Results of the Measurement of the Polarization of Coronal Light on October 2, 1959. E. P. NEY, P. J. KELLOGG, AND W. F. HUCH, *University of Minnesota*.—Three complete scans of the sun's corona at wavelengths of 4500 Å and 8500 Å have been analyzed to determine the intensities of polarized and unpolarized light during the eclipse of October 2, 1959. The measurement of polarized and unpolarized light allows one to separate the coronal light into F corona and K corona, the F corona coming from dust scattering along the line of sight, and the K corona coming from the true electron density in the corona itself. Our measurements show that the polarization of the corona was radial (in the sense of the H vector of the electromagnetic wave) within $\pm 0.8^\circ$. They further indicate no infrared excess or deficiency larger than $\pm 10\%$. There is no time variation greater than 10% in the half-hour that elapses between our observations. Our absolute measurements indicate the same average intensity within 5% as that obtained by Von Klüber in the Khartoum eclipse in 1956.

This research was supported by the ONR, the NSF, and the NASA.

The Radial Velocity and Spectrum of HD 134646. B. E. J. PAGEL (introduced by OLIN J. EGGEN), *Royal Greenwich Observatory*.—The star HD 134646 [Wilson 1953: No. 8768, $\alpha = 15^h06^m9$, $\delta = 63^\circ18'$ (1950), gF2, 6.8 mag., 5B] belongs to the class of early F-type velocity variables that are of particular interest owing to the presence among them of short-period variables (Eggen 1956) and of peculiar magnetic stars. It was therefore placed on the Greenwich radial velocity program and observed intensively during the summer of 1959 with the one-prism spectrograph attached to the Yapp 36-inch reflector (dispersion 120 Å/mm at $H\gamma$). The single-line orbit was obtained from 58 spectra taken between May 7 and August 18, 1959, and was found to approximate closely to a sine curve with $P = 2^d450 \pm 0.006$ (estimated error), $K = 69.7$ km/sec ± 0.5 (p.e.), $\gamma = 1.9$ km/sec ± 1.0 (p.e.), $f(m) = 0.086$. A least-squares analysis by the method of Sterne (1941) gave the following additional elements for an elliptical orbit:

$$e = 0.008 \pm 0.015 \text{ (p.e.)}; \omega \ 121^\circ 5; \\ T_0 = \text{JD } 2436 \ 695^d239 \pm 0.028 \text{ (p.e., assuming } \omega).$$

The star has a 9th mag. companion at a separation of $18''$ (ADS 9520). The main star appears to be F4III on the revised Yerkes system, while the companion is a G8 giant or subgiant. Both members of the pair have negligible proper motion, but at the probable distance of 144 pc, their separation is so wide that their proximity is of only marginal significance. The companion is too faint for its

radial velocity to be measured with the present equipment.

The primary spectrum is moderately sharp lined, and the type and orbit are reminiscent of the peculiar magnetic variable HD 98088 (Abt 1953). However, the spectrum is not peculiar and was not found to vary. A study of the magnetic field—if any—of HD 134646 would be of considerable interest.

The Distribution of Integrated Starlight in Galactic Coordinates. F. E. ROACH AND L. R. MEGILL, *Boulder Laboratories, National Bureau of Standards*.—The brightness of starlight has been calculated from the star counts listed in Groningen publication 43. Separate calculations have been made for each 10 degrees of galactic longitude and for galactic latitudes, 0, -2 , ± 5 , ± 10 , ± 15 , ± 20 , ± 30 , ± 40 , ± 50 , ± 60 , ± 70 , and ± 80 . The results are given in number of 10th magnitude (photographic) stars per square degree for (a) each magnitude (p_g) from 6 to 18, (b) the summation from $m_{pg}6$ to $m_{pg}18$, (c) the estimated contribution for $m_{pg} > 18$, and (d) the summation of (b) and (c). The extensive tabular material is on punched cards from which printouts can be made. A map has been made of the distribution of integrated starlight in galactic coordinates.

The Surface Temperature of Venus. CARL SAGAN, *Yerkes Observatory*.—Recent microwave observations of Venus give brightness temperatures near 600°K . The spectrum precludes an origin as radiation from a cytherean Van Allen belt; the emission must be thermal, and must arise from just beneath the surface of Venus. The radiation temperature of an airless planet with Venus' color-corrected albedo and solar distance is $\sim 250^\circ\text{K}$ if the period of rotation is much less than the period of revolution, or if there is appreciable interhemispheric circulation; it is $\sim 350^\circ\text{K}$ if the two periods are comparable, and if there is no interhemispheric circulation. It is clear that a surface temperature of 600°K demands a very efficient greenhouse effect. From the radiation balance, the effective absorptivity of the atmosphere, integrated over wavelengths, is $\alpha = 0.995$ for rapid rotation; an equivalent atmosphere is one opaque between 1.5 and 40μ . The only molecule which is likely to be abundant on Venus and which absorbs in the region longward of 20μ is water.

The carbon dioxide abundance in a convective cytherean atmosphere is 18 km-atm; the total surface pressure is ~ 4 atm. Extrapolation to long paths of CO_2 and H_2O emissivities at elevated temperatures shows that ~ 10 g cm^{-2} of water vapor is required for a rapidly rotating Venus, and ~ 1 g cm^{-2}