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Buscombe, William. The orbit of the spectroscopic binary HD 170523.

Radial velocities have been measured from twenty-four new spectrograms of the giant B star δ^2 Telescopii. The orbit has been derived by combining these with eleven observations made in Chile during 1908-17 and three in South Africa during 1952. To facilitate computation with a desk electric calculator, the equations of condition were expressed in terms of the Thiele-Innes rectangular coordinates.

The mean velocity of the system is -7.6 km/sec and the velocity semi-amplitude of the primary is 34.9 km/sec, with a semi-major axis between 10.2 and 21.0×10^6 km. The period is 21.70564 days, eccentricity 0.218 and mass-function 0.0891 solar masses. Periastron passage, observed at JD $2,435,216.67$, is in longitude $12^\circ 65'$ from the ascending node. The probable error of a single observation from the final orbit is 3.6 km/sec.

The K line appears to be an unresolved blend of constant interstellar and variable velocity stellar components. The spectrum is provisionally classified as B6 II-III, indicating a distance of about 1400 parsecs, far beyond the Scorpio-Centaurus Cluster. The hydrogen lines are more diffuse at the phase of maximum velocity of approach. The absolute magnitude -3.5 : corresponds with that derived from the assumption that the star's motion is purely a reflection of the solar motion. If the primary has a mass of $16\odot$, that of the secondary is between 8 and 3.2 to fit the mass-luminosity law.

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Code, A. D. and Houck, T. E. Observations of early-type stars in extragalactic nebulae.

The application of a particular class of celestial objects as a distance indicator in extragalactic systems tacitly assumes that this class is essentially similar from one system to another. A program has been undertaken to investigate the similarity of early-type stars of high luminosity in nearby galaxies since they are sufficiently luminous so that one may obtain both spectrographic and photometric observations. They offer

in addition the possibility of investigating the interstellar reddening within these systems.

Three-color observations have been obtained of a number of blue stars in an outer spiral arm $75'$ from the center of M31, and spectral types in addition to colors have been determined for a number of OB stars in the Large and Small Magellanic Clouds.

On the basis of a distance modulus of 23.8 mag. the luminosities deduced for these blue stars in M31 are somewhat lower than the presently accepted luminosities of early-type galactic supergiants. Several of the objects are bluer than galactic OB stars and suggest that the galactic absorption derived from the secant law is an overestimate. The general lack of dust in this arm, inferred from the extragalactic nebulae visible through the arm, provides a reasonable explanation for the absence of very luminous supergiants.

Spectra of the early-type stars in the Large and Small Magellanic Clouds are similar to those of normal high luminosity galactic OB stars. The photometric data for the Clouds indicate that there is no significant interstellar absorption within our own galaxy in that direction; however, absorptions in excess of 1 mag. occur within the Large Cloud. This absorption apparently follows the same law of reddening as in our own galaxy.

The stars in the Small Cloud fall close to the intrinsic line for galactic supergiants. The spectral types inferred from the photometric data, however, do not agree well with those obtained directly. This discrepancy could be explained by assuming a law of interstellar reddening nearly parallel with the intrinsic line for galactic supergiants.

Finally, on the basis of a distance modulus of 18.3 mag. for the clouds, the mean absolute visual magnitudes of the stars observed in the Large and Small Cloud, respectively, are -8.0 and -7.3 mag.

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Cohen, M. H. Depolarization of solar radio bursts.

Hatanaka (1955) has given a theory for the depolarization of radio waves in an ionized magnetized medium. The depolarization is a result of a dispersion in ellipse orientation angles because of differential Faraday rotation within the receiver pass band. Polarization measurements