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ORBIT OF THE SPECTROSCOPIC BINARY 29 CANIS MAJORIS

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This star ($\alpha = 7^h\ 14^m$, $\delta = -24^\circ\ 23'$, vis. mag. 4·77) was announced as a spectroscopic binary* by Professor Frost, director of the Yerkes Observatory, in March, 1906. His results depended chiefly upon $H\gamma$ and the helium line λ 4471, and the four observations gave a range in velocity from -3 to -243 km. per second.

In *Harvard Circulars* Nos. 16, 17 and 32, Professor E. C. Pickering called attention to the presence in the spectrum of the lines characteristic of the star ζ Puppis. Miss Cannon has made it the typical star of Class Oe, and a detailed description of its spectrum may be had in *Harvard Annals*, Vol. XXVIII, pages 148–150. It will suffice here to say that, in addition to the regular hydrogen and helium absorption lines and the additional ζ Puppis series of hydrogen absorption lines, there are also emission bands. These in general are not pronounced and, excepting that at λ 4688, would not arrest the attention in a casual glance at its spectrum. The emission line at λ 4633 does not show upon our plates, but there does seem to be an emission band stretching roughly from λ 4647 to λ 4669 and this band appears as though broken by absorption. The absorption line λ 4542 is flanked by emission not only on the red edge, as Miss Cannon states in her description, but on the violet edge as well. Owing to the low altitude of the star (meridional altitude 20°) the plates are not of the best, particularly in the violet region, and it would be worth while at some observatory in the southern hemisphere, where better plates can be secured, to redetermine its orbit. The elements given here are regarded as provisional only.

Observations were commenced on the star in November, 1915, as it was felt that its unfavourable southern declination and poor spectrum would be offset by the large range in velocity. The first plate increased the already large range by showing a velocity of recession of 119 km. per sec. and later plates have further increased the range, so that now this star, so far as the writer is aware, shows the largest range in velocity of any spectroscopic binary yet known.

In our latitude it is necessary that the star be photographed while near the meridian and although it has been kept well in mind during the two seasons since work was com-

*Astrophysical Journal, vol. xxiii, page 265.