

COMMISSION 27 OF THE I. A. U.
 INFORMATION BULLETIN ON VARIABLE STARS

Number 2472

Konkoly Observatory
 Budapest
 8 February 1984
 HU ISSN 0374-0676

LACK OF DETECTION OF A $1^h.77$ -PERIODICITY IN THE CP STAR HD 32633

The CP2 star, HD 32633 (HZ Aur, BD +33^o954, SAO 57631, $m_v = 6.94$, sp=B8) was first noted to have a possible photometric variability of $1^h.46^m$ by Rakos (1963), but neither the details nor light curves are given. Evidence for radial velocity variations with this period were presented by Preston and Stepien (1968), but it is not conclusive. Percy (1973) found no systematic variations greater than 0.010 in B, while Stepien and Romaniuk (1973) claim some evidence exists for short-period variability. Weiss (1983) discusses

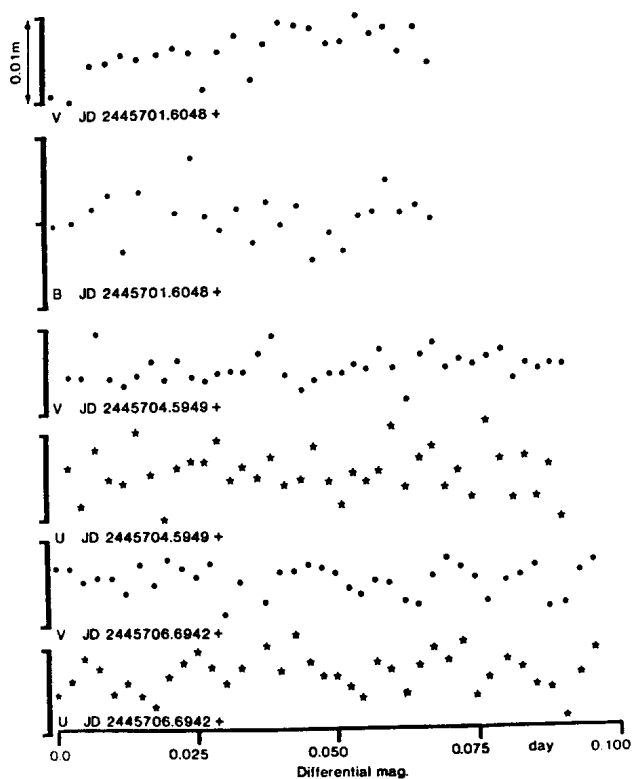


Figure 1

HD 32633 as a possible member of the small group of CP stars showing δ Sct characteristics, but points out the marginal evidence. Consequently, additional photoelectric observations were secured at Lowell Observatory.

Photometry was obtained on three nights using Lowell's 1.1 m telescope with a dual-channel photometer and electronically cooled EMI tubes. As a comparison star, either BD +33^o949 ($m_v = 8.5$) or BD +34^o948 ($m_v = 7.8$) was used. Differential photometry was performed using the average of three 15-second integrations on the program star and the comparison star. Johnson U,B and V filters were utilized. The resulting differential magnitudes are plotted in the Figure, no corrections to heliocentric time have been applied.

No period is evident on the time scale of 1^h46^m in any of these data sets. If the periodicity is to be explained as a δ Sct-like pulsation, the amplitude in B should be about 0.^m03 (Weiss 1983, *op. cit.*). The data presented here speak against any such periodicity, but if the situation is similar to the lack of an observed 1^h29^m period in HD 10088 (Kreidl 1984), it certainly cannot be ruled out that such a period may be present on occasion.

Both HD 10088 and HD 32633 seem to cease δ Sct-like pulsational activity over longer periods of time than one would expect. If only these two and not the other known members (HD 3326, HD 4849 and HD 108945) show stages of inactivity, then an explanation is certainly needed to account for such a major difference among the group members.

TOBIAS J. KREIDL
 Lowell Observatory
 P.O. Box 1269
 Flagstaff, AZ 86002
 U.S.A.

References:

- Kreidl, T.J., 1984, I.B.V.S. No. 2460
 Percy, J.R., 1973, *Astron.Astrophys.* 22, 381
 Preston, G.W. and Stepien, K., 1968, *Ap.J.* 151, 577
 Rakos, K.D., 1963, *Lowell Obs. Bull.* 6, No. 2, 91
 Stepien, K. and Romaniuk, M., 1973, *Acta Astron.* 23, 257
 Weiss, W.W., 1983, *Astron.Astrophys.* 128, 152