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# V 758 Cen, LIGHT CURVE AND STUDY OF THE PERIOD

The eclipsing binary V758 Cen was discovered by W.Strohmeier, H. Ott and E. Schöffel (IBVS, No. 261, 1968); they also published 25 times of photographic minima, and found a period $P=0^d.5807835$. K. Chen (IBVS, No. 284, 1968) observed V758 Cen photoelectrically (B) and derived a time of minimum light giving $(O-C)=0^d.029$ for the elements determined by Strohmeier et al. Further, H. Bauernfeind (Veröff., Bamberg, Band VIII, 81, 1968) gave 118 minima (and maxima); from these data he found a systematic trend for the residuals in the interval JD 2415000-2430000 when comparing the observations with Strohmeier et al. elements; suggesting a somewhat larger period.

In this note a V-light curve is presented from 500 UBV photoelectric observations carried out at the Bosque Alegre Station of Cordoba Observatory with the 154 cm reflecting telescope (Figure 1). The observations are given differentially in rela-

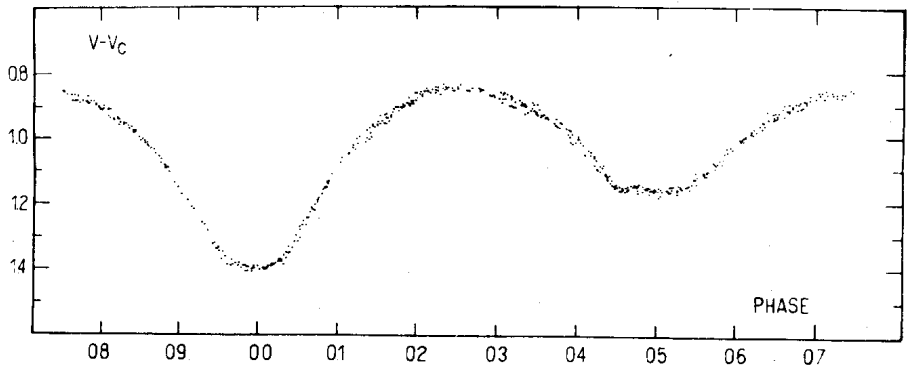

Figure 1

tion to the comparison star HD 120909 (B8). The light variation

shows a curved primary minimum and a flat secondary one, thus primary being a transit, while secondary is an occultation due to a slightly hotter component, so that the system may be classified as a type-A close (contact) binary.

Three times of minima were derived from each light curve (U,B and V), also two minima were obtained from Chen's photoelectric observations. These minima are listed in Table I.

Table I

Minima of V758 Cen

| Min. | Colour | J.D.hel (2400000+) | W | Cycles | (O-C)' | (O-C) |
|---|---|---|---|---|---|---|
| I | B | 39977.6959 | 3 | -7620.0 | -0.0017 | 0.0021 |
| II | B | 39982.6358 | 3 | -7611.5 | 0.0016 | 0.0053 |
| II | V | 44389.6313 | 3 | -23.5 | 0.0015 | 0.0000 |
| II | B | 44389.6314 | 3 | -23.5 | 0.0016 | 0.0001 |
| II | U | 44389.6321 | 2 | -23.5 | 0.0023 | 0.0008 |
| II | V | 44392.5335 | 3 | -18.5 | -0.0002 | -0.0017 |
| II | B | 44392.5334 | 3 | -18.5 | -0.0003 | -0.0018 |
| II | U | 44392.5358 | 2 | -18.5 | 0.0020 | 0.0006 |
| I | V | 44451.4806 | 3 | 83.0 | -0.0028 | -0.0043 |
| I | B | 44451.4812 | 3 | 83.0 | -0.0022 | -0.0037 |
| I | U | 44451.4815 | 2 | 83.0 | -0.0019 | -0.0034 |

From the photoelectric data only, the following least squares ephemeris was found:

$$\text{P.M.} = \text{JD hel. } 2444403.2783 + 0^{d}.5807850 \cdot E$$
$$\pm 0.0004 \pm 0.0000001 \quad \text{(p.e.)}$$

The cycles E, weights and residuals (O-C)' are given in Table I.

The photographic observations of Strohmeier et al. and Bauernfeind quoted above were also analyzed together with the present material; weight W=1 was assigned to photographic values, while W=3, 3 and 2 to the V,B and U minima. The least squares light elements for all data (excluding maxima) are:

$$\text{P.M.} = \text{JD hel } 2444403.2797 + 0^{d}.58078556 \cdot E$$
$$\pm 0.0012 \pm 0.00000004 \quad \text{(p.e.)}$$

The residuals (O-C) are also in Table I for photoelectric minima; and for all observations including photographic values (135 minima) are displayed in Figure 2.

It is noted that the period obtained from photoelectric observations (7703 cycles) is very close to that found from all

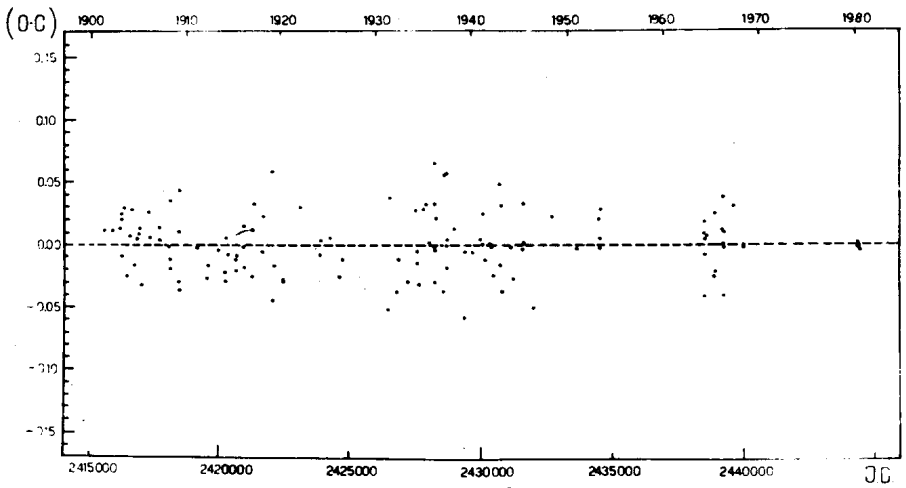


Figure 2

the data (49791 cycles), and somewhat larger than that previously found. The residuals are randomly distributed, so that the period has been constant for the last 80 years.

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