PHOTOELECTRIC ELEMENTS OF CD TAU

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(Received 8 May, 1975)

Abstract. Photoelectric and absolute elements of the system CD Tau have been determined in *U*, *B* and *V* filters. The system is a detached one.

1. Introduction

The spectroscopic elements of the binary system CD Tau = 674 Å have been given by Sanford (1928) and Popper (1971). Not much else has been published about this system except a few epochs of minima. This star was, therefore, put on our observing program during the years 1970 to 1972.

2. Observations

A total of twenty nights of observations were secured on the 56-cm reflector of the Uttar Pradesh State Observatory through standard *U*, *B* and *V* filters, using an unrefrigerated 1P21 photomultiplier and employing d.c. techniques. The comparison star used is BD + 19°884. A total of 450 observations in *U*, 482 in *B* and 466 in *V* have been obtained and discussed. The standard error of observations for eight randomly chosen nights falls in the range $0^m.001$–$0^m.007$ for each of the *U*, *B* and *V* filters. The observations in *U*, *B* and *V* have been listed in Tables V(a), V(b) and V(c) respectively.

3. Period and Light Curve

The times of minima were determined by the method of bisection, from the plot of light curves on individual nights. There is no significant difference between the times of minima determined from the *U*, *B* and *V* light curves. Three epochs of minima (mean values) determined from the light curves in *U*, *B* and *V* filters are:

Primary minimum	Secondary minima
JD(Hel) 2 441 650.324	1. JD(Hel) 2 441 631.431
	2. JD(Hel) 2 441 662.347

The secondary minimum occurs at phase 0.5. A new period based on our observations of the time of primary minimum has been calculated and is given by:

$$\text{Primary min.} = \text{JD(Hel) } 2\,426\,793.353 + 3^d.435\,137\,7\,E.$$

Astrophysics and Space Science **40** (1976) 15–34.

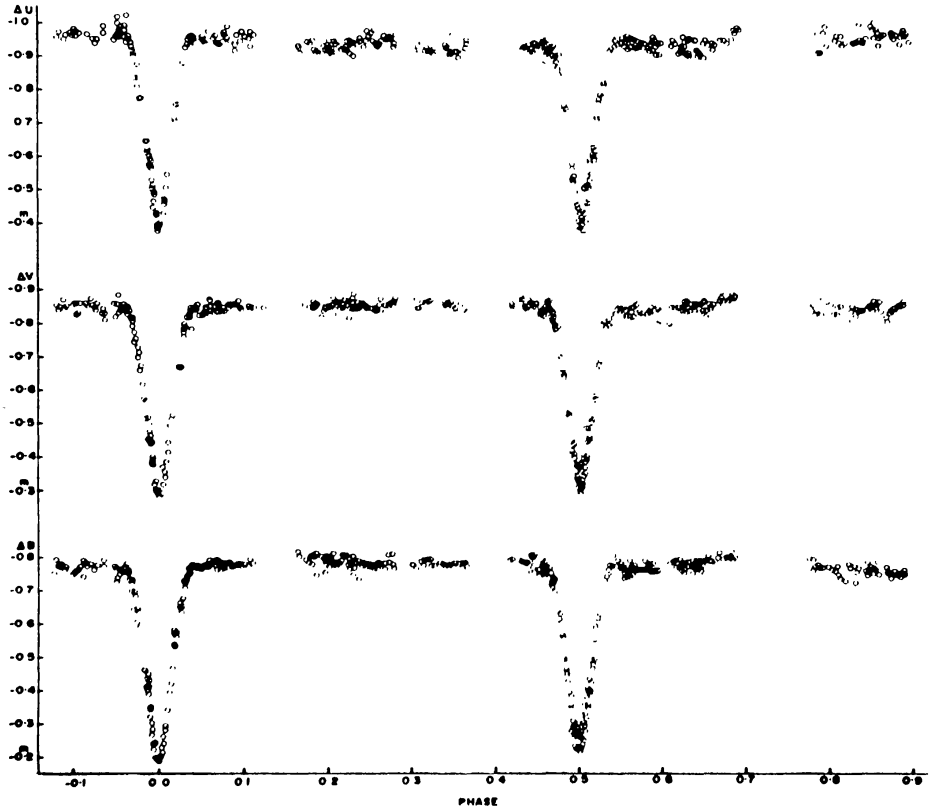

Fig. 1. Light curves of CD Tau.

The light curves for U, B and V have been given in Figure 1. The depths of the primary and secondary minima are:

	U	B	V
Primary Min.	0^m.555	0^m.577	0^m.555
Secondary Min.	0^m.540	0^m.553	0^m.528

These show that the two components do not differ much in their brightnesses and radii.

4. Elements

The rectification of the light curves was done by the graphical method given by Russell and Merrill (1952), employing the values $C_0=0.0054$ and $C_2=0.0018$ for the reflection coefficients. The rectification constants A_0, A_1 and A_2 have been given in Table I. The light curve appears to be free from complications and as such the sine terms were not considered.

The geometrical elements have been determined for the light curves in all the three filters by the nomographic method given by Russell and Merrill. The best fit for the V and U light curves was obtained for $k=0.85$, treating the primary minimum as a

TABLE I

Fourier coefficients for the U, B, V light curves of CD Tau

$I = A_0 + A_1 \cos\theta + A_2 \cos 2\theta$

	A_0	A_1	A_2
U	0.9590	−0.0011	−0.0010
B	0.9720	−0.0022	0.0000
V	0.9700	−0.0033	0.0000

transit and the secondary minimum as an occultation. But in the B filter the best fit was obtained for $k = 0.807$, treating the primary minimum as annular. In order to have only one value of k, the final solution was made with $k = 0.85$ in all the three filters. The computed points have been plotted along with the normal points in Figure 2. The geometrical elements have been tabulated in Table II.

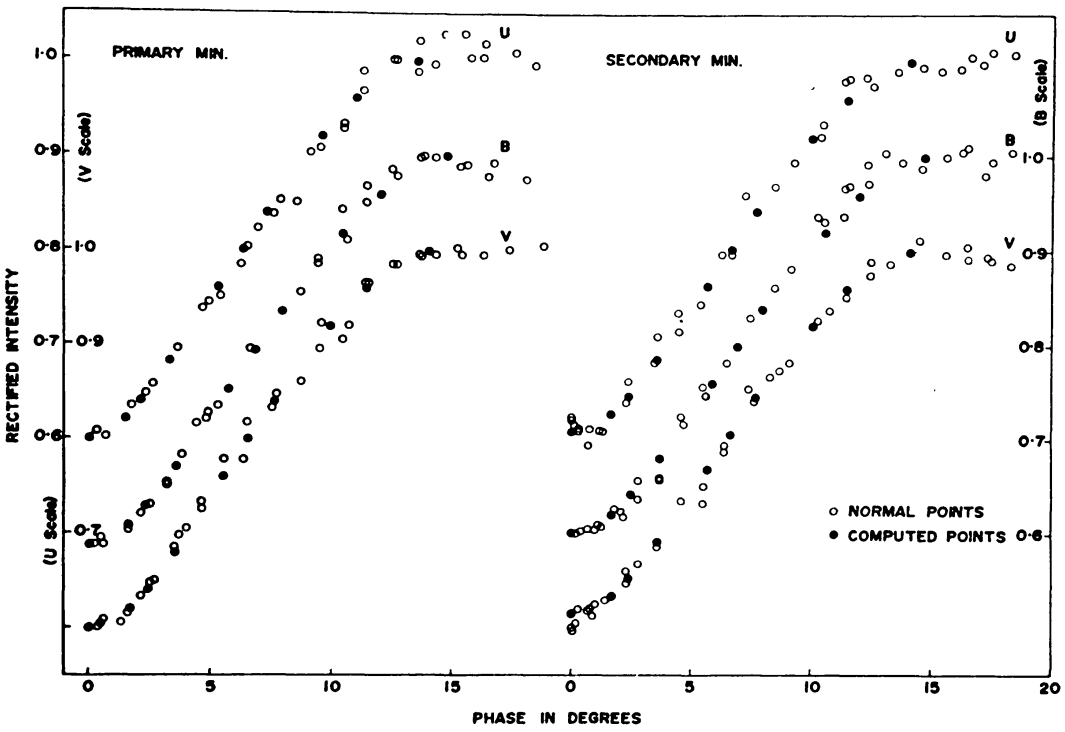

Fig. 2. Primary and secondary eclipses of CD Tau.

