driving clock for a few seconds every hour. By the above plan we hope to secure a complete list of all variable stars of short period brighter than the ninth magnitude at maximum whose variation exceeds half a magnitude, and whose period is less than a day. Doubtless many other variable stars of longer period, and stars of the Algol type may also be incidentally found.

EDWARD C. PICKERING.

MAY 21, 1898.

THE SUPPOSED VARIABLE STAR, Y AQUILAE.[1]

MEASURES to determine the light curves of variable stars of short period, north of declination —40°, are now in progress with the meridian photometer. Four sets of four settings each are ordinarily made when the star to be observed is about half an hour east of the meridian, and again about an hour later. These measures are repeated on twenty or thirty nights. The principal error is that due to the unequal transparency of the air in different portions of the sky, the stars compared being often far apart. The accidental errors of measurement are small, owing to the number of settings. Smooth light curves have been found for all the stars thus measured, with the exception of +10°3787. The designation Y Aquilae was given to this star by Mr. S. C. Chandler, and in his catalogue of variable stars he states that it varies from magnitude 5.3 to 5.7 in a period of 4.986 days. Also, that it was "Suspected by Gould, confirmed by Chandler, 1894; also by Yendell." It will be noticed that the period is so nearly five days that for several months the same phase will recur at about the same hour angle, thus permitting errors to occur in visual observations by Argelander's method, such as are mentioned in *Circular* No. 23, and which led to such wholly erroneous conclusions in the case of U Pegasi.

The star +10° 3787 was observed with the meridian photometer on nineteen nights, from August 25 to October 13, 1897. Placing together the observations having the same phase, we find, corresponding to the phases $0^d.0$, $1^d.0$, $2^d.0$, $3^d.0$, and $4^d.0$, the mean residuals —0.09, 0.00, +0.02, +0.02, and +0.03. We might infer a variation with a range of a tenth of a magnitude, but the first value, —0.09, depends on observations on a single night, and the range of the other four is only 0.03. This star is No. 39, of the standards selected by

[1] *Harvard College Observatory Circular* No. 30.

the observers at Potsdam, and they state that from their observations they find no confirmation of the variation suspected by Dr. Gould. Mr. Chandler, however (*Astron. Jour.*, **14**, 135), states that these observations, fifty-seven in number, confirm the period of variation that he has found, although indicating that the range of variation is less. A reduction of these observations made here, however, leads to the same conclusion as that found at Potsdam. The actual number of observations of this star made at Potsdam appears to be seventy-five, not fifty-seven, forty-nine of them in determining the light of the standards, and twenty-six in the supplementary zones. Grouping them according to phase, we obtain the residuals —0.07, —0.02, +0.01, 0.00, and —0.16, corresponding to the phases $0^d.6$, $1^d.6$, $2^d.6$, $3^d.6$, and $4^d.6$. The last residual is reduced to —0.12 if we reject the observations on one night, and to —0.09, if we reject those made on two nights, and use only the observations from which the light of the fundamental stars was determined. To decide whether such residuals as these are due to accident, the Potsdam observations were again grouped, assuming a period of six days instead of five. The mean residuals corresponding to the phases 0, 1, 2, 3, 4, and 5 days then become —0.03, —0.19, —0.14, —0.02, +0.01, and 0.00. The preponderance of negative residuals is caused by the supplementary observations, which indicate that the star was slightly brighter than when the standards were originally measured. Grouping the observations with the meridian photometer in the same way, we obtain the mean residuals 0.00, 0.00, —0.07, —0.02, —0.02, and +0.07. In both cases, therefore, a period taken at random indicates variability more clearly than that hitherto assumed. Mr. Yendell (*Astron. Jour.*, **14**, 160), confirms visually the variability of this star.

The accuracy of the observations described in *Circulars* Nos. 23 and 25, seems to afford a conclusive test of the variability of this star. Accordingly, comparisons were made by Mr. Yendell with the photometer attached to the 15-inch equatorial telescope on May 9, 10, 13, 14, 21, and 22, 1898. Eighty settings were made each night. The comparison star was $+10^\circ$ 3784. The mean differences of magnitude were 3.63, 3.64, 3.66, 3.66, 3.66, and 3.62, and the average deviations from their means, of the five groups of sixteen settings each on the different nights, were ±0.022, ±0.028, ±0.020, ±0.012, ±0.030, and ±0.012. The first and fourth nights have nearly the same phase, $0^d.8$. Combining these in one group, and placing the others in the order of

phase, we have the phases, $0^d.8$, $1^d.8$, $2^d.8$, $3^d.9$, and $4^d.8$, and the corresponding residuals, 0.00, 0.00, —0.02, +0.02, and —0.02. A positive residual, as usual, denotes that the star was faint. The average value of these residuals is ±0.012, and the range 0.04.

The three series of photometric observations discussed above, therefore, fail to show any evidence of variation, since deviations of a tenth of a magnitude, except in the last series of measures, may be ascribed to errors of observation. Since it is impossible to prove that the light of a star never changes, this star may still be an Algol variable with a short time of variation, or the period may be entirely wrong.

EDWARD C. PICKERING.

MAY 25, 1898.

ELECTION OF EDWIN BRANT FROST AS PROFESSOR OF ASTROPHYSICS AT THE YERKES OBSERVATORY.

THE staff of the Yerkes Observatory will soon be materially strengthened by the addition of Edwin Brant Frost, Director of the Shattuck Observatory of Dartmouth College, who has been elected Professor of Astrophysics in the University of Chicago. A gift of $15,000 to the University has been recently made by Miss Catherine W. Bruce for the special purpose of providing for this appointment. Professor Frost expects to devote special attention to a study of stellar spectra with the forty-inch telescope. He will also continue to assist in the editorial work of the ASTROPHYSICAL JOURNAL.

G. E. H.