

KG
11366
v.693.

No. 1

Final Values
of
n and c.

From July 1 1872 to Dec. 4 1876.

Reinvestigation of Block Errors and of Instrumental Constants.

Let
 $n_1 = n$ from equatorial stars and polar stars U.C.
 $n_2 = n$ from equatorial stars and polar stars L.C.
 $n_3 = n$ from zenith stars and polar stars U.C.
 $n_4 = n$ from zenith stars and polar stars L.C.
 $n_5 = n$ from equatorial and zenith stars

$$\frac{\sum_{\text{no stars}} [n_1 + n_2]}{2} + \frac{\sum_{\text{no stars}} [n_3 + n_4]}{2} = \text{the mean of } n_1 + n_2 \text{ and of } n_3 + n_4 \text{ excluding all cases in which the division is less than } 2.00$$

Explanation of Work.

- The values $\Delta \log \delta$, $\sec \delta$ and $(T-R.A.)$ are copied from the books containing the determination of the Instrumental Constants [mean values for equatorial and zenith groups and actual values for polar stars]
- Column I under corr. for rate contains the reduction of the values of $(T-R.A.)$ for polar stars to the mean time of the equatorial group and Column II contains the reduction to the mean time of the polar group.
- The Columns $\frac{(T-R.A.)}{I}$ $\frac{(T-R.A.)}{II}$ contain the corrected values.
- The Column $\frac{\Delta \log \delta}{I}$ contains the difference between the $\Delta \log \delta$ for the polar stars and equatorial stars.
- The Column $\frac{\Delta(T-R.A.)}{I}$ contains the difference between the values of $T-R.A.$ for equatorial and polar stars.
- Columns $\frac{\Delta \log \delta}{II}$ and $\frac{\Delta(T-R.A.)}{II}$ contain similar quantities for zenith stars and polar stars.
- The Columns $\frac{n = n_1 \dots n_2}{n = n_3 \dots n_4}$ are derived by dividing $\Delta(T-R.A.)$ by $\Delta \log \delta$
- The two last Columns are explained by the headings. Whenever it becomes necessary to introduce a value of c , the values of n are corrected by multiplying the value of c by $\frac{\Delta \log \delta}{\Delta \sec \delta}$ instead of applying $c \sec \delta$ to $T-R.A.$ before the solution for n .

1872haae.proj.1697

872		$L' = +120$ $L = +170$		Corr		M.R.A.		Δland		$\Delta (M.R.A.)$		Δland		$\Delta (M.R.A.)$		Final	
Ra	tang. d. sec	M.R.A.	I	II	I	II	I	II	I	II	I	II	I	II	I	II	
16.1	+1.17	-1.97	$n_5 = -33$		-2.04		$\sqrt{-5}$		$\sqrt{-5}$								
16.2	+1.59	-1.48	$n_5 = -33$		-2.07		$\sqrt{-5}$		$\sqrt{-5}$								
15.2	+2.45	-1.14	+11	+11	-1.03	-1.03	+2.28	+0.94	+0.89	+0.48	-41	-41	-41	-41	-41	-41	
16.3	+4.07	-0.33	-02	-01	-0.35	-0.34	+3.90	+1.62	+2.51	+1.14	-41	-41	-41	-41	-41	-41	
16.5	+2.61	-0.98	-05	-04	-1.03	-1.02	+2.49	+0.94	+1.15	+0.46	-39	-39	-39	-39	-39	-39	
16.6	+4.59	-0.29	-06	-05	-0.35	-0.34	+4.42	+1.62	+3.02	+1.14	-39	-39	-39	-39	-39	-39	
17.0	+7.34	+1.11	-11	-10	+1.00	+1.01	+7.17	+2.97	+5.78	+2.49	-41	-41	-41	-41	-41	-41	
14.8	-5.10	-4.20	+16	+17	-4.04	-4.03	-5.27	-2.07	-6.86	-2.55	-39	-39	-39	-39	-39	-39	
July 3																	
16.2	+25	+2.39	$n_5 = -34$		-2.30												
16.3	+1.59	+2.81			-2.28												
15.8	+4.78	+3.83	+02		+3.85	+3.85	+4.53	+1.46	+3.19	+1.01	-32	-32	-32	-32	-32	-32	
16.2	+4.07	+3.79	00		+3.79	+3.79	+3.82	+1.40	+2.48	+0.95	-37	-37	-37	-37	-37	-37	
16.5	+2.61	+3.19	-02		+3.17	+3.17	+2.36	+0.78	+1.02	+0.33	-33	-33	-33	-33	-33	-33	
16.6	+4.59	+3.91	-02		+3.89	+3.89	+4.34	+1.50	+3.00	+1.05	-35	-35	-35	-35	-35	-35	
17.0	+7.34	+4.86	-05		+4.81	+4.81	+7.09	+2.42	+5.75	+1.97	-34	-34	-34	-34	-34	-34	
16.5	-3.93	+0.80	-02		+0.78	+0.78	-4.18	-1.61	-5.52	-2.06	-39	-39	-39	-39	-39	-39	
July 6																	
16.0	+39 +1.07	+7.32	$n_5 = -25$		+7.14												
16.8	+1.37 +1.70	+7.65	$n_5 = -25$		7.06												
14.9	+2.29 +2.50	+7.77	+09	+15	+7.86	+7.92	+1.90	+0.54	+0.92	+0.27	-29	-29	-29	-29	-29	-29	
17.0	+7.34 +7.41	+9.93	-08	-02	+8.85	+9.91	+6.95	+2.53	+5.97	+2.26	-34	-34	-34	-34	-34	-34	
15.1	-4.42 -4.55	+5.50	+07	+14	+5.57	+6.64	-4.81	-1.75	-5.79	-2.01	-36	-36	-36	-36	-36	-36	
15.6	-2.89 -3.06	+6.02	+03	+10	+6.05	+6.12	-3.28	-1.27	-4.26	-1.53	-39	-39	-39	-39	-39	-39	
17.4	-3.72 -3.86	+5.58	-11	-05	+5.47	+5.53	-4.11	-1.85	-5.09	-2.12	-45	-45	-45	-45	-45	-45	
July 7																	
15.9	+1.29	+8.52	$n_5 = -32$		8.42												
16.6	+1.96	+9.10	$n_5 = -32$		8.37												
14.9	+3.65	+9.52	+06	+10	+9.58	+9.62	+3.26	+1.06	+1.69	+0.52	-32	-32	-32	-32	-32	-32	
14.9	+2.29	+9.01	+06	+10	+9.07	+9.11	+2.02	+0.55	+0.33	+0.01	-28	-28	-28	-28	-28	-28	
15.2	+2.45	+9.24	+04	+09	+9.28	+9.33	+2.16	+0.76	+0.49	+0.23	-35	-35	-35	-35	-35	-35	
16.5	+2.68	+9.31	-04	+01	+9.27	+9.32	+2.39	+0.75	+0.72	+0.22	-32	-32	-32	-32	-32	-32	
15.8	+4.78	+10.11	+01	+05	+10.12	+10.16	+4.49	+1.60	+2.82	+1.06	-36	-36	-36	-36	-36	-36	
17.0	+7.34	+10.79	-07	-02	+10.72	+10.77	+7.05	+2.20	+5.38	+1.67	-31	-31	-31	-31	-31	-31	
15.1	-4.42	+6.88	+05	+09	+6.93	+6.97	-4.71	-1.59	-6.38	-2.13	-34	-34	-34	-34	-34	-34	
17.4	-3.72	+7.10	+09	-05	+7.01	+7.05	-4.01	-1.51	-5.68	-2.05	-38	-38	-38	-38	-38	-38	

Instead of finding C sec for each equation separately divide Δland by Δsec and multiply C by the quotient

1872
July 9 $\mu' = -038$
 $\mu = -058$ Eq. Ra tang^d sec^d $T. Ra$ 15.7 + .34 + 1.06 - + 9.25 $\mu = -35.25$ 9.15 $C = 0$ 17.5 + 1.30 + 1.64 - + 9.47 $\mu = -38$ 9.11

14.9 + 2.29 + 2.50 - + 9.72 - .03 - .10 + 9.69 + 9.62 + 1.95 + 0.44 + 0.99 + 0.20 - .23 - .23 ✓ - .35
 15.2 + 2.45 + 2.65 - + 10.01 - .02 - .09 + 9.99 + 9.92 + 2.11 + .74 + 1.15 + .50 - .35 - .43 ✓ - .28
 15.3 + 3.13 + 3.29 + 10.06 - .02 - .08 + 10.04 + 9.98 + 2.79 + .79 + 1.83 + .56 - .28 - .31 ✓ - .26
 15.8 + 4.78 + 4.89 + 10.41 + .00 - .06 + 10.41 + 10.35 + 4.44 + 1.16 + 3.48 + .93 - .26 - .27 ✓ - .29
 16.5 + 2.61 + 2.79 + 9.89 + .03 - .04 + 9.92 + 9.85 + 2.27 + .67 + 1.31 + .43 - .29 - .33 ✓ - .28
 17.0 + 7.34 + 7.41 + 11.13 + .05 - .02 + 11.18 + 11.11 + 7.60 + 1.93 + 6.04 + 1.69 - .28 - .28 - .29
 17.0 - 5.18 - 5.29 + 7.60 + .05 - .02 + 7.65 + 7.58 - 5.52 - 1.60 - 6.48 - 1.84 - .29 - .28 - .29
 17.4 - 3.72 - 3.86 + 7.92 + .06 + .00 + 7.98 + 7.92 - 4.06 - 1.27 - 5.02 - 1.50 - .31 - .29 - .30 - .29

July 11

 $\mu' = +029$
 $\mu = +029$ 16.0 + .21 + 7.58 $\mu = -35$ 7.50

16.0 + 1.63 + 8.08 + 1.00 - .60 7.48

14.9 + 3.65 + 8.85 + .03 + 8.88 + 8.88 + 3.44 + 1.30 + 2.03 + 0.80 - .38 - .39 - .38
 14.9 + 2.29 + 8.36 + .03 + 8.39 + 8.39 + 2.08 + .81 + 0.67 + 0.31 - .39 - .47 ✓ - .39
 15.3 + 3.13 + 8.64 + .02 + 8.66 + 8.66 + 2.92 + 1.08 + 1.51 + 0.58 - .37 - .39 ✓ - .37
 15.8 + 4.78 + 9.42 + .01 + 9.43 + 9.43 + 4.57 + 1.85 + 3.16 + 1.35 - .41 - .43 - .42
 16.6 + 4.59 + 9.17 - .02 + 9.15 + 9.15 + 4.38 + 1.57 + 2.97 + 1.07 - .36 - .36 - .36
 17.0 + 7.34 + 9.77 - .03 + 9.74 + 9.74 + 7.13 + 2.16 + 5.72 + 1.66 - .30 - .29 - .30
 15.6 - 2.89 + 6.58 + .01 + 6.59 + 6.59 - 3.10 - 0.99 - 4.51 - 1.49 - .32 - .33 - .32
 17.0 - 5.18 + 5.44 - .03 + 5.41 + 5.41 - 5.39 - 2.17 - 6.80 - 2.67 - .41 - .39 - .40
 17.4 - 3.72 + 5.98 - .04 + 5.94 + 5.94 - 3.93 - 1.64 - 5.34 - 2.14 - .42 - .41 - .42
 - .38 - .38 - .38 - .37

July 14

 $\mu' = +009$
 $\mu = +009$ 15.9 + .23 + 5.80 $\mu = -28$ 5.72

15.8 + 1.63 + 6.02 + 1.00 + 5.98 5.70

15.2 + 2.45 + 6.36 + .01 + .01 + 6.57 + 6.57 + 2.22 + 0.77 + 1.58 + 0.58 - .35 - .37 ✓ - .35
 15.3 + 3.13 + 6.63 + .01 + .00 + 6.64 + 6.63 + 2.90 + .84 + 2.26 + 0.65 - .29 - .29 - .29
 15.8 + 4.78 + 7.17 + .00 + .00 + 7.17 + 7.17 + 4.55 + 1.37 + 3.91 + 1.19 - .31 - .31 - .31
 17.0 + 7.34 + 8.07 - .01 - .01 + 8.06 + 8.06 + 7.11 + 2.26 + 6.47 + 2.09 - .32 - .32 - .32
 17.0 - 5.18 + 3.99 - .01 - .01 + 3.98 + 3.98 - 5.41 - 1.82 - 6.05 - 1.99 - .34 - .33 - .34
 - .38 - .38 - .38 - .32

July 15

 $\mu' = +028$
 $\mu = +028$ 16.1 + .20 + 4.99 $\mu = -34$ 4.92

16.1 + 1.63 + 5.46 + 1.00 + 5.49 4.92

15.8 + 4.78 + 6.55 + .01 + 6.56 + 6.56 + 4.58 + 1.57 + 3.10 + 1.07 - .34 - .35 - .34
 16.3 + 4.07 + 6.39 - .01 + 6.38 + 6.38 + 3.87 + 1.39 + 2.39 + 0.89 - .36 - .34 ✓ - .36
 16.5 + 2.61 + 5.74 - .01 + 5.73 + 5.73 + 2.41 + 0.74 + 0.93 + .24 - .31 - .26 ✓ - .31
 16.6 + 4.59 + 6.42 - .01 + 6.41 + 6.41 + 4.39 + 1.42 + 2.91 + .92 - .32 - .32 - .32
 15.6 - 2.87 + 3.93 + .01 + 3.94 + 3.94 - 2.67 - 1.05 - 4.55 - 1.55 - .34 - .34 - .34
 16.5 - 3.93 + 3.41 - .01 + 3.40 + 3.40 - 3.23 - 1.59 - 5.61 - 2.09 - .43 - .37 ✓ - .37
 - .37 - .37 - .37 - .35

1872 abae proj. 1697.													
July 16 $L' = +0.80$ $L = +0.80$													
Eq. 16.9	+ .17	+1.01	+4.55	$m = -26.4$	+4.41								
16.5	+1.46	+1.77	+4.58	+0.0	+4.85								
16.2	+4.07	+4.19	+5.73	+0.02	+5.75	+5.75	+3.90	+1.20	+2.53	+0.85	-31.44	-34.47	-25 -27
16.6	+4.39	+4.69	+5.97	+0.01	+5.98	+5.98	+4.42	+1.43	+3.05	+1.08	-32.46	-36.47	-26 -29
17.0	+7.34	+7.41	+6.83	+0.00	+6.83	+6.82	+7.17	+2.28	+5.80	+1.92	-32.46	-33.47	-26 -26
											-32	-34	-26 -27
17.4	-3.72	-3.86	+2.95	-0.02	+2.93	+2.93	-3.89	-1.62	-5.26	-1.97	-42.49	-38.48	-33 -30
													-31
July 20 $L' = +0.23$ $L = +0.23$													
17.9	+ .48	+1.11	+4.42	$m = -25.5$	4.22								
17.4	+1.24	+1.66	+4.68	+0.0	4.19								
17.0	+7.34	+7.41	+6.21	+0.02	+6.23	+6.23	+6.86	+1.81	+6.14	+1.63	-26.47	-27.47	-19 -20
17.5	+2.50	+2.69	+5.02	+0.01	+5.03	+5.02	+2.02	+0.61	+1.30	+0.42	-31.45	-33.46	-26 -27
17.6	+2.58	+2.76	+5.14	+0.01	+5.15	+5.14	+2.10	+0.73	+1.38	+0.54	-35.46	-39.47	-30 -34
18.2	+16.88	+6.90	+9.23	-0.01	+9.22	+9.22	+16.40	+4.80	+15.68	+4.62	-29.47	-29.47	-22 -22
											-30	-28	-24 -26
17.4	-3.72	-3.86	+3.04	+0.01	+3.05	+3.05	-4.20	-1.37	-4.92	-1.55	-33.49	-31.48	-24 -28
18.6	-20.73	-20.72	-2.86	-0.02	-2.88	-2.88	-21.19	-7.30	-21.91	-7.48	-34.47	-34.47	-27 -27
											-34	-32	-26 -25
July 22 $L' = +0.12$ $L = +0.12$													
16.6	+ .15		+3.98	$m = -30.30$	3.94								
17.3	+ .97		+4.24	+0.01	3.96								
16.6	+4.59		+5.15	+0.00	+5.15	+5.16	+4.44	+1.17	+3.63	+0.92	-26	-25	-26
17.0	+7.34		+5.92	+0.00	+5.92	+5.93	+7.19	+1.94	+6.38	+1.69	-27	-27	-27
17.6	+2.58		+4.59	-0.01	+4.58	+4.59	+2.43	+0.61	+1.62	+0.36	-25	-23	-25
17.7	+3.12		+4.72	-0.01	+4.71	+4.72	+2.97	+0.74	+2.16	+0.49	-25	-23	-24
											-26	-25	-26
18.2	+16.88		+8.92	-0.02	+8.90	+8.91	+16.73	+4.94	+15.92	+4.69	-29	-29	-29
18.6	-20.73		-2.65	-0.03	-2.68	-2.66	-20.88	-6.63	-21.69	-6.88	-31	-31	-31
											-30	-30	-30
July 24 $L' = +0.17$ $L = +0.17$													
16.2	+ .13		+3.50	$m = -25.25$	3.47								
17.3	+1.60		+3.89	+0.02	3.45								
14.8	+3.65		+4.46	+0.02	+4.48	+4.50	+3.52	+0.98	+2.05	+0.61	-28	-29	-29
15.3	+3.13		+4.22	+0.02	+4.24	+4.25	+3.00	+0.74	+1.53	+0.36	-25	-24	-25
16.2	+4.07		+4.49	+0.00	+4.49	+4.51	+3.84	+0.99	+2.47	+0.62	-25	-25	-25
16.5	+2.61		+4.13	+0.00	+4.13	+4.14	+2.48	+0.63	+1.01	+0.25	-25	-25	-25
16.6	+4.59		+4.62	-0.01	+4.61	+4.63	+4.46	+1.11	+2.99	+0.74	-25	-25	-25
17.0	+7.34		+5.36	-0.01	+5.35	+5.36	+7.21	+1.85	+5.74	+1.47	-26	-26	-26
18.2	+16.88		+7.30	-0.03	+7.27	+7.28	+16.75	+3.77	+15.28	+3.39	-23	-22	-23
											-25	-25	-25
17.4	-3.72		+1.97	-0.02	+1.95	+1.97	-3.85	-1.55	-5.32	-1.92	-41	-36	-30
18.6	-20.73		-2.76	-0.04	-2.80	-2.78	-20.86	-6.30	-22.33	-6.67	-30	-30	-30

1872
July 25 $L' = +0.12$
 $L = -0.72$

RA tangd sec M-RA

16.7 + .27 + 3.50 $n = -26$ 3.93
- .0717.0 + 1.55 + 3.56 + .00 3.43
+ 1.84 + 3.78

16.6 + 4.59 + 4.49 + .00 + .00 + 4.49 + 4.49 + 4.32 + 0.99 + 3.25 + 0.71 - .23 - .22 - .22

17.0 + 7.34 + 5.33 + .00 + .00 + 5.33 + 5.33 + 7.07 + 1.83 + 6.00 + 1.55 - .26 - .26 - .26

17.6 + 3.12 + 4.08 - .01 - .01 + 4.07 + 4.07 + 2.85 + 0.57 + 1.78 + 0.29 - .21 - .17 - .21

17.0 - 5.18 + 1.77 + .00 + .00 + 1.77 + 1.77 - 5.45 - 1.73 - 6.52 - 2.01 - .32 - .16 - .31

17.4 - 3.72 + 2.41 - .01 + .00 + 2.40 + 2.41 - 3.99 - 1.10 - 5.06 - 1.37 - .28 - .27 - .28

July 27 $L' = -0.21$
 $L = -0.21$ 17.2 + .32 + 1.05 + 3.39 $n = -18$ 3.32
- .0417.3 + 1.48 + 1.79 + 3.56 + .00 3.26
+ 3.60

16.5 + 2.61 + 2.79 + 3.87 - .01 - .02 + 3.86 + 3.85 + 2.29 + 0.47 + 1.15 + 0.25 - .21 - .22 - .21

16.6 + 4.59 + 4.69 + 4.25 - .01 - .01 + 4.24 + 4.24 + 4.27 + .65 + 3.13 + .64 - .21 - .21 - .21

17.0 + 7.34 + 7.41 + 5.06 + .00 - .01 + 5.06 + 5.05 + 7.02 + 1.67 + 5.88 + 1.45 - .24 - .25 - .24

17.6 + 2.58 + 2.76 + 3.86 + .01 + .01 + 3.87 + 3.87 + 2.26 + .68 + 1.12 + .27 - .21 - .21 - .21

17.7 + 3.12 + 3.27 + 4.07 + .01 + .01 + 4.08 + 4.08 + 2.80 + .69 + 1.66 + .48 - .25 - .22 - .25

17.9 + 4.32 + 4.40 + 4.20 + .01 + .01 + 4.21 + 4.21 + 4.00 + .82 + 2.56 + .61 - .21 - .21 - .21

18.2 + 16.88 + 7.48 + .02 + .02 + 7.50 + 7.50 + 16.56 + 4.11 + 15.42 + 3.90 - .25 - .25 - .25

18.4 + 2.95 + 3.12 + 3.88 + .03 + .02 + 3.91 + 3.90 + 2.63 + .52 + 1.49 + .30 - .21 - .20 - .21

16.5 - 3.93 - 4.05 + 2.46 - .01 - .02 + 2.45 + 2.44 - 4.25 - .94 - 5.39 - 1.16 - .22 - .22 - .22

17.4 - 3.72 - 3.86 + 2.28 + .00 + .00 + 2.28 + 2.28 - 4.04 - 1.11 - 5.18 - 1.32 - .28 - .25 - .27

18.6 - 26.71 - 20.73 - 2.19 + .03 + .03 - 2.16 - 2.16 - 21.03 - 5.58 - 22.17 - 5.76 - .26 - .26 - .26

July 28 $L' = -0.41$
 $L = -0.41$ 16.6 + .21 + 1.02 + 2.98 $n = -19.22$ 2.93
- .0516.7 + 1.43 + 1.87 + 3.22 + .02 2.90
+ 1.58 + 3.26

16.3 + 4.07 + 4.19 + 3.82 - .01 - .03 + 3.81 + 3.79 + 3.86 + 0.83 + 2.49 + 0.53 - .22 - .21 - .22

16.5 + 2.61 + 2.79 + 3.58 + .00 - .02 + 3.56 + 3.56 + 2.40 + 0.60 + 1.03 + .30 - .25 - .29 - .25

16.6 + 4.59 + 4.69 + 3.98 + .00 - .02 + 3.98 + 3.96 + 4.38 + 1.00 + 3.01 + .70 - .23 - .23 - .23

17.0 + 7.34 + 7.41 + 4.56 + .02 + .00 + 4.58 + 4.56 + 7.13 + 1.60 + 5.76 + 1.30 - .23 - .23 - .23

16.5 - 3.93 - 4.05 + 2.02 + .00 - .02 + 2.02 + 2.00 - 4.14 - 0.96 - 5.51 + 1.26 - .23 - .23 - .23

17.0 - 5.18 - 5.29 + 1.69 + .02 + .00 + 1.71 + 1.69 - 5.39 - 1.27 - 6.76 - 1.57 - .24 - .23 - .24

17.4 - 3.72 - 3.86 + 1.81 + .03 + .02 + 1.84 + 1.83 - 3.93 - 1.14 - 5.30 - 1.43 - .29 - .27 - .28

July 29 $L' = +0.16$ 16.8 + .16 + 3.19 $n = -24.25$ 3.15
- .0417.5 + 1.44 + 1.87 + 3.44 + .01 3.19
+ 1.58 + 3.50

16.2 + 4.67 + 4.10 + .01 + .02 + 4.11 + 4.12 + 3.91 + .92 + 2.69 + 0.61 - .24 - .23 - .24

16.5 + 2.61 + 2.79 + 3.76 + .00 + .01 + 3.76 + 3.77 + 2.05 + .57 + 1.23 + .26 - .23 - .21 - .23

16.6 + 4.59 + 4.06 + .00 + .01 + 4.06 + 4.07 + 4.43 + .87 + 3.21 + .56 - .19 - .17 - .18

17.0 + 7.34 + 4.74 + .00 + .01 + 4.74 + 4.75 + 7.18 + 1.55 + 5.96 + 1.24 - .22 - .21 - .22

17.5 + 2.50 + 3.89 - .01 + .00 + 3.88 + 3.89 + 2.34 + .69 + 1.12 + 0.38 - .29 - .34 - .29

17.6 + 2.58 + 3.83 - .01 + .00 + 3.82 + 3.83 + 2.42 + .63 + 1.20 + .32 - .26 - .27 - .26

17.7 + 3.12 + 3.87 - .01 + .00 + 3.86 + 3.87 + 2.96 + .67 + 1.74 + .36 - .23 - .21 - .23

17.0 - 5.18 + 2.54 + .00 + .01 + 2.54 + 2.55 - 5.34 - .65 - 6.56 - 0.95 - .12 - .19 - .12

17.4 - 3.72 + 2.47 - .01 + .00 + 2.46 + 2.47 - 3.56 - .73 - 5.10 - 1.04 - .21 - .20 - .20

17.4 - 3.72 + 2.47 - .01 + .00 + 2.46 + 2.47 - 3.56 - .73 - 5.10 - 1.04 - .21 - .20 - .20

17.4 - 3.72 + 2.47 - .01 + .00 + 2.46 + 2.47 - 3.56 - .73 - 5.10 - 1.04 - .21 - .20 - .20

17.4 - 3.72 + 2.47 - .01 + .00 + 2.46 + 2.47 - 3.56 - .73 - 5.10 - 1.04 - .21 - .20 - .20

17.4 - 3.72 + 2.47 - .01 + .00 + 2.46 + 2.47 - 3.56 - .73 - 5.10 - 1.04 - .21 - .20 - .20

17.4 - 3.72 + 2.47 - .01 + .00 + 2.46 + 2.47 - 3.56 - .73 - 5.10 - 1.04 - .21 - .20 - .20

17.4 - 3.72 + 2.47 - .01 + .00 + 2.46 + 2.47 - 3.56 - .73 - 5.10 - 1.04 - .21 - .20 - .20

17.4 - 3.72 + 2.47 - .01 + .00 + 2.46 + 2.47 - 3.56 - .73 - 5.10 - 1.04 - .21 - .20 - .20

17.4 - 3.72 + 2.47 - .01 + .00 + 2.46 + 2.47 - 3.56 - .73 - 5.10 - 1.04 - .21 - .20 - .20

17.4 - 3.72 + 2.47 - .01 + .00 + 2.46 + 2.47 - 3.56 - .73 - 5.10 - 1.04 - .21 - .20 - .20

842													
July 30 $L' = +0.19$													
RA	tang. Sec.			T. RA									
Eq	17.9	+ .54	+4.41	$n_5 = -30$	+4.25								
Gr	17.7	+1.15	+4.59	+ .00	+4.26								
U.C.	17.5	+2.50	+5.01	+ .01 + .00	+5.02	+5.01	+1.96	+ .61	+1.35	+ .02	-.31	-.31	✓
	17.6	+2.58	+4.95	+ .01	+4.96	+4.95	+2.04	+ .53	+2.04	+ .61	-.27	-.26	✓
	17.7	+3.13	+5.15	+ .00	+5.15	+5.15	+2.59	+ .74	+2.59	+ .74	-.29	-.29	✓
	17.9	+4.32	+5.65	+ .00 + .00	+5.65	+5.65	+3.75	+1.24	+3.75	+1.24	-.33	-.33	✓
											-29	-29	
Aug. 1 $L' = +0.41$													
	17.3	+ .28	+7.42	$n_5 = -25$	7.34								
	17.9	+1.38 ²	+7.69	+ .02	7.32								
	16.6	+4.59	+8.47	+ .03 + .05	+8.50	+8.52	+4.31	+1.08	+3.27	+0.82	-.25	-.25	✓
	17.0	+7.34	+9.31	+ .01 + .04	+9.32	+9.35	+7.06	+1.90	+6.02	+1.65	-.27	-.27	✓
	17.5	+2.50	+8.10	+ .01 + .02	+8.09	+8.12	+2.22	+ .67	+1.18	+ .42	-.30	-.35	✓
	17.6	+2.58	+7.81	+ .01 + .01	+7.80	+7.82	+2.30	+ .38	+1.26	+ .12	-.19	-.10	✓
	17.7	+3.13	+8.10	+ .02 + .01	+8.08	+8.11	+2.85	+ .66	+1.81	+ .41	-.23	-.23	✓
	18.2	+16.88	+12.53	+ .04 - .01	+12.49	+12.52	+16.60	+5.07	+15.56	+4.82	-.31	-.31	✓
	18.4	+2.95	+8.67	+ .05 - .02	+8.65	+8.68	+2.67	+ .66	+1.63	+ .35	-.25	-.21	✓
	18.6	+2.18	+7.90	+ .05 - .03	+7.85	+7.87	+1.90	+ .43	+0.86	+ .17	-.23	-.20	✓
	18.9	+2.92	+8.20	+ .07 - .04	+8.13	+8.16	+2.64	+ .71	+1.60	+ .46	-.27	-.29	✓
	19.3	+3.29	+8.38	+ .08 - .06	+8.30	+8.32	+3.04	+ .88	+1.97	+ .62	-.29	-.31	✓
											-29	-28	
	16.5	-3.93	+6.28	+ .03 + .06	+6.31	+6.34	-4.21	-1.11	-5.25	-1.36	-.26	-.26	✓
	18.4	-5.50	+5.91	+ .05 - .02	+5.86	+5.89	-5.78	-1.56	-6.82	-1.81	-.27	-.27	✓
	18.7	-4.88	+6.33	+ .06 - .03	+6.27	+6.30	-4.66	-1.15	-5.70	-1.40	-.25	-.25	✓
	18.6	-20.71	+1.51	+ .05 - .03	+1.46	+1.48	-20.99	-5.96	-22.03	-6.22	-.28	-.28	✓
											-26	-26	
Aug. 14 $L' = +1.50$													
	17.0	+ .37	+14.94	$n_5 = -24$	14.88								
	16.9	+1.57	+15.44	+ .01	14.95								
	17.0	+7.34	+16.07	+ .00 - .01	+16.07	+16.06	+6.97	+1.13	+5.77	+0.84	-.16	-.14	✓
	17.5	+2.50	+15.43	+ .07 - .09	+15.36	+15.34	+2.13	+ .49	+0.93	+ .12	-.23	-.13	✓
	17.6	+2.58	+15.27	+ .09 - .10	+15.18	+15.17	+2.21	+ .24	+1.01	+ .05	-.10	-.05	✓
											-16	-.14	
	17.4	-3.72	+14.18	+ .06 - .07	+14.12	+14.11	-4.09	- .76	-5.29	-1.11	-.19	-.21	✓
											-20	-.20	
Aug. 5 $L' = +1.00$													
	17.1	+ .67	+17.56	$n_5 = -25$	17.44								
	17.8	+1.34	+17.78	+ .07	17.47								
	16.6	+4.59	+18.15	+ .05 + .12	+18.10	+18.03	+3.92	+ .84	+3.44	+0.52	-.16	-.05	✓
	17.0	+7.34	+18.91	+ .01 + .08	+18.92	+18.99	+6.67	+1.36	+6.19	+1.24	-.20	-.20	✓
	17.5	+2.50	+18.01	+ .04 + .03	+17.97	+18.04	+1.83	+ .41	+1.35	+0.29	-.22	-.21	✓
	17.6	+2.58	+18.09	+ .05 + .02	+18.04	+18.11	+1.91	+ .52	+1.43	+0.49	-.27	-.27	✓
	17.7	+3.12	+18.19	+ .06 + .01	+18.12	+18.20	+2.45	+ .57	+1.97	+0.45	-.23	-.23	✓
	17.9	+4.32	+18.38	+ .08 - .01	+18.30	+18.37	+3.65	+ .74	+3.17	+0.62	-.20	-.19	✓
											-20	-.18	

1872
Aug. 6 $L' = +1.03$

RA Tangd Red

TRA

 $C=0$ 17.6 + .18 +1.01 +20.11 $m = -.19$ 20.01

17.6 +1.26 +1.66 +20.28 +10. -30 20.02

17.0	+7.34 +7.41	+21.71 +.06	+21.77 +21.74	+7.16 +1.66	+6.08 +1.65	-23 -24	-24
17.5	+2.50 +2.69	+20.74 +.01	+20.75 +20.75	+2.32 +.64	+1.24 +.43	-28 -35	-28
17.6	+2.58 +2.76	+20.57 +.00	+20.57 +20.57	+2.40 +.46	+1.32 +.25	-19 -19	-19
17.7	+3.12 +3.27	+20.78 -.01	+20.77 +20.77	+2.94 +1.38	+1.86 +1.65	-26 -24	-22
17.9	+4.32 +4.44	+21.01 -.03	+20.98 +20.98	+4.14 +.87	+3.06 +.66	-21 -22	-21
18.2	+16.88 +2.20	+21.45 -.06	+21.39 +21.39	+16.70 +4.28	+15.62 +4.07	-26 -26	-26
18.6	+2.18 +2.40	+20.82 -.10	+20.72 +20.72	+2.00 +.61	+1.92 +.40	-30 -43	-30
19.3	+3.29 +3.44	+20.87 -.17	+20.87 +20.87	+3.11 +.76	+2.03 +.55	-24 -27	-26
19.9	+5.34 +4.44	+20.70 -.23	+32.47 +32.47	+5.32 +12.36	+5.28 +12.15	-23 -23	-23

-24 -24

-24

17.4	-3.72 -3.86	+19.15 +.02	+19.17 +19.17	-3.40 -.94	-4.98 -1.15	-28 -23	-23
18.6	-20.73 -20.75	+15.40 -.10	+15.30 +15.30	-20.91 -4.81	-21.99 -5.02	-23 -23	-23

-23 -23

-23

-24

Aug. 7 $L' = +0.89$ $C=0$ 17.2 + .22 +1.02 +22.91 $m = -.28$ 22.86

17.2 +1.20 +1.67 +23.44 -23.44 +.04 + 22.80

17.0	+7.34 +7.41	+24.70 +.02 +.06	+24.72 +24.76	+7.12 +1.81	+6.14 +1.54	-25 -25	-25
17.5	+2.50 +1.69	+23.43 -.03 +.02	+23.40 +23.45	+2.28 +.49	+1.30 +.23	-21 -18	-21
17.6	+2.58 +1.76	+23.46 -.03 +.01	+23.43 +23.47	+2.36 +.52	+1.38 +.25	-22 -19	-22
17.7	+3.12 +3.27	+23.67 -.04 +.00	+23.63 +23.67	+2.90 +.72	+1.92 +.45	-25 -23	-25
18.2	+16.88 +2.24	+26.60 -.09 -.04	+26.81 +26.86	+16.66 +3.90	+15.68 +3.64	-23 -23	-23
18.6	+2.18 +2.40	+23.53 -.12 -.08	+23.41 +23.45	+1.96 +.50	+1.98 +.77	-25 -23	-25

-23 -24

-23

17.0	-5.18 -5.29	+21.85 +.02 +.06	+21.87 +21.91	-5.40 -1.04	-6.38 -1.31	-19 -21	-20
17.4	-3.72 -3.86	+22.02 -.02 +.03	+22.00 +22.05	-3.94 -.91	-4.92 -1.17	-23 -24	-23
18.6	-20.71 -20.73	+18.70 -.12 -.08	+18.58 +18.62	-20.93 -4.33	-21.91 -4.60	-21 -21	-21

-21 -22

-21

-23

Aug. 8 $L' = +0.99$ $C=0$ 17.6 + .32 +1.04 +26.03 $m = -.35$ 25.54

17.7 +1.28 +1.56 +26.38 -26.38 +.01 26.03

17.0	+7.34 +7.37	+28.02 +.06 +.07	+28.08 +28.09	+7.02 +2.05	+6.14 +1.74	-29 -28	-29
17.5	+2.50 +1.69	+28.66 +.01 +.02	+28.67 +28.68	+2.18 +.64	+1.30 +.33	-29 -25	-29
17.6	+2.58 +1.76	+26.65 +.00 +.01	+26.65 +26.66	+2.26 +.62	+1.38 +.31	-27 -22	-27
17.7	+3.13 +3.29	+26.86 -.01 +.00	+26.85 +26.86	+2.81 +.82	+1.93 +.51	-29 -26	-29
17.9	+4.32 +4.44	+27.06 -.03 -.02	+27.03 +27.04	+4.00 +1.00	+3.12 +.69	-25 -22	-24
18.2	+16.88	+30.40 -.06 -.05	+30.34 +30.35	+16.56 +4.31	+15.68 +4.00	-26 -26	-26

-28 -25

-28

17.0	-5.18 -5.29	+24.80 +.06 +.07	+24.86 +24.87	-5.50 -1.17	-6.38 -1.68	-21 -23	-22
17.4	-3.72 -3.86	+25.05 +.02 +.03	+25.07 +25.08	-4.04 -.96	-4.92 -1.27	-24 -26	-25
18.6	-20.73 -20.74	+20.91 -.10 -.09	+20.81 +20.82	-21.05 -5.22	-21.93 -5.53	-25 -25	-25

-23 -25

-24

-26

1872phae. 1942													
Aug. 10 $L' = +1.21$													
RA tang ^d rec ^d π RA													
Gr 17.2	+ .22	+ 30.74	$n_5 = -26$	+ 30.68									
Gr 17.4	+ 1.28	+ 31.03	- .26	30.68									
U.C. 17.4	+ 3.12	+ 31.56	- .06 + .00	+ 31.50	+ 31.56	+ 2.90	+ 0.76	+ 1.92	+ 0.50	- .26	- .26		
17.9	+ 4.32	+ 31.88	- .08 - .02	+ 31.80	+ 31.86	+ 4.10	+ 1.06	+ 3.12	+ .80	- .26	- .26		
18.2	+ 16.88	+ 35.50	- .12 - .06	+ 35.38	+ 35.44	+ 16.66	+ 4.64	+ 15.68	+ 4.38	- .27	- .28		
										- .26	- .27		
Sept. 23 $L' = +0.30$													
22.5	+ .31	- 8.38	$n_5 = -17$	- 8.42									
21.5	+ 1.11	- 8.24	+ .03	8.37									
19.5	+ 5.32	- 7.40	+ .09 + .06	- 7.61	- 7.64	+ 5.01	+ 0.77	+ 4.21	+ 0.63	- .15	- .15		
22.1	+ 3.02	- 7.86	+ .01 - .02	- 7.85	- 7.88	+ 2.71	+ .53	+ 1.91	+ .39	- .20	- .20		
22.5	+ 3.24	- 8.28	+ .00 - .03	- 8.28	- 8.31	+ 2.96	+ .10	+ 2.16	+ .04	- .03	- .02		
22.8	+ 2.20	- 8.11	- .01 - .04	- 8.12	- 8.15	+ 1.89	+ .26	+ 1.09	+ .12	- .14	- .11		
										- .13	- .08		
Sept. 28 $L' = -0.09$													
21.2	+ .13	- 8.44	$n_5 = -10$	8.46									
21.2	+ 1.29	- 8.32	+ .00 - .01	8.49									
19.3	+ 3.29	- 7.40	- .02 - .02	- 7.62	- 7.62	+ 3.16	+ .52	+ 2.00	+ .40	- .16	- .20		
19.5	+ 5.32	- 7.44	- .02 - .02	- 7.76	- 7.76	+ 5.19	+ .68	+ 4.03	+ .56	- .13	- .14		
19.8	+ 2.75	- 8.06	- .01 - .01	- 8.04	- 8.07	+ 2.62	+ .37	+ 1.46	+ .25	- .14	- .17		
19.9	+ 53.44	- 0.96	- .01 - .01	- 0.94	- 0.94	+ 53.31	+ .74	+ 52.15	+ .73	- .14	- .14		
22.1	+ 1.69	- 8.29	+ .01 + .01	- 8.28	- 8.28	+ 1.76	+ .16	+ .60	+ .04	- .09	- .07		
22.1	+ 3.02	- 8.17	+ .01 + .01	- 8.16	- 8.16	+ 2.89	+ .23	+ 1.79	+ .54	- .13	- .16		
										- .12	- .11		
20.0	- 4.05	- 8.83	- .01 - .01	- 8.84	- 8.84	- 3.92	- .40	- 5.34	- .52	- .10	- .10		
20.4	- 3.50	- 8.84	- .01 - .01	- 8.85	- 8.85	- 3.37	- .41	- 4.79	- .53	- .12	- .11		
21.8	- 3.37	- 8.90	+ .01 + .00	- 8.89	- 8.90	- 3.24	- .45	- 4.66	- .58	- .14	- .12		
										- .12	- .11		
Oct 2 $L' = -0.07$													
20.8	+ .38	- 8.23	$n_5 = -06$	- 8.24									
20.1	+ 1.26	- 8.18	+ .00	- 8.22									
18.4	+ 2.95	- 8.08	- .02 - .01	- 8.10	- 8.09	+ 2.57	+ .13	+ 1.69	+ .09	- .05	- .05		
18.4	+ 3.21	- 8.09	- .02 - .01	- 8.11	- 8.10	+ 2.83	+ .12	+ 1.95	+ .08	- .02	- .04		
18.6	+ 2.18	- 8.17	- .02 - .01	- 8.19	- 8.18	+ 1.80	+ .04	+ .92	+ .00	- .02	- .00		
18.9	+ 2.92	- 8.09	- .01 - .01	- 8.10	- 8.10	+ 2.54	+ .13	+ 1.66	+ .08	- .05	- .05		
19.8	+ 2.75	- 8.01	- .01 + .00	- 8.02	- 8.01	+ 2.37	+ .21	+ 1.49	+ .17	- .09	- .11		
19.9	+ 53.44	- 8.05	- .01 + .00	- 8.06	- 8.05	+ 53.06	+ .17	+ 52.18	+ .13	+ .00	+ .00		
20.2	+ 4.45	- 8.05	+ .00 + .00	- 8.05	- 8.05	+ 4.07	+ .18	+ 3.19	+ .13	- .04	- .04		
21.7	+ 2.66	- 8.22	+ .01 + .01	- 8.21	- 8.21	+ 2.48	+ .02	+ 1.60	+ .03	+ .00	+ .02		
22.0	+ 1.89	- 7.83	+ .01 + .01	- 7.82	- 7.82	+ 1.51	+ .41	+ .63	+ .36	- .27	- .57		
22.1	+ 3.02	- 8.16	+ .01 + .01	- 8.15	- 8.15	+ 2.64	+ .08	+ 1.76	+ .03	+ .00	+ .02		
										- .03	- .04		
19.8	- 3.55	- 8.63	- .01 + .00	- 8.64	- 8.63	- 3.93	- .41	- 4.81	- .45	- .10	- .09		
20.1	- 4.05	- 8.26	+ .00 + .00	- 8.26	- 8.26	- 4.43	- .03	- 5.31	- .08	- .01	- .02		
20.4	- 3.50	- 8.17	+ .00 + .00	- 8.17	- 8.17	- 3.88	+ .06	- 4.76	+ .01	+ .01	+ .00		
21.8	- 3.37	- 8.22	+ .01 + .01	- 8.21	- 8.21	- 3.75	+ .02	- 4.63	- .03	+ .01	- .01		
										- .02	- .03		
Oct. 3 $L' = +0.03$													
20.7	+ .28	- 8.16	$n_5 = -06$	8.17									
20.6	+ 1.00	- 8.12	+ .00	8.16									
20.5	+ 3.61	- 8.04	+ .00 + .00	- 8.04	- 8.04	+ 3.33	+ .12	+ 2.61	+ .08	- .04	- .03		
										- .04	- .04		

1872

Oct. 9 $L' = +.003$ RA Tang S dec π RA19.1 +.30 -7.87 $m_s = -.87$ 18.8⁷ +1.32 +1.15 -7.82¹ +.00 -7.81

18.4 +2.95 -7.55 +.00 +.00 -7.55 +7.55 +2.65 +.22 +1.80 +.26 -.08 -.14

18.4 +3.21 -7.58 +.00 +.00 -7.58 -7.58 +2.91 +.29 +2.06 +.23 -.10 -.11

18.9 +2.92 -7.70 +.00 +.00 -7.70 -7.70 +2.62 +.17 +1.77 +.11 -.06 -.06

-.08 -.10

-.11

-.10

-.06

-.09

-.09

18.6 -20.73 -9.45

Oct. 10 $L' = +.020$ 19.3 +.08 -7.72₆₀ $m_s = -.80$ -7.72

19.3 +1.13 -7.72 +.00 -7.72 -7.73

18.9 +2.92 -7.66 +.01 -7.65 -7.65 +2.84 +.07 +1.79 +.07 -.02 -.04[✓]

19.5 +5.32 -7.66 +.00 -7.66 -7.66 +5.24 +.66 +4.19 +.66 -.01 -.01

19.9 +53.44 -7.13 -.01 -7.14 -7.14 +53.36 +.58 +52.31 +.58 -.01 -.01

-.01 -.01

-.02

-.01

-.01

-.01

-.01

Oct. 12 $L' = -.030$ 21.6 +.38 +1.07 -7.32₀₂ $m_s = +.07$ 7.30

20.8 +1.19 +1.56 -7.36 -.02 7.33

20.5 +3.61 +3.74 -7.63 -.03 -.01 -7.66 -7.64 +3.23 -.034 +2.42 -.028 +.11 +.11

21.3 +1.89 +2.14 -7.24 -.01 +.02 -7.28 -7.25 +1.51 +.04 +.70 +.07 -.03[✓] -10[✓]21.4 +2.75 +2.92 -7.46 -.01 +.02 -7.47 -7.44 +2.37 -.15 +1.56 -.08 +.06 +.05[✓]22.0 +1.89 +2.14 -7.38 +.01 +.04 -7.37 -7.34 +1.51 -.05 +.70 +.02 +.03[✓] -03[✓]

+.08 +.11

+.11

+.06

+.08

20.0 -4.05 -4.16 -6.99 -.05 -.02 -7.04 -7.01 -4.43 +.28 -5.24 +.35 +.06 +.07

20.4 -3.50 -3.65 -7.39 -.04 -.01 -7.43 -7.40 -3.88 -.11 -4.69 -.04 -.03 -.01

21.4 -2.81 -2.98 -7.39 -.01 +.02 -7.40 -7.37 -3.19 -.08 -4.60 -.01 -.02 -.01

+.00 +.02

+.06

+.02

+.01

+.04

Oct. 14 $L' = +.000$ 18.8 +.45 +1.10 -6.67₀₂ $m_s = -.05$ 6.6519.2 +1.42 +1.74 -6.62₀₇ +.00 6.5518.4 +2.95 +3.12 -6.92 -6.92 +2.50 -.025 +1.53 -.030 +.10 +.20[✓]18.4 +3.21 +3.36 -6.79 -6.79 +2.76 -.12 +1.79 -.14 +.04 +.09[✓]18.6 +2.18 +2.40 -6.87 -6.87 +1.73 -.20 +0.96 -.25 +.12[✓] +.1[✓]18.9 +2.92 +3.09 -6.71 -6.71 +2.47 -.04 +1.50 -.09 +.02 +.06[✓]19.3 +3.29 -6.71 +.00 -6.71 -6.71 +2.84 -.04 +1.87 -.09 +.01 +.05[✓]

+.04

+.10

+.04

+.02

+.01

+.04

18.6 -20.71 -5.23 +.00 -5.23 -5.23 -2.16 +1.44 -22.13 +1.39 +.06 +.06

+.06

+.05

Oct. 20 $L' = -.011$ $m_s = +.10$ 19.5 +.10 -8.58₀₁ 8.59

19.5 +1.17 -8.69 +.00 8.55

19.3 +3.29 -9.12 +.00 -9.12 -9.12 +3.19 -.54 +2.12 -.43 +.17 +.20

19.9 +53.44 -11.99 +.00 -11.99 -11.99 +53.34 -3.41 +52.27 -3.30 +.06 +.06

+.11 +.13

+.18

+.06

+.12

+.12

872

Feb. 21 $L' = -.015$

Ra tang. & ke. 7-Ra

19.2	+ 12	- 8.75	$n = 13$
------	------	--------	----------

19.6	+1.09	^{1.01} -8.89	+01
------	-------	--------------------------	-----

19.3	+3.29	-8.94	+00+00
------	-------	-------	--------

19.8	+2.45	-9.12	+01
------	-------	-------	-----

19.9	+53.44	-15.23	+01
------	--------	--------	-----

19.8 - 3.55 - 8.53 + .01 + .00

Nov. 4 $L' = -0.20$

22.1 +.29 + 1.04 - 16.32 $x_2 = +.2$

$$21.5 + 1.25 + 1.60 - 16.51 - .01$$
$$20.5 + 3.61 + 3.74 - 16.72 - 03 - 02$$

22.5 + 3.27 + 3.42 - 16.83 + .01 + .02

$$22.8 + 2.20 + 2.42 - 16.51 + .01 + .03$$
$$22.4 - 4.13 - 4.25 - 16.01 + .01 + .02$$

22.8	-4.89	-4.97	-16.36	+1.01	+0.03
------	-------	-------	--------	-------	-------

No. 13 $h^1 = .014$

1.1	+ .19	- 20.88	$n = +.14$
-----	-------	---------	------------

1.1	+ 56	- 20.93 + .00
-----	------	---------------

1.0	+5.14	+ 24	
		-20.80	+ .00

1.2	+41.92	-24.23	+1.00
-----	--------	--------	-------

1.3	+ 2.41	- 21.10	+ 1.00
-----	--------	---------	--------

1.5	+ 3.15	- 21.14	+ .01
2.2	- 2.31	21.14	- .01

2.3	+2.34	-21.00	+02
2.1	+2.12	-21.25	+02

2.4	+3.12	-21.25	+1.02
-----	-------	--------	-------

14.1	-4.76	-20.39	+18
------	-------	--------	-----

Nov. 16 $L' = -.015$

$$22 \times^2 + \overset{44}{\cancel{32}} - 22 \times^2 + 2 = +10$$

		+ 01	
233	+ 158 ¹	- 22 28 ³	+ 01

21.1	+ 4.55	+ 23	- 22 60	- 02-02
------	--------	------	---------	---------

21.1	+ 1.55	- 22.60	- 02 - 02
21.4	+ 2.75	- 22.47	- 01 - 02

22.5	+ 3.27	- 22.47	- .01 - .02
		- 22.45	+ .00 + .00

22.8	+ 2.20	- 22.12	+ .01	+ .00
------	--------	---------	-------	-------

0.1	+4.08	-22.56	+0.03	+0.02
0.1	+3.51	-22.11	+0.01	+0.02

0.6	+3.56	-22.44	+1.04	+1.03
-----	-------	--------	-------	-------

[illegible]

21.4	-2.81	-21.45	-01-.02
------	-------	--------	---------

-20	-11.87	-21.27	+0.01	+0.00
-----	--------	--------	-------	-------

[illegible]

1872
Nov. 17 $L' = -0.39$

RA tang. d. d.

