For the rare earths, the factors vary widely from about 10 downwards, and there is apparently no correlation with excitation potential or mean equivalent width.

The star is classified Aop from its spectrum, but its color agrees with that for a B8 dwarf.^{1,2} A temperature variation of 500° is indicated by the color observations, the star being hotter at mid-cycle. Curves of growth for *Fe* II, *Fe* I, *Cr* II and *Ti* II were plotted with values of $\log \eta_0$ from γ Gem³ and τ UMa,⁴ and values of $\log gf$ for *Fe* I. The following conclusions were reached:

1) Mean equivalent widths for the constant lines lie on the same curve as the means of smoothed maximum and minimum values for the varying lines.

2) $T_{\text{exc.}} = 8000^\circ\text{K}$ (from *Fe* I). For γ Gem Aller found 6000°,⁵ and Buscombe, 10,080°.

3) $T_{\text{ion}} = (T_{\text{ion}})_{\gamma \text{ Gem}} + 1000^\circ$ (from *Fe* I and *Fe* II).

4) v (thermal + turbulent) is the same as, or slightly less than, that for γ Gem.

5) $\log \eta_0 (\alpha^2 \text{ CVn}) - \log \eta_0 (\gamma \text{ Gem}) \approx +0.5$. This indicates a small increase in the effective abundance of *Fe*, *Cr* and *Ti*.

Effective abundances of *Mg* and *Si* were determined from absolute gf values. The abundance of *Mg* is very slightly less than that in γ Gem, while that of *Si* is larger by a factor ~ 10 . The effective abundance of *Ca* II is less by a factor ~ 50 .

Curves of growth plotted separately for the maximum and minimum equivalent widths of the varying lines of *Fe* II, *Cr* II and *Ti* II give changes in $\log v$ between zero phase and mid-cycle of +0.12, +0.20, and -0.10 approximately. This parameter could measure magnetic intensification as well as velocity. However, these changes act in the wrong sense to explain changes in $\log \eta_0$ of +0.14, +0.22 and -0.38, respectively, and the evidence is in favor of a change in the effective abundance of the ions. Analysis of the rare-earth lines and their variations may lead us to other conclusions.

1. A. J. Deutsch, *Ap. J.* **105**, 293, 1947.

2. S. S. Provin, *Ap. J.* **118**, 489, 1953.

3. W. Buscombe, *Ap. J.* **114**, 73, 1951.

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Cuffey, James. An iris photographic photometer.

A photometer based upon Siedentopf's iris principle, and somewhat similar to one built by

Haffner is described. The machine is simple and compact, and only commercially available components were used. A standard microscope sub-stage iris diaphragm, with mechanical magnification of its control lever setting by a factor of fifty, provides the measuring element. Two light beams, one from the lamp directly, and one through the iris and plate, are chopped alternately by a rotating sector and fall upon a 931-A photomultiplier. The square wave generated is displayed on the screen of a conventional oscilloscope, and disappearance of the square wave indicates with high sensitivity the equality of the two beams. A projection viewing screen permits a field 7 mm in diameter on the plate to be used for rapid identification of star fields, usually without recourse to x and y coordinate settings.

Tests of the accuracy of the machine show that probable errors, determined from actual measurement of fine grain plates taken with the Mt. Wilson 100 inch reflector, range from $\pm .003$ mag. for sharp, circular, easily centered images, to $\pm .013$ for large, asymmetric images of the comatic type, or for images near the plate limit and too faint for accurate centering. Thus, errors introduced by the measuring machine are very small compared with those inherent even in the best of photographic emulsions.

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Cuffey, James. Distribution of globular clusters in high north and south galactic latitude.

The space distribution of the globular clusters north of $+50^\circ$ galactic latitude, and south of -50° , suggests tentative answers to the following questions: are these clusters, as we might a priori expect, a typical sample of randomly distributed, relatively nearby clusters; do they belong logically to the galactic nucleus, which some of them resemble in constitution; or are they intergalactic objects similar to dwarf elliptical nebulae?

For the southern clusters, which are NGC 288, 1261, and 7492, the observational data are at present poor. Reasonable conclusions, however, seem to be that their distribution on the sky, and in space, are random, and that they avoid the galactic plane. Thus, the zone of avoidance found by Shapley in his studies of the globular cluster system is confirmed as a real phenomenon for the southern clusters, rather than one due to absorption or observational selection. A photo-