

with regard to the question of the space distribution and the origin of cosmic rays.

<sup>1</sup> *Sci.*, **109**, 165, 1949; *Ap. J.*, **109**, 471, 1949.

<sup>2</sup> *Sci.*, **109**, 166, 1949; *A.J.*, **54**, 187, 1949.

<sup>3</sup> W. A. Hiltner, *Ap. J.*, **114**, 241, 1951.

<sup>4</sup> *Nature*, **169**, 322, 1951.

<sup>5</sup> *AAS* (Boulder, Colo.), August 1953.

<sup>6</sup> Öhman, *Stockholm Obs. Ann.*, **14**, No. 4.

<sup>7</sup> Elvius, *Stockholm Obs. Ann.*, **17**, No. 4.

#### A NEW SHORT-PERIOD VARIABLE STAR: BD+41°119

PER OLOF LINDBLAD AND OLIN J. EGGEN  
Lick Observatory, University of California

The star BD+41°119 (0<sup>h</sup>39<sup>m</sup>7, +41° 59', 1900) is located approximately one degree north of the Andromeda nebula and is the identifying star for a photographic magnitude sequence established by Seyfert and Nassau.<sup>1</sup> The variability of the star was discovered accidentally on October 22, 1952, by one of the authors (O.J.E.) and N. U. Mayall during an attempt to use it as a comparison star for the measurement of the magnitudes and colors of objects in the Andromeda nebula.<sup>2</sup> Occasional observations with the 12-inch refractor revealed a light variation from  $V = 8.45$  to 8.69 and color variation from  $P-V = +0.15$  to +0.26 with a period of less than one day.

An attempt to determine the period was made (by P.O.L.) on four nights in August and September, 1953. The observations were made with the 12-inch refractor and an EMI photomultiplier. The photomultiplier was used without filters on August 15 and September 8, and with Corning filters Nos. 3385 and 5543 on September 15 and 18. The amplified output of the multiplier was recorded on a Brown recording potentiometer.

The light-curves are shown in Figure 1. The magnitudes and color differences are in the "natural" system defined by the filter-multiplier combination. The transparency was much poorer on September 15 than on the other three nights, as can be seen by the increased scatter of the single observations. A conspicuous feature of the light-curve is the variation in the amplitude, which ranged from 0.11 mag. on August 15 to 0.32 mag. on Septem-

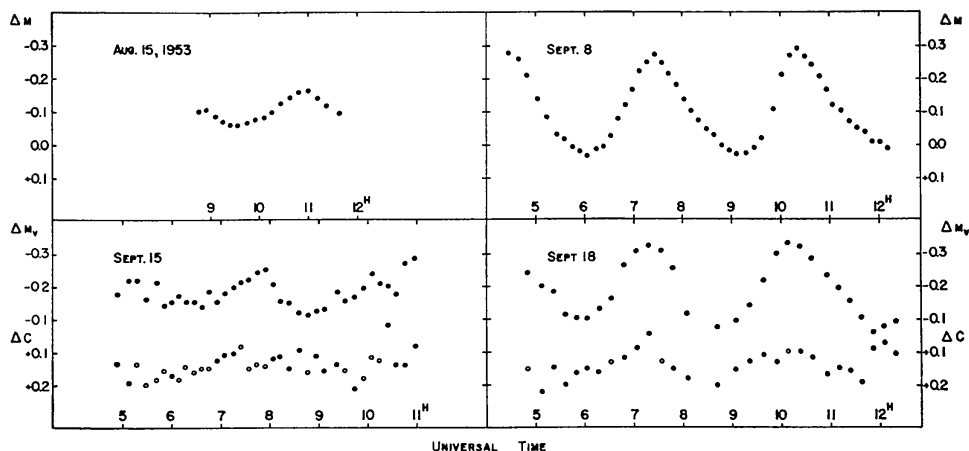


FIG. 1.—Photoelectric observations of BD+41°119. Filled circles are magnitude differences and open circles (lowest curve) color differences in the sense BD+41°119 minus BD+41°105.

ber 8. The period, which is probably variable, cannot be uniquely determined from the present observations, but is close to three hours. The heliocentric times of the observed maxima are:

JD 2434604.958  
 28.813  
 28.935  
 35.826 (Low weight)  
 38.809  
 38.929.

The variation in the light amplitude, the probable variation of period, and the color of BD+41°119 suggest that it belongs to the  $\delta$  Scuti class of variables.

<sup>1</sup> *Ap. J.*, **101**, 179, 1945.

<sup>2</sup> *Pub. A.S.P.*, **65**, 24, 1953.

#### INTERSTELLAR LINES IN 56 ERIDANI AND NU ERIDANI

E. MARGARET BURBIDGE AND G. R. BURBIDGE  
 Cambridge, England

In a recent paper G. Münch<sup>1</sup> published a preliminary report on his observations of interstellar lines in the spectra of high-luminosity stars. He showed that the two components of the lines in stars with galactic longitude in the range 65° to 130°, could