The Fourier transform method (Kitamura, 1965) for determination of the elements was tried for the uniformly bright case using the tables of the characteristic functions of the eclipse. The values of the characteristic functions showed that the primary eclipse is a transit and secondary an occultation. The solution is given in Table III.

TABLE II

Photometric elements of CD Tau

Element	U	B	V	Mean
x (assumed)	0.4	0.4	0.4	
k	0.85	0.85	0.85	
θ_e	13°.8	14°.8	14°.0	
p_0	−0.808	−0.871	−0.816	
α_0^{oc}	0.931	0.953	0.921	
α_0^{tr}	0.915	0.940	0.908	
$1-l_0^{oc}$	0.392	0.399	0.385	
$1-l_0^{tr}$	0.400	0.412	0.400	
L_g	0.579	0.581	0.584	
L_s	0.421	0.419	0.416	
r_g	0.131	0.142	0.132	0.135
r_s	0.111	0.121	0.112	0.115
i	87°.7	87°.9	87°.7	87°.8
J_g/J_s	0.994	1.002	1.012	

TABLE III

Solution for the case of uniform brightness for the system CD Tau

	$T-1$	i	r_a	r_b	f_0^{oc}
U	−0.0091				
B	0.0077	88°	0.12	0.14	0.9464
V	0.0075				

TABLE IV

Absolute elements of CD Tau

Sp	dF_4
T_e	6700 K
R_1	1.8 $R_\odot$
R_2	1.5 $R_\odot$
A	13.4 $R_\odot$
m_1	1.4 $m_\odot$
m_2	1.3 $m_\odot$
ϱ_1	0.24 $\varrho_\odot$
ϱ_2	0.36 $\varrho_\odot$
M_1(bol)	2^m.73
M_2(bol)	3^m.08

Using the spectroscopic elements given by Sanford (1928) and the mean values of r_1, r_2 and i, the absolute elements have been derived. These are given in Table IV.

The Roche constants for equipotentials (Kopal, 1959) were determined and are given by

$$C_0 = 4.00 \qquad \left[\frac{m_2}{m_1} = 0.95\right]$$

$$C_1 = 8.84$$

$$C_2 = 9.74.$$

This shows that the system is a detached one.

TABLE V(a)

Standard differential magnitudes of CD Tau in U

JD(Hel)	Phase	Δm	JD(Hel)	Phase	Δm
2 440 604.1162	0.4395	−0.941	917.2930	0.6081	−0.969
.1354	0.4450	−0.950	.3012	0.6105	−0.955
.1699	0.4550	−0.936	.3169	0.6151	−0.937
.1711	0.4554	−0.936	.3237	0.6170	−0.945
.1734	0.4561	−0.906	.3323	0.6195	−0.932
.1760	0.4569	−0.930	.3418	0.6223	−0.931
.1817	0.4585	−0.926	.3496	0.6246	−0.927
.1891	0.4615	−0.936	.3579	0.6270	−0.920
.1975	0.4631	−0.933	.3628	0.6285	−0.932
.2057	0.4655	−0.893	.3830	0.6343	−0.897
626.1095	0.8419	−1.012	.3935	0.6374	−0.919
.1258	0.8467	−1.022	.4047	0.6406	−0.925
.1308	0.8481	−1.000	.4174	0.6443	−0.917
.1380	0.8502	−0.991	.4273	0.6472	−0.905
.1487	0.8533	−0.983	.4334	0.6490	−0.893
.1616	0.8571	−0.987	.4396	0.6508	−0.893
.1923	0.8660	−0.989	922.1763	0.0297	−0.865
.1982	0.8677	−0.981	.1867	0.0327	−0.919
.2056	0.8699	−0.973	.1965	0.0355	−0.939
.2144	0.8725	−0.983	.2110	0.0398	−0.958
.2289	0.8767	−0.956	.2256	0.0440	−0.961
.2325	0.8777	−0.976	.2303	0.0454	−0.956
.2397	0.8798	−0.993	.2433	0.0492	−0.957
.2414	0.8803	−0.997	.2447	0.0496	−0.966
.2500	0.8828	−0.979	.2562	0.0529	−0.950
.2565	0.8847	−0.985	.2574	0.0533	−0.940
.2673	0.8879	−0.962	.2678	0.0563	−0.957
917.1985	0.5806	−0.936	.2702	0.0570	−0.978
.2096	0.5838	−0.944	.2996	0.0656	−0.947
.2220	0.5874	−0.925	.3052	0.0672	−0.946
.2366	0.5917	−0.926	924.1850	0.6144	−0.931
.2376	0.5920	−0.925	.1950	0.6173	−0.954
.2844	0.6056	−0.954	.2006	0.6190	−0.981

Table V(a) (Continued)

JD(Hel)	Phase	Δm	JD(Hel)	Phase	Δm
2 440 924.2086	0.6213	$-0^m.951$	926.4498	0.2737	$-0^m.944$
.2141	0.6229	−0.966	.4567	0.2757	−0.952
.2252	0.6261	−0.974	.4633	0.2777	−0.981
.2322	0.6282	−0.969	929.1465	0.0588	−0.953
.2500	0.6333	−0.968	.1562	0.0616	−0.964
.2565	0.6352	−0.940	.1700	0.0656	−0.966
.2655	0.6378	−0.937	.1830	0.0694	−0.940
.2885	0.6445	−0.959	.1916	0.0719	−0.958
.2953	0.6465	−0.969	.1975	0.0736	−0.949
.3043	0.6491	−0.956	.2034	0.0753	−0.969
.3186	0.6533	−0.961	.2085	0.0768	−0.976
.3289	0.6563	−0.941	.2166	0.0792	−0.996
.3339	0.6578	−0.957	.2208	0.0804	−0.958
.3543	0.6637	−0.974	.2267	0.0821	−0.950
.3701	0.6683	−0.972	.2436	0.0870	−0.922
.3795	0.6710	−0.962	.2492	0.0887	−0.939
.4041	0.6782	−0.970	.2565	0.0908	−0.972
.4095	0.6798	−1.001	.2669	0.0938	−0.954
.4202	0.6829	−0.992	.2770	0.0968	−0.982
.4250	0.6843	−1.007	.2992	0.1032	−0.963
.4318	0.6863	−1.000	.3082	0.1058	−0.979
926.1292	0.1804	−0.964	.3092	0.1061	−0.935
.2010	0.2013	−0.937	.3206	0.1095	−0.968
.2109	0.2042	−0.957	944.1225	0.4184	−0.969
.2188	0.2065	−0.950	.1550	0.4279	−0.938
.2256	0.2085	−0.957	.1633	0.4303	−0.945
.2336	0.2108	−0.940	.1690	0.4319	−0.947
.2402	0.2127	−0.932	.1781	0.4346	−0.901
.2737	0.2225	−0.960	.1843	0.4364	−0.955
.2801	0.2243	−0.950	.1908	0.4383	−0.932
.2862	0.2261	−0.955	.1972	0.4402	−0.934
.3083	0.2325	−0.948	.2043	0.4422	−0.963
.3156	0.2347	−0.956	.2131	0.4448	−0.955
.3221	0.2366	−0.972	.2211	0.4471	−0.924
.3318	0.2394	−0.942	.2522	0.4562	−0.946
.3378	0.2411	−0.958	.2594	0.4583	−0.936
.3452	0.2433	−0.989	.2683	0.4609	−0.929
.3519	0.2452	−0.977	.2745	0.4627	−0.925
.3610	0.2479	−0.985	.2822	0.4649	−0.920
.3683	0.2500	−0.963	.2887	0.4668	−0.910
.3757	0.2522	−0.968	947.1532	0.3007	−0.934
.3822	0.2541	−0.953	.1648	0.3041	−0.920
.3907	0.2565	−0.945	.1702	0.3042	−0.946
.3971	0.2584	−0.950	.1804	0.3086	−0.958
.4044	0.2601	−0.959	.1885	0.3110	−0.932
.4217	0.2655	−0.967	.1966	0.3133	−0.939
.4279	0.2674	−0.967	.2076	0.3165	−0.928
.4369	0.2700	−0.974	.2187	0.3198	−0.928
.4431	0.2718	−0.965	.2259	0.3219	−0.923

