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HR 3327 - AN ECLIPSING BINARY WITH ECCENTRIC ORBIT

During photoelectric observations of AS Vel on the night Feb. 3-4, 1972, the check star

HR 3327 = HD 71487 (A0) = CoD $-38^{\circ}4462$

was found to be an eclipsing binary of Algol-type. The observations were made with a four-channel photometer attached to the Copenhagen 50 cm telescope at European Southern Observatory, La Silla, Chile. Filters of the Strömgren four-colour ubvy system were employed. HR 3327 has now been observed on seven nights with the result that two primary minima and one secondary minimum were obtained (Table 1).

Table 1. Times of heliocentric minima.

Min I	JD 244 1351.7094	$\pm$0.0007
II	1353.6976	$\pm$0.0014
I	1361.7643	$\pm$0.0007

HR 3327 is the primary component of the visual binary HR 3327-8 (m_V(A) = $6^m.68$, m_V(B) = $7^m.28$, distance = 8".1). Because of the small distance the combined light of both components was measured through a diaphragm with a diameter of 30". In the Figure the magnitude difference m_b(A+B) $-$ m_b(comp) is given by the scale to the left: the comparison star and check star were CoD $-38^{\circ}4561$ ($7^m.2$, B9) and CoD $-38^{\circ}4515$ ($8^m.5$, F5) respectively. The phases were computed according to the ephemeris given below. The secondary component was measured separately on nights with good seeing through a small diaphragm, and in the scale to the right the light of the secondary has been subtracted (Δy(max) = $0^m.67$).

The depths of the two minima in the instrumental system, which should be very close to the standard system, are given in Table 2. The duration of primary eclipse is about four hours corresponding to a fraction of 0.13 of the preliminary period. The secondary minimum is displaced to phase 0.582 indicating an eccentric orbit.

Table 2. Depths of minima.

	u	v	b	y
Min I	$0^m.45$	$0^m.44$	$0^m.44$	$0^m.45$
II	0.06	0.09	0.12	0.12

m.e.= $0^m.01$

Five coudé-spectra of 12 A/mm taken on four different nights by Dr.J.P. Swings with the ESO 1.5 m spectrographic telescope show a single-lined spectrum of probably a main-sequence star around B9. Preliminary radial-velocities show a range of about 190 km/sec.

The combination of photometric and radial-velocity data gives the following ephemeris:

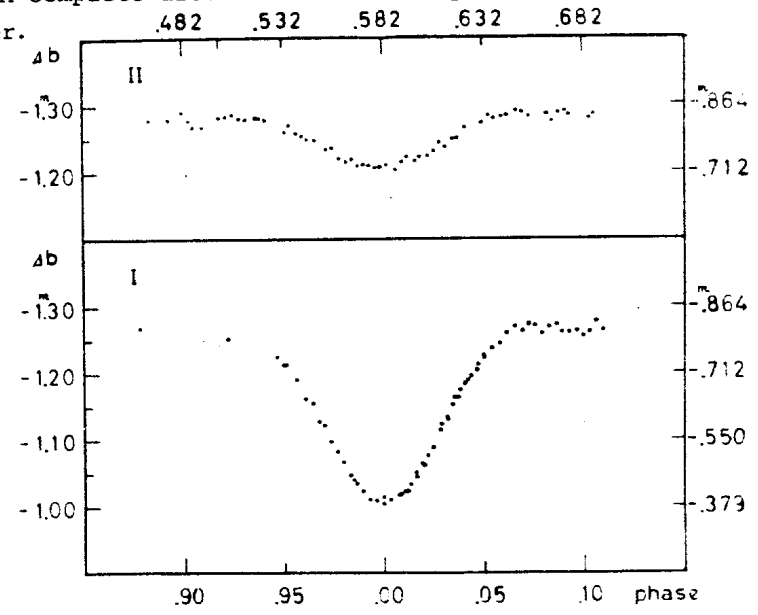
Min I JD 244 1361.7643 + $1^d.25686$. E

$\pm$ 7 $\pm$ 12

Min II - Min I = $0^p.582$.

The author is greatly indebted to Dr. J.P.Swings who generously gave some of his observing time to an investigation of this object, and to Mr. E.H.Olsen, who made some of the photoelectric observations.

A complete discussion of this system will be published later.



European Southern Observatory
La Silla.
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