29.22	30.33	" 16	" 27
44	40 42	44.0						28.49		30.19					
5	58.68	27.98 44.6	58.18	27.88	58.88	29.78	59.58	29.78	58.58	28.68	58.88	30.18	0.98	" 18	May 4
45 6	1.73	29.43 46.8	5 0.43	30.63	57.73	26.33	59.43	27.63	59.03	30.83	1 0.83	28.03		" 22	" 6
46 47	78 ~~0.94~~	68 ~~27.84~~ 46.9	18 4 ~~57.34~~	48 ~~27.64~~	48 ~~57.64~~	8.98 ~~29.14~~	78 ~~58.44~~	78 ~~27.94~~	78 ~~59.94~~	48 ~~29.64~~ 0	08 ~~59.24~~	18 ~~28.34~~		" 25	" 9
	0.16	26.56 47.4	59.46	26.06	57.66	27.56	59.36	28.96	59.36	30.06	1 0.36	30.46		" 27	" 20
47 5	57.93	6 59.8X 27.13	5 0.03	59.06 29.03	2 28.2X 59.03	6 58.1X 29.83	28.50 59.13	6 59.2X 29.43	2 28.7X 59.83	59.32 29.13	0 58.93	2 59.6X 30.83	4 29.5X 0.03	X " 29	" 23
48	40 47	~~47.9~~ 27.76		27.593			~~59.351~~ 2.83			29.973 29.64		29.85			
	59.75 ~~58.583~~ 9	27.45 50.2	4 57.05	28.05	58.85	29.55	59.45	29.95	2 0.25	29.65	59.95	~~30.25~~		Dec. 7	" 24
50 6	0.09	34.59 50.7	58.19	31.49	4 0.89	28.69	59.59	32.79	1 58.79	32.09	59.59	32.49		" 9	" 27
51	1.50 0.45 40 51	29.90 52.1	5 30.65 0.50	58.58 29.50	29.68 0.10	59.95 29.90	29.38 58.30	59.11 29.10	30.61 59.20	59.41 30.70	30.81 59.80	59.78 29.30	30.68 0.10	" 16	" 31
52	~~2.68~~	~~30.98~~	~~1.38~~	~~29.28~~	~~3 57.48~~	~~28.38~~	~~59.68~~	~~28.48~~	~~2 0.58~~	~~26.18~~ 131	~~0.18~~	~~27.98~~		~~" 18~~	~~" 31~~ June 2
	60.447			29.680			59.113			30.8~~44~~					5
															" 3
															" 10
															" 15
															" 17
															" 21
															" 24
															" 26
															" 27
															" 28

51

5

56

√

Polaris 1880

108

U.C.

Aug. 15	Jan. 1	-5 57.78	-5 29.68	-4 58.38	-4 28.18	-3 58.38	-3 28.98	-2 58.48	-2 29.08	-1 58.98	-1 28.58	-0 58.38	-0 29.58	
Sept. 28	" 2	57.34	29.14	58.04	29.04	57.34	28.74	58.24	29.44	59.74	33.74 -1	074 ~~114~~	29.74 -0	0.74
Oct. 3	" 3	56.62	27.22	58.72	28.62	58.22	27.42	59.42	31.82	59.62	31.62 -0	59.42	28.82	
5	Mar. 1	55.48	26.88	55.88	27.68	58.68	98 28.~~88~~	57.98	28.48 ~~28.28~~	59.98	30.38	58.68 ~~58.58~~	27.78	
11	" 18	57.04	56.85 25.04	27.59 55.04	57.21 26.24	27.95 57.54	58.03 31.24	29.05 58.24	58.47 27.24	29.17 59.24	59.51 32.14 ~~32.64~~ -1	1.74	59.85 33.24	29.83
20	Apr. 9	55.70	28.00 ~~27.90~~	58.70	29.00	56.90	28.10	55.90	28.20 -2	0.80	29.40 ~~25.60~~ -0	31.27 58.20	28.40	0.40
Nov. 3	" 11-12	55.81	25.21	57.11	26.21	56.41	25.21	57.81	29.21 -1	57.81	29.71	59.91	30.11	0.91
8	" 12-13	56.02	24.52	55.82	26.22	56.52	29.62	57.82	28.02	59.32	28.42	59.02	31.32	
11	" 20	55.96 ~~55.86~~	29.66 ~~26.96~~	56.76	28.46	57.46	26.96	57.66	28.66 ~~28.36~~	58.96	30.46	59.86	28.46	
14	" 21	56 57.46 56.521	56.17 25.46 ~~25.16~~	25.95 57.76	57.23 25.46 27.511	27.07 76 57.~~66~~ ~~57.721~~	57.39 26.16	27.21 58.16 57.971	57.47 27.76	28.31 58.56	59.09 28.26 30.231	28.49 58.06	59.01 29.46	29.55 0.66
16	" 27	56.55	22.75 ~~22.65~~	55.85	27.55	59.75	26.55	58.65	28.85	58.05	28.53 -1	0.35	28.35	~~+0.60~~ ~~+0.289~~
18	May 4	55.69	27.69	58.39	27.19	55.89	25.29	56.49	27.09	59.69	33.39 -0	56.29	30.19	+0.~~377~~ ~~.789~~ 1.89
22	" 6	02 56.~~28~~	62 25.~~88~~	42 55.~~68~~	32 26.~~58~~	32 57.~~58~~	32 28.~~38~~ -3	32 1.~~58~~	52 28.~~78~~ -2	42 0.~~68~~	52 29.~~78~~	32 59.~~58~~	72 28.~~78~~	0.02 ~~0.28~~
25	" 9	-6 0.72	31.62	57.22	28.02	56.52	26.82 ~~26.72~~	0.12	28.82 -1	59.52	26.62	58.52	28.82	
27	" 20	-5 53.76	56.55 25.86	26.69 55.96	56.57 26.96	27.21 57.36	57.37 26.46 -2 26.67	58.56	59.03 30.16	28.69 57.96	59.53 27.46	29.11 58.06	58.51 28.46	28.91 1.26
29	" 23	55.82	26.32	55.82	26.22 ~~26.62~~	57.02	26.42	56.92	29.12	58.62	28.62	57.42	28.42	0.32
Dec. 7	" 24	4.95 ~~56.34~~	15 25.~~54~~	45 56.~~84~~	15 26.~~54~~	15 56.~~54~~	05 26.~~44~~	55 57.~~44~~	27.85 ~~28.24~~	58.85 ~~57.24~~	15 28.~~54~~	57.75 ~~58.44~~	85 30.~~24~~	0.35 ~~0.74~~
9	" 27	54.39 ~~54.69~~	25.09 ~~24.69~~	53.89 ~~55.59~~	25.69	56.79	28.19	57.19	30.59	57.79	28.69	59.09 ~~58.99~~	28.89	0.69
16	" 31	54.18	26.88	56.88	25.98	56.38	26.38	56.58	28.88	58.98	28.68	59.78	30.38	1.58
~~18~~	June 2	55.92 55.806	55.11 26.42 ~~26.02~~	25.81 56.12	56.17 26.72 26.880	26.23 57.72 ~~57.090~~	56.81 27.82	26.97 57.72 58.310	57.59 28.82	29.07 56.62	58.17 27.72 27.740	28.37 59.22	58.63 30.92	29.89 1.12 −0.560
	" 3	56.49 ~~56.29~~	27.19	56.39	6 26.99	57.99	26.99	57.39	26.99	58.19	27.69	59.09	30.39	
	" 10	53.93	25.53	57.33	26.73	56.83	26.33	58.73	26.63	57.33	28.63	59.33	30.13	
	" 15	55.96	25.76	55.46	26.26	57.16	26.36	56.56 ~~58.56~~	28.46	58.26	29.86	58.96	28.16	
	" 17	55.37	25.27	56.27	27.47	56.97	28.37	57.07	27.57	56.67	27.97 -1	0.67	30.57	1.07
	" 21	54.24	55.16 26.84	26.12 57.34	56.56 26.74	26.84 57.04	57.20 27.64	27.14 56.94	57.34 28.74	27.68 58.34	57.76 28.74 -0 28.58	59.24 ~~57.84~~	59.58 28.84	29.62 1.54
	" 24	55.82	25.82	55.62	26.42	57.12	27.72	56.12	28.22	57.52	27.52 -1	0.52	28.22	0.52
	" 26	54.23	26.83	55.83	26.03	57.83 ~~56.83~~	26.73	56.73	26.53	57.63	28.33 -0	59.13	28.73	0.03
	" 27	56.31	26.11	55.41	26.81	56.71	27.41	57.21 ~~57.51~~	27.81	57.91	28.51	58.31	28.71	1.21
	" 28	55.47	25.87	56.27	27.37	56.57	27.47	58.47	29.07	58.17	29.07	59.47	29.67	

