

COMMISSION 27 OF THE I. A. U.
INFORMATION BULLETIN ON VARIABLE STARS
Number 2849

Konkoly Observatory
Budapest
15 January 1986
HU ISSN 0374 - 0676

A NOTE ON V1286 AQUILAE

V1286 Aql = 10 Aql = HD176232 = HR7167 is a bright peculiar A-type star about which there is confusion in the literature regarding the amplitude and period of the photometric variation.

The latest edition of The Bright Star Catalogue (Hoffleit and Jaschek, 1982) records a variation between $V = 5.83$ and 5.93 , or a total range of 0.1 magnitude, and an uncertain period of 6.05 days. The source for that information appears to have been the data file for the latest edition of the General Catalogue of Variable Stars (Kholopov, 1985). The primary reference for the latter is listed as Guerrero and Mantegazza (1973). In fact, we find no evidence in the published data on this star for an amplitude of variation as large as $0^m.1$. Our own observations are consistent with others in indicating an amplitude of order $0^m.01$.

Stępień (1968) found a variation between $V = 5.888$ and 5.907 and a period of 9.78 days with, however, a rather large scatter. Preston (1970) concluded on the basis of his spectroscopic observations and the earlier work of Babcock that, if

the oblique rotator model applies, the period of the star must be "measured in years". Wolff and Morrison (1973) could find no significant photometric variations during one season. Guerrero and Mantegazza (1973) found a range of approximately $0^m.015$ in V over 27 nights in one season but did not find the 9.78 day periodicity. The best period found by them was 6.05 days but the scatter in the light curve was so large as to lead them to conclude that "the $6^d.05$ period is not true".

The most convincing evidence for short period variations was found by Winzer (1974) whose observations in two runs in two successive years revealed a total range of $0^m.01$ in V and a period of $6^d.5386$. That period also satisfies Stępień's data. We find, however, that the data of Guerrero and Mantegazza are not satisfied by this period.

During 12 nights between May and December 1985, we observed V1286 Aql with a single channel photometer employing an uncooled 1P21 PMT on a 0.45-m telescope, all the equipment having been built by one of us (M.A.). The star was observed in a sequence with HD174853 (see preceding contribution) and using HD175592 as the comparison star. Corrections have been applied for differential extinction. On a given night observations extended over 1.1 to 4.4 hours. The nightly averaged heliocentric Julian Dates, magnitude differences (in the sense V1286 Aql minus HD175592), and standard errors of the nightly

means are given below:

<u>JD (0)</u> (2440000+)	<u>ΔV</u>	<u>s.e.</u>
6213.871	0.7015	0.0012
6217.865	0.7066	0.0015
6230.823	0.7017	0.0013
6242.854	0.7066	0.0011
6251.826	0.7047	0.0028
6256.800	0.7073	0.0023
6262.836	0.7076	0.0015
6273.856	0.7110	0.0020
6333.718	0.7155	0.0019
6336.779	0.7064	0.0030
6337.693	0.7071	0.0020
6401.561	0.7085	0.0038

We find a total range of less than $0^m.015$. Our data are not inconsistent with the $6^d.5386$ period though the scatter about the resultant curve is larger than it was for Winzer's data.

Various of the observers cited above have compared the published values of seasonally averaged V magnitudes for V1286 Aq1. The total range of approximately $0^m.06$ could easily be due for the most part to external errors associated with the use by different observers of different equipment, comparison stars, and reduction procedures.

On the basis of our observations and others published previously, we draw the following conclusions:

1. V1286 Aql does not vary in either the long or short term by as much as $0^m.1$. The range given in the GCVS and repeated in the BSC is either due to a misprint in the former or to a misreading of the published data;
2. The star probably does vary on a short time scale with an amplitude of approximately $0^m.01$. It would not be the first such star known in which photometric variations have a shorter time scale than the magnetic field variations;
3. The period of variation remains unknown. Of the various periods which have been proposed, none satisfies all the published data.

In order to determine unambiguously the true nature of the photometric variability of this star - and of others like it - repeated observations must be made over many successive nights and successive years using the same equipment, comparison stars and reduction procedures.

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