sion lines of [Fe III], RY Scuti,[7] are both located within a degree of FR Scuti. UY Scuti has been classified on a spectrogram obtained at Lick as of type M4 I*a*, while RY Scuti must also be considered a very luminous object.[8] If these three stars are in fact located at the same distance from the sun in the first inner spiral arm, their visual absolute magnitudes almost certainly all lie within the range of —5 to —7, with RY Scuti being a magnitude or so brighter visually than the other two.

As there are very few objects known whose spectra show strong forbidden emission lines of Fe III, a study of FR Scuti with higher dispersion would undoubtedly prove of considerable interest.

[1] J. J. Nassau, V. M. Blanco, and W. W. Morgan, *Ap. J.*, **120**, 478, 1954.

[2] $\alpha = 18^h\ 17^m8$, $\delta = -12°\ 44'$ (1900). The photographic magnitude of FR Scuti varies irregularly from 11.7 to 12.5, according to the Seventh Supplement of the Russian *General Catalogue of Variable Stars*. The galactic coordinates are: $l = 346°2$, $b = -1°2$.

[3] W. P. Bidelman, *Ap. J. Supplements*, **1**, 175, 1954 (No. 7).

[4] P. C. Keenan and J. A. Hynek, *Ap. J.*, **101**, 265, 1945.

[5] W. W. Morgan, A. D. Code, and A. E. Whitford, *Ap. J. Supplements*, **2**, 41. 1955 (No. 14).

[6] W. W. Morgan, A. E. Whitford, and A. D. Code, *Ap. J.*, **118**, 318, 1953.

[7] P. Swings and O. Struve, *Ap. J.*, **91**, 546, 1940.

[8] D. M. Popper, *Ap. J.*, **97**, 394, 1943.

THE LIGHT VARIABILITY OF 15 CANIS MAJORIS

MERLE F. WALKER*
Berkeley Astronomical Department, University of California

The B-type star 15 Canis Majoris[1] was announced to have a variable radial velocity by Campbell in 1911.[2] Later, the velocity of this star was considered constant.[3] However, on the basis of spectra obtained at Ottawa, Henroteau concluded that the radial velocity varies rapidly and that the star is a member of the β Canis

* Now at Warner and Swasey Observatory, Case Institute of Technology.

Majoris class.[4] The star was too faint for adequate investigation at Ottawa, but Henroteau believed that the period of the velocity variation was about 0.15 day.

In order to investigate the possible variability of 15 Canis Majoris, photoelectric observations were obtained during 1955 at both the Lowell and the Palomar Observatories. The observations at the Lowell Observatory were made with the 42-inch reflector, while the others were obtained with the Palomar 20-inch reflector. In both cases, the star was observed in yellow light. At Lowell, the cell and filter combination employed consisted of a 1P21 photomultiplier tube and a Corning 3384 filter; at Palomar, an Emitron type 6094 end-on multiplier and a GG 11 filter were used. The comparison star was 17 Canis Majoris.[5]

The observations are shown in Figure 1. The accuracy of the Palomar observations is somewhat higher than that of the observations made at the Lowell Observatory, owing both to the slightly more favorable latitude of Palomar and to the difference in the season, which permitted the star to be observed at Palomar at much less extreme hour angles than were necessary at Lowell.

The observations indicate that one of the two stars is variable with a range of 0.02 mag. and a period of about three and three-quarters hours. Since the period and amplitude of the variations and the spectral class of 15 Canis Majoris are similar to those of the known β Canis Majoris stars, it is probable that this star is the variable and that it is a member of the β Canis Majoris class. The variability of 15 Canis Majoris should, however, be confirmed by observing a second comparison star. The observations in October and November, 1955, can be fitted by the following heliocentric elements:

$$\text{Maximum} = \text{JD}\,2435411.973 + 0.1565E \pm 0.0005E.$$

The observations made in March and April, 1955, are too scattered and fragmentary to determine whether they are also fitted by this period. The foregoing value of the period does appear to represent Henroteau's spectroscopic observations reasonably well.[4] The observed heliocentric times of maximum and minimum light are listed in Table I.