109

Polaris 1880

U.C. —

-5 5463	-5 2503	-4 55.73	-4 27.23	-3 56.63	-3 2793	-2 5693	-2 2833	-1 5973	-1 2893	-0 59.23	-0 29.33	2893	July 4
55.245/	5529	2593	5577 26.805	2677	5677	27.45 57.~~285~~	57.85	2799	5819 28.525	28.47	59.33	+0.035	
5319 ~~5119~~	2709	5669	2839	5799	3029	5769	2559	5739	2889	5839	2859	-0 259	" 7
5699	2919 ~~2849~~	5919	2799	5549	2669	5849	2809	5879	2949	5809	3119		" 29
5510	2520	5440	2580	5740	2900	5830 ~~5820~~	2770	5880	2950	-1 0.10	31.70		Aug. 1
5622	2562	5362	2522	5762	2832	5702	2832	5952	3032	-0 5922	30.12	1.72	" 5
5266	5443 2806	2689 5306	5539 2846	2717 5556	5681 3246	2935 5546	5737 2926	-2 086	5907 3006	-1 156	5947 2756	2983	" 15
								27.79		29.65			
5720	2600	5830	2820	58.70	2750	5690	2850	-1 5600	2800	0.80	3310	2.10	Sept. 28
5750	2750	5710	2710	5800	2660	5830 ~~5840~~	3070	5840	3010	-0 5800	3030		Oct. 3
5452	2792	5582	3122	-4 222	3172	56.92	2912	5932	3392	5732	2832		" 5
~~5717~~ 6.58	~~3037~~ 29.78	~~5957~~ 898	~~2677~~ 18	-3 ~~007~~ 59.48	~~2827~~ 7.68	~~5977~~ 18	~~2957~~ 8.98	-2 ~~057~~ .88	~~2987~~ .28	-0 ~~057~~ 59.98	~~3087~~ .28	~~0.07~~	" 11
5830	5682 2820	-5 050	58.14 2620	-3 5750	59.18 2810	28.32 5800	5788 3130	-1 5910	58.74 2970	-1 100	5942 2930	30~~38~~ 26	" 20
55.826		27.88	27.476	27.78		57.626		29.72	30.126	30.60		+0.100	
5731	2971	-4 5841	2901	-4 151	3081	-3 031	2981	5851	2731	-0 5881	2881		Nov. 3
5485	2775	5825	2875	-3 5945	3235	-2 5765	2935	-2 085	3055	-1 0.05	2635	0.65	" 8
5747	2867	5747	2867	5787	2867	5877	3147	-1 5917	2727	-0 5937	3077	0.27	" 11
5564	2734	-5 074	2714	-4 144	2774	-3 054	2994	5844	3224	5954	2954		" 14
5798	5665 2608	-4 5788	5855 2858	2843 208	047 2548	-2 5968	5934 2868	-2 048	5949 2978	2943 5938	5943 2878	2885 248	" 16
		2791			29.01		29.85						
5912	2752	58.92	2932	-3 58.52	2702	-3 062	30.72	-1 5812	2962	-1 042	2802		" 18
5677	2887	5787	2587	5837	2777	007	3137	-2 297	2947	017	3027	227	" 22
~~5546~~ 62	~~2766~~ 82	~~5886~~ 9.02	~~2976~~ 92	~~5836~~ 52	~~2806~~ 22	-2 ~~5746~~ 62	~~2776~~ 32	-1 ~~5866~~ 82	~~3366~~ 29.82	~~0.06~~ 22	~~2876~~ 92	~~076~~ 92	" 25
5664	2784	● 5744	3034	5944	2804	5744	2774	5984	3034	054	3044	0.04	" 27
5757	5714 2797	~~2797~~ 800 5827	~~5827~~ 30 2927	2894 5877	~~5864~~ 72 2967	2814 5937	~~5899~~ 902 2947	~~2929~~ 32 5947	5984 2997	~~3061~~ 29.84 ~~037~~ 067	034 3017	2956	" 29
56.~~7~~97			28.677 8			59.207			29.637			-0.327	
8 5875	3035	5865	2915	5835	2855	5975	2985	5985	2815	-0 5935	2905	0.35	Dec 7
5831	2911	-5 0.01	3181	-4 171	3621	-3 271	2831	5761	3191	6971	3021	1.71 ~~0.196~~	" 9
5940	5882 2910	-4 5910	5925 2940	-3 5960	5989 2980	-2 5880	042 3020	-2 040	5929 3060	-1 050	5985 30.80	3002 -0.653	" 16
58.820		2952	30.120	30.12		31523 0.420		2945	30.220	30.22			