Table V(a) (Continued)

JD(Hel)	Phase	Δm	JD(Hel)	Phase	Δm
2 440 947.2334	0.3240	$-0^m.941$	950.2890	0.2135	$-0^m.923$
.2611	0.3321	−0.997	.2992	0.2165	−0.930
.2727	0.3355	−0.949	.3051	0.2182	−0.943
.2792	0.3374	−0.941	.3100	0.2196	−0.932
.2841	0.3380	−0.940	.3128	0.2205	−0.960
.2892	0.3403	−0.942	.3328	0.2263	−0.939
.2962	0.3423	−0.918	.3378	0.2277	−0.909
.3024	0.3441	−0.926	958.1280	0.4956	−0.464
.3142	0.3476	−0.930	.1342	0.4974	−0.445
.3232	0.3502	−0.934	.1390	0.4988	−0.439
.3314	0.3526	−0.908	.1451	0.5005	−0.451
.3487	0.3576	−0.927	.1479	0.5013	−0.415
.3529	0.3588	−0.932	.1554	0.5035	−0.483
.3584	0.3604	−0.942	.1584	0.5044	−0.521
.3623	0.3616	−0.950	.1633	0.5058	−0.530
.3659	0.3626	−0.965	.1666	0.5068	−0.560
949.1511	−0.1177	−0.955	.1765	0.5097	−0.606
.1597	−0.1152	−0.969	.1795	0.5105	−0.600
.1773	−0.1101	−0.952	.1841	0.5119	−0.625
.1834	−0.1083	−0.965	.1870	0.5127	−0.645
.2113	−0.1002	−0.959	.1932	0.5145	−0.647
.2193	−0.0979	−0.980	.1965	0.5155	−0.687
.2243	−0.0964	−0.961	.2031	0.5174	−0.733
.2250	−0.0962	−0.974	.2065	0.5184	−0.737
.2414	−0.0914	−0.974	.2111	0.5197	−0.783
.2616	−0.0856	−0.960	.2144	0.5207	−0.794
.2708	−0.0829	−0.965	.2217	0.5228	−0.806
.2955	−0.0757	−0.954	.2260	0.5241	−0.800
.3082	−0.0720	−0.948	.2313	0.5256	−0.836
950.1115	0.1617	−0.943	.2347	0.5266	−0.838
.1122	0.1621	−0.935	.2424	0.5289	−0.881
.1164	0.1633	−0.923	.2495	0.5309	−0.909
.1474	0.1723	−0.956	.2551	0.5326	−0.935
.1583	0.1755	−0.911	.2605	0.5341	−0.939
.1631	0.1769	−0.950	.2679	0.5363	−0.977
.1708	0.1791	−0.932	.2720	0.5375	−0.972
.1790	0.1815	−0.914	.2979	0.5450	−0.960
.1838	0.1829	−0.926	.3049	0.5471	−0.962
.2088	0.1902	−0.916	.3077	0.5479	−0.964
.2170	0.1926	−0.941	.3132	0.5495	−0.966
.2223	0.1941	−0.930	.3168	0.5505	−0.972
.2264	0.1953	−0.933	.3229	0.5523	−0.972
.2310	0.1966	−0.945	.3311	0.5545	−0.944
.2358	0.1980	−0.943	.3457	0.5589	−0.947
.2424	0.2000	−0.934	.3521	0.5608	−0.968
.2431	0.2001	−0.918	.3600	0.5631	−0.942
.2474	0.2014	−0.923	.3677	0.5653	−0.946
.2518	0.2027	−0.923	959.0869	0.7747	−0.990
			.1030	0.7794	−0.929

Table V(a) (Continued)

JD(Hel)	Phase	Δm	JD(Hel)	Phase	Δm
2 440 959.1085	0.7810	$-0^m.933$	2 441 631.3566	0.4786	$-0^m.759$
.1234	0.7853	−0.991	.3635	0.4806	−0.734
.1335	0.7883	−1.011	.3700	0.4825	−0.687
.1413	0.7905	−0.953	.3788	0.4850	−0.625
.1706	0.7991	−0.966	.3874	0.4875	−0.596
.1830	0.8027	−0.980	.3939	0.4894	−0.538
.1908	0.8049	−0.962	.3946	0.4896	−0.545
.1987	0.8072	−0.984	.3993	0.4910	−0.511
.2037	0.8087	−0.948	.4055	0.4928	−0.484
.2134	0.8115	−0.964	.4110	0.4944	−0.449
.2397	0.8192	−0.960	.4165	0.4960	−0.421
.2479	0.8216	−0.964	.4248	0.4984	−0.398
.2529	0.8230	−0.961	.4369	0.5019	−0.388
.2884	0.8284	−1.016	650.1469	−0.0514	−0.949
.2739	0.8291	−0.972	.1571	−0.0485	−0.999
.2834	0.8319	−0.958	.1581	−0.0482	−1.021
.2919	0.8344	−0.964	.1685	−0.0452	−0.959
.2967	0.8358	−0.975	.1696	−0.0448	−0.972
.3253	0.8441	−1.000	.1834	−0.0408	−0.963
.3340	0.8466	−0.976	.1933	−0.0379	−0.945
.3430	0.8493	−0.948	.2013	−0.0356	−0.959
.3497	0.8512	−0.976	.2029	−0.0351	−0.955
987.1202	−0.0646	−0.988	.2149	−0.0316	−0.934
.1236	−0.0636	−0.969	.2217	−0.0297	−0.907
.1704	−0.0500	−0.960	.2316	−0.0268	−0.881
.1803	−0.0471	−0.968	.2414	−0.0239	−0.838
.1866	−0.0452	−0.981	.2490	−0.0217	−0.780
.1911	−0.0439	−0.991	.2577	−0.0192	−0.739
.1970	−0.0422	−0.970	.2647	−0.0171	−0.689
.2022	−0.0407	−0.997	.2741	−0.0144	−0.626
.2074	−0.0392	−0.983	.2829	−0.0118	−0.581
.2119	−0.0379	−1.025	.2970	−0.0077	−0.513
.2202	−0.0355	−0.951	.2994	−0.0070	−0.521
.2257	−0.0339	−0.945	.3088	−0.0043	−0.437
.2316	−0.0321	−0.921	.3106	−0.0038	−0.429
.2366	−0.0307	−0.914	.3178	−0.0017	−0.393
.2434	−0.0287	−0.844	.3251	−0.0004	−0.407
.2538	−0.0257	−0.811	.3271	0.0010	−0.401
.2606	−0.0237	−0.776	.3368	0.0038	−0.428
.2881	−0.0157	−0.652	.3406	0.0049	−0.468
.2947	−0.0138	−0.613	.3418	0.0053	−0.462
.3000	−0.0122	−0.605	.3460	0.0065	−0.475
.3050	−0.0108	−0.575	.3531	0.0086	−0.512
2 441 631.2864	0.4581	−0.952	.3574	0.0098	−0.550
.3004	0.4622	−0.978	.3647	0.0120	−0.605
.3087	0.4646	−0.946	.3702	0.0136	−0.630
.3308	0.4710	−0.927	.3770	0.0155	−0.685
.3487	0.4763	−0.869	.3851	0.0179	−0.712
.3558	0.4783	−0.773	.3868	0.0184	−0.715