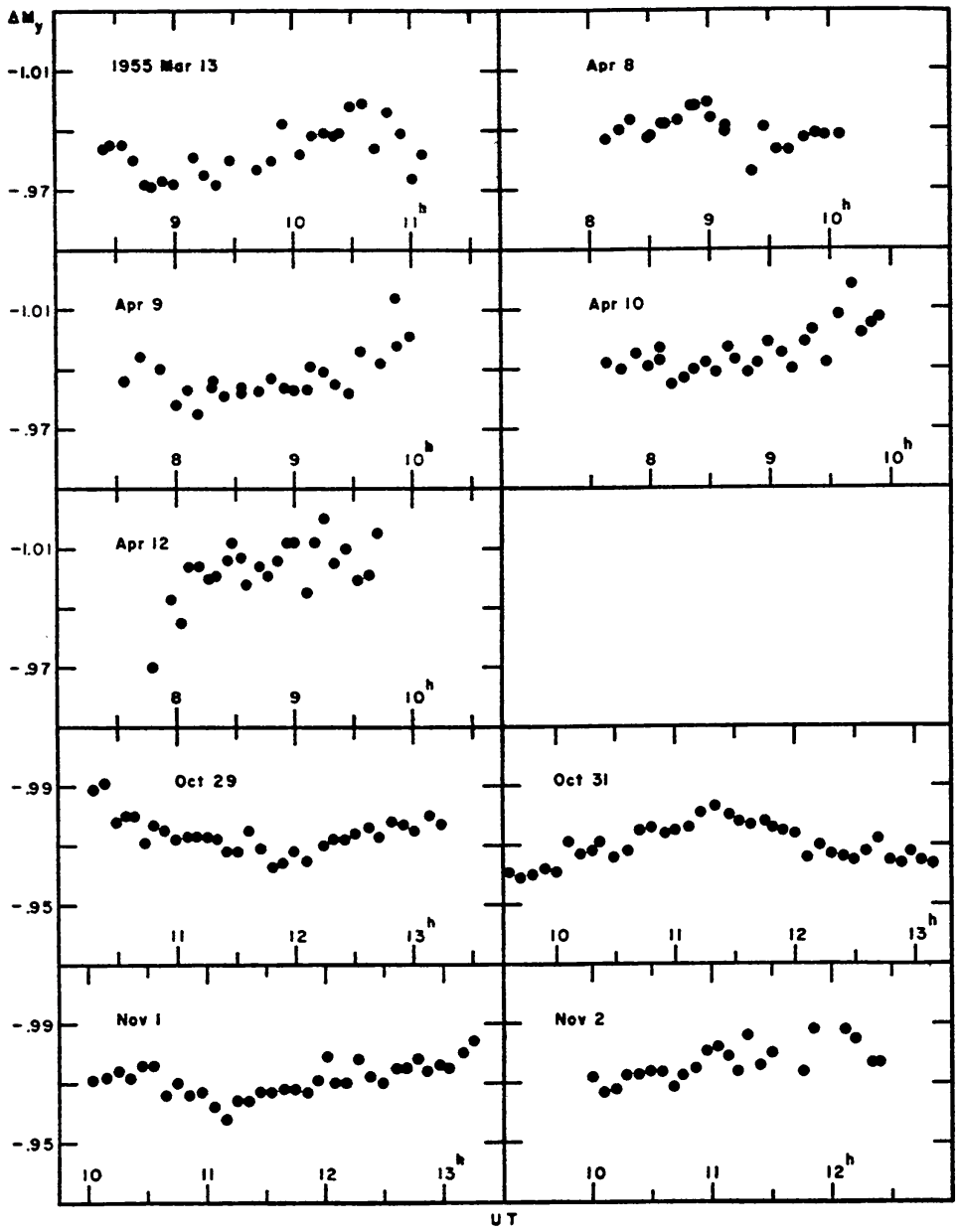

FIG. 1.—Photometric observations of 15 Canis Majoris in 1955. The ordinates are the yellow magnitude differences, 15 Canis Majoris *minus* 17 Canis Majoris, on the instrumental systems, reduced to no atmosphere. The observations in March and April were made using the 42-inch reflector of the Lowell Observatory; the others were obtained with the 20-inch reflector at Palomar Observatory.

TABLE I

OBSERVED MAXIMA AND MINIMA OF 15 CANIS MAJORIS

Maxima JD 2435000+	Minima JD 2435000+
179.737	179.672
411.973	206.650
414.004:	409.992
	412.965

It is to be noted that the mean magnitude difference between the variable and the comparison star, as determined at Lowell and at Palomar, differs by about 0.02 mag. This could have resulted from a secular change in the brightness of one of the stars. However, it could also have been caused by a difference in the instrumental magnitude systems, or by a drift in the values of the sensitivity steps of one of the photometers between the time of their calibration and that of the observations of the stars, since the two stars were observed on different sensitivity settings.

The spectral type and absolute magnitude of 15 Canis Majoris have been given by Miss Ramsey as B1 and —3.5, respectively,[6] while Struve has estimated the spectral class to be B1 or B2 III.[7] In either case, the star appears to deviate somewhat from the relationship between spectral class, luminosity, and period observed for the other β Canis Majoris stars.[8] Further photoelectric and spectroscopic observations of 15 Canis Majoris are clearly very desirable.

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[1] HD 50707(B1): $\alpha = 6^h\ 49^m.2$, $\delta = -20°6'$ (1900), $m_v = 4.7$.

[2] W. W. Campbell, *Lick Obs. Bull.*, **6**, 140, 1911 (No. 199).

[3] J. H. Moore, *Lick Obs. Bull.*, **18**, 1, 1936 (No. 483). See also J. H. Moore, *Lick Obs. Bull.*, **11**, 141, 1924 (No. 355).

[4] F. Henroteau, *Pub. Dominion Obs.*, **9**, 47, 1924.

[5] HD 51055(A2): $\alpha = 6^h\ 50^m.7$, $\delta = -20°17'$ (1900), $m_v = 5.8$.

[6] J. Ramsey, *Ap. J.*, **111**, 434, 1950.

[7] Private communication.

[8] O. Struve, *Pub. A.S.P.*, **67**, 135, 1955.