

NOTE ON THE Ca II EMISSION IN CEPHEIDS

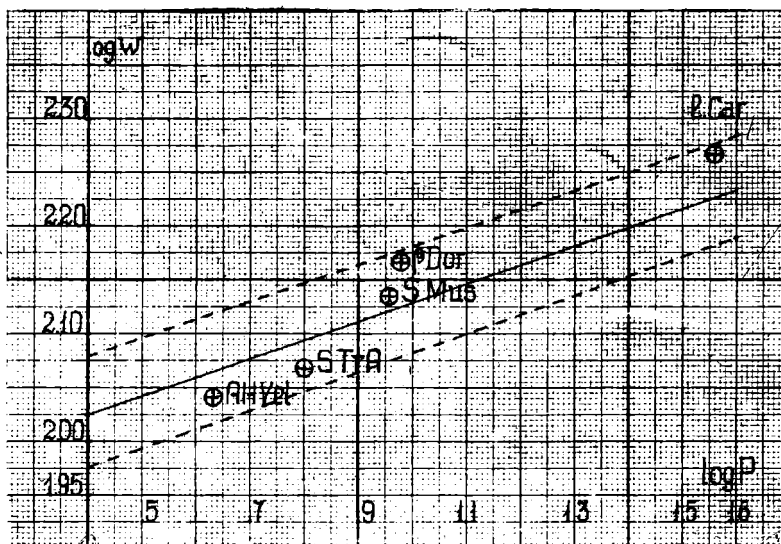
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It has been shown by O. Wilson and V. Bappu¹⁾ that a strong correlation exists between the absolute magnitude of late type stars and the strength of their CaII emissions. We have felt that this relation could also hold for Cepheid variables. From our plate material of Cepheids, taken with the 60" reflector of the Bosque Alegre station of the Córdoba Observatory (dispersion 42 Å/mm) we have selected all plates showing double emission in the H and/or K lines. The position of each emission wing was measured, and the difference between both measurements (in Km/sec) was taken as the width "W" of the emission. It is well known that the emission features in Cepheids are usually stronger in the H than in the K line; for this reason the results are based on the emissions in H alone. The results are collected in Table I and fig.1

TABLE I

AH Vel	4.23	1	2.04	2.07
S Tr A	6.32	1	2.07	2.10
S Mus	9.66	3	2.13	2.13
β Dor	9.82	2	2.17	2.14
l Car	35.53	3	2.27	2.23

FIG. 1



The first two columns give the name of the variable and the period (in days). The third gives the number of plates on which the results are based. The next one indicates the logarithm of the measured width. In the last column we have entered the "predicated log W". These values were calculated with the absolute magnitudes of the Cepheids taken from ALLEN's tabulation and the mean relation "M - log W" given by Wilson and Bappu.

As one can see, the predicted and the measured values agree very well within a few hundredths of log W. The mean error of one measured W is of the order of 10 km/sec. It is remarkable that the relation derived for stars showing a permanent emission is also obeyed by the Cepheids which show emission in one part of their radial velocity curve. It should be mentioned that all double emissions observed by us are seen on (or very nearby to) the descending branch of the radial velocity curve. In the case of ϵ Car the complete discussion of the observations has already been published elsewhere²⁾.

1) Wilson, O.C. and Bappu V.

Ap.J. 125, 661 (1957)

2) Jaschek M. and Jaschek C.

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