Polaris 1880

L.C. +

20 4

Apr. 5	5 58.05 40- 21.0	5 28.75	4 56.45	4 27.95	3 56.75	3 27.25	2 58.35	2 29.75	1 59.65	1 28.15	0 58.65	0 29.55	0
" 7	58.10 20.3	28.10	57.90	27.20	58.10	28.70	57.20	27.70	56.70	31.40	58.70	28.70	
" 12	57.87 18.4	25.87	56.37	25.67	57.87	28.87	58.27	27.37	58.67	28.87	59.87	29.07	0 1.67
" 20	6 0.90 16.8	58.73 25.60	27.08 55.80	56.63 26.50	26.83 56.00	57.18 26.30	27.78 58.10	57.98 30.00	28.70 59.70	58.68 27.90	29.08 59.60	59.20 27.80	28.78 0.60
~~" 30~~	~~5 55.43~~ 12.5	~~58.07 26.43~~	~~26.95 56.93~~	~~56.69 26.83~~	~~26.83 54.43~~	~~56.63 25.13~~	~~27.25 57.73~~	~~57.93 29.53~~	~~28.87 52.33~~	~~57.41 26.63~~	~~28.59 54.23~~	~~58.21 22.03~~	STET ~~27.43 1.13~~
May 3	55.42 12.5	27.02	58.42	27.62	58.12	27.12	58.32	29.42	58.92	30.22	1 0.62	30.42	1.42
" 6	54.60 11.6	26.10	56.60	30.10	4 0.00	26.70	57.40	28.50	59.40	31.30	1.10	29.20	
" 9	56.58 10.8	28.28	56.28	26.88	3 58.18	28.58	59.58	27.18	57.78	27.98	0 57.48	30.18	0.28
" 10	56.82 10.6	27.42	56.42	28.42	58.52	28.52	58.92	29.42	59.22	27.72	58.62	28.92	0.12
" 15	55.50 57.093 9.6	55.78 25.80	26.92 56.30	56.80 28.30 27.627	28.26 57.00	58.36 27.80	27.72 57.90 58.227	58.42 29.10	28.72 58.70	58.80 29.20 29.193	29.28 59.40	59.44 29.20	29.58
" 17	55.87 9.2	26.57	58.37	26.17	57.87	29.37	55.57	25.67	56.67	23.27	55.07	24.67	
" 21	56.32 8.3	24.02	54.32	25.72	56.32	25.12	56.72	26.82	59.92	29.52	1 0.42	30.22	0.72
" 23	55.72 8.0	26.62	57.22	26.92	56.92	27.32	55.82	28.22	59.62	28.52	0 58.72	28.22	
June 4	51.50 6.3	25.80	55.90	28.50	58.50	26.60	58.80	30.70	58.60	29.80	59.70	30.80	
" 10	54.32 ~~56.02~~ 5.8	55.09 26.42	25.89 55.22	56.21 25.92	26.65 55.92	56.91 26.82	27.05 57.42	56.87 28.42	27.97 56.92	58.35 26.92	27.61 59.02	58.59 30.82	0.52 28.95 0.22
" 17	54.94 5.2	26.44	56.24	26.04	56.84	27.24	57.14	26.64	57.94	27.14	56.94	27.64	
" 18	55.72 5.2	24.92	55.92	25.12	55.62	28.42	57.62	28.82	57.92	28.92	59.92	28.12	
" 19	54.28 5.2	24.58	56.68	27.98	56.98	28.48	58.78	29.18	58.28	28.68	59.28	27.68	
" 21	54.36 5.2	26.06	56.46	25.06	56.56	26.36	57.46	28.26	56.36	29.86	59.16	29.56	00.6
" 22	54.57 54.760 5.2	54.77 25.97	25.59 55.87	56.23 25.37 26.280	25.89 56.27	56.45 26.47	27.39 58.07 57.340	57.81 28.47	28.27 58.47	57.79 29.67 28.230	28.85 59.17	58.89 29.97	28.59 0.57
" 27	55.87 5.2	25.37	55.57	26.07	56.27	27.87	57.17	28.87	59.27	29.27	58.57	28.57	
" 29	55.75 5.2	26.85	55.95	26.25	56.55	26.35	57.25	27.95	57.35	27.85	59.75	29.55	
" 30	55.74 5.2	24.74	55.64	25.44	56.74	27.24	57.24	27.44	58.94	28.94	58.64	29.94	
July 1	55.26 5.2	26.06	54.86	26.36	56.26	26.36	56.46	26.26	57.86	28.26	1 0.46	30.36	
" 7	58.08 5.6	56.14 27.18	26.04 56.58	55.72 27.48	26.32 56.68	56.50 26.48	26.86 56.48	56.92 29.98	28.10 56.88	58.06 26.48	0 59.58 28.16	59.40 28.28	29.34
" 8	54.67 5.6	25.17	55.67	26.37	55.77	26.47	56.67	27.67	57.37	31.73 ~~31.87~~	58.27	28.77	
" 13	56.55 6.0	25.55	57.45	27.05	57.55	28.45	58.25	28.25	57.95	28.75	58.95	28.65	
" 18	53.78 6.5	26.58	55.18	26.28	56.28	27.18	56.58	28.08	57.28	28.08	57.18	28.28	0.08
" 26	55.60 7.7	26.60	55.90	27.00	56.40 ~~59.70~~	27.80	55.20	26.72	58.30	28.40	1 0.70	30.70	0.50
" 28	58.43 56.173 8.0	56.21 25.93	25.97 56.13	56.07 26.03 26.433	26.57 56.43	57.15 26.93	27.37 57.23 56.853	56.79 27.63	27.67 58.13	28.60 57.81 ~~29.03~~ 28.636 29.13	0 59.53	58.93 29.63	29.21

11

P.C. +

Polaris 1880.

×			×			×			× ✓			×		Le
5 56.99	5 27.49 40.8.4	4 56.79	4 26.49	3 55.59	3 26.99	2 56.69	2 27.29	1 57.39	1 29.19	1 0.79	0 31.09		July 30	Apr. 5
54.82	27.72 8.6	57.22	27.62	57.32	26.72	56.92	28.42	58.02	28.42	0 59.02	30.32	0 0.02	" 31	" 7
56.25 ✓	25.25 8.8	56.85	25.65	57.05	27.15	57.35 ✓	28.95	58.15	29.25 ~~30.86~~	1 0.85	29.75 ✓	0.45	Aug. 1	" 12
55.92	26.22 10.5	55.02	27.12	58.12	28.12	58.52	27.32	58.82	29.32	0 59.12	30.12		" 9	" 20
55.73	5594 25.53 12.8	2644 56.43	5646 27.83	2694 56.63	5694 27.13	2722 57.23	5734 27.73	2794 56.83	5784 27.43	2904 59.83	5992 31.83	3062 0.33	" 16	" 30
													" 18	May 3
58.15	27.85 14.0	58.05	27.15	57.15	26.95	57.35	26.25	57.25	29.35	1 2.45	✓ 29.65	0.25	" 23	" 6
56.21 ✓	27.71 14.3	56.61	28.41	56.31	27.51	57.91	30.01	58.01	27.11	1 1.81	30.71		" 24	" 9
58.34	28.34 17.2	58.34	27.84	55.64	26.44	56.84	26.34	58.34	26.34	0 59.84	26.34	0.84	Sept. 2	" 10
56.06 ✓	26.36 18.1	57.96	27.56 ✓	57.56	27.76	58.46	27.76	57.36	30.16	59.86	30.66	2.46	" 5	" 15
× 55.97 56.444	5695 27.97 20.1	2765 57.27	5765 26.07 ~~25.97~~ 27.174	2739 56.47	5663 26.47	2703 58.27 57.554	5777 27.57	2759 58.47	5789 28.37 28.494 ✓	2827 59.47	069 28.77	2923 1.27	" 11	" 17
57.76	26.46 22.9	55.76	26.26	57.76	28.46	57.96	28.06	2 0.36	28.06	1 0.36	32.26	0.56	" 12	" 21
56.71	28.41 23.5	56.31	24.81	57.01	28.71	57.91	28.11	1 57.81	29.01	0 59.71	31.21		" 19	" 23
57.80	28.10 25.0	58.10	28.80	56.60	26.90 ✓	57.90	27.50	59.10	29.20	58.60	28.60	0.70	" 21	June 4
53.86	25.46 25.0	58.06	28.26	59.46	29.06	59.06	29.26	2 0.26	28.46	1 0.86	29.16		" 25	" 10
57.12	5665 24.82 26.4	2665 58.42 25.4	5733 26.72	2697 57.52	5767 28.92	2841 59.22	5841 28.62	2831 0.62	5963 29.12	0 58.42 28.77	5959 29.72	3019	" 26	" 17
58.24 ✓	30.54 26.6	55.44	26.44	57.54 59.57	28.54	57.64	29.74	1 58.64	28.04	56.84	29.54	0.04	" 29	" 18
57.87	28.07 28.0	55.67	28.87	~~59.47~~	29.67	58.97	29.77	58.87	29.87	58.07	28.27	0.47	Oct. 3	" 19
57.52 ✓	28.52 29.2 ✓	56.62	28.22	58.72	28.72	59.52	28.42	58.32	29.32	59.62	32.82		" 6	" 21
56.58	25.98 29.5	57.28	28.58	58.78	28.68	58.78 ✓	27.78	58.38	28.78	58.38	28.68		" 7	" 22
× 56.81 57.0,27	5740 27.91 29.9	2820 56.01	5620 28.51 27.547	2812 57.41	5838 28.01	2872 59.31 58.627	5884 30.51	2 0.31 29.24	5890 30.91 29.077	1 0.81 29.38	5874 33.81	3062 2.01	" 8	" 27
59.02	26.52 30.8 ✓	55.92	28.82	57.52	28.52	56.82 ✓	30.32	1 59.62	27.92	0 59.72	29.92		" 10	" 29
57.37	30.27 33.9	59.17	28.07	57.57	28.07	59.67	30.57	57.77	29.47 ✓	1 0.27	31.27		" 19	" 30
57.74	27.14 36.0	56.84	27.94	58.74	27.74	58.84	28.64	2 0.14	29.84	0 57.84 ✓	28.24		" 24/25	July 1
57.99	27.99 38.4	57.49	26.39	57.99	27.79	58.39	28.59	1 57.89	29.19	1 1.19	29.49		Nov. 1	" 7
58.73	28.43 40.8	57.93 ✓	29.13	58.83	29.43	58.93	28.63	59.13	29.43 ✓	0 59.73 ~~56.43~~ ✓	31.53	1.03	" 6	" 8
58.96	29.16 43.2	59.56	29.56	58.46	27.96	57.46	29.36	59.06	31.46	59.46	30.06	0.56	" 13	" 13
6 2.68 58.927	5893 30.98 52.7	5 1.38 2864	5833 29.28 28.456	2846 57.48	5808 28.38	2827 59.68 58.541	5854 28.48	2 0.58 29.23	5917 26.18 29.070	1 0.18 29.07	5930 27.98	2978	Dec. 18	" 18
														" 26
														" 28

