

RESULTS OF A NEW SURVEY FOR EARLY-TYPE EMISSION STARS

D.J. MacConnell

Centro de Investigación de Astronomía, Mérida, Venezuela.

We discuss the discovery, on objective-prism plates, of 846 stars showing H α in emission on non-banded spectra. These stars have not previously been reported to have emission and are located primarily along the southern galactic plane. Twenty-six per cent. of the stars are known to be of type A0 or earlier.

In MacConnell (1981) we present a catalogue of 731 new stars showing H α in emission on non-banded spectra. These stars were found on objective-prism plates (420 A/mm at H α , widened to 0.3 mm) taken with the Curtis Schmidt telescope at C.T.I.O. The exposures were of 30 minutes on IIA-F emulsion behind a RG 610 filter, and the limiting V magnitude is about 12.5. About 4500 square degrees (220 plate fields) were covered along the southern galactic plane. The spectral information for these stars on the plates is very limited as one cannot distinguish spectral types until about K5 when the TiO bands begin to appear. Nevertheless, of 202 stars with published spectral information, practically all are earlier than A0, so we expect that the great majority of the 500-plus stars with no spectral information are also new Be stars. The preponderance of stars with classifications fall in the range B6-A0, and all luminosity classes are represented among those with modern classifications. Among HD types B0-B2 no new emission stars were found, and only 5 stars were found with Houk's HD-revised types in this range; it is of interest to note that a few emission stars have been classified as A peculiar by Dr. Houk. Variable H α emission was noted for several of the stars which appeared on more than one plate. The number of known H α -emission stars rediscovered in the survey is in excess of 2400. Sixteen of the new stars lie in or near eight galactic clusters and are among the brightest stars in their clusters; two of the clusters are not previously known to have Be stars.

We report here for the first time an additional 115 new H α -emission stars found in a 152-plate extension of the original survey. Spectra with molecular bands have been eliminated from this group, so it is similar in all respects to the 731 stars mentioned above except that

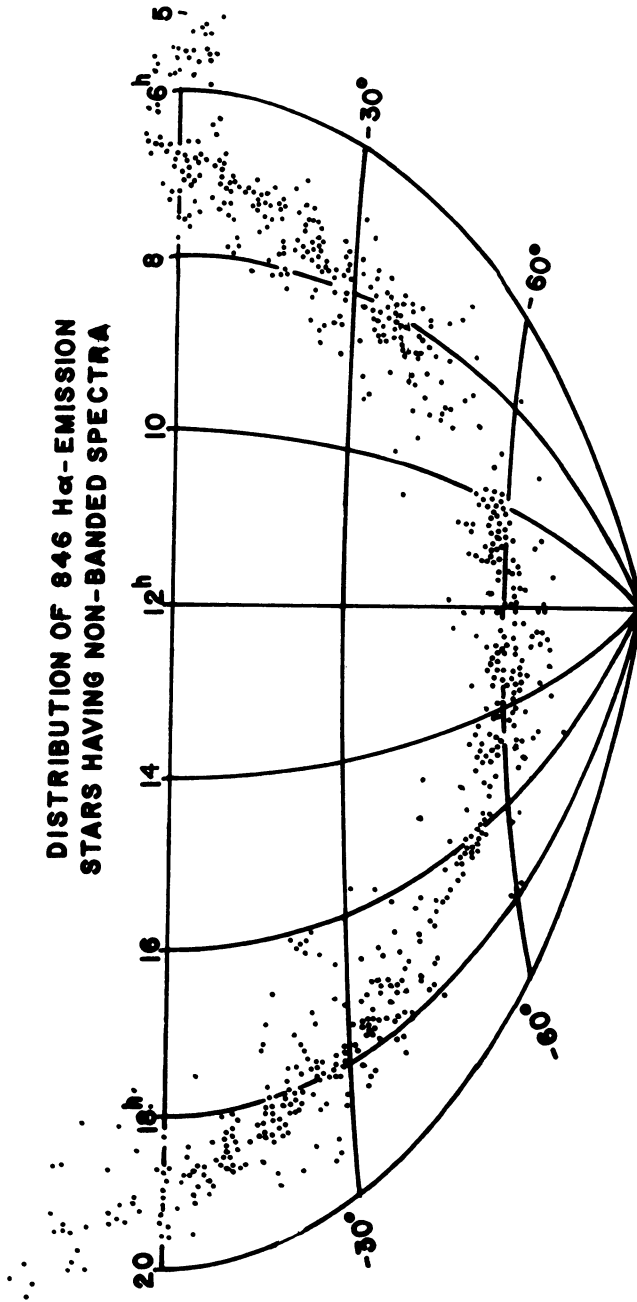


Figure 1

the latter group lies somewhat further from the galactic plane and/or somewhat north of the celestial equator. The emission stars in the extension together with other stars of interest found on the same plates will be prepared shortly for publication in the Astron. Astrophys. Suppl. Fig. 1 shows the distribution of all the stars discussed here. The author is presently gathering blue objective-prism plates with the C.I.D.A. Schmidt in regions of high emission-star density for the purpose of determining approximate spectral types.

Reference:

MacConnell, D.J.: 1981, Astron. Astrophys. Suppl. (in press)

DISCUSSION

Finkenzeller: Are there any H α emission-line stars which are associated with reflection nebulosity, and if so, how many?

Mac Connell: My plates do not show any reflection nebulosities that I am aware of, so I would have to say that the answer is no.

Jaschek: The CDS keeps an updated list of H α emission-line stars, with positions, cross identification and other kinds of data.