VZ Dor IS VW Dor

In the course of an extensive photoelectric observing pro-
gramme of southern cepheids, I have observed a star indicated
as VZ Dor at the chart position given by Schoffel (1). The star
is fainter than expected, varying from 11.2 to 12.1 in V, and
does not satisfy Schoffel's period of 1.3338 days.

According to GCVS (2) an RR Lyrae of 12th magnitude, VW Dor,
is 2' north of VZ Dor. The star marked VZ Dor on Schoffel's chart
occupies the same position as VW Dor in the Hodge-Wright Atlas
(3). This atlas does not mention VZ Dor. The brighter star at the
expected relative position for VZ Dor was also observed and found
to be non-variable (V=10.32, B-V=0.53). Thus VW Dor and VZ Dor
are apparently the same star.

The reciprocals of the periods of VZ Dor and VW Dor (0.7497
and 1.7527) differ by nearly an integer. Wrong periods are often
found for variables which are only observed once a night. See e.g.
Dean (4). Schoffel gives epochs of maxima; these satisfy both his
period and the period of 0.57056 days given by McKibben Nail (5)
for VW Dor (HV12250). (Table 2). The data observed at SAAO (Table 1)
satisfies only McKibben Nail's period (Figure). This occurs since
several observations were made twice a night, in order to avoid
ambiguities in the period.

Thus the period of VZ Dor alias VW Dor is 0.57056 days.

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References:

1. Schoffel, E., IBVS No.118, 1965

2. General Catalogue of Variable Stars, B.V.Kukarkin et al,
      Moscow 1969

3. The Large Magellanic Cloud,P.W.Hodge and F.W.Wright,SAO Publ.1966

4. Dean, J.F. IBVS No.902, 1974

5. McKibben Nail, ., H.B.No. 921, 1952

P=1.3338  P=0.57056
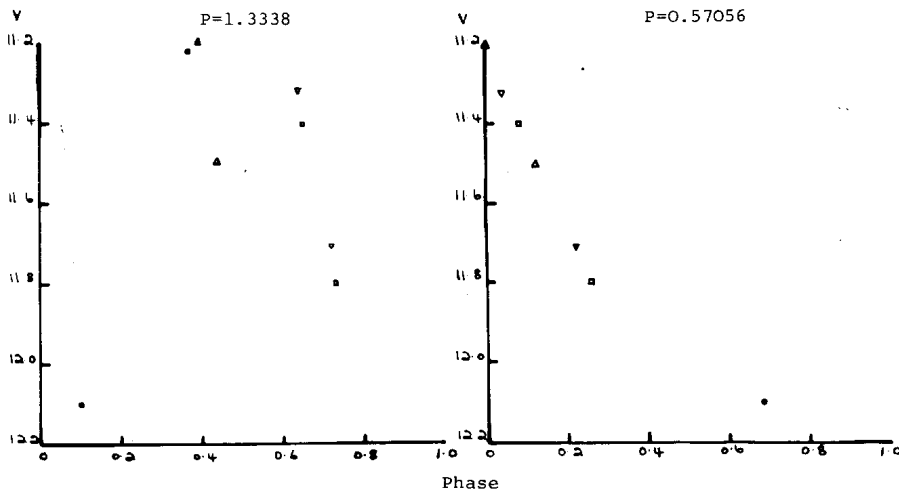
Phase

Light curve of VW Dor. SAAO data.Phase relative to 2440000.

Table 1: Observations of VW Dor at SAAO

| H.J.D. | $\phi_{1.33}$ | $\phi_{0.57}$ | V | B-V | V-I |
|---|---|---|---|---|---|
| 244 2465.385 | .39 | .99 | 11.21 | .19 | .36 |
| 465.455 | .44 | .12 | 11.49 | .29 | .47 |
| 473.362 | .37 | .97 | 11.22 | .20 | .35 |
| 474.339 | .10 | .69 | 12.11 | .49 | .74 |
| 708.471 | .64 | .04 | 11.32 | .22 | .39 |
| 708.575 | .72 | .22 | 11.71 | .39 | |
| 712.487 | .65 | .08 | 11.41 | .26 | |
| 712.592 | .73 | .26 | 11.80 | .38 | .58 |

Table 2: Schoffel's Epochs of Maxima

| EPOCH | PHASE RELATIVE TO FIRST MAXIMUM | |
|---|---|---|
| | P = 1.3338 | P = 0.57056 |
| 243 8379.453 | 0 | 0 |
| 707.550 | .99 | .04 |
| 739.506 | .95 | .05 |
| 798.279 | .01 | .06 |
| 810.272 | 0 | .08 |