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PRIMARY MINIMUM OF W CRUCIS

In response to the request by Plavec (1984) for observations of W Crucis during the primary eclipse predicted for JD 2445893, photoelectric photometry was carried out on the 1.0m and 0.5m telescopes at the Sutherland observing station of S.A.A.O. by J. Spencer Jones, F. Marang and J. D. Laing. The nearby Star HD 106015 was used as a comparison star and was assumed to have the following magnitude and colours: $V = 8.990$, $B-V = 0.110$, $U-B = 0.237$, $(V-R)_c = 0.094$ and $(V-I)_c = 0.200$ where the last two colours are on the Cousins' System (Cousins, 1980). The results are listed in Table 1 below. Errors are estimated to be ± 0.005 for all quantities.

Table 1
 Photometry of W Cru

HJD	V	B-V	U-B	$(V-R)_c$	$(V-I)_c$
2445800+					
85.297	8.860	1.146	0.710	0.633	1.180
86.260	8.899	1.140	0.683	0.627	1.168
87.252	8.945	1.152	0.702	0.635	1.178
88.258	8.968	1.152	0.665	0.631	1.166
89.244	8.978	1.143	0.615	0.632	1.169
90.248	8.992	1.117	0.575	0.624	1.163
91.248	8.997	1.125	0.582	0.621	1.159
92.255	8.995	1.118	0.570	0.612	1.137
93.241	8.992	1.106	0.525	0.617	1.139
97.273	8.988	1.112	0.609	0.614	1.129
100.267	8.914	1.112	0.532	0.595	1.108
104.272	8.778	1.125	0.633	0.619	1.142
122.238	8.254	1.024	0.645	0.557	1.100
123.235	8.258	1.042	0.621	0.585	1.130
125.230	8.263	1.029	0.630	0.589	1.116
126.235	8.255	1.054	0.626	0.586	1.128

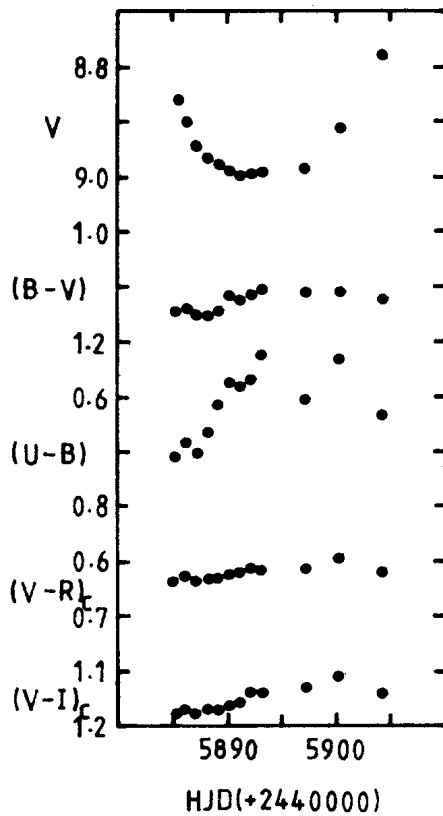


Figure 1: Light and colour curves for W Cru.

The results are shown graphically in Figure 1 for the period 2445885 to 2445904.

From our data, it appears that the primary eclipse is total in V, totality lasting at least three, and possibly as long as six days. The simple expedient of reflecting the points of the V light curve about a vertical axis of symmetry leads to our estimate of the time of mid-eclipse of 2445893.7 ± 0.1 which yields an O-C = + 0.32 with respect to the ephemeris given by Plavec (1984).

All colours become progressively bluer up to the time of mid eclipse, with (U-B) changing the most.

Apart from our discovery that primary minimum is total, our results appear to agree well with those of Marino, Walker and Herdman (1984).

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