

It was observed that this was the direction associated with the generally larger characteristic wave lengths.

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1. *A. J.* 59, 326, 1954.

*Perkins Observatory,
Delaware, Ohio.*

Smith, Henry J. Some emission stars in the Large Magellanic Cloud.

Eleven stars in the Large Magellanic Cloud called P Cygni type by Miss Cannon have recently been studied at the Boyden Station. The new observations consist of short dispersion slit spectra and photoelectric measures in three colors.

The spectra show that all these stars have bright Balmer lines. They fall into two groups encompassing all but two. The first group is characterized by $Fe\ II$ emission, and includes three stars very similar in spectrum to η Carinae. The second group has strong emission lines of $He\ I$ with violet absorption components. One of the eleven stars is a nebula, while one, S Doradus, has a peculiar spectrum. This star, long known as a highly luminous variable star, is probably akin to the bright variables in M 31 and M 33 described by Hubble and Sandage.¹

The mean apparent magnitude of the eleven stars is 11.6, with a dispersion of 0.6 magnitude. Thackeray's distance modulus of the Large Magellanic Cloud, 18.7 magnitudes,² indicates mean absolute magnitude -7.1 . All these stars are very blue; a plot of yellow-blue versus blue-ultraviolet colors shows they all have an excess of ultraviolet radiation. This may provide a means of discovering such objects in other nearby galaxies. There is no good correlation between color, magnitude, or spectrum.

1. *Ap. J.* 118, 353, 1953.

2. *Nature* 171, 693, 1953.

*Boyden Station,
Bloemfontein O.F.S.,
South Africa.*

Stock, Jurgen. A search for dispersed clusters in the Milky Way.

On the blue objective-prism plates of the Warner and Swasey Observatory which cover a belt of 12° width along the galactic equator and reach

a limit of 10.5 mag., 21 possible new galactic clusters were picked out on the basis of spectral classes and approximate magnitudes. Three different types of clusters were found. Some contain B stars only, within the magnitude limit of the survey, others show a normal H-R diagram, beginning with late B or early A stars, the third type consists of F stars only, possibly F giants.

Accurate determinations of magnitudes, colors, radial velocities and proper motions are necessary to prove definitely that the objects are real clusters.

The number of members of the groups ranges from 5 to 50, their diameters from $10'$ to $90'$. It is estimated that most of them should be within 1000 parsecs of the sun.

In addition groups with diameters exceeding $90'$ were studied on the basis of proper motions. Several new objects were found, but more accurate spectral types and proper motions for fainter stars are necessary for further confirmation.

*Warner and Swasey Observatory,
Case Institute of Technology,
Cleveland, Ohio.*

Underhill, Anne B. The composite spectrum of HD 50820.

High dispersion spectra of HD 50820 have been obtained covering the spectral range $\lambda\lambda 3930-6700$. In the photographic region the spectrum appears composite showing B-type absorption lines and faint metallic absorption lines as well as strong emission features at $H\beta$, $H\gamma$, $H\delta$ and $H\epsilon$. In the red and yellow part of the spectrum many narrow absorption lines are visible, the $Na\ D$ lines are strong in absorption, and there is a strong emission line at $H\alpha$. Comparison with other stellar spectra shows that the spectrum of HD 50820 is composite, B3e V + K2 II.

This combination of spectral types is unusual, but it is shown to be consistent with the relative brightnesses of the two spectra over the observed wave-length range and with the strengths of the absorption lines. The radial velocity of the K star appears sensibly constant, and reasons are given for believing that the orbital inclination of the binary is large, thus no atmospheric eclipse is expected. At present, the emission lines, which have varied in intensity through the years, give a velocity more positive by about 12 km/sec than the velocity of the K-type lines.

*Dominion Astrophysical Observatory,
Royal Oak, British Columbia, Canada.*