OI, OIII, NaI, [A_x]. The Curtis Schmidt telescope was used with the ten-degree objective-prism combination to obtain 46 plates with a total of 65 exposures, covering from $\lambda 3600$ to $\lambda 8800$. Three early-type stars of suitable magnitude range were recorded simultaneously with the nova. The plates were standardized by means of a spot sensitometer, while the comparison stars were also standardized against Vega with the photoelectric monochrometer. The spectra of the comparison stars and the nova from the Schmidt plates were traced on the microphotometer and transformed into direct intensity tracings. The monochromatic intensities for the comparison stars were then combined with the corresponding photoelectric measures to give a corrected characteristic curve. The brighter nova emission-line intensities were then expressed in terms of the Code-Whitford monochromatic magnitudes for Vega.

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STEPHENSON, C. B. Visual binaries having primaries above the main sequence.

Magnitudes and MK spectral types for both components of more than 150 physical visual binaries having primaries above the main sequence have been used in the consideration of a number of problems. More than two-thirds of the spectroscopic data were newly obtained with the 36-inch refractor of the Lick Observatory, and some new photometric data were derived.

The more interesting conclusions concerning or drawn from such binaries are the following. 1) There is no correlation, or at most a weak one, between the nature of the members of a fairly wide binary and their mean separation. 2) The frequency distribution of separations for giant-primary systems is similar to that derived by Kuiper many years ago for dwarfs. 3) The distribution of components of double stars in the H-R diagram is consistent with a scheme of evolution in which stars leave the main sequence in order of decreasing mass, and, initially, follow paths which do not carry them below their starting points either bolometrically or visually. Further support is found for the idea that late-type giants and subgiants are commonly very old. 4) The existing luminosity calibration for stars of type G5 and later and of luminosity class II and fainter is substantially correct, except for luminosity class II. 5) The uncertainty

in visual absolute magnitude associated with the assignment of a given luminosity class of II or fainter to stars of most spectral types is represented by a standard deviation of about half a magnitude. There are no preferred luminosities above the main sequence for stars of the general field, except among the late-type giants. 6) The dynamical parallaxes that have been published for the wider visual binaries are probably based on larger than average relative motions, and hence these motions are unsuitable for deduction of mean stellar masses.

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STOCK, J. AND NASSAU, J. J. Objective prism surveys of stars of high luminosity.

This report deals with the use of the ultra-violet spectral region for the detection of stars of high luminosity. Plates taken with the large Schmidt-type telescope of the Hamburg Observatory equipped with a UV objective prism were used for the purpose. With such spectra it is possible to identify and for certain types to classify highly luminous stars from OB to G0. The criteria employed are:

- a) For the OB group the absolute strength of the hydrogen line is used. It is possible to segregate from this group stars with the Balmer continuum in emission. The majority of such stars are expected to be of lower luminosity than that indicated by their absorption-line intensity.
- b) For stars from about B6 to G0, temperature and luminosity criteria may be secured from the Balmer jump, the absorption of the Balmer lines, and the strength of the H and K lines and the G-band.

For most of the spectral classes given above it is possible to reach about the 13th magnitude. In view of this it was thought profitable to initiate a survey covering the complete sky.

The Hamburg and Case Observatories are participating in this project. A suitable prism for this purpose for the Cleveland observatory has been made available by a grant from the National Science Foundation. It is hoped that the Boyden Observatory will participate in the survey for the southern sky.

A region of 600 square degrees in Cassiopeia and Perseus has been surveyed at Hamburg and the results are nearly ready for publication.