THE VARIATIONS IN SPECTRAL TYPE OF TWENTY CEPHEID VARIABLES

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A considerable amount of material relative to the spectral types of variable stars of the Cepheid class has been accumulated at the Mount Wilson Observatory during the past year, chiefly with the aid of the 10-inch photographic telescope. Earlier work on some of these stars at the Lick, Harvard College, and Pulkova Observatories had shown or suggested variations in certain characteristics of the spectra. The data collected in the present paper, however, indicate that distinct changes in spectral type, accompanying regularly the periodic variations in light and apparent velocity, constitute one of the general and fundamental properties of Cepheid variables. A statement of the Cepheid problem at the time it was taken up at Mount Wilson is outlined in Contribution No. 92, together with a summarized account of the most relevant previous work. The significance of spectral variations in the interpretation of variability in light and velocity is noted in the same article and in subsequent papers on the light-curves and spectra of Cepheid variables. The following pages will be devoted to the observations of the spectra of individual stars.

A list of all the Cepheids for which definite variations of spectral type have been observed is given in Table I. The positions in the second and third columns are from Harvard Annals, 56, No. 6, Table VIII. The data for the light-variations are taken from the same source except that the magnitudes for RT Aurigae are by

1 See, for instance, the remark by Miss Cannon on the spectrum of δ Cephei in Harvard Annals, 56, 110, 1912.