Table V(a) (Continued)

JD(Hel)	Phase	Δm	JD(Hel)	Phase	Δm
2 441 650.3948	0.0207	$-0^m.759$	662.1930	0.4553	$-0^m.949$
.3975	0.0215	−0.761	.1936	0.4555	−0.952
.4011	0.0226	−0.789	.1993	0.4571	−0.973
.4100	0.0252	−0.842	.2048	0.4587	−0.970
.4215	0.0285	−0.886	.2100	0.4602	−0.972
.4291	0.0307	−0.934	.2266	0.4651	−0.953
.4335	0.0320	−0.941	.2339	0.4672	−0.919
.4421	0.0345	−0.956	.2390	0.4687	−0.907
.4459	0.0356	−0.967	.2452	0.4705	−0.885
.4541	0.0380	−0.967	.2507	0.4721	−0.862
.4606	0.0398	−0.946	.2583	0.4743	−0.831
652.2047	0.5476	−0.976	.2686	0.4773	−0.799
.2132	0.5500	−0.958	.2750	0.4792	−0.758
.2141	0.5503	−0.954	.2805	0.4808	−0.720
.2282	0.5544	−0.978	.2811	0.4809	−0.718
.2372	0.5571	−0.976	.2877	0.4829	−0.686
.2459	0.5596	−0.967	.2918	0.4841	−0.651
.2531	0.5617	−0.973	.2982	0.4859	−0.625
.2645	0.5650	−0.965	.3032	0.4874	−0.584
.2720	0.5672	−0.953	.3096	0.4892	−0.555
.2806	0.5697	−0.960	.3149	0.4908	−0.539
.2910	0.5727	−0.947	.3177	0.4916	−0.513
.2975	0.5746	−0.962	.3240	0.4934	−0.474
.3055	0.5770	−0.947	.3291	0.4949	−0.375
.3176	0.5805	−0.952	.3355	0.4968	−0.406
.3275	0.5834	−0.984	.3364	0.4970	−0.414
.3366	0.5860	−0.969	.3424	0.4988	−0.401
.3452	0.5885	−0.954	.3457	0.4997	−0.421
.3518	0.5904	−0.960	.3464	0.5000	−0.432
.3579	0.5922	−0.964	.3473	0.5002	−0.408
.3637	0.5939	−0.962	.3523	0.5017	−0.387
657.1478	−0.0134	−0.648	.3578	0.5032	−0.423
.1517	−0.0123	−0.623	.3603	0.5040	−0.447
.1581	−0.0104	−0.590	.3658	0.5056	−0.465
.1588	−0.0102	−0.574	.3702	0.5069	−0.477
.1645	−0.0085	−0.473	.3714	0.5072	−0.494
.1687	−0.0073	−0.448	.3723	0.5075	−0.489
.1756	−0.0053	−0.499	.3759	0.5085	−0.525
.1767	−0.0050	−0.489	.3813	0.5101	−0.547
.1853	−0.0024	−0.401	.3853	0.5113	−0.571
.1862	−0.0022	−0.378	.3916	0.5131	−0.612
662.1593	0.4454	−0.938	.3930	0.5135	−0.622
.1811	0.4518	−0.959	.3982	0.5150	−0.623
.1835	0.4525	−0.953	.3987	0.5152	−0.624
.1867	0.4535	−0.966	.4039	0.5167	−0.668
			.4070	0.5176	−0.691

TABLE V(b)

Standard differential magnitudes of CD Tau in *B*

JD(Hel)	Phase	Δm	JD(Hel)	Phase	Δm
2 440 604.1072	0.4368	$-0^m.751$	917.3556	0.6263	$-0^m.779$
.1156	0.4393	−0.777	.3649	0.6290	−0.770
.1350	0.4449	−0.767	.3714	0.6309	−0.725
.1381	0.4458	−0.786	.3761	0.6324	−0.735
.1693	0.4549	−0.770	.3776	0.6327	−0.736
.1717	0.4556	−0.770	.3852	0.6349	−0.748
.1740	0.4562	−0.772	.3866	0.6353	−0.770
.1756	0.4568	−0.777	.3913	0.6367	−0.770
.1820	0.4586	−0.757	.4076	0.6415	−0.766
.1842	0.4593	−0.766	.4185	0.6446	−0.772
.1880	0.4604	−0.764	.4248	0.6465	−0.762
.1960	0.4627	−0.768	.4346	0.6493	−0.751
.2084	0.4663	−0.728	.4383	0.6504	−0.835
626.1084	0.8416	−0.761	922.1353	0.0177	−0.571
.1214	0.8454	−0.751	.1373	0.0183	−0.584
.1225	0.8457	−0.777	.1532	0.0229	−0.646
.1249	0.8464	−0.766	.1550	0.0235	−0.658
.1303	0.8480	−0.776	.1719	0.0284	−0.726
.1373	0.8500	−0.766	.1742	0.0291	−0.720
.1464	0.8527	−0.758	.1826	0.0315	−0.742
.1475	0.8530	−0.766	.1851	0.0322	−0.828
.1629	0.8575	−0.752	.1922	0.0343	−0.761
.1907	0.8656	−0.769	.1937	0.0348	−0.766
.1975	0.8675	−0.756	.2028	0.0374	−0.777
.2045	0.8696	−0.756	.2078	0.0388	−0.819
.2134	0.8722	−0.744	.2217	0.0429	−0.767
.2240	0.8752	−0.761	.2237	0.0435	−0.768
.2316	0.8775	−0.749	.2315	0.0457	−0.766
.2389	0.8796	−0.752	.2349	0.0467	−0.762
.2423	0.8806	−0.752	.2363	0.0471	−0.760
.2509	0.8831	−0.756	.2452	0.0497	−0.768
.2553	0.8844	−0.747	.2588	0.0537	−0.777
.2633	0.8867	−0.754	.2594	0.0542	−0.776
.2650	0.8872	−0.765	.2617	0.0545	−0.770
.2663	0.8876	−0.749	.2710	0.0572	−0.788
917.1892	0.5779	−0.794	.2759	0.0587	−0.777
.1996	0.5809	−0.778	.3062	0.0675	−0.762
.2110	0.5842	−0.777	924.1838	0.6141	−0.789
.2240	0.5880	−0.778	.1938	0.6170	−0.770
.2389	0.5923	−0.729	.2014	0.6192	−0.795
.2855	0.6059	−0.712	.2081	0.6211	−0.776
.2941	0.6084	−0.781	.2156	0.6233	−0.784
.3033	0.6111	−0.792	.2245	0.6259	−0.751
.3182	0.6154	−0.786	.2329	0.6284	−0.786
.3220	0.6165	−0.768	.2480	0.6328	−0.770
.3339	0.6200	−0.770	.2572	0.6354	−0.790
.3406	0.6220	−0.763	.2646	0.6376	−0.787
.3514	0.6251	−0.765	.2718	0.6397	−0.791

Table V(b) (Continued)

