Remark on WY Normae

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Remark on AH Velorum, by *Ejnar Hertzsprung*.

This variable of the δ Cep type was estimated by the writer on 260 Harvard plates.

The comparison stars used are:

C.P.D.	red. to internat. scale	Cape ptg	Sp.	scale of steps
	m	m	m	s
a — 45°2259	7·2	6·7	5·9 B 3	·00
b — 46°2283	7·4	7·0	6·0 B 3	·31
c — 45°2315	7·7	7·4	6·6 A 2	·61

The phases were computed from the formula: phase $= {}^{d^{-1}}\cdot23657$ (J.D. hel. M. astr. T. Grw. — 2400000). Mean values of phase and brightness are given in Table 1. A least squares solution gave the sinusoid:

$$m = \cdot334 - \cdot980 \sin 2\pi P + \cdot024 \cos 2\pi P$$
$$\pm\cdot065 \qquad\qquad \pm\cdot065 \text{ (m.e.)}$$

The corresponding residuals O—C are entered in Table 1. The phase of the maximum of this sinusoid is $^{P}\cdot246 \pm {}^{P}\cdot011$ (m.e.) with a mean epoch of J.D. 2419192·010 ±·044 (m.e.).

The mean error of a single estimate on the Harvard plates was found to be $\pm^{s}\cdot09$ or nearly half the range. The light curve previously determined from 257 Johannesburg plates and published in *B.A.N.* No. 224 is represented by the sinusoid:

$$m = \cdot329 - \cdot043 \sin 2\pi P + \cdot168 \cos 2\pi P$$
$$\pm\cdot012 \qquad\qquad \pm\cdot012 \text{ (m.e.)}$$

The residuals O—C from the 26 normal places given in *B.A.N.* No. 224 are in units of $^{s}\cdot01$ as follows: — 2, + 4, + 1, + 4, + 3, 0, + 1, + 7, 0, — 9, — 1, — 7, — 7, — 1, + 3, + 5, + 2, + 5, + 4, + 2, + 2, — 2, — 5, — 2, — 3 and — 6 respectively. The phase of the maximum of this sinusoid is $^{P}\cdot460 \pm {}^{P}\cdot011$ (m.e.), corresponding to a mean epoch of J.D. 2426145·708 ±·047 (m.e.). The difference between the two epochs thus found is $6953^{d}\cdot698 \pm {}^{d}\cdot064$ (m.e.), which divided by the number 1645 gives the period to be $4^{d}\cdot227172 \pm {}^{d}\cdot000039$ (m.e.).

TABLE 1.

AH Vel

phase	brightness	O—C	phase	brightness	O—C
P	s	s	P	s	s
·0144	·351	+ ·023	·5245	·368	+ ·022
·0639	·327	+ 29	·5778	·371	— 7
·1062	·246	— 29	·6124	·393	— 3
·1452	·230	— 28	·6411	·421	+ 12
·1998	·239	— 3	·6598	·403	— 12
·2362	·211	— 25	·6926	·389	— 36
·2653	·234	— 2	·7227	·381	— 50
·2942	·252	+ 13	·7590	·419	— 13
·3335	·250	+ 2	·7972	·439	+ 10
·3770	·258	— 6	·8543	·430	+ 17
·4208	·275	— 10	·8951	·409	+ 13
·4538	·311	+ 8	·9316	·428	+ 51
·4832	·346	+ ·25	·9689	·354	— 1

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The Harvard period $^{d}\cdot5363$ is confirmed by Johannesburg plates. The star is so near the corner on the latter plates and so faint that it is well visible near maximum only. By combination of the Harvard epoch of maximum, J.D. $2424710^{d}\cdot501$, with 22 epochs from Franklin-Adams plates on which the star was found bright a period of $^{d}\cdot536337 \pm {}^{d}\cdot000011$ (m.e.) was derived. The m.e. of a single of the 23 epochs used is $\pm^{d}\cdot032$.

Owing to the asymmetry of the light curve the epochs of the 22 Johannesburg plates are systematically later than the maximum. On the assumption that this systematic difference is $^{d}\cdot007$ the corrected mean epoch of maximum derived from the 22 Johannesburg plates is J.D. hel. $2425713^{d}\cdot468 \pm {}^{d}\cdot007$.