Lowrey, G. R. and Present, R. D. Search for a discrete excited triplet state of the negative hydrogen ion.

The lowest excited state in *He* is $1s2s^3S$; the existence of a similar discrete state in H^- would be of great interest. The Ritz-Hylleraas variational method has been applied to this problem and the energy calculated with a variational function containing eight low-power terms. With optimum adjustment of the screening constant an energy value is obtained which lies in the continuum at -0.972 Rhc, slightly above the ionization limit at -1 Rhc. As a control, the same eight-term function has been applied to the corresponding *He* state where it gives agreement with the spectroscopic term value to within one part in a thousand. A single term with an arbitrarily high power of the coordinate $t = r_2 - r_1$ enables one to come arbitrarily close to the ionization limit of H^- ; but no term or combination of terms has been found to give an energy below this limit. While the variational method cannot be used to disprove the existence of a discrete triplet state, the negative results of this investigation make the existence of such a state implausible.

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Lynds, Roger. Photoelectric observations of UX Monocerotis.

UX Monocerotis is an eclipsing binary with a period approximately six days. Primary eclipse is a complete occultation of an A5 III-IV giant by a fainter G2 III giant. The system is not well behaved, either photometrically or spectroscopically. The spectrum and brightness at maximum light are subject to apparently erratic variations. The absence of the brightness fluctuations during primary minimum suggests that these variations are to be associated with the A-type star.

On 20 nights from December, 1954 to February, 1955, 333 photoelectric observations of UX Monocerotis were made at the Lick Observatory with the Crossley reflector, in three colors, yellow, blue, and ultraviolet. A new set of geometrical elements was derived. These elements, when combined with the spectroscopic elements of Struve, show that the G star obeys the empirical mass-luminosity relation while the A star is superluminous. In the H-R diagram the A star falls in the region of the RR Lyrae stars and the cluster-type Cepheids.

The light and color variation of the A star

has been studied and an attempt has been made to evaluate the observations in terms of possible explanations for the variation.

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McCarthy, Martin F. Colors of nine Cepheid variables in Carina.

The present paper gives a progress report on photographic studies of the blue-red colors of nine Cepheids in low latitudes of the Carina region, with designations GZ, AQ, UW, YZ, EY, WZ, CY, HK and XZ Car. A previous paper (McCarthy 1951) described the observational material and photometric procedure, gave preliminary values for the absorption and distances of twenty-four Cepheids in Carina, Crux and Centaurus, and pointed out the urgent need for a revision of magnitude standards in Selected Area 193. With the completion of this photometry (Bok 1952, Bok and van Wijk 1952, Olmsted 1955), a redetermination of absorption and distance values has been made for nine Carina Cepheids. Data on the photographic and photoreduced magnitudes of the comparison stars together with the final light and color curves will be published later. In determining the distances of the Cepheids the correction -1.4 mag., recommended by Blaauw and Morgan (1954), has been applied to the values derived from Shapley's period-luminosity curve (1940); in obtaining the absorption data, the normal colors determined by Heyden (1947) and Miss Hagopian have been retained because they seem best suited for work with photographic and photoreduced magnitudes. There are variations in obscuration over the area studied; still the average photographic absorption of $+0.4$ mag./kpc out to a distance of 3000 to 4000 pc, derived from this study, indicates the high transparency of this low-latitude region.

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McNamara, D. H. The period-luminosity relation of the β Canis Majoris stars.

The period-luminosity relation of the β Canis Majoris stars is established by obtaining individual absolute magnitudes for each star by