✓ ✓

Polaris - 1880

L C —

		✕			✕			✕			✕			✕
30	Apr - 5	-5 56.05	-5 27.55	-4 57.05	-4 ~~26.95~~ 2705	-3 59.35	-3 28.65	-2 56.85	-2 29.45	-1 58.65	-1 29.65 29.74	-1 0.45	-0 27.75	-0 0.95
31	" 7	53.60	24.70	53.90	27.10	56.20	28.30	59.40	28.10	59.50	31.20	2.00	30.70	1.90
1	" 12	56.33	23.13	58.03	28.43	57.93	28.43	58.23	29.23	57.13	28.63	0.73	30.03	
9	" 20	56.60	5564 25.60	2524 55.60	5664 26.10	27.14 56.20	5742 28.80	28.54 59.90	58.59 30.10	29.22 56.90	58.04 28.30	29.44 0.50	0.92 30.10	29.64
16	" 30	~~51.07~~	~~5473 24.07~~	~~2501 53.37~~	~~5599 16.57~~	~~53.77~~	~~22.27~~	~~56.47~~	~~29.87~~	~~-2 1.47~~	~~27.47~~	~~4.67~~	~~27.77~~	
18	May 3	56.78	28.08	59.68	27.68	58.28	27.68	58.68	29.68	-1 59.08	30.18	-0 58.88	28.28	
23	" 6	53.80	~~26.90~~ 2700	57.30	24.50	58.50	30.80	-3 1.40	29.20	58.70	32.40	59.80	26.90	0.80
24	" 9	55.72	27.42	56.42	25.92	58.52	27.42	-2 58.52	28.92	59.12	28.72	59.22	29.32	
2	" 10	55.58	26.38	57.28	26.38	~~57.08~~ 5698	28.28	58.68	28.68	59.28	29.88	-1 ~~0.68~~ 078	30.78	
5	" 15	✕ 56.10 55.618	5560 26.10 25	26.98 56.10	57.36 25.40 26.507	25.98 57.50	57.98 26.90	28.22 57.70 58.818	59.00 29.00	29.10 58.90	59.02 29.10 29.794 30.06	-0 59.00	59.52 31.40 -0.062	29.34 1.00 1.83
11	" 17	53.33	22.93	53.83	22.73	55.33	25.63	54.43	26.13	58.33	27.13	59.63	30.93	~~1.83~~
12	" 21	54.28	25.28	56.48	26.98	56.08	25.88	57.68	27.28	58.28	28.48	57.58	30.88	
19	" 23	54.58	25.38	57.08	25.68	55.68	25.18	58.68	28.28	-2 0.08	28.28	-1 1.08	27.98	1.78
21	June 4	56.70	26.70	58.70	28.30	57.70	27.30	56.50	27.90	-1 ~~58.60~~ 5730	28.00	-0 58.40	29.30	1.80
25	" 10	~~56.68~~ 5678	5511 25.08	25.07 53.28	55.87 24.88	25.71 56.78	56.31 27.28	26.25 57.78	57.01 28.38	27.59 58.18	58.17 27.78	27.93 58.38	59.01 30.48	29.91
26	" 17	54.16	24.36	55.86	25.66	55.66	25.66	56.66	27.66	57.66	27.96	59.36	29.46	1.16
29	" 18	53.98	25.18	55.68	26.28	57.68	27.58	57.88	27.38	57.08	27.68	58.78	29.98	1.88
3	" 19	58.22	25.12	55.92	24.82	57.52	27.12	57.02	29.72	57.62	27.42	-1 0.12	29.72	0.42
6	" 21	54.74	25.74	56.44	24.94	56.94	28.14	57.04	27.74	57.74	29.24	-0 56.74	30.04	
7	" 22	55.73 ~~54.50~~ 55.250	5537 25.83 2613	2525 57.13	5621 27.13 25.740	25.77 57.53	5707 27.13 2603	27.13 55.93 56.960	5691 28.03	28.11 58.63	57.75 28.73 28.070	28.21 58.73	58.75 28.33	29.51 -0.730
8	" 27	54.93	~~26.73~~	55.63	26.73	55.73	~~29.43~~	58.93	28.03	57.43	27.53	57.43	29.73	0.43
10	" 29	54.75	28.85	55.15	25.95	55.95	26.45	56.95	27.15	57.55	29.65	59.35	29.35	0.25
19	" 30	55.06	26.16	55.86	25.66	56.46	26.86	57.76	28.86	58.16	28.06	58.66	28.46	0.56
24/25	July 1	54.44	25.64	54.84	25.74	56.24	26.14	57.74	27.94	58.24	28.54	59.34	29.54	0.34
1	" 7	56.52	55.14 24.72	26.42 55.92	55.48 27.92	26.40 57.22	56.32 26.62	27.10 ~~54.02~~ 5732	57.08 28.62	28.12 59.32	58.14 29.62	28.68 59.82	58.82 29.92	29.40 0.52
6	" 8	52.73	24.87	56.23	26.13	56.73	27.03	57.13	28.63	58.03	28.63	59.53	28.53	0.13
13	" 13	55.45	25.45	55.75	27.45	57.35	27.95	57.75	28.55	57.85	29.35	-1 0.45	29.75	0.35
18	" 18	55.82	27.62	56.12	24.52	56.92	27.52	55.32	28.02	58.02	27.22	-0 57.72	28.02	
	" 26	56.20	25.60	57.00	26.70	57.20	28.00	58.50	27.90	58.70	29.30	-1 0.10	27.90	
	" 28	✕ 58.97 55.487	55.83 25.87	25.88 ~~58.37~~ 5737	56.69 26.67 26.347	26.29 57.27	57.09 27.27	27.55 55.87 57.327	56.91 26.57	27.93 56.97	57.91 28.97 28.687 28.69	-0 58.27	59.21 29.67	28.77 0.37 -0.237