JD(Hel)	Phase	Δm	JD(Hel)	Phase	Δm
2 440 924.2875	0.6443	$-0^m.794$	926.4260	0.2668	$-0^m.780$
.2961	0.6468	−0.777	.4344	0.2692	−0.805
.2966	0.6469	−0.791	.4412	0.2712	−0.784
.3040	0.6491	−0.794	.4478	0.2731	−0.806
.3193	0.6535	−0.805	.4542	0.2750	−0.775
.3284	0.6562	−0.789	.4610	0.2770	−0.764
.3345	0.6579	−0.790	929.1454	0.0585	−0.772
.3536	0.6635	−0.781	.1541	0.0610	−0.780
.3632	0.6663	−0.798	.1665	0.0645	−0.787
.3707	0.6685	−0.816	.1690	0.0653	−0.776
.3789	0.6709	−0.796	.1792	0.0683	−0.791
.3959	0.6758	−0.801	.1818	0.0691	−0.782
.4034	0.6780	−0.802	.1924	0.0721	−0.764
.4102	0.6800	−0.804	.1963	0.0733	−0.776
.4187	0.6824	−0.820	.2042	0.0756	−0.776
.4193	0.6826	−0.819	.2071	0.0764	−0.765
.4256	0.6845	−0.796	.2172	0.0794	−0.782
.4312	0.6861	−0.799	.2197	0.0801	−0.766
926.1256	0.1794	−0.776	.2274	0.0823	−0.784
.1374	0.1828	−0.744	.2423	0.0867	−0.774
.1382	0.1830	−0.744	.2494	0.0887	−0.769
.1792	0.1950	−0.776	.2572	0.0910	−0.776
.1956	0.1997	−0.773	.2675	0.0940	−0.775
.1965	0.2000	−0.767	.2771	0.0968	−0.768
.1978	0.2004	−0.771	.2997	0.1034	−0.774
.2090	0.2036	−0.777	.3101	0.1064	−0.791
.2167	0.2059	−0.777	.3211	0.1096	−0.784
.2237	0.2079	−0.769	944.1147	0.4161	−0.788
.2317	0.2102	−0.785	.1161	0.4165	−0.755
.2381	0.2121	−0.780	.1186	0.4173	−0.789
.2715	0.2218	−0.771	.1532	0.4273	−0.784
.2783	0.2238	−0.760	.1561	0.4282	−0.794
.2842	0.2255	−0.777	.1618	0.4299	−0.783
.3001	0.2302	−0.767	.1679	0.4316	−0.782
.3064	0.2320	−0.783	.1750	0.4337	−0.778
.3138	0.2341	−0.786	.1822	0.4358	−0.778
.3204	0.2361	−0.733	.1887	0.4377	−0.780
.3292	0.2386	−0.772	.1956	0.4397	−0.801
.3365	0.2407	−0.778	.2021	0.4416	−0.803
.3435	0.2428	−0.777	.2110	0.4442	−0.792
.3497	0.2446	−0.772	.2200	0.4468	−0.805
.3585	0.2472	−0.776	.2496	0.4554	−0.793
.3663	0.2494	−0.770	.2568	0.4575	−0.787
.3736	0.2515	−0.772	.2656	0.4601	−0.769
.3800	0.2534	−0.767	.2722	0.4620	−0.767
.3888	0.2560	−0.764	.2805	0.4644	−0.758
.3952	0.2578	−0.780	.2869	0.4663	−0.753
.4013	0.2596	−0.776	.2940	0.4683	−0.736
.4198	0.2650	−0.764	947.1516	−0.3002	−0.775

Table V(b) (Continued)

JD(Hel)	Phase	Δm	JD(Hel)	Phase	Δm
2 440 947.1636	−0.3037	$-0^{m}.759$	950.2316	−0.1968	−0.801
.1811	0.3088	−0.785	.2365	−0.1982	−0.791
.1894	0.3112	−0.770	.2438	0.2004	−0.797
.1973	0.3135	−0.789	.2464	0.2011	−0.793
.2095	0.3171	−0.788	.2527	0.2030	−0.808
.2195	0.3200	−0.788	.2898	0.2138	−0.787
.2266	0.3221	−0.773	.2969	0.2158	−0.805
.2346	0.3244	−0.771	.3044	0.2180	−0.799
.2630	0.3327	−0.782	.3111	0.2200	−0.804
.2735	0.3357	−0.775	.3211	0.2229	−0.791
.2798	0.3375	−0.773	.3309	0.2257	−0.784
.2846	0.3389	−0.771	.3387	0.2280	−0.799
.2898	0.3405	−0.770	958.1347	0.4975	−0.276
.2971	0.3426	−0.773	.1356	0.4978	−0.284
.3033	0.3444	−0.776	.1375	0.4983	−0.278
.3148	0.3477	−0.771	.1455	0.5007	−0.292
.3240	0.3504	−0.779	.1485	0.5015	−0.274
.3444	0.3563	−0.779	.1549	0.5034	−0.320
.3536	0.3590	−0.767	.1579	0.5043	−0.322
.3587	0.3605	−0.781	.1644	0.5062	−0.352
.3627	0.3617	−0.779	.1672	0.5070	−0.368
.3667	0.3629	−0.774	.1748	0.5092	−0.396
949.1449	−0.1195	−0.797	.1790	0.5104	−0.401
.1515	−0.1176	−0.769	.1846	0.5120	−0.431
.1590	−0.1154	−0.768	.1875	0.5129	−0.434
.1672	−0.1130	−0.781	.1942	0.5148	−0.486
.1765	−0.1103	−0.759	.1972	0.5157	−0.482
.1840	−0.1081	−0.771	.2025	0.5172	−0.537
.2119	−0.1000	−0.747	.2061	0.5183	−0.552
.2186	−0.0981	−0.753	.2117	0.5199	−0.587
.2265	−0.0958	−0.755	.2150	0.5209	−0.602
.2328	−0.0939	−0.760	.2211	0.5227	−0.615
.2422	0.0912	−0.773	.2254	0.5239	−0.630
.2623	−0.0854	−0.784	.2321	0.5259	−0.658
.2702	−0.0831	−0.772	.2355	0.5269	−0.704
.2961	0.0755	−0.763	.2417	0.5287	−0.702
.3088	−0.0718	−0.775	.2488	0.5307	−0.726
950.1127	−0.1622	−0.817	.2557	0.5327	−0.744
.1158	−0.1631	−0.802	.2613	0.5344	−0.762
.1484	0.1726	−0.792	.2887	0.5365	−0.776
.1576	0.1753	−0.784	.2727	0.5377	−0.770
.1638	0.1771	−0.799	.2964	0.5446	−0.774
.1715	0.1793	−0.800	.3042	0.5468	−0.793
.1779	0.1812	−0.801	.3072	0.5477	−0.768
.1845	0.1831	−0.808	.3139	0.5497	−0.763
.2096	0.1904	−0.802	.3173	0.5507	−0.781
.2164	0.1924	−0.797	.3245	0.5528	−0.772
.2231	0.1943	−0.793	.3316	0.5548	−0.752
.2256	0.1951	−0.754	.3388	0.5569	−0.739

Table V(b) (Continued)

