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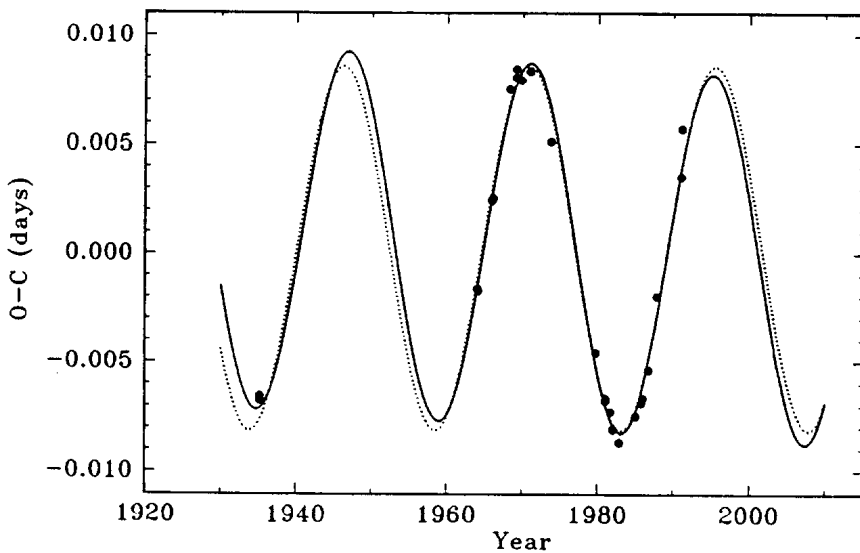
TIMES OF MINIMUM NEEDED FOR AR AURIGAE!

The well-known bright (6^m15-6^m82) eclipsing binary AR Aurigae (HD 34364, HR 1728, B9 Vp + B9.5 V, $P = 4^d13$) is one of the very few early-type stars with a radius small enough that it must be essentially unevolved. In fact, a recent analysis (Johansen & Nordström 1993) shows that the secondary may still be contracting towards the ZAMS. At the same time, at least one of the components is a Bp star of the Hg-Mn variety. Thus, determining the masses, radii, and other physical properties of the components of AR Aur to the highest modern standards becomes a matter of priority in order to optimise the value of this system as a test object for evolution models of young stars around $2M_{\odot}$. (cf. Andersen 1991)

Among its several unusual features, AR Aur is also a triple system with a near-circular orbit of period ~ 24 yr as revealed by the light time effect on the observed times of minimum (Chochol et al. 1988). The light-time orbit has also been studied in our reanalysis of the system, taking into account the recent photoelectric minima observed by Busch (1989, 1991).

Fig. 1 shows the *O-C* diagram corresponding to the Chochol et al. ephemeris:

$$\text{Mini} = \text{HJD } 2\,438\,402.1847 + 4^d1346662 \cdot E$$



The two curves show two light-time orbit fits to the data, assuming either the Chochol et al. orbital period of the eclipsing system, or the slightly longer value of $\#13466645$.

It is clear that, with the present distribution of the observations, the fit is poorly constrained, and the two orbital motions cannot be separated with certainty. In order to remove this ambiguity, it is important to cover the impending maximum of the *O-C* curve with several well-observed (i.e. photoelectric) times of minimum over the period 1993-1998. As AR Aur is bright and of conveniently short period, this is a task which can be accomplished by amateurs and professionals alike with modest-size telescopes.

In previous photometry of AR Aur, it has been a problem that several promising comparison stars have later proved to be variable (Johansen & Nordström 1993). We therefore propose to use (always) two of the following:

HR 1734 (6^m49 , A7V), HR 1738 (5^m52 , A3V), or HR 1749 (5^m23 , B3V)
 HR 1734 has a faint (11^m8) companion at a distance of $3''.8$ which always should be included.

It is the purpose of this note to call the attention of interested observers to this favourable opportunity to contribute significantly to our knowledge of this important binary system.

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