✓ ✓

73

L. C. –

Polaris. 1880

×			×			×			×			×	
-5 5491	-5 2681	-4 ~~5641~~ 5671	-4 2591	-3 5821	-3 2711	-2 5791	-2 2811	-1 5881	-1 2821	-0 5951	-0 2931	-0 1.51	July 30
5628	2718	5728	2708	5618	2618	5798	2838 2818	5908	2878	5858	2968		" 31
5665	2685	5675	2825	5825	2595	5775	2835	5775	2985	5825	2985		Aug. 1
5578	2568	5798	2608	5828	2698	5648	2788	5868	2958	5988	3048	0.08	" 9
5577	5588 ~~2547~~ 2577	2640 5637	5696 2457	2638 5607	5740 2787	2682 5717	5746 2897	2830 5957	5878 3037	2936 5957	5916 2867	2960	" 16
5755	2885	5675	2745	5805	2785	5655	2965	5915	2835	5865 ~~5875~~	2885		" 23
5429	2589	5639	2509	5679	2959	5709	2699	-2 199	2739	-1 419	3059	2.09	" 24
5486	2606	5616	2676	5826	2696	5906	2816	-1 5726	2756	-0 5936	2946		Sept. 2
5664	2614	5644	2694	5944	2844	-3 054	2874	5914	2884	5844	3034		" 5
× 5683 55.956	5603 2703	2679 5863	5687 2513 26.526	2627 5753	5801 2923	-2 5943 2841 57.996	5853 2673	2805 5763	5903 2683 28.576	2779 5823	5979 2913	2967 +0.194	" 11
5654	2844	5654	2784	5704	2684	5884	2694	-2 024	2974	-1 184	2914		" 12
5649	2459	5589	2709	5829	2729	5899	2949	-1 5819	3089	-0 5809	3009	0.29	" 19
5600	2760	5700	2670	5520	2740	5750	2920	-2 100	2960	-1 030	3050		" 21
5484	2714	5994	2754	-4 164	2674	5884	2654	-1 5864	3084	-0 5684	3074	1.04	" 25
5618	5601 2998	2755 5848	5757 2898	-3 5668 2763	5777 2568	2679 5598	5803 2838	2811 5918	5945 2978	3017 5948	5931 2918	2993 1.18	" 26
5656	2806	5746	2886	5936	2826	5926	2766	5796	2956	5786	2626		" 29
5603	2923	5773	2713	5763	2793	-3 053	2773	5913	3063	-1 103	2913		Oct 3
5808	2788	5838	2788	-4 018	2958	-2 5938	2828	5918 ~~5898~~	2848	-0 5828	2948	1.38	" 6
5702	2682	5682	2742	-3 5812	2792	5692	2802	5712	2962	-1 032	3042	0.12	" 7
× 5709 56.483	5696 2799	5769 2800 5739	5756 3089 28.033	2844 5839	5874 3399	2954 5869 58.493	5896 2949	2824 5899	5844 3239 ~~30.161~~	-0 5939 3014	5938 2769	2860 −0.023	" 8
5858	2738	5918	2728	5768	2628	5848	2988	5878	153 2818	5928	2888	0.78	" 10
5773	2683	5703	2663	5673	2783	-3 033	3343	-2 153	3083	-1 093	2953	0.13	" 19 (18)
5806	2746	5746	2846	5606	2616	-2 5706	3016	-1 5966	2986	-0 5826	2996	1.06	" 24/25
5811	2611	5721	2671	5791	2771	5861	2921	5971	2991	-1 011	2881	0.31	Nov. 1
5897	2787	5817	2887	5747	2947	5897	2947	5997	2907	037	2887		" 6
5924	2844	5824	2926	5964	2954	5974	2804	5984	2974	014	2934		" 13
-6 042 58.730	5873 2802	2744 5882	5802 2672 27.~~990~~ 704	2770 5822	5767 2902	-3 012 2800 59.044	5904 2952	2996 5842	5970 3142 29.859	-0 5992 2986	5986 3262	2972 012 −0.116	Dec 18

√

δ = 88 40 44 Polaris 1881

U.C. +

	88 ×			×			×			×				Date
ly 30	5 59.03	5 27.66	4 58.54	4 27.52	3 56.35	3 26.34	3 0.75	2 29.96	1 58.50	1 29.47	0 58.60	0 30.32 0	×	Jan. 15
31	40 55 59.67	28.60	59.55	30.06	58.23	30.90	0.14	30.25	58.33	29.45	59.43	30.32		" 25
g.1	55 59.29	29.73	5 0.69	31.53	4 0.19	28.98	2 58.64	28.34	2 0.94	30.15	1 0.15	29.49		" 26
9	55 56.83	27.46	4 59.63	30.13	3 57.83	29.56	58.53	30.54	1 57.16	29.64	0 58.93	31.56 0	1.99	" 27
16	55 6 1.23	59.21 33.20 40 55	5 0.78 29.33	59.84 29.81	29.81 59.21	58.36 29.41	29.04 59.25	59.46 28.35	2 2.01 29.49	59.39 27.96 29.38	1 0.70 59.56	32.22 30.78		" 28
23	55 5 59.89	30.17	4 58.31	27.56	58.26	28.14	59.59	31.14	1 58.97	31.06	0 58.69	29.67		" 29
24	55 6 0.37	30.47	5 0.36	30.47	4 0.20	29.66	59.24	31.15	2 0.73	29.65	59.32	29.17		" 31
t.2	55 1.71	30.92	4 59.21	28.36	3 59.93	30.02	53.86	28.57	0.20	30.44	59.11	28.80		Feb. 2
5	54 0.86	29.36	5 0.07	27.58	59.53	28.33	3 0.41	31.04	1 59.85	28.78	1 1.29	29.95		" 3
11	54 1.93 54 ~~0.25~~	0.95 28.21 40 54	4 58.53 29.83	59.30 30.42 29.344	28.88 58.74	59.34 30.43	2 58.63 29.32 59.104	58.75 30.69 30.52	2 0.11	59.97 28.94 29.~~X~~54 29.77	0 58.38 59.36	30.11 29.54		" 4
12	2.71	.081 30.70	5 0.06	31.83	59.19	27.27	59.68	30.51	0.06	5 29.32	53.34	27.37		" 7
19	54 1.76	29.61	4 56.59	25.74	58.60	29.64	3 2.43	27.88	1 58.04	28.95	57.08	34.20		Mar. 15
21	46 1.58	29.38	58.48	29.58	58.98	28.88	2 58.88	31.58	57.28	30.08	1 2.38	28.48		Mar. 31 Apr. 1
25	40 5 58.73	28.23	58.93 59.18	26.73	57.33	28.73	59.63	32.33	2 1.33	31.53	0 56.23	29.03 0	0.23	Apr. 2
26	40 59.28	0.81 29.08 40 44	29.40 59.88	58.79 29.18	28.61 58.58	58.54 30.48	29.00 59.78	0.08 29.08 30.28	1 58.18	58.98 25.88	29.15 59.28 58.06	28.58 29.53	0.58	" 3
29	40 58.76	29.86	5 0.36	28.06	58.46	29.36	57.66	27.96	59.26	30.46	1 1.46	28.96	0.66	" 4
t3	40 59.20	25.80	1.00	31.00	56.10	29.50	3 0.20	30.20	59.20	27.50	0 59.60	29.30		" 7
6	39 6 0.76	26.86	4 59.26	26.16	57.46	32.96	2 58.06	29.46	2 1.06	26.86	58.66	28.36		" 9
7	38 5 59.83	28.53	57.63	28.13	57.93	29.03	59.33	28.93	1 59.33	29.43	58.93	29.33	0.73	" 16
8	36 59.66 35 0.227	59.64 29.76 40 38	28.16 57.26	59.10 27.26 28.367	28.12 57.76	57.54 28.46	3 0.86 29.86 59.651	59.22 29.66	2 0.26 29.24	59.82 28.16 28.817	28.48 59.46 59.62	29.36 29.06		" 18
10	57.67	30.27	58.77	28.37	59.47	28.47	2 57.47	26.17	1 57.37	29.87	59.67	31.97		" 20
19(18)	35 59.69	26.79	57.19	29.49	57.89	28.09	58.49	29.99	59.69	29.89	1 0.19	28.39		" 27
24/25	32 58.78	29.08	58.68	30.48	56.98	27.08	56.58	27.68	58.18	30.48	0.48	28.38	0.38	" 30
ro.1	32 56.56	26.56	57.56	26.86	56.66	28.46	58.36	30.46	59.26	29.56	0 59.76	28.76		May 24
6	26 6 0.17	29.67	58.67	28.07	57.67	28.97	59.77	28.17	58.47	27.77	1 1.67	28.97		June 5
13	24 5 58.20	26.70	58.30	28.68	58.00	28.70	59.40	29.10	59.00	27.50	0.00	31.60	0.60	" 6
c18	24 58.13 24 58.457	58.46 26.53 40 28	27.94 57.23	58.06 25.63 28.226	28.22 56.83	57.64 27.73	28.21 57.83 58.229	58.27 27.53	28.44 57.83	58.83 29.13 29.171	59.08 29.17 ~~2.33~~ 0.59	30.23 29.76	0.23 4.13	July 12