JD(Hel)	Phase	Δm	JD(Hel)	Phase	Δm
2 440 958.3463	0.5591	$-0^m.758$	987.3063	−0.0104	$-0^m.350$
.3526	0.5609	−0.740	2 441 631.2659	0.4522	−0.740
.3606	0.5633	−0.746	.2825	0.4570	−0.764
.3683	0.5655	−0.777	.2898	0.4591	−0.751
959.0860	0.7744	−0.801	.2980	0.4615	−0.769
.1010	0.7788	−0.770	.3062	0.4639	−0.766
.1022	0.7792	−0.763	.3155	0.4666	−0.713
.1140	0.7826	−0.775	.3267	0.4699	−0.732
.1225	0.7851	−0.778	.3466	0.4756	−0.632
.1330	0.7881	−0.773	.3537	0.4777	−0.600
.1419	0.7907	−0.772	.3619	0.4801	−0.557
.1683	0.7984	−0.775	.3686	0.4820	−0.492
.1819	0.8024	−0.765	.3763	0.4843	−0.449
.1911	0.8050	−0.761	.3771	0.4845	−0.462
.1981	0.8071	−0.776	.3848	0.4868	−0.418
.2044	0.8089	−0.754	.3926	0.4890	−0.376
.2121	0.8111	−0.741	.3977	0.4905	−0.273
.2388	0.8189	−0.728	.4039	0.4923	−0.286
.2472	0.8214	−0.782	.4098	0.4940	−0.265
.2535	0.8232	−0.771	.4152	0.4956	−0.263
.2676	0.8273	−0.775	.4235	0.4980	−0.269
.2746	0.8293	−0.727	650.1456	−0.0518	−0.768
.2828	0.8317	−0.764	.1558	−0.0488	−0.726
.2913	0.8342	−0.773	.1678	−0.0454	−0.762
.3261	0.8443	−0.790	.1804	−0.0417	−0.763
.3331	0.8464	−0.764	.1922	−0.0383	−0.780
.3423	0.8490	−0.755	.2006	−0.0358	−0.762
.3501	0.8513	−0.768	.2140	−0.0319	−0.724
.3672	0.8563	−0.794	.2209	−0.0299	−0.696
987.1191	−0.0649	−0.790	.2306	−0.0271	−0.679
.1231	−0.0637	−0.770	.2371	−0.0252	−0.647
.1713	−0.0497	−0.765	.2405	−0.0242	−0.636
.1797	−0.0472	−0.736	.2480	−0.0220	−0.593
.1872	−0.0451	−0.749	.2568	−0.0194	−0.543
.1923	−0.0436	−0.756	.2636	−0.0175	−0.500
.1977	−0.0420	−0.755	.2730	−0.0147	−0.437
.2029	−0.0405	−0.770	.2821	−0.0121	−0.385
.2079	−0.0390	−0.766	.2960	−0.0080	−0.280
.2124	−0.0377	−0.756	.2985	−0.0073	−0.265
.2195	−0.0357	−0.748	.3079	−0.0046	−0.220
.2244	−0.0342	−0.734	.3119	−0.0034	−0.197
.2310	−0.0323	−0.730	.3190	−0.0013	−0.186
.2360	−0.0309	−0.697	.3220	−0.0005	−0.189
.2427	−0.0289	−0.642	.3281	0.0013	−0.202
.2525	−0.0261	−0.607	.3375	0.0040	−0.212
.2597	−0.0240	−0.566	.3398	0.0047	−0.225
.2889	−0.0155	−0.461	.3425	0.0055	−0.235
.2954	−0.0136	−0.402	.3446	0.0061	−0.258
.3006	−0.0121	−0.387	.3506	0.0075	−0.282

Table V(b) (Continued)

JD(Hel)	Phase	Δm	JD(Hel)	Phase	Δm
2 441 650.3539	0.0088	$-0^m.296$	662.1830	0.4524	$-0^m.759$
.3589	0.0103	−0.340	.1853	0.4531	−0.771
.3654	0.0122	−0.394	.1923	0.4551	−0.771
.3693	0.0133	−0.419	.1984	0.4569	−0.762
.3752	0.0150	−0.465	.2040	0.4585	−0.749
.3831	0.0173	−0.529	.2094	0.4601	−0.760
.3877	0.0187	−0.535	.2257	0.4648	−0.736
.3958	0.0210	−0.564	.2330	0.4669	−0.715
.4118	0.0257	−0.631	.2384	0.4685	−0.721
.4138	0.0263	−0.649	.2444	0.4703	−0.691
.4197	0.0280	−0.676	.2498	0.4718	−0.668
.4281	0.0304	−0.705	.2591	0.4745	−0.637
.4325	0.0317	−0.733	.2639	0.4759	−0.614
.4413	0.0342	−0.747	.2705	0.4779	−0.584
.4452	0.0354	−0.750	.2762	0.4795	−0.559
.4548	0.0382	−0.774	.2818	0.4811	−0.532
.4593	0.0395	−0.769	.2883	0.4830	−0.490
652.2152	0.5507	−0.773	.2932	0.4845	−0.445
.2243	0.5536	−0.735	.2991	0.4862	−0.421
.2355	0.5566	−0.756	.3038	0.4876	−0.388
.2445	0.5592	−0.788	.3107	0.4896	−0.350
.2523	0.5614	−0.768	.3141	0.4905	−0.339
.2629	0.5645	−0.767	.3188	0.4919	−0.307
.2703	0.5667	−0.759	.3245	0.4936	−0.293
.2793	0.5693	−0.764	.3263	0.4941	−0.256
.2899	0.5724	−0.764	.3280	0.4946	−0.257
.2959	0.5742	−0.758	.3346	0.4965	−0.224
.3044	0.5770	−0.760	.3373	0.4973	−0.220
.3155	0.5799	−0.765	.3432	0.4990	−0.216
.3255	0.5828	−0.761	.3450	0.4995	−0.214
.3347	0.5855	−0.756	.3480	0.5004	−0.210
.3444	0.5883	−0.755	.3534	0.5020	−0.221
.3507	0.5901	−0.758	.3570	0.5030	−0.228
.3567	0.5919	−0.760	.3612	0.5043	−0.245
.3620	0.5934	−0.764	.3666	0.5058	−0.274
657.1486	−0.0132	−0.412	.3695	0.5067	−0.288
.1508	−0.0125	−0.408	.3729	0.5077	−0.314
.1564	−0.0109	−0.347	.3749	0.5082	−0.327
.1596	−0.0100	−0.323	.3804	0.5098	−0.354
.1653	−0.0083	−0.298	.3822	0.5104	−0.345
.1679	−0.0075	−0.280	.3845	0.5110	−0.392
.1745	−0.0056	−0.244	.3909	0.5129	−0.396
.1777	−0.0047	−0.239	.3938	0.5138	−0.419
.1870	−0.0020	−0.196	.3993	0.5154	−0.462
662.1611	0.4460	−0.751	.4045	0.5169	−0.476
.1794	0.4513	−0.762	.4062	0.5174	−0.492

TABLE V(c)

