A TEST OF THE ACCURACY OF LOW DISPERSION OBJECTIVE PRISM: SPECTRAL CLASSIFICATION OF LATE-TYPE STARS USING DDO PHOTOMETRY

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Abstract. A test has been made of the reliability of the multidimensional classification of late-type stars from low dispersion objective prism plates recently attempted by Stock and Wroblewski. Such classification at low dispersion is difficult due to the problem of separating the effects of luminosity from those of abnormal metal abundance. A sample of the stars classified by Stock and Wroblewski as metal weak (pec) and of those classified as luminous stars (class I) were observed using the DDO intermediate-band system. The photometry shows that the stars classified as pec are indeed population II giants, of low metal abundance ($[Fe/H] < -1.0$). The stars classified as I, however, were found in general not to be true supergiants but rather a mixture of various types of giants, such as CN strong stars, with spectral features that resemble, in one way or another, those of higher luminosity stars.

DISCUSSION

Stephenson: At Cleveland, Sanduleak and I have worked with a large amount of spectral plate material obtained with the identical equipment as used by Stock and Wroblewski. We, too, noted many spectra showing the same peculiarities as described by Osborn. Working on a much smaller sample of such stars than he did, but at lower galactic latitude and using slit spectra obtained by me, rather than photometry, we essentially confirm the results quoted by Osborn for such objects.