H.C. —

Polaris. 1881

													Date	Se.
-5 56.26	-5 ~~27.50~~ 2783	-4 56.93	-4 26.25	-4 0.17	-3 30.36	-2 57.10	-2 27.55	-2 0.15	-1 22.06	-0 58.16	-0 32.18	-0 0.48	Jan 15	5
59.40	29.55	58.50	28.10	-3 59.06	29.79	-3 0.87	28.92	-1 59.53	29.10	-1 0.23	31.30	0.49	〃 25	6
-6 1.02	30.96	59.26	29.89	-4 0.44	23.95	0.06	30.67	-2 1.12	30.16	-0 59.03	30.66	0.95	〃 26	
-5 57.24	27.81	56.84	28.82	1.83	30.01	-2 58.77	29.73	-1 57.17	29.73	-1 0.25	31.60		〃 27	5
58.92	5857 28.56 28.88	-5 2.74	5885 33.34	2928 2.44	0.79 30.17	2886 59.60	5928 26.36	2865 59.91	5958 29.49	2951 1.07	1.95 30.02	3014 1.49	〃 28	
57.50	27.56	-4 58.06	29.56	-3 58.49	28.98	57.79	30.01	-2 0.76	29.02	1.71	30.58	1.35	〃 29	
-6 0.70	31.46	58.66	29.61	-4 0.24	29.11	57.66	30.38	-1 59.86	29.76	1.35	30.93	1.20	〃 31	
-5 58.03	29.69	57.64	27.64	-3 58.36	28.54	58.28	28.64	-2 1.64	30.01	1.75	31.59	1.35	Feb. 2	
57.39	27.39	58.49	31.74	59.80	29.10	-3 1.19	30.47	2.78	29.79	-0 59.01	29.72	0.24	〃 3	
-6 1.91 58.837	5911 29.04 29.03	-5 0.37	5864 29.70 29.465	2965 59.70	5932 28.34 28.81	-2 58.14 58.946	5861 30.14 29.93	-1 58.94	0.80 28.24 29.436	2936 59.67	0.70 30.81	3073 0.14 -0.570	〃 4	
-5 58.93	29.88	-4 57.51	28.01	-4 0.68	30.26	58.57	30.10	-2 0.85	28.81	-1 0.25	29.56	0.64	〃 7	
56.09	30.90	-5 1.54	27.53	0.59	30.40	57.74	28.74	-1 59.12	27.45	0.99	28.09	1.30	Mar. 15	
59.62	30.92	-4 59.12	27.92	-3 59.82	28.32	-3 0.62	28.22	-2 1.02	28.92	0.72	29.52	0.72	Mar. 31 Apr. 1	
59.77	27.77	58.97	28.67	59.17	30.27	1.07	28.77	-1 57.67	28.27	-0 57.97	30.57		Ap. 2	
57.42	5837 28.92	2968 59.82	5939 27.12	2785 57.62	5958 29.82	-2 2981 59.82	5956 28.92	-2 28.95 0.22	5978 31.02	2889 58.52	5969 28.72	2929	〃 3	
-6 0.54	28.24	57.84	27.84	-4 0.04	29.24	59.04	29.04	0.54	29.84	59.04	30.14		〃 4	
-5 57.80	28.80	59.40	29.40	-3 57.80	28.70	57.10	28.50	2.40	27.20	59.90	30.70	1.00	〃 7	
57.34	30.84	57.44	28.74	58.84	29.44	58.04	31.34	-1 57.54	30.84	57.74	27.04	0.74	〃 9	
58.07	27.17	58.77	27.57	57.47	28.37	-3 0.27	29.17	58.17	30.37	-1 0.07	31.57		〃 16	
55.24 58.082	5780 26.04	2822 57.34	5816 25.24 27.804	27.76 57.64	5836 28.34	-2 2882 59.34 59.161	58.76 30.34	-2 2968 0.54	5984 32.84 29.556	30.22 1.04	5956 33.64	3062 0.34 -0.254	〃 18	-5
55.13	27.43	58.33	29.83	-4 1.33	26.63	57.03	28.73	-1 58.73	30.73	-0 59.53	31.93	0.23	〃 20	
55.01	27.71	57.21	29.01	-3 59.61	28.21	59.21	29.21	58.21	29.71	59.41	31.81	1.41	〃 27	
57.02	27.12	55.42	28.02	58.32	27.52	59.52	30.62	-2 0.32	28.52	-1 0.82	30.12		〃 30	-6
53.84	26.54	57.74	28.04	56.74	27.94	58.54	28.64	-1 59.14	30.84	-0 57.96	30.14	2.84	May 24	-5
57.23	27.63	57.53	30.03	59.03	28.23	-3 0.43	30.03	59.03	28.23	58.93	30.13	1.53	June 5	
57.00	30.70	57.40	28.00	57.80	28.00	-2 58.00	28.70	59.60	29.40	59.90	31.20		〃 6	
57.77 56.143	56.14 27.77	27.84 54.87	56.93 28.07 28.714	28.71 59.17	5886 28.17	-3 2781 2.27 59.286	5929 28.17	2916 58.47	5907 29.27 29.529	2953 59.67	5946 ~~29.37~~ 3037	3067 -0.614	July 12	