Standard differential magnitudes of CD Tau in V

JD(Hel)	Phase	Δm	JD(Hel)	Phase	Δm
2 440 604.1083	0.4372	$-0^m.853$	917.3703	0.6306	$-0^m.819$
.1142	0.4389	−0.858	.3780	0.6328	−0.768
.1341	0.4447	−0.864	.3875	0.6356	−0.863
.1393	0.4462	−0.868	.3905	0.6365	−0.857
.1685	0.4547	−0.841	.4091	0.6419	−0.871
.1721	0.4557	−0.857	.4104	0.6423	−0.846
.1742	0.4563	−0.855	.4196	0.6450	−0.850
.1751	0.4566	−0.860	.4260	0.6468	−0.877
.1826	0.4588	−0.856	.4358	0.6497	−0.834
.1837	0.4591	−0.875	.4376	0.6502	−0.851
.1874	0.4602	−0.862	922.1725	0.0286	−0.798
.1918	0.4627	−0.880	.1733	0.0288	−0.785
.1968	0.4629	−0.879	.1833	0.0317	−0.816
.2096	0.4666	−0.818	.1842	0.0320	−0.817
626.1066	0.8411	−0.856	.1928	0.0345	−0.833
.1205	0.8451	−0.861	.1945	0.0350	−0.838
.1329	0.8461	−0.867	.2042	0.0378	−0.848
.1293	0.8477	−0.854	.2064	0.0384	−0.787
.1366	0.8498	−0.882	.2193	0.0422	−0.847
.1454	0.8524	−0.874	.2208	0.0426	−0.849
.1639	0.8578	−0.851	.2241	0.0436	−0.858
.1896	0.8642	−0.833	.2337	0.0464	−0.825
.1964	0.8672	−0.845	.2465	0.0501	−0.828
.2032	0.8692	−0.854	.2497	0.0510	−0.837
.2118	0.8717	−0.854	.2610	0.0543	−0.846
.2225	0.8748	−0.863	.2631	0.0549	−0.852
.2303	0.8771	−0.867	.2717	0.0574	−0.838
.2379	0.8793	−0.869	.2724	0.0576	−0.857
.2433	0.8809	−0.862	.2768	0.0589	−0.832
.2521	0.8834	−0.878	.3070	0.0677	−0.859
.2541	0.8840	−0.872	924.1834	0.6123	−0.864
.2623	0.8864	−0.847	.1930	0.6167	−0.863
917.1885	0.5777	−0.885	.2019	0.6193	−0.925
.2003	0.5811	−0.848	.2075	0.6210	−0.849
.2118	0.5845	−0.858	.2159	0.6234	−0.880
.2247	0.5882	−0.867	.2240	0.6258	−0.878
.2401	0.5927	−0.808	.2331	0.6284	−0.861
.2410	0.5930	−0.820	.2474	0.6325	−0.868
.2864	0.6062	−0.809	.2575	0.6355	−0.870
.2950	0.6087	−0.860	.2642	0.6375	−0.871
.3043	0.6114	−0.864	.2721	0.6398	−0.872
.3189	0.6156	−0.863	.2870	0.6441	−0.871
.3211	0.6163	−0.863	.3032	0.6488	−0.878
.3349	0.6203	−0.854	.3203	0.6538	−0.809
.3384	0.6213	−0.864	.3266	0.6556	−0.857
.3523	0.6254	−0.850	.3280	0.6560	−0.861
.3548	0.6261	−0.865	.3349	0.6581	−0.874
.3664	0.6295	−0.852	.3530	0.6633	−0.871

Table V(c) (Continued)

JD(Hel)	Phase	Δm	JD(Hel)	Phase	Δm
2 440 924.3626	0.6661	$-0^m.884$	929.1931	0.0723	$-0^m.844$
.3711	0.6686	−0.891	.1958	0.0731	−0.850
.3718	0.6688	−0.909	.2046	0.0757	−0.839
.3784	0.6707	−0.878	.2076	0.0766	−0.844
.3964	0.6760	−0.884	.2178	0.0795	−0.861
.4030	0.6779	−0.887	.2202	0.0802	−0.851
.4106	0.6801	−0.890	.2278	0.0824	−0.858
.4183	0.6823	−0.899	.2431	0.0869	−0.864
.4259	0.6845	−0.896	.2500	0.0889	−0.864
.4308	0.6860	−0.877	.2580	0.0912	−0.869
926.1262	0.1795	−0.851	.2682	0.0942	−0.850
.1360	0.1824	−0.857	.2776	0.0969	−0.847
.1783	0.1947	−0.853	.3002	0.1035	−0.857
.2084	0.2035	−0.829	.3109	0.1066	−0.852
.2174	0.2061	−0.871	.3217	0.1098	−0.851
.2243	0.2081	−0.859	944.1154	0.4163	−0.873
.2323	0.2104	−0.868	.1163	0.4166	−0.851
.2386	0.2122	−0.851	.1176	0.4170	−0.858
.2717	0.2219	−0.870	.1525	0.4271	−0.889
.2789	0.2240	−0.854	.1566	0.4283	−0.874
.2847	0.2257	−0.850	.1613	0.4297	−0.879
.3006	0.2303	−0.854	.1670	0.4314	−0.861
.3069	0.2321	−0.874	.1745	0.4335	−0.856
.3144	0.2343	−0.853	.1829	0.4360	−0.858
.3209	0.2362	−0.863	.1894	0.4379	−0.879
.3299	0.2388	−0.865	.1961	0.4398	−0.871
.3369	0.2409	−0.864	.2028	0.4418	−0.866
.3440	0.2429	−0.857	.2115	0.4443	−0.868
.3501	0.2447	−0.852	.2206	0.4470	−0.869
.3592	0.2474	−0.854	.2503	0.4556	−0.857
.3667	0.2495	−0.853	.2575	0.4577	−0.841
.3741	0.2517	−0.847	.2665	0.4603	−0.868
.3806	0.2536	−0.849	.2731	0.4623	−0.864
.3894	0.2561	−0.845	.2813	0.4646	−0.855
.3958	0.2580	−0.860	.2875	0.4664	−0.847
.4024	0.2599	−0.879	.2947	0.4685	−0.838
.4202	0.2651	−0.844	947.1608	0.3029	−0.880
.4265	0.2669	−0.861	.1623	0.3033	−0.852
.4351	0.2695	−0.861	.1718	0.3061	−0.854
.4417	0.2714	−0.866	.1816	0.3090	−0.871
.4481	0.2732	−0.859	.1979	0.3137	−0.868
.4549	0.2752	−0.869	.2100	0.3172	−0.877
.4622	0.2773	−0.879	.2201	0.3201	−0.877
929.1447	0.0583	−0.877	.2273	0.3223	−0.855
.1534	0.0608	−0.856	.2355	0.3246	−0.844
.1653	0.0642	−0.856	.2635	0.3328	−0.857
.1682	0.0651	−0.843	.2741	0.3359	−0.872
.1784	0.0681	−0.866	.2804	0.3377	−0.867
.1810	0.0688	−0.837	.2856	0.3392	−0.870

Table V(c) (Continued)

JD(Hel)	Phase	Δm	JD(Hel)	Phase	Δm
2 440 947.2905	0.3407	$-0^m.857$	958.1361	0.4979	$-0^m.374$
.2978	0.3248	−0.893	.1460	0.5008	−0.384
.3040	0.3446	−0.869	.1489	0.5016	−0.360
.3098	0.3463	−0.862	.1543	0.5032	−0.410
.3246	0.3506	−0.843	.1574	0.5041	−0.401
.3258	0.3509	−0.854	.1649	0.5063	−0.430
.3448	0.3565	−0.867	.1677	0.5071	−0.452
.3538	0.3591	−0.822	.1734	0.5088	−0.491
.3593	0.3607	−0.851	.1758	0.5095	−0.510
.3675	0.3631	−0.842	.1785	0.5103	−0.489
949.1445	−0.1196	−0.855	.1853	0.5122	−0.527
.1524	−0.1174	−0.840	.1880	0.5130	−0.520
.1586	−0.1155	−0.853	.1949	0.5150	−0.591
.1677	−0.1129	−0.874	.1977	0.5159	−0.575
.1758	−0.1105	−0.846	.2021	0.5171	−0.611
.1847	−0.1079	−0.853	.2124	0.5201	−0.673
.2123	−0.0999	−0.855	.2156	0.5210	−0.687
.2180	−0.0982	−0.862	.2205	0.5225	−0.692
.2269	−0.0957	−0.825	.2249	0.5238	−0.702
.2323	−0.0941	−0.857	.2411	0.5285	−0.772
.2426	−0.0911	−0.858	.2483	0.5306	−0.798
.2628	−0.0852	−0.859	.2563	0.5330	−0.805
.2694	−0.0833	−0.856	.2620	0.5346	−0.826
.2967	−0.0753	−0.852	.2697	0.5368	−0.842
.3093	−0.0717	−0.863	.2972	0.5448	−0.857
950.1153	0.1630	−0.864	.3033	0.5466	−0.862
.1569	0.1751	−0.854	.3067	0.5476	−0.852
.1650	0.1774	−0.849	.3145	0.5498	−0.832
.1722	0.1796	−0.870	.3179	0.5508	−0.825
.1772	0.1810	−0.858	.3254	0.5530	−0.829
.1850	0.1833	−0.860	.3323	0.5550	−0.849
.2103	0.1906	−0.823	.3395	0.5571	−0.832
.2158	0.1922	−0.838	.3469	0.5593	−0.847
.2237	0.1945	−0.856	.3531	0.5611	−0.815
.2251	0.1949	−0.850	.3612	0.5634	−0.832
.2322	0.1970	−0.856	.3700	0.5660	−0.866
.2374	0.1985	−0.855	959.0856	0.7743	−0.864
.2446	0.2006	−0.852	.1006	0.7787	−0.871
.2460	0.2010	−0.863	.1017	0.7790	−0.841
.2131	0.2031	−0.882	.1150	0.7829	−0.851
.2912	0.2142	−0.849	.1215	0.7848	−0.889
.2962	0.2156	−0.861	.1323	0.7879	−0.840
.3037	0.2178	−0.877	.1423	0.7908	−0.869
.3118	0.2202	−0.860	.1676	0.7982	−0.869
.3201	0.2226	−0.824	.1811	0.8021	−0.844
.3299	0.2254	−0.883	.1917	0.8052	−0.858
.3320	0.2260	−0.871	.1976	0.8069	−0.840
.3396	0.2283	−0.895	.2049	0.8091	−0.866
958.1289	0.4958	−0.383	.2384	0.8188	−0.821