PRA

22.4⁵ + .10¹⁰ -22.68⁶ $n_5 = +2.5$ 22.6423.8⁴ + 1.43² -23.12² + .04 22.68

+ 30

22.1 + 3.02 -23.29 -0.02 -0.05 -23.31 -23.34 + 2.92 -0.65 + 1.66 -0.32 + 2.22 + 1.19

22.5 + 3.27 -23.49 + 0.00 -0.04 -23.49 -23.53 + 3.17 -0.83 + 1.91 -0.51 + 2.26 + 2.27

22.8 + 2.20 -23.07 + 0.01 -0.02 -23.06 -23.09 + 2.10 -0.40 + 1.84 -0.07 + 1.19 + 0.08

0.9 + 1.48 -23.73 + 0.09 + 0.08 -23.64 -23.67 + 3.98 -0.98 + 2.72 -0.65 + 2.25 + 2.24

0.4 + 1.90 -23.16 + 0.04 + 0.04 -23.09 -23.12 + 1.80 -0.43 + 1.54 -0.10 + 2.24 + 1.19

0.6 + 3.56 -23.46 + 0.08 + 0.05 -23.38 -23.41 + 2.46 -0.72 + 2.20 -0.39 + 2.29 + 1.18

+ 2.23 + 2.21

22.4 - 4.13 -21.53 + 0.00 -0.04 -21.53 -21.57 - 4.23 + 1.13 - 5.49 + 1.46 + 2.27 + 2.27

22.8 - 4.89 -21.68 + 0.01 -0.02 -21.67 -21.70 - 4.99 + 0.99 - 6.25 + 1.32 + 2.20 + 2.21

0.5 - 2.82 -22.27 + 0.08 + 0.04 -22.19 -22.23 - 2.92 + 0.47 - 4.18 + 0.79 + 1.16 + 1.19

+ 2.21 + 2.22

Nov. 19 $L' = -0.23$ 21.7 + .14 -24.11 $n_5 = +2.0$ 24.08

21.5 + 1.52 -24.39 + 0.00 24.06

+ .33

20.5 + 3.61 -24.63 -0.03 -0.02 -24.66 -24.65 + 3.47 -1.52 + 2.09 -0.24 + 1.15 + 1.11

20.9 + 5.72 -25.77 -0.02 -0.01 -25.79 -25.78 + 5.58 -1.66 + 4.20 -1.38 + 3.30 + 3.33

21.1 + 4.55 -25.12 -0.01 -0.01 -25.13 -25.13 + 4.41 -1.01 + 3.03 -0.73 + 2.23 + 2.24

21.4 + 2.75 -24.80 -0.01 + 0.00 -24.81 -24.80 + 2.61 -0.69 + 1.23 -0.41 + 2.26 + 3.33

21.7 + 2.86 -24.64 + 0.00 + 0.00 -24.64 -24.64 + 2.72 -0.53 + 1.34 -0.25 + 1.19 + 1.19

22.0 + 1.69 -24.42 + 0.01 + 0.01 -24.41 -24.41 + 1.75 -0.31 + 0.87 -0.03 + 1.18 + 0.08

22.1 + 3.02 -24.76 + 0.01 + 0.01 -24.75 -24.75 + 2.88 -0.65 + 1.50 -0.37 + 2.23 + 2.25

+ 2.21 + 2.24

21.4 - 2.81 -23.56 -0.01 + 0.00 -23.57 -23.56 - 2.95 + 0.55 - 4.33 + 0.82 + 1.19 + 1.19

21.8 - 3.37 -23.39 + 0.00 + 0.01 -23.39 -23.38 - 3.51 + 0.72 - 4.89 + 1.00 + 2.21 + 2.20

+ 2.20 + 2.20

Nov. 20 $L' = -0.29$ 22.0 + 1.18⁸ $n_5 = +2.0$ 24.1322.6 + 1.23² -25.09 + 0.02 24.86

+ .21

22.1 + 3.02 -25.31 -0.02 -0.02 -25.32 -25.34 + 2.73 -0.44 + 1.79 -0.25 + 1.16 + 1.14

22.5 + 3.27 -25.65 + 0.00 -0.02 -25.65 -25.67 + 2.98 -0.77 + 2.04 -0.58 + 2.26 + 2.28

22.8 + 2.20 -25.27 + 0.00 -0.01 -25.26 -25.28 + 1.91 -0.38 + 1.97 -0.19 + 2.20 + 2.20

0.1 + 4.08 -25.51 + 0.04 + 0.02 -25.47 -25.49 + 3.79 -0.69 + 2.55 -0.40 + 1.16 + 1.14

0.4 + 1.90 -25.17 + 0.05 + 0.03 -25.12 -25.14 + 1.61 -0.24 + 1.67 -0.05 + 1.15 + 0.07

0.6 + 3.56 -25.55 + 0.06 + 0.04 -25.49 -25.51 + 3.27 -0.61 + 2.33 -0.42 + 1.19 + 1.18

+ 1.19 + 2.20

22.8 - 4.89 -24.16 + 0.01 -0.01 -24.15 -24.17 - 5.18 + 0.73 - 6.12 + 0.92 + 1.14 + 1.15

0.1 - 4.84 -24.44 + 0.04 + 0.02 -24.40 -24.42 - 5.13 + 0.48 - 6.07 + 0.67 + 0.09 + 1.11

0.5 - 2.82 -24.43 + 0.06 + 0.03 -24.38 -24.40 - 3.11 + 0.50 - 4.05 + 0.69 + 1.16 + 1.17

+ 1.13 + 1.14

Nov. 21 $L' = +0.20$ 21.5 + .16 -25.73 $n_5 = +2.3$ 25.69

21.3 + .90 -25.90 + 0.00 25.68

+ .22

20.9 + 5.72 -27.28 + 0.01 + 0.01 -27.27 -27.27 + 5.56 -1.54 + 4.82 -1.37 + 2.28 + 2.28

21.1 + 4.55 -26.78 + 0.01 + 0.00 -26.77 -26.78 + 4.39 -1.04 + 3.15 -0.88 + 2.24 + 2.24

21.7 + 2.86 -26.38 + 0.00 -0.01 -26.38 -26.39 + 2.70 -0.65 + 1.96 -0.49 + 2.24 + 2.25

22.0 + 1.89 -26.03 -0.01 -0.01 -26.04 -26.04 + 1.73 -0.31 + 1.99 -0.12 + 1.18 + 1.14

22.1 + 3.02 -26.31 -0.01 -0.02 -26.32 -26.33 + 2.86 -0.59 + 2.12 -0.43 + 2.21 + 2.20

+ 2.24 + 2.24

21.8 - 3.37 -24.88 -0.01 -0.01 -24.89 -24.89 - 3.53 + 0.84 - 4.27 + 1.01 + 2.24 + 2.24

Nov. 23 $L' = +.006$

RA tang. ke. RA

22.7	+ .08	- 2% .02	$n = +.19$
		+ .02	$\frac{5}{5}$

22.0	+1.20	-27.23	+00+.00
------	-------	--------	---------

22.0	+1.89	-27.28	+00+00
------	-------	--------	--------

22.1	+3.02	-27.55	+00+00
------	-------	--------	--------

0.8	+1.73	-2.40	-0.01-0.02
-----	-------	-------	------------

$$21.4 - 2.81 - 26.41 + .01 + .00$$
$$22.4 - 4.13 = 26.19 + .00 + .00$$

22.4	-2.75	-26.37	+00	+00
------	-------	--------	-----	-----

Nov. 25 $h' = +.075$

$$1.2 + .20 - 28.34 \quad u = +.16$$

		+ 04	5
--	--	------	---

0.7	+ 1.60	- 28.60	+ .04
-----	--------	---------	-------

0.11 + 1.90 2863 + 06 + 02

$$0.6 + 3.56 = 29.12 + .05 + .01$$
$$0.8 + 1.73 - 28.62 + 0.3 - .01$$

1.2	+41.92	-	35.99	+0.00	-0.04
-----	--------	---	-------	-------	-------

1.3	+ 2.41	- 28.86	- .01	- .05
1.5	+ 3.15	38.41	- .02	- .06

1.5	1.5	28.76	0.02
-----	-----	-------	------

Nov. 27 $h \pm +.076$
$$23.3 + 42 - 26.08$$

	+ .10	
--	-------	--

23.5	+ 1.03	- 26.35
-----------------	-------------------	--------------------

$$23\frac{1}{2} \quad + 431 \quad - 27.20 \quad - 02$$

		4	#	
--	--	---	---	--

23.4	- 2.75	- 25.48	- .01
------	--------	---------	-------

Dec. 3 $L^1 = +.000$

2.4	+ .29	- 18.60	$n = 36$
-----	-------	---------	----------

$$2.2 \pm 1.07 + .08$$

1.7	+ 1.19	- 18.86	+ .00
----------------	-------------------	---------	-------

06	+ 356	+ .28
		- 1958

2.3	+ 2.34	- 19.06
-----	--------	---------

$$2.4 + 3.12 - 19.51$$
[illegible] $22 = 4.76 = 14\% + 10$

2.2	1/10	1/20	1/10	1/10
-----	------	------	------	------

0 01 +019

dic. 14 h' = +039

$$239 + 11 + 101 = 350 \quad \text{m} + 1.4 \text{ m}$$
$$25.7 \quad 11.01 - 17.06 \quad 5 = 14$$
$$0.1 + 1.01 + 1.42 - 19.48 + 50$$

12	1.08	100%	11.11
----	------	------	-------

$$\begin{array}{r} 0.2 \\ + 4.08 \\ \hline 4.28 \end{array} \quad \begin{array}{r} 4.19 \\ - 19.94 \\ \hline -15.75 \end{array} \quad \begin{array}{r} -0.01 \\ + 0.00 \\ \hline -0.01 \end{array}$$

0.1	-24.821	-17.21
-----	---------	--------

$$0.1 - 4.84 - 4.93 - 17.27 + 00 + 00$$

1872
Dec. 7 $L' = +0.22$

RA (ang) sec T. Ra

22.4	+ .07	-19.54	$n_s = +.31$	19.52
23.2	+1.26	+ .02 -19.89 + .35	- .02	19.56

22.1	+ 3.02	- 20.88	+ .01 + .02	- 20.37	- 20.36	+ 2.95	- .83	+ 1.76	- .47	+ .28	+ .27		+ .28
22.5	+ 3.27	- 20.66	+ .00 + .02	- 20.66	- 20.64	+ 3.20	- 1.13	+ 2.01	- .75	+ .35	+ .37		+ .36
22.8	+ 2.20	- 20.16	- .01 + .01	- 20.17	- 20.15	+ 2.13	- .63	+ .94	- .26	+ .30	+ .28		+ .30
23.0	+ 3.66	- 20.55	- .01 + .00	- 20.56	- 20.55	+ 3.59	- 1.02	+ 2.40	- .66	+ .28	+ .28		+ .28
										+ .30	+ .33		+ .30

22.8	- 4.89	- 18.30	- .01 + .01	- 18.31	- 18.29	- 4.96	+ 1.24	- 6.15	+ 1.60	+ .25	+ .26		+ .26
0.1	- 4.84	- 18.45	- .04 - .02	- 18.49	- 18.47	- 4.91	+ 1.09	- 6.10	+ 1.42	+ .22	+ .23		+ .22
										+ .24	+ .24		+ .24

Dec 10 $L' = -0.27$

0.8	+ .41	- 19.26	$n_s = +$
0.5	+ 1.47	- 19.58	

0.4	+ 1.90	- 19.84	- .00	- 19.84	+ .43	- .26							
0.6	+ 3.56	- 20.29	+ .00	- 20.29	+ 2.09	- .71		+ .34					+ .34
1.0	+ 5.14	- 21.00	+ .01	- 20.99	+ 3.67	- 1.41		+ .38					+ .38
1.2	+ 4.92	- 34.60	+ .02	- 34.48	+ 40.15	- 14.90		+ .37					+ .37
										+ .36			+ .36

Dec 17
Sun. Pol. 2

0.5	- 2.82	- 18.20	+ .00	- 18.20	- 4.29	+ .38		+ .32					+ .32	+ .35
-----	--------	---------	-------	---------	--------	-------	--	-------	--	--	--	--	-------	-------

Dec 21 $L' = -0.43$

0.2	+ .17	- 22.65	
23.5	+ 1.03	- 22.91	

23.1	+ 3.66	- 23.48	- .05	- 23.53	+ 3.49	- .88		+ .25					+ .25
23.6	+ 4.31	- 23.55	- .03	- 23.58	+ 4.14	- .93		+ .22					+ .22
23.7	+ 2.37	- 23.15	- .02	- 23.17	+ 2.20	- .52		+ .24					+ .24
1.5	+ 3.15	- 23.33	+ .06	- 23.27	+ 2.98	- .62		+ .21					+ .21
								+ .23					+ .23
23.4	- 2.75	- 21.90	- .03	- 21.93	- 2.92	+ .72		+ .25					+ .25
1.6	- 3.06	- 21.93	+ .06	- 21.87	- 3.23	+ .78		+ .24					+ .24
								+ .24					

Dec. 23 $L' = -0.11$

3.2	+ .25	- 23.06	$n_s = +.42$	22.96										
		+ .10												
2.9	+ 1.24	- 23.48	+ .00	22.96										
		+ .52												
2.8	+ 5.10	- 25.07	+ .00 + .00	- 25.07	- 25.07	+ 4.85	- 2.01	+ 3.86	- 1.59	+ .41	+ .41		+ .41	
3.1	+ 4.42	- 24.81	+ .00 + .00	- 24.81	- 24.81	+ 4.17	- 1.75	+ 3.18	- 1.33	+ .42	+ .42		+ .42	
3.6	+ 2.89	- 24.16	+ .00 + .01	- 24.16	- 24.15	+ 2.64	- 1.10	+ 1.65	- .68	+ .42	+ .41		+ .42	
3.8	+ 1.78	- 23.69	+ .01 + .01	- 23.68	- 23.68	+ 1.53	- .63	+ 1.54	- .21	+ .41	+ .40		+ .41	
										+ .42	+ .42		+ .41	
2.9	- 3.65	- 21.52	+ .00 + .00	- 21.52	- 21.52	- 3.90	+ 1.54	- 4.89	+ 1.96	+ .39	+ .44		+ .40	
3.8	- 4.78	- 20.78	+ .01 + .01	- 20.77	- 20.77	- 5.03	+ 2.28	- 6.02	+ 2.70	+ .45	+ .45		+ .45	
										+ .42	+ .42		+ .42	

Dec. 17 $L' = -0.13$

1.2	+ .41	- 21.70		21.68										
		+ .12												
4.6	+ 7.6	+ 23.53	+ 24.66	+ .00	- 22.90	+ 4.73	- 1.20	+ .25					+ .25	
4.8	1.0	+ 5.14	- 22.90			+ 4.51	- 14.61	+ .35					+ .35	
1.2	+ 4.92	- 36.31	+ .00	- 36.31				+ .30					+ .30	

Dec 24 $L' = +0.06$
 23.6 $+2.29$ -23.12

23.5 -1.03 -23.45

23.6 $+4.31$ $-25.10 +0.00$ -25.10 $+4.02$ -1.98 $+4.9$
 23.7 $+2.37$ $-23.98 +0.00$ -23.98 $+2.08$ -0.86 $+4.1$
 $+4.5$ $+4.5$ $+4.5$

23.4 -2.75 -21.86

Dec 25 $L' = +0.07$

23.4 $+2.7$ -23.34 $n_s = +.51$ 23.20

23.1 $+1.51$ $-23.77 +0.00$ 23.20

23.6 $+4.31$ -25.39 $+0.00$ -25.39 $+4.04$ -2.05 $+2.80$ -1.42 $+5.1$ $+5.1$ $+5.1$
 23.7 $+2.37$ -24.44 $+0.00$ -24.44 $+2.10$ -1.10 $+1.86$ -0.47 $+5.2$ $+5.3$ $+5.2$
 $+5.2$ $+5.1$ $+5.2$

23.4 -2.75 -21.82 $+0.00$ -21.82 -3.02 $+1.52$ -4.26 $+2.15$ $+5.0$ $+5.0$ $+5.0$
 0.1 -4.84 $-20.58 +0.00$ -0.01 -20.58 -2.459 -5.11 $+2.76$ -6.35 $+3.38$ $+5.4$ $+5.3$ $+5.4$
 $+5.2$ $+5.2$ $+5.2$

Dec 30 $L' = -0.20$

2.5 $+1.17$ -24.09 $n_s = +.58$ 24.00

3.5 $+1.08$ $-24.64 +0.02$ 24.06

1.2 $+4.192$ $+18.95$ -0.03 -0.05 $+18.92$ $+18.90$ $+4.175$ $+4.01$ $+4.081$ $+4.354$ $+5.5$ $+5.3$ $+5.4$
 1.5 $+3.15$ -25.70 -0.02 -0.04 -25.72 -25.74 $+2.98$ -1.63 $+2.07$ -1.10 $+4.9$ $+4.4$ $+4.9$
 1.9 $+3.04$ -25.18 -0.01 -0.03 -25.49 -25.51 $+2.87$ -1.40 $+1.96$ -0.87 $+4.9$ $+4.4$ $+4.9$
 3.5 $+1.95$ -25.08 $+0.02$ $+0.00$ -25.06 -25.08 $+1.78$ -0.97 $+1.87$ -0.41 $+5.4$ $+5.1$ $+5.4$
 3.6 $+2.89$ -25.58 $+0.02$ $+0.00$ -25.56 -25.58 $+2.72$ -1.87 $+1.81$ -0.94 $+5.4$ $+5.2$ $+5.4$
 $+5.3$ $+5.3$ $+5.2$ $+5.2$

1873
 Jan 1 $L' = -0.22$

0.4 $+0.13$ -25.08 $n_s = +.51$ 25.02

2.4 $+1.12$ -26.77 $+0.05$ 25.09

23.1 $+3.66$ -26.96 -0.04 -0.09 -26.94 -26.99 $+3.53$ -1.85 $+2.54$ -1.35 $+5.2$ $+5.3$ $+5.2$
 23.6 $+4.31$ -27.29 -0.03 -0.08 -27.32 -27.37 $+4.18$ -2.23 $+3.19$ -1.73 $+5.3$ $+5.4$ $+5.4$
 23.7 $+2.37$ -26.17 -0.03 -0.08 -26.20 -26.25 $+2.71$ -1.11 $+1.75$ -0.61 $+5.0$ $+4.9$ $+5.0$
 1.5 $+3.15$ -26.53 $+0.01$ -0.04 -26.52 -26.57 $+3.02$ -1.43 $+2.03$ -0.93 $+4.7$ $+4.6$ $+4.7$
 3.1 $+4.42$ -27.44 $+0.01$ -0.01 -27.40 -27.45 $+4.29$ -2.31 $+3.30$ -1.81 $+5.4$ $+5.5$ $+5.4$
 3.5 $+1.95$ -26.05 $+0.05$ $+0.00$ -26.00 -26.05 $+1.82$ -0.91 $+0.83$ -0.41 $+5.0$ $+5.0$ $+5.0$
 3.6 $+2.89$ -26.47 $+0.06$ $+0.00$ -26.41 -26.47 $+2.76$ -1.32 $+1.77$ -0.83 $+4.8$ $+4.7$ $+4.8$
 $+5.1$ $+5.2$ $+5.1$

3.4 -3.13 -23.51 $+0.05$ $+0.00$ -23.46 -23.51 -3.26 $+1.63$ -4.25 $+2.13$ $+5.0$ $+5.0$ $+5.1$

Jan 4 $L' = -0.09$

3.6 $+2.27$ -26.32 $n_s = +.43$ 26.22

4.1 $+1.28$ -26.75 $+0.00$ 26.26

2.3 $+2.34$ -27.08 -0.01 -0.02 -27.09 -27.10 $+2.07$ -0.77 $+1.06$ -0.35 $+3.7$ $+3.3$ $+3.7$
 2.4 $+3.12$ -27.48 -0.01 -0.02 -27.49 -27.50 $+2.85$ -1.14 $+1.84$ -0.75 $+4.1$ $+4.1$ $+4.1$
 4.5 $+3.93$ -27.81 $+0.01$ $+0.00$ -27.80 -27.81 $+3.66$ -1.48 $+2.65$ -1.06 $+4.0$ $+4.0$ $+4.0$
 4.7 $+2.23$ -27.36 $+0.01$ $+0.01$ -27.35 -27.35 $+1.94$ -1.03 $+0.95$ -0.60 $+5.3$ $+6.3$ $+3.9$
 $+3.9$ $+4.0$

2.2 -4.76 -22.25 -0.01 -0.02 -22.26 -22.27 -5.03 $+4.06$ -6.04 $+4.48$ $+8.1$ $+7.4$ $+3.4$
 4.2 -4.07 -24.91 $+0.01$ $+0.00$ -24.90 -24.91 -4.34 $+1.42$ -5.35 $+1.84$ $+3.3$ $+3.7$ $+3.4$
 $+3.3$ $+3.4$ $+3.4$ $+3.8$

1873													
Jan. 6	$L' = -0.14$	$L' = -0.14$	$T. Ra$										
3.8	+ .30	- 26.76	$n_s = +.42$	26.64									
3.8	+ 1.26	+ 12	- 27.16 + .00	26.67									
2.4	+ 2.34	+ 49	- 27.58 + .02	- 27.60	- 27.60	+ 2.04	- .84	+ 1.08	- 0.44	+ .41	+ .41	+ .41	+ .41
2.4	+ 3.12		- 27.63 + .02	- 27.85	- 27.85	+ 2.82	- 1.09	+ 1.86	- .69	+ .39	+ .37	+ .39	+ .39
3.4	- 3.13		- 25.60 + .01	- 25.59	- 25.59	- 3.43	+ 1.17	- 4.39	+ 1.57	+ .34	+ .36	+ .35	+ .35
16.2	- 4.07		- 24.88 + .01	- 24.89	- 24.89	- 4.37	+ 1.87	- 5.33	+ 2.27	+ .43	+ .43	+ .43	+ .43
Jan. 7	$L' = -0.13$	$L' = -0.13$											
3.7	+ .21	- 26.97	$n_s = +.47$	26.49									
3.3	+ 1.37	+ 08	- 27.53 + .01	26.88									
2.8	- 3.65	+ 25.87	+ .01 + .01	- 25.80	- 25.80	- 3.86	+ 1.17	- 5.02	+ 1.73	+ .30	+ .34	+ .32	+ .32
2.8	- 4.07	- 25.04	- .01 - .01	- 25.05	- 25.05	- 4.28	+ 1.92	- 5.44	+ 2.48	+ .45	+ .46	+ .46	+ .46
Jan. 9	$L' = -0.17$	$L' = -0.17$											
3.9	+ .17	- 27.51	$n_s = +.32$	27.45									
3.2	+ 1.31	+ 06	- 27.88 - .01	27.43									
0.4	+ 1.90	+ 46	- 27.73 - .06 - .05	- 27.79	- 27.78	+ 1.73	- .28	+ .59	+ .10	+ .16	+ .31	+ .31	+ .31
1.0	+ 5.14		- 29.03 - .05 - .04	- 29.08	- 29.07	+ 4.97	- 1.57	+ 3.83	- 1.19	+ .32	+ .31	+ .31	+ .31
1.2	+ 4.192		+ 29.00 - .05 - .03	+ 28.95	+ 28.97	+ 4.175	+ 4.46	+ 40.61	+ 4.65	+ .32	+ .32	+ .32	+ .32
1.3	+ 2.41		- 28.26 - .05 - .03	- 28.31	- 28.29	+ 2.24	- 1.38	+ 1.10	- .37	+ .36	+ .37	+ .36	+ .36
2.4	+ 3.12		- 28.57 - .03 - .01	- 28.60	- 28.58	+ 2.95	- 1.09	+ 1.81	- .70	+ .87	+ .89	+ .37	+ .37
4.5	+ 3.93		- 28.92 + .01 + .02	- 28.91	- 28.90	+ 3.76	- 1.40	+ 2.62	- 1.02	+ .37	+ .40	+ .38	+ .38
4.7	+ 2.26		- 28.26 + .01 + .03	- 28.25	- 28.23	+ 2.09	- .74	+ .95	- .35	+ .35	+ .37	+ .35	+ .35
Jan. 12	$L' = -0.27$	$L' = -0.27$											
3.5	+ .29	- 27.98	$n_s = +.34$	27.87									
3.0	+ 1.24	+ .11	- 28.31 + .01	27.83									
2.8	+ 5.10	+ 47	- 29.54 + .02 + .01	- 29.52	- 29.53	+ 4.81	- 1.54	+ 3.86	- 1.22	+ .38	+ .32	+ .32	+ .32
3.8	+ 1.78		- 28.50 - .01 - .02	- 28.51	- 28.52	+ 1.49	- .53	+ .54	- .21	+ .36	+ .39	+ .39	+ .39
3.1	+ 4.42		- 29.89 + .01 + .00	- 29.88	- 29.89	+ 4.13	- 1.90	+ 3.18	- 1.58	+ .46	+ .50	+ .48	+ .48
2.8	- 3.65		- 26.65 + .02 + .01	- 26.63	- 26.64	- 3.94	+ 1.35	- 4.89	+ 1.67	+ .34	+ .34	+ .34	+ .34
3.8	- 4.78		- 25.87 - .01 - .02	- 25.88	- 25.89	- 5.07	+ 2.10	- 6.02	+ 2.42	+ .41	+ .40	+ .40	+ .40
Jan. 14	$L' = -0.07$	$L' = -0.07$											
4.0	+ .16	- 28.60	$n_s = +.36$	28.55									
3.0	+ 1.25	+ .15	- 28.98 - .01	28.55									
2.8	+ 5.10	+ 44	- 30.43 - .01 + .00	- 30.44	- 30.43	+ 4.94	- 1.84	+ 3.85	- 1.45	+ .37	+ .38	+ .38	+ .38
3.1	+ 4.42		- 29.86 - .01 + .00	- 29.87	- 29.86	+ 4.26	- 1.27	+ 3.17	- .88	+ .30	+ .28	+ .29	+ .29
3.6	+ 2.89		- 29.51 + .00 + .00	- 29.51	- 29.51	+ 2.73	- .91	+ 1.64	- .53	+ .33	+ .32	+ .33	+ .33
4.7	+ 2.26		- 29.36 + .00 + .01	- 29.36	- 29.35	+ 2.10	- .76	+ 1.01	- .37	+ .36	+ .37	+ .36	+ .36
4.8	+ 1.75		- 29.28 + .01 + .01	- 29.27	- 29.27	+ 1.59	- .67	+ .50	- .29	+ .42	+ .58	+ .34	+ .34
2.8	- 3.65		- 27.15 - .01 + .00	- 27.16	- 27.15	- 3.81	+ 1.44	- 4.90	+ 1.83	+ .38	+ .37	+ .38	+ .38
4.2	- 4.07		- 27.12 + .00 + .01	- 27.12	- 27.11	- 4.23	+ 1.48	- 5.32	+ 1.87	+ .35	+ .35	+ .35	+ .35
										+ .37	+ .36	+ .37	+ .35

1873

Feb. 4

 $L' = -0.414$
 $L' = -0.220$ $\rho = -0.04$ RA tang. μ α RA4.0 - .04 +1.01 -32.59 $\mu_5 = +39 + 2$ 32.64

3.5 +1.08 +1.67 -33.00 -02 32.66

3.5 +1.95 +2.19 -33.36 -02 +00 -33.38 -33.36 +1.99 -79 + .87 - .36 +1.40 +.41 +2 +.42 +.43 +.42

3.8 +1.78 +2.04 -33.19 -01 +01 -33.20 -33.18 +1.82 -61 + .70 - .18 +.31 +.26 +2 +.36 +.28 +.36

4.7 +2.26 +2.47 -33.41 +03 +05 -33.38 -33.36 +2.30 -79 + 1.18 - .36 +.31 +.31 +3 +.23 +.34 +.33

3.8 -4.78 -4.89 -31.11 -01 +01 -31.12 -31.10 -4.74 +1.47 -5.86 +1.90 +.31 +.5 +.32 +.4 36 .36 +.36 +.37

Feb. 5

 $L' = -0.31$
 $L' = -0.229$ 3.8 +.29 -33.53 $\mu_5 = +22$ 33.43

3.4 +1.25 -33.73 -01 33.34

2.3 +2.34 -34.10 -05 -03 -34.15 -34.13 +2.05 -62 + 1.05 - .10 +.30 +.37 +.30

2.4 +3.12 -34.30 -04 -03 -34.34 -34.33 +2.83 -81 + 1.87 - .60 +.29 +.32 +.29

4.5 +3.93 -34.78 +02 +03 -34.76 -34.75 +3.64 -1.23 + 2.68 - 1.02 +.34 +.38 +.36

6.4 +5.50 -35.25 +08 +09 -35.17 -35.16 +5.21 -1.64 + 4.25 - 1.43 +.31 +.34 +.33

6.7 +20.73 -40.65 +09 +10 -40.56 -40.55 +20.44 -7.03 +19.18 -6.82 +.34 +.35 +.34

4.2 -4.07 -32.10 +01 +02 -32.09 -32.08 -4.36 +1.44 -5.32 +1.65 +.33 +.31 +.32 +.36

4.2 -4.07 -32.10 +01 +02 -32.09 -32.08 -4.36 +1.44 -5.32 +1.65 +.33 +.31 +.32 +.36

Feb. 6

 $L' = -0.24$
 $L' = -0.24$ 5.3 +.18 -34.11 $\mu_5 = +32$ 34.05

4.6 +1.25 -34.43 -02 34.03

4.5 +3.93 -35.50 -02 +00 -35.52 -35.50 +3.75 -1.41 + 2.68 - 1.07 +.38 +.40 +.39

4.7 +2.26 -34.78 -02 +00 -34.80 -34.78 +2.08 -69 + 1.01 - .35 +.33 +.35 +.33

4.8 +1.75 -34.62 -01 +01 -34.63 -34.61 +1.57 -52 + .50 - .18 +.33 +.36 +.36

5.0 +5.18 -35.68 -01 +01 -35.69 -35.67 +5.00 -1.58 + 3.93 - 1.24 +.32 +.31 +.32

6.4 +5.50 -35.96 +03 +05 -35.93 -35.91 +5.32 -1.82 + 4.25 - 1.48 +.34 +.35 +.35

6.7 +20.73 -40.94 +04 +05 -40.90 -40.89 +20.55 -6.79 +19.48 -6.46 +.33 +.33 +.33

4.2 -4.07 -32.70 -03 -01 -32.73 -32.71 -4.25 +1.38 -5.32 +1.72 +.32 +.32 +.32

5.0 -7.34 -31.61 -01 +01 -31.62 -31.60 -7.52 +2.49 -8.59 +2.83 +.33 +.33 +.33

6.2 -16.92 -28.41 +02 +04 -28.39 -28.37 -17.10 +5.72 -18.19 +6.06 +.33 +.33 +.33

6.4 -2.95 -33.10 +03 +05 -33.07 -33.05 -3.13 +1.04 -4.20 +1.38 +.33 +.33 +.33

6.4 -3.20 -32.99 +03 +05 -32.96 -32.94 -3.38 +1.15 -4.45 +1.49 +.34 +.33 +.33

Feb. 8

 $L' = +0.20$
 $L' = -0.15$ 5.8 +.13 -34.96 $\mu_5 = +20$ 34.93

5.8 +1.14 -35.16 +00 34.91

4.7 +2.26 -35.45 +02 -35.43 -35.43 +2.13 -47 + 1.02 - .27 +.22 +.24 +.22

4.8 +1.75 -35.40 +02 -35.38 -35.38 +1.62 -42 + .61 - .22 +.26 +.36 +.36

6.1 +2.65 -35.39 -01 -35.40 -35.40 +2.52 -44 + 1.51 - .24 +.17 +.16 +.19

5.7 -3.12 -34.15 +00 -34.15 -34.15 -3.25 +.61 -4.26 +1.01 +.25 +.24 +.25

5.9 -4.32 -33.86 +00 -33.86 -33.86 -4.45 +1.10 -5.46 +1.30 +.25 +.24 +.24

6.2 -16.92 -31.36 -01 -31.37 -31.37 -17.05 +3.59 -18.06 +3.79 +.81 +.21 +.21

6.4 -2.95 -34.32 -01 -34.34 -34.34 -3.08 +.62 -4.09 +.82 +.20 +.20 +.20

6.4 -3.20 -34.05 -01 -34.07 -34.07 -3.33 +.89 -4.34 +1.09 +.27 +.25 +.26

ae. p.
1873

2ph. 9 $h' = -.012$

187
Ka tang sed Pa

Feb. 10 $h' = .013$

$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$
6.0	+ .24	- 35.51	- 35.41

0.47	+2.26	+36.18	-02	-36.20	+3.02	- .69	+3.41	+3.4
4.9	+1.75	-36.16	-01	-36.17	+1.57	- .66	+4.41	-
5.0	+6.18	-37.55	-01	-37.56	+4.94	-2.05	+4.1	+4.1
6.4	+5.50	-38.13	+01	-38.12	+5.26	-2.61	+5.8	+5.0
							+4.2	+4.2

5.0	-7.34	-33.50	-01	-33.51	-7.58	+2.00		+2.26		+2.6
6.2	-16.92	-27.75	+00	-27.75	-11.16	+7.76		+4.45		+4.5
6.4	-2.95	-34.19	+01	-34.18	-3.19	+1.33		+4.42		+4.2
6.4	-3.20	-33.67	+01	-33.66	-3.44	+1.85		+4.54		+4.4
								+4.42		+4.42

Feb. 11 $h' = -0.15$

6.5	+ 3.32	- 35.81 + 15	$n_c = +4.3$	- 35.66							
6.7	+ 1.30	- 36.23 + 60	+ 0.0	35.63							
6.7	+ 20.73	- 43.98 + 60 + 60	+ 0.0 + 0.0	- 43.98	- 43.98 + 5.12	+ 20.41	- 8.17 9.31	+ 19.43	- 5.25 8.89	+ 1.6	+ 1.0
6.9	- 2.92	- 34.29	+ 0.01 + 0.0	- 34.28	- 34.29	- 3.24	+ 1.53	- 4.22	+ 1.94	+ 4.7	+ 4.6

1873
Feb. 17 $L' = -0.63$

RA tangs recs

PKA

6.1 +.36 -38.90 $m_s = +.31$ -38.79
+.11
6.0 +1.45 -39.23 -01 -38.79
+ .45

4.7 +2.26 -39.47 -09 -08 -39.56 -39.55 +1.90 -1.66 +.81 -+.32 +.35 +.40
5.0 +5.18 -40.26 -04 -06 -40.33 -40.32 +4.82 -1.43 +3.73 -1.09 +.30 +.29
6.6 +2.61 -39.59 +.03 +.04 -39.56 -39.53 +2.25 -.66 +1.16 -.32 +.29 +.28
6.7 +20.73 -45.53 +.04 +.04 -45.49 -45.49 +20.37 -6.59 +19.28 -6.26 +.32 +.32

+30 +.30

6.2 -16.92 -33.50 +.01 +.01 -33.49 -33.49 -17.28 +5.41 -18.37 +5.74 +.31 +.31
6.9 -2.92 -37.88 +.05 +.06 -37.83 -37.82 -3.28 +1.07 -4.37 +1.41 +.33 +.32
+.32 +.32

Feb. 18 $L' = -0.23$

4.9 -.01 -39.29 $m_s = +.36$ -39.29
+ .06

4.8 +1.15 -39.71 +.00 -39.30
+ .41

4.5 +3.93 -40.74 -01 -01 -40.75 -40.75 +3.92 -1.46 +2.78 -1.04 +.37 +.37
4.7 +2.26 -40.22 +.00 +.00 -40.22 -40.22 +2.27 -.93 +1.11 -.51 +.41 +.40
4.9 +1.75 -39.99 +.00 +.00 -39.99 -39.99 +1.76 -.70 +0.60 -.28 +.40 +.47
5.0 +5.18 -40.95 +.00 +.00 -40.95 -40.95 +5.19 -1.66 +4.03 -1.24 +.32 +.31
+.37 +.34

5.0 -7.34 -36.91 +.00 +.00 -36.91 -36.91 -7.33 +2.38 -8.49 +2.80 +.33 +.33 +.33 +.36

Feb. 19 $L' = +0.10$

6.0 +.23 -39.91 $m_s = +.27$ 39.85
+ .06

6.0 +1.05 -40.13 +.00 39.86
+ .27

6.4 +2.65 -40.57 +.00 -40.57 -40.57 +2.42 -.66 +1.60 -1.44 +.27 +.28
6.7 +20.73 -44.90 -01 -44.91 -44.91 +20.50 -5.00 +19.68 -4.78 +.24 +.24
+.26 +.24

5.4 -3.12 -39.02 +.00 -39.02 -39.02 -3.35 +.89 -4.14 +1.11 +.27 +.27
6.2 -16.92 -35.54 +.00 -35.54 -35.54 -14.15 +4.37 -17.97 +4.59 +.25 +.25
6.9 -2.92 -39.08 -01 -39.09 -39.09 -3.15 +1.82 -3.97 +1.04 +.26 +.26
+.26 +.26

Feb. 20 $L' = -0.67$

6.0 +.14 -40.30 $m_s = +.32$ -40.26
+ .24

6.2 +1.19 -40.65 +.01 40.28
+ .36

6.1 +2.65 -41.24 +.01 -01 -41.23 -41.25 +2.51 -.94 +1.46 -.60 +.37 +.41
6.4 +5.50 -42.09 +.02 +.01 -42.07 -42.08 +5.36 -1.79 +4.31 -1.43 +.33 +.33
6.7 +20.73 -46.70 +.04 +.03 -46.66 -46.67 +20.59 -6.40 +19.54 -6.02 +.31 +.31
+.34 +.32

5.7 -3.12 -39.39 -02 -03 -39.41 -39.42 -3.26 +.89 -4.31 +1.23 +.27 +.29
5.9 -4.32 -38.89 -01 -02 -38.90 -38.91 -4.46 +1.40 -5.51 +1.74 +.31 +.32
6.2 -16.92 -36.19 +.01 +.00 -36.18 -36.19 -17.06 +4.12 -18.11 +4.06 +.24 +.25
6.4 -2.95 -39.56 +.02 +.01 -39.54 -39.55 -3.09 +1.76 -4.14 +1.10 +.25 +.27
7.3 -3.29 -39.35 +.07 +.06 -39.28 -39.29 -3.43 +1.02 -4.48 +1.36 +.30 +.30
+.37 +.29

Feb. 22 $L' = 0.00$

6.3 +.20 -40.81 $m_s = +.39$ -40.23
+ .08

6.9 +1.25 -41.22 +.00 40.70
+ .52

6.1 +2.65 -41.62 -41.62 +2.65 -.81 +1.40 -.40 +.33 +.29
6.7 +20.73 -50.20 -50.20 +20.53 -9.39 +19.48 -8.98 +.46 +.46
+.39 +.46

6.2 -16.92 -33.53 -33.53 -17.12 +7.28 -18.17 +7.69 +.43 +.42
6.9 -2.92 -39.28 -39.28 -3.12 +1.53 -4.12 +1.01 +.49 +.47
+.48 +.48

Feb. 23 $L' = +0.04$ $C = +0.6$

Langd. recd. P.R.A.

5.6 +.03 +1.00 -40.53 + $\mu_5 = +39.2$ -40.58

5.5 +1.07 +1.46 -40.94 +.00 +.00 -40.94

4.9 +1.75 +2.02 -41.12 -41.12 +1.72 -.59 +.68 -.18 +.34 +.26

5.0 +5.18 +5.29 -42.57 -42.57 +5.15 -2.04 +4.11 -4.63 +.40 +.40 -6 +.35 +.34 +.34

6.4 +5.50 +5.59 -43.10 -43.10 +5.47 -2.57 +4.43 -2.16 +.47 +.49 -5 +.42 +.44 +.43 +.39

5.0 -7.34 -7.41 -37.21 -37.21 -7.37 +3.32 -8.41 +3.73 +.45 +.44 -6 +.38 +.38 +.38

5.7 -3.12 -3.27 -38.95 -38.95 -3.15 +1.58 -4.19 +1.99 +.50 +.47 -7 +.42 +.40 +.41

6.4 -2.95 -3.12 -38.86 -38.86 -2.98 +1.67 -4.02 +2.08 +.56 +.50 -7 +.46 +.43 +.46

6.4 -3.20 -3.34 -38.52 +.00 +.00 -38.52 -38.52 -3.23 +2.61 -4.27 +2.42 +.62 +.57 -7 +.54 +.50 +.52

Feb. 24 $L' = -0.06$

7.2 +.41 -40.64 $\mu_5 = +49$ -40.64

7.2 +.84 -40.85 +.00 -40.85

6.1 +2.65 -41.55 -01 -41.56 -41.56 +2.24 -.92 +1.81 -0.71 +.41 +.39

6.7 +2.073 -49.72 +.00 -49.72 -49.72 +2.032 -9.08 +19.89 -8.87 +.45 +.45 +.45

6.2 -16.92 -32.65 -01 -32.69 -32.69 -17.33 +7.95 -17.76 +8.16 +.46 +.46 +.46

6.9 -2.92 -38.87 +.00 -38.87 -38.87 -3.33 +1.77 -3.76 +1.98 +.53 +.53 +.53

Feb. 25 $L' = -0.33$

6.3 +.22 -40.79 $\mu_5 = +39$ -40.79

5.9 +1.33 -41.21 -01 -41.21 -41.21 -4.54 +1.96 -5.65 +2.39 +.43 +.42 +.42

6.1 +2.65 -41.70 -01 +01 -41.71 -41.69 +2.43 -.92 +1.32 -.48 +.38 +.36 +.38

5.7 -3.12 -39.51 -02 -01 -39.53 -39.52 -3.34 +1.26 -4.45 +1.69 +.38 +.38 +.38

5.9 -4.32 -38.82 -01 +00 -38.83 -38.82 -4.54 +1.96 -5.65 +2.39 +.43 +.42 +.42

6.2 -16.92 -33.99 +.00 +01 -33.99 -33.98 -17.14 +6.80 -18.25 +7.23 +.40 +.40 +.40

7.5 -5.32 -38.69 +.04 +.05 -38.65 -38.64 -5.54 +2.14 -6.65 +2.57 +.39 +.39 +.39

Feb. 26 $L' = +0.00$

6.8 +.21 -41.45 $\mu_5 = +33$ -41.45

6.2 +1.44 -41.86 +.00 +.00 -41.86

6.1 +2.65 -42.23 -42.23 +2.44 -.78 +1.21 -.37 +.32 +.31 +.32

6.7 +2.073 -47.99 -47.99 +2.052 -6.54 +19.29 -6.13 +.32 +.32 +.32

5.9 -4.32 -39.66 -39.66 -4.53 +1.79 -5.76 +2.20 +.44 +.39 +.38

6.9 -2.92 -40.33 -40.33 -3.13 +1.72 -4.36 +1.53 +.36 +.35 +.35

7.3 -3.29 -40.40 -40.40 -3.50 +1.05 -4.73 +1.46 +.30 +.31 +.31

7.5 -5.32 -39.44 +.00 +.00 -39.44 -39.44 -5.53 +2.01 -6.76 +2.42 +.36 +.36 +.36

Mar. 4 $L' = -0.33$

6.9 +.31 -45.59 $\mu_5 = +38$ -45.59

5.8 +1.00 -45.81 -04 -45.81

6.1 +2.65 -46.42 -03 +01 -46.45 -46.41 +2.34 -.86 +1.65 -.60 +.36 +.36 +.36

7.8 +3.55 -46.95 +03 +07 -46.92 -46.88 +3.24 -1.33 +2.55 -1.07 +.41 +.38 +.42 +.42

5.9 -4.32 -44.04 -03 +00 -44.10 -44.07 -4.63 +1.49 -5.82 +1.74 +.32 +.33 +.33

6.2 -16.92 -44.73 -02 +01 -44.75 -44.72 -17.23 +5.84 -17.92 +6.09 +.34 +.34 +.34

7.3 -3.29 -44.54 +01 +05 -44.53 -44.49 -3.60 +1.06 -4.29 +1.32 +.30 +.31 +.31

7.9 -53.01 -22.41 +03 +09 -22.38 -22.34 -53.32 +23.21 -54.01 +23.47 +.44 +.43 +.43

7.5 -5.32 -43.64 +02 +06 -43.62 -43.58 -5.63 +1.97 -6.32 +2.23 +.35 +.35 +.35

673
Mar. 10 $L' = -0.18$

RA Longd med TRA

7.7 +26 +3.51 $m_s = +2.7$ +3.59
+ .08
7.3 +1.31 +3.24 -0.1 +3.62
+1.38

6.4 +5.50 -0.05 -0.02 -0.02 +1.93 +1.93 +5.24 -1.58 +4.19 -1.31 +3.0 +3.1 +3.0
6.7 +20.73 -1.38 -0.02 -0.01 -1.40 -1.39 +20.47 -4.91 +19.42 -4.63 +2.4 +3.4 +2.4
8.3 +1.81 +3.13 +0.1 +0.2 +3.14 +3.15 +1.55 -0.37 +0.30 -0.09 +2.4 +1.9 +1.9
8.4 +3.50 +2.46 +0.1 +0.2 +2.47 +2.48 +3.24 -1.04 +2.19 -0.76 +3.2 +3.5 +3.4

6.4 -2.95 +4.45 -0.02 -0.02 +4.43 +4.43 -3.21 +.92 -4.26 +1.19 +2.9 +2.8 +2.8
6.4 -3.20 +4.53 -0.02 -0.02 +4.51 +4.51 -3.46 +1.30 -4.51 +1.57 +3.8 +3.5 +3.5
7.9 -53.01 +17.52 +0.0 +0.1 +17.52 +17.53 -53.27 +14.01 -54.32 +14.19 +2.6 +2.6 +2.6
8.2 -4.45 +5.16 +0.1 +0.2 +5.17 +5.18 -4.71 +1.66 -5.76 +1.94 +3.5 +3.4 +3.4
8.6 -3.61 +4.69 +0.2 +0.2 +4.71 +4.71 -3.87 +1.20 -4.92 +1.47 +3.1 +2.9 +3.0
+3.2 +3.0 +3.0

Mar. 13 $L' = -0.18$

8.4 +2.1 +1.02 +2.21 $m_s = +1.7$ +2.26
+ .05
7.7 +1.48 +1.79 +1.99 -0.1 +2.35
+3.7

6.7 +20.73 -2.19 -0.02 -0.02 -2.21 -2.21 +20.52 -4.42 +19.25 -4.20 +2.1 +2.1 +2.1
8.3 +1.81 +2.07 +1.73 +0.0 +0.1 +1.73 +1.74 +1.60 -0.48 +0.33 -0.25 +3.0 +3.0 +3.0
8.4 +3.50 +3.65 +1.44 +0.0 +0.1 +1.44 +1.45 +3.29 -0.77 +2.02 -0.54 +2.4 +2.7 +2.4
7.9 -53.01 +16.36 -0.1 +0.0 +16.35 +16.36 -53.22 +14.04 -54.49 +14.37 +2.7 +2.6 +2.6
8.2 -4.45 -4.69 +3.52 +0.0 +0.1 +3.52 +3.53 -4.66 +1.31 -5.93 +1.54 +2.8 +2.6 +2.6
8.5 -3.61 -3.74 +3.16 +0.0 +0.1 +3.16 +3.17 +3.82 +0.95 -5.09 +1.18 +2.5 +2.3 +2.3
+2.7 +2.5 +2.5

Mar. 16 $L' = -0.15$

7.6 +.23 +1.03 +1.09 $m_s = +1.5$
7.8 +.83 +1.30 +1.00 +0.0

7.7 +3.55 +3.70 +0.44 +0.0 -0.0 +0.44 +0.44 +3.32 -0.65 +2.72 -0.56 +1.9 +2.1 +2.1
8.3 +1.81 +2.07 +0.72 +0.1 +0.1 +0.73 +0.73 +1.58 -0.36 +0.98 -0.27 +2.7 +2.9 +2.7
8.4 +3.50 +3.65 +0.20 +0.1 +0.1 +0.21 +0.21 +3.27 -0.88 +2.67 -0.79 +2.3 +2.5 +2.3
+2.3 +2.5 +2.5

7.3 -3.29 -3.44 +1.99 -0.0 -0.1 +1.99 +1.98 -3.52 +0.90 -4.12 +0.98 +2.5 +2.4 +2.5
7.5 -5.32 -5.44 +2.84 -0.0 -0.0 +2.84 +2.84 -5.55 +1.75 -6.15 +1.84 +3.1 +3.0 +3.1
8.2 -4.45 -4.55 +2.21 +0.1 +0.1 +2.22 +2.22 -4.68 +1.13 -5.28 +1.22 +2.4 +2.3 +2.4
+2.7 +2.6 +2.6

Mar. 17 $L' = -0.37$

8.1 +.21 +0.77 $m_s = +3.6$ +0.84
+ .07
8.5 +1.21 +0.41 +0.1 +.82
+ .40

7.7 +3.55 -0.34 -0.01 -0.03 -0.35 -0.37 +3.34 -1.12 +2.34 -0.78 +3.4 +3.3 +3.4
8.0 +4.05 -0.49 +0.0 -0.02 -0.49 -0.51 +3.84 -1.26 +2.84 -0.92 +3.3 +3.3 +3.3
8.3 +1.81 +0.35 -0.01 -0.01 +0.36 +0.34 +1.60 -0.41 +0.60 -0.07 +2.6 +1.2 +2.6
8.4 +3.50 -0.33 +0.1 +0.0 -0.32 -0.33 +3.29 -1.09 +2.29 -0.74 +3.3 +3.2 +3.2
9.0 +2.43 -0.12 +0.3 +0.2 -0.09 -0.10 +2.22 -0.86 +1.22 -0.51 +3.9 +3.3 +3.9
+3.5 +3.3 +3.3

7.5 -5.32 +2.67 -0.02 -0.04 +2.65 +2.63 -5.53 +1.88 -6.53 +2.22 +3.4 +3.4 +3.4
7.9 -53.01 +13.29 -0.1 -0.02 +13.28 +13.27 -53.22 +12.57 -54.22 +12.56 +2.3 +2.4 +2.3
8.2 -4.45 +2.20 +0.0 -0.01 +2.29 +2.28 -4.66 +1.52 -5.66 +1.87 +3.3 +3.4 +3.3
8.5 -3.61 +2.13 +0.1 +0.0 +2.14 +2.13 -3.82 +1.37 -4.82 +1.72 +3.6 +3.6 +3.6
8.9 -5.72 +2.90 +0.3 +0.1 +2.93 +2.91 -5.93 +2.16 -6.93 +2.50 +3.6 +3.6 +3.6
+3.2 +3.3 +3.3

