

NOTES

NOTE ON THE INFRARED SPECTRUM OF 17 LEPORIS

The star 17 Leporis has been described by Struve,¹ Struve and Roach,² and Smith and Struve.³ It is a shell star of type A in which $H\alpha$ and sometimes $H\beta$ are bright and in which the sharp metallic lines show a large violet displacement, corresponding to a velocity of expansion of between about -40 and -140 km/sec. This expanding shell gives rise to strong sharp lines of H , Fe II, Ti II, Fe I, Sr II, Ca I, Ca II, Cr II, Sc II, and possibly other atoms. According to Smith and Struve,³ the lines arising from the shell undergo large variations in structure and in intensity. Sometimes they become double, evidently as a result of a new shell which has a larger velocity of expansion. These outbursts repeat themselves at intervals of approximately 150 days.

Figure 1, *a*, shows the blue spectrum of 17 Leporis, taken with the two-prism spectrograph attached to the 69-inch reflector of the Perkins Observatory. The star appears to have been between outbursts on January 17, 1950, as the shell lines are single, strong, and sharp and show no emission borders. Figure 1, *b*, taken with the same spectrograph on the same night, shows a portion of the infrared spectrum of 17 Leporis. The spectrum of the standard M2 giant, μ Coronae Borealis, is also shown for comparison. It will be seen that the spectrum of 17 Leporis is composite: the (0, 0) band of the γ system of TiO with head at λ 7054 is present and matches the corresponding band in μ Coronae Borealis quite well. The strength of the band would indicate that the companion is not far from spectral class M2. The blending of the two spectra makes the estimate of M2 only approximate, however. Nothing can be said about the luminosity of the late-type companion at this time.

Although the spectrogram illustrated is overexposed to the red of the 7054 band, the lines of O I at λ 7774 and λ 8446 and the Ca II triplet at $\lambda\lambda$ 8498, 8542, and 8662 can be seen as fairly strong absorption lines. The Paschen series of hydrogen is also present in absorption but is quite weak.

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RADIAL VELOCITIES OF SIX STARS HAVING COMPOSITE SPECTRA

Three stars with composite spectra—45 Cnc (A3-G), HD 135774-5 (A2-G), and HD 159870 (F2 susp. comp.)—previously listed as constant in radial velocity have been found to have variable radial velocity. Three other composite-spectra stars—HD 39118-9 (G0-A0), HD 126269-70 (F5-A0), and HD 187982-3 (F5-A2)—are probably variable in radial velocity. Of the latter three stars, a previous velocity determination was available for only HD 126269-70.

Five to seven plates of each star were used in the velocity determinations, and an

¹ *Ap. J.*, **72**, 343, 1930; **76**, 85, 1932.

² *Ap. J.*, **90**, 727, 1939.

³ *Ap. J.*, **95**, 468, 1942.