Table V(c) (Continued)

JD(Hel)	Phase	Δm	JD(Hel)	Phase	Δm
2 440 959.2468	0.8212	−0.852	2 441 631.3985	0.4908	−0.414
.2542	0.8234	−0.865	.4046	0.4925	−0.400
.2673	0.8272	−0.837	.4103	0.4942	−0.362
.2769	0.8300	−0.856	.4157	0.4958	−0.346
.2820	0.8315	−0.850	.4239	0.4981	−0.326
.2908	0.8341	−0.852	.4359	0.5016	−0.309
.2982	0.8362	−0.848	650.1146	−0.0521	−0.858
.3267	0.8445	−0.866	.1545	−0.0492	−0.861
.3325	0.8462	−0.859	.1669	−0.0456	−0.843
.3416	0.8488	−0.858	.1798	−0.0419	−0.860
.3510	0.8516	−0.861	.1911	−0.0386	−0.857
.3667	0.8562	−0.880	.1999	−0.0360	−0.839
987.1173	−0.0654	−0.834	.2135	−0.0321	−0.824
.1181	−0.0652	−0.845	.2202	−0.0301	−0.776
.1215	−0.0642	−0.812	.2298	−0.0273	−0.757
.1225	−0.0639	−0.831	.2363	−0.0254	−0.728
.1791	−0.0474	−0.835	.2399	−0.0244	−0.715
.1877	−0.0449	−0.848	.2472	−0.0222	−0.675
.1929	−0.0434	−0.853	.2560	−0.0197	−0.624
.1987	−0.0417	−0.848	.2630	−0.0176	−0.577
.2033	−0.0404	−0.851	.2722	−0.0150	−0.523
.2085	−0.0389	−0.842	.2813	−0.0123	−0.482
.2133	−0.0375	−0.830	.2954	−0.0082	−0.400
.2189	−0.0358	−0.844	.2979	−0.0075	−0.375
.2241	−0.0343	−0.824	.3072	−0.0048	−0.319
.2304	−0.0325	−0.811	.3113	−0.0036	−0.299
.2352	−0.0311	−0.797	.3195	−0.0012	−0.288
.2422	−0.0291	−0.745	.3227	−0.0003	−0.284
.2520	−0.0262	−0.704	.3288	0.0015	−0.294
.2592	−0.0241	−0.660	.3379	0.0043	−0.316
.2896	−0.0153	−0.571	.3391	0.0045	−0.374
.2964	−0.0133	−0.508	.3431	0.0057	−0.343
.3011	−0.0119	−0.449	.3452	0.0063	−0.355
.3057	−0.0106	−0.467	.3499	0.0077	−0.386
2 441 631.2674	0.4526	−0.837	.3546	0.0090	−0.415
.2819	0.4568	−0.843	.3593	0.0104	−0.447
.2889	0.4588	−0.816	.3660	0.0124	−0.496
.2970	0.4612	−0.864	.3686	0.0131	−0.516
.3068	0.4641	−0.852	.3761	0.0153	−0.572
.3166	0.4669	−0.789	.3840	0.0176	−0.604
.3276	0.4701	−0.798	.3884	0.0189	−0.627
.3473	0.4758	−0.707	.3968	0.0213	−0.669
.3544	0.4779	−0.664	.4028	0.0231	−0.669
.3550	0.4781	−0.674	.4145	0.0265	−0.759
.3625	0.4803	−0.647	.4204	0.0282	−0.776
.3691	0.4822	−0.591	.4272	0.0302	−0.790
.3778	0.4847	−0.535	.4316	0.0314	−0.818
.3852	0.4869	−0.530	.4406	0.0341	−0.823
.3930	0.4892	−0.460	.4445	0.0352	−0.848

Table V(c) (Continued)

JD(Hel)	Phase	Δm	JD(Hel)	Phase	Δm
2 441 652.2159	0.5509	$-0^m.855$	662.2439	0.4701	$-0^m.792$
.2250	0.5535	−0.851	.2493	0.4717	−0.757
.2343	0.5562	−0.857	.2597	0.4747	−0.714
.2438	0.5590	−0.859	.2632	0.4747	−0.804
.2514	0.5612	−0.861	.2714	0.4781	−0.671
.2623	0.5644	−0.883	.2769	0.4797	−0.651
.2698	0.5666	−0.838	.2825	0.4814	−0.625
.2787	0.5691	−0.845	.2890	0.4832	−0.577
.2954	0.5740	−0.838	.2939	0.4847	−0.536
.3038	0.5765	−0.829	.2997	0.4864	−0.541
.3149	0.5797	−0.839	.3045	0.4878	−0.488
.3248	0.5826	−0.847	.3114	0.4898	−0.438
.3339	0.5852	−0.853	.3134	0.4903	−0.421
.3438	0.5881	−0.835	.3197	0.4922	−0.380
.3500	0.5899	−0.852	.3268	0.4942	−0.358
.3561	0.5917	−0.855	.3275	0.4944	−0.358
.3616	0.5933	−0.851	.3337	0.4963	−0.336
657.1492	−0.0130	−0.520	.3380	0.4975	−0.312
.1502	−0.0127	−0.503	.3436	0.4991	−0.322
.1557	−0.0111	−0.464	.3444	0.4994	−0.313
.1602	−0.0098	−0.439	.3486	0.5006	−0.298
.1659	−0.0081	−0.390	.3541	0.5022	−0.323
.1671	−0.0078	−0.383	.3561	0.5028	−0.331
.1738	−0.0058	−0.324	.3619	0.5045	−0.346
.1785	−0.0045	−0.325	.3672	0.5060	−0.368
.1880	−0.0017	−0.300	.3680	0.5062	−0.366
662.1618	0.4462	−0.855	.3688	0.5065	−0.357
.1788	0.4512	−0.846	.3735	0.5078	−0.405
.1823	0.4522	−0.844	.3744	0.5081	−0.398
.1845	0.4528	−0.843	.3797	0.5096	−0.467
.1916	0.4549	−0.851	.3827	0.5105	−0.454
.1977	0.4567	−0.828	.3839	0.5109	−0.463
.2026	0.4581	−0.858	.3903	0.5127	−0.488
.2089	0.4599	−0.853	.3943	0.5139	−0.510
.2232	0.4641	−0.830	.3949	0.5141	−0.524
.2311	0.4664	−0.826	.4000	0.5156	−0.554
.2323	0.4667	−0.812	.4052	0.5171	−0.588
.2377	0.4683	−0.796	.4057	0.5172	−0.580

Acknowledgements

The author is thankful to Dr S. D. Sinvhal for suggesting the problem and for guidance. Thanks are also due to Mr C. D. Kandpal for participation in the observations.

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