Polaris - 1881

Le. C. +

Date														Date
	×			×			×	✓		×			×	
Jan. 15	5 58.73	5 29.03	4 59.93	4 30.93	3 59.43	3 29.43	2 57.83	2 28.43	1 59.63	1 28.13	0 59.93	0 30.33	0	Apr. 1
" 25	6 0.96	29.76	58.56	28.96	56.36	27.36	59.06	27.06	58.46	27.76	57.66	29.16		" 16
" 26	0.96	28.36	57.46	28.86	4 0.16	30.36	59.66	29.96	58.86	28.16	59.86	29.26	0.26	" 21
" 27	5 58.10	28.20	58.40	28.70	3 57.40	30.10	59.60	28.40	2 0.40	29.50	1 0.30	30.80	1.00	" 23
" 28	55.86	58.92 27.96	28.66 56.66	58.20 26.66	28.82 56.96	58.06 27.96	29.04 57.96	58.82 27.16 28.20	1 59.36	59.34 28.76	28.46 0.96	59.74 30.36	29.98	June 17
" 29	56.25	28.85	58.25	27.25	58.05	27.75	58.95	28.55	59.05	28.95	0 58.35	29.45	0.85	" 21
" 31	56.65	26.35	58.05	27.25	57.65	28.15	59.85	29.15	58.35	28.75	58.65	29.85	1.05	" 22
Feb. 2	58.29 ✓	28.29	58.39	26.99	58.59	27.79	58.09	29.19	58.49	29.59	58.59	29.79	0.49	" 23
" 3	57.92	27.42	57.52	27.22	56.52	28.32	58.32	30.12	58.52	28.42	58.02	29.82	0.02	" 25
" 4	× 58.23 58.195	56.27 27.73	27.73 57.73	57.99 27.83 28.065	27.31 58.73	57.91 28.03	28.01 55.13 58.445	58.07 28.73	29.15 59.33	58.75 31.13 28.915	29.37 59.03	58.53 29.93	29.77 2.43	July 6
" 7	58.24	28.64	57.74	28.14	58.04	27.44	57.34	28.34	58.34	28.44	1 0.24	29.04		" 9
Mar. 15	57.60	26.60	56.90	26.70	57.00	28.50	58.40	28.70	58.50	28.60	59.70 ~~3.10~~ ✓	30.20	0.30	" 14
Mar. 31 Apr. 1	56.31 57.383	57.38 25.11	26.78 56.41	57.02 27.91 27.583	27.58 56.91	57.32 28.01	27.65 58.41 58.050	58.05 28.21	28.42 59.01	58.62 30.31 29.117	29.12 5 1.21	1.52 30.71	29.98	" 15
Ap. 2														
" 3														
" 4														
" 7														
" 9														

Le. C. −

" 16	×			×			×			×			×	
" 18	−5 58.87 ~~57.27~~	−5 28.77	−4 58.27	−4 27.07	−3 58.67	−3 29.37	−3 0.67	−2 30.87	−1 57.97	−1 28.97	−1 2.37	−0 30.37	−0 1.17	Apr. 1
" 20	56.24	26.54	57.64	28.14	57.54	28.24	−2 58.44	29.24	−2 0.04	29.14	−0 59.54	28.54	1.94	" 16
" 27	54.94	29.14	59.74	29.94	59.14	34.54	58.44	29.14	0.64	28.64	58.34	29.64		" 21
" 30	−6 2.10	28.30	59.30 ~~59.00~~	27.60	−4 0.00	29.60	56.90	29.60	−1 58.60	31.40	−1 0.30	27.50		" 23
May 24	−5 56.14	57.34 25.34	27.62 58.04	58.54 26.94 27.94	−3 56.94	58.46 27.74	29.90 57.14	58.32 29.14	29.60 59.14	59.28 29.34	29.50 0.14	0.14 29.64	29.14 0.84	June 17
June 5	56.35	27.85	56.85	27.15	57.85 ✓	27.65	58.65	28.65	59.65	29.45	0.25	30.25		" 21
" 6	58.15	28.15	56.45	28.45	58.85 ~~56.95~~	27.75	58.65	29.05	58.45	29.45	−0 58.85	29.35		" 22
July 12	57.81	27.31	56.91	28.41	58.51	28.41	58.51	28.41	59.01	29.91	59.91	29.41		" 23
	54.88 ~~55.88~~	26.98	55.48	27.48	55.88	26.48	59.58	28.98	58.88	27.38	59.08	30.18		" 25
	✓ 56.17 57.165	56.87 26.57	27.37 55.87	56.31 30.57 ~~31.87~~ 28.175 ~~30.969~~	28.67 59.47	57.73 29.57 28.86	27.97 58.87 58.585	58.85 28.07	28.63 59.77	59.15 30.67 29.435	29.37 57.37	59.09 29.77	29.79 +0.215	July 6
	57.86	27.26	56.16	27.76	57.96	~~30.16~~	58.46	28.26	58.16	28.76	59.16	29.96	0.16	" 9
	56.40	26.90	57.80	27.00	58.40	28.20	59.50	28.40	59.50 ~~59.90~~	29.60	59.70	29.30		" 14
	58.09 57.450	57.45 27.69	27.28 56.79	56.92 28.29 27.683	27.68 57.29	57.88 27.99	28.78 58.49 58.817	58.82 26.29	27.65 58.69	58.92 29.29 29.217	29.22 58.69	59.18 30.39 −1	29.88 0.49 −0.117	" 15