1873

Apr. 10 $h' = +0.36$

RA longd sec PRA

9.7 +.21 -4.41 $\mu_s = +.11$ -4.39

9.9 +1.18 -4.51 -01 4.41

8.3 +1.81 +.11 -4.61 +.05 +.06 -4.56 -4.55 +1.60 -.15 +.63 -.04 +.09 +.07

8.4 +3.50 -4.94 +.04 +.05 -4.90 -4.89 +3.29 -4.49 +2.32 -4.38 +.45 +.16

9.4 +2.81 -4.58 +.01 +.02 -4.57 -4.56 +2.60 -.16 +1.63 -.05 +.06 +.03

9.5 +2.72 -4.72 +.01 +.01 -4.71 -4.71 +2.51 -.30 +1.54 -.20 +.12 +.13

10.4 +4.12 -4.70 -.03 -.02 -4.73 -4.72 +3.91 -.32 +2.94 -.21 +.08 +.07

10.8 +4.89 -5.04 -.04 -.03 -5.08 -5.07 +4.68 -.64 +3.71 -.56 +.14 +.15

10.9 +1.92 -4.55 -.04 -.04 -4.59 -4.59 +1.71 -.18 +0.74 -.08 +.11 +.11

8.5 -3.61 -4.04 -.04 +.05 -4.08 -3.99 -3.82 +.33 -4.79 +.52 +.09 +.11

9.2 -4.55 -4.07 +.02 +.03 -4.05 -4.04 -4.76 +.36 -5.73 +.47 +.08 +.08

10.5 -3.27 -4.27 -.03 -.02 -4.30 -4.29 -3.48 +.11 -4.45 +.22 +.03 +.05

+0.07 +.08 +.07 +.10

Apr. 18 $h' = +0.18$ 9.1 +.22 -5.13 $\mu_s = +.10$ -5.10

8.9 +1.12 -5.27 +.00 5.06

9.0 +2.43 -5.43 +.00 +.00 -5.43 -5.43 +2.21 -.30 +1.31 -.21 +.14 +.16

9.5 +2.72 -5.49 -.01 -.01 -5.50 -5.50 +2.50 -.37 +1.60 -.28 +.15 +.18

+1.15 - - +.14 +.15 +.14

8.9 -5.72 -4.11 +.00 +.00 -4.11 -4.11 -5.94 +1.02 -6.84 +1.11 +.17 +.16

9.2 -4.55 -4.60 +.00 -.01 -4.60 -4.61 -4.77 +.53 -5.67 +.61 +.11 +.11

9.7 -2.86 -4.68 -.01 -.01 -4.68 -4.68 -3.08 +.45 -3.98 +.54 +.15 +.14

+1.14 +.14 +.14 +.14

Apr. 16 $h' = +0.33$ 10.0 +.26 +1.03 -5.47 $\mu_s = +.15 +.2$ -5.48

9.4 +1.70 +1.67 -5.69 +.01 -5.52

9.0 +2.43 +2.62 -5.70 +.03 +.02 -5.67 -5.68 +2.19 -.20 +.73 -.01 +.09 +.02 +.13

9.8 +3.37 +3.52 -6.01 +.01 +.00 -6.00 -6.01 +3.11 +.53 +1.67 -.32 +.17 +.19 +.21

10.1 +4.12 +4.25 -6.01 -.01 -.02 -6.02 -6.03 +3.86 +.55 +2.42 -.34 +.14 +.14 +.17

+1.17 +.19 +.17 +.19

9.2 -4.55 -4.66 -5.50 +.03 +.02 -5.47 -5.48 -4.81 +.00 -6.25 +.21 +.00 +.03 +.06 +.08

9.4 -2.75 -2.92 -5.30 +.02 +.01 -5.28 -5.29 -3.01 +.19 -4.45 +.10 +.06 +.09 +.13 +.14

9.7 -2.86 -3.03 -5.35 +.01 +.00 -5.34 -5.35 -3.12 +.13 -4.56 +.34 +.04 +.08 +.11 +.13

10.5 -3.27 -3.42 -5.17 -.02 -.03 -5.19 -5.20 -3.63 +.28 -4.97 +.49 +.08 +.09 +.14 +.14

+1.11 +.12 +.12 +.14

Apr. 21 $h' = +0.18$ 10.2 +0.18 -6.23 $\mu_s = +.07$ 6.21

10.4 +1.10 -6.29 +.00 6.19

10.8 +4.89 -6.71 -.01 -.01 -6.72 -6.72 +4.71 -4.9 +3.79 -.43 +.11 +.12

10.9 +1.92 -6.45 -.01 -.01 -6.46 -6.46 +1.74 -2.3 +1.82 -.17 +.13 +.21

+1.11 +.12 +1.1

1873
Apr. 23 $L' = +.000$ $C = 0$

RA tang. S. recd

RA

10.4 +.33 +1.05 -6.79 $\mu_5 = +.01$ 6.76

10.5 +1.21 +1.16 +1.57 -6.58 +.07 6.69

+ 11

9.0 +2.43 +2.63 -6.97 -6.97 +2.10 -0.18 +1.22 -1.19 +.09 +.14

9.5 +2.72 +2.90 -6.96 -6.96 +2.39 -0.17 +1.51 -1.16 +.07 +.11

10.4 +4.12 +4.25 -6.71 -6.71 +3.79 -0.08 +2.91 +1.09 +.02 +.03

10.8 +4.59 +4.97 -7.27 -7.27 +4.56 -0.48 +3.68 -4.11 +.11 +.13

10.9 +1.92 +2.17 -6.84 -6.84 +1.59 +.05 +.71 -0.4 +.04 +.06

+0.06 +.05 +.06

8.9 -5.72 -5.82 -6.16 -6.16 -6.05 +.63 -6.93 +.64 +.11 +.09

9.1 -4.55 -4.66 -6.30 -6.30 -4.88 +.49 -5.76 +.50 +.11 +.04

9.7 -2.86 -3.03 -6.45 -6.45 -3.19 +.34 -4.07 +.35 +.11 +.09

10.5 -3.27 -3.42 -6.58 -6.58 -3.60 +.21 -4.48 +.22 +.06 +.05

11.1 -3.66 -3.76 -6.57 +.00 -6.57 -6.57 -3.99 +.22 -4.87 +.23 +.06 +.05

+0.09 +.05 +.08 +.08

Apr. 26 $L' = +.012$ 10.5 +.30 -6.94 $\mu_5 = +.10$ 6.91

11.0 +1.25 +.03 -7.04 +.01 - 6.91

+ 14

9.5 +2.72 -7.33 +.01 +.02 -7.32 -7.31 +2.42 -0.38 +1.47 -2.27 +.16 +.19

10.8 +4.59 -7.33 +.00 +.00 -7.33 -7.33 +4.59 -0.39 +3.64 -2.9 +.09 +.08

11.9 +1.92 -7.10 -0.02 -0.01 -7.12 -7.11 +1.62 -0.18 +.67 -0.07 +.11 +.11

+0.12 +.08 +.09 +.11

Apr. 27 $L' = +.022$

9.7 -2.86 -6.66 +.01 +.02 -6.65 -6.64 -3.16 +.29 -4.11 +.40 +.09 +.09

10.4 +.27 -7.09 $\mu_5 = +.08$ -7.07

11.0 +1.37 -7.09 -0.01 -7.02

+ 0.08

9.4 +2.81 -7.28 +.02 +.01 -7.26 -7.24 +2.54 -0.17 +1.44 -1.5 +.07 +.11

9.5 +2.72 -7.23 +.02 +.03 -7.21 -7.20 +2.45 -0.12 +1.35 -1.1 +.05 +.08

10.8 +4.59 -7.42 -0.01 +.00 -7.43 -7.42 +4.62 -0.34 +3.52 -3.3 +.07 +.09

10.9 +1.92 -7.14 -0.01 +.00 -7.15 -7.14 +1.65 -0.06 +.85 -0.5 +.04 +.10

11.2 +2.15 -7.12 -0.02 +.00 -7.12 -7.12 +1.88 -0.05 +.78 -0.5 +.03 +.07

+0.06 +.09 +.07

9.4 -2.75 -6.94 +.02 +.04 -6.92 -6.90 -3.02 +.17 -4.12 +.19 +.06 +.05

9.7 -2.86 -6.98 +.02 +.03 -6.96 -6.95 -3.13 +.13 -4.23 +.14 +.04 +.03

10.5 -3.27 -6.98 +.00 +.01 -6.98 -6.97 -3.54 +.11 -4.64 +.12 +.03 +.03

+0.04 +.04 +.04 +.06

May 1 $L' = -.009$ 10.8 +.16 -7.79 $\mu_5 = +.03$ 7.78

11.0 +1.33 -7.76 -0.00 -7.76

+ 11

9.5 +3.37 -7.58 -0.01 -0.01 -7.59 -7.59 +3.21 +.20 +2.04 +.19 +.06 +.08

10.4 +4.12 -7.37 +.00 -0.01 -7.37 -7.38 +3.96 +.42 +2.79 +.38 +.11 +.14

10.8 +4.59 -7.56 +.00 +.00 -7.56 -7.56 +4.73 +.23 +3.56 +.20 +.05 +.06

10.9 +1.92 -7.73 +.00 +.00 -7.73 -7.73 +1.76 +.06 +.59 +.03 +.04 +.06

11.3 +2.15 -7.79 +.00 +.00 -7.79 -7.79 +1.99 +.02 +.82 -0.3 +.04 +.04

11.4 +2.75 -7.54 +.01 +.00 -7.53 -7.54 +2.59 +.26 +1.42 +.22 +.11 +.16

+0.08 +.09 +.07 +.06

10.5 -3.27 -8.03 +.00 +.00 -8.03 -8.03 -3.43 -0.24 -4.60 -0.27 +.07 +.06

11.0 -3.66 -8.03 +.00 +.00 -8.03 -8.03 -3.82 -0.24 -4.99 -0.27 +.06 +.06

11.6 -4.31 -8.09 +.01 +.01 -8.08 -8.08 -4.47 -0.29 -5.64 -0.32 +.07 +.06

+0.07 +.06 +.06 +.08

1873

May 4 $L' = +.030$ Ra Tung S Sec π Ra $c = +.06$ 11.9 +1.10 +1.00 -7.64 $m_s = +.10 +.3$ -7.69

11.6 +1.03 +1.44 -7.74 +.01 -7.77

10.4	+4.12 +4.25	-7.73 +.01 +.04	-7.69	-7.69	+4.02	-.05	+3.09	+ .05	+ .01 +.5	-.02	+5 +.06 +.03	+ .04
10.8	+4.89 +4.97	-7.67 +.03 +.02	-7.64	-7.65	+4.79	+ .00	+3.86	+ .09	+ .02 +.5	+.03	+6 +.05 +.03	+ .04
10.9	+1.92 +2.17	-7.68 +.03 +.02	-7.65	-7.66	+1.82	-.01	+ .89	+ .08	+ .01 +.4	-.01	+4 +.05 +.03	+ .04
11.4	+2.75 +2.92	-7.73 +.02 +.01	-7.71	-7.72	+2.65	-.07	+1.72	+ .02	+ .03 +.4	-.02	+5 +.07 +.03	+ .07
12.0	+4.55 +4.66	-7.67 +.00 +.01	-7.67	-7.68	+4.45	-.03	+3.52	+ .06	+ .01 +.5	-.02	+7 +.06 +.03	+ .05
12.1	+4.84 +4.93	-7.80 - .01 +.01	-7.81	-7.81	+4.74	-.17	+3.81	- .07	+ .04 +.5	+ .02	+7 +.09 +.07	+ .08
											+06 +.04	+ .06

10.5	-3.27 -3.42	-7.73 +.01 +.03	-7.69	-7.70	-3.37	-.05	-4.30	+ .01	-.02 +.5	+ .01	+7 +.06 +.07	+ .06
11.1	-3.66 -3.79	-7.67 +.02 +.01	-7.65	-7.66	-3.76	-.01	-4.69	+ .08	-.01 +.5	+ .02	+7 +.07 +.09	+ .08
11.6	-4.31 -4.41	-7.96 +.02 +.00	-7.95	-7.96	-4.41	-.31	-5.34	- .22	-.07 +.7	-.04	+7 +.00 +.03	+ .02
											+04 +.05	+ .05
												+ .06

May 5 $L' = +.030$ 11.3 +.14 -7.94 $m_s = -.03$ 7.98

11.5 +1.38 -7.89 - .01 7.98

10.4	+4.12	-7.62 +.03 +.03	-7.59	-7.59	+3.98	+ .35	+2.74	+ .30	-.09	-.11		-.10
10.8	+4.89	-7.77 +.02 +.02	-7.75	-7.75	+4.75	+ .19	+3.51	+ .14	-.04	-.04		-.04
10.9	+1.92	-7.83 +.01 +.02	-7.82	-7.81	+1.78	+ .12	+ .54	+ .08	-.07	-.15		
11.2	+2.15	-7.79 +.00 +.01	-7.79	-7.78	+2.01	+ .15	+ .77	+ .11	-.07	-.15		-.07
11.4	+2.75	-7.97 +.00 +.00	-7.97	-7.97	+2.61	+ .03	+1.34	+ .08	-.01	-.06		-.01
									-.05	-.08		-.06
10.5	-3.27	-8.13 +.02 +.03	-8.11	-8.10	-3.41	-.17	-4.65	- .21	-.05	-.05		-.05
11.6	-4.31	-8.33 - .01 +.00	-8.34	-8.33	-4.45	-.40	-5.69	- .44	-.09	-.08		-.08
									-.07	-.07		-.06
												-.06

May 6 $L' = -.023$ 11.0 +.19 -8.23 $m_s = -.06$ -8.25

11.1 +1.25 -8.17 +.00 - .01 -8.28

10.8	+4.89	-7.93 +.00 - .01	-7.93	-7.94	+4.70	+ .30	+3.64	+ .24	-.06	-.07		-.06
10.9	+1.92	-8.11 +.00 +.00	-8.11	-8.11	+1.73	+ .12	+ .67	+ .06	-.07	-.09		-.09
11.4	+2.75	-8.00 +.01 +.01	-7.99	-7.99	+2.56	+ .23	+1.50	+ .17	-.09	-.11		-.09
									-.08	-.07		-.08
11.6	-4.31	-8.82 +.01 +.01	-8.81	-8.81	-4.50	-.59	-5.56	- .65	-.13	-.12		-.13
												-.09

May 7 $L' = -.006$ 11.0 +.14 -8.50 $m_s = -.06$ -8.51

11.1 +1.10 -8.44 +.00 - .07 8.57

10.4	+4.12	-8.31	-8.31	+3.98	+ .19	+3.02	+ .13	-.05	-.04		-.04	
11.3	+2.15	-8.50	-8.50	+2.01	+ .00	+1.05	- .06	-.00	+ .06		-.00	
11.4	+2.75	-8.35	-8.35	+2.61	+ .15	+1.65	+ .09	-.06	-.06		-.06	
								-.04	-.04		-.03	
11.1	-3.66	-8.85 +.00	-8.85	-8.85	-3.80	-.35	-4.76	- .41	-.09	-.09		-.09
												-.06

1873

May 12 $L' = -0.42$

Ra tang. sec. n. Ra

11.4	+ .19	-9.02	$n_s = -.02$	-9.03																
		- .11																		
11.6	+ 1.06	-9.01	+ .01	9.05																
		- .05																		
10.8	+ 4.89	-8.81	- .03 - .03	-8.84	-8.84	+ 4.70	+ .18	+ 3.83	+ .17	- .04	- .05									
10.9	+ 1.92	-8.88	- .02 - .03	-8.90	-8.91	+ 1.73	+ .12	+ .56	+ .10	- .04	- .07									
11.4	+ 2.75	-8.91	+ .00 - .01	-8.91	-8.92	+ 2.56	+ .11	+ 1.69	+ .09	- .04	- .05									
12.1	+ 4.84	-8.82	+ .03 + .02	-8.79	-8.80	+ 4.65	+ .23	+ 3.78	+ .21	- .05	- .06									
										- .04	- .05									
10.5	- 3.27	-9.24	- .04 - .05	-9.28	-9.29	- 3.46	- .26	- 4.33	- .28	- .08	- .07									
12.6	- 3.56	-9.19	+ .05 + .04	-9.14	-9.15	- 3.75	- .12	- 4.62	- .14	- .03	- .03									
										- .06	- .05									

May 13 $L' = +0.00$

Ex. 12.5	+ .04	-9.05	$n_s = +$	-9.06																
		- .01																		
46. 11.2	+ 2.15	-8.67	+ .00	-8.67	-8.67	+ 2.11	+ 2.38			- .18										
11.4	+ 2.75	-8.58		-8.58	-8.58	+ 2.71	+ 1.47			- .17										
										- .18										
L.L. 13.0	- 5.41	-9.58		-9.58	-9.58	- 5.18	- .53			- .11										
13.2	- 4.79	-13.78	+ .00	-13.78	-13.78	- 4.83	- 4.73			- .11										
										- .11										

May 14 $L' = -0.04$

11.4	+ .17	-8.98																		
11.3	+ 1.26	-8.91	+ .00	$n_s = -.04$																
10.8	+ 4.89	-8.74	+ .00 + .00	-8.74	-8.74	+ 4.72	+ .24	+ 3.63	+ .17	- .05	- .05									
10.9	+ 1.92	-8.88	+ .00 + .00	-8.88	-8.88	+ 1.75	+ .10	+ 1.75	+ .10	- .06	- .06									
11.2	+ 2.15	-8.84	+ .00 + .00	-8.84	-8.84	+ 1.98	+ .14	+ 1.98	+ .14	- .07	- .07									
11.4	+ 2.75	-8.71	+ .00 + .00	-8.71	-8.71	+ 2.58	+ .27	+ 2.58	+ .27	- .10	- .10									
12.0	+ 4.53	-8.49	+ .00 + .00	-8.49	-8.49	+ 4.38	+ .49	+ 4.38	+ .49	- .11	- .11									
										- .08	- .08									
11.1	- 3.66	-9.24	+ .00 + .00	-9.24	-9.24	- 3.49	- .26	- 3.49	- .33	- .07	- .09									
11.6	- 4.31	-9.44	+ .00 + .00	-9.44	-9.44	- 4.14	- .46	- 3.14	- .53	- .11	- .17									
12.2	- 4.07	-9.25	+ .00 + .00	-9.25	-9.25	- 3.90	- .27	- 3.90	- .34	- .07	- .09									
										- .08	- .12									

May 15 $L' = -0.20$

11.2	+ .18	-12.74	$n_s = -.07$	-12.76																
		- .02																		
11.0	+ 1.25	-12.67	+ .00	12.78																
		- .11																		
10.8	+ 4.89	-12.34	- .01 + .00	-12.35	-12.34	+ 4.71	+ .39	+ 3.64	+ .33	- .08	- .09									
10.9	+ 1.92	-12.58	- .01 + .00	-12.59	-12.58	+ 1.74	+ .15	+ 1.67	+ .09	- .09	- .14									
11.2	+ 2.15	-12.61	+ .00 + .00	-12.61	-12.61	+ 1.97	+ .13	+ 1.90	+ .06	- .06	- .07									
11.4	+ 2.75	-12.53	+ .00 + .01	-12.53	-12.52	+ 2.57	+ .21	+ 1.50	+ .15	- .08	- .10									
										- .08	- .09									
11.1	- 3.66	-13.16	+ .00 + .00	-13.16	-13.16	- 3.84	- 2.42	- 4.91	- 2.63	- .11	- .09									

May 18 $L' = +0.20$

11.1	+ .24	-14.15	$n_s = -.08$	-14.18																
		- .03																		
11.0	+ 1.25	-14.07	+ .00	-14.23																
		- .16																		
10.9	+ 1.92	-13.99	+ .00 + .00	-13.99	-13.99	+ 1.68	+ .16	+ .67	+ .08	- .09	- .12									
11.2	+ 2.15	-13.91	+ .00 + .00	-13.91	-13.91	+ 1.91	+ .16	+ 1.90	+ .16	- .13	- .18									
11.4	+ 2.75	-13.82	- .01 - .01	-13.83	-13.83	+ 2.51	+ .16	+ 1.52	+ .24	- .13	- .16									
										- .08	- .09									
11.1	- 3.66	-14.68	+ .00 + .00	-14.68	-14.68	- 3.90	- 2.53	- 4.91	- 2.63	- .11	- .13									

1873

May 12

RA	Temp. S	Sec	π RA
11.4	+1.9	-9.02	
11.6	+1.06	-9.01	
10.8	+4.89	-8.81	
10.9	+1.92	-8.88	
11.4	+2.75	-8.91	
12.1	+4.84	-8.82	
10.5	-3.27	-9.24	
12.6	-3.56	-9.19	

May 13

12.5	+0.4	-9.05
11.2	+2.15	-6.67
11.4	+2.75	-8.58
13.0	-5.14	-9.58
13.2	-4.79	-13.78

May 14

11.4	+1.7	-8.98
11.3	+1.26	-8.90
10.8	+4.89	-8.74
10.9	+1.92	-8.88
11.2	+2.15	-8.84
11.4	+2.75	-8.71
12.0	+4.55	-8.49
11.1	-3.66	-9.24
11.6	-4.31	-9.44
12.2	-4.07	-9.25

May 15

11.2	+1.8	-12.74
11.0	+1.25	-12.67
10.8	+4.89	-12.34
10.9	+1.92	-12.58
11.2	+2.15	-10.61
11.4	+2.75	-12.63
11.1	-3.66	-13.16

May 16

11.1	+2.4	-14.15
11.0	+1.25	-14.07
10.9	+1.92	-13.99
11.2	+2.15	-13.91
11.4	+2.75	-13.82
11.1	-3.66	-14.68

1873 May 19 $L' = +0.28$

R.A. long. sec. T.R.A.

12.0 +.11 -13.99 $m_s = -.12$ 14.01

11.7 +1.27 -13.85 +.01 14.01

11.3 +2.15 -13.81 +.02 +.01 -13.89 -13.80 +2.04 +.20 +.88 +.05 -10 -10.6

11.4 +2.75 -13.62 +.02 +.01 -13.61 -13.62 +2.64 +.38 +1.48 +.23 -14 -15

12.1 +4.84 -13.30 +.00 -0.1 -13.30 -13.31 +4.73 +.69 +3.57 +.54 -15 -15

11.6 -4.31 -14.65 +.01 +.00 -14.64 -14.65 -4.42 -.65 -5.58 .80 -13 -15

12.2 -4.07 -14.25 -0.1 -0.1 -14.26 -14.26 -4.18 -.27 -5.34 -.41 -10.6 -0.8

13.2 -41.76 -21.15 -0.3 -0.4 -21.18 -21.19 -41.87 -7.19 -43.03 -7.34 -17 -17

May 20 $L' = -0.06$ 11.7 +1.10 +1.01 -14.10 $m_s = -.05$ 41.11

11.7 +1.26 +1.61 -14.04 +.00 41.17

11.3 +2.15 +2.37 -14.06 -14.06 +2.05 +.04 +.89 -.02 -0.2 +.02

11.4 +2.75 +2.92 -13.85 -13.85 +2.65 +.25 +1.49 +.19 -.09 -13

12.0 +4.55 +4.58 -13.57 -13.57 +4.45 +.59 +3.29 +.53 -13 -16

12.1 +4.84 +4.93 -13.49 +.00 -13.49 -13.49 +4.74 +.61 +3.58 +.55 -13 -15

11.6 -4.31 -4.41 -14.50 +.00 -14.50 -14.50 -4.41 -.40 -5.57 -.46 -0.9 -0.8

May 25 $L' = -0.02$ 11.6 +1.10 -23.27 $m_s = -.26$ -23.80

11.8 +1.40 -22.93 +.00 23.36

12.0 +4.55 -21.91 +.00 +.00 -21.91 -21.91 +4.45 +1.36 +3.15 +1.02 -31 -31

12.1 +4.84 -21.77 +.00 +.00 -21.77 -21.77 +4.74 +1.50 +3.44 +1.16 -32 -34

11.6 -4.31 -24.53 +.00 +.00 -24.53 -24.53 -4.41 -1.26 -5.71 -1.60 -29 -28

May 27 $L' = -0.01$ 12.6 -.04 +1.00 -22.78 $m_s = -.19$ 22.77

11.9 +1.14 +1.52 -22.55 +.00 22.95

12.1 +4.84 +4.93 -21.24 +.00 +.00 -21.24 -21.24 +4.88 +1.54 +3.70 +1.31 -32 -35

13.2 -41.76 -41.78 -37.84 +.00 +.00 -37.84 -37.84 -41.72 -15.06 -42.90 -15.29 -36 -36

May 28 $L' = -0.01$ 12.8 +.04 +1.00 -22.54 $m_s = -.17$ +3 22.55

12.2 +.86 +1.32 -22.40 +.00 22.73

12.1 +4.84 +4.93 -21.00 +.00 -21.00 -21.00 +4.80 +1.54 +3.98 +1.40 -32 -35

12.5 +2.82 +3.00 -21.77 -21.77 +2.78 +.77 +1.96 +.63 -28 -34

12.2 -4.07 -4.19 -24.17 -24.17 -4.11 -1.63 -4.93 -1.77 -4.40 -1.36 -29 -27

12.6 -4.56 -4.69 -23.97 +.00 +.00 -23.97 -23.97 -3.60 -1.43 -4.42 -1.57 -4.09 -1.36 -29 -28

May 29 $L' = +0.00$ 12.5 +.04 +1.00 -22.32 $m_s = -.26$ +3 22.39

12.4 +1.22 +1.58 -22.01 +.00 22.97

12.1 +4.84 +4.93 -20.77 -20.77 +4.80 +1.55 +3.62 +1.24 -32 -34

12.5 +2.82 +3.00 -21.49 -21.49 +2.78 +.83 +1.60 +.82 -30 -33

12.6 -3.56 -3.70 -23.74 -23.74 -3.60 -1.42 -4.78 -1.73 -4.40 -1.36 -29 -28

13.0 -5.14 -5.24 -24.20 -24.20 -5.18 -1.88 -6.36 -2.19 -36 -34

13.2 -41.76 -41.78 -37.50 +.00 -37.50 -37.50 -41.80 -15.18 -42.98 -15.40 -36 -36

May 31 $L' = -0.09$

13.2	+0.09 +1.00	-21.77	$\mu_s = -.28$	-21.77	88														
13.4	+1.78 +2.04	-21.30 +.00		-21.62	67														
12.5	+2.82 +3.00	-21.25 -01 -01		-21.29	-21.29	+2.73 +0.48	+1.04 +.01	-18.47 -03	+10	-11	11								
13.6	+3.06 +3.22	-21.46 +00 +00		-21.46	-21.46	+2.97 +.31	+1.28 -.16	-18.47 -12	+10	-3									
14.0	+2.14 +2.37	-21.58 +01 +01		-21.57	-21.57	+2.05 +.20	+ .36 -.20	-18.47 -	+10	-3									
14.8	+3.65 +3.79	-21.23 +01 +01		-21.22	-21.22	+3.56 +.55	+1.87 +.08	-15.8 -06	+9	-7	+1								

 $c = 10$

12.6	-3.56 -3.70	-22.57 -01 -01		-22.58	-22.58	-3.65 -.81	-5.34 -1.28	-22.40 -24	+11	-12	-13								
13.0	-5.14 -5.24	-22.85 +00 +00		-22.85	-22.85	-5.23 -1.08	-6.92 -1.55	-21.42 -22	+11	-9	-10								
13.2	-41.76 -41.78	-32.17 +00 +00		-32.17	-32.17	-41.85 -10.40	-43.54 -10.87	-25.40 -25	+10	-15	-15								

June 1 $L' = -0.06$

12.2	+0.04 +1.00	-21.51	$\mu_s = -.23 +3$	21.59															
12.1	+1.04 +1.44	-21.28 +00		21.59															
12.1	+4.84 +4.93	-20.33 +00 +00		-20.33	-20.33	+4.80 +3.80	+1.18 +.95	-25.46 -25	+7	-19	-18								
12.5	+2.82 +3.00	-20.85 +00 +00		-20.85	-20.85	+2.78 +1.78	+1.67 +.43	-24.45 -24	+7	-19	-17								

 $c = -.07$

12.6	-3.56 -3.70	-22.55 +00 +00		-22.55	-22.55	-3.60 -4.60	-1.44 -1.27	-30.49 -28	+8	-21	-20								
13.0	-5.14 -5.24	-22.95 +00 +01		-22.95	-22.94	-5.18 -6.18	-1.44 -1.66	-28.44 -27	+8	-20	-19								
13.2	-41.76 -41.78	-33.55 +01 +01		-33.54	-33.54	-41.80 -42.80	-12.03 -12.26	-29.47 -30	+7	-22	-22								

June 2 $L' = +0.00$

12.6	+ .06 +1.00	-21.30	$\mu_s = -.28 +3$	-21.38															
12.7	+1.31 +1.65	-20.95 +00		-20.95	21.40														
12.1	+4.84 +4.93	-19.69		-19.69	-19.69	+4.78 +1.61	+3.53 +1.26	-34.46 -34	+7	-28	-27								
12.5	+2.82 +3.00	-20.55		-20.55	-20.55	+2.76 +.75	+1.51 +.40	-27.45 -26	+7	-22	-25								
12.6	-3.56 -3.70	-22.46		-22.46	-22.46	-3.62 -1.16	-4.87 -1.51	-32.49 -31	+4	-23	-23								
13.0	-5.14 -5.24	-23.17		-23.17	-23.17	-5.20 -1.87	-6.45 -2.22	-36.48 -34	+7	-28	-27								
13.2	-41.76 -41.78	-36.01 +00		-36.01	-36.01	-41.82 -41.71	-43.07 -15.06	-35.47 -35	+7	-28	-28								

 $c = -.07$ June 5 $L' = +0.04$

13.7	-.06	-20.23	$\mu_s = -.34$	-20.21															
13.6	+1.48	-19.70 +00		20.25															
L.C. 13.2	-41.76	-34.45 +00 +00		-34.45	-34.45	-41.70 -14.22	-43.24 -14.75	-34 -34											
14.4	-3.12	-21.47 +00 +00		-21.47	-21.47	-3.06 -1.24	-4.60 -1.77	-41 -38											

June 9 $L' = +0.05$

13.7	+ .06	-18.46	$\mu_s = -.26$	18.48															
14.8	+1.19	-18.13 -01 -		18.49															
14.8	+3.65	-17.23 -01 +00		-17.24	-17.23	+3.59 +1.22	+2.46 +.90	-34 -37											
14.9	+2.29	-17.86 -01 -01		-17.87	-17.87	+2.23 +1.59	+1.10 +.26	-26 -24											
13.2	-41.76	-29.31 +00 +01		-29.31	-29.30	-41.82 -10.85	-42.95 -11.14	-26 -26											
14.4	-3.12	-19.36 +00 +00		-19.36	-19.36	-3.18 -.90	-4.31 -1.23	-28 -29											
14.8	-5.10	-19.98 -01 +00		-19.99	-19.98	-5.16 -1.53	-6.29 -1.85	-30 -29											

1873 $L' = +.006$

June 10

RA	long. 5 sec	TRA
13.1	+0.04	-17.99
13.8	+4.42	-17.63 +00

Lc	13.0	-5.14	-19.49 +00	-19.49	-19.49	-5.18	-150	-6.56	-1.86	-29	-28	-28
	13.2	-4.76	-31.85	-31.85	-31.85	-41.80	-13.86	-43.18	-14.22	-33	-33	-33
										-31	-31	-31

June 11 $L' = +.000$

13.9	+10	-17.55	$n_s = -.30$	-17.58
		-.03		

14.2	+1.37	-17.14 +00	17.54
		-.47	

13.6	+3.06	-16.54	-16.54	-16.54	+2.96	+1.01	+1.69	+0.63	-34	-37	-34
14.0	+2.14	-16.92	-16.92	-16.92	+2.01	+1.63	+1.74	+1.25	-31	-32	-31
14.2	+4.76	-15.75	-15.75	-15.75	+4.66	+1.80	+3.39	+1.42	-48	-42	-41
14.8	+3.65	-16.34	-16.34	-16.34	+3.55	+1.21	+2.28	+1.83	-34	-36	-35
15.2	+2.45	-16.72	-16.72	-16.72	+2.35	+1.83	+1.08	+1.45	-35	-41	-35
									-35	-39	-35

13.0	-5.14	-19.14	-19.14	-19.14	-5.24	-1.59	-6.51	-1.97	-30	-30	-30
13.2	-4.76	-31.17	-31.17	-31.17	-41.86	-13.62	-43.13	-14.00	-33	-32	-32
13.5	-3.15	-18.61	-18.61	-18.61	-3.25	-1.06	-4.52	-1.44	-33	-32	-33
14.8	-5.10	-19.24 +00	-19.24	-19.24	-5.20	-1.69	-6.47	-2.07	-33	-32	-32
									-32	-32	-32

June 12 $L' = -.033$

13.4	+0.09	-17.07	$n_s = -.32$	-17.10
		-.03		

13.9	+1.39	-16.67 +02	17.12
		-.47	

13.5	+3.06	-16.17 +00 -01	-16.17	-16.18	+2.97	+0.90	+1.67	+0.49	-30	-29	-30
14.0	+2.14	-16.58 +02 +00	-16.67	-16.69	+2.05	+1.60	+1.75	+1.18	-30	-22	-30
14.2	+4.76	-15.29 +03 +01	-15.24	-15.26	+4.67	+1.83	+3.37	+1.41	-33	-42	-41
									-33	-42	-34

13.2	-4.76	-33.99 -01 -02	-34.00	-34.01	-41.85	-16.93	-43.15	-17.34	-44	-40	-40
------	-------	----------------	--------	--------	--------	--------	--------	--------	-----	-----	-----

June 15 $L' = -.038$

13.9	+2.9	-15.78	$n_s = -.28$	15.87
		-.01		

13.9	+1.38	-15.47 +00	15.88
		-.41	

13.6	+3.06	-14.96 -01	-14.97	-14.97	+2.77	+1.81	+1.68	+1.50	-29	-30	-29
14.0	+2.14	-15.23 +00	-15.23	-15.23	+1.85	+1.55	+1.76	+1.24	-30	-31	-30
14.2	+4.76	-14.23 +01	-14.22	-14.22	+4.17	+1.56	+3.38	+1.25	-35	-37	-36
									-32	-37	-32

13.2	-4.76	-27.24 -03	-27.27	-27.27	-42.05	-11.69	-43.14	-11.80	-27	-27	-27
13.5	-3.15	-16.80 -02	-16.82	-16.82	-3.44	-1.04	-4.53	-1.35	-30	-30	-30
14.4	-3.12	-16.75 +02	-16.73	-16.73	-3.41	-1.95	-4.50	-1.26	-28	-28	-28
									-28	-28	-28

June 16 $L' = +.021$

13.6	+5.6	-15.17	$n_s = -.40$	-15.40
		-.23		

14.1	+1.26	-14.88 -01	15.41
		-.52	

13.6	+3.06	-14.30 +00 +01	-14.30	-14.29	+2.50	+1.87	+1.80	+1.59	-35	-33	-35
14.0	+2.14	-14.56 -01 +00	-14.57	-14.56	+1.58	+1.60	+1.88	+1.32	-38	-36	-38
14.2	+4.76	-13.17 -01 +00	-13.18	-13.17	+4.20	+1.99	+3.50	+1.71	-47	-49	-48
									-37	-49	-42

1873

June 30 $L' = +.057$

RA tang. S sec D T RA

15.18 +.09 -7.68 $m = -.52$ -7.73
- .06
514.8 +1.29 -7.07 +.02 7.80
- .7514.8 +3.65 -5.75 +.02 +.00 -5.73 -5.75 +3.56 +1.95 +2.36 +1.32 -55 -56 -56
15.2 +2.45 -6.12 -0.01 -0.02 -6.13 -6.14 +2.36 +1.55 +1.16 +.93 -66 -61 -66
-60 -56 -61

15.4 -4.42 -10.03 -0.02 -0.03 -10.05 -10.06 -4.51 -2.37 -5.71 -2.99 -53 -52 -52 -58

July 3 $L' = +.050$ 15.9 +.08 -4.72 $m = -.55$ -4.76
- .04
515.7⁶ +1.06 -4.20 +.02 4.76
- .79
515.8 +1.96 -3.75 +.01 -0.01 -3.74 -3.76 +1.88 +.98 +.90 +.44 -52 -49 -55
15.8 +4.78 -2.16 +.01 -0.01 -2.15 -2.17 +4.70 +2.57 +3.72 +2.03 -55 -55 -55
-55 -55July 5 $L' = +.048$ 15.0 +.52 -2.30 $m = -.32$
5

14.8 +1.71 -1.92 +.01

14.8 +3.65 -0.74 +.01 +.00 -0.73 -0.74 +3.13 +1.57 +1.94 +1.18 -50 -61 -50 -50

July 6 $L' = +.042$ 15.7 +.05 +1.00 -1.53 $m = -.40$ -1.60
- .02
515.0 +1.37 +1.70 -1.97 +.03 1.60
- .6314.8 +3.65 +3.79 +0.64 +.04 +.01 +0.68 +0.65 +3.60 +2.21 +2.28 +1.62 -61 +4 -71 +5 -57 -66 -62
14.9 +2.29 +2.50 -0.54 +.03 +.00 -0.51 -0.54 +2.24 +1.02 +.92 +.13 -45 -47 -42 -42
15.2 +2.45 +2.65 -0.26 +.02 -0.01 -0.24 -0.27 +2.40 +1.29 +1.08 +.70 -54 +3 -65 +5 -51 -51
15.8 +1.96 +2.20 -0.60 +.00 -0.03 -0.60 -0.63 +1.91 +.93 +.59 +.34 -51 +3 -58 +5 -48 -51 -49
15.8 +4.78 +4.89 +0.94 +.00 -0.03 +0.94 +0.91 +4.73 +2.47 +3.41 +1.88 -52 -44 -53 +4 -43 -44 -44
16.2 +4.07 +4.19 +0.39 -0.02 -0.05 +0.37 +0.34 +4.02 +1.90 +2.70 +1.31 -47 -44 -49 +5 -48 -54 -4614.8 -5.10 -5.19 -4.33 +.04 +.01 -4.29 -4.32 -5.15 -2.76 -6.17 -3.35 -51 +4 -52 +5 -48 -47 -48
15.6 -2.89 -3.06 -2.93 +.00 -0.03 -2.93 -2.96 -2.94 -1.40 -4.26 -1.99 -48 +7 -47 +6 -41 -41 -41
-45 -44 -44 -486July 7 $L' = +.039$ 15.6 +.15 +1.01 -0.16 $m = -.44$ -0.53
- .07
515.1 +1.08 +1.47 -0.07 +.02 0.57
- .5214.8 +3.65 +3.79 +1.73 +.03 +.01 +1.76 +1.74 +3.50 +2.22 +2.57 +1.81 -63 +2 -71 +3 -61 -68 -65
15.2 +2.45 +2.15 +0.70 +.02 +.00 +0.72 +0.70 +2.30 +1.18 +1.37 +.77 -51 +1 -56 +2 -50 -50 -50
15.3 +3.13 +3.29 +0.97 +.01 -0.01 +0.98 +0.96 +2.98 +1.44 +2.05 +1.03 -48 +2 -51 +3 -46 -48 -47
15.8 +1.96 +2.20 +0.40 -0.01 -0.03 +0.39 +0.37 +1.89 +.85 +.88 +.44 -45 +2 -51 +4 -58 -61 -59
15.8 +4.78 +4.89 +2.31 -0.01 -0.03 +2.30 +2.28 +4.63 +2.76 +3.70 +2.35 -60 +3 -64 +3 -54 -59 -5414.8 -5.10 -5.19 -3.14 +.03 +.01 -3.11 -3.13 -5.25 -2.65 -6.18 -3.06 -50 +3 -50 +2 -47 -48 -48
15.1 -4.02 -4.55 -2.65 +.02 +.00 -2.63 -2.65 -4.57 -2.17 -5.50 -2.58 -47 +4 -47 +2 -43 -45 -44
15.6 -2.89 -3.06 -1.88 +.00 -0.02 -1.88 -1.90 -3.04 -1.42 -3.97 -1.83 -47 +4 -46 +3 -43 -43 -43
-41 -41 -41 -415 -415 -415

1873
July 20 $L' = +.025$

16.2	+ .14	+ 7.44 - .06	$n = -.35$	7.41															
16.2	+1.59 +1.48	+ 7.98 + .00		7.37															
15.8	+1.06	+ 7.97 +.01	+ 7.98 + 7.98	+ 1.82 + .51	+ .37 + .01	- .28 - .03													
15.8	+4.78	+9.32 +.01	+9.33 + 9.33	+4.64 +1.86	+ 3.19 +1.34	- .40 - .42													
16.2	+4.07	+8.87 +.00	+8.87 + 8.87	+3.93 +1.40	+ 2.48 + .88	- .36 - .36													
16.6	+4.59	+9.19 -.01	+9.18 + 9.18	+4.45 +1.71	+ 3.00 +1.19	- .38 - .39													
						- .38 - .39													
16.5	-3.93	+5.83 -.01	+5.82 +5.82	-4.07 -1.65	- 5.52 -2.17	- .41 - .39													

July 21 $L' = +.021$

15.9	+ .15	+ 7.98 - .06	$n = -.36$ 5	7.92															
15.8 ^b	+1.06 +1.17	+ 8.38 ¹ + .01		7.89															
15.3	+3.13	+ 9.23 - .43	+ .01 + .01	+ 9.24	+ 9.24	+ 2.98	+ 1.26	+ 2.07	+ .93	- .42	- .45								
15.8	+1.96	+ 8.61	+ .00 + .00	+ 8.61	+ 8.61	+ 1.81	+ .63	+ .90	+ .30	- .35	- .34								
15.8	+4.78	+ 9.81	+ .00 + .00	+ 9.81	+ 9.81	+ 4.63	+ 1.83	+ 3.72	+ 1.50	- .40	- .41								
16.3	+4.07	+ 9.59	- .01 - .01	+ 9.58	+ 9.58	+ 3.92	+ 1.60	+ 3.01	+ 1.27	- .41	- .42								
										- .41	- .43								
15.6	-2.89	+ 6.82	+ .00 + .00	+ 6.82	+ 6.82	- 3.04	- 1.16	- 3.95	- 1.49	- .38	- .38								

July 22 $L' = +.021$

15.8	+ .12	+ 8.46	$n_5 = -.38$	8.41															
15.9	+ 1.43	- * .05																	
16.0	+ 1.37	+ 8.95	+ .00 +	8.36															
		- * .60																	
15.8	+ 1.96	+ 9.16	+ .00 + .00	+ 9.16	+ 9.16	+ 1.84	+ .70	+ .53	+ .20	- .38	- .39								
15.8	+ 4.78	+ 10.46	+ .00 + .00	+ 10.46	+ 10.46	+ 4.66	+ 2.00	+ 3.35	+ 1.50	- .43	- .45								
16.2	+ 4.07	+ 10.07	- .01 - .01	+ 10.06	+ 10.06	+ 3.95	+ 1.60	+ 2.64	+ 1.10	- .41	- .42								
16.5	+ 2.61	+ 9.58	- .01 - .01	+ 9.57	+ 9.57	+ 2.49	+ 1.11	+ 1.18	+ .61	- .45	- .52								
										- .43	- .44								
15.6	- 2.89	+ 7.22	+ .00 + .01	+ 7.22	+ 7.23	- 3.01	- 1.24	- 4.32	- 1.73	- .41	- .40								

July 23 $L' = +.026$

16.4	+ .07	+ 9.00 <u>3</u>	$n = -.50$	8.97																
16.3 ⁴	+1.87 +1.44	+ 9.90 <u>1</u> 1.92	+ .00	8.98																
16.5	+2.61	+10.19	+ .00	+10.19	+10.19	+2.54	+1.19	+ .74	+ .29	- .47	- .40 [✓]									
16.6	+4.59	+11.20	+ .00	+11.20	+11.20	+4.52	+2.20	+2.72	+1.30	- .49	- .48									
17.0	+7.34	+12.68	- .02	+12.66	+12.66	+7.27	+3.66	+5.47	+2.76	- .50	- .51									
										- .42	- .50									

July 24 $L' = +.031$

16.4	+ .15	+ 9.78 ₀₇	$n = -.51$	9.71																
17.0	+ 1.11	+ 10.29																		
16.5	+ 1.38	+ 10.34	- .02	9.72																
		- .56																		
16.3	+ 4.07	+ 11.71	+ .00 + .02	+ 11.71	+ 11.73	+ 3.92	+ 1.93	+ 2.96	+ 1.44	- .50	- .49									
16.5	+ 2.61	+ 10.97	+ .00 + .02	+ 10.97	+ 10.99	+ 2.46	+ 1.19	+ 1.50	+ .70	- .49	- .47									
16.6	+ 4.59	+ 12.17	- .01 + .01	+ 12.16	+ 12.18	+ 4.44	+ 2.38	+ 3.48	+ 1.89	- .54	- .54									
17.0	+ 7.34	+ 13.32	- .02 + .00	+ 13.30	+ 13.32	+ 7.19	+ 3.52	+ 6.23	+ 3.63	- .49	- .49									
										- .50	- .51									
16.5	- 3.93	+ 7.57	+ .00 + .02	+ 7.57	+ 7.59	- 4.08	- 2.21	- 5.04	- 2.70	- .54	- .54									
17.0	- 5.18	+ 7.30	- .02 + .03	+ 7.28	+ 7.30	- 5.33	- 2.50	- 6.29	- 2.90	- .47	- .46									
17.4	- 3.72	+ 8.02	- .03 - .01	+ 7.99	+ 8.01	- 3.87	- 1.79	- 4.83	- 2.28	- .46	- .47									
										- .49	- .49									

$$e = -0.8$$

July 30 $h' = +.035$

Aug. 14 $h' = +.018$

Aug. 5 $L' = +0.13$

Aug. 6 $L^1 = +.014$

543

h.1 $L' = +.092$ 19.6 +.09 +1.00 +28.96 $n_5 = -.40 +3$ 28.87 $C = -.06$

19.5 +1.17 +1.52 +29.88 +.01 28.85

19.3 +3.29 +3.44 +30.21 +.03 +.02 +30.24 +30.23 +3.20 +1.28 +2.12 +.85 -40.34 -40.35 -36 -35 -36
 19.5 +5.32 +5.44 +31.25 +.01 +.00 +31.26 +31.25 +5.23 +2.30 +4.15 +1.87 -44.15 -44.16 -39 -39 -39
 19.8 +2.75 +2.92 +30.13 -.02 -.03 +30.11 +30.10 +2.66 +1.15 +1.58 +.72 -43.74 -43.75 -39 -39 -39
 19.9 +53.44 +53.46 +53.89 -.03 -.04 +53.86 +53.85 +53.35 +24.90 +52.27 +24.47 -47.46 -47.47 -41 -41 -41
 20.2 +4.45 +4.55 +30.82 -.06 -.06 +30.76 +30.76 +4.36 +1.80 +3.28 +1.38 -41.15 -41.16 -36 -36 -36
 -35 -36 -38

20.1 -4.05 -4.16 +27.02 -.05 -.06 +26.97 +26.96 -4.14 -1.99 -5.22 -2.42 -48.45 -48.46 -39 -39 -39
 20.4 -3.50 -3.65 +27.46 -.07 -.08 +27.39 +27.38 -3.59 -1.57 -4.67 -2.00 -44.18 -44.19 -36 -37 -37
 -35 -38 -38 -38

Sept. 8 $L' = +.044$ 18.3 +.40 +31.16 $n_5 = -.61$ 31.00

18.8 +.76 +31.40 -.02 31.08

18.2 +16.88 +37.09 +.00 +.03 +37.09 +37.12 +16.48 +5.93 +16.12 +5.72 -38.6 -38.6 -36
 18.4 +2.95 +32.18 +.00 +.02 +32.18 +32.20 +2.55 +1.02 +2.19 +.50 -40 -40 -37
 18.4 +3.21 +32.38 +.00 +.02 +32.38 +32.40 +2.81 +1.22 +2.45 +1.00 -44.3 -44.3 -42
 18.9 +2.92 +32.25 -.03 +.00 +32.22 +32.25 +2.52 +1.06 +2.16 +.85 -42 -42 -39
 -40 -38 -39

18.7 -20.70 +22.51 -.02 +.00 +22.49 +22.67 -21.10 -8.67 -21.46 -8.89 -41 -41 -41 -39

Sept. 6 $L' = -.087$ 19.1 +.72 +.08 $n_5 = -.50$ 0.38

19.1 +1.33 +.08 +.00 +.093 43

19.4 +3.12 +1.56 -.01 -.01 +1.55 +1.55 +2.40 +.87 +1.90 +.62 -37 -37 -37
 19.9 +4.32 +2.21 -.01 -.01 +2.20 +2.20 +3.60 +1.52 +3.10 +1.27 -42 -42 -42
 18.2 +16.88 +7.95 -.01 +.00 +7.94 +7.95 +16.16 +7.26 +15.66 +7.02 -44 -44 -44
 -41 -43 -41 -41

Sept. 9 $L' = -.014$ 19.9 +.42 +.08 $n_5 = -.28$ +.074

19.8 +1.28 +1.11 +.00 +1.11 +0.73

19.6 +2.58 +1.57 -.01 +.00 +1.50 +1.51 +2.16 +.63 +1.30 +.40 -29 -29 -29
 19.7 +3.12 +1.67 +.00 +.00 +1.67 +1.67 +2.70 +.80 +1.84 +.56 -30 -30 -30
 -29 -30 -30

Oct. 5 $L' = +.000$ 20.7 +.15 +9.95 $n_5 = -.20$ 9.92

21.6 +1.16 +10.15 +.00 9.93

19.8 +2.75 +10.49 +10.49 +10.49 +2.60 +.54 +1.59 +.34 -21 -22 -21
 19.9 +53.44 +22.39 +22.39 +22.39 +53.29 +12.44 +52.28 +12.24 -23 -23 -23
 20.2 +4.45 +10.85 +10.85 +10.85 +4.30 +.90 +3.29 +.70 -21 -21 -21
 20.6 +3.61 +10.57 +10.57 +10.57 +3.46 +.62 +2.45 +.42 -18 -17 -18
 20.9 +5.72 +10.91 +10.91 +10.91 +5.57 +.96 +4.56 +.76 -17 -17 -17
 22.5 +3.27 +10.46 +10.46 +10.46 +3.12 +.51 +2.11 +.31 -16 -15 -15
 20.1 -3.50 +9.27 +.00 +9.27 +9.27 -3.65 -1.68 -4.66 -1.88 -19 -19 -19
 -19 -19 -19

