Geilker, Chas. D. Three-color photometry of the ultrashort-period variable DY Pegasi.

The ultrashort-period intrinsic variable DY Pegasi was investigated in the UBV system of three-color photoelectric photometry. At the Arthur J. Dyer Observatory 1600 measures of its brightness were obtained, distributed equally in the yellow, blue, and ultraviolet spectral regions. Amplitude of variation was found to be .56, .69, and .67 mag. in the V , B , and U colors, respectively. $(B - V)$ color index varied from $+0.195$ at .05 period after maximum light in the blue, to $+0.355$ at minimum light. The $(U - B)$ index is nearly constant at $+0.025$, but shows a possible tendency to go redward as the $(B - V)$ goes blueward. Spectral types inferred from a two-color diagram vary from A7 at maximum light to F1 at minimum light. This compares with A3 to A9 assigned by Bidelman from slit spectrograms showing anomalous features at all phases. Absence of measures of parallax or proper motion makes it difficult to say whether the star is a giant of absolute magnitude zero at a distance of one kiloparsec, or a population II main-sequence star of absolute magnitude $+4$ at 150 parsecs. No substantial improvement in the 105 minute period was possible, the period apparently being constant to one part in four million.

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Hardie, R. H., Seyfert, C. K. and Grenchik, R. T. The structure of the Milky Way. II. The stellar association II Perseus.

In a region about 6 degrees square to the north of ζ Persei, some 144 late B and early A stars were selected for study in order to determine an improved distance to the II Perseus association. Spectral classification and three-color photometry were carried out with the Dyer Observatory 24-inch reflector. The results of the work were assembled into a Hertzsprung-Russell diagram showing a pronounced clustering of the stars in the B8 to A0 region. For these stars, the photometry yields accurate spectral types and these confirm the types assigned by the conventional method. If we use the zero age luminosity calibration of Johnson and Hiltner for the B8 - A0 stars, the distance modulus appears to be about 8.1 magnitudes, corresponding to a distance of 420 parsecs. This distance is reason-

ably consistent with the data of Harris for the early B stars in this association.

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Howard, Robert. An analysis of the spectra of sunspots.

Spectra of three sunspots were obtained on several of the first days of their growth with the 16-inch coronagraph of the Sacramento Peak Observatory. The equivalent widths of fifty lines were measured. These lines were selected to obtain the minimum magnetic intensification. Curves of growth were drawn and 4300° was derived as the average excitation temperature for iron. This value is an upper limit because of the effects of scattered photospheric light. The turbulent velocity derived from the curve of growth was 2.5 km/sec, from line profiles 1.8 ± 0.2 km/sec. Both these values should be considered as lower limits because of the effects of scattered photospheric light, and both these values are higher than the turbulent velocities for the photosphere.

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Jefferies, John T. and Orrall, Frank Q. The interpretation of Balmer line profiles in solar prominences.

In the past, it has been the usual practice to interpret prominence observations on the assumption that the observed radiation is the intrinsic radiation of the prominence itself. It has been recently pointed out, however, that a major component of the observed radiation—at least in $H\alpha$ —should be scattered disk radiation; the prominence thus acting as a diffuser as well as an emitter. In order to get a better understanding of the process of line formation in prominences as well as to obtain a consistent approach to the determination of prominence temperatures, high dispersion profiles have been obtained of the hydrogen Balmer lines $H\alpha$ through $H\epsilon$ and the helium lines $\lambda 5876$ and $\lambda 4471$ in prominences showing a minimum of internal motions. The prominences were observed, at the limb, with the 16-inch coronagraph at Sacramento Peak.

Several years ago, Conway (1952) and Ellison (1952) observed that $H\alpha$ prominence line profiles