velopment of the nova. Their emergence was approximately simultaneous with that of the [O III] lines in those spectra with strong [Ne III], and somewhat later than [O III] in spectra with weak [Ne III]. Their rate of strengthening was comparable with that of [O III]. They were still very strong in 1934, in the spectrum of the nebular shell about Nova Persei 1901.

Moderately strong [Ne III] emission is evidently a normal feature of nova spectra in the nebular stage, but very great intensity, as in Nova Persei 1901 and Nova Sagittarii 1936.7, or absence, as in Nova Cygni 1920, should be ranked as a peculiarity. These extremes are attributed to differences of abundance, since they are found in spectra otherwise very similar in composition and at similar levels of excitation.

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Morgan, W. W. The helium stars having the most rapid axial rotation.

A survey of the spectra of the brighter helium stars has been made on plates especially suited to the detection of very broad spectral lines. Among northern stars of types O to B5 a considerable number appear to have equatorial rotational velocities of 300 to 400 km/sec. A majority of these stars are of type Be (cBe stars are not discussed; their nature appears to differ from the dBe stars), and the others seem as a class to be of relatively low luminosity. Of the thirteen having the broadest lines, eight are well known Be stars while the other five probably lie near the lower edge of the main sequence.

A preliminary investigation of the stability of these stars from the standpoint of the Roche model, in which the total mass is assumed to be concentrated at a point at the center of the star, indicates the following tentative conclusions for stars for which physical data are available: (1) The Be stars have rotational velocities close to the critical value at which instability sets in and matter tends to stream out from the surface of the star in the equatorial region. (2) The theoretical value of the equatorial velocity at which instability sets in is in the neighborhood of 400 km/sec. This is in fair agreement with the observed upper limit of rotational velocities mentioned above.

There appears to be a definite statistical relationship between observed line width, H lines not considered, and absolute magnitude for indi-

vidual spectral subdivisions in the range O9 to B3, in the sense that the widest spectral lines are found among the stars of low absolute magnitude and the lines tend to become progressively narrower with increasing luminosity. This is not identical with the n -s effect discussed by Adams and Joy; many stars whose line character would be classified as n on spectra of higher dispersion are not appreciably widened on the plates used for this investigation, while the broad line stars discussed above have lines of the order of double the width of those in the star η Ursae Majoris.

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Morgan, W. W. Note on interstellar reddening in the region of the Orion Nebula.

The early B stars of the fourth, fifth, and sixth magnitudes located within a radius of about two degrees of the Orion Nebula appear to form a physical system having a diameter of the order of twenty parsecs and a distance from the sun of around four hundred parsecs. The small cluster of faint stars centered on the Trapezium in the nebula itself, which has been described by Trumpler and by Baade and Minkowski, is probably a subsystem within the larger group.

Colors for the brighter stars of the larger cluster from the Stebbins-Huffer-Whitford catalogue indicate that the outlying members are unaffected appreciably by interstellar absorption. On the other hand, θ^1 Orionis, the brightest member of the Trapezium, is considerably reddened by material which is probably associated with the Orion Nebula itself.

In addition to peculiarities in the spectral energy curve described by Baade and Minkowski, the spectrum of θ^1 Orionis shows evidence of another peculiarity in the absorbing material: the unidentified interstellar band at $\lambda 4430$ is absent.

The intensity of $\lambda 4430$ is very closely correlated with interstellar reddening; among all the northern B stars brighter than magnitude 5.5 the band is easily visible in cases where the star is reddened as much as 0.15 mag. on Stebbins' scale. The color excess of θ^1 Orionis is +0.19.

Among the fainter stars the nebular variable X Persei appears to be similar; its color excess is +0.26 and again $\lambda 4430$ is not seen. The two stars have the following in common: they are of early type (θ^1 Ori, O7; X Per, O9-B0); there is nebular material in their immediate vicinity. It seems likely that the radiation of the hottest