1873

Oct. 8 $L' = +.019$

RA Long. Sec. P. RA

21.8 +.28 +11.95 $n_5 = -.05$ 11.90 $C = 0$

19.6 +1.14 +11.98 +.04 11.81

19.5 +5.32 +12.74 +.04 +.00 +12.78 +12.74 +5.04 +.83 +4.18 +.76 -16 -18

22.5 +3.27 +12.47 -01 -06 +12.45 +12.41 +2.99 +.50 +2.13 +.43 -17 -21

22.8 +2.20 +12.27 -02 -06 +12.25 +12.21 +1.92 +.30 +1.06 +.23 -16 -22

Oct. 9 $L' = +.023$ 19.7 +.11 +12.42 $n_5 = -.20$ 12.40

19.7 +1.12 +12.62 +.00 12.43

16.9 +2.92 +12.98 +.02 +13.00 +13.00 +2.81 +.58 +1.80 +.38 -21 -21

19.3 +3.29 +13.07 +.01 +13.08 +13.08 +3.18 +.66 +2.17 +.46 -21 -21

19.5 +5.32 +13.38 +.00 +13.38 +13.38 +5.21 +.96 +4.20 +.76 -19 -18

19.8 +2.75 +12.95 +.00 +12.95 +12.95 +2.64 +.53 +1.63 +.33 -21 -21

19.9 +5.34 +12.69 +.00 +12.69 +12.69 +5.33 +.82 +5.32 +.80 -16 -15

21.1 +4.55 +12.98 -03 +12.95 +12.95 +4.44 +.53 +3.43 +.33 -12 -10

19.8 -3.55 +12.10 +.00 +12.10 +12.10 -3.66 -02 -4.67 -02 -05

20.1 -4.05 +11.94 -01 +11.93 +11.93 -4.16 -04 -5.17 -06 -12 -13

Oct. 13 $L' = -.016$ 20.0 +.19 +1.02 +14.40 $n_5 = -.245$ +14.40

20.5 +1.18 +1.55 +14.63 +.01 14.45

19.8 +2.75 +2.92 +14.42 +.00 -01 +14.42 +14.41 +2.56 +.02 +1.57 22 -01 +14.41

19.9 +5.343 +14.41 +.00 -01 +14.41 +14.40 +5.324 +10.01 +5.225 +9.77 -19 -19

21.3 +1.89 +2.14 +14.83 +.02 +.01 +14.85 +14.84 +1.70 +.45 +.71 +.21 -27 -30

21.4 +2.75 +2.92 +14.97 +.02 +.01 +14.99 +14.98 +2.56 +.59 +1.57 +.35 -23 -22

21.7 +2.86 +3.04 +15.04 +.03 +.02 +15.07 +15.06 +2.67 +.67 +1.68 +.43 -25 -26

19.7 -3.55 -3.69 +13.97 +.00 -01 +13.97 +13.96 -3.74 -04 -4.73 -06 -12 -13

20.1 -4.05 -4.16 +13.75 +.00 -01 +13.75 +13.74 -4.24 -05 -5.23 -08 -15 -17

21.4 -2.81 -2.98 +14.01 +.02 +.01 +14.03 +14.02 -3.00 -03 -3.99 -06 -13 -14

Oct. 14 $L' = +.018$ 21.9 +.10 +1.02 +14.94 $n_5 = -.17$ 14.92

21.6 +.98 +1.40 +15.08 +.01 14.94

21.4 +2.75 +2.92 +15.22 +.01 +.00 +15.23 +15.22 +2.65 +.29 +1.77 +.14 -11 -08

21.7 +2.86 +3.04 +15.45 +.00 +.00 +15.45 +15.45 +2.76 +.51 +1.88 +.37 -19 -20

22.0 +1.89 +2.14 +15.34 +.00 -01 +15.34 +15.33 +1.79 +.40 +.91 +.25 -22 -28

21.8 -3.37 -3.52 +14.48 +.00 +.00 +14.48 +14.48 -3.47 -06 -4.35 -08 -13 -14

Oct. 18 $L' = +.016$ 23.7 +.33 +16.05 $n_5 = -.07$ 16.36

23.6 +4.31 +17.39 +.00 +17.39 +17.39 +3.98 +.96 -24

23.7 +2.37 +16.77 +.00 +16.77 +16.77 +2.04 +.34 -17

-20 -20

2phae. p. 1873
Oct. 21 $\mathcal{L}' = +.030$

[illegible]

Oct. 22 $L' = +.017$

[illegible]

Oct. 23 $L' = +.000$

[illegible]Oct 28 $h' = +.038$ [illegible]

1873

Oct. 29 $L' = +.009$
RA target fixed

7.1 Pa

23.2 +.21

+22.24 $n_s = -.01$

22.23

23.0 +1.20

+22.23 +.00

22.18

19.8 +2.75

+22.24 +.03 +.03

+22.42 +22.42

+2.54 +.18

+1.55 +.19

-.07 -.12

-.07

22.8 +2.20

+22.30 +.00 +.00

+22.30 +22.30

+1.99 +.06

+1.00 +.07

-.03 -.08

-.07

23.1 +3.66

+22.45 +.00 +.00

+22.45 +22.45

+3.45 +.21

+2.46 +.22

-.06 -.09

-.08

23.6 +4.31

+22.28 +.00 -.01

+22.28 +22.28

+4.10 +.04

+3.11 +.04

-.01 -.01

-.01

23.7 +2.37

+22.37 +.00 -.01

+22.37 +22.37

+2.16 +.13

+1.17 +.13

-.06 -.11

-.06

22.8 -4.89

+22.38 +.00 +.00

+22.38 +22.38

-5.10 +.14

-6.09 +.15

+.03 +.03

+.03

23.4 -2.75

+22.07 +.00 +.00

+22.07 +22.07

-2.96 -.17

-3.95 -.16

-.06 -.04

-.05

Nov. 1 $L' = -.005$

21.4 +.12

+22.08 $n_s = -.07$

22.08

21.8 +1.28

+22.08 +.00

22.12

20.2 +4.45

+22.24 -.01 +.00

+22.23 +22.24

+4.33 +.15

+3.17 +.08

-.04 -.03

-.03

20.5 +3.61

+22.33 +.00 +.00

+22.33 +22.33

+3.49 +.25

+2.33 +.17

-.07 -.07

-.07

20.9 +5.72

+22.06 +.00 +.00

+22.06 +22.06

+5.60 -.02

+4.44 -.10

+.00 +.02

+.01

23.1 +3.66

+22.23 +.01 +.01

+22.24 +22.24

+3.54 +.16

+2.38 +.08

-.05 -.04

-.05

23.6 +4.31

+22.32 +.01 +.01

+22.33 +22.33

+4.19 +.25

+3.03 +.17

-.06 -.06

-.06

20.1 -4.05

+22.02 -.01 -.01

+22.01 +22.01

-4.17 -.07

-5.33 -.15

-.02 -.03

-.02

23.4 -2.75

+22.05 +.01 +.01

+22.06 +22.06

-2.87 -.02

-4.03 -.10

-.01 -.03

-.01

Nov. 2 $L' = -.012$

21.5 +.12

+22.06 $n_s = +.04$

22.06

21.3 +1.28

+22.08 -.01

+22.08 +22.08

19.8 +2.75

+22.06 -.02 -.01

+22.04 +22.05

+2.63 -.02

+1.44 +.03

+.01 -.02

+.01

19.9 +3.66

+22.06 -.02 -.01

+18.92 +18.93

+53.46 -3.14

+52.27 -3.09

+.06 +.06

+.06

20.2 +4.45

+21.96 -.02 -.01

+21.94 +21.95

+4.33 -.12

+3.14 -.07

+.03 +.02

+.02

20.5 +3.61

+21.89 -.01 +.00

+21.88 +21.89

+3.49 -.18

+2.30 -.13

+.05 +.06

+.06

20.9 +5.72

+21.75 -.01 +.00

+21.74 +21.75

+5.60 -.32

+4.41 -.27

+.06 +.06

+.06

21.4 +2.75

+22.03 +.00 +.01

+22.03 +22.04

+2.63 -.03

+1.44 +.02

+.01 -.02

+.01

21.7 +2.86

+22.04 +.00 +.01

+22.04 +22.05

+2.74 -.02

+1.55 +.03

+.01 -.02

+.01

23.1 +3.66

+22.02 +.02 +.03

+22.04 +22.05

+3.54 -.02

+2.35 +.03

+.01 -.01

+.00

23.6 +4.31

+21.91 +.03 +.03

+21.94 +21.94

+4.19 -.12

+3.00 -.08

+.03 +.03

+.03

23.7 +2.37

+22.04 +.03 +.03

+22.07 +22.07

+2.25 +.01

+1.06 +.05

+.00 -.05

+.00

20.1 -4.05

+22.24 -.02 -.01

+22.22 +22.23

-4.17 +.16

-5.36 +.21

+.04 +.04

+.04

21.4 -2.81

+22.13 +.00 +.01

+22.13 +22.14

-2.93 +.07

-4.12 +.12

+.03 +.03

+.03

21.8 -3.37

+22.28 +.00 +.01

+22.28 +22.29

-3.49 +.22

-4.68 +.27

+.06 +.06

+.06

23.4 -2.75

+22.06 +.02 +.03

+22.08 +22.09

-2.87 +.02

-4.06 +.07

+.02 +.02

+.02

Nov. 3 $L' = -.017$

22.6 +.29

+21.78 $n_s = +.07$

+21.79

22.3 +1.22

+21.72 -.01

21.72

22.5 +2.27

+31.80 +.00 +.00

+31.80 +31.80

+2.98 +.02

+2.05 +.08

-.01 -.04

-.03

22.8 +2.20

+21.84 +.00 +.01

+21.84 +21.85

+1.91 +.06

+.98 +.13

-.03 -.04

-.01

22.4 -4.18

+21.95 +.00 +.00

+21.95 +21.95

-4.42 +.17

-5.35 +.23

+.04 +.04

+.04

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

Dec 9

 $L' = -0.26$

RA Tangent Rec P. RA

1.5 +.20 +.102 +7.82 $m_5 = +.30$ +5 7.81

1.9 +.66 +.120 +7.67 +.01 7.74

0.4 +1.90 +.215 +7.54 -.03 -.04 +7.51 +7.50 +1.40 -.31 +1.24 -.17 +1.18 +.14 +.14 -

1.2 +4.203 +.205 +1.45 -.01 -.02 +1.44 +1.43 +4.83 -6.38 +4.137 -6.24 +1.54 +.15 +.15 +.20 +.20 +.20

1.3 +2.41 +.261 +7.42 -.01 -.02 +7.41 +7.40 +2.21 -.41 +1.75 -.27 +1.19 +.16 +.16 +.23 - +.23

1.9 +3.04 +.320 +7.55 +.01 +.02 +7.56 +7.55 +2.84 -.26 +2.38 -.12 +.09 +.05 +.05 +.13 +.09 +.11

0.5 -2.82 -3.00 +8.38 +.053 -.03 -.04 +8.35 +8.34 -3.02 +.53 -3.48 +.67 +1.14 +.19 +.19 +.24 +.25 +.24

2.2 -4.76 -4.87 +8.39 +.052 +.02 +.01 +8.41 +8.40 -4.96 +.59 -5.42 +.73 +1.12 +.14 +.14 +.18 +.20 +.19

+8.39 +.052 +.02 +.01 +8.41 +8.40 -4.96 +.59 -5.42 +.73 +1.12 +.14 +.14 +.18 +.20 +.19

+8.39 +.052 +.02 +.01 +8.41 +8.40 -4.96 +.59 -5.42 +.73 +1.12 +.14 +.14 +.18 +.20 +.19

+8.39 +.052 +.02 +.01 +8.41 +8.40 -4.96 +.59 -5.42 +.73 +1.12 +.14 +.14 +.18 +.20 +.19

+8.39 +.052 +.02 +.01 +8.41 +8.40 -4.96 +.59 -5.42 +.73 +1.12 +.14 +.14 +.18 +.20 +.19

+8.39 +.052 +.02 +.01 +8.41 +8.40 -4.96 +.59 -5.42 +.73 +1.12 +.14 +.14 +.18 +.20 +.19

+8.39 +.052 +.02 +.01 +8.41 +8.40 -4.96 +.59 -5.42 +.73 +1.12 +.14 +.14 +.18 +.20 +.19

+8.39 +.052 +.02 +.01 +8.41 +8.40 -4.96 +.59 -5.42 +.73 +1.12 +.14 +.14 +.18 +.20 +.19

+8.39 +.052 +.02 +.01 +8.41 +8.40 -4.96 +.59 -5.42 +.73 +1.12 +.14 +.14 +.18 +.20 +.19

+8.39 +.052 +.02 +.01 +8.41 +8.40 -4.96 +.59 -5.42 +.73 +1.12 +.14 +.14 +.18 +.20 +.19

+8.39 +.052 +.02 +.01 +8.41 +8.40 -4.96 +.59 -5.42 +.73 +1.12 +.14 +.14 +.18 +.20 +.19

+8.39 +.052 +.02 +.01 +8.41 +8.40 -4.96 +.59 -5.42 +.73 +1.12 +.14 +.14 +.18 +.20 +.19

+8.39 +.052 +.02 +.01 +8.41 +8.40 -4.96 +.59 -5.42 +.73 +1.12 +.14 +.14 +.18 +.20 +.19

+8.39 +.052 +.02 +.01 +8.41 +8.40 -4.96 +.59 -5.42 +.73 +1.12 +.14 +.14 +.18 +.20 +.19

+8.39 +.052 +.02 +.01 +8.41 +8.40 -4.96 +.59 -5.42 +.73 +1.12 +.14 +.14 +.18 +.20 +.19

+8.39 +.052 +.02 +.01 +8.41 +8.40 -4.96 +.59 -5.42 +.73 +1.12 +.14 +.14 +.18 +.20 +.19

+8.39 +.052 +.02 +.01 +8.41 +8.40 -4.96 +.59 -5.42 +.73 +1.12 +.14 +.14 +.18 +.20 +.19

+8.39 +.052 +.02 +.01 +8.41 +8.40 -4.96 +.59 -5.42 +.73 +1.12 +.14 +.14 +.18 +.20 +.19

+8.39 +.052 +.02 +.01 +8.41 +8.40 -4.96 +.59 -5.42 +.73 +1.12 +.14 +.14 +.18 +.20 +.19

+8.39 +.052 +.02 +.01 +8.41 +8.40 -4.96 +.59 -5.42 +.73 +1.12 +.14 +.14 +.18 +.20 +.19

+8.39 +.052 +.02 +.01 +8.41 +8.40 -4.96 +.59 -5.42 +.73 +1.12 +.14 +.14 +.18 +.20 +.19

+8.39 +.052 +.02 +.01 +8.41 +8.40 -4.96 +.59 -5.42 +.73 +1.12 +.14 +.14 +.18 +.20 +.19

+8.39 +.052 +.02 +.01 +8.41 +8.40 -4.96 +.59 -5.42 +.73 +1.12 +.14 +.14 +.18 +.20 +.19

+8.39 +.052 +.02 +.01 +8.41 +8.40 -4.96 +.59 -5.42 +.73 +1.12 +.14 +.14 +.18 +.20 +.19

+8.39 +.052 +.02 +.01 +8.41 +8.40 -4.96 +.59 -5.42 +.73 +1.12 +.14 +.14 +.18 +.20 +.19

+8.39 +.052 +.02 +.01 +8.41 +8.40 -4.96 +.59 -5.42 +.73 +1.12 +.14 +.14 +.18 +.20 +.19

+8.39 +.052 +.02 +.01 +8.41 +8.40 -4.96 +.59 -5.42 +.73 +1.12 +.14 +.14 +.18 +.20 +.19

+8.39 +.052 +.02 +.01 +8.41 +8.40 -4.96 +.59 -5.42 +.73 +1.12 +.14 +.14 +.18 +.20 +.19

+8.39 +.052 +.02 +.01 +8.41 +8.40 -4.96 +.59 -5.42 +.73 +1.12 +.14 +.14 +.18 +.20 +.19

+8.39 +.052 +.02 +.01 +8.41 +8.40 -4.96 +.59 -5.42 +.73 +1.12 +.14 +.14 +.18 +.20 +.19

+8.39 +.052 +.02 +.01 +8.41 +8.40 -4.96 +.59 -5.42 +.73 +1.12 +.14 +.14 +.18 +.20 +.19

+8.39 +.052 +.02 +.01 +8.41 +8.40 -4.96 +.59 -5.42 +.73 +1.12 +.14 +.14 +.18 +.20 +.19

+8.39 +.052 +.02 +.01 +8.41 +8.40 -4.96 +.59 -5.42 +.73 +1.12 +.14 +.14 +.18 +.20 +.19

+8.39 +.052 +.02 +.01 +8.41 +8.40 -4.96 +.59 -5.42 +.73 +1.12 +.14 +.14 +.18 +.20 +.19

+8.39 +.052 +.02 +.01 +8.41 +8.40 -4.96 +.59 -5.42 +.73 +1.12 +.14 +.14 +.18 +.20 +.19

+8.39 +.052 +.02 +.01 +8.41 +8.40 -4.96 +.59 -5.42 +.73 +1.12 +.14 +.14 +.18 +.20 +.19

+8.39 +.052 +.02 +.01 +8.41 +8.40 -4.96 +.59 -5.42 +.73 +1.12 +.14 +.14 +.18 +.20 +.19

+8.39 +.052 +.02 +.01 +8.41 +8.40 -4.96 +.59 -5.42 +.73 +1.12 +.14 +.14 +.18 +.20 +.19

+8.39 +.052 +.02 +.01 +8.41 +8.40 -4.96 +.59 -5.42 +.73 +1.12 +.14 +.14 +.18 +.20 +.19

+8.39 +.052 +.02 +.01 +8.41 +8.40 -4.96 +.59 -5.42 +.73 +1.12 +.14 +.14 +.18 +.20 +.19

+8.39 +.052 +.02 +.01 +8.41 +8.40 -4.96 +.59 -5.42 +.73 +1.12 +.14 +.14 +.18 +.20 +.19

+8.39 +.052 +.02 +.01 +8.41 +8.40 -4.96 +.59 -5.42 +.73 +1.12 +.14 +.14 +.18 +.20 +.19

+8.39 +.052 +.02 +.01 +8.41 +8.40 -4.96 +.59 -5.42 +.73 +1.12 +.14 +.14 +.18 +.20 +.19

+8.39 +.052 +.02 +.01 +8.41 +8.40 -4.96 +.59 -5.42 +.73 +1.12 +.14 +.14 +.18 +.20 +.19

+8.39 +.052 +.02 +.01 +8.41 +8.40 -4.96 +.59 -5.42 +.73 +1.12 +.14 +.14 +.18 +.20 +.19

+8.39 +.052 +.02 +.01 +8.41 +8.40 -4.96 +.59 -5.42 +.73 +1.12 +.14 +.14 +.18 +.20 +.19

+8.39 +.052 +.02 +.01 +8.41 +8.40 -4.96 +.59 -5.42 +.73 +1.12 +.14 +.14 +.18 +.20 +.19

+8.39 +.052 +.02 +.01 +8.41 +8.40 -4.96 +.59 -5.42 +.73 +1.12 +.14 +.14 +.18 +.20 +.19

C = .05

C = .05

Dec 10

 $L' = +0.00$

RA Tangent Rec P. RA

1.5 +1.01 +.142 +6.96 +.00 7.15

0.1 +4.08 +.420 +6.45 +6.45 +3.79 -.73 +3.07 -.51 +1.19 +.15 +.15 +.23 +.22 +.23

1.2 +4.203 +.4205 -2.75 -2.75 +4.74 -9.93 +4.102 -9.71 +2.45 +.24 +.24 +.29 +.29 +.29

1.3 +2.41 +.261 +6.66 +6.66 +2.12 -.52 +1.40 -.30 +2.54 +.22 +.22 +.29 +.26 +.27

1.9 +3.04 +.320 +6.65 +6.65 +2.75 -.53 +2.03 -.31 +1.19 +.15 +.15 +.23 +.19 +.21

2.3 +2.34 +.255 +6.86 +6.86 +2.05 -.32 +2.33 -.10 +1.16 +.05 +.05 +.20 +.10 +.20

2.4 +3.12 +.327 +6.57 +6.57 +2.83 -.61 +2.11 -.39 +2.24 +.17 +.17 +.26 +.17 +.26

0.1 -4.84 -4.94 +8.32 +8.32 -5.13 +1.14 -5.85 +1.36 +2.24 +.23 +.23 +.28 +.27 +.27

0.5 -2.82 -3.00 +8.03 +8.03 -3.11 +.85 -3.83 +1.07 +2.74 +.28 +.28 +.34 +.34 +.34

2.2 -4.76 -4.87 +8.13 +8.13 -5.05 +.95 -5.77 +1.17 +1.94 +.20 +.20 +.25 +.25 +.25

+8.13 +8.13 -5.05 +.95 -5.77 +1.17 +1.94 +.20 +.20 +.25 +.25 +.25

+8.13 +8.13 -5.05 +.95 -5.77 +1.17 +1.94 +.20 +.20 +.25 +.25 +.25

+8.13 +8.13 -5.05 +.95 -5.77 +1.17 +1.94 +.20 +.20 +.25 +.25 +.25

+8.13 +8.13 -5.05 +.95 -5.77 +1.17 +1.94 +.20 +.20 +.25 +.25 +.25

+8.13 +8.13 -5.05 +.95 -5.77 +1.17 +1.94 +.20 +.20 +.25 +.25 +.25

+8.13 +8.13 -5.05 +.95 -5.77 +1.17 +1.94 +.20 +.20 +.25 +.25 +.25

+8.13 +8.13 -5.05 +.95 -5.77 +1.17 +1.94 +.20 +.20 +.25 +.25 +.25

+8.13 +8.13 -5.05 +.95 -5.77 +1.17 +1.94 +.20 +.20 +.25 +.25 +.25

+8.13 +8.13 -5.05 +.95 -5.77 +1.17 +1.94 +.20 +.20 +.25 +.25 +.25

+8.13 +8.13 -5.05 +.95 -5.77 +1.17 +1.94 +.20 +.20 +.25 +.25 +.25

+8.13 +8.13 -5.05 +.95 -5.77 +1.17 +1.94 +.20 +.20 +.25 +.25 +.25

+8.13 +8.13 -5.05 +.95 -5.77 +1.17 +1.94 +.20 +.20 +.25 +.25 +.25

+8.13 +8.13 -5.05 +.95 -5.77 +1.17 +1.94 +.20 +.20 +.25 +.25 +.25

+8.13 +8.13 -5.05 +.95 -5.77 +1.17 +1.94 +.20 +.20 +.25 +.25 +.25

+8.13 +8.13 -5.05 +.95 -5.77 +1.17 +1.94 +.20 +.20 +.25 +.25 +.25

+8.13 +8.13 -5.05 +.95 -5.77 +1.17 +1.94 +.20 +.20 +.25 +.25 +.25

+8.13 +8.13 -5.05 +.95 -5.77 +1.17 +1.94 +.20 +.20 +.25 +.25 +.25

+8.13 +8.13 -5.05 +.95 -5.77 +1.17 +1.94 +.20 +.20 +.25 +.25 +.25

+8.13 +8.13 -5.05 +.95 -5.77 +1.17 +1.94 +.20 +.20 +.25 +.25 +.25

+8.13 +8.13 -5.05 +.95 -5.77 +1.17 +1.94 +.20 +.20 +.25 +.25 +.25

+8.13 +8.13 -5.05 +.95 -5.77 +1.17 +1.94 +.20 +.20 +.25 +.25 +.25

+8.13 +8.13 -5.05 +.95 -5.77 +1.17 +1.94 +.20 +.20 +.25 +.25 +.25

+8.13 +8.13 -5.05 +.95 -5.77 +1.17 +1.94 +.20 +.20 +.25 +.25 +.25

+8.13 +8.13 -5.05 +.95 -5.77 +1.17 +1.94 +.20 +.20 +.25 +.25 +.25

+8.13 +8.13 -5.05 +.95 -5.77 +1.17 +1.94 +.20 +.20 +.25 +.25 +.25

+8.13 +8.13 -5.05 +.95 -5.77 +1.17 +1.94 +.20 +.20 +.25 +.25 +.25

+8.13 +8.13 -5.05 +.95 -5.77 +1.17 +1.94 +.20 +.20 +.25 +.25 +.25

+8.13 +8.13 -5.05 +.95 -5.77 +1.17 +1.94 +.20 +.20 +.25 +.25 +.25

+8.13 +8.13 -5.05 +.95 -5.77 +1.17 +1.94 +.20 +.20 +.25 +.25 +.25

+8.13 +8.13 -5.05 +.95 -5.77 +1.17 +1.94 +.20 +.20 +.25 +.25 +.25

+8.13 +8.13 -5.05 +.95 -5.77 +1.17 +1.94 +.20 +.20 +.25 +.25 +.25

+8.13 +8.13 -5.05 +.95 -5.77 +1.17 +1.94 +.20 +.20 +.25 +.25 +.25

Dec 15

 $L' = -0.18$

RA Tangent Rec P. RA

0.9 +.13 +5.31 $m_5 = +.15$ 5.34

0.5 -0.02 +5.48 5.38

0.1 +1.01 +5.19 -.01 5.38

0.2 +4.08 +4.01 -.01 +.00 +4.00 +4.00 +3.95 -1.31 +3.07 -1.19 +1.33 +.39 +.36

0.4 +1.90 +5.09 -.01 +.01 +5.08 +5.10 +1.77 -.23 +.89 -.09 +.13 +.11 -

0.6 +3.56 +4.60 -.01 +.01 +4.59 +4.61 +3.43 -.72 +2.55 -.58 +.21 +.23 +.22

1.0 +5.14 +4.46 +.00 +.02 +4.46 +4.48 +5.01 -.85 +4.13 -.71 +.17 +.17 +.17

1.2 +4.203 -3.89 +.01 +.02 -3.88 -3.87 +4.10 -9.19 +4.102 -9.06 +.22 +.22 +.22

1.3 +2.41 +4.94 +.01 +.02 +4.95 +4.96 +2.28 -.436 +1.40 -.23 +.16 +.17 +.16

+4.95 +4.96 +2.28 -.436 +1.40 -.23 +.16 +.17 +.17 +.22 +.23 +.23

+4.95 +4.96 +2.28 -.436 +1.40 -.23 +.16 +.17 +.17 +.22 +.23 +.23

+4.95 +4.96 +2.28 -.436 +1.40 -.23 +.16 +.17 +.17 +.22 +.23 +.23

+4.95 +4.96 +2.28 -.436 +1.40 -.23 +.16 +.17 +.17 +.22 +.23 +.23

+4.95 +4.96 +2.28 -.436 +1.40 -.23 +.16 +.17 +.17 +.22 +.23 +.23

+4.95 +4.96 +2.28 -.436 +1.40 -.23 +.16 +.17 +.17 +.22 +.23 +.23

+4.95 +4.96 +2.28 -.436 +1.40 -.23 +.16 +.17 +.17 +.22 +.23 +.23

+4.95 +4.96 +2.28 -.436 +1.40 -.23 +.16 +.17 +.17 +.22 +.23 +.23

+4.95 +4.96 +2.28 -.436 +1.40 -.23 +.16 +.17 +.17 +.22 +.23 +.23

+4.95 +4.96 +2.28 -.436 +1.40 -.23 +.16 +.17 +.17 +.22 +.23 +.23

+4.95 +4.96 +2.28 -.436 +1.40 -.23 +.16 +.17 +.17 +.22 +.23 +.23

+4.95 +4.96 +2.28 -.436 +1.40 -.23 +.16 +.17 +.17 +.22 +.23 +.23

+4.95 +4.96 +2.28 -.436 +1.40 -.23 +.16 +.17 +.17 +.22 +.23 +.23

+4.95 +4.96 +2.28 -.436 +1.40 -.23 +.16 +.17 +.17 +.22 +.23 +.23

+4.95 +4.96 +2.28 -.436 +1.40 -.23 +.16 +.17 +.17 +.22 +.23 +.23

+4.95 +4.96 +2.28 -.436 +1.40 -.23 +.16 +.17 +.17 +.22 +.23 +.23

+4.95 +4.96 +2.28 -.436 +1.40 -.23 +.16 +.17 +.17 +.22 +.23 +.23

+4.95 +4.96 +2.28 -.436 +1.40 -.23 +.16 +.17 +.17 +.22 +.23 +.23

+4.95 +4.96 +2.28 -.436 +1.40 -.23 +.16 +.17 +.17 +.22 +.23 +.23

Dec 16

 $L' = -0.30$

RA Tangent Rec P. RA

1.0 +.34 +4.78 $m_5 = +.21$ 4.85

1.6 +1.32 +4.55 +.02 4.83

0.4 +1.90 +4.41 -.02 -.04 +4.39 +4.37 +1.56 -.39 +.58 -.18 +.25 +.32 -

0.6 +3.56 +4.25 -.01 -.04 +4.24 +4.21 +3.22 -.54 +2.24 -.34 +.17 +.15 -

0.8 +1.73 +4.50 -.01 -.03 +4.49 +4.47 +1.39 -.29 +.41 -.08 +.21 +.21 -

1.0 +5.14 +4.05 +.00 -.02 +4.05 +4.03 +4.80 -.73 +3.82 -.52 +.15 +.14 -

1.2 +4.203 -7.46 +.01 -.02 -7.45 -7.44 +4.16 -12.23 +4.071 -11.99 +.29 +.29 +.29

1.3 +2.41 +4.26 +.00 -.02 +4.26 +4.24 +2.07 -.52 +1.09 -.31

1873

Dec 17 $L^1 = -.028$

RA tang. \vec{h} ke \vec{r} RA

<i>t</i>	<i>b_y</i>	1.0	+ .34	+ 4.10 + 5	n = 5	4.15									
w.b.	0.6	+ 3.56	+ 3.34 - .01	+ 3.33 +		+ 3.22 - 0.77	+		+ 24					+ 24	
	0.8	+ 1.73	+ 4.07 - .01	+ 4.06		+ 1.39 - .04			+ .03"		-				
	1.0	+ 3.14	+ 3.66 + .00	+ 3.66		+ 4.80 - .24			+ .09		+ .09				
	1.2	+ 4.203	- 2.72 + .01	- 2.71		+ 4.69 - 6.81			+ .16		+ .16				
	1.3	+ 2.41	+ 3.91 + .01	+ 3.92		+ 2.07 - .18			+ .09		+ .09				
									+ 15		+ 15			+ 15	+ 15

Dec. 18 $L' = -.013$

[illegible]

Dec 22 $L' = +.028$

 $C \approx 1$ [illegible]

Dec 28 $L' = +.008$

911

[illegible]Dec 29 $L' = +.008$ [illegible]

1879hae 874

Jan 15 $L' = -.035$

RA Longd' recd P RA

4.7 +.21 -8.43 $m_s = +.92$ -8.39
+.05

4.7 +1.63 -8.88 +.00 8.49
+.39

17.0 -7.33 -6.67 $m_s = +.01$ -6.66 -6.66 -7.54 +2.77 -8.96 +2.22 +2.23 +2.25 +2.24 +2.24

Jan. 17 $L' = -.051$

4.5 -.03 -9.00 $m_s = +.23$ -9.01
+.01

4.6 +1.18 -9.28 +.01 -9.01
+.26

3.1 +4.42 -9.88 -.07 -.08 -9.95 -9.96 +4.45 -.95 +3.24 -.68 +2.1 +2.1 +2.1 -

17.0 -7.33 -7.25 $m_s = +.03$ -7.25 -7.23 -7.30 +1.78 -8.51 +2.05 +2.24 +2.24 +2.24 +2.22

Jan. 18 $L' = -.067$

4.1 -.06 -9.82 $m_s = +.26$ -9.81
+.01

4.1 +1.35 -10.19 +.00 9.85
+.34

2.8 +5.10 -11.13 -.09 -11.22 -11.22 +5.16 -1.40 +3.75 -1.03 +2.7 +2.7 +2.7 +2.7

3.1 +4.42 -10.69 -.07 -10.76 -10.76 +4.48 -.44 +3.07 -.57 +2.1 +1.9 +2.0 +2.0

4.7 +2.26 -10.50 +.04 -10.46 -10.46 +2.32 -.64 +.91 -.27 +2.8 +3.0 +2.8 +2.8 +2.5 +2.3 +2.5 +2.5

14.8 -3.65 -8.85 $m_s = +.09$ -8.94 -8.94 -3.59 +.88 -5.00 +1.25 +2.5 +2.5 +2.5 +2.5

17.0 -7.33 -8.09 $m_s = +.06$ -8.03 -8.03 -7.27 +1.79 -8.68 +2.16 +2.5 +2.5 +2.5 +2.5 +2.5 +2.5

Jan. 20 $L' = -.012$

4.1 +.12 -11.51 $m_s = +.29$ -11.48
+.03

5.0 +1.24 -11.84 +.01 -11.53
+.30

2.3 +2.33 -12.12 -.02 -.03 -12.14 -12.15 +2.21 -.63 +1.09 -.31 +2.9 +2.9 +2.9 +2.9

2.4 +3.13 -12.21 -.02 -.03 -12.23 -12.24 +3.01 -.72 +1.89 -.40 +2.4 +2.4 +2.4 +2.4

4.7 +2.26 -12.08 +.01 -.00 -12.07 -12.08 +2.14 -.56 +1.02 -.24 +2.6 +2.6 +2.6 +2.6 +2.6 +2.6

17.0 -7.33 -10.13 $m_s = +.01$ -10.12 -10.13 -7.45 +1.39 -8.57 +1.71 +1.9 +2.0 +2.0 +2.0 +2.0

Feb. 1 $L' = -.012$

4.3 +.22 -20.51

Feb. 4 $L' = -.023$

5.9 +.34 +1.06 -22.55 $m_s = +.34$ -22.43
+.12

4.9 +1.75 +2.02 -23.01 -.02 22.40
+.63

6.1 +2.66 +2.84 -23.45 +.00 +.03 -23.45 -23.42 +2.32 -.90 +.91 -.41 +3.9 +4.5 +3.9 +3.9

6.4 +5.50 +5.59 -24.19 +.01 +.03 -24.18 -24.16 +5.16 -1.63 +3.75 -1.15 +3.2 +3.1 +3.1 +3.1 +3.6 +3.1 +3.6 +3.6

18.2 -16.83 -16.86 -16.28 $m_s = +.01$ -16.27 -16.25 -17.17 +6.28 -18.58 -6.76 +3.7 +3.6 +3.6 +3.6 +3.6 +3.6

1874
Mar. 3 $L' = -.045$

RA	Long. S. Sec	RA
5.9	+1.19	+15.81 $m_s = +1.3$
5.8	+1.88	+15.72 +.00

Mar. 4 $L' = -.037$

6.5	+1.27 +1.04	+15.12 $m_s = +1.1$	15.13
6.7	+1.90 +1.35	+15.04 +.01	15.09
6.1	+2.66 +2.84	+15.06 -01 -02	+15.05 +15.04 +2.39 -0.04 +1.76 +.07 +.00 +.03 +.00
18.2	-16.83 -16.85	+16.16 $m_s = +1.0$	+16.15 +16.14 -17.10 +1.03 -17.73 +1.03 +1.10 +.06 +.06

Mar. 5 $L' = -.048$

5.6	+1.05	+14.50 $m_s = +1.0$	14.51
5.0	+1.39	+14.36 -03	14.51
7.6	+3.55	+13.82 +.10 +.12	+13.92 +13.94 +3.50 -.58 +2.16 -.42 +.17 +.19
7.8	-53.13	+22.04 +.11 +.13	+22.15 +22.17 -53.18 +7.65 -54.52 +7.81 +.14 +.14
17.0	-7.33	+15.11 $m_s = +1.0$	+15.08 +15.11 -7.38 +.58 -8.72 +1.75 +.08 +.09

Mar. 8 $L' = -.023$

6.1	+1.08	+12.29 $m_s = +1.5$	+12.30
6.4	+1.18	+12.12 +.01	+12.34
5.4	+3.72	+11.68 -02 -02	+11.66 +11.66 +3.64 -.63 +2.54 -.46 +.17 +.18
6.7	+20.69	+9.49 +.01 +.01	+9.50 +9.50 +20.61 -2.79 +19.57 -2.62 +.13 +.13
7.6	+3.65	+11.70 +.03 +.03	+11.73 +11.73 +3.47 -.56 +2.37 -.39 +.16 +.17
7.8	-53.13	+21.34 +.04 +.03	+21.38 +21.37 -53.21 +9.09 -54.31 +9.25 +.17 +.17
17.0	-7.33	+13.93 $m_s = +1.0$	+13.90 +13.90 -7.41 +1.61 -8.51 +1.78 +.22 +.21

Mar. 12 $L' = -.021$

6.9	+1.22	+9.80 $m_s = +1.3$	9.86
7.1	+1.61	+9.71 +.00	9.87
6.7	+20.69	+4.37 +.00 -01	+4.37 +4.36 +20.67 -5.43 +20.08 -5.35 +.26 +.26
7.3	+2.57	+8.16 +.01 +.00	+9.17 +9.16 +2.35 -.63 +1.96 -.55 +.27 +.28
7.6	+3.55	+8.99 +.01 +.01	+9.00 +9.00 +3.33 -.80 +2.94 -.71 +.24 +.24

Mar. 16 $L' = -.014$

7.4	+1.58	+6.21 $m_s = +1.8$	6.27
7.3	+2.57	+5.79 -.01	+5.78 +2.03 -.39
7.6	+3.55	+6.02 +.00	+6.02 +3.01 -.16
7.8	-53.13	+20.99 +.01	+21.00 -53.67 +14.81

1874 Mar. 21 $L' = -.012$
RA tang^s and π -RA

8.1	+ .28	+2.61 + 1	$m = +.04$ 5	2.62															
7.0	+1.11	+2.59 + 4	- .01	2.62															
6.7	+20.69	+1.88	- .02 + .00	+1.86	+1.88	+2.01	- .75	+19.58	- .71	+ .04	+ .03								
8.3	+1.81	+2.56	+ .00 + .02	+2.56	+2.58	+1.53	- .05	+ .70	- .01	+ .03	+ .01								
										+ .04	+ .03								

Mar. 22 $L' = -.010$

8.6	+1.13 +1.01	+2.08 + 1	$m = +.04$ 5	2.09															
8.9	+1.11 +1.09	+2.04 + 10	+ .00	2.14															
6.7	+20.69 +20.71	+0.84	- .02 - .02	+0.82	+0.82	+2.05	-1.26	+19.58	-1.22	+ .06	+ .06								
8.3	+1.81 +2.07	+1.92	+ .00 - .01	+1.92	+1.91	+1.68	- .16	+ .70	- .13	+ .09	+ .09								
9.0	+2.43 +2.62	+1.90	+ .00 + .00	+1.90	+1.90	+2.30	- .18	+1.32	- .14	+ .08	+ .11								
										+ .07	+ .06								
20.2	-4.45 -4.55	+2.64	+ .00 - .01	+2.64	+2.63	-4.58	+ .56	+5.56	+ .59	+ .12	+ .11								

Mar. 23 $L' = -.014$

8.7	+1.19 +1.02	+1.42 + 2	$m = +.22$ 5	1.44															
8.9	+1.11 +1.49	+1.22 + 13	+ .00	1.35															
8.4	+3.50 +3.65	+1.03	+ .00 - .01	+1.03	+1.02	+3.31	- .39	+2.39	- .20	+ .12	+ .08								
9.0	+2.43 +2.62	+1.08	+ .00 + .02	+1.08	+1.08	+2.24	- .34	+1.32	- .14	+ .15	+ .11								
										+ .14	+ .08								

Mar. 24 $L' = -.017$

8.6	+1.18 +1.02	+0.72 + 4	$m = +.24$ 5	0.76															
9.1	+ .85 +1.31	+0.56 + 15	+ .01	0.72															
9.0	+2.43 +2.62	+0.30	+ .01 + .00	+0.31	+0.30	+2.25	- .41	+1.58	- .26	+ .18	+ .17								

Mar. 25 $L' = -.050$

8.5	+1.21 +1.02	-0.13 + 5	$m = +.15$ 5	-0.08															
7.8	+1.58 +1.14	-0.12 + 12	+ .00	-0.06															
7.3	+2.57 +2.75	-0.67	- .04 - .02	-0.73	-0.69	+2.36	- .60	+2.03	- .55	+ .25	+ .27								
7.7	+3.58 +3.70	-0.69	+ .00 + .01	-0.73	-0.68	+3.34	- .60	+3.01	- .54	+ .18	+ .18								
8.1	+4.05 +4.06	-0.81	+ .00 + .02	-0.83	-0.79	+3.84	- .70	+3.51	- .65	+ .18	+ .19								
8.3	+1.81 +2.07	-0.30	+ .00 + .04	-0.31	-0.26	+1.60	- .18	+1.27	- .12	+ .11	+ .09								
8.4	+3.50 +3.65	-0.98	+ .00 + .04	-0.99	-0.94	+3.29	- .86	+2.96	- .80	+ .26	+ .27								
										+ .22	+ .23								
20.2	-4.45 -4.55	+1.15	+ .02 + .03	+1.13	+1.18	-4.66	+1.26	-4.99	+1.32	+ .27	+ .27								
7.8	-53.13 -53.15	+1.95	+ .00 + .00	+1.91	+1.96	-53.34	+12.04	-53.67	+12.10	+ .23	+ .23								
										+ .25	+ .25								

Mar. 30 $L' = -.046$

8.5	+1.20	-3.90 + 1	$m = +.09$ 5	-3.89															
7.2	+ .87	-3.90 + 9	- .06	3.92															
6.7	+20.69	-3.81	- .08 - .02	-3.89	-3.83	+2.049	+ .01	+19.82	+ .07	+ .00	+ .00								
7.3	+2.57	-4.00	- .06 + .00	-4.06	-4.00	+2.37	- .16	+1.70	- .10	+ .07	+ .06								
8.3	+1.81	-3.93	- .01 + .05	-3.94	-3.88	+1.61	- .04	+ .94	+ .02	+ .03	+ .03								
9.8	+3.36	-4.02	+ .06 + .12	-3.96	-3.90	+3.16	- .06	+2.49	+ .00	+ .02	+ .00								
										+ .03	+ .00								
20.2	-4.45	-3.51	+ .01 + .05	-3.52	-3.46	-4.65	+ .38	-5.32	+1.44	+ .08	+ .08								

1874														
Apr. 1 $L' = -.035$														
Ra	Long. S	Sec	$\overline{R}a$											
9.6	+1.45	+1.10	-5.56 $m_s = +1.20$	-5.50										
			+ 6											
9.7	+1.70	+1.98	-5.81 +.00	5.59										
			+ 22											
9.4	+2.81	+2.98	-5.99 +.00 - .01	-6.00	-6.00	+2.36	-.44	+1.11	-.19	+19	+17	+19	+16	+18
9.5	+2.72	+2.90	-5.93 +.00 - .01	-5.93	-5.94	+2.27	-.37	+1.02	-.13	+16	+13	+18	+1	
										+18	+1			
21.4	-2.75	-2.92	-5.51 +.41 +.41	-5.52	-5.52	-3.20	+ .04	-4.45	+2.9	+0.1	+0.6	+0.4	+13	
Apr. 2 $L' = -.034$														
9.4	+1.18	+1.02	-6.45 $m_s = +1.12$	-6.44										
			+ 1											
9.7	+1.70	+1.97	-6.65 +.01	-6.61	6.50									
			+ 14											
9.5	+2.72	+2.90	-6.74 +.00 - .01	-6.74	-6.75	+2.54	-.29	+1.02	-.09	+11	+0.0	+11	+0.8	
9.8	+3.36	+3.50	-6.70 +.01 +.00	-6.69	-6.70	+3.18	-.24	+1.66	-.04	+0.8	+0.2	+0.9	+0.9	
										+0.9				
21.4	-2.75	-2.92	-6.38 +.41 +.40	-6.38	-6.39	-2.93	+ .07	-4.45	+2.7	+0.2	+0.6	+0.4	+0.8	
Apr. 4 $L' = +.000$														
9.3	+1.09		-7.97 $m_s = +.21$	-7.95										
			+ 2											
9.3	+1.41		-8.25 +.00	7.95										
			+ 30											
9.4	+2.81		-8.44	-8.44	-8.44	+2.72	-.47	+1.40	-.19	+17	+14	+17	+14	
9.5	+2.72		-8.47	-8.47	-8.47	+2.63	-.50	+1.31	-.22	+19	+17	+19	+17	
9.8	+3.36		-8.68	-8.68	-8.68	+3.27	-.71	+1.95	-.43	+22	+22	+19	+22	
										+19				
21.4	-2.75		-7.34	-7.34	-7.34	-2.84	+ .63	-4.16	+9.1	+2.2	+2.2	+2.2	+2.2	
21.7	-2.86		-7.26 +.00	-7.26	-7.26	-2.95	+ .71	-4.27	+9.9	+2.4	+2.3	+2.3	+2.3	+2.1
Apr. 6 $L' = -.040$														
9.5	+1.21		-9.71 $m_s = +.03$	9.69										
			+ 2											
9.7	+1.70		-9.77 +.01	9.57										
			+ 19											
9.8	+3.36		-9.78 +.01 +.00	-9.77	-9.78	+3.15	-.06	+1.66	+0.0	+14	+0.0	+19	+12	
9.5	+2.72		-10.00 +.00 - .01	-10.00	-10.01	+2.51	-.29	+1.02	-.23	+12	+23	+12	+10	
										+16				
20.2	-4.45		-9.03 +.43 +.42	-9.08	-9.09	-4.66	+ .63	-6.15	+6.9	+14	+11	+12	+0.8	
21.7	-2.86		-9.44 +.49 +.48	-9.43	-9.44	-3.07	+ .28	-4.56	+3.4	+0.9	+0.7	+0.6	+0.6	
21.4	-2.75		-9.72 +.48 +.47	-9.72	-9.73	-2.96	-.01	-4.45	+0.5	+0.0	+1.1	+0.9	+1.1	
										+0.8	+1.0	+0.9	+1.1	
Apr. 13 $L' = -.030$														
10.0	+1.23		-16.47 $m_s = -.02$											
			+ 5											
9.7	+1.70		-16.44 - .01											
9.5	+2.72		-16.48 - .02 - .01	-16.50	-16.49	+2.49	-.03	+1.02	-.05	+0.1	+0.4	+0.1	+0.1	
21.7	-2.86		-16.52 - .01 +.00	-16.53	-16.52	-3.09	-.06	-4.56	-.08	+0.2	+0.2	+0.2	+0.2	

1874
May 7 $L' = +0.00$ RA Long. S. ec. 8 π RA11.7 +1.10 -38.85 $n_5 = -.13$ 38.86

11.1 +1.01 -38.73 +0.00 38.84

10.8	+4.87	-38.43	-38.43	+4.77	+1.42	+3.86	+3.30	-0.09	-0.08	-0.09
10.9	+1.81	-38.77	-38.77	+1.71	+1.08	+1.80	+1.04	-0.03	+0.05	-
12.1	+4.84	-38.23 +0.00	-38.23	+4.74	+1.62	+3.83	+1.50	-0.13	-0.13	-0.13
								-0.11	-0.11	-0.11

May 10 $L' = -0.12$ 11.5 +1.11 -41.49 $n_5 = -.18$ 41.51

11.5 +1.18 -41.30 +0.00 41.54

10.6	+2.70	-41.06 -0.01	-41.07	+2.59	+1.42	+1.52	+1.23	-0.16	-0.15	-0.16
10.8	+4.87	-40.86 -0.01	-40.87	+4.76	+1.62	+3.69	+1.43	-0.13	-0.12	-0.12
11.4	+2.75	-40.97 +0.00	-40.97	+2.64	+1.52	+1.57	+1.33	-0.20	-0.21	-0.20
11.6	+2.40	-41.13 +0.00	-41.13	+2.29	+1.36	+1.22	+1.17	-0.16	-0.16	-0.16
12.1	+4.84	-40.07 +0.01	-40.06	+4.73	+1.43	+3.66	+1.24	-0.38	-0.34	-0.32
								-0.19	-0.23	-0.19
23.6	-4.31	-42.62 +0.00	-42.62	-4.42	-1.13	-5.49	-1.32	-0.26	-0.24	-0.25
										-0.20

May 11 $L' = -0.14$ 11.6 +1.12 -42.46 $n_5 = -.16$ 42.50

10.8 +1.81 -42.36 -0.01 42.52

10.6	+2.70	-42.11 -0.02 +0.00	-42.13	+2.58	+1.35	+1.89	+1.25	-0.14	-0.13	-0.14
10.9	+1.81	-42.35 -0.01 +0.00	-42.36	+1.69	+1.12	+1.00	+0.01	-0.07	-0.07	-0.07
12.1	+4.84	-41.54 +0.01 +0.02	-41.53	+4.72	+0.95	+4.03	+1.84	-0.21	-0.21	-0.21
								-0.18	-0.21	-0.18

May 12 $L' = -0.19$ 11.2 +1.09 +1.00 -43.59 $n_5 = -.14 +2$ 43.64

11.0 +1.01 +1.42 -43.46 +0.00 43.58

10.8	+4.87 +4.97	-43.10 -0.01 +0.00	-43.11	+4.78	+1.48	+3.86	+1.36	-0.10	-0.10	-0.10
10.9	+1.81 +2.07	-43.38 -0.01 +0.00	-43.39	+1.72	+1.20	+1.80	+1.08	-0.12	-0.10	-0.12
11.2	+2.15 +2.38	-43.45 +0.00 +0.00	-43.45	+2.06	+1.14	+1.14	+1.01	-0.07	-0.07	-0.07
11.4	+2.75 +2.92	-43.35 +0.00 +0.01	-43.35	+2.66	+1.24	+1.74	+1.12	-0.09	-0.07	-0.06
								-0.06	-0.06	-0.06

23.6	-4.31 -4.45	-44.12 +0.04 +0.24	-44.11	-4.40	-0.52	-5.32	-0.64	-0.18	-0.12	-0.07
								-0.18	-0.12	-0.07

May 13 $L' = -0.18$ 12.4 +1.09 +1.00 -44.68 $n_5 = -.21$ 44.69

12.8 +1.52 +1.62 -44.39 +0.01 44.68

12.1	+4.84 +4.94	-43.80 -0.01 -0.01	-43.81	+4.75	+3.32	+3.87	+1.58	-0.18	-0.18	-0.18
								-0.15	-0.15	-0.15

May 14 $L' = -0.10$ 11.6 +1.06 +1.00 -45.38 $n_5 = -.25 +2$ 45.45

11.0 +1.01 +1.42 -45.13 -0.01 45.46

10.8	+4.87 +4.97	-44.05 -0.01 +0.00	-44.06	+4.73	+1.32	+3.86	+1.08	-0.21	-0.23	-0.24
10.9	+1.81 +2.07	-44.86 -0.01 +0.00	-44.87	+1.75	+1.51	+1.80	+1.24	-0.23	-0.25	-0.28
11.4	+2.75 +2.92	-44.68 +0.00 +0.00	-44.68	+2.69	+1.70	+1.74	+1.45	-0.26	-0.26	-0.26
								-0.24	-0.25	-0.24

23.6	-4.31 -4.41	-46.77 +0.12 +0.12	-46.77	-4.37	-1.39	-5.32	-1.65	-0.32	-0.31	-0.26
								-0.26	-0.25	-0.26

1874

June 1 $L' = -.016$

RA Tang S Sec

PRA

13.7 +.13 -53.56 $m = -.37$ 53.60

13.7 +1.19 -53.17 +.00 53.59

13.6 +3.06 -52.42 +.00 -52.42 -52.42 +2.93 +1.14 +1.87 +1.75 -39 -41

13.8 +2.17 -52.87 +.00 -52.87 -52.87 +2.04 +.69 +.98 +.30 -34 -31

14.1 +2.14 -52.97 +.01 -52.96 -52.96 +2.01 +.60 +.95 +.21 -30 -23

14.2 +4.74 -51.78 +.01 -51.77 -51.77 +4.61 +1.79 +3.55 +1.40 -39 -39

13.9 -3.85 -36 -39 -36 -36.5

June 2 $L' = +.000$ 13.1 +.08 +1.00 -54.11 $m = -.38$ -54.13

13.5 +1.41 +1.73 -53.60 +.00 54.01

12.8 +2.26 +2.67 -53.47 -53.47 +2.18 +.64 +.85 +.13 -29 -16

14.0 +2.14 +2.37 -53.50 +.00 -53.50 -53.50 +2.06 +.61 +.73 +.10 -30 -14

June 8 $L' = -.051$ 13.8 +.34 -56.48 $m = -.44$ 56.62

13.6 +1.34 -56.03 -01 56.60

14.0 +2.14 -55.83 +.01 +.02 -55.82 -55.81 +1.80 +.66 +.80 +.17 +.22 -37 -28

2.3 -2.34 -57.67 $m = -.58$ -57.60 -57.59 -2.68 -1.12 -3.68 -5.97 -1.56 -42 -42June 9 $L' = -.034$ 14.1 +.41 -56.38 $m = -.38$ 56.56

13.5 +1.41 -55.98 -02 56.59

12.8 +2.26 -55.63 -04 -02 -55.67 -55.65 +1.85 +.71 +.85 +.33 -38 -39

14.8 +3.65 -54.94 +.02 +.04 -54.92 -54.90 +3.24 +1.46 +2.24 +1.08 -45 -45

14.9 +2.29 -55.64 +.03 +.05 -55.61 -55.59 +1.88 +.77 +.88 +.39 -41 -45

June 10 $L' = -.033$ 12.9 +.06 +1.00 +3.53 $m = -.40$ +3.51

13.5 +1.05 +1.45 +3.91 +.02 3.46

14.2 +4.74 +4.85 +6.49 +.01 +.02 +6.53 +6.51 +4.68 +3.00 +3.69 +2.60 -49 -51

14.8 +3.65 +3.79 +5.18 +.04 +.04 +5.24 +5.22 +3.59 +1.71 +2.60 +1.31 -48 -51

13.2 -4.195 -4.97 -11.91 +.01 -01 -11.90 -11.92 -42.01 -15.43 -43.00 -15.83 -37 -37

2.3 -2.34 +2.35 -2.37 +2.30 -2.35 +2.35 +2.33 -2.40 -1.18 -3.39 -1.58 -49 -47

13.9 +.18 +1.02 +2.66 $m = -.29$ 2.59

13.8 +1.32 +1.46 +3.00 +.00 2.51

13.4 +3.29 +3.44 +3.85 +.01 +.01 +3.86 +3.86 +3.11 +1.20 +1.97 +.86 -39 -44

13.6 +3.06 +3.22 +3.91 +.01 +.01 +3.92 +3.92 +2.88 +1.26 +1.44 +.92 -44 -53

13.8 +2.17 +2.89 +3.23 +.00 +.00 +3.23 +3.23 +1.99 +.87 +.85 +.23 -29 -28

14.0 +2.14 +2.37 +3.26 +.00 -01 +3.26 +3.25 +1.96 +.60 +.82 +.25 -31 -31

13.2 -4.195 -4.97 -12.35 -02 +.02 -12.33 -12.33 -42.13 -14.99 -43.27 -15.33 -36 -35

2.3 -2.34 +2.35 -2.37 +2.30 -2.35 +2.35 +2.33 -2.40 -1.18 -3.39 -1.58 -49 -47

June 17 $L' = +0.09$

R.A. tangd sec TL R.A.

