direct spectroscopic color determinations of FG Sge were made in 1955. In addition, we have done photometric photometry of 12 stars in the field of FG Sge for a determination of the reddening of the field. From this data we are able to estimate the combined color and luminosity evolution of the object since 1933. The consequences of this evolutionary path for models of its variation will be discussed.

07.06 Circumstellar Winds in Globular Cluster Giants, R.C. Peterson, Lookheed. Spectra of luminous giants in different globular clusters, obtained at a resolution of better than 12 km/s, show Na D and H$\alpha$ line profiles with cores shifted by 6 km/s, and with a steep blue wing and a gradual red wing. Their striking resemblance to both theoretical circumstellar profiles and to those observed for M giants and supergiants of the field suggests very similar circumstellar wind dynamics in both groups of stars.

In the figures below, the Na D lines are shown. Arrows indicate interstellar features.

07.08 H$\alpha$ Emission Variability in O and B Type Supergiants, D.C. Ebbets, Univ. of Wisconsin-Madison. Observations were obtained at McDonald Observatory during 1979-1980, using the coude Echelle spectrometers on the 2.1 m and 2.7 m telescopes. In the luminous O8 supergiants, H$\alpha$ is in emission, with faint wings visible to $\pm$ 1500 km/s from the line center. The core of the profile often has a complex structure which is highly variable on a time scale of several days. For most stars no variations were seen within one night, and there is only slight evidence for longer term modulation. No periodicity was evident, although the time coverage does not allow a definitive exclusion of such. In several stars, the photospheric absorption line profiles are asymmetric, and show progressive variations, apparently on the same timescale as the H$\alpha$ activity.

07.09 Chromospheric Densities and Geometrical Extensions of Red Giants and Supergiants using C II Lines as Diagnostics, R.E. Stencel, JILA, U. of CO & NBS, C. Jordan, * Oxford, R.F. Wing, * Ohio State, J.L. Limsey, * JILA, U. of Co & NBS, K.G. Carpenter, Ohio State, A. Brown, * Oxford, and S.J. Czayk, Ohio State. We describe how emission line ratios within the UV 0.01 multiplet of C II near 2325 A can be used to derive electron densities over the useful range of $10^7$ to $10^9$ cm$^{-3}$. This range includes the electron densities expected in the chromospheres of red giants and supergiants. We present IUE high dispersion spectra obtained with the IGR (2000-3200 A) camera of four stars (α Ori, γ Cru, β Peg, and η Rho) and a planetary nebula (NGC 6572). Three line ratios within this multiplet constrain the electron density to ±0.3 dex for each star, and the ratio of upper limits of the C II 1335 A flux to the total 2325 A multiple flux leads to upper limits on the chromospheric temperature. These quantities yield estimates of the column densities and geometrical thickness of the C II emitting regions in chromospheres. The latter lies in the range of 1-10 photospheric radii for these stars, and is consistent with estimates of 5-10 photospheric radii for the inner radii of cool circumstellar shells in M supergiants. We argue that extended chromospheres occur in red giants and supergiants which have massive cool winds, no hot corona, and likely have open magnetic field geometries. On the other hand, yellow giants probably have geometrically thin chromospheres and typically have hot corona, weak winds, and presumably closed magnetic field geometries.

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07.10 A Comparison of Infrared Calcium Triplet Line Strengths with M and K Emission in Stars with Active Chromospheres, R. Mielkecreyt and A. Young, San Diego State Univ. A large sample of stars selected on the basis only of very strong emission reversal in the Ca II K and H line cores were observed in the infrared triplet lines $\lambda$8498 and $\lambda$8542 of ionized calcium. Observations were made both photographically with a Varo image tube, and directly with a C.C.D., all with coude' spectrographs. An extensive grid of standards permitted spectrum subtraction to be used