

A NOTE ON THE PERIOD OF EH LIBRAE

By *N. B. Sanwal and M. C. Pande**Uttar Pradesh State Observatory, Naini Tal, India*

Photoelectric observations were made on the cluster type variable EH Librae on ten nights during 1960 and 1961. Observations were made in blue and yellow light during 1960 with a 1P21 photomultiplier photometer mounted on the 10-in. refractor while those during 1961 were made with the same photometer mounted on the 15-in. reflector. A linear D.C. amplifier with a Brown Recorder was used for recording the photo current. BD $-0^{\circ}2903$ was used as the primary comparison star and its brightness was checked against another star BD $-0^{\circ}2906$. Observations covering 15 cycles have been made for the variable. The light curve is quite regular and the mean observed ranges in yellow and blue light are $0^m.537$ and $0^m.664$ respectively in the instrumental system with an average deviation less than $0^m.01$. Within the limits of error of the observations no difference between times of maximum brightness in blue and yellow light was detected. The observed times of fourteen maxima derived by the method of bisection are given in Table I along with their respective weights in column 4. A least-squares solution of the data gave the following elements and their standard errors:

$$\text{Max. } \odot = \text{JD } 2436996.4452 + 0.08841317 E, \\ \pm 0.0003 \pm 0.00000013.$$

TABLE I

Observed Times of Maxima of EH Librae

$\text{JD } \odot$	E^*	$O-C^*$	$Wt.$
2436996.4443	40241	-0.0008	4
7054.2674	40895	$+0.0001$	4
7054.3552	40896	-0.0006	4
7075.2222	41132	$+0.0009$	4
7075.3109	41133	$+0.0012$	2
7075.3982	41134	$+0.0001$	3
7077.1670	41154	$+0.0006$	3
7082.2054	41211	-0.0005	3
7105.1927	41471	-0.0007	4
7403.3217	44843	-0.0011	2
7403.4115	44844	$+0.0003$	1
7408.3624	44900	0.0000	1
7410.3074	44922	-0.0001	2
7412.3402	44945	-0.0008	2

* Calculated Max. $\odot = \text{JD } 2433438.6079 + 0.08841324 E.$

Combining the above observed normal epoch with the photoelectric observations made by Fitch¹ we find the period to be $0^d.08841324$. This is almost the same as that derived by Fitch by combining his observations with those of Code². This indicates that the period of the star has not

changed appreciably since 1950. A least-squares solution using the individual maxima listed in Table I and those of Fitch and Code, ascribing the same weight to all the observations, yielded the following light elements and their standard errors:

$$\text{Max. } \odot = \text{JD } 2433438.6079 + 0.08841324 E, \\ \pm 0.0003 \pm 0.00000001.$$

The correct period for the star is thus $0^{\text{d}}.08841324$ rather than $0^{\text{d}}.0884139$ as given in the *General Catalogue of Variable Stars*.

References

- (1) W. S. Fitch, *A.J.*, **62**, 108, 1957.
- (2) A. D. Code, *P.A.S.P.*, **62**, 166, 1950.

SOME OBSERVATIONS ON THE LIGHT VARIABILITY OF RY BOOTIS

By N. B. Sanwal and M. C. Pande

Uttar Pradesh State Observatory, Naini Tal, India

The star RY Bootis (HD 130818, spectral type F5) classed in the HD Catalogue as a cepheid type variable of period $9^{\text{d}}.0$ having a visual range from $7^{\text{m}}.0$ to $7^{\text{m}}.4$ is, however, suspected to be a non-variable in the General Catalogue of Variable Stars.¹ Archer,² from his observations of the star on four nights in 1958, found that the brightness of the star suddenly increased by over $0^{\text{m}}.2$ on all the nights. Although the variations did not repeat exactly, he found that the features of sudden rise in the light of the star, which he termed maxima and spikes according to the rapidity of rise, occur at intervals of $0^{\text{d}}.19744 \pm 0^{\text{d}}.00002$. Further he observed that the value of Δm at maximum was different on different nights which he suggested could be due to a nine-day variation in light as given in the HD Catalogue.

The star was included in the observing programme at Naini Tal owing to the interesting nature of spikes reported for it which, if confirmed, would indicate the presence of a flaring phenomenon for stars of earlier spectral types, which has hitherto been observed only in dwarf stars of late spectral types. Photoelectric observations were made in yellow and blue light during the interval 1960 March–May on the 10-inch Cooke refractor using a 1P21 photomultiplier. The filters used in the programme are similar to *B* and *V* filters used by Johnson and Morgan to establish the *U*, *B*, *V* system. The star HD 131042 (spectral type G5) was used as the comparison star. The constancy of the light of this star was checked by comparing it with another star HD 130948 (spectral type G0). The yellow and blue magnitude differences between RY Bootis and HD 131042 were reduced to outside the atmosphere for the ten nights on which observations were made on the star.