163 +.30 +3.54 $m_s = -.43$ + 3.43

166 +.81 +3.76 +.00 + 3.45

13.4 +3.29 + 4.50 +.03 +.03 + 4.53 + 4.53 + 2.99 + .99 + 2.48 + .77 - .33 - .31

164 +1.87 + 4.15 +.00 +.00 + 4.15 + 4.15 + 1.57 + .61 + 1.06 + .39 - .30 - .37

165 +2.61 + 4.55 +.00 +.00 + 4.55 + 4.55 + 2.31 + 1.01 + 1.80 + .79 - .44 - .44

13.2 -41.95 - 12.18 +.03 +.03 - 12.15 - 12.15 - 42.25 - 15.69 - 42.76 - 15.91 - .37 - .37

June 18 $L' = +0.25$ 15.2 +.37 +4.34 $m_s = -.38$ 4.18

14.9 +.98 +4.56 +.01 4.18

13.8 +2.17 + 5.00 +.03 +.03 + 5.03 + 5.03 + 1.60 + 0.67 + 1.19 + .47 - .37 - .37

15.2 +2.45 + 5.25 +.00 - .01 + 5.25 + 5.24 + 2.08 + .91 + 1.47 + .68 - .44 - .46

June 22 $L' = +0.10$ 15.0 +.52 +.13 +6.26 $m_s = -.46$ 6.07

14.9 +.57 +.32 +6.42 +.00 6.10

14.8 +3.65 +3.79 +7.49 +.00 +.00 + 7.49 + 7.49 + 3.13 + 1.23 + 2.78 + 1.07 - .39 - .39

14.9 +0.87 +1.32 +6.42 +.00 +.00 + 6.42 + 6.42 + .35 + .16 + .00 + .00 - .39 - .39

14.9 +2.29 +2.50 +6.90 +.00 +.00 + 6.90 + 6.90 + 1.77 + .64 + 1.42 + .48 - .36 - .34

13.2 -41.95 -41.97 -8.44 +.02 +.02 -8.42 -8.42 -42.47 -14.68 -42.82 -14.64 - .35 - .35

June 23 $L' = +0.09$ 15.9 +.07 +6.53 $m_s = -.37$ 6.50

15.9 +1.43 +7.03 +7.44 +.00 6.39

15.3 +3.13 +7.40 +.01 + 7.71 + 7.71 + 3.06 + 1.18 + 1.70 + .68 - .39 - .40

15.8 +4.78 +8.79 +.00 + 8.79 + 8.79 + 4.71 + 2.26 + 3.35 + 1.76 - .48 - .52

16.2 +4.07 +8.24 +.00 + 8.24 + 8.24 + 4.00 + 1.71 + 2.64 + 1.21 - .43 - .46

16.4 +1.87 +7.17 +.00 + 7.17 + 7.17 + 1.80 + .64 + .44 + .14 - .25 - .32

16.5 +2.61 +7.64 - .01 + 7.66 + 7.66 + 2.54 + 1.13 + 1.18 + .63 - .45 - .54

16.6 +4.59 +8.56 - .01 + 8.55 + 8.55 + 4.52 + 2.02 + 3.16 + 1.52 - .45 - .48

June 24 $L' = +0.07$ 14.0 +.25 +6.94 $m_s = -.39$ 6.84

13.7 +1.19 +7.31 +.00 6.79

13.8 +2.17 +7.77 +.00 +.00 + 7.77 + 7.77 + 1.92 + .83 + .98 + .46 - .43 - .47

14.0 +2.14 +7.75 +.00 +.00 + 7.75 + 7.75 + 1.89 + .81 + .95 + .44 - .43 - .47

15.3 +3.13 +8.03 - .01 - .01 + 8.02 + 8.02 + 2.88 + 1.08 + 1.94 + .71 - .38 - .39

15.8 +4.78 +8.89 - .01 - .01 + 8.88 + 8.88 + 4.53 + 1.94 + 3.59 + 1.57 - .43 - .44

June 25 $L' = +0.12$

13.7 +1.19 +7.66

13.2 -41.95 -9.76 +.01 -9.75 -9.75 -43.14 -17.42 -40 -40

1874

June 28 $L' = +0.07$

PCA Tang. S rec'd

PCA

15.6 +1.12

+8.84 $m = -43$

+8.79

14.0 +1.24

+9.31 +0.1

8.80

13.8 +2.17

+9.77 +0.1 +0.0

+9.78 +9.77

+2.05

+1.94

+1.93

+1.46

-1.46

-1.50

-1.46

-1.43

-1.42

-1.41

-1.40

-1.39

-1.38

-1.37

-1.36

-1.35

14.0 +2.14

+9.70 +0.1 +0.0

+9.71 +9.70

+2.02

+1.87

+1.80

+1.21

+1.21

+1.21

+1.21

+1.21

+1.21

+1.21

+1.21

+1.21

+1.21

+1.21

+1.21

+1.21

15.2 +2.45

+9.81 +0.0 -0.1

+9.81 +9.80

+2.33

+1.97

+1.21

+1.21

+1.21

+1.21

+1.21

+1.21

+1.21

+1.21

+1.21

+1.21

+1.21

+1.21

+1.21

+1.21

15.3 +2.13

+10.14 +0.0 +0.1

+10.14 +10.15

+3.01

+1.30

+1.89

+1.89

+1.89

+1.89

+1.89

+1.89

+1.89

+1.89

+1.89

+1.89

+1.89

+1.89

+1.89

+1.89

15.8 +4.78

+10.88 +0.0 -0.1

+10.88 +10.87

+4.66

+2.04

+3.54

+1.56

-1.44

-1.44

-1.44

-1.44

-1.44

-1.44

-1.44

-1.44

-1.44

-1.44

-1.44

-1.44

16.2 +4.07

+10.44 +0.0 -0.2

+10.44 +10.42

+3.95

+1.60

+2.83

+1.11

-1.41

-1.39

-1.39

-1.39

-1.39

-1.39

-1.39

-1.39

-1.39

-1.39

-1.39

-1.39

16.4 +1.87

+9.62 +0.1 -0.2

+9.61 +9.60

+1.75

+1.77

+1.63

+1.29

-1.44

-1.47

-1.47

-1.47

-1.47

-1.47

-1.47

-1.47

-1.47

-1.47

-1.47

-1.47

2.3 -2.34

+7.98 +0.9 +0.8

+8.07 +8.06

-2.16

-1.77

-3.58

-1.25

-1.31

-1.35

-1.35

-1.35

-1.35

-1.35

-1.35

-1.35

-1.35

-1.35

-1.35

-1.35

June 30 $L' = +0.24$

15.0 +1.22

+9.94 $m = -54$

9.83

15.4 +1.05

+10.10 -0.1

9.84

15.8 +4.78

+12.57 -0.2 -0.1

+12.49 +12.50

+4.56

+2.55

+3.73

+2.10

-1.56

-1.56

-1.56

-1.56

-1.56

-1.56

-1.56

-1.56

-1.56

-1.56

-1.56

-1.56

16.4 +1.87

+10.86 -0.3 -0.2

+10.83 +10.84

+1.65

+1.89

+1.82

+1.44

-1.54

-1.54

-1.54

-1.54

-1.54

-1.54

-1.54

-1.54

-1.54

-1.54

-1.54

-1.54

16.5 +2.61

+11.27 -0.4 -0.3

+11.23 +11.24

+2.39

+1.29

+1.56

+1.84

-1.54

-1.54

-1.54

-1.54

-1.54

-1.54

-1.54

-1.54

-1.54

-1.54

-1.54

-1.54

12.3 -2.34

+8.77 +0.2 +0.3

+8.79 +8.80

-2.56

-1.15

-3.39

-1.60

-1.45

-1.47

-1.47

-1.47

-1.47

-1.47

-1.47

-1.47

-1.47

-1.47

-1.47

-1.47

July 1 $L' = +0.13$

15.5 +1.15 +1.01

+10.63 $m = -54$

10.56

15.8 +4.78 +4.89

+13.13 +0.0

+13.13 +13.13

+4.63

+2.50

-1.54

-1.54

-1.54

-1.54

-1.54

-1.54

-1.54

-1.54

-1.54

-1.54

-1.54

-1.54

-1.54

-1.54

July 6 $L' = +0.03$

15.8 +1.11 +1.01

+12.57 $m = -43 + 3$

12.47

15.9 +1.43 +1.75

+13.14 +0.0

12.46

14.8 +3.65 +3.79

+14.19 +1.00

+14.19 +14.19

+3.54

+1.62

+2.22

+1.05

-1.46

-1.47

-1.47

-1.47

-1.47

-1.47

-1.47

-1.47

-1.47

-1.47

-1.47

-1.47

14.9 +2.29 +2.50

+13.66 +0.0

+13.66 +13.66

+2.18

+1.09

+1.86

+1.52

-1.50

-1.51

-1.51

-1.51

-1.51

-1.51

-1.51

-1.51

-1.51

-1.51

-1.51

-1.51

15.8 +4.78 +4.89

+14.57 +0.0

+14.57 +14.57

+4.67

+2.00

+3.35

+1.43

-1.43

-1.43

-1.43

-1.43

-1.43

-1.43

-1.43

-1.43

-1.43

-1.43

-1.43

-1.43

16.4 +1.87 +2.12

+13.36 +0.0 +0.0

+13.36 +13.36

+1.76

+1.79

+1.44

+1.22

1874

July 19 $h' = +0.25$ PCA temp. 8 sec. 5 $\pi R A$ $c = -0.6$ 15.9 +.01 +1.00 +22.86 $n_s = -.48 + 3$ +22.80

15.9 +1.43 +1.75 +23.54 + 00 22.74

15.8 +4.78 +4.89 +25.34 + 00

16.2 +4.07 +4.19 +25.10 -01 +25.09 +25.09 +4.06 +2.23 +2.64 +1.55 -52.5 -54 +6 -47 -48 -48

16.4 +1.87 +2.12 +23.89 -01 +23.88 +23.88 +1.86 +1.02 +.44 +.34 -55 +4 -50 -53 -51

16.6 +4.59 +4.69 +25.25 -02 +25.23 +25.23 +4.58 +2.37 +3.16 +1.69 -52 +5 -54 +6 -47 -48 -48

17.0 +7.33 +7.41 +26.66 -03 +26.63 +26.63 +7.32 +3.77 +5.90 +3.09 -52 +4 -52 +6 -47 -46 -46

July 21 $h' = +0.14$ 16.3 +.05 +1.00 +25.28 $n_s = -.44 + 5$ 25.16 $c = -1.0$

17.5 +1.30 +1.64 +25.85 -02 25.09

15.8 +4.78 +4.89 +28.07 +01 +02 +28.08 +28.09 +4.73 +2.80 +3.48 +2.24 -59.8 -64.9 -51 -55 -53

16.2 +4.07 +4.19 +27.50 +00 +02 +27.50 +27.52 +4.02 +2.22 +2.77 +1.67 -55.8 -60.9 -47 -51 -49

16.6 +4.59 +4.69 +27.74 +00 +01 +27.74 +27.75 +4.54 +2.46 +3.29 +1.90 -54.8 -58.9 -46 -49 -47

17.5 +2.50 +2.69 +26.51 -02 +00 +26.49 +26.51 +2.45 +1.21 +1.20 +.66 -49.8 -56.9 -47 -47 -47

17.6 +2.58 +2.76 +26.39 -02 +00 +26.37 +26.39 +2.53 +1.09 +1.28 +.54 -43.8 -42.9 -36 -45 -52 -46 -46

July 22 $h' = +0.20$ 16.2 +.08 +1.00 +26.20 $n_s = -.49 + 4$ 26.09 $c = -0.7$

15.9 +1.43 +1.75 +26.85 +01 -7 -4 26.07

15.8 +4.78 +4.89 +28.74 +01 +00 +28.75 +28.74 +4.70 +2.55 +3.35 +1.89 -55.4 -67.7 -49 -50 -50

16.2 +4.07 +4.19 +28.26 +00 -01 +28.26 +28.25 +3.99 +2.06 +2.64 +1.40 -52.4 -53.7 -46 -46 -46

16.4 +1.87 +2.12 +27.06 +00 -01 +27.06 +27.05 +1.49 +.86 +.44 +.20 -48.4 -46.7 -46 -46 -46

17.0 +7.33 +7.41 +29.99 -02 -02 +29.97 +29.97 +7.25 +3.77 +5.90 +3.12 -52.4 -53.7 -46 -46 -47

July 23 $h' = +0.34$ 16.0 +.03 +1.00 +27.20 $n_s = -.40 + 5$ 27.18 $c = -1.0$

15.9 +1.43 +1.75 +27.78 +00 27.10

15.8 +4.78 +4.89 +29.38 +01 +00 +29.39 +29.38 +4.75 +2.19 +3.38 +1.62 -46 -48 -47

16.2 +4.07 +4.19 +29.13 -01 -01 +29.12 +29.12 +4.04 +1.92 +2.64 +1.36 -48 -52 -50

16.4 +1.87 +2.12 +28.03 -01 -02 +28.02 +28.01 +1.84 +.82 +.44 +.25 -45.4 -57.7 -47 -47 -47

4.7 -2.26 +2.47 +26.31 +38 +38 +26.29 +26.28 -2.29 -.91 -3.69 -1.48 -39.4 -40.5 -40 -46

July 27 $h' = +0.41$ 16.4 +.04 +32.25 $n_s = -.13$

16.8 +.27 +32.30 -02

July 28 $h' = +0.44$ 16.3 +.25 +1.03 +32.32 $n_s = -.42$ 32.21

17.9 +1.86 +1.61 +32.82 -07 32.20

16.4 +1.87 +2.12 +33.10 +00 +07 +33.10 +33.17 +1.62 +.72 +.61 +.36 -45.4 -49.4 -43

16.5 +2.61 +2.79 +33.41 -01 +06 +33.40 +33.47 +2.36 +1.02 +1.35 +.66 -43 -49 -45

17.0 +7.33 +7.41 +35.49 -03 +04 +35.46 +35.53 +7.08 +3.08 +6.07 +2.72 -44 -48 -40

17.7 +3.12 +3.27 +33.54 -06 +01 +33.51 +33.58 +2.87 +1.13 +1.86 +.74 -40 -41 -41

17.9 +4.33 +4.45 +34.09 -07 +00 +34.02 +34.09 +4.08 +1.64 +3.07 +1.38 -40 -42 -42

4.7 -2.26 +2.47 +31.27 -02 +05 +31.25 +31.32 -2.51 -1.13 -3.52 -1.49 -45 -42 -44 -43

July 30 $L' = +.023$

Ra tang.SueS 72Ra

167	-04	+1.00	+34.23	34.25
-----	-----	-------	--------	-------

16.3	+ 1.60	+ 34.91
------	--------	---------

[illegible]Aug. 2 $h' = +0.064$

16.8	.00	+0.00	+37%	$n = -.39$	37.70
------	-----	-------	------	------------	-------

$$18.5 + .80 + 1.28 + 38.12 - .11 = 39.63$$
[illegible]

Aug. 3 $h' = +.068$

16.8	+1.8	+1.02	+38.74	$R_{\text{H}} = -.44$	38.66
------	------	-------	--------	-----------------------	-------

17.2 ⁹	+1.26	+39.31		
	+1.03 + 1.61	+39.15	- .07	38.66

[illegible]

4.7	-2.26	-1.47	+37.64	^{+01 + 08} +42 + 90	+37.65	+37.72	-2.44	-1.09	-3.52	-1.59	-4.4	-4.5	-4.4
6.1	-2.66	-2.84	+37.47	^{-09 - 01} +37.38	+37.38	+37.46	-2.84	-1.36	-3.92	-1.85	-4.8	-4.7	-4.8

Aug. 4 h⁺.027

18.3	+ .17	+ 1.01	+ 39.29	$x = -.52$	39.21
------	-------	--------	---------	------------	-------

18.2	+1.03	+1.43	+39.74	+1.00	39.2
------	-------	-------	--------	-------	------

[illegible]

1874

Aug. 22 $L' = +.021$ Ra temp. Sec. π Ra18.5 +.22 -5.30 $n_s = -.115$ -5.39

18.7 +.88 -5.00 +.00 -5.37

18.2 +16.88 +1.95 +.01 +.01 +1.96 +1.96 +16.66 +7.26 +16.00 +6.96 -44.4 -43

18.4 +2.95 -4.26 +.00 +.01 -4.26 -4.25 +2.73 +1.05 +2.07 +7.5 -39 -36

18.4 +3.21 -4.00 +.00 +.01 -4.00 -3.99 +2.99 +1.30 +2.33 +1.01 -44 -43

18.6 +14.49 -3.59 +.00 +.00 -3.59 -3.59 +4.27 +1.71 +3.61 +1.41 -44 -39

-42 -40

6.7 -20.69 -15.17 +.00 +.00 -15.17 -16.17 -20.91 -9.87 -21.57 -10.17 -47 -47

-47 -42

Aug. 23 $L' = -.008$ 18.6 +.20 +1.02 -4.75 $n_s = -.32 + 5$ -4.84

17.7 +1.28 +1.62 -4.40 -01 4.96

-4.40 -01

17.5 +2.50 +2.69 -3.83 -01 +.00 -3.84 -3.83 +2.30 +.91 +1.22 +.57 -40 -47

17.6 +2.58 +2.77 -3.12 -01 +.00 -3.13 -3.12 +2.38 +.95 +1.30 +.72 -39 -47

17.7 +3.12 +3.27 -3.75 -01 +.00 -3.76 -3.75 +2.92 +.99 +1.84 +.65 -34 -35

17.9 +4.33 +4.45 -2.81 -01 +.00 -2.82 -2.81 +4.13 +1.93 +3.05 +1.59 -47 -52

19.3 +3.29 +3.44 -3.26 +.01 +.01 -3.25 -3.25 +3.09 +1.50 +2.01 +1.15 -46 -57

-42 -48

Aug. 24 $L' = +.039$ 19.2 +.12 +1.01 -4.21 $n_s = -.30$ -4.26

18.5 +1.29 +1.63 -3.89 +.03 -4.38

-3.89 +.03

-3.89 +.03

17.9 +4.33 +4.45 -2.34 +.05 +.02 -2.29 -2.32 +4.21 +1.92 +3.04 +1.57 -46 -52

19.2 +2.40 +2.60 -3.32 +.00 -03 -3.32 -3.35 +2.28 +.89 +1.11 +.52 -39 -49

19.8 +3.29 +3.44 -3.17 -02 -05 -3.19 -3.22 +3.17 +1.02 +2.00 +.67 -32 -34

-29 -48

Aug. 25 $L' = +.041$

19.6 +.13 +1.01 -3.86 -4 -2.90

-3.86 -4

18.6 19.3 +3.29 +3.44 -2.73 +.01 -2.72 +3.16 +1.18 -36

19.8 +2.74 +2.91 -2.97 -01 -2.98 +2.61 +.89 -34

-35

Aug. 26 $L' = +.048$ 18.7 +.16 +1.01 -3.63 $n_s = -.25 + 2$ -3.70

18.2 +1.30 +1.64 -3.37 +.02 3.71

-3.37 +.02

17.5 +2.50 +2.69 -3.01 +.06 +.03 -3.02 -3.05 +2.34 +.61 +1.20 +.32 -26 -27

17.6 +2.58 +2.76 -3.01 +.05 +.03 -2.96 -2.98 +2.42 +.67 +1.28 +.39 -28 -31

17.7 +3.12 +3.27 -2.96 +.05 +.02 -2.91 -2.94 +2.96 +.72 +1.82 +.43 -24 -24

17.9 +4.33 +4.44 -2.52 +.04 +.01 -2.48 -2.51 +4.17 +1.15 +3.03 +.66 -28 -28

19.2 +2.60 +2.60 -2.68 -02 -05 -2.70 -2.73 +2.24 +.98 +1.10 +.64 -42 -59

19.3 +3.29 +3.44 -2.49 -03 -05 -2.52 -2.54 +3.13 +1.11 +1.99 +.63 -36 -42

-2.52

-0.28 -0.4

-2.8 -2.8

1874
Aug. 29 $L' = +.024$

RA temp S sec D T. RA

18.7 +.16 -3.29 $m_5 = -.36$ -3.34

17.7 +1.28 -2.91 +.02 3.35

17.5	+2.50	-2.44 +.03 +.00	-2.41	-2.44	+2.34	+ .88	+1.22	+ .47	-38	-39	
17.6	+2.58	-2.73 +.03 +.00	-2.70	-2.73	+2.42	+ .59	+1.30	+ .18	-24	-14	-38
17.7	+3.12	-2.41 +.02 +.00	-2.39	-2.41	+2.96	+ .90	+1.84	+ .50	-31	-27	-24
17.9	+4.33	-1.90 +.02 +.00	-1.88	-1.90	+4.17	+1.41	+3.05	+1.01	-34	-33	-31
19.2	+2.40	-2.52 -.01 -.04	-2.53	-2.56	+2.21	+ .76	+1.12	+ .35	-34	-32	-34
19.3	+3.29	-1.98 -.01 -.04	-1.99	-2.02	+3.13	+1.30	+2.01	+ .89	-42	-44	-43
									-34	-38	-36 -36

Aug. 31 $L' = +.075$ 19.7 +.10 +1.01 -1.53 $m_5 = -.47$ -1.58

18.5 +1.29 +1.64 -1.06 +.09 -1.56

19.2	+2.40 +2.60	-0.38 +.04 -.05	-0.34	-0.43	+2.30	+1.19	+1.11	+ .63	-52	-57	-52
19.3	+3.29 +3.44	-0.09 +.03 -.06	-0.06	-0.15	+3.19	+1.47	+2.00	+ .91	-46	-46	-46
19.5	+5.32 +5.04	+0.94 +.02 -.08	+0.96	+0.86	+5.22	+2.49	+4.03	+1.92	-48	-48	-48
19.8	+2.74 +2.91	-0.28 -.01 -.10	-0.29	-0.38	+2.64	+1.24	+1.45	+ .68	-47	-47	-47
19.8	+5.359	+2.28 -.01 -.10	+2.207	+2.198	+5.349	+2.360	+5.230	+2.201	-44	-44	-44
									-47	-46	-47
6.1	-2.66 -2.84	-2.67 +.12 +.03	+1.02 +.93	-2.65	-2.64	-2.76	-1.02	-3.95	-1.58	-37	-41
											-39 -46

Sept. 1 $L' = +.050$ 19.8 +.06 +1.00 -1.08 $m_5 = -.44$ -1.10

17.9 +1.26 +1.61 -0.65 +.10 -1.07

17.9	+4.33 +4.45	+0.62 +.10 +.00	+0.72	+0.62	+4.27	+1.60	+3.07	+1.27	-42	-42	-42
19.5	+5.32 +5.44	+0.05 +.02 -.08	+1.144	+1.34	+5.26	+2.412	+4.06	+1.99	-46	-49	-48
19.8	+5.359	+2.071 +.00 -.10	+2.071	+2.061	+5.353	+2.179	+5.233	+2.166	-41	-41	-41
19.8	+5.32 +2.91	+1.42 +.00 -.10	+0.05	+2.68	+1.13	+1.48	+1.48	+ .60	-42	-41	-42
									-43	-44	-43
6.1	-2.66 -2.84	-1.94 +.09 -.01	+0.68 +.59	-1.85	-1.95	-2.72	-.78	-3.92	-1.30	-28	-33
											-31 -41

Sept. 2 $L' = +.039$

19.4 +.08 +1.00 -0.52 -0.56

18.2	+1.688	+6.96 +.05	+7.01	+16.80	+7.53	-45	-45
19.5	+5.32 +5.44	+2.04 +.00	+2.04	+5.24	+2.56	-49	-49
19.8	+2.74 +2.91	+0.68 -.02	+0.66	+2.66	+1.18	-44	-44
19.8	+5.359	+2.034 -.02	+2.032	+5.351	+2.084	-39	-39
						-44	-44
6.1	-2.66 -2.84	-1.51 +.09	-1.46	-2.58	-.94	-37	-37
							-37 -43

Sept. 6 $L' = +.047$ 18.3 +.17 +2.01 $m_5 = -.37$ +1.99

18.5 +.80 +2.25 -.01 1.92

18.2	+1.688	+6.63 +.00 +.01	+8.63	+8.64	+16.71	+6.62	+16.08	+6.39	-40	-40	-40
18.4	+2.95	+3.12 +.00 +.00	+3.12	+3.12	+3.78	+1.11	+2.15	+ .87	-41	-41	-41
18.4	+3.21	+3.22 +.00 +.00	+3.22	+3.22	+3.04	+1.21	+2.41	+ .97	-40	-40	-40
18.6	+4.19	+3.65 -.01 +.00	+3.64	+3.65	+4.02	+1.63	+3.39	+1.40	-41	-41	-41
									-40	-41	-41
6.7	-20.69	-6.08 +.55 +.55	-6.10	-6.09	-2.86	-8.11	-21.49	-8.34	-39	-39	-39
											-39 -40

1874
Sept. 4 $L' = +0.28$

Ra Tang. sec

TK Ra

19.4 +1.0 +1.01 +2.75 + 2.71

19.8 +2.74 +2.92 +3.93 -01 +3.92 +2.64 +1.17

19.8 +53.59 +53.61 +23.77 -01 +23.76 +53.49 +21.01

-444
-39
-42-44
-39
-42

-42

Sept. 9 $L' = +0.79$

19.6 +.06 +1.00 +4.75 + 4.73

ac 18.2 +16.88 +16.90 +11.74 +11 +11.85 +16.82 +7.10

19.8 +53.59 +53.61 +24.83 -02 +24.81 +53.53 +20.06

19.8 +2.74 +2.92 +5.54 -02 +5.52 +2.68 +.77

-42
-37
-29
-36-42
-37
-29

-36

Sept. 10 $L' = +0.82$ 19.3 +.18 +1.02 +5.68 $n = -42$ + 5.60

19.0 +1.14 +1.52 +6.06 +02 +6.08 5.57

19.2 +2.40 +2.60 +6.69 +01 -02 +6.70 +6.67 +2.22 +1.02 +1.26 +.61 -46 -49

19.3 +3.29 +3.44 +6.99 +02 -02 +6.99 +6.97 +3.11 +1.31 +2.15 +.91 -42 -42

19.5 +5.32 +5.44 +8.12 -02 -01 +8.10 +8.08 +5.14 +2.42 +4.18 +2.02 -47 -48

-45 -45

-45

-45

Sept. 12 $L' = +0.75$ 19.6 +.28 +1.02 +7.63 $n = -37$ + 4.90

19.2 +.76 +1.25 +7.78 +03 7.35

18.6 +4.49 +4.58 +9.68 +07 +05 +9.75 +9.73 +4.21 +2.12 +3.73 +1.95 -50.49 -52.9 -41 -43 -42

20.2 +4.45 +4.55 +10.21 -05 -08 +10.16 +10.13 +4.17 +2.53 +3.69 +2.35 -61.9 -64.9 -52 -55 -54

6.7 -20.69 -20.71 -2.46 +07 +04 +9.77 +9.71 -2.39 -2.42 -20.97 -10.02 -21.45 -10.20 -48.10 -48.10 -38 -38 -38 -48

Sept. 13 $L' = +0.14$

19.0 +.25 +7.97

Sept. 14 $L' = -0.07$ 20.5 +.19 +1.02 +8.29 $n = -22$ + 18.12

19.5 +.74 +1.24 +8.42 -01 +8.41 8.01

19.8 +53.59 +53.61 +32.69 +08 +00 +32.69 +32.69 +53.40 +24.40 +52.85 +24.27 -44.40 -46.40 -36 -36 -36

20.2 +4.45 +4.55 +10.29 +00 +00 +10.29 +10.29 +4.26 +2.00 +3.71 +1.87 -47.9 -51.9 -38 -42 -40

Sept. 28

Oct. 3 $L' = +0.44$ 20.7 +.07 +1.00 +13.23 $n = -25.73$ + 13.15

21.1 +1.29 +1.64 +13.55 -02 +13.53 13.16

19.8 +53.59 +53.61 +25.14 +04 +06 +25.18 +25.20 +53.52 +11.95 +52.30 +11.65 -22.46 -22.46 -16 -16 -16

20.2 +4.45 +4.55 +14.46 +02 +02 +14.48 +14.50 +4.38 +1.25 +3.16 +.95 -29.45 -30.46 -21 -21 -21

21.1 +4.45 +4.66 +14.38 -02 +00 +14.36 +14.38 +4.48 +1.13 +3.26 +.83 -25.75 -26.46 -20 -20 -20

21.4 +2.75 +2.92 +13.95 -03 -01 +13.92 +13.94 +2.68 +.69 +1.46 +.39 -26.44 -27.45 -22 -22 -22

21.4 -28.0 -2.97 +12.23 -03 -01 +12.20 +12.22 -2.87 -1.03 -4.09 -1.33 -36.49 -33.47 -27 -26 -26 -22

1874

Oct. 15 $L' = -.024$

RA tang. sec. PRA

22.6 +.28 +13.80 $n = -.22$ 13.74

21.8 +.83 +13.94 - .02 13.75

20.9 +.74

20.9 +.572 +15.11 - .05 - .02 +15.06 +15.09 + 5.44 + 1.26 + 4.89 + 1.15 - .23 - .23

22.5 +.327 +14.34 +.00 +.02 +14.34 +14.36 + 2.99 + .54 + 2.44 + .42 - .18 - .17

22.8 +.220 +13.99 +.00 +.02 +13.99 +14.01 + 1.92 + .19 + 1.37 + .07 - .20 - .06

9.0 -2.43 +13.24 $n = -.21$ +13.20 +13.22 - 2.71 - .60 - 3.26 - .72 - .22 - .22Oct. 18 $L' = -.026$ 22.0 -.01 +1.00 +12.77 $n = -.21$ 12.77

21.7 +1.54 +1.84 +13.11 - .01 12.73

20.9 +.572 +.582 +14.16 - .03 - .02 +14.13 +14.14 + 5.73 + 1.36 + 4.18 + 1.03 - .24 - .25

22.1 +.302 +.318 +13.34 +.00 +.01 +13.34 +13.35 + 3.03 + .57 + 1.48 + .24 - .19 - .16

9.0 -2.43 -2.62 +12.03 $n = -.20$ +12.00 +12.01 - 2.42 - .77 - 3.97 - 1.10 - .32 - .28Oct. 19 $L' = -.018$ 22.8 -.04 +12.11 $n = -.20$ 12.12

22.7 +.88 +12.29 +.00 12.10

22.5 +.327 +12.81 - .01 +.00 +12.80 +12.81 + 3.31 + .69 + 2.39 + .52 - .21 - .22

23.1 +.366 +12.91 +.01 +.01 +12.92 +12.92 + 3.70 + .81 + 2.78 + .63 - .22 - .23

Oct. 20 $L' = -.012$ 22.6 +.20 +11.51 $n = -.15$ 11.48

21.6 +.81 +11.61 - .01 11.46

20.9 +.572 +12.48 - .02 - .01 +12.46 +12.47 + 5.52 + .97 + 4.91 + .89 - .17 - .18

21.1 +.455 +12.27 - .02 - .01 +12.25 +12.26 + 4.35 + .76 + 3.74 + .66 - .18 - .18

21.2 +.189 +11.80 - .02 +.00 +11.78 +11.80 + 1.69 + .29 + 1.08 + .19 - .17 - .18

22.5 +.327 +11.94 +.00 +.01 +11.94 +11.95 + 3.07 + .43 + 2.46 + .33 - .14 - .14

9.0 -2.43 -2.63 +9.63 $n = -.20$ +9.58 +9.62 - 2.75 - .86 - 3.51 - 1.01 - .31 - .2922.8 +.32 +1.05 +10.44 $n = -.20$ 10.36

21.5 +1.08 +1.47 +10.63 - .04 10.33

20.7 +1.83 +.209 +10.81 - .06 - .02 +10.75 +10.79 + 1.51 + .39 + .75 + .16 - .28 - .22

20.9 +.572 +.582 +11.52 - .06 - .02 +11.46 +11.50 + 5.40 + 1.02 + 4.64 + .89 - .19 - .19

21.1 +.455 +.466 +11.57 - .05 - .01 +11.52 +11.56 + 4.23 + 1.08 + 3.47 + .93 - .26 - .27

22.5 +.327 +.342 +11.09 - .01 +.03 +11.08 +11.12 + 2.95 + .64 + 2.19 + .49 - .22 - .22

22.8 +.220 +.242 +10.84 +.00 +.04 +10.84 +10.88 + 1.88 + .40 + 1.12 + .25 - .21 - .23

9.0 -2.43 -2.63 +9.63 $n = -.20$ +9.58 +9.62 - 2.75 - .86 - 3.51 - 1.01 - .31 - .29

1874
Oct. 22 $L' = -.032$ RA tangd secd π, RA 22.4 $00 +1.00$ $+9.35$ $m = -.20 +3$ 9.28 21.6 $+1.26 +1.61$ $+9.63 -03$ 9.30

$-11 -19$
 20.7 $+1.63 +2.09$ $+9.83 -05 -03$ $+9.78$ $+9.80$ $+1.83$ $+1.43$ $+1.57$ $+1.17$ -24.4 -31.4 $+7$ $-$ $-$
 20.9 $+5.72 +5.82$ $+10.96 -05 -02$ $+10.91$ $+10.94$ $+5.72$ $+1.56$ $+4.46$ $+1.31$ -27.6 -30.4 $+7$ -21 -23 -22
 21.3 $+1.59 +$ $+9.82 -04 -01$ $+9.86$ $+9.89$ $+2.75$ $+1.51$ $+1.49$ $+1.26$ -19.5 -18.4 $+6$ -14 $-$ -14
 21.5 $+2.75 +2.92$ $+9.89 -03 +00$ $+9.86$ $+9.89$ $+2.75$ $+1.51$ $+1.49$ $+1.26$ -19.5 -18.4 $+6$ -14 $-$ -14
 22.8 $+2.20 +2.42$ $+9.62 +01 +04$ $+9.63$ $+9.66$ $+2.20$ $+1.28$ $+1.94$ $+1.03$ -13.5 -16.4 $+6$ -08 $-$ -08
 9.0 $-2.43 -2.63$ $+8.79 -04 -02$ $+8.75$ $+8.77$ -2.43 -1.60 -3.69 -1.86 -25.4 -23.4 $+8$ -15 -15 -15

Oct. 26 $L' = +0.016$ 22.6 $+0.01 +1.00$ $+6.62$ $m = -.21 +2$ 6.54 21.7 $+1.81 +1.29$ $+6.78 +01$ 6.52

$-8 -0$
 $-10 -17$
 20.9 $+5.72 +5.82$ $+7.89 +03 +01$ $+7.92$ $+7.90$ $+5.71$ $+1.30$ $+4.91$ $+1.12$ -23.4 -23.4 $+7$ -16 -16 -16
 21.2 $+1.89 +2.14$ $+7.10 +02 +01$ $+7.12$ $+7.11$ $+1.88$ $+1.50$ $+1.08$ $+1.33$ -27.4 -31.4 $+7$ $-$ $-$ $-$
 21.5 $+2.75 +2.92$ $+7.30 +02 +00$ $+7.32$ $+7.30$ $+2.74$ $+1.70$ $+1.94$ $+1.52$ -26.4 -27.4 $+7$ -20 $-$ -20
 22.8 $+2.20 +2.42$ $+7.12 +00 -02$ $+7.12$ $+7.10$ $+2.19$ $+1.50$ $+1.39$ $+1.32$ -23.4 -23.4 $+7$ -18 $-$ -18
 23.1 $+3.66 +3.79$ $+7.73 -01 -02$ $+7.72$ $+7.71$ $+3.65$ $+1.10$ $+2.85$ $+1.93$ -30.4 -33.4 $+7$ -24 -26 -25
 21.4 $-2.80 -2.97$ $+5.77 +02 +00$ $+5.79$ $+5.77$ -2.81 -1.83 -3.61 -1.01 -30.4 -33.4 $+7$ -19 -26 -25
 9.0 $-2.43 -2.62$ $+5.61 +02 +20$ $+5.64$ $+5.62$ -2.44 -1.98 -3.24 -1.16 -41.4 -36.4 $+7$ -29 -26 -25
 $+13 +01$
 -19 -21 -20 -21 -25 -24 -21

Oct. 27 $L' = +0.018$ 22.5 $-00 +1.00$ $+6.33$ $m = -.23 +4$ 6.25 22.3 $+1.24 +1.59$ $+6.61 +00$ 6.29

$-8 -0$
 $-12 -30$
 22.1 $+3.02 +3.19$ $+7.13 +01 +00$ $+7.14$ $+7.13$ $+3.02$ $+1.81$ $+1.78$ $+1.52$ -27.4 -29.4 $+7$ -21 $-$ -21
 22.5 $+3.27 +3.62$ $+7.27 +02 +00$ $+7.27$ $+7.27$ $+3.24$ $+1.94$ $+2.03$ $+1.66$ -29.4 -33.4 $+7$ -23 -26 -25
 22.8 $+2.20 +2.42$ $+6.98 -01 -01$ $+6.97$ $+6.97$ $+2.20$ $+1.64$ $+1.96$ $+1.36$ -29.4 -33.4 $+7$ -24 $-$ -24
 23.1 $+3.66 +3.79$ $+7.47 -01 -01$ $+7.46$ $+7.46$ $+3.66$ $+1.13$ $+2.42$ $+1.85$ -31.4 -35.4 $+7$ -25 -28 -26
 -23 -27 -24 -24

Oct. 28 $L' = +0.014$ 0.2 $+0.02 +1.00$ $+6.00$ $m = -.25 +4$ 5.92 0.3 $+1.24 +1.59$ $+6.31 +00$ 5.96

$-5 -0$
 $-12 -23$
 0.4 $+1.90 +2.14$ $+6.55 +00 +00$ $+6.55$ $+6.55$ $+1.88$ $+1.55$ $+1.66$ $+1.24$ -20.4 -33.4 $+7$ $-$ $-$ $-$
 12.5 $-2.82 -3.00$ $+5.20 -07 -07$ $+5.23$ $+5.23$ -2.84 -1.97 -4.06 -1.28 -32.4 -32.4 $+7$ -17 -18 -18
 Nov. 2 $L' = +0.002$ $+5.20 -07 -07$ $+5.23$ $+5.23$ -2.84 -1.97 -4.06 -1.28 -32.4 -32.4 $+7$ -17 -18 -18
 $-12 -23$ $+9$ -17 -18 -18

23.8 $+2.22 +1.02$ $+4.12$ $m = -.21 +5$ 4.00 23.8 $+1.53 +1.83$ $+4.39 +00$ 3.98

$-8 -4$
 $-12 -29$
 23.6 $+4.30 +4.41$ $+5.77$ $+5.71$ $+4.08$ $+1.59$ $+2.77$ $+1.32$ -39.4 -48.4 $+7$ -32 -40 -36
 23.7 $+2.37 +2.87$ $+4.68 +00$ $+4.68$ $+4.68$ $+2.15$ $+1.56$ $+1.54$ $+1.29$ -26.4 -35.4 $+7$ -19 -19 -19
 -26 -40 -19 -19 -19

Nov. 3 $L' = -.018$ 0.5 $+1.18$ $+3.15$ $m = -.10$ 3.12 1.5 $+1.57$ $+3.30 +00$ $+3.28$ $+3.28$

-22
 0.4 $+1.90$ $+3.33 +00$ $+3.33$ $+3.33$ $+1.72$ $+1.18$ $+1.43$ $+1.05$ -11.4 -11.4 $+7$ $-$ $-$ $-$
 12.5 -2.82 $+2.68 +2.22$ $+2.68$ $+2.68$ -3.00 -1.47 -4.29 -1.60 -16.4 -14.4 $+7$ -15 -15 -15

74

Nov. 4 $L' = -.048$

17.4 long. 8 sec 17.112

22.8 $+1.04$ $+1.98$ $n = -.08$ $+1.97$ 22.2 $+1.01$ $+2.05$ $+0.01$ 1.90 22.6 $+3.27$ $+2.37$ $+0.03$ $+0.02$ $+2.40$ $+2.39$ $+3.23$ $+0.42$ $+2.26$ $+0.34$ $-.13$ $-.15$ 23.6 $+4.30$ $+2.59$ $+0.08$ $+0.07$ $+2.67$ $+2.66$ $+4.26$ $+0.69$ $+3.29$ $+0.61$ $-.16$ $-.19$ $-.15$ $-.17$ $-.14$ $-.18$ $-.16$ 23.4 -2.75 $+1.40$ $+0.07$ $+0.06$ $+1.47$ $+1.46$ -2.79 $-.51$ -3.76 $-.59$ $-.18$ $-.16$ $-.17$ $-.16$ Nov. 5 $L' = -.023$ 0.1 $+0.86$ $+1.03$ $+0.75$ $n = -.11$ $+0.68$ 0.3 $+1.24$ $+1.60$ $+0.87$ $+0.00$ 0.58 0.2 $+4.09$ $+4.19$ $+1.63$ $+0.00$ $+0.00$ $+1.63$ $+1.63$ $+3.83$ $+0.57$ $+2.85$ $+0.76$ $-.23$ $-.27$ $+.9$ $+.14$ $-.18$ 0.4 $+1.90$ $+2.14$ $+1.03$ $+0.01$ $+0.00$ $+1.04$ $+1.03$ $+1.64$ $+0.28$ $+1.66$ $+0.16$ $-.17$ $+.7$ $+.25$ $+.5$ $+.10$ $-.17$ 0.6 $+3.56$ $+3.70$ $+1.37$ $+0.01$ $+0.01$ $+1.38$ $+1.38$ $+3.30$ $+0.61$ $+2.32$ $+0.50$ $-.19$ $+.22$ $+.9$ $+.11$ $-.13$ $-.12$ $-.21$ $-.25$ $+.12$ $+.16$ $-.16$ $-.10$ $-.12$ $-.13$ Nov. 7 $L' = -.036$ 22.8 $+1.09$ $+1.00$ -1.18 $n = -.10$ $+1.30$ 23.2 $+1.24$ $+1.60$ -1.44 $+0.01$ -1.45 23.6 $+4.30$ $+4.41$ $+5.88$ $+0.03$ $+0.01$ $+5.99$ $+5.98$ $+4.21$ $+8.09$ $+3.06$ $+8.97$ $-.26$ $-.32$ $+.9$ $-.18$ $-.23$ $-.20$ 23.7 $+2.37$ $+2.67$ -0.53 $+0.03$ $+0.02$ -0.50 -0.51 $+2.28$ $+0.68$ $+1.13$ $+0.57$ $-.30$ $+.7$ $+.49$ $-.23$ $-.23$ $-.23$ 0.2 $+4.09$ $+4.22$ $+5.79$ $+0.05$ $+0.04$ $+5.84$ $+5.83$ $+4.00$ $+8.02$ $+2.85$ $+8.91$ $-.32$ $-.32$ $+.9$ $-.18$ $-.23$ $-.20$ $-.26$ $-.32$ $+.9$ $-.18$ $-.23$ $-.20$ 0.1 -4.83 -4.93 -2.29 $+0.05$ $+0.03$ -2.24 -2.26 -4.92 -1.06 -6.07 -1.18 $-.22$ $-.20$ $-.11$ $-.10$ $-.09$ $-.10$ $-.18$ Nov. 8 $L' = +0.00$ 22.3 $.02$ $-.034$ $n = -.13$ -0.37 22.1 $+1.20$ -0.21 $+0.00$ -0.21 -0.39 $-.21$ $-.01$ $+.21$ $+$ 21.5 $+2.75$ -0.04 -0.04 $+2.75$ $+.33$ $+1.55$ $+0.17$ $-.12$ $-.11$ $✓$ 22.5 $+3.27$ $+0.12$ $+0.12$ $+3.27$ $+.49$ $+2.07$ $+0.33$ $-.15$ $-.16$ $✓$ 22.8 $+2.20$ $+0.05$ $+0.05$ $+2.20$ $+.42$ $+1.00$ $+0.26$ $-.20$ $-.26$ $✓$ $-.24$ $-.16$ $-.12$ $-.16$ $-.20$ $-.16$ 21.4 -2.80 -0.62 $+0.00$ -0.62 -0.62 -2.80 $+.25$ -4.00 $-.41$ -0.09 $.10$ $-.10$ $-.15$ Nov. 9 $L' = +0.027$ 0.3 $-.08$ -0.88 $n = -.07$ -0.85 0.2 $+4.09$ $+5.79$ $+0.01$ -0.08 $+4.17$ $+0.78$ $-.19$ $✓$ 0.4 $+1.90$ -0.55 $+0.00$ -0.55 $+1.98$ $+0.31$ $-.16$ $✓$ $-.19$ $-.19$ $-.16$ $-.17$ 0.1 -4.83 -4.49 $+0.01$ -1.48 -4.75 $+0.62$ $-.13$ $-.13$ 12.5 -2.82 -1.33 $+0.82$ -1.33 -2.74 $+0.47$ $-.17$ $-.15$ $-.17$ $-.15$ $-.16$

Nov. 10

Nov. 11 $L' = +0.00$ 23.6 $+1.04$ $+1.00$ -5.08 $n = -.07$ -5.11 23.7 $+1.12$ $+1.07$ -4.86 $+0.00$ -5.15 22.5 $+3.27$ $+3.42$ -4.45 -4.45 $+3.22$ $+0.65$ $+2.15$ $+0.41$ $-.20$ $-.19$ $✓$ 22.8 $+2.20$ $+2.42$ -4.56 -4.56 $+2.15$ $+0.54$ $+1.08$ $+0.30$ $-.25$ $-.28$ $✓$ 0.2 $+4.09$ $+4.22$ -3.92 -3.92 $+4.04$ $+1.18$ $+2.97$ $+0.94$ $-.29$ $-.32$ $✓$ 0.4 $+1.90$ $+2.14$ -4.85 -4.85 $+1.85$ $+0.25$ $+0.78$ $+0.01$ $-.14$ $✓$ $-.25$ $-.26$ $-.25$ $-.25$ $-.25$ $-.25$ $-.25$ 12.5 -2.82 -3.00 -5.95 $+0.00$ -5.95 -5.95 -2.87 $-.85$ -3.94 -1.09 $-.30$ $-.28$ $-.29$ $-.26$

