

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

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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.

In Table I, column 1 gives the geocentric time of observation in J.D., columns 2 and 3 contain respectively the yellow and blue magnitude differences on the instrumental system in the sense (HD 131042—RY Bootis) and column 4 gives the weight of each measure and is essentially the number of individual observations combined together.

TABLE I
HD 131042—RY Bootis

J.D.	Δm_Y	Δm_B	Wt.	J.D.	Δm_Y	Δm_B	Wt.
2437012.369	0.384	0.556	3	2437055.201	0.381	0.537	4
12.393	0.392	0.560	3	55.222	0.377	0.541	4
12.428	0.391	0.551	5	55.244	0.388	0.545	4
12.446	0.393	0.550	4	55.263	0.382	0.543	4
12.464	0.385	0.557	5	55.281	0.383	0.554	4
12.480	0.397	0.561	4	55.315	0.375	0.539	4
13.425	0.375	0.551	2	55.334	0.378	0.549	4
14.427	0.378	0.559	3	55.352	0.391	0.558	3
14.454	0.390	0.558	3	55.368	0.382	0.546	3
18.432	0.386	0.552	4	55.386	0.377	0.547	4
25.431	0.378	0.549	4	55.407	0.380	0.540	6
26.385	0.384	0.551	4	55.427	0.384	0.541	3
53.228	0.380	0.548	4	55.444	0.391	0.524	6
54.199	0.382	0.537	2	56.191	0.381	0.544	4
54.425	0.381	0.557	3	56.205	0.374	0.522	1

Our observations indicate an extreme range in brightness over the entire period of observation amounting to $0^m.023$ and $0^m.039$ respectively in yellow and blue light. Also these measures do not indicate any regularity either in the short period given by Archer or the nine-day period given in the HD Catalogue. The standard deviations of the magnitude differences (RY Boo—HD 131042) in the yellow and blue are $0^m.006$ and $0^m.009$ respectively. The standard error of a single observation of weight one, as determined from the magnitude differences of the two comparison stars, is $0^m.006$ and $0^m.009$ respectively for yellow and blue light. Therefore, the observed scatter fails to reveal any significant variation in the light of RY Bootis and could be due to observational errors only. This leads us to believe that the light of the star remained constant during the period of observation. It is likely that the star was under a quiescent phase, during the interval of the observations reported here. If so, it is desirable to check it by securing additional observations on the star at frequent intervals of time.

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References

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