Polaris			1879				1880				1881			
			δ = 88° 40′ 13″					δ = 88° 40′ 24″				δ = 88° 40′ 44″		
			log. cos δ = 8.36~~25956~~ 55993				log cos δ =	8.3646004			log cos δ = 8.3627782			
1+	1	+	5 5608 2.5375476	5541 2.5507296	8.2632	8.2476	5785 2.5537010	5603 2.5514866	8.2852	8.2430	5981 2.5560732	5722 2.5529358	8.2957	8.2
	2		5 2623 2.5185239	2573 2.5128578	7.5705	7.5589	2735 2.5150123	2646 2.5138300	7.5790	7.5584	2893 2.5171035	2742 2.5151052	7.5837	7.
	3		4 5597 2.4712477	5584 2.4710569	6.8683	6.8652	5743 2.4733848	5684 2.4725224	6.8863	6.8726	5902 2.4757002	5726 2.4731365	6.8941	6.
v+	4		4 2651 2.4257135	2572 2.4244242	6.1846	6.1663	2736 2.4270964	2670 2.4260230	6.1901	6.1748	2873 2.4293162	2810 2.4282968	6.1958	6.
	5		3 5710 2.3749316	5645 2.3737393	5.5021	5.4870	5782 2.3762484	5743 2.3755356	5.5062	5.4971	5828 2.3770876	5802 2.3766135	5.4937	5.
	6		3 2735 2.3167040	2703 2.3160333	4.8118	4.8043	2766 2.3173528	2767 2.3173738	4.8079	4.8081	2909 2.3203333	2888 2.3198969	4.8207	4.
3+	7		2 5812 2.2507127	5753 2.2492718	4.1334	4.1198	5813 2.2507371	5796 2.2503224	4.1242	4.1202	5916 2.2532411	5866 2.2520273	4.1307	4.1
	8		2 2797 2.1701737	2770 2.1693805	3.4338	3.4275	2834 2.1712583	2843 2.1715217	3.4345	3.4365	2959 2.1749026	2863 2.1721065	3.4489	3.4
	9		1 5825 2.0728011	5830 2.0729847	2.7441	2.7453	5843 2.0734617	5858 2.0740114	2.7420	2.7454	5940 2.0770043	5912 2.0759847	2.7528	2.7
4+	10		1 2912 1.9499752	2899 1.9493412	2.0681	2.0651	2926 1.9506569	2912 1.9499752	2.0666	2.0634	2918 1.9502675	2936 1.9511432	2.0561	2.
	11		0 5949 1.7744440	5901 1.7709256	1.3805	1.3694	5950 1.7745170	5943 1.7740057	1.3776	1.3760	5944 1.7740788	5947 1.7742979	1.3704	1.3
	12		0 2955 1.4705575	2935 1.4676081	+0.6857	+0.6811	3003 1.4775553	2946 1.4692327	+0.6953	+0.6821	2973 1.4731949	2960 1.4712917	+0.6854	+0.6
5	13		0 0.00 0.0000000	−0 0.13 9.1139434	+0.0000	−0.0030	−0 0.03 9.4771213	−0 0.22 9.3424227	−0.0007	−0.0051	−0 0.34 9.5314789	+0 0.14 9.1461280	−0.0078	+0.0
	14	−	0 2971 1.4729027	2928 1.4665711	−0.6894	−0.6795	2957 1.4708513	2954 1.4704105	−0.6846	−0.6839	3049 1.4841574	2991 1.4758164	−0.7030	−0.6
	15	−	0 5922 1.7724684	5875 1.7690079	1.3743	1.3633	5940 1.7737864	5934 1.7733475	1.3753	1.3739	027 1.7801012	5993 1.7776443	1.3896	1.3
4+	16	−	1 2849 1.9468942	2838 1.9463540	2.0535	2.0509	2946 1.9516289	2879 1.9483641	2.0712	2.0557	2950 1.9518230	2898 1.9492924	2.0635	2.0
	17	−	1 5844 2.0734984	5804 2.0720292	2.7485	2.7392	5897 2.0754375	5845 2.0735351	2.7545	2.7424	5981 2.0784931	5890 2.0751819	2.7623	2.7
	18	−	2 2820 2.1708482	2793 2.1700563	3.4391	3.4329	2882 2.1726613	2834 2.1712583	3.4456	3.4345	2927 2.1739725	2859 2.1719896	3.4415	3.
9+	19	−	2 5804 2.2505176	5759 2.2494185	4.1316	4.1211	5865 2.2520030	5779 2.2499073	4.1362	4.1163	5910 2.2530956	5881 2.2511757	4.1293	4.
	20	−	3 2756 2.3171437	2681 2.3155715	4.8166	4.7992	2826 2.3186059	2762 2.3172692	4.8218	4.8069	2882 2.3197721	2823 2.3185433	4.8145	4.
	21	−	3 5744 2.3755539	5660 2.3740147	5.5100	5.4905	5806 2.3766864	5730 2.3752977	5.5117	5.4941	5938 2.3790879	5776 2.3761388	5.5191	5.4
8+	22	−	4 2701 2.4265275	2613 2.4250938	6.1962	6.1758	2768 2.4276159	2713 2.4267227	6.1975	6.1848	2865 2.4291868	2790 2.4279727	6.1939	6.1
	23	−	4 5644 2.4719368	5598 2.4712624	6.8792	6.8685	5719 2.4730342	5669 2.4723029	6.8807	6.8692	5839 2.4747843	5774 2.4738372	6.8796	6.
	24	−	5 2570 2.5128178	2586 2.5130311	7.5582	7.5619	2712 2.5147071	2682 2.5143086	7.5737	7.5667	2873 2.5168393	2772 2.5155029	7.5791	7.5
9	25	−	5 5555 2.5509007	5562 2.5509862	−8.2509	−8.2525	5627 2.5517707	5660 2.5521843	−8.2486	−8.2562	5800 2.5538830	5752 2.5533003	−8.2539	−8.2

8.2360
7.5489
6.8535
6.1812
5.4877
4.8159
4.1191
3.4268
2.7464
2.0603
1.3711
+0.6824
+0.0032
-0.6896
1.3817
2.0515
2.7413
3.4258
4.1111
4.8009
5.4817
6.1766
6.8646
7.5558
-8.2429

		U C.					L. C.				
		(1									
(1)		+8.2632	+8.2852	+8.2957	+8.2814	0.91810	+8.2476	+8.2430	+8.2360	+8.2422	0.91604
		7.5705	7.5790	7.5837	7.5777	0.87954	7.5589	7.5584	7.5489	7.5554	0.87826
	x	6.8683	6.8863	6.8941	6.8829	0.83777	6.8652	6.8726	6.8535	6.8638	0.83656
	⊕	6.1846	6.1901	6.1958	6.1902	0.79170	6.1663	6.1748	6.1812	6.1741	0.79057
		5.5021	5.5062	5.4937	5.5007	0.74042	5.4870	5.4971	5.4877	5.4906	0.73962
(2)	x	4.8118	4.8079	4.8207	4.8135	0.68246	4.8043	4.8081	4.8159	4.8094	0.68209
	⊕	4.1334	4.1242	4.1307	4.1294	0.61589	4.1198	4.1202	4.1191	4.1197	0.61487
		3.4338	3.4345	3.4489	3.4391	0.53644	3.4275	3.4365	3.4268	3.4303	0.53533
	x	2.7441	2.7420	2.7528	2.7463	0.43875	2.7453	2.7454	2.7464	2.7457	0.43865
(3)	⊕	2.0681	2.0666	2.0561	2.0636	0.31463	2.0651	2.0634	2.0603	2.0629	0.31448
		+1.3805	+1.3776	+1.3704	1.3762	0.13868	1.3694	1.3760	1.3711	1.3722	0.13742
	x	+0.6857	+0.6953	+0.6854	0.6888	9.83809	+0.6811	+0.6821	+0.6824	+0.6819	9.83372
	⊕	+0.0000	-0.0007	-0.0078	-0.0028	7.44716	-0.0030	-0.0051	+0.0032	-0.0016	7.20412
		-0.6894	-0.6846	-0.7030	-0.6923	9.84029	-0.6795	-0.6839	-0.6896	0.6843	9.83525
(4)	x	-1.3743	-1.3753	-1.3896	1.3797	0.13978	1.3633	1.3739	1.3817	1.3730	0.13767
	⊕	2.0535	2.0712	2.0635	2.0627	0.31444	2.0509	2.0557	2.0515	2.0527	0.31233
		2.7485	2.7545	2.7623	2.7537	0.44014	2.7392	2.7424	2.7413	2.7410	0.43791
	x	3.4391	3.4456	3.4415	3.4421	0.53682	3.4329	3.4345	3.4258	3.4311	0.53543
(4)	⊕	4.1316	4.1362	4.1293	4.1324	0.61620	4.1211	4.1163	4.1111	4.1162	0.61450
		4.8166	4.8218	4.8145	4.8176	0.68283	4.7992	4.8069	4.8009	4.8023	0.68145
	x	5.5100	5.5117	5.5191	5.5136	0.74144	5.4905	5.4941	5.4817	5.4888	0.73948
	⊕	6.1962	6.1975	6.1939	6.1959	0.79210	6.1758	6.1848	6.1766	6.1791	0.79093
		6.8792	6.8807	6.8796	6.8798	0.83758	6.8685	6.8692	6.8646	6.8674	0.83679
		7.5582	7.5737	7.5791	7.5703	0.87911	7.5619	7.5667	7.5558	7.5615	0.87861
(1)	⊕	-8.2509	-8.2486	-8.2539	-8.2511	0.91651	-8.2525	-8.2562	-8.2429	-8.2505	0.91648

1879phae.proj.156O

Reversed Aug. 17 1881

1879phae.proj.156O

1879phae.proj.156O

9,30 $2\overset{5}{0}$ of 2