1874

Nov. 12 $L' = -004$ RA tang. s ec s π RA

22.8 +.07 +1.00 -5.77 -5.78

22.6	+3.27	+3.00	-4.95	+00	-4.95	+3.20	+1.82	-26	-26
23.1	+3.66	+3.79	-5.19	+00	-5.19	+3.59	+1.58	-16	-16
								-21	-21

Nov. 16 $L' = +0444$ 23.6 +.09 -9.59 $m = -04$ -9.60
~~05~~ ~~+1.47~~ ~~-1.19~~ ~~-9.48~~ ~~-0.19~~ 9.72

23.1	+3.66	-9.12	+02	+06	-9.10	-9.06	+3.57	+1.49	+1.19	+1.43	-14	-20
0.6	+3.56	-9.16	-04	+00	-9.20	-9.16	+3.47	+1.39	+2.69	+1.33	-11	-16
0.4	+1.90	-9.42	-04	+00	-9.46	-9.42	+1.81	+1.13	+1.43	+0.07	-07	-17
											-13	-18
12.5	-2.82	-9.95	-04	+00	-9.99	-9.95	-2.91	-1.40	-4.29	-1.46	-14	-11
											-12	-13

Nov. 18 $L' = +016$ 22.6 -.02 -9.72 $m = -11$ 9.72
~~23.1~~ ~~+1.12~~ ~~+1.21~~ ~~-9.58~~ ~~-0.15~~ 9.74

22.6	+3.27	-9.36	+00	+01	-9.36	-9.35	+3.29	+1.36	+2.15	+1.23	-11	-11
22.8	+2.20	-9.40	+00	+00	-9.40	-9.40	+2.22	+1.32	+1.08	+1.18	-14	-17
23.4	+3.66	-9.15	-01	+00	-9.16	-9.15	+3.68	+1.56	+2.54	+1.43	-15	-17
0.4	+1.90	-9.50	-03	-02	-9.53	-9.52	+1.92	+1.19	+1.78	+1.06	-10	-08
											-13	-14
22.4	-4.12	-10.17	+00	+01	-10.17	-10.16	-4.10	-1.45	-5.24	-1.58	-11	-11
12.5	-2.82	-10.10	+1.17		-10.13	-10.12	-2.80	-1.41	-3.94	-1.54	-15	-14
			-03	-02	-10.13	-10.12					-13	-12
											-12	-12

Nov. 19 $L' = +034$ 23.6 +.07 +1.00 -9.57 $m = -03$ -9.52
~~23.3~~ ~~+1.95~~ ~~+1.38~~ ~~-9.49~~ ~~+01~~ 9.57

22.8	+2.20	+2.42	-9.39	+03	+02	-9.36	-9.37	+2.13	+1.15	+1.25	+1.12	-07	-10
												-07	
23.4	-2.75	-2.92	-9.93	+01	+00	-9.92	-9.93	-2.82	-1.41	-3.70	+1.44	-15	-12
												-14	-10

Nov. 21 $L' = +025$ 23.0 +.15 -8.87 $m = -01$ -8.88
~~23.7~~ ~~+1.18~~ ~~-8.86~~ ~~-02~~ 8.97

23.1	+3.66	-8.64	+00	+02	-8.64	-8.62	+3.51	+1.23	+2.48	+1.24	-07	-10
0.6	+3.56	-8.63	-04	-02	-8.67	-8.65	+3.44	+1.20	+2.38	+1.21	-06	-09
											-07	-09
											-08	-08
											-08	-08

Nov. 22 $L' = +028$ 23.2 +.05 -8.55 $m = +14$ -8.56
~~23.2~~ ~~+1.42~~ ~~-8.60~~ ~~+00~~ -8.65

23.4	+3.66	-8.14	-02		-8.14	-8.14	+3.61	+1.41	+3.24	+1.46	-11	-14
											-12	-12

Nov. 24 $L' = +0.214$													
0.7	+0.7	+1.00	-8.10		-8.10								
23.1	+3.66	+3.79	-7.87	+0.04	-7.83	+3.59	+1.27			-0.08		-0.08	
23.6	+4.30	+4.41	-7.90	+0.03	-7.87	+4.23	+0.23			-0.05		-0.05	
23.7	+2.37	+2.57	-8.02	+0.02	-8.00	+2.30	+0.10			-0.04		-0.04	
1.0	+5.14	+5.24	-7.83	-0.01	-7.84	+5.07	+0.26			-0.05		-0.05	
1.2	+4.235	+4.237	-7.07	-0.01	-7.08	+4.228	+1.02			-0.02		-0.02	
										-0.05		-0.05	
23.4	-2.75	-2.92	-8.22	+0.03	-8.19	-2.82	+0.09			+0.02		-0.02	
												-0.04	
Nov. 26 $L' = -0.015$													
1.1	+0.7	+1.00	-7.65	$m = +0.8$	-7.65								
1.5	+1.09	+1.09	-7.92	+0.00	-8.01								
23.6	+4.30	+4.41	-7.60	-0.03 -0.03	-7.63	+4.23	+0.22	+3.19	+0.31	-0.05	-0.10	-0.08	
23.7	+2.37	+2.57	-7.62	-0.03 -0.03	-7.65	+2.30	+0.20	+1.26	+0.29	-0.10	-0.23	-0.10	
1.2	+4.235	+4.237	-4.99	+0.00 +0.00	-4.99	+4.228	+2.86	+4.124	+2.95	-0.07	-0.07	-0.07	
1.3	+2.41	+2.61	-7.90	+0.00 +0.00	-7.90	+2.34	-0.05	+1.30	+0.04	+0.02	-0.03	+0.02	
										-0.05	-0.08	-0.06	
23.4	-2.75	-2.92	-8.13	-0.03 -0.03	-8.16	-2.82	-0.31	-3.86	-0.22	-0.11	-0.06	-0.08	-0.06
Nov. 29 $L' = +0.010$													
1.5	+1.17		-7.95	$m = -0.4$	-7.96								
1.7	+1.00		-7.92	+0.00	-7.99								
1.5	+2.10		-7.75	+0.00	-7.75	+2.23	+0.20	+1.40	+0.14	-0.09	-0.12	-0.09	
1.9	+3.05		-7.84	+0.00 +0.00	-7.84	+2.88	+0.11	+2.05	+0.08	-0.04	-0.04	-0.04	
										-0.07	-0.04	-0.07	-0.07
Nov. 30 $L' = +0.014$													
0.6	+1.14		-7.74	$m = -0.4$	-7.75								
23.8	+1.53		-7.70	+0.01	-7.77								
1.0	+5.14		-7.59	-0.01 -0.02	-7.60	+5.00	+0.14	+3.61	+0.09	-0.03	-0.03	-0.03	
1.3	+2.41		-7.56	-0.01 -0.02	-7.57	+2.27	+0.17	+1.88	+0.12	-0.07	-0.14	-0.07	
										-0.05	-0.03	-0.05	-0.05
Dec. 2 $L' = +0.023$													
1.5	+0.09		-8.23	$m = +0.8$	-8.23								
0.6	+1.32		-8.28	+0.02	-8.19								
23.6	+4.30		-8.31	+0.04 +0.02	-8.27	+4.21	-0.04	+2.98	-0.05	+0.01	+0.02	+0.02	
23.7	+2.37		-8.07	+0.04 +0.02	-8.03	+2.28	+0.20	+1.05	+0.19	-0.09	-0.18	-0.09	
										-0.04	+0.02	-0.04	
23.4	-2.75		-7.89	+0.05 +0.03	-7.84	-2.84	+0.39	-4.07	+0.38	+0.14	+0.10	+0.12	+0.02
Dec. 3 $L' = +0.009$													
23.5	+1.37		-8.20	$m = +0.3$	-8.20								
23.8	+1.53		-8.24	+0.00	-8.24								
23.6	+4.30		-8.13	+0.00	-8.13	+3.93	+0.04	+2.74	+0.11	-0.02	-0.04	-0.03	
23.7	+2.37		-8.17		-8.17	+2.00	+0.03	+1.84	+0.07	-0.01	-0.08	-0.01	
										-0.01	-0.04	-0.02	
23.4	-2.75		-8.13	+0.00 +0.00	-8.13	-3.12	+0.07	-4.28	+0.11	+0.02	+0.03	+0.03	-0.00

1874 Dec. 21 $L' = -0.13$

Ra tang. S. dec. W. Ra

2.2 +.15 -13.44 $n_s = -.02$ -13.47

2.6 +.114 -13.58 +.01 -13.50

1.0 +.514 -13.11 -.02 -.02 -13.13 -13.13 +4.99 +.34 +4.02 +.37 -.07 -.09

1.2 +42.35 -11.45 -.01 -.02 -11.46 -11.46 +42.20 +2.01 +41.21 +2.03 -.05 -.05

1.9 +3.05 -13.50 +.00 -.01 -13.50 -13.51 +2.90 -.03 +1.91 -.01 +.01 +.01

2.4 +3.13 -13.72 +.00 +.00 -13.72 -13.72 +2.98 -.25 +1.99 -.22 +.09 +.11

2.6 +2.39 -13.42 +.01 +.00 -13.41 -13.42 +2.24 +.06 +1.25 +.08 -.03 -.07

1.8 +.92 -13.53 -.01 -.07

1874 Dec. 23 $L' = -.032$ 2.2 +.04 +1.00 -14.55 $n_s = +.13$ -14.55

2.3 +0.88 +1.33 -14.66 +.00 -14.62

1.6 +2.40 +2.60 -14.55 -.02 -.02 -14.57 -14.57 +2.36 -.02 +1.52 +.09 +.01 -.01

2.1 +2.24 +2.45 -14.83 +.00 -.01 -14.83 -14.84 +2.20 -.28 +1.36 -.18 +.13 +.13

2.3 +2.33 +2.54 -14.62 +.00 +.00 -14.62 -14.62 +2.29 -.07 +1.45 +.04 +.03 -.03

2.4 +3.13 +3.29 -14.73 +.01 +.00 -14.72 -14.73 +3.09 -.17 +2.25 -.07 +.06 +.03

Dec 27 $L' = -.015$ 2.0 +.22 -16.55 $n_s = +.13$ -16.54

2.0 +.74 -16.62 +.00 16.60

1.9 +3.05 -16.67 -16.67 +2.83 -.12 +2.31 -.05 +.04 +.02

2.1 +2.24 -16.61 +.00 -16.61 -16.61 +2.02 -.06 +1.50 +.01 +.03 -.01

1875

Jan. 5 $L' = -.012$ 3.3 +.14 -21.59 $n_s = +.14$

3.1 +1.19 -21.74 +.00

3.5 +1.95 -21.73 +.00 +.00 -21.73 -21.73 +1.81 -.14 +0.76 +.10 +.09 +.13

3.6 +2.89 -21.96 +.00 +.01 -21.96 -21.95 +2.75 -.37 +1.70 -.22 +.13 +.13

3.8 +1.78 -21.84 +.01 +.01 -21.83 -21.83 +1.64 -.24 +0.59 -.10 +.15 +.17

Jan. 9 $L' = -.000$ 2.0 +.42 -24.91 $n_s = +.09$

1.9 +.59 -24.95 +.00

1.9 +3.05 -24.89 -24.89 +2.63 +.02 +2.16 +.06 -.01 -.03

2.1 +2.24 -25.20 +.00 -25.20 -25.20 +1.82 -.29 +1.35 -.25 +.16 +.18

Jan 10 $L' = -.006$ 3.5 +.16 -25.11 $n_s = +.19$ -25.34

2.7 +1.22 -25.60 +.00 25.34

2.3 +2.33 -25.87 -.01 +.00 -25.88 -25.87 +2.17 -.48 +1.11 -.27 +.22 +.25

2.4 +3.13 -26.00 +.00 +.00 -26.00 -26.00 +2.87 -.60 +1.91 -.40 +.20 +.14

1875

Jan. 19 $L' = -.082$ RA (mp. S. sec 8) π RA4.1 +1.12 -33.85 $m = +.31$ -33.81

3.6 +1.12 -34.12 -0.11 33.79

3.1 +4.42 -35.29 -0.08 -0.04 -35.37 -35.33 +4.30 -1.52 +3.30 -1.21 +.35 +.37

3.5 +1.95 -34.36 -0.05 -0.01 -34.41 -34.37 +1.83 -1.36 +.83 -1.25 +.31 +.31

+36
+38
+38.3 +38.3Jan. 20 $L' = -.065$ 3.7 +.24 +1.03 -35.13 $m = +.24$ -35.073.6 +1.18 +1.55 -35.45 -0.11 $m = +.35$ -35.19

2.8 +5.10 +5.19 -35.97 -0.06 -0.05 -36.03 -36.02 +4.86 -1.90 +3.92 -1.57 +.19 +.15

3.1 +4.42 +4.54 -36.20 -0.04 -0.03 -36.24 -36.23 +4.18 -1.11 +3.24 -1.78 +.27 +.24

+17
+26
+22

14.9 -3.65 -3.79 -34.14 -0.05 -0.05 -34.19 -34.19 -3.89 +.94 -4.83 +1.26 +.24 +.26

+25 +23

Jan. 25 $L' = -.039$ 5.0 +.05 +1.00 -41.20 $m = +.24$ -41.19

4.8 +1.04 +1.04 -41.43 -0.01 -41.43 +1.22

5.0 +5.19 +5.29 -42.16 +0.00 +0.01 -42.16 -42.15 +5.14 -1.96 +4.15 -1.72 +.19 +.17

+18

17.0 -7.33 -7.41 -39.64 +0.00 +0.01 -39.64 -39.63 -7.38 +1.56 -8.37 +1.80 +.21 +.22

+22 +20

Jan. 26 $L' = -.050$ 3.1 +.09 -42.28 $m = +.24$ -42.19

3.9 +1.08 -42.50 +0.11 -42.14

2.3 +2.33 -42.79 -0.04 -0.08 -42.83 -42.87 +2.24 -1.61 +1.25 -1.37 +.27 +.30

2.4 +3.13 -43.06 -0.04 -0.08 -43.10 -43.14 +3.04 -1.88 +2.05 -1.64 +.29 +.31

2.6 +2.39 -42.88 -0.03 -0.07 -42.91 -42.95 +2.30 -1.69 +1.31 -1.45 +.31 +.35

2.8 +5.10 -43.74 -0.02 -0.06 -43.76 -43.80 +5.01 -1.54 +4.02 -1.30 +.31 +.32

5.0 +5.19 -43.60 +0.10 +0.06 -43.50 -43.54 +5.10 -1.28 +4.11 -1.04 +.25 +.25

+27
+30
+31
+32
+25
+29

14.8 -3.65 -40.85 -0.02 -0.06 -40.87 -40.91 -3.74 +1.35 -4.73 +1.54 +.36 +.34

17.0 -7.33 -40.29 +0.10 +.06 -40.19 -40.23 -7.42 +2.03 -8.41 +2.27 +.27 +.27

+35
+27
+31 +.30Jan. 27 $L' = -.042$ 3.1 +1.15 -43.26 $m = +.29$ -43.21

3.1 +0.97 -43.50 +1.00 -43.20

2.1 +2.24 -43.89 -0.04 -43.93 -43.93 +2.09 -1.67 +1.27 +1.27 -1.43 +.32 +.34

2.3 +2.33 -43.96 -0.03 -43.99 -43.99 +2.18 -1.73 +1.36 +1.36 -1.49 +.34 +.36

2.4 +3.13 -44.16 -0.03 -44.19 -44.19 +2.98 -1.93 +2.16 +2.16 -1.69 +.31 +.32

2.8 +5.10 -44.77 -0.01 -44.78 -44.78 +4.95 -1.52 +4.13 +4.13 -1.28 +.31 +.31

5.0 +5.19 -44.62 +0.08 -44.54 -44.54 +5.04 -1.28 +4.22 +4.22 -1.64 +.25 +.25

+25
+31

14.8 -3.65 -42.02 -0.01 -42.03 -42.03 -3.80 +1.23 -4.62 -4.62 +1.47 +.32 +.32

17.0 -7.33 -41.16 +0.08 -41.08 -41.08 -7.48 +2.18 -8.30 -8.30 +2.42 +.29 +.29

+32
+29
+30 +.31

1875

Jan 30 $L' = -.066$

См. об

Ra tang sed π -Ra

4.1 -0.01 -1.00 -46.43 $n = +12 + 2$ -46.49

3.9	+1.07	+1.47	-6 + 0	5	-46.55	-0.11	46.38
-----	-------	-------	--------	---	--------	-------	-------

2.4	+3.13 + 3.29	-46.58	-11 - 10	-46.99	-46.98 + 3.14	- .56	+ 2.06	-.43	+ .18	+4	+ 21	+5	+27	+26	+26
2.6	+2.39 + 2.59	-46.87	-10 - 09	-46.97	-46.96 + 2.40	-.54	+ 1.32	-.41	+ 2.24	+ 31	+5	+27	-	-	+27
2.8	+5.10 + 5.19	-47.37	-09 - 07	-47.46	-47.44 + 5.11	-1.03	+ 4.03	-.89	+ 2.04	+ 22	+6	+25	+28	+26	+26
5.0	+5.19 + 5.29	-47.22	+ 06 + 07	-47.16	-47.15 + 5.20	-.73	+ 4.12	-.60	+ 1.40	+ 15	+6	+19	+21	+20	+20
												+25	+25		+25

[illegible]

Yech. 1 $L^i = -.045$

5.0 +.02 +1.00 -48.63 $n = +.15 + 2$ -48.68

$\phi = -0.6$

			-6 + 1		
5.2	+90	+1.35	-48.74	+01	-48.61

154 +3.72 +3.86 -49.32 -07-08 -49.39 -48.10 +3.70 - .76 + 2.82 - .63 +21.45 +22.46 +2.26 +2.28 +2.27

$$168 - 478 - 489 - 4746 - 05 - 06 - 4751 - 4752 - 480 + 1.12 - 5.68 + 1.25 + 23 + 7 + 72 + 7 + 30 + 29 + 30 + 28$$

Feb. 2 $k' = -.050$

5.0	-0.07	-49.76	$w = +.23$	-49.74
-----	-------	--------	------------	--------

4.5	+135	+2	-50.07	-02	49.77
-----	------	----	--------	-----	-------

5.0	+5.19	+ 32	-50.98	+00	+02	-50.98	-50.96	+52.6	-1.22	+3.84	-.89	+23	+23	+23
-----	-------	------	--------	-----	-----	--------	--------	-------	-------	-------	------	-----	-----	-----

5.4	+3.72	-50.71	+0.2	+0.4	-50.69	-50.67	+3.49	- .93	+2.37	- .60	+2.25	+2.25		+2.25
											+2.4	+2.4		+2.4

15.5	1.46	15.50	16.00	16.50	17.00	17.50	18.00	18.50	19.00	19.50	20.00	20.50	21.00	21.50	22.00	22.50	23.00	23.50	24.00	24.50	25.00	25.50	26.00	26.50	27.00	27.50	28.00	28.50	29.00	29.50	30.00	30.50	31.00	31.50	32.00	32.50	33.00	33.50	34.00	34.50	35.00	35.50	36.00	36.50	37.00	37.50	38.00	38.50	39.00	39.50	40.00	40.50	41.00	41.50	42.00	42.50	43.00	43.50	44.00	44.50	45.00	45.50	46.00	46.50	47.00	47.50	48.00	48.50	49.00	49.50	50.00	50.50	51.00	51.50	52.00	52.50	53.00	53.50	54.00	54.50	55.00	55.50	56.00	56.50	57.00	57.50	58.00	58.50	59.00	59.50	60.00	60.50	61.00	61.50	62.00	62.50	63.00	63.50	64.00	64.50	65.00	65.50	66.00	66.50	67.00	67.50	68.00	68.50	69.00	69.50	70.00	70.50	71.00	71.50	72.00	72.50	73.00	73.50	74.00	74.50	75.00	75.50	76.00	76.50	77.00	77.50	78.00	78.50	79.00	79.50	80.00	80.50	81.00	81.50	82.00	82.50	83.00	83.50	84.00	84.50	85.00	85.50	86.00	86.50	87.00	87.50	88.00	88.50	89.00	89.50	90.00	90.50	91.00	91.50	92.00	92.50	93.00	93.50	94.00	94.50	95.00	95.50	96.00	96.50	97.00	97.50	98.00	98.50	99.00	99.50	100.00
------	------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	--------

10.0	-4.78	-40.52	-1.00	-1.03	-48.58	-48.58	-4.77	1.78	-8.75	1.75	1.25	1.25	1.25
1%0	-7.33	-48.01	+0.00	+0.02	-48.01	-47.69	-7.26	+1.75	-8.68	+2.48	+2.4	+2.94	+2.4

[illegible]

Feb. 4 $L' = -.054$

4.8	+0.05	+8.30	$\mu = +1.27$	+8.31
-----	-------	-------	---------------	-------

5.5	+1.01	+8.00	+0.04	+8.30
-----	-------	-------	-------	-------

5.2	+5.19	7.26 +6.93	+12-02	+6.95	+6.91	+5.14	-1.35	+4.18	-1.09	+26	+26	+26
-----	-------	-----------------	--------	-------	-------	-------	-------	-------	-------	-----	-----	-----

[illegible]

17.0	-7.33	-49.88	+0.01	-0.03	+10.13	+10.09	-7.38	+1.63	-8.34	+2.09	+25	+25			+25
------	-------	-------------------	-------	-------	--------	--------	-------	-------	-------	-------	-----	-----	--	--	-----

1/16	3/12	+ 1/16	+ 1/16	+ 1/16	+ 1/20	+ 1/17	- 3/17	+ 1/90	- 1/13	+ 1/19	+ 29	+ 28	+ 28	+ 26	+ 26
											+ 27	+ 27			

Feb. 8 $L' = -.052$

3.4	+07	+3.7%	$\mu = +.29$	3.78
-----	-----	-------	--------------	------

3.4	+1.13	+3.45	+1.00	+3.45	3.81
-----	-------	-------	-------	-------	------

[illegible]

3.5 +1.95 +330 +.01 +331 +3.31 +1.88- .45 + .82- .14 +.24th +.18^e +24

Feb 9 $L' = 160$

49	- 01	+ 5 21	$a_2 = + 22$	+ 2 31
----	------	--------	--------------	--------

1		- 0	5		
1.0	+1.00	+1.00	+1.00		+2.00

$+ 32$

4.0	+3.19	+0.09	+0.01	+0.08	+0.00	+3.20	+0.66	+0.17	+0.33	+0.32	+0.32	+0.32
4.7	+2.26	+1.41	-0.01	+1.40	+1.40	+2.24	-0.66	+1.26	-0.33	+0.29	+0.26	+0.29

19.0	-733	+4.90	+0.1	+4.91	+4.91	-732	+2.55	-8.33	+2.88	+35	+35	+35	+32
------	------	-------	------	-------	-------	------	-------	-------	-------	-----	-----	-----	-----

875

Feb. 10 $h' = -.257$
Ra tang. obs

DATA

3.1	+1.10	+ .95	$n = +.34$	+0.98
		+ 3		
3.0	+ .90	+ .69	-.01	+0.91
		+ .23		

33.3	-3.13	+1.82	+ .01 + .02	+1.83	+1.84	-3.23 + .88	-4.03 + 1.15	+ .27	+ .29	+ .28
14.8	-3.65	+1.96	-.02 -.01	+1.94	+1.95	-3.75 + .99	-4.55 + 1.26	+ .27	+ .28	+ .28
								+ .27	+ .28	+ .28

Feb. 13 $h' = -.068$

5.0	+ .05	-3.03	$n = +.26$	-3.01
		+ 2		
5.2	+1.02	-3.29	+ .03	-2.96
		+ 32		

5.4	+3.72	-4.45	+ .03 + .01	-4.42	-4.44	+3.67 -1.39	+2.70 -1.15	+ .38	+ .43	+ .40
6.1	+2.66	-3.76	+ .07 + .06	-3.69	-3.70	+2.61 - .66	+1.64 - .41	+ .25	+ .25	+ .25
								+ .32	+ .43	+ .32
33.3	-3.13	-1.93	+ .12 -.13	-2.05	-2.06	-3.18 + .98	-4.15 + 1.23	+ .31	+ .30	+ .30
14.8	-3.12	-2.18	+ .05 + .03	-2.13	-2.15	-3.17 + .90	-4.14 + 1.14	+ .29	+ .28	+ .28
								+ .30	+ .29	+ .31

Feb. 14 $h' = -.046$

5.1	+ .03 +1.00	-4.16	$n = +.30$	-4.27
		+12 +1		
5.0	+ .99 +1.41	-4.45	+ .00	-4.32
		+17 +30		

4.7	+2.26 +2.47	-4.77	-.02 -.01	-4.79	-4.78	+2.23 - .63	+1.27 - .33	+ .28 + .26 -10	+ .20	+ .20
5.0	+5.19 +6.29	-6.21	+ .00 + .00	-6.21	-6.21	+5.16 -2.05	+4.20 -1.76	+1.0 -10 +42 -11	+ .30	+ .31
5.4	+3.72 +3.85	-5.85	+ .01 + .02	-5.84	-5.83	+3.69 -1.68	+2.73 -1.38	+ .46 -9 +51 -11	+ .35	+ .40
								+ .28	+ .36	+ .29
17.7	-3.12 -3.27	-2.62	+ .03 + .03	-2.59	-2.59	-3.15 + 1.57	-4.11 + 1.86	+ .50 -17 +45 -11	+ .33	+ .31
									+ .32	+ .30

Feb. 15 $h' = -.051$

6.1	+ .41	-5.36		
6.4	+ .68	-5.54		
	+ .34	-5.50		
		+ .17		-5.33

6.0	+2.22	-5.97	-.02	-5.99	+1.68 - .49	+ .29 + .	+ .29
6.1	+2.66	-5.91	-.02	-5.93	+2.12 - .43	+ .21 + .	+ .21
6.7	+2.069	-12.95	+ .02	-12.93	+2.015 - .43	+ .37 + .	+ .43
		-14.15		-14.13	+ .63	+ .32	+ .31

Feb. 16 $h' = -.048$

6.1	+ .28	-6.65	$n = +.38$	-6.55
		+ 10		
5.8	+ .86	-6.86	-.01	-6.57
		+ 30		

6.1	+2.66	-7.29	+ .00 + .01	-7.29	-7.28	+2.38 - .64	+1.80 - .42	+ .27	+ .24	+ .27
6.4	+5.50	-8.57	+ .01 + .03	-8.56	-8.54	+5.22 -1.91	+4.64 -1.68	+ .37	+ .36	+ .36
6.7	+2.069	-12.98	+ .03 + .04	-12.95	-12.94	+2.041 -6.30	+1.983 -6.08	+ .31	+ .31	+ .31
								+ .32	+ .34	+ .31

17.6	-3.12	-5.02	-.02 -.01	-5.04	-5.03	-3.40 + 1.61	-3.98 + 1.83	+ .18	+ .46	+ .47
18.2	-16.83	-0.78	+ .00 + .02	-0.78	-0.76	-17.11 + 5.87	-17.69 + 6.10	+ .34	+ .34	+ .34
								+ .41	+ .40	+ .35

Feb. 17 $h' = -$

6.5	+ .30	-7.69		
6.8	+ .68	-7.79		
	+ .49			
6.4	+5.50	-9.37		
6.7	+2.069	-13.95		

18.2	-16.83	-1.48							+ .32	+ .32	+ .33
------	--------	-------	--	--	--	--	--	--	-------	-------	-------

8/15

Mar. 11 $L = -.086$

RA Longd sec. 8 T. RA

 $C = +.06$ 7.8 +.20 +1.02 -31.86 $m = +.75$ -31.79
5 .02 +28.2 +1.29 +1.64 -31.91 +.03 31.78
+10 +5

6.7 +20.69 +20.71 -31.79 -.09 -.13 -31.88 -31.92 +20.69 -.02 +19.40 -.01 +.02 +.00 -06 -06 -06

8.3 +1.81 +2.07 -31.90 +.04 +.01 -31.86 -31.89 +1.61 +.00 +1.52 +.02 -.02 -.01 -06 -06 -06

8.4 +3.50 +3.64 -32.14 +.05 +.02 -32.12 -32.15 +3.30 -.26 +2.21 -.24 +.08 +.11 +.05 +.04 +.06 +.05 +.00

20.2 -4.45 +4.57 -31.50 +.03 +.00 -31.47 -31.50 -4.65 +.39 -5.74 +.41 +.08 +.07 +.06 +.01 +.01 +.01

7.8 -53.29 -53.31 -26.78 +.00 -.03 -26.78 -26.81 -53.49 +5.08 -54.58 +5.10 +.09 +.06 +.09 +.03 +.03 +.03

+.02 +.02 +.02 +.04

Mar. 17 $L = -.057$ 6.1 +.41 +1.04 -37.36 $m = +.01$ -37.30
5 .02 +2 $C = +.06$ 8.3 +1.81 +2.07 -37.34 +.19 37.21
+12 +2

6.1 +2.66 +2.46 -37.21 +.00 -.19 -37.21 -37.40 +2.25 +.15 +.85 +.14 -.07 +.17 -01 -01 -01

6.7 +20.69 +20.71 -37.48 +.05 -.11 -37.43 -37.42 +20.28 -2.07 +18.88 -2.08 +.10 +.11 +.04 +.05 +.04

7.7 +3.55 +3.69 -37.61 +.04 -.05 -37.47 -37.66 +3.14 -.11 +1.74 -.12 +.04 +.05 +.01 -01 -01 -01

8.1 +4.05 +4.16 -37.43 +.14 -.02 -37.56 -37.75 +3.64 -.20 +2.24 -.21 +.05 +.06 +.00 +.03 +.02

8.4 +3.50 +3.64 -37.56 +.20 +.01 -37.36 -37.55 +3.09 +.00 +1.69 -.01 +.00 +.00 -05 -05 -05

18.2 -16.83 -16.85 -36.13 +.01 -.18 -36.12 -36.31 -17.24 +1.24 -18.64 +1.23 +.07 +.07 +.01 +.01 +.01

20.2 -4.45 -4.57 -36.44 +.18 -.01 -36.26 -36.45 -4.86 +1.10 -6.26 +1.09 +.23 +.17 +.01 -01 -01

7.7 -53.29 -53.31 -31.95 +.14 -.05 -31.81 -32.00 -53.70 +5.55 -55.10 +5.57 +.10 +.10 +.04 +.04 +.04

+.02 +.02 +.03 +.01

Mar. 18 $L = -.078$ 8.3 +.27 +1.04 -38.51 $m = +.12$ -38.42
5 .02 +2 $C = +.06$ 8.3 +1.81 +2.07 -38.69 +.00 -38.39
+12 +16

6.7 +20.69 +20.71 -41.08 -.12 -41.20 -41.20 +20.62 -2.69 +18.88 -2.51 +.13 +.13 +.07 +.07 +.07

7.8 +3.55 +3.69 -39.04 -.04 -39.04 -39.04 +3.28 -.53 +1.74 -.35 +.16 +.21 +.01 +.15 +.13

8.1 +4.05 +4.16 -39.02 -.02 -39.04 -39.04 +3.78 -.53 +2.24 -.35 +.14 +.14 +.09 +.10 +.10

+.09 +.11 +.10

18.2 -16.83 -16.85 -38.89 -.16 -38.05 -38.05 -17.10 +2.46 -18.64 +2.62 +.14 +.14 +.08 +.08 +.08

20.2 -4.45 -4.57 -37.59 -.01 -37.60 -37.60 -4.72 +.91 -6.26 +1.09 +.19 +.17 +.12 +.11 +.12

7.8 -53.29 -53.31 -30.24 -.04 -30.28 -30.28 -53.56 +8.23 -55.10 +8.41 +.15 +.15 +.00 +.09 +.09

+.10 +.09 +.10 +.10

Mar. 22 $L = -.115$ 7.4 +.24 +1.03 -43.50 $m = +.04$ -43.43
5 .02 +2 $C = +.05$ 7.6 +.92 +1.36 -43.55 +.02 43.40
+7 +6

6.4 +2.66 +2.84 -43.49 -.15 -.17 -43.64 -43.66 +2.42 -.14 +1.74 -.11 +.06 +.06 +.02 -02 -02

6.4 +5.50 +5.59 -43.70 -.12 -.14 -43.82 -43.84 +5.26 -.32 +4.58 -.29 +.06 +.06 +.03 +.01 +.02

7.3 +2.57 +2.75 -43.98 -.01 -.03 -43.99 -44.01 +2.33 -.49 +1.65 -.46 +.21 +.21 +.17 -01 -01

7.6 +3.55 +3.69 -44.02 +.02 +.00 -44.00 -44.02 +3.31 -.50 +2.63 -.47 +.15 +.15 +.11 +.14 +.12

9.0 +2.43 +2.63 -43.89 +.18 +.16 -43.71 -43.73 +2.19 -.21 +1.51 -.18 +.10 +.10 +.06 +.09 +.08

+.08 +.08 +.08 +.08

18.2 -16.83 -16.85 -41.96 -.14 -.16 -42.10 -42.12 -17.07 +1.40 -17.75 +1.43 +.08 +.08 +.03 +.03 +.03

+.03 +.03 +.03 +.07

Mar. 25 $L = -.060$ 8.5 +.18 +1.02 -47.61 $m = +.00$ 47.53
5 .02 +2 $C = +.07$ 8.5 +.93 +1.64 -47.64 +.03 47.43
+11 +7

7.3 +2.57 +2.75 -47.86 -.07 -.10 -47.93 -47.97 +2.39 -.32 +1.64 -.32 +.13 +.13 +.08 -08 -08

7.6 +3.55 +3.69 -47.94 -.05 -.08 -47.99 -48.02 +3.34 -.38 +2.62 -.38 +.11 +.11 +.05 +.09 +.07

9.0 +2.43 +2.63 -47.87 +.03 +.00 -47.84 -47.87 +2.25 -.23 +1.50 -.23 +.11 +.11 +.06 +.06 +.06

+.06 +.09 +.07 +.07

187
RA TangS recS T-RA

8.5	+21	+3.48	$m = -.06$	+3.45
-----	-----	-------	------------	-------

9.2	+1.41	-3	+3.58	+0.7	+3.48
-----	-------	----	-------	------	-------

95 +2.72 +3.62 +1.10 +.03 +3.72 +3.65 +2.51 +.24 +1.31 +.07 -1.10 -.05 ✓

21.5	-2.75	+2.95	+1.0	+0.3	+3.05	+2.98	-2.96	-1.3	-4.16	-1.60	-1.75	-1.5	-1.5	-1.2
------	-------	-------	------	------	-------	-------	-------	------	-------	-------	-------	------	------	------

Apr? $h' = .052$

10.4	+17	+294	$n_F = -0.6$	+2.82
------	-----	------	--------------	-------

10.2	+ .87	- 2	+ 2.99 - .01	2.88
------	-------	-----	--------------	------

10.4	+4.12	-10	+3.40	+1.00	+0.01	+3.40	+3.41	+3.95	+ .46	+ 3.257	.42	-.12	-.13
------	-------	-----	-------	-------	-------	-------	-------	-------	-------	---------	-----	------	------

9.7 -2.86 +3.21 -0.04 -0.03 +3.17 +3.18 -3.03 +.23 -3.73 +.19 +.08 +.05 - -12

Apr. 7 $L' = 0.51$

9.3	+0.03 + 1.00	+ 1.53	$\mu = +0.01 + 3$ 5	+ 1.53
-----	--------------	--------	------------------------	--------

9.4	+1.05 +1.45	+1.57	+1.01	+1.51
-----	-------------	-------	-------	-------

9.0	+2.43	+2.63	+1.31	-0.2	-0.2	+1.29	+1.29	+2.40	-0.24	+1.38	-0.22	+1.0	+1.6
2.1	+2.81	+2.68	+1.38	+0.1	+0.2	+1.32	+1.38	+2.76	1.1	+1.45	1.2	+1.15	+1.5

9.4	+2.07	+2.90	+1.18	+1.01	+1.59	+1.58	+2.10	-1.14	+1.17	+1.03	+1.03
9.5	+2.72	+2.90	+1.50	+1.01	+1.51	+1.51	+2.69	-1.02	+1.67	+1.00	+1.01

									+09	-
713	-246-2.99	+135	+170-11	+135	+131-	84C	IC	2 CD	1m - 1mm	DE

[illegible]

Apr. 10 L' = -062

9.3	+15	+78	$\frac{9}{5} = 1.8$	+76
-----	-----	-----	---------------------	-----

9.4	+ .87	+ .84	+ .01	+ .74
-----	-------	-------	-------	-------

9.0	+2.43	+1.11	-02.-02	+1.09	+1.09	+2.28	+ .31	+1.56	+ .25	-14	-16
9.1	+2.81	+1.10	+01.+00	+1.11	+1.10	+2.11	+ .22	+1.02	+ .26	12	12

$10.41 + 4.12$
 $+1.18$
 $+0.07+0.6$
 $+1.25$
 $+1.24$
 $+3.97$
 $+ .47$
 $+3.25$
 $+ .40$
 $-.12$
 $-.12$

Apr. 11	$h' = -.034$
---------	--------------

9.4	+1.15	+1.61	$n = -1.17$	+1.58
		-3	5	

9.4	+1.05	+ .76	+ .00	+ .52
-----	-------	-------	-------	-------

9.0	+2.43	+1.38	-0.11	+1.37	+1.37	+2.28	+1.76	+1.38	+0.61	-0.33	-0.44
9.4	+2.81	+1.18	+0.00	+1.18	+1.18	+2.11	+1.57	+1.18	+1.18	-0.22	-0.21

9.5 + 2.72 + 1.09 + 0.0 + 1.09 + 1.09 + 2.57 + 1.48 + 1.67 + 1.33 - 1.19 - 2.0

[illegible]

1875

Apr. 14 $L^1 = +.008$

9.9	+ .14	+ .31	$w = -.07$	+ .31
-----	-------	-------	------------	-------

9.9	+ .75	+ .35	+ .00	+ .32
-----	-------	-------	-------	-------

[illegible]

Apr. 15 $L' = -.034$

9.2 + .09 + .09 $\mu = -.04$ + .08

9.6 + 84 + .11 + .01 + .07

9.4	+2.81	+0.22	+0.01 - .01	+0.23	+0.21	+2.72	+ .14	+1.97	+ .10	-.05	-.05	-.05
10.4	+4.12	+0.30	+0.04 + .03	+0.34	+0.33	+4.03	+ .25	+3.28	+ .22	-.06	-.07	-.06
										-.06	-.07	-.06

Apr. 20 $h' = -.028$

10,2	+12	-35	$\mu = +1,00$	-34
------	-----	-----	---------------	-----

10.5	+ .78	+ .01	- .36	+ .01	- 28
------	-------	-------	-------	-------	------

9.4 +2.81 ⁺⁷ -0.53 -0.2 -0.3 -0.55 -0.56 +2.69 - .20 +2.03 - .20 +.08 +.10 +.09 +.09.

Apr. 21 $h' = +.007$

10.2 ⁶	+ 26 +1.04	-0.65	$a = +.11$	-0.64
-------------------	------------	-------	------------	-------

10.9	+ .75 + 1.21	- 0.60 + 00	- 0.56
------	--------------	-------------	--------

[illegible]

Apr. 22. $h' = -.008$

10.4 + 34 - .87 $n = 4.08$ - 0.87

11.1	+ .82	- .84 + .01	-0.82
------	-------	-------------	-------

9.5	+2.72	- .91	- .01	- .01	- .92	- .92	+ 2.38	- .05	+ 1.90	- .08	+ .02	+ .05	+ .02
9.8	+3.36	- .88	+ .00	- .01	- .88	- .89	+ 3.02	- .01	+ 2.50	- .05	+ .00	+ .02	+ .01
10.8	+4.84	- .94	+ .00	+ .00	- .94	- .94	+ 4.53	- .07	+ 4.05	- .10	+ .02	+ .02	+ .02
10.9	+1.91	- .86	+ .00	+ .00	- .86	- .86	+ 1.57	+ .01	+ 1.09	- .02	+ .00	+ .02	+ .00
9.7	-2.86	- .81	- .01	- .01	- .82	- .82	- 3.20	+ .05	- 3.68	+ .02	+ .02	+ .01	+ .02

Apr. 24 $L' = -.007$

10.1	+09	-93	$n_F = -15$	-0.94
------	-----	-----	-------------	-------

11.2	+ .63	- .86	+ .01	- 0.95
------	-------	-------	-------	--------

$$9.8 \quad +3.36 \quad - .40 + .00 - .01 \quad - .040 \quad - .041 \quad + 3.27 \quad + .53 \quad + 2.73 \quad + .45 \quad - .16 \quad - .17 \quad - .16 \quad - .16$$

Apr. 25 $R' = .015$

10.3	+ .20	- .84	$n = -15$	- 0.87
------	-------	-------	-----------	--------

104	+1.16	- .70 + 1.00	-0.88
-----	-------	--------------	-------

9.8	+3.36	-0.27	-0.01	-0.28	-0.28	+3.16	+0.56	+2.20	+0.42	-0.18	+0.19	-0.18
11.2	+2.15	-0.59	+0.01	-0.58	-0.58	+1.95	+0.26	+0.99	+0.12	-0.13	-0.13	-0.13
										-0.16	-0.19	-0.16

9.7 -2.86 -1.41 -0.01 -0.01 -1.42 -1.42 -3.06 -58 -4.02 -1.72 -1.9 -1.8 -1.6

1875

RA Tempd and T-RA

May 13 $L' = -.012$ 12.2 +.10 -1.57 $n = -.29$ -1.60

11.8 +1.40 -1.19 +.00 -1.64

12.0 +4.55 -0.25 +.00 -0.25 -0.25 +4.45 +1.32 +3.15 +.94 -.30 -.30
 12.1 +4.84 +0.02 +.00 +.02 +.02 +4.74 +1.59 +3.44 +1.21 -.34 -.35
 -.32 -.32

-.30
 -.34
 -.32 -.32

May 14 $L' = -.033$ 11.8 +.09 -1.92 $n = -.33$ -1.95

11.9 +1.31 -1.52 +.00 -1.94

10.9 +1.91 -1.26 -.03 -.03 -1.29 -1.29 +1.82 +.63 +.60 +.23 -.35 -.35
 11.4 +2.75 -1.13 -.01 -.02 -1.14 -1.15 +2.66 +.78 +1.44 +.37 -.30 -.26
 -.30

.35
 -.30
 -.302 -.302

May 22 $L' = -.026$ 12.6 +.04 -2.45 $n = -.42$ -2.47

12.8 +1.16 -1.99 +.01 2.48

23.6 -4.31 -4.24 -.03 -.03 -4.27 -4.27 -4.35 -1.82 -5.47 -2.28 -.42 -.42
 13.2 -4.214 -2.124 +.02 +.01 -2.122 -2.123 -4.218 -1.877 -4.330 -1.924 -.45 -.44
 -.44 -.43

-.42
 -.44
 -.43 -.43

May 23 $L' = -.015$ 12.7 +.18 -2.75 $n = -.50$ -2.84

11.7 +1.26 -2.19 -.02 2.82

11.6 +2.40 -1.64 -.02 +.00 -1.66 -1.64 +2.22 +1.09 +1.14 +.53 -.49 -.49
 12.5 +2.82 -1.36 +.00 +.01 -1.36 -1.35 +2.64 +1.39 +1.56 +.84 -.53 -.54
 -.51

-.49
 -.53
 -.51

23.6 -4.31 -4.62 -.02 +.00 -4.62 -4.62 -4.49 -1.69 -5.57 -2.43 -.42 -.44
 13.2 -4.214 -2.519 +.01 +.02 -2.518 -2.517 -4.232 -2.243 -4.340 -2.298 -.53 -.53
 -.48 -.48

-.43
 -.53
 -.48 -.49

May 26 $L' = -.007$ 12.3 +.04 -3.20 $n = -.50$ -3.22

11.6 +1.13 -2.65 +.00 -3.24

12.5 +2.82 -1.67 +.00 +.01 -1.67 -1.66 +2.78 +1.53 +1.69 +.99 -.55 -.55
 13.4 +3.29 -1.71 +.01 +.01 -1.70 -1.70 +3.25 +1.50 +2.16 +.95 -.46 -.44
 -.50 -.44

-.55
 -.45
 -.50

23.6 -4.31 -5.80 +.00 +.00 -5.80 -5.80 -4.35 -2.60 -5.44 -3.15 -.60 -.58
 13.2 -4.214 -2.867 +.01 +.01 -2.866 -2.866 -4.218 -2.546 -4.327 -2.601 -.60 -.60
 -.60 -.59

-.59
 -.60
 -.60 -.55

May 27 $L' = +.038$ 12.1 +.08 -3.24 $n = -.47$ -3.28

12.7 +1.28 -2.66 -.02 3.35

12.1 +4.84 -0.85 +.00 +.02 -0.85 -0.83 +4.76 +2.39 +3.56 +1.63 -.50 -.51
 12.5 +2.82 -1.58 -.02 +.01 -1.60 -1.57 +2.74 +1.64 +1.54 +1.09 -.60 -.60
 13.0 +3.06 -1.88 -.06 -.03 -1.94 -1.91 +2.98 +1.30 +1.78 +.95 -.44 -.42
 -.51 -.51

-.50
 -.60
 -.44
 -.51

13.2 -4.214 -2.639 -.04 -.02 -2.643 -2.641 -4.222 -2.319 -4.342 +2.75 -.55 -.55

-.55 -.52

1975
May 29 $L' = -0.47$

RA Tang. & Rec P. of RA

13.3	+1.12	-3.03	$m = -.39$	-3.08
13.1	+1.14	-2.61	-.01	3.13

13.6	+3.06	-1.74	+0.01	+0.02	-1.73	-1.72	+2.94	+1.30	+1.89	+0.89	-1.14	-1.47	-1.44
13.8	+2.14	-2.14	+0.02	+0.03	-2.15	-2.14	+2.05	+0.88	+1.00	+0.47	-1.43	-1.47	-1.43

June 8 $L' = -0.53$

13.4	+1.06	-2.11	$m = -.49$	-2.14
13.6	+1.08	-1.62	+0.01	2.15

13.4	+3.29	-0.55	+0.00	-0.01	-0.55	-0.56	+3.23	+1.56	+2.21	+1.06	-1.48	-1.48	-1.48
13.6	+3.06	-0.49	+0.01	+0.00	-0.48	-0.49	+3.00	+1.63	+1.98	+1.13	-1.55	-1.57	-1.55
13.8	+2.14	-1.10	+0.02	+0.01	-1.08	-1.09	+2.11	+1.03	+1.06	+0.53	-1.49	-1.49	-1.49
14.0	+2.14	-1.12	+0.03	+0.02	-1.09	-1.10	+2.08	+1.02	+1.06	+0.52	-1.49	-1.49	-1.49
14.1	+4.74	-1.49	+0.04	+0.03	+0.07	+0.06	+4.68	+2.18	+3.66	+1.68	-1.47	-1.46	-1.49
13.2	-42.14	-23.61	-0.01	-0.02	-23.62	-23.63	-42.20	-21.51	-43.22	-22.01	-1.51	-1.51	-1.50

June 10 $L' = -0.52$

14.3	+1.38	-1.75	$m = -.46$	-1.92
14.4	+1.90	-1.52	+0.01	-1.92

14.0	+2.14	-0.98	-0.02	-0.02	-1.00	-1.00	+1.76	+0.75	+1.24	+0.52	-1.43	-1.42	-1.42
14.8	+3.65	-0.17	+0.03	+0.02	-0.14	-0.15	+3.27	+1.61	+2.75	+1.37	-1.49	-1.50	-1.50
14.9	+4.74	+0.03	+0.03	+0.03	+0.06	+0.06	+4.36	+1.81	+3.84	+1.58	-1.42	-1.41	-1.42
13.2	-42.14	-19.75	-0.06	-0.06	-19.81	-19.81	-42.52	-18.06	-43.04	-18.29	-1.42	-1.42	-1.45

June 14 $L' = -0.48$

14.1	+1.29	-1.57	$m = -.45$	-1.70
14.0	+1.24	-1.14	+0.00	-1.70

14.2	+4.74	+0.38	+0.00	+0.01	+0.38	+0.39	+4.45	+1.95	+3.50	+1.53	-1.44	-1.44	-1.44
13.2	-42.14	-20.91	-0.04	-0.04	-20.95	-20.95	-42.43	-19.38	-43.38	-19.61	-1.46	-1.46	-1.45

June 15 $L' = -0.30$

14.2	+1.36	-1.30	$m = -.45$	-1.70
14.1	+1.06	-1.00	+0.00	-1.70

13.4	+3.29	-0.01	-0.02	-0.02	-0.03	-0.03	+2.93	+1.27	+2.23	+0.97	-1.44	-1.44	-1.44
14.0	+2.14	-0.41	-0.01	+0.00	-0.42	-0.41	+1.78	+0.88	+1.08	+0.59	-1.50	-1.53	-1.53
14.1	+4.74	+1.58	+0.00	+0.00	+0.58	+0.58	+4.38	+1.88	+3.68	+1.58	-1.43	-1.43	-1.43

June 20 $L' = +0.24$

13.8	+1.19	-0.37	$m = -.44$	-0.47
14.6	+1.91	-0.03	-0.02	-0.51

13.6	+3.06	+1.01	+0.00	+0.02	+1.01	+1.03	+2.87	+1.38	+2.15	+1.06	-1.48	-1.49	-1.48
13.8	+2.14	+0.56	+0.00	+0.02	+0.56	+0.58	+1.98	+0.93	+1.26	+0.61	-1.47	-1.49	-1.47
14.1	+2.14	+0.68	-0.01	+0.01	+0.67	+0.69	+1.95	+1.04	+1.23	+0.72	-1.53	-1.54	-1.53
14.8	+3.65	+1.07	-0.02	+0.00	+1.45	+1.47	+3.46	+1.82	+2.74	+1.50	-1.53	-1.53	-1.54
14.9	+2.29	+1.44	-0.03	-0.01	+0.61	+0.63	+2.10	+0.98	+1.38	+0.66	-1.47	-1.48	-1.47

1875

June 21 $L' = -.029$

RA temp. and

P.R.A

14.4 + .28 +1.04 - .30 $n = -.39$ -0.43

15.0 + .77 +1.26 - .13 + .02 -0.48

14.0 +2.14 +1.36 - .37 +0.63 - .01 - .03 +0.62 +0.60 +1.86 + .92 +1.37 + .73 - .50 - .54 - .50
 14.8 +3.65 +3.79 +1.46 + .01 - .01 +1.47 +1.45 +3.37 +1.77 +2.88 +1.58 - .53 - .55 - .54
 14.9 +2.29 +2.50 +0.52 + .01 + .00 +0.53 +0.52 +2.01 + .83 +1.52 + .65 - .41 - .43 - .41
 - .47 - .55 - .48

June 24 $L' = -.050$ 14.5 + .35 + .03 $n = -.62$ -0.17

14.6 + .87 + .34 + .01 - .19

13.8 +2.17 - .54 - .04 - .04 +1.30 +1.30 +1.82 +1.27 +1.30 + .96 - .70 - .75 - .62
 14.0 +2.14 +1.25 - .02 - .03 +1.23 +1.22 +1.76 +1.20 +1.27 + .88 - .67 - .69 - .62
 15.3 +3.13 +1.70 + .04 + .04 +1.74 +1.74 +2.78 +1.71 +2.26 +1.40 - .62 - .62 - .62

June 27 $L' = -.030$ 15.2 + .51 + .60 $n = -.58$ +0.30

15.3 + .77 + .75 + .00 +0.30

14.8 +3.65 +2.50 - .01 - .02 +2.49 +2.48 +3.14 +1.89 +2.88 +1.73 - .60 - .60 - .60
 14.9 +2.29 +1.49 - .01 - .01 +1.48 +1.48 +1.78 + .88 +1.52 + .73 - .50 - .48 - .57
 15.2 +2.45 +2.83 + .00 + .00 +2.83 +2.83 +1.94 +1.23 +1.68 +1.08 - .13 - .69 - .57
 15.3 +3.13 +2.10 + .00 + .00 +2.10 +2.10 +2.62 +1.50 +2.36 +1.35 - .57 - .57 - .58

June 28 $L' = -.058$ 14.3 + .45 + .85 $n = -.71$ +0.59

15.0 + .76 +1.03 + .04 +0.63

15.3 +3.13 +2.36 + .06 + .02 +2.42 +2.38 +2.68 +1.57 +2.37 +1.35 - .59 - .57 - .58

June 30 $L' = -.014$ 14.8 + .29 +1.23 $n = -.60$ +1.16

14.6 + .92 +1.61 + .00 +1.11

14.8 +3.65 +3.16 + .00 + .00 +3.16 +3.16 +3.36 +1.93 +2.73 +1.55 - .58 - .57 - .58
 14.9 +2.29 +2.24 + .00 + .01 +2.24 +2.25 +2.00 +1.01 +1.37 + .64 - .50 - .47 - .50
 - .54 - .57 - .54

July 1 $L' = +.000$ 15.6 + .15 +1.01 +1.59 $n = -.47$ +1.50

15.2 + .88 +1.33 +1.69 + .00 +1.93 +1.93

14.8 +3.65 +3.79 +3.91 +3.91 +3.50 +2.32 +2.77 +1.98 - .66 - .72 - .69
 14.9 +2.29 +2.50 +2.72 +2.72 +2.14 +1.13 +1.41 + .99 - .53 - .56 - .53
 15.2 +2.15 +2.65 +2.96 +2.96 +2.30 +1.37 +1.57 +1.03 - .60 - .60 - .60
 15.3 +3.13 +3.29 +3.10 +3.10 +2.98 +1.51 +2.25 +1.17 - .51 - .52 - .52
 15.8 +4.78 +4.89 +4.06 +4.06 +4.63 +2.47 +3.90 +2.13 - .53 - .55 - .54
 - .57 - .60 - .58

1875

Ma tang.S sec.S T-Ra

July 3, $h' = -.011$

16.1	+ .08 + 1.00	+ 20%	$w = -.33$	+ 2.02
------	--------------	-------	------------	--------

$$\left[\begin{array}{c} 16.5^9 \\ + 0.60 \\ + 1.27 \\ + 1.17 \\ + 2.23 \\ + 2.63 \\ + 0.01 \end{array} \right] + 1.87$$
[illegible]

July 7 $L' = +.000$

15.8	+ .25	+ 1.00	+ 1.63	$m = -149$	+ 1.60
------	-------	--------	--------	------------	--------

15.6	+ .99	+ 2.08	+ 1.50
	+ 1.39	+ 1.00	
		- 58	

14.9	+2.29+2.50	+2.92 +00	+2.92	+2.92	+2.24	+1.29	+1.32	+84-58	-64		-58
15.2	+2.25+2.46	+3.02	+3.02	+3.02	+2.20	+1.39	+1.28	+94-64	-74		-64
15.3	+3.13+3.29	+3.32	+3.32	+3.32	+3.08	+1.69	+2.16	+1.24-55	-55		-56
15.8	+4.78+4.89	+4.50	+4.50	+4.50	+4.73	+2.87	+3.81	+2.42-61	-63		-62
16.2	+4.07+4.19	+4.11	+4.11	+4.11	+4.02	+2.48	+3.10	+2.03-62	-66		-64
16.4	+1.87+2.12	+2.65	+2.65	+2.65	+1.82	+1.02	+1.90	+1.57-56	-63		-
17.0	+7.33+7.41	+5.97 +03	+5.97	+5.97	+7.28	+4.34	+6.36	+3.89-60	-61		-60
								-60	-62		-60 -60

July 8 $h' = +.000$

16.0	+1.12	+1.01	+1.41	$n = -57$	+1.34
------	-------	-------	-------	-----------	-------

15.6 + 1.15 + 1.52 + 2.00 + .00 + 2.00 + 1.29

15.8	+4.78 +4.69	+4.24		+4.27	+4.27	+4.66	+2.56	+3.63	+2.27	-61	-63							-62
16.2	+4.07 +4.19	+3.92		+3.92	+3.92	+3.95	+2.51	+2.92	+1.92	-61	-66							-65
16.6	+4.59 +4.69	+4.19		+4.19	+4.19	+4.47	+2.78	+3.44	+2.19	-62	-64							-63
16.4	+1.67 +2.12	+2.43		+2.43	+2.43	+1.75	+1.02	+ .72	+ .43	-58	-61							-
17.0	+7.33 +7.41	+5.58	+0.00	+5.58	+5.58	+7.21	+4.17	+6.18	+3.58	-58	-58							-58
										-61	-63							-62 -62

July 10 $k' = -.014$

$$16.0 + .12 + 1.01 + 0.88 \quad m = -.58 \quad + 0.81$$

16.0	+1.04 +1.19 + 1.44	* 7.1 + 1.48 + 0.0	0.81
------	-----------------------	-----------------------	------

[illegible]

July 11 $L' = -.032$

16.1	+ .14	+ 1.01	+ .88	$n_5 = -1.57$	70.77
------	-------	--------	-------	---------------	-------

$$15.76 + 1.16 + 1.32 + 1.53 + 1.46 + 1.81 - 0.02 = 24 + 0.70$$

15.2	+2.45+2.65	+2.34	-0.3 -0.1	+2.31	+2.33	+2.28	+1.43	+1.29	+0.87	-63	-68	-63
15.3	+3.13+3.29	+2.72	-0.3 -0.1	+2.69	+2.71	+2.96	+1.81	+1.97	+1.25	-61	-63	-61
15.8	+4.78+4.89	+3.71	-0.1 +0.1	+3.76	+3.72	+4.61	+2.82	+3.62	+2.26	-61	-62	-62
16.2	+4.07+4.19	+3.39	+0.0 +0.2	+3.39	+3.41	+3.90	+2.51	+2.97	+1.95	-64	-67	-66
16.4	+1.87+2.12	+1.92	+0.1 +0.3	+1.93	+1.95	+1.70	+1.05	+1.71	+1.49	-62	-70	-
16.6	+4.59+4.69	+3.74	+0.2 +0.3	+3.76	+3.77	+4.42	+2.88	+3.43	+2.31	-65	-68	-66
17.0	+7.33+7.41	+5.41	+0.3 +0.4	+5.44	+5.45	+7.16	+4.56	+6.17	+3.99	-64	-65	-64
										-63	-66	-64

1875

July 12 $L' = +0.34$ RA Tang. S rec π RA16.0 + .13 +1.01 + .93 $n_5 = -53$ +0.85

16.3 + .87 +1.33 +1.33 -01 +0.77

15.3	+3.13 +3.29	+2.83 +1.12 +0.3	+2.85	+2.86	+3.00	+1.92	+2.26 +1.53	-64	-68	-66
15.8	+4.78 +4.89	+3.85 +0.1 +0.2	+3.86	+3.87	+4.65	+2.93	+3.91 +2.54	-63	-65	-64
16.2	+4.07 +4.19	+3.37 -01 +0.0	+3.36	+3.37	+3.94	+2.43	+3.20 +2.04	-62	-64	-63
16.4	+1.87 +2.12	+1.93 -01 +0.0	+1.92	+1.93	+1.74	+1.09	+1.00 +.60	-63	-60	-61
16.5	+2.61 +2.79	+2.26 -02 -0.1	+2.24	+2.25	+2.48	+1.31	+1.74 +.92	-53	-53	-53
17.0	+7.33 +7.41	+5.71 -03 -0.2	+5.68	+5.69	+7.20	+4.75	+6.46 +4.36	-66	-68	-67
								-62	-64	-63

July 31 $L' = -0.17$ 17.4 + .34 +1.06 +2.63 $n_5 = -69$ +2.42

17.5 +1.04 +1.44 +3.11 +0.0 +2.45

17.0	+7.33 +7.41	+7.29 -01 -0.1	+7.28	+7.28	+6.99	+4.65	+6.29 +4.17	-67	-66	-66
17.5	+2.50 +2.69	+4.05 +0.0 +0.0	+4.05	+4.05	+2.16	+1.42	+1.46 +.94	-66	-65	-66
17.7	+3.12 +3.27	+4.31 +0.1 +0.0	+4.32	+4.31	+2.78	+1.69	+2.08 +1.20	-61	-58	-60
17.9	+4.33 +4.44	+5.00 +0.1 +0.1	+5.01	+5.01	+3.99	+2.38	+3.29 +1.90	-60	-58	-59
								-61	-61	-63

Aug. 4 $L' = -0.11$ 16.3 + .21 +1.02 +2.84 $n_5 = -50$ +2.71

16.6 + .71 +1.23 +3.09 +0.0 2.66

16.4	+1.87 +2.12	+4.27 +0.0 +0.0	+3.72	+3.72	+1.66	+1.88	+1.16 +.63	-53	-55	-60
16.5	+2.61 +2.79	+3.72 +0.0 +0.0	+4.27	+4.27	+2.40	+1.43	+1.90 +1.18	-60	-62	-60

Aug. 7 $L' = -0.28$ 17.1 + .11 +1.01 +3.98 $n_5 = -49$ +3.91

16.7 + .70 +1.22 +4.28 -01 3.85

16.4	+1.87 +2.12	+5.12 -02 -0.1	+5.10	+5.11	+1.76	+1.12	+1.17 +.83	-64	-71	-64
16.6	+4.59 +4.69	+6.81 -01 +0.0	+6.80	+6.81	+4.48	+2.82	+3.89 +2.53	-63	-65	-64
17.0	+7.33 +7.41	+8.17 +0.0 +0.1	+8.17	+8.16	+7.22	+4.19	+6.63 +3.90	-58	-59	-58
18.2	+16.83 +16.90	+14.63 +0.3 +0.3	+14.66	+14.66	+16.72	+10.68	+16.13 +10.38	-64	-64	-64
								-62	-63	-62

6.5	-2.66	+2.42 +0.3 +0.4	+2.45	+2.46	-2.77	-1.53	-3.36 -1.82	-55	-54	-54
-----	-------	-----------------	-------	-------	-------	-------	-------------	-----	-----	-----

Aug. 8 $L' = -0.20$ 16.2 + .13 +4.41 $n_5 = -66$ +4.33

16.16.4	+1.87	+5.55 +0.0	+5.55	+4.32	+1.74	+1.14	-66	66
---------	-------	------------	-------	-------	-------	-------	-----	----

Aug. 9 $L' = -0.12$

17.2 + .18 +1.02 +4.56 +4.45

16.4	+1.87 +2.12	+5.64 -01	+5.63	+1.69	+1.07	-63
16.5	+2.61 +2.79	+6.14 -01	+6.13	+2.43	+1.57	-65
16.6	+4.59 +4.69	+7.47 -01	+7.46	+4.41	+2.80	-66
17.0	+7.33 +7.41	+8.90 +0.0	+8.90	+7.15	+4.34	-61
18.2	+16.88 +16.90	+14.18 +0.1	+14.19	+16.70	+9.63	-58
						-63

6.1	-2.66 -2.54	+3.35 +0.1	+3.36	-2.64	-1.20	-62	62
-----	-------------	------------	-------	-------	-------	-----	----

1875

Aug. 10 $L' = -.024$

RA Temp. Rec'd P.R.A.

16.9 +.18 +1.02 +4.79 $n_s = -.59$ +4.68
 17.3 +.74 +1.25 +5.11 +.01 +4.66

16.2 +4.07 +4.19 +7.21 -.02 -.03 +7.19 +7.18 +3.89 +2.40 +3.33 +2.07 -.62 -.62 -.62
 16.4 +1.87 +2.12 +5.95 -.01 -.02 +5.94 +5.93 +1.69 +1.15 +1.13 +.82 -.68 -.73
 16.6 +4.59 +4.69 +7.92 -.01 -.02 +7.91 +7.90 +4.41 +3.12 +3.85 +2.79 -.71 -.72
 17.0 +7.33 +7.41 +9.24 +.00 -.01 +9.24 +9.23 +7.15 +4.15 +6.59 +4.12 -.62 -.63
 16.2 +16.88 +16.90 +13.62 +.03 +.02 +13.63 +13.62 +16.70 +8.84 +16.14 +8.51 -.53 -.54 -.54
 -.62 -.63 -.62 -.62

Aug. 14 $L' = -.024$

17.1 +.23 +6.55 $n_s = -.60$ +6.41
 17.2 +.88 +6.94 +.00 +6.38

17.0 +7.33 +11.61 +.00 +.00 +11.61 +11.61 +7.10 +5.16 +6.45 +4.67 -.71 -.72 -.72
 17.5 +2.50 +7.93 +.01 +.01 +7.99 +7.99 +2.27 +1.44 +1.62 +1.05 -.63 -.65
 17.6 +2.58 +7.83 +.01 +.01 +7.84 +7.84 +2.35 +1.29 +1.70 +.90 -.55 -.53
 -.63 -.72 -.63 -.63

Aug. 25 $L' = +.026$

18.1 +.60 +14.57 $n_s = -.69$ +14.16

18.2 +16.88 +25.73 +.01 +25.74 +16.28 +11.57 -.69
 18.4 +2.95 +16.01 +.00 +16.01 +2.35 +1.14 -.61
 18.4 +3.21 +16.51 +.00 +16.51 +2.61 +1.94 -.74
 18.6 +4.49 +17.11 -.01 +17.10 +3.89 +2.53 -.65
 -.67 -.67
 6.7 -2.069 -0.62 -.01 -.063 -21.29 -15.20 -.71 -.71 -.68

Aug. 26 $L' = +.041$

17.9 +.22 +1.02 +14.91 $n_s = -.45$ 14.78
 17.8 +.88 +1.33 +15.22 +.00 14.67

17.0 +7.33 +7.41 +19.47 +.04 +.03 +19.51 +19.50 +7.14 +4.60 +6.45 +4.28 -.64 -.66 -.65
 18.2 +16.88 +16.90 +24.82 -.01 -.02 +24.81 +24.80 +16.69 +9.90 +16.00 +9.58 -.59 -.60 -.60
 18.1 +2.95 +3.12 +16.60 -.02 -.02 +16.58 +16.58 +2.76 +1.67 +2.07 +1.36 -.61 -.66 -.64
 18.4 +3.21 +3.36 +16.78 -.02 -.02 +16.76 +16.76 +3.02 +1.85 +2.33 +1.54 -.61 -.66 -.64
 18.6 +4.49 +4.60 +17.43 -.03 -.03 +17.40 +17.40 +4.30 +2.49 +3.61 +2.18 -.58 -.61 -.59
 -.61 -.64 -.62
 6.7 -2.069 -2.07 +2.53 -.03 -.04 +2.50 +2.49 -20.88 -12.41 -21.57 -12.73 -.59 -.59 -.59
 -.59 -.62

Aug. 28 $L' = +.053$

18.7 +.26 +16.36 $n_s = -.55$ 16.21
 18.8 +1.06 +16.81 -.01 16.19

17.5 +2.50 +17.50 +.06 +.07 +17.56 +17.57 +2.24 +1.20 +1.44 +.76 -.54 -.53 -.51
 17.6 +2.58 +17.68 +.06 +.06 +17.74 +17.74 +2.32 +1.38 +1.52 +.93 -.60 -.61 -.60
 17.7 +3.12 +17.92 +.05 +.06 +17.97 +17.98 +2.86 +1.61 +2.06 +1.17 -.56 -.57 -.56
 18.6 +4.49 +18.35 +.01 +.01 +18.36 +18.36 +4.23 +2.00 +3.43 +1.55 -.47 -.45 -.44
 19.2 +2.40 +17.82 -.03 -.02 +17.79 +17.80 +2.14 +1.43 +1.34 +.99 -.67 -.74 -.70
 -.57 -.59 -.54
 6.7 -2.069 +4.02 +.00 +.01 +4.02 +4.03 -20.95 -12.34 -21.75 -12.78 -.59 -.59 -.59
 -.59 -.58

1875

Aug. 29 $L' = +.025$ RA tang. s. red π RA18.4 + .25 +17.28 $m = -.55$ +17.14

18.4 +1.14 +17.77 +0.0 17.12

17.5	+2.50	+18.61 +.02	+18.63	+18.63	+2.25	+1.35	+1.36	+1.86	-60	-63	-60
17.6	+2.58	+18.56 +.02	+18.58	+18.58	+2.33	+1.30	+1.41	+1.81	-56	-56	-56
18.6	+4.49	+19.59 -.01	+19.58	+19.58	+4.24	+2.30	+3.35	+1.81	-54	-54	-54
19.2	+2.40	+18.49 -.02	+18.47	+18.47	+2.15	+1.19	+1.26	+1.71	-55	-56	-55
19.3	+3.29	+18.92 -.02	+18.90	+18.90	+3.04	+1.62	+2.15	+1.13	-53	-53	-53
									-56	-54	-56

6.7	-20.69	+4.04 -.01	+4.03	+4.03	-20.94	-13.25	-21.83	-13.74	-63	-63	-63
-----	--------	------------	-------	-------	--------	--------	--------	--------	-----	-----	-----

Aug. 30 $L' = +.073$ 18.7 + .26 +18.16 $m = -.62$ 17.98

18.2 +1.03 +18.62 +0.4 17.96

17.6	+2.58	+19.57 +.08 +.04	+19.65	+19.61	+2.32	+1.49	+1.55	+1.99	-64	-64	-64
17.7	+3.12	+20.14 +.07 +.04	+20.21	+20.18	+2.86	+2.05	+2.09	+1.56	-72	-75	-74
17.9	+4.33	+20.74 +.06 +.02	+20.80	+20.76	+4.07	+2.64	+3.30	+2.14	-65	-65	-65
									-67	-70	-68

Aug. 31 $L' = +.038$ 19.0 + .24 +19.04 $m = -.66$ 18.89

18.5 +1.13 +19.61 +.02 18.91

17.4	+3.12	+21.04 +.05 +.03	+21.09	+21.07	+2.88	+2.05	+1.99	+1.46	-71	-73	-71
18.6	+4.49	+21.74 +.02 +.00	+21.76	+21.74	+4.25	+2.72	+3.36	+2.13	-64	-63	-64
19.2	+2.40	+20.51 -.01 -.03	+20.50	+20.48	+2.16	+1.46	+1.27	+1.87	-68	-69	-68
19.3	+3.29	+20.93 -.01 -.03	+20.92	+20.90	+3.05	+1.88	+2.16	+1.29	-62	-60	-61
									-66	-62	-66
6.1	-2.66	+17.36 +.03 +.02	+17.39	+17.38	-2.90	-1.65	-3.79	+4.77	-57	-59	-58
									-222		-64

Sept. 1 $L' = +.050$ 19.3 +1.13 +1.01 +19.78 $m = -.52$ 19.70

18.2 +1.03 +1.03 +20.19 +0.6 19.61

17.7	+3.12	+21.74 +.08 +.02	+21.82	+21.76	+2.99	+2.04	+2.09	+1.57	-68	-75	-72
17.9	+4.33	+22.23 +.07 +.02	+22.30	+22.25	+4.20	+2.52	+3.30	+2.66	-60	-63	-62
18.2	+16.88	+22.13 +.06 +.00	+30.75	+30.69	+16.75	+10.97	+15.85	+10.50	-65	-66	-66
18.6	+4.49	+30.69 +.03 -.02	+22.16	+22.11	+4.36	+2.38	+3.46	+1.92	-55	-56	-56
									-62	-65	-64
6.1	-2.66	+18.28 +.06 +.01	+18.34	+18.29	-2.79	-1.44	-3.69	-1.90	-52	-52	-52
6.7	-20.69	+5.75 +.03 -.02	+5.78	+5.73	-20.82	-14.00	-21.72	-14.16	-67	-67	-67
									-60	-60	-60

Sept. 4 $L' = +.034$ 19.4 + .21 +22.39 $m = -.60$ 22.26

18.2 +1.03 +22.84 +.04 22.26

17.9	+4.33	+24.87 +.05 +.01	+24.92	+24.88	+4.12	+2.83	+3.30	+2.04	-64	-62	-62
18.2	+16.88	+33.49 +.04 +.00	+33.53	+33.49	+16.67	+11.84	+15.85	+10.65	-67	-64	-67
19.8	+53.78	+51.58 -.01 -.05	+51.57	+51.53	+53.57	+29.28	+52.75	+28.62	-54	-54	-54
19.8	+2.74	+24.00 -.01 -.05	+23.99	+23.95	+2.53	+1.70	+1.71	+1.11	-63	-65	-63
									-61	-61	-61
6.1	-2.66	+20.79 +.04 +.00	+20.83	+20.79	-2.87	-1.46	-3.69	-2.05	-57	-56	-57
6.7	-20.69	+9.99 +.02 -.02	+10.01	+9.97	-20.90	-12.28	-21.72	-12.87	-59	-59	-59
									-55	-58	-57

Sept. 5 $L' = +0.00$											
19.2	+ .21	+23.42	$n_s = -.56$	+23.29							
18.2	+1.03	+23.88 + .00		23.26							
17.9	+4.33	+26.09		+26.09	+26.09	+4.12	+2.67	+3.30	+2.21	-.65	-.67
18.2	+16.88	+33.68		+33.68	+33.68	+16.67	+10.26	+15.85	+9.80	-.62	-.62
19.8	+2.74	+24.93		+24.93	+24.93	+2.53	+1.51	+1.71	+1.05	-.60	-.61
19.8	+53.78	+51.03		+51.03	+51.03	+53.57	+27.61	+62.75	+27.15	-.52	-.51
										-.60	-.60
6.1	-2.66	+21.75		+21.75	+21.75	-2.87	-1.67	-3.69	-2.13	-.58	-.58
Sept. 7 $L' = +0.114$											
19.5	+ .85	+25.18	$n_s = -.63$	+25.10							
17.9	+1.26	+25.86 + .02		25.15							
18.2	+16.88	+35.37 + .02 + .00		+35.39	+35.39	+16.73	+10.21	+15.62	+9.51	-.61	-.61
19.8	+2.74	+26.68 + .00 - .03		+26.68	+26.68	+2.59	+1.50	+1.48	+1.79	-.58	-.54
19.8	+53.78	+53.91 + .00 - .03		+53.91	+53.88	+53.63	+28.73	+62.52	+28.02	-.54	-.53
										-.58	-.57
Sept. 8 $L' = +0.25$											
19.3	+ .13	+25.80	$n_s = -.58$	+25.73							
18.9	+ .96	+26.27 + .01		25.74							
18.2	+16.88	+35.69 + .03 + .02		+35.72	+35.71	+16.75	+9.92	+15.92	+9.44	-.59	-.59
18.4	+2.95	+27.21 + .02 + .01		+27.23	+27.22	+2.82	+1.43	+1.99	+1.95	-.51	-.48
18.4	+3.21	+27.53 + .02 + .01		+27.55	+27.54	+3.08	+1.75	+2.25	+1.27	-.57	-.56
19.8	+2.74	+27.30 + .01 - .02		+27.29	+27.28	+2.61	+1.49	+1.78	+1.01	-.57	-.57
19.8	+53.78	+55.22 + .01 - .02		+55.21	+55.20	+53.65	+29.41	+52.82	+28.93	-.55	-.55
										-.56	-.53
Sept. 13 $L' = +0.26$											
18.8	+ .80	+29.34		+28.93							
6.7	-20.69	+18.42 + .00		+18.42		-21.49	-10.92			-.51	-.51
Sept. 14 $L' = +0.69$											
19.9	+ .08 + 1.00	+29.68	$n_s = -.39$	29.64							
19.6	+ .90 + 1.35	+29.98 + .02		29.56							
19.8	+2.74 + 2.92	+31.09 + .01 - .01		+31.10	+31.08	+2.66	+1.42	+1.82	+1.10	-.54	-.60
19.8	+53.78 + 53.80	+53.88 + .01 - .01		+53.11	+53.09	+53.70	+23.43	+52.88	+23.11	-.44	-.44
20.2	+4.45 + 4.56	+31.85 + .02 - .04		+31.83	+31.81	+4.37	+2.15	+3.55	+1.83	-.49	-.52
										-.49	-.48
Sept. 25 $L' = +0.29$											
18.9	+ .29	+37.56	$n_s = -.39$	37.46							
16.7	+ .65	+37.69 + .01		37.47							
6.7	-20.69	+30.21 + .01 + .00		+30.22	+30.21	-20.98	-7.34	-21.34	-7.48	-.35	-.35
Sept. 28 $L' = +0.29$											
19.8	+ .89										
19.4	+ .63										
19.2	+2.40										
19.3	+3.29										
19.5	+5.32										
19.8	+53.78										

845

Oct. 19 $h' = +.1644$

RA TanaS seS T Ra

21.3	+1.10	+1.01	+51.15	$n = -39 + 3$	~ 51.04
------	-------	-------	--------	---------------	--------------

21.0	+1.14	+1.54	+51.51	+105	-51.02
------	-------	-------	--------	------	--------

20.2	+4.45	+4.56	+53.17	+18+13	+53.35	+53.30	+4.35	+2.20	+3.31	+1.79	-.51	+6	-.52	+1	-4.5	48	-46
20.5	+3.61	+3.74	+52.35	+13+08	+52.48	+52.43	+3.51	+1.33	+2.47	+.92	-.38	+5	-.37	+6	33	31	-32
20.9	+5.72	+5.81	+53.36	+07+02	+53.43	+53.38	+5.62	+2.28	+4.58	+1.87	-.11	+5	-.41	+6	35	35	-30
22.1	+3.02	+3.18	+3.02	+13-18	+52.42	+52.33	+2.92	+1.27	+1.88	+.86	-.14	+5	-.46	+8	39	38	-38
			+3.25			+52.37					-.43		-.44		-38	-38	-38

Oct. 20 $h' = +.071$

$$21.4 + .07 + 1.00 + 51.71 \quad n = -35 \quad 51.69$$

21.0	+1.14 +1.52	+52.05 +03	51.65
------	-------------	------------	-------

[illegible]

Oct 21 $L' = +0.42$

201. $1.04 + 1.02 = 2.06$ 21

20.4	+22	+1.02	-732.25	$n = -34$ 5
------	-----	-------	---------	----------------

20.3	+34	+130	+5246	+00															
20.2	+445	+456	+5397	+01	+00	+5398	+5397	+423	+173	+361	+151	-41	-42					-42	-42

 $\text{Mol } 25 \text{ } P'_{-} + 0.12$

Oct. 23	$\lambda = 1.0413$			
Oct. 24	$\lambda = 1.0413$			

21.8	+0.7	+3437 - 3	$n = -41$ 5	34.34
------	------	-----------------	----------------	-------

[illegible]

01 0

Oct. 27	$\bar{h}' = +0.020$		
---------	---------------------	--	--

21.5	+ .25	+1.03	+55.49	$n = -35$	55.41
------	-------	-------	--------	-----------	-------

[illegible]
$$A \rightarrow -2.12 - 2.62$$
$$7.0 \quad 2.43 - 2.03 \quad 1.446 + 0.00 \quad 1.446 / \quad 1.446 - 2.68 - 1.02 \quad - 2.3 / - 1.26 - 38 \quad - 38 \quad - 34$$
Nov. 2 $L' = +.038$

22.6	+ .05 + 1.00	+ 59.42	$\% = -17 \div 3$	59.33
------	--------------	---------	-------------------	-------

22.10	+ 98	+ 1.10	+ 59.58	+ 100	59.37
-------	------	--------	---------	-------	-------

22.5	+3.27	+3.42	+59.88	+0.0	+59.88	+59.88	+3.22	+1.46	+2.29	+3.0	-1.44	-1.3	+7	-18	-6	-18
22.8	+2.20	+2.42	+59.94	+0.0	+59.93	+59.93	+2.15	+1.51	+1.22	+3.5	-2.14	-2.9	+7	-19	-22	-22
23.1	+3.66	+3.79	+60.33	-0.2	+60.31	+60.31	+3.61	+1.89	+2.68	+3.3	-2.5	-2.7	+7	-19	-20	-20
											-2.1	-	-	-15	-16	-21

23.4 -2.75 -2.93 +58.51 -0.3 +58.48 +58.48 -3.80 -94 -3.73 -1.10 -2.54 -3.0 +9 -2.2 -2.1 -2.1 -2.1

1875														
Nov. 11 $L' = +.011$														
RA Tang. d rec d PRA														
23.2	+ .06	+62.71	$n_5 = -24$		+62.69									
23.8	+1.53	+63.07	- .01		62.63									
23.6	+4.30	+63.92	+ .00 + .00		+63.92	+63.92	+4.24	+1.21	+2.77	+ .85	- .29	- .31		- .30
23.7	+2.37	+63.29	- .01 + .00		+63.28	+63.29	+2.31	+ .57	+ .84	+ .22	- .25	- .27		- .25
											- .27	- .31		- .28
Nov. 17 $L' = +.007$														
23.9	+ .11	+65.71	$n_5 = -15$		+65.70									
23.8	+1.27	+65.88	+ .00		65.74									
23.6	+4.30	+66.11	+ .00		+66.11	+66.11	+4.19	+ .40	+3.03	+ .23	- .10	- .08		- .09
23.7	+2.37	+66.10			+66.10	+66.10	+2.26	+ .39	+1.10	+ .22	- .17	- .20		- .17
0.4	+1.90	+65.91			+65.91	+65.91	+1.79	+ .20	+ .63	+ .03	- .11	- .05		- .13
											- .11	- .08		- .11
0.1	-4.53	+65.16			+65.16	+65.16	-4.94	- .55	-6.10	- .72	- .11	- .11		- .11
12.5	-2.82	+65.58	+ .00 + .00		+65.58	+65.58	-2.93	- .13	-4.09	- .30	- .04	- .07		- .06
											- .08	- .09		- .08
Nov. 20 $L' = -.017$														
0.7	+ .16	+6.45	$n_5 = -25$		+6.41									
0.5	+1.47	+6.78	+ .00		6.44									
0.4	+1.90	+6.87	- .01 + .00		+6.86	+6.87	+1.74	+ .41	+ .43	+ .09	- .21	- .21		- .24
11.4	-2.75	+5.79	+ .28 + .32		+5.77	+5.77	-2.91	- .68	-4.22	-1.01	- .24	- .24		- .24
12.5	-2.82	+5.79	+ .00 + .00		+5.79	+5.79	-2.98	- .66	-3.29	- .99	- .22	- .24		- .22
											- .23	- .23		- .23
Nov. 21 $L' = -.013$														
0.2	+ .89	+6.42	$n_5 = -19$		+6.43									
0.4	+1.24	+6.67	+ .00		6.35									
0.2	+4.09	+7.64	+ .00		+7.64	+7.64	+4.00	+1.89	+2.85	+ .97	- .30	- .34		- .32
0.4	+1.90	+6.96			+6.96	+6.96	+1.81	+ .57	+ .66	+ .29	- .28	- .30		- .30
12.5	-2.82	+5.87	+ .00 + .00		+5.87	+5.87	-2.91	- .58	-4.06	- .80	- .20	- .20		- .20
														- .26
Nov. 22 $L' = -.026$														
23.8	+ .26	+6.16	$n_5 = -22$		6.09									
23.9	+ .89	+6.30	- .02		6.06									
23.0	+3.66	+7.40	- .02 + .00		+7.38	+7.40	+3.40	+1.22	+2.77	+1.08	- .36	- .39		- .38
1.0	+5.14	+7.05	+ .03 + .05		+7.08	+7.10	+4.88	+ .92	+4.25	+ .78	- .19	- .18		- .18
1.2	+4.253	+7.638	+ .04 + .06		+7.642	+7.644	+4.227	+10.26	+11.64	+10.12	- .24	- .24		- .24
											- .26	- .27		- .27
Nov. 24 $L' = -.043$														
23.1	+ .15	+5.75	$n_5 = -09$		5.72									
23.2	+ .89	+5.83	- .01		5.87									
23.1	+3.66	+6.28	+ .00 + .01		+6.28	+6.29	+3.51	+ .53	+2.77	+0.46	- .15	- .17		- .16
23.6	+4.30	+6.51	+ .02 + .03		+6.53	+6.54	+4.15	+ .78	+3.41	+ .71	- .19	- .21		- .20
22.4	-4.12	+5.11	- .03 - .02		+5.08	+5.09	-4.27	- .67	-5.01	- .74	- .16	- .15		- .18
											- .16	- .17		- .17

1675

Nov. 29 $L' = .065$
Ra. Lang. S. S. S. π RA

23.5	+ .23	+4.42	$\mu_5 = -.13$	+ 4.40
23.6	+1.19	+4.52	+ .03	4.44
24.0	+1.29	- 11		

23.6	+4.30	+4.93	+ .01	- .03	+4.94	+4.90	+4.07	+ .52	+3.03	+ .38	- .13	- .13	- .13
23.7	+2.37	+4.57	+ .01	- .02	+4.58	+4.55	+2.14	+ .16	+1.10	+ .03	- .08	- .03	- .08
0.1	+4.09	+4.79	+ .04	+ .01	+4.83	+4.80	+3.86	+ .41	+2.82	+ .28	- .11	- .10	- .10
											- .11	- .12	- .12

0.1	-4.83	+4.12	+ .04	+ .01	+4.16	+4.13	-5.06	- .26	-6.10	- .39	- .05	- .06	- .06	- .09
-----	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

Dec. 1 $L' = -.056$

0.4	- .08	+3.70	$\mu_5 = -.01$	3.70
0.6	+1.47	+3.67	+ .01	3.67

0.4	+1.90	+3.74	+ .00	- .01	+3.74	+3.73	+1.98	+ .04	+ .43	+ .06	- .02	- .14	- .02
-----	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

12.5	-2.82	+3.69	+ .01	+ .01	+3.70	+3.68	-2.74	+ .00	-4.29	+ .01	+ .00	+ .00	00	- .01
------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	----	-------

Dec. 2 $L' = .062$

22.1	+ .21	+6.293	$\mu_5 = .09$	6.292
22.3	+1.26	+6.302	+ .01	6.298
		- 5		

22.4	-4.12	+2.78	+ .02	+ .01	+2.80	+2.79	-4.33	- .13	-5.38	- .23	- .03	- .04	- .04	- .04
------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

Dec. 6 $L' = -.038$

0.9	+ .18	+0.08	$\mu_5 = -.03$	+0.06
0.2	+1.37	+ .15	- .03	- .06
		- .18		

22.4	-4.12	-0.42	- .08	- .07	-0.52	-0.49	-4.30	- .60	-5.49	- .64	- .14	- .12	- .13	- .13
------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

Dec. 12 $L' = +0.46$

2.2	+ .11	+1.01	-3.77	$\mu_5 = -.05$	-3.78
2.4	+1.01	+1.42	-3.71	- .01	-3.78
		- .06			

1.9	+3.05	+3.21	-3.62	+ .01	+ .02	-3.61	-3.60	+2.94	+ .16	+2.04	+ .11	- .06	- .05	- .06
2.1	+2.24	+2.45	-3.79	+ .00	+ .01	-3.79	-3.78	+2.13	- .02	+1.23	- .07	+ .01	+ .06	+ .06
2.3	+2.33	+2.53	-3.62	+ .00	+ .00	-3.62	-3.62	+2.22	+ .15	+1.32	+ .09	- .07	- .04	- .04
2.4	+3.13	+3.28	-3.63	- .01	+ .00	-3.64	-3.63	+3.02	+ .13	+2.12	+ .08	- .04	- .01	- .01
2.6	+2.39	+2.59	-3.73	- .02	- .01	-3.75	-3.74	+2.28	+ .02	+1.38	- .03	- .01	+ .02	- .05
												- .03	- .05	- .05

14.8	-3.65	-3.79	-4.41	- .13	- .02	-4.44	-4.43	-3.76	- .67	-4.66	- .72	- .18	- .16	- .17	- .06
------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

Dec. 13 $L' = +0.00$

1.8	+ .05	+1.00	-4.03	$\mu_5 = -.11$	-4.03
1.7	+1.00	+1.41	-3.92	+ .00	-4.01
		- 9			

0.4	+1.90	+2.15	-4.02	-4.02	-4.02	+1.85	+ .01	+ .90	- .10	- .01	- .10	- .10	- .09	- .08
1.5	+2.40	+2.60	-3.82	-3.82	-3.82	+2.35	+ .21	+1.40	+ .10	- .09	- .07	- .07	- .08	- .08
1.9	+3.05	+3.21	-3.78	-3.78	-3.78	+3.00	+ .25	+2.05	+ .14	- .10	- .07	- .07	- .08	- .08
										- .09	- .07	- .07	- .08	- .08

12.5	-2.82	-2.99	-4.32	+ .00	-4.32	-4.32	-2.87	- .29	-3.82	- .40	- .10	- .11	- .10	- .09
------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

845

ce 15 $h' = +.021$

RA tangd sec P.R.A

1.0 +.34

-4.97

 $m_s = -17$

-4.88

0.8 +.173

-4.74

4.77

0.9 +.121

-4.86

+00

1.2 +42.36

-2.16

+00 -01

-2.16

-2.17

+42.02

+2.81

+44.63

+2.57

-07

-06

-06

1.3 +2.41

-5.02

-01 -01

-5.03

-5.03

+2.07

-06

+ .88

- .29

+03

+04

+03

-01

-02

-02 -06

1876

Jan. 10 $L' = -.022$ RA temp. 8 sec. 5 π -RA

3.8	+1.16	-14.99	$m = -.04$ 5	-15.110																
2.6	+1.52	-14.90	03	14.99																
1.2	+42.58	-12.58	$b = .03$ 6	-12.64	-12.61	+42.42	+2.35	+41.06	+2.29	-53	-56									
3.3	-3.13	-15.07	-01 + 02	-15.08	-15.05	-3.29	-.09	-4.15	-.15	-03	-03									

Jan. 11 $L' = -.053$

3.9	+1.17	+1.02	-15.19	$m = +.12$ 5	-15.08															
2.5	+1.24	1.60	-15.25	07	-15.08															
1.2	+42.58	42.60	-22.14	-14 - 07	-22.28	-22.21	+42.41	-7.09	+41.34	-6.96	+17 - 10	+17 - 10	+07	+07	+07					
1.5	+3.15	3.31	-15.35	-13 - 05	-15.48	-15.40	+2.98	-.29	+1.91	-.15	+1.05	+1.05	+02	+02	+02					
1.4	-3.27	3.42	-14.45	-13 - 06	-14.58	-14.51	-3.44	+ .61	-4.51	+ .72	+18 - 13	+16 - 11	+05	+05	+05					
3.3	-3.13	3.27	-14.71	-03 + 04	-14.74	-14.67	-3.30	+ .45	-4.37	+ .58	+14 - 13	+13 - 11	+01	+02	+02					
3.8	-4.78	4.69	-14.68	-01 + 07	-14.09	-14.01	-4.95	+ 1.10	-6.02	+ 1.24	+22 - 12	+21 - 11	+10	+10	+10					
4.3	-4.02	4.13	-14.42	+02 + 10	-14.40	-14.32	-4.19	+ .79	-5.26	+ .93	+19 - 12	+18 - 11	+07	+07	+07					
13.2	-42.58	42.60	-7.90	$b = .04$ 44 + 57	-7.41	-7.33	-42.75	+ 7.78	-43.82	+ 7.92	+18 - 10	+18 - 10	+08	+08	+08					

Jan. 12 $L' = -.032$

3.6	+1.13	-15.40	$m = +.01$ 5	-15.39																
3.6	+1.48	-15.42	+00	-15.42	-15.42															
2.3	+2.34	-15.48	-04	-15.52	-15.52	+2.21	-.12	+ .86	-.10	+05	+12	+05	+05	+05	+05					
2.4	+3.13	-15.60	-04	-15.64	-15.64	+3.00	-.24	+ 1.65	-.22	+08	+13	+	+	+	+					
4.5	+3.92	-15.49	+03	-15.46	-15.46	+3.79	-.06	+ 2.44	-.04	+03	+02	+05	+02	+05	+05					
4.3	-4.02	-15.40	+02	-15.38	-15.38	-4.15	+ .02	-5.50	+ .04	+00	+00									

Jan. 13 $L' = -.040$

2.5	+1.29	+1.04	-15.77	$m = +.03$ 5	-15.76															
2.1	+1.21	+1.57	-15.78	-02	-15.74															
1.2	+42.58	-15.24	-05 - 04	-18.29	-18.28	+12.29	-7.52	+41.37	-2.50	+06	+06									
2.3	+2.34	+2.55	-15.88	-01 + 01	-15.89	-15.87	+2.05	-.12	+ 1.13	-.09	+06	+08								
2.4	+3.13	+3.29	-16.10	+00 + 01	-16.10	-16.09	+2.84	-.33	+ 1.02	-.31	+12	+16								
2.1	-4.76	-4.85	-15.89	-02 + 00	-15.91	-15.89	-5.05	-.14	-5.97	-.11	-03	-02								

Jan. 20 $L' = -.021$

4.2	+1.11	-18.91	$m = -.06$ 5	-18.92																
4.4	+1.10	-18.85	+00	-18.92																
2.4	+3.13	-18.68	-04 - 05	-18.72	-18.73	+3.02	+ .19	+2.03	+ .12	-06	-06									
4.5	+3.92	-18.83	+01 + 00	-18.82	-18.83	+3.81	+ .09	+2.82	+ .02	-02	-04									
4.7	+2.26	-18.75	+01 + 01	-18.74	-18.74	+2.15	+ .19	+1.16	+ .11	-08	-10									
4.3	-4.02	-19.15	+00 + 00	-19.15	-19.15	-4.13	-.24	-5.12	-.30	-06	-06									

1876

Jan. 24 $L' = -.043$
R.A. Temp. Sec. TR RA

14.8	+441	-20.66	-20.66						
4c. 14.9	+3.65	-20.42 + .00	-20.42	+3.21 + .24	-.08			-.08	
14.3	-2.34	-20.37 - .02	-20.39	-2.78 + .27	+ .10			+ .10	+ .01

Jan. 25 $L' = -.042$

15.6	+32	-20.98	-20.98						
4c. 14.9	+3.65	-20.97 - .03	-21.00	+3.33 - .02	+ .01			+ .01	
14.3	-2.34	-21.15 - .05	-21.20	-2.66 - .22	-.08			-.08	
14.4	-3.13	-20.78 - .05	-20.83	-3.45 + .15	+ .04			+ .04	
					-.02			-.02	-.01

Jan. 26 $L' = -.032$

4.1	+ .05 + 1.00	-21.16	$m_s = +.02$	21.16					
3.8	+1.31 + 1.65	-21.18 - .10	21.16						
3.1	+1.43 + 1.55	-21.24 - .03 - .02	-21.27	-21.26	+4.38 - .11	+3.12 - .08 + .03	+ .03		
5.4	+3.72 + 3.86	-21.44 + .04 + .05	-21.40	-21.39	+3.67 - .24	+2.41 - .21 + .07	+ .08		
						4.05 + .06	+ .05		
3.3	-3.13 - 3.29	-21.28 - .03 - .02	-21.31	-21.30	-3.18 - .15	-4.44 - .12 - .05 - .03	- .04		+ .02

Jan. 27 $L' = -.041$

5.0	-.02	-21.58	$m_s = +.06$	21.58					
3.2	+1.17	-21.58 - .07	21.67						
3.1	+1.43	-21.51 - .08 + .00	-21.59	-21.51	+4.45 - .01	+3.26 + .07 + .00 - .02	- .01		
3.3	-3.13	-21.67 - .07 + .00	-21.74	-21.67	-3.11 - .16	-4.30 - .09 - .05 - .02	- .04		-.02

Jan. 31 $L' = +.051$

4.0	+ .06	-23.16	$m_s = +.02$	23.16					
3.8	+1.31	-23.20 + .10	23.18						
3.8	-4.78	-23.12 + .01 + .00	-23.11	-23.12	-4.84 + .05	-6.09 + .08 + .01 + .01	+ .01		+ .01

Feb. 2 $L' = -.012$

5.0	-.03	-23.83	$m_s = +.06$	23.83					
4.9	+1.43	-23.92 + .00	23.79						
4.5	+3.92	-24.03 - .01 + .00	-24.04	-24.03	+3.95 - .21	+2.49 - .11 + .05 + .05	+ .05		
4.7	+2.26	-23.96 + .00 + .00	-23.96	-23.96	+2.29 - .13	+ .83 - .04 + .06 + .05	+ .06		
						+ .06 + .05	+ .05		
5.0	-7.34	-22.55 + .00 + .00	-22.55	-22.55	-7.31 + 1.28	-8.77 + 1.37 + .18 + .16	+ .17		+ .09

1876

Feb. 8 $L' = -.012$ RA Tang. S. sec. S π RA4.9 -.03 -27.02 $n_s = -.03$ 27.02

4.9 +1.05 -26.99 +.00 27.02

-3

4.5 +3.92 -26.93 -26.93 -26.93 +3.95 +.09 +2.87 +.06 -.02 -.02 -.02

4.7 +2.26 -26.85 -26.85 -26.85 +2.29 +.17 +1.21 +.14 -.07 -.12 -.07

-.04 -.02

5.0 -7.34 -27.02 +.00 -27.02 -27.02 -7.31 +.00 -8.39 -.03 +.00 +.00 +.00 -.03

Feb. 15 $L' = -.015$

18.6 +.18 -29.54 29.54

18. 15.3 +3.12 -29.48 -.05 -29.53 +2.94 +.06 -.02 -.02 -.02

Feb. 16 $L' = -.015$ 5.5 -.03 -29.64 $n_s = +.05$ 29.64

5.0 +.71 -29.67 -.01 29.68

5.4 +3.72 -29.66 +.00 +.01 -29.66 -29.65 +3.75 -.02 +3.01 +.02 +.01 -.01 00 00

Feb. 17 $L' = +.000$ 5.3 -.06 -29.77 $n_s = -.04$ 29.77

4.9 +1.21 -29.72 +.00 29.76

4.5 +3.92 -29.63 +.00 -29.63 -29.63 +3.98 +.14 +2.71 +.09 -.04 -.03 -.04

4.7 +2.26 -29.61 -29.61 -29.61 +2.32 +.16 +1.05 +.11 -.07 -.10 -.07

6.7 +20.75 -29.91 -29.91 -29.91 +20.81 -.14 +19.54 -.19 +.01 +.01 -.03 -.01 +.01 -.03

5.0 -7.34 -29.70 +.00 -29.70 -29.70 -7.28 +.07 -8.55 +.02 +.01 +.00 +.00 -.03

Feb. 19 $L' = -.011$ Morning

17.3 +2.41 -31.22 31.28

18. 17.0 +7.34 -29.57 +.00 -29.57 +7.10 +1.65 -.23 -.23 -.23

Feb. 20 $L' = -.034$

5.9 +.20 -30.34 30.39

18. 6.7 +20.75 -28.76 +.03 -28.73 +20.55 +1.64 -.08 -.08 -.08

4.3 -4.02 -30.97 -.05 -31.02 -4.22 -.65 -.15 -.15 -.15

Feb. 22 $L' = +.030$ 5.5 +.09 -31.38 $n_s = -.04$ 31.38

5.8 +1.44 -31.32 -.01 31.36

4.5 +3.92 -31.41 +.03 +.04 -31.38 -31.37 +3.83 +.00 +2.48 -.05 +.00 +.02 +.01

6.7 +20.75 -30.65 -.04 -.03 -30.69 -30.68 +21.66 +.69 +19.31 +.64 -.03 -.03 -.03

-.02 -.00

4.3 -4.02 -31.09 +.04 +.04 -31.05 -31.05 -4.11 +.33 -5.46 +.27 +.08 +.05 +.06

5.7 -3.12 -31.13 -.01 +.00 -31.14 -31.13 -3.21 +.24 -4.56 +.19 +.08 +.04 +.06

5.9 -4.32 -31.42 -.01 +.00 -31.43 -31.42 -4.41 -.05 -5.76 -.10 -.01 -.02 -.02

+.05 +.02

+.03 +.03 +.01

876

Feb. 23 $L' = +.027$

RA Longd. rec. T. RA

5.0 $-.04 +1.00$ -31.70 $m = -.04$ -31.70 5.0 $+1.22 +1.58$ $-31.65 +.01$ 31.66 4.7 $+2.26 +2.47$ $-31.70 +.01$ -31.70 -31.70 $+2.30$ $+ .00$ $+ 1.04$ $-.05$ $+ .00$ $+ .05$ 5.4 $+3.72 +3.86$ $-31.89 - .01$ -31.90 -31.90 $+3.76$ $-.20$ $+2.50$ $-.25$ $+ .05$ $+ .10$ 5.0 $-7.34 +7.41$ $-32.09 +.00$ -32.09 -32.09 -7.30 $-.39$ -8.56 $-.44$ $-.05$ $-.05$ Feb. 29 $L' = +.017$ 6.8 $+ .23 +1.03$ -34.84 $m = -.02$ -34.86 6.1 $+1.51 +1.81$ $-34.82 +.01$ 34.83 6.0 $+2.22 +2.44$ $-34.65 +.01 +.00$ -34.64 -34.65 $+1.99$ $+ .20$ $+ .71$ $+ .17$ $-.00$ $-.24$ 6.1 $+2.65 +2.83$ $-34.73 +.01 +.00$ -34.72 -34.73 $+2.42$ $+ .12$ $+1.14$ $+ .09$ $-.05$ $-.08$ 6.7 $+2.075$ $-33.61 +.00 - .01$ -33.61 -33.62 $+2.052$ $+1.23$ $+1.924$ $+1.20$ $-.06$ $-.06$ 5.7 $-3.12 -3.27$ $-35.12 +.02 +.01$ -35.10 -35.11 -3.35 $-.26$ -4.63 $-.29$ $-.08$ $-.06$ 5.9 $-4.32 -4.44$ $-35.12 +.02 +.00$ -35.10 -35.12 -4.58 $-.26$ -5.83 $-.30$ $-.06$ $-.05$ 6.2 $-16.83 -16.86$ $-36.97 +.01 +.00$ -36.96 -36.97 -17.06 -2.12 -18.34 -2.15 $-.12$ $-.12$ 7.8 $-53.39 -53.41$ $-40.40 - .02 - .03$ -40.42 -40.43 -53.62 -5.58 -54.90 -5.61 $-.10$ $-.10$ Mar. 5 $L' = +.021$ 7.1 $+ .53$ -37.89 37.94 Apr. 6.7 $+20.75$ $-36.71 +.01$ -36.70 $+20.20 +1.19$ $-.05$ 7.8 -53.39 $-45.41 - .01$ -45.42 $-53.94 -7.53$ $-.14$ Mar. 6 $L' = -.023$ 6.6 $+ .18$ -38.43 $m = -.15$ 38.46 6.7 $+1.33$ $-38.26 +.00$ 38.48 6.0 $+2.22$ $-37.98 - .01 - .02$ -37.98 -38.00 $+2.04$ $+ .44$ $+ .89$ $+ .26$ $-.22$ $-.30$ 6.1 $+2.65$ $-37.90 - .01 - .01$ -37.91 -37.91 $+2.47$ $+ .52$ $+1.32$ $+ .35$ $-.21$ $-.27$ 6.7 $+2.075$ $-35.18 +.00 +.00$ -35.18 -35.18 $+2.057$ $+3.25$ $+1.942$ $+3.08$ $-.16$ $-.16$ 5.7 -3.12 $-38.72 - .02 - .02$ -38.74 -38.74 -3.30 $-.31$ -4.45 $-.48$ $-.10$ $-.10$ 5.9 -4.32 $-39.08 - .02 - .02$ -39.10 -39.10 -4.50 $-.67$ -5.65 $-.84$ $-.15$ $-.15$ 6.4 -3.21 $-38.87 +.00 - .01$ -38.87 -38.88 -3.39 $-.44$ -4.54 $-.62$ $-.13$ $-.14$ 7.5 -5.32 $-39.09 +.02 +.02$ -39.07 -39.07 -5.50 $-.64$ -6.65 $-.81$ $-.12$ $-.12$ 7.8 -53.39 $-52.80 +.03 +.03$ -52.77 -52.77 -53.57 -14.34 -54.72 -14.51 $-.27$ $-.27$

1876
Mar. 7 $L' = -0.30$ RA tang. d. sec. d. π RA6.4 +.09 +1.00 -39.12 $\mu = -18 + 5$ -39.23

C = -10

6.5 +1.34 +1.67 -38.89 +00 -39.26

6.0 +2.22 +2.44 -38.50 -01 -02 -38.57 -38.52 +2.13 +.61 +.58 +.37 -29.77 -43.45 -22 -22

6.1 +2.65 +2.83 -38.50 -01 -01 -38.51 -38.51 +2.56 +.61 +1.31 +.38 -24.47 -30.49 -17 -17

6.7 +2.75 +2.80 -38.24 +01 +01 -38.23 -38.23 +2.06 +5.89 +19.41 +5.66 -29.40 -29.40 -19 -19

5.0 -7.34 -7.37 -40.85 -04 -05 -40.99 -41.00 -7.43 -1.87 -5.68 -2.11 -25.41 -24.40 -12 -12

5.9 -4.32 -4.44 -40.08 -02 -02 -40.10 -40.10 -4.41 -1.98 -5.66 -1.21 -22.42 -21.41 -10 -10

6.2 -16.83 -16.86 -43.78 -01 -01 -43.79 -43.79 -16.92 -4.67 -18.17 -4.90 -28.40 -27.40 -18 -18

6.4 -3.21 -3.36 -39.92 +00 +00 -39.92 -39.92 -3.30 -1.80 -4.55 -1.03 -24.45 -23.44 -11 -11

7.5 -5.32 -5.44 -44.42 +03 +03 -44.39 -44.39 -5.41 -1.27 -6.66 -1.50 -24.42 -23.41 -12 -12

7.8 -5.39 -5.41 -51.60 +04 +04 -51.76 -51.76 -5.48 -12.64 -5.473 -12.67 -24.42 -24.40 -14 -14

Mar. 13 $L' = -0.41$ 8.3 +.19 -41.85 $\mu = -0.5$ 41.86

7.6 +1.07 -41.78 -03 41.85

8.4 +3.50 -41.84 +00 +03 -41.84 -41.81 +3.31 +.01 +2.43 -03 +00 +01 +.00

6.7 +2.75 -40.58 -07 -04 -40.65 -40.62 +2.06 +1.20 +19.68 +1.16 -06 -06 -03 -03

6.2 -16.83 -42.34 -09 -06 -42.43 -42.40 -17.02 -1.58 -17.90 -06 -03 -03 -03

7.8 -53.39 -43.66 -02 +01 -43.68 -43.65 -53.58 -1.83 -54.46 -1.87 -03 -03 -03 -03

8.5 -3.61 -42.10 +01 +04 -42.09 -42.06 -3.80 -0.24 -4.68 -08 -06 -06 -06

Mar. 14 $L' = -0.24$ 6.3 +.07 -42.30 $\mu = -0.5$ 42.31

5.8 +1.03 -42.24 -01 42.33

5.4 +3.72 -41.75 -02 -01 -41.77 -41.76 +3.65 +.53 +2.69 +.48 -15 -15 -16 -16

7.7 +3.55 -42.18 +03 +05 -42.15 -42.13 +3.48 +.15 +2.52 +.11 -04 -04 -04 -04

8.4 +3.50 -42.16 +05 +06 -42.11 -42.10 +3.43 +.19 +2.47 +.14 -06 -06 -06 -06

5.0 -7.34 -44.47 -03 -02 -44.50 -44.49 -7.41 -2.20 -8.37 -2.25 -30.42 -29.41 -12 -12

7.8 -53.39 -45.57 +04 +05 -45.52 -45.52 -53.46 -3.23 -54.42 -3.28 -06 -06 -06 -06

8.5 -3.61 -42.65 +05 +06 -42.60 -42.59 -3.68 -0.30 -4.64 -03 -08 -08 -08

Mar. 15 $L' = -0.12$ 7.6 +.23 -42.89 $\mu = -0.5$ 42.90

8.2 +1.38 -42.86 +03 42.90

7.7 +3.55 -42.67 +00 -02 -42.67 -42.69 +3.32 +.22 +2.17 +.17 -07 -07 -08 -08

7.5 -5.32 -42.69 +00 -03 -42.69 -42.72 -5.53 +.20 -6.70 +.14 +04 +02 +03 +03

7.8 -53.39 -45.56 +01 -02 -45.55 -45.52 -53.62 -2.66 -54.77 -2.72 -05 -05 -05 -05

8.2 -4.45 -43.31 +03 +00 -43.28 -43.31 -4.68 -0.39 -5.83 -05 -08 -08 -08

1846

Mar. 30 $L' = +.000$

RA Long. 8 sec. 8 RA

9.6 +.15 1.01 -50.28 $m_s = -17.05$ 50.39

8.5 +.17 1.52 -50.11 +.00 50.38

 $C = -10$
 $[C = -70]$

8.4	+3.50	3.65	-49.78	+00	-49.78	-49.78	+3.35	+1.50	+2.33	+1.33	-15.42	-14.49	-10.7	-0.05	-0.06
9.0	+2.43	2.61	-49.88		-49.88	-49.88	+2.28	+1.40	+1.26	+1.23	-18.47	-19.49	-11	-	-11
9.3	+7.01	7.10	-48.76		-48.76	-48.76	+6.86	+1.52	+5.84	+1.35	-22.49	-23.49	-13	-114	-114
9.5	+2.72	2.90	-50.23		-50.23	-50.23	+2.57	+1.25	+1.55	+1.08	-10.47	-10.49	-03	-	-03
9.8	+3.37	3.50	-49.78		-49.78	-49.78	+3.22	+1.50	+2.20	+1.33	-16.48	-15.49	-08	-0.06	-0.07
													-08	-0.08	-0.08
7.8	-53.39	53.41	-62.39		-62.39	-62.39	-53.54	+12.11	-54.56	-12.28	-23.40	-22.40	-13	-12	-12
8.2	-4.45	4.58	-51.18		-51.18	-51.18	-4.60	+1.90	-5.62	-1.07	-20.42	-19.41	-08	-0.08	-0.08
8.5	-3.61	3.72	-51.34		-51.34	-51.34	-3.76	+1.06	-4.77	-1.23	-28.42	-26.44	-16	-1.15	-1.15
9.5	-2.75	2.92	-51.06		-51.06	-51.06	-2.90	+1.78	-3.92	-1.95	-27.43	-24.41	-14	-1.13	-1.14
9.7	-2.86	3.03	-51.83	+00 +.00	-51.83	-51.83	-3.01	+1.55	-4.03	-1.72	-32.43	-29.41	-15	-1.15	-1.12
															-1.10

Apr. 2 $L' = -.037$ 8.5 +.12 -51.84 $m_s = -22$ 51.47

8.8 +1.24 -51.62 +.01 51.88

6.7	+20.75	-46.70	-07 -08	-46.77	-46.78	+20.63	+5.07	+19.51	+4.84	-25	-25				-25
7.7	+3.55	-51.13	-03 -04	-51.16	-51.17	+3.43	+1.68	+2.31	+4.45	-20	-20				-20
8.4	+3.50	-51.09	+00 -01	-51.09	-51.10	+3.38	+1.75	+2.26	+1.52	-22	-23				-22
9.8	+3.37	-50.99	+05 +04	-50.94	-50.95	+3.25	+1.90	+2.13	+1.67	-28	-31				-29
										-24	-25				-24
6.2	-16.83	-53.23	-09 -09	-53.32	-53.32	-16.95	-3.48	-18.07	-3.70	-21	-20				-20
6.4	-3.21	-52.33	-08 -09	-52.41	-52.42	-3.33	-1.57	-4.45	-1.80	-17	-18				-18
7.8	-53.39	-62.14	-03 -04	-62.17	-62.18	-53.57	-10.33	-54.63	-10.56	-19	-19				-19
8.5	-3.61	-52.88	+00 -01	-52.88	-52.89	-3.73	-1.04	-4.85	-1.27	-28	-26				-27
9.7	-2.86	-52.39	+04 +03	-52.35	-52.36	-2.98	-1.51	-4.10	-1.74	-17	-18				-18
										-20	-20				-20

Apr. 6 $L' = +.011$ 9.4 +.10 +1.00 -54.39 $m_s = -13$ 54.40

9.3 +1.20 +1.56 -54.25 +00 54.36

8.4	+3.50	+3.65	-53.87	+01 +.01	-53.86	-53.86	+3.40	+1.53	+2.30	+1.39	-16	-17			-16
8.2	-4.45	-4.55	-54.14	+01 +.01	-54.13	-54.13	-4.55	+1.26	-5.65	+1.12	+06	+02			+04
9.7	-2.86	-3.03	-54.70	+00 +00	-54.70	-54.70	-2.96	-1.31	-4.06	-1.45	-11	-11			-11
10.1	-3.03	-3.18	-54.75	-01 -01	-54.76	-54.76	-3.13	-1.37	-4.23	-1.51	-12	-12			-12
										-07	-07				-06

Apr. 9 $L' = -.046$ 9.2 +.11 -56.00 $m_s = -13$ -56.01

9.1 +1.51 -55.82 +00 56.00

9.0	+2.43	-55.66	-01 +00	-55.67	-55.66	+2.32	+1.33	+1.92	+1.16	-14	-18				-14
9.3	+7.01	-55.18	+00 +01	-55.18	-55.19	+6.90	+1.82	+5.50	+1.65	-12	-12				-12
9.5	+2.72	-55.77	+01 +02	-55.76	-55.75	+2.61	+1.24	+1.21	+1.07	-09	-06				-09
9.8	+3.37	-55.46	+03 +03	-55.43	-55.43	+3.26	+1.57	+1.86	+1.39	-18	-21				-18
										-13	-12				-13
8.2	-4.45	-56.32	-05 -04	-56.37	-56.36	-4.56	-1.37	-5.96	-1.54	-08	-09				-08
9.5	-2.75	-56.27	+01 +02	-56.26	-56.25	-2.86	-1.26	-4.26	-1.43	-09	-10				-10
9.7	-2.86	-56.36	+02 +08	-56.34	-56.33	-2.97	-1.34	-4.37	-1.51	-12	-12				-12
										-10	-10				-10

8/6

Apr. 10 $L' = -.017$

RA Temp. Red T-RA

9.2 +.35 +1.06 -56.52 $m_s = -.113$ 56.60

9.5 +1.02 +1.03 -56.44 +.01 56.65

9.0 +2.43 +2.62 -56.06 +.00 -.01 -56.06 -56.07 +2.08 +.44 +1.41 +.37 -22 -26

9.8 +3.37 +3.52 -55.92 +.01 +.01 -55.91 -55.91 +3.02 +.61 +2.35 +.53 -20 -23

10.1 +4.12 +4.25 -55.90 +.02 +.02 -55.88 -55.88 +3.77 +.64 +3.10 +.56 -17 -18

Apr. 11 $L' = -.106$ -57.46 +.02 +.01 -57.44 -57.45 -3.38 -.92 -4.05 -1.01 -27 -25 -22 -218.8 +.23 -57.12 $m_s = -.20$ 57.19

9.3 +1.04 -56.96 +.00 57.26

9.0 +2.43 -56.52 +.00 -56.52 -56.52 +2.20 +.60 +1.39 +.44 -27 -32

9.3 +.701 -55.12 -55.12 -55.12 +6.78 +2.00 +5.97 +1.84 -30 -31

9.5 +2.72 -56.39 +.00 -56.39 -56.39 +2.49 +.73 +1.88 +.57 -29 -34

9.8 +3.37 -56.17 +.01 -56.16 -56.17 +3.14 +.96 +2.33 +.79 -31 -34

9.5 -2.75 -58.21 +.00 +.00 -58.21 -58.21 -2.98 -1.09 -3.79 -1.25 -37 -33

May 1 $L' = -.006$ 11.1 +.12 +1.01 -69.35 $m_s = -.39$ 69.39

10.3 +1.50 +1.83 -68.80 +.00 69.27

9.8 +3.37 +3.52 -68.21 -.01 +.00 -68.22 -68.21 +3.25 +1.13 +1.85 +.59 -35 -32

10.1 +4.12 +4.25 -68.08 +.00 +.00 -68.08 -68.08 +4.00 +1.27 +2.60 +.72 -32 -28

12.1 +4.83 +4.93 -67.97 +.01 +.01 -67.96 -67.96 +4.71 +1.39 +3.31 +.54 -30 -25

9.7 -2.86 -3.03 -70.00 -.01 +.00 -70.10 -70.09 -2.98 -.75 -4.38 -1.29 -25 -30

10.1 -3.03 -3.18 -70.31 -.01 +.00 -70.32 -70.31 -3.15 -.97 -4.55 -1.51 -31 -33

10.5 -3.27 -3.42 -70.35 +.00 +.00 -70.35 -70.35 -3.39 -1.00 -4.79 -1.55 -33 -32

May 3 $L' = -.031$ 22.3 +.76 -71.58 $m_s = -.07$

1.2 +42.35 -84.42 +.06 -84.36 +41.59 -12.78 -31 -31 -31

May 16 $L' = -.025$ 12.1 +.10 -80.90 $m_s = -.43$ 80.95

11.6 +1.44 -80.32 -.01 80.99

11.4 +2.75 -79.56 -.02 -.01 -79.58 -79.57 +2.65 +1.32 +1.31 +.75 -50 -58

12.1 +4.83 -78.72 +.00 +.01 -78.72 -78.71 +4.73 +2.18 +3.39 +1.61 -46 -48

12.5 +2.82 -79.56 +.01 +.02 -79.55 -79.54 +2.72 +1.35 +1.38 +.78 -50 -57

11.6 -4.31 -82.47 -.01 +.00 -82.48 -82.47 -4.41 -1.58 -5.75 -2.15 -36 -37

13.0 -5.15 -83.21 +.02 +.03 -83.19 -83.18 -5.25 -2.29 -6.59 -2.86 -44 -43

13.2 -42.35 -101.73 +.03 +.04 -101.70 -101.69 -42.45 -20.80 -43.79 -21.37 -49 -49

John G. Wollbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1876

July 12 $L' = +0.67$

RA Temp. 5 sec

RA

15.6 $+0.01$
 $+0.01 +1.00$ $+11.82$ $m_5 = -83 + v$ 11.74 $C = -0.7$ 15.6 $+1.12 +1.34$ $+12.74 +1.00$ $+12.74$ 11.68

14.9	+3.65 +3.79	+15.30 +0.5	+15.35	+15.35	+3.64	+3.53	+2.83 +2.61	-97.46	-96.103 +8	-91	-95	-93
15.2	+2.45 +2.65	+13.95 +0.3	+13.98	+13.98	+2.44	+2.16	+1.53 +1.24	-89.45	-81.83 +4	-84	-	-84
15.3	+3.12 +3.27	+14.48 +0.2	+14.50	+14.50	+3.11	+2.68	+2.80 +1.76	-86.46	-81.88 +7	-80	-81	-80
15.8	+4.77 +4.89	+16.26 -0.1	+16.25	+16.25	+4.76	+4.43	+3.85 +3.57	-93.46	-91.86 +7	-87	-89	-88
16.2	+4.07 +4.19	+15.59 -0.4	+15.55	+15.55	+4.06	+3.73	+3.15 +2.81	-92.45	-89.93 +7	-87	-88	-88
										-86	-88	-87
												-87

July 13 $L' = +0.20$ 15.7 $+1.02$ $+12.95$ $m_5 = -89$ 12.8315.7 $+1.19$
 $+1.28$ $+13.98 +1.02$ 12.91

14.9	+3.65	+16.31 +0.2 +0.0	+16.33	+16.31	+3.63	+3.38	+2.46 +2.34	-93	-95	-94
15.2	+2.45	+15.24 +0.1 -0.1	+15.25	+15.23	+2.43	+2.30	+1.26 +1.26	-95	-100	-95
15.3	+3.12	+15.67 +0.1 -0.1	+15.68	+15.66	+3.10	+2.73	+1.93 +1.69	-88	-88	-88
15.8	+4.77	+17.24 +0.0 -0.2	+17.24	+17.22	+4.75	+4.29	+3.58 +3.25	-90	-91	-90
								-91	-93	-92
13.2	-42.25	-24.58 +0.5 +0.3	-24.53	-24.55	-42.27	-37.48	-43.44 -38.52	-89	-89	-89
15.1	-4.42	+8.88 +0.1 -0.1	+8.89	+8.87	-4.44	-2.84	5.61 -2.84	-91	-91	-91
							-5.10	-90	-90	-90

July 14 $L' = +0.54$ 15.9 $+1.12$ $+17.62$ $m_5 = -82$ 17.5215.9 $+1.03$
 $+1.14$ $+18.37$
 $+16.44 +1.00$ 17.48

14.9	+3.65	+20.45 +0.5	+20.50	+20.50	+3.53	+2.88	+2.62 +2.13	-82	-81	-82
15.2	+2.45	+19.39 +0.4	+19.63	+19.63	+2.33	+2.01	+1.42 +1.26	-86	-89	-86
15.3	+3.12	+20.11 +0.3	+20.14	+20.14	+3.00	+2.52	+2.09 +1.74	-84	-85	-84
15.8	+4.77	+21.81 +0.1	+21.82	+21.82	+4.65	+4.20	+3.74 +3.45	-90	-92	-91
16.5	+2.61	+19.82 -0.3	+19.79	+19.79	+2.19	+2.14	+1.58 +1.42	-87	-90	-87
17.0	+7.34	+24.15 -0.6	+24.09	+24.09	+7.22	+6.47	+6.31 +5.72	-90	-91	-90
								-86	-87	-87
13.2	-42.25	-19.30 +1.5	-19.15	-19.15	-42.37	-36.77	-43.28 -37.52	-87	-87	-87
15.1	-4.42	+13.85 +0.4	+13.89	+13.89	-4.54	-3.57	5.45 -3.57	-82	-82	-82
17.0	-5.18	+13.04 -0.6	+12.98	+12.98	-5.30	-4.60	6.21 -3.25	-87	-87	-87
							-5.39	-85	-85	-85

July 19 $L' = +0.55$ 16.2 $+1.01 +1.00$ $+19.70$ $m_5 = -86 +3$ 19.62 $C = -0.7$ 15.8 $+1.12 +1.50$ $+20.64 +0.3$ 19.58

14.9	+3.65 +3.79	+22.90 +0.7 +0.4	+22.97	+22.94	+3.64	+3.27	+2.53 +2.31	-90.45	-91.47	-85	-84	-84
15.3	+3.12 +3.27	+22.48 +0.5 +0.2	+22.53	+22.50	+3.11	+2.83	+2.00 +1.87	-91.45	-92.46	-86	-88	-87
15.8	+4.77 +4.89	+24.44 +0.2 -0.1	+24.46	+24.43	+4.76	+4.76	+3.65 +3.60	-100.46	-104.47	-94	-97	-96
16.2	+4.07 +4.19	+23.56 +0.0 -0.3	+23.56	+23.53	+4.06	+3.86	+2.95 +2.90	-95.45	-98.46	-90	-92	-91
16.5	+2.61 +2.79	+21.97 -0.2 -0.5	+21.95	+21.92	+2.60	+2.25	+1.49 +1.29	-87.45	-87.46	-82	-	-82
17.0	+7.34 +7.41	+26.57 -0.4 -0.8	+26.53	+26.49	+7.33	+6.83	+6.22 +5.84	-93.46	-94.47	-87	-87	-87
										-87	-89	-88
13.2	-42.25 -42.27	-19.88 +1.6 +1.3	-19.72	-19.75	-42.26	-39.42	-43.37 -40.38	-93 +7	-93 +7	-86	-86	-86
												-88

[illegible]

1876

Aug. 2 $L' = -0.40$ RA Tang. S sec 5 π RA17.3 +.24 +1.03 +5.98 $m = -7.9 + 5$ 5.68 $C = -10$

16.9 +1.01 +1.42 +6.61 -0.2 5.60

17.0 +7.34 +7.01 +12.89 -01 +00 +12.88 +12.89 +7.10 +6.90 +6.33 +6.28 -97 +9 -99 +9 -88 -90 -89

16.5 -3.92 -4.05 +2.17 -03 -02 +2.14 +2.15 -4.16 -3.84 -4.93 -4.46 -92 +12 -91 +11 -80 -80 -80

17.2 -5.18 -5.29 +0.75 -01 +00 +0.74 +0.75 -5.42 -5.24 -6.19 -5.86 -97 +12 -95 +11 -85 -84 -84

-88 -82 -82 -84

Aug. 3 $L' = -0.36$

17.3 +.20 +6.86 +6.68

17.0 +7.34 +13.27 -01 +13.26 +7.14 +6.40 -90 -90

18.2 +16.88 +21.55 +03 +21.58 +16.68 +14.72 -88 -88

18.4 +3.21 +9.53 +04 +9.57 +3.01 +2.91 -90 -90

16.5 -3.92 +3.07 -03 +3.04 -4.12 -3.82 -93 -93

17.4 -3.92 +3.57 +00 +3.57 -3.92 -3.29 -84 -84

18.7 -20.68 -11.17 +05 -11.12 -20.88 -17.98 -86 -86

-88 -88 -88

Aug. 5 $L' = -0.50$ 17.4 +.17 +8.90 $m = -9.0$ 8.75

17.6 +1.17 +9.79 +01 8.74

17.0 +7.34 +15.38 -02 -03 +15.36 +15.35 +7.17 +6.46 +6.17 +5.56 -90 -90

17.5 +2.50 +10.97 +01 -01 +10.98 +10.96 +2.33 +2.08 +1.33 +1.17 -89 -88

17.6 +2.58 +11.05 +01 +00 +11.06 +11.05 +2.41 +2.16 +1.41 +1.26 -90 -89

18.2 +16.88 +24.21 +04 +03 +24.25 +24.24 +16.71 +15.35 +15.71 +14.45 -92 -92

16.5 -3.92 +5.16 -04 -06 +5.12 +5.10 -4.09 -3.78 -5.09 -4.69 -92 -92

17.4 -3.92 +5.23 +00 -01 +5.23 +5.22 -3.89 -3.67 -4.89 -4.67 -94 -94

-93 -93 -93 -91

Aug. 6 $L' = +0.50$ 17.3 +.24 +10.02 $m = 10.5$ 9.77

18.0 +1.12 +10.98 -04 9.76

17.0 +7.34 +17.73 +02 +05 +17.75 +17.78 +7.10 +7.73 +6.22 +6.80 -97 -1.10

17.5 +2.50 +12.31 -01 +03 +12.30 +12.34 +2.26 +2.28 +1.38 +1.36 -100 -99

18.2 +16.88 +27.58 -04 -01 +27.64 +27.67 +16.64 +17.52 +15.76 +16.59 -105 -105

18.4 +3.21 +13.21 -06 -02 +13.15 +13.19 +2.97 +3.13 +2.09 +2.21 -106 -106

-1.05 -1.07 -1.05

17.0 -5.18 +4.39 +02 +05 +4.41 +4.44 -5.42 -5.61 -6.30 -6.54 -104 -104

17.4 -3.72 +5.89 -01 +03 +5.88 +5.92 -3.96 -4.14 -4.84 -5.06 -105 -105

18.7 -20.68 -12.03 -07 -04 -12.10 -12.07 -20.92 -22.12 -21.80 -23.05 -106 -106

-1.05 -1.05 -1.05 -1.05

Aug. 8 $L' = +0.65$ 17.3 +.24 +12.43 $m = -1.00$ 12.17

17.9 +1.05 +13.28 -04 12.11

17.0 +7.34 +24.03 +02 +06 +24.05 +24.09 +7.10 +7.62 +6.29 +6.81 -107 -108

17.5 +2.50 +14.84 -01 +04 +14.83 +14.88 +2.26 +2.40 +1.45 +1.60 -106 -110

18.2 +16.88 +30.29 -06 -02 +30.23 +30.27 +16.64 +17.50 +15.83 +16.99 -107 -107

-1.07 -1.08 -1.07

17.2 -3.72 +8.22 -01 +03 +8.21 +8.25 -3.96 -4.22 -4.77 -5.03 -107 -106

18.7 -20.68 -10.79 -09 -05 -10.88 -10.84 -20.92 -23.31 -21.73 -24.12 -111 -111

-1.09 -1.08 -1.08 -1.08

1876 aug 9. $\Delta' = +.035$
RA $\tan \delta$ sec δ T-RA

[illegible]

Aug. 10 $h' = +.040$

17.3	+ .24	+14.78 - .25	$m = -.87$ 5	14.53							
18.0	+ .92	+15.140 - .97	- .03	14.40							
17.0	+ 7.34	+22.54	+ .01 + .01	+22.55	+22.58	+ 7.10	+ 7.77	+ 6.42	+ 7.77 + 7.18	- 1.10 - 1.12	- 1.11
17.5	+ 2.50	+17.16	- .01 + .02	+17.15	+17.18	+ 2.20	+ 2.37	+ 1.58	+ 2.27 + 1.78	- 1.05 - 1.13	- 1.05
18.2	+ 16.88	+32.51	- .04 - .01	+32.47	+32.50	+ 16.64	+ 17.69	+ 15.96	+ 17.69 + 17.10	- 1.06 - 1.07	- 1.06
18.4	+ 3.21	+17.77	- .04 - .02	+17.73	+17.75	+ 2.97	+ 2.95	+ 2.29	+ 2.98 + 2.35	- 1.00 - 1.03	- 1.02
										- 1.05 - 1.07	- 1.06
18.7	- 20.68	- 6.15	- .06 - .03	- 6.21	- 6.18	- 20.92	- 20.99	- 21.60	- 20.92 - 21.58	- 1.02 - .99	- 1.02

Aug. 12 $L' = +.068$

[illegible]

Aug 13 $L' = +0.14$

[illegible]

Aug. 15 $h' = +.014$

[illegible]

1876											
Aug. 21 $L' = -0.20$											
R.R. Temp. Sec. S		T.R.R.									
17.4	+1.18	+74.83	$n_5 = -96$	74.66							
18.2	+1.25	+75.84	+02	74.66							
		-1.20									
17.0	+7.34	+82.01	-01 -03	+82.00	+81.98	+7.16	+7.17	+6.09	+6.14	-1.00	-1.01
17.6	+2.58	+77.06	+00 -02	+77.06	+77.04	+2.40	+2.23	+1.33	+1.20	-0.93	-0.90
17.7	+3.12	+77.73	+01 -01	+77.74	+77.72	+2.94	+2.91	+1.87	+1.88	-0.99	-1.00
17.9	+4.32	+78.64	+01 -01	+78.65	+78.63	+4.14	+3.82	+3.07	+2.79	-0.92	-0.91
18.2	+16.88	+91.25	+02 +00	+91.27	+91.25	+16.70	+16.44	+15.83	+15.41	-0.98	-0.99
										-0.96	-0.97
18.7	-20.68	+54.71	+03 +01	+54.74	+54.72	-20.86	-20.09	-21.93	-21.12	-0.96	-0.96
											-0.96
Aug. 22 $L' = -0.10$											
17.4	+1.18 +1.02	+75.20		75.05							
		-1.15									
17.6	+2.58 +2.76	+77.20	+00	+77.20		+2.40	+2.00			-0.84	
17.7	+3.12 +3.27	+77.75	+00	+77.75		+2.94	+2.55			-0.86	
										-0.85	
Aug. 23 $L' = +0.10$											
17.4	+1.18	+75.55	$n_5 = -95$	75.38							
18.4	+1.25	+76.58	-01	75.38							
		-1.19									
17.6	+2.58	+77.78	+00 +01	+77.78	+77.70	+2.40	+2.23	+1.33	+1.21	-0.93	-0.91
18.2	+16.88	+91.09	-01 +00	+91.08	+91.09	+16.70	+15.53	+15.63	+13.51	-0.93	-0.93
18.9	+2.93	+78.28	-02 +00	+78.26	+78.28	+2.75	+2.71	+1.68	+1.70	-0.99	-1.00
										-0.95	-0.93
18.7	-20.68	+53.70	-01 +00	+53.69	+53.70	-20.86	-19.86	-21.93	-20.88	-0.95	-0.95
											-0.95
Aug. 26 $L' = +0.06$											
19.2	+1.14	+77.76	$n_5 = -1.07$	77.61							
19.0	+1.00	+78.68	+0.01	77.62							
		-1.06									
17.9	+4.32	+82.13	+01 +01	+82.14	+82.14	+4.18	+4.38	+3.32	+3.46	-1.05	-1.04
18.2	+16.88	+95.87	+01 +00	+95.88	+95.87	+16.74	+18.12	+15.88	+17.19	-1.08	-1.08
19.8	+53.85	+134.57	+00 +00	+134.57	+134.57	+53.71	+56.81	+52.85	+55.89	-1.06	-1.06
										-1.06	-1.06
Aug. 28 $L' = -0.05$											
18.5	+1.14	+78.70		78.53							
		-1.18									
17.6	+2.58	+81.30	+00	+81.30		+2.44	+2.60			-1.07	
18.2	+16.88	+96.60	+00	+96.60		+16.74	+17.90			-1.07	
19.8	+53.85	+134.63	+0.01	+134.64		+53.71	+55.94			-1.04	
										-1.06	
18.7	-20.68	+58.23	+0.01	+58.23		-20.82	-20.47			-0.98	
											-1.04
Aug. 29 $L' = -0.13$											
17.8	+2.0 +1.02	+79.04	$n_5 = -93$	78.84							
		-2.0									
18.2	+1.78 +1.27	+79.57	+01	78.80							
		-1.18									
18.2	+16.88	+96.73	+01 +00	+96.74	+96.73	+16.88	+17.70	+16.10	+17.16	-1.06	-1.06
18.9	+2.93 +3.10	+81.62	+01 +01	+81.63	+81.63	+2.73	+2.59	+2.15	+2.06	-0.95	-0.96
										-1.00	-1.01
18.7	-20.68 -20.70	+58.83	+01 +01	+58.84	+58.84	-20.88	-20.20	-21.46	-20.73	-0.97	-0.97
											-1.00

19.30 $L' = -0.16$

Aug. 8 m.d. 1722

19.2 +.15 +79.19 $n = -1.05$ +79.04
 19.4 +1.26 +80.36 +.00 79.06

18.2 +16.88 -1.30 +96.24 -0.02 -0.02 +96.22 +96.22 +16.73 +17.03 +15.62 +15.86 -1.02 -1.02 -1.02
 18.9 +2.93 +82.02 +.00 -0.01 +82.02 +82.01 +2.78 +2.83 +1.67 +1.65 -1.02 -0.99 -1.02
 19.2 +2.41 +81.60 +.00 +.00 +81.60 +81.60 +2.26 +2.41 +1.15 +1.24 -1.07 -1.08 -1.07
 19.8 +53.85 +134.14 +.01 +.01 +134.15 +134.15 +53.70 +53.96 +52.59 +53.79 -1.02 -1.02 -1.02

18.7 -20.68 +58.64 -0.01 -0.01 +58.63 +58.63 -20.83 -20.56 -21.94 -21.73 -1.00 -1.00 -1.00
 -1.03 -1.02 -1.03

Sept. 2 $L' = +0.16$

19.7 +.16 +179.2 $n = -1.06$ 177.5
 19.7 +1.34 +19.17 +19.21 +.00 177.9
 -1.35

18.2 +16.88 +35.28 +.02 +35.30 +35.30 +16.72 +17.38 +15.54 +16.13 -1.04 -1.04 -1.04
 18.7 -20.64 -4.02 +.02 -4.00 -4.00 -20.83 -21.92 -22.01 -23.17 -1.05 -1.05 -1.05
 -1.04

Sept. 3 $L' = -0.06$

18.8 +.09 +175.6 $n = -1.01$ 174.7
 18.8 +1.68 +19.17 +.00 174.4
 -1.73

18.2 +16.88 +35.32 +.00 +35.32 +35.32 +16.79 +17.76 +15.20 +16.15 -1.06 -1.06 -1.06
 19.8 +53.85 +73.67 +.01 +73.68 +73.68 +53.76 +56.12 +52.17 +54.51 -1.04 -1.04 -1.04
 -1.05 -1.05 -1.05
 18.7 -20.67 -3.23 +.00 -3.23 -3.23 -20.76 -20.79 -22.35 -22.40 -1.00 -1.00 -1.00
 -1.03

Sept. 6 $L' = +0.00$

19.6 +.09 +16.14 $n = -0.97$ 16.05
 18.8 +1.68 +17.69 +.00 +17.69 16.06
 -1.63

18.2 +16.88 +33.07 +33.07 +16.79 +16.93 +15.20 +15.38 -1.01 -1.01 -1.01
 18.9 +2.93 +19.00 +19.00 +2.82 +2.86 +1.23 +1.31 -1.00 -1.00 -1.00
 19.8 +53.85 +66.85 +66.85 +53.76 +50.71 +52.17 +49.16 -0.94 -0.94 -0.94
 -0.98 -0.98 -0.98
 18.7 -20.67 -3.05 +.00 -3.05 -3.05 -20.76 -19.19 -22.35 -20.74 -0.92 -0.92 -0.92
 -0.97

Oct. 2 $L' = -0.20$

20.7 +.10 +2.37 $n = -0.85$ 2.28
 20.3 +1.30 +3.40 -0.01 2.22
 -1.17

18.9 +2.93 +4.97 -0.01 -0.03 +4.93 +4.94 +2.83 +2.56 +1.63 +1.54 -0.91 -0.95 -0.91
 21.4 +2.75 +5.05 +.01 +0.02 +5.06 +5.07 +2.65 +2.69 +1.45 +1.67 -1.01 -1.05 -1.01
 -0.96 -1.05 -0.96
 18.7 -20.67 -14.51 -0.01 -0.03 -14.55 -14.54 -20.77 -16.92 -21.97 -17.94 -0.81 -0.81 -0.81
 21.4 -2.80 -0.18 +.01 +0.02 -0.17 -0.16 -2.90 -2.54 -4.10 -3.56 -0.88 -0.87 -0.88
 -0.85 -0.84 -0.84

1976
Oct. 15 $h' = -0.04$

RA tangd secd TRA

20.8 +.11 -2.16 $n_5 = .70$ -2.24
-8
21.2 +1.16 -1.43 +.00 -2.27
-84

19.8 +53.96 +38.56 +.00 -.01 +38.56 +38.55 +53.65 +40.72 +52.80 +39.98 -.76 -.76 ✓
21.4 +2.75 -0.27 +.00 +.00 -0.27 -0.27 +2.64 +1.69 +1.59 +1.16 -.72 -.73 ✓
-74 -76

21.4 -2.80 -4.17 +.00 +.00 -4.17 -4.17 -2.91 -2.01 -3.96 -2.74 -.69 -.69
-69 -72

Oct. 16 $h' = -0.09$

20.8 +.18 -2.41 $n_5 = -.62$ -2.53
-12
20.8 +1.16 -1.80
+1.23 -1.74 +.00 -2.58
-1.88

19.8 +53.98 +33.72 -.01 +33.71 +33.71 +53.80 +36.12 +52.82 +35.51 -.69 -.69
20.2 +4.45 +0.39 -.01 +0.38 +0.38 +4.27 -2.79 +3.29 +2.18 -.65 -.66
-66 -66
-66 -66

Oct. 17 $h' = -0.035$

20.5 +.17 -2.81 $n_5 = -.68$ -2.93
-12
21.5 +1.37 -2.04 +.04 -2.98
-58

19.8 +53.96 +33.94 -.02 -.06 +33.92 +33.88 +53.79 +36.73 +52.59 +35.92 -.68 -.68
20.2 +4.45 +0.50 -.01 -.05 +0.49 +0.45 +4.28 +3.30 +3.08 +2.69 -.77 -.81
21.4 +2.75 -1.01 +.03 +.00 -0.98 -1.01 +2.58 +1.83 +1.38 +1.03 -.71 -.75 ✓
22.1 +3.03 -0.91 +.06 +.02 -0.85 -0.89 +2.86 +1.96 +1.66 +1.15 -.88 -.69 ✓
-71 -74

21.4 -2.80 -4.99 +.03 +.00 -4.96 -4.99 -2.97 -2.15 -4.17 -2.95 -.80 -.71
-72 -72

Oct. 18 $h' = -0.020$

20.8 +.13 -3.43 $n_5 = -.68$ -3.51
-8
21.4 +1.52 -2.50 +.01 3.46
-97

19.8 +53.96 +30.86 +30.85 +53.83 +34.29 +52.44 +33.35 -.64 -.64
32.2 42.58 -32.86

Oct. 19 $h' = -0.025$

21.1 +.08 -4.15 $n_5 = -.77$ 4.21
-6
22.2 +1.42 -3.15 +.03 4.23
-1.11

19.8 +53.98 +36.44 -.03 -.06 +36.41 +36.38 +53.90 +40.56 +52.56 +39.53 -.75 -.75

22.4 -4.12 -7.55 +.03 +.01 -7.52 -7.54 -4.20 -3.37 -5.54 -4.39 -.80 -.79
-80 -78

Oct. 24 $h' = -0.027$

22.7 +.10 -6.35 $n_5 = -.94$ 6.44
-9
23.0 +.46 -6.02 +.01 6.42
-41

22.5 +3.27 -3.62 -.01 -.01 -3.63 -3.63 +3.17 +2.72 +2.81 +2.39 -.86 -.85
22.7 +2.20 -4.47 +.00 -.01 -4.47 -4.48 +2.10 +1.88 +1.74 +1.54 -.90 -.89 ✓
23.0 +3.66 -3.05 +.01 +.00 -3.04 -3.05 +3.56 +3.31 +3.20 +2.97 -.93 -.93
23.6 +4.31 -2.45 +.02 +.02 -2.43 -2.43 +4.21 +3.92 +3.85 +3.69 -.93 -.93
-90 -90

13.2 -42.58 -40.82 +.06 +.01 -40.76 -40.76 -42.65 -34.41 -43.06 -34.74 -.81 -.81
-81 -89

1876

Oct. 25 $L' = +.000$

RA tangd recd

P.L.A.

21.3 +.19

-6.63

 $w = -.79$

-6.78

21.7 +.123

-5.81

+.00

6.78

21.1 +4.56

-3.08

-3.08

-3.08

+4.37

+3.55

+3.33

+2.73

-.81

-.82

-.82

22.5 +3.27

-4.28

-4.28

+3.08

+2.35

+2.04

+1.53

-.76

-.75

-.76

22.7 +2.20

-5.04

+.00

-5.04

-5.04

+2.01

+1.59

+.97

+.77

-.79

-.80

-.79

-.79

Oct. 28 $L' = -.008$

10.0 +.22

-8.64

-15

-8.79

13.2 -42.58

-36.92

+.03

-36.89

-42.80 -25.25

-.66

-.66

-.66

Oct. 29 $L' = -.014$

20.7 +.21

-8.91

-15

 $w = -.66$

9.06

21.7 +.106

-8.36

+.01

9.09

19.8 +53.98

+26.47

-.01

-103

+26.46

+26.44

+53.77

+35.37

+52.92

+34.80

-.66

-.66

-.66

20.2 +4.45

-5.90

-.01

-102

-5.91

-5.92

+4.24

+3.00

+3.39

+2.04

-.71

-.72

-.72

22.5 +3.27

-6.93

+.03

+.01

-6.90

-6.92

+3.06

+2.01

+2.21

+1.44

-.66

-.65

-.65

22.7 +2.20

-7.62

+.03

+.01

-7.59

-7.61

+1.99

+1.32

+1.14

+.75

-.66

-.66

-.66

23.0 +3.66

-6.55

+.03

+.02

-6.52

-6.53

+3.45

+2.39

+2.60

+1.83

-.69

-.71

-.71

23.6 +4.31

-6.06

+.04

+.03

-6.02

-6.03

+4.10

+2.89

+3.25

+2.33

-.71

-.72

-.72

23.7 +2.37

-7.36

+.04

+.03

-7.32

-7.33

+2.16

+1.59

+1.31

+1.03

-.74

-.79

-.79

23.4 -2.75

-11.06

+.04

+.02

-11.02

-11.04

-2.96

-2.11

-3.81

-2.18

-.71

-.71

-.71

Oct. 30 $L' = +.009$

22.8 +.34

106

-9.10

 $w = -.84$

-9.37

 $C = -10$

20.6 +1.41

173

-8.22

-8.22

9.21

 $C_0 = -1.60$

21.4 +4.24

-17

-1.11

+.02

9.21

19.8 +53.98

54.00

+38.60

+.03

+.01

+38.63

+38.61

+53.64

+47.73

+52.57

+46.83

-.89

-.89

22.5 +3.27

3.42

-6.48

+.00

-102

-6.48

-6.50

+2.93

+2.62

+1.86

+1.72

-.82

-.82

22.7 +2.20

2.41

-7.23

+.00

-102

-7.23

-7.25

+1.86

+1.87

+.79

+.97

-1.00

-1.23

23.0 +3.66

3.39

-6.29

+.00

-102

-6.29

-6.31

+3.32

+2.81

+2.25

+1.91

-.85

-.85

Oct. 31 $L' = +.008$

22.0 +.07

101

-10.17

 $w = -.83$

10.32

 $C = -10$

22.3 +1.34

1.65

-9.12

+.00

10.36

 $C_0 = -1.60$

22.1 +3.03

3.18

-7.50

+.00

+.00

-7.50

-7.50

+2.96

+2.67

+1.69

+1.62

-.94

-.96

22.5 +3.27

3.42

-7.50

+.00

-7.50

-7.50

+3.20

+2.67

+1.93

+1.62

-.84

-.84

-.84

22.7 +2.20

2.41

-8.33

-.01

-8.34

-8.34

+2.13

+1.83

+.86

+.78

-.86

-.91

-.91

22.4 -4.12

4.25

-14.20

+.00

+.00

-14.20

-14.20

-4.19

-4.03

-5.46

-5.08

-.96

-.93

46

Nov. 4 $L' = +0.30$

RA tang. d rec. d PRA

 $C = -10$ 23.4 +.14 +1.01 -12.50 $m = -85 + 5$ -13.01

21.2 +1.29 +1.63 -11.89 +.07 -11. 13.02

19.8 +53.98 +41.24 +.10 +.04 +41.34 +41.31 +53.84 +54.17 +52.69 +53.20 -1.01 +.10 1.01 +.10 -9.0 -9.1 -9.0
 20.2 +4.45 +4.55 -9.08 +.10 +.03 -8.98 -9.05 +4.31 +3.82 +3.16 +2.84 -8.94 -9.04 -8.1 -8.0 -8.0
 23.0 +3.66 +3.79 -9.50 +.01 -0.05 -9.79 -9.85 +3.52 +3.01 +2.37 +2.04 -8.68 -8.66 +.9 -7.8 -7.7 -7.8
 23.6 +4.31 +4.41 -9.13 -0.1 -0.07 -9.14 -9.20 +4.17 +3.66 +3.02 +2.69 -8.84 -8.94 -8.0 -8.0 -8.0
 23.7 +2.37 +2.57 -10.95 -0.1 -0.08 -10.96 -11.03 +2.23 +1.84 +1.08 +.86 -8.34 -8.54 -7.6 -7.1 -7.4

23.4 -2.75 -2.92 -15.67 +.00 -0.07 -15.67 -15.74 -2.89 -2.87 -4.04 -3.85 -9.94 +3 -9.54 +1 -8.6 -8.4 -8.5 -8.1

Nov. 5 $L' = +0.44$ $C = -10$ 22.8 +.14 +1.01 -13.28 $m = -82 + 6$ 13.50

21.6 +1.48 +1.79 -12.24 +.06 13.59

19.8 +53.98 +41.13 +.14 +.08 +41.27 +41.21 +53.84 +54.55 +52.50 +53.45 -1.01 +.10 1.02 +.10 -9.1 -9.2 -9.2
 22.1 +3.03 +3.18 -11.00 +.03 -0.02 -10.97 -11.02 +2.89 +2.31 +1.55 +1.22 -8.04 -8.09 -7.94 -7.1 -7.0 -7.0
 23.0 +3.66 +3.79 -10.05 -0.1 -0.07 -10.06 -10.12 +3.52 +3.22 +2.18 +2.12 -9.24 -9.29 -8.1 -8.8 -8.6

Nov. 12 $L' = -0.19$ 22.9 +.11 -17.09 $m = -70$ 17.17

22.4 +1.36 -16.21 -0.1 17.20

0.1 +4.09 -14.25 +.02 +.03 -14.23 -14.22 +3.98 +2.86 +2.73 +1.99 -7.2 -7.3 -7.0 -7.2
 21.1 +4.56 -13.86 -0.3 -0.02 -13.89 -13.88 +4.45 +3.20 +3.20 +2.33 -7.2 -7.3 -7.2 -7.2
 22.1 +3.03 -14.93 -0.2 -0.1 -14.93 -14.94 +2.92 +2.14 +1.67 +1.27 -7.3 -7.6 -7.3 -7.2
 23.9 -4.55 -20.41 +.02 +.03 -20.39 -20.38 -4.66 -3.30 -5.91 -4.17 -7.1 -7.1 -7.1 -7.2

Nov. 13 $L' = -0.32$ 23.7 +.21 -17.56 $m = -64$ -17.71

22.5 +1.37 -16.78 -0.4 17.74

21.1 +4.56 -14.52 -0.8 -0.4 -14.60 -14.56 +4.35 +2.96 +3.19 +2.22 -6.8 -6.9 -6.8
 23.9 -4.55 -20.93 +.01 +.04 -20.92 -20.89 -4.76 -3.36 -5.92 -4.11 -7.1 -7.0 -7.0 -6.9

Dec 4 $L' = -0.60$

23.9 +.23 -36.87 37.00

23.6 +4.31 -34.59 -0.2 -34.61 +4.08 +2.26 -5.55 -5.55
 23.7 +2.37 -35.59 -0.1 -35.60 +2.14 +1.27 -5.59 -5.59 -5.7 -5.7

13.2 -42.74

1876

Dec 5 $L' = -.056$ RA Tang. S we. S π RA22.8 +.11 -38.27 $n = -.55$ 38.23

22.8 +1.45 -37.53 +.00 38.36

22.1 +3.03 -36.62 -.04 -36.66 -36.66 +2.92 +1.61 +1.58 +.87 -.55 -.56 ✓ -.55

22.5 +3.27 -36.69 -.02 -36.71 -36.71 +3.16 +1.56 +1.82 +.82 -.50 -.45 ✓ -.50

22.7 +2.20 -37.09 -.01 -37.10 -37.10 +2.09 +1.17 +.75 +.43 -.56 -.58 ✓ -.56

1.2 +42.74 -12.73 +.13 -12.60 -12.60 +42.63 +25.67 +41.29 +24.93 -.60 -.60 ✓ -.60

1.9 +3.04 -36.62 +.17 -36.45 -36.45 +2.93 +1.82 +1.59 +1.08 -.62 -.68 ✓ -.62

1.6 -3.05 -40.25 +.16 -40.09 -40.09 -3.16 -1.82 -4.50 -2.56 -.58 -.57 ✓ -.58

13.2 -42.74 -61.80 +.13 -62.34 -62.34 -42.85 -24.07 -44.19 -24.81 -.56 -.56 ✓ -.56

-54 -57 -57 -57 -57

Dec 6 $L' = -.055$ 23.9 +.10 +1.00 -39.80 $n = -.55$ 39.86

0.6 +1.45 +1.76 -39.10 -39.08 +.04 39.92

0.1 +4.09 +4.22 -37.60 +.01 -.03 -37.59 -37.63 +3.99 +2.21 +2.64 +1.47 -.55 -.56 ✓ -.56

1.2 +42.74 -13.63 +.07 +.03 -13.66 -13.60 +42.64 +26.24 +41.29 +25.30 -.62 -.61 ✓ -.62

2.3 +2.34 +2.55 -38.58 +.13 +.09 -38.45 -38.49 +2.24 +1.35 +.89 +.61 -.61 -.64 ✓ -.61

-59 -58 -60

2.1 -4.76 -4.85 -42.84 +.12 +.08 -42.72 -42.76 -4.86 -2.92 -6.21 -3.66 -.60 -.59 ✓ -.60

23.9 -4.55 -4.66 -42.40 +.00 -.04 -42.40 -42.44 -4.65 -2.60 -6.00 -3.34 -.56 -.56 ✓ -.56

-58 -57 -58 -59

Dec 7 $L' = -.046$ 22.4 +.11 -41.05 $n = -.46$ 41.10

22.2 +1.30 -40.49 -.01 -40.50 41.15

22.1 +3.03 -39.58 -.01 +.00 -39.59 -39.58 +2.92 +1.46 +1.73 +.91 -.50 -.53 ✓ -.50

-50

