twice the thermal emission one would expect for 130°K. (2) The structure of the nondisk emission is nearly symmetrical, but as previously reported (Berge, G. L., and Morris, D., *Astrophys. J.* 140, 1330, 1964) its center does not coincide exactly with the center of the disk. (3) The electron shell in which the nondisk emission is produced has a thickness of about one planetary diameter. Therefore, theoretical thin shell models are not very realistic. (4) The proportion of electrons with steep helices seems to be greater in the outer regions of the shell rather than in the inner regions as previously inferred (Chang, D. B., and Davis, L., Jr., *Astrophys. J.* 136, 567, 1962).

The Abundance of Carbon, Nitrogen, and the Metals in Main Sequence Stars. SIDNEY VAN DEN BERGH AND INGE J. SACKMANN, *David Dunlap Observatory*.—Photoelectric spectrum scans of 200 stars have been used to derive parameters which are related to the abundances of carbon, nitrogen, and the metals. In a small number of stars the heavy element abundance appears to be significantly higher than that of the stars in the Hyades. Line blanketing and an overabundance of heavy elements may account for the puzzling position of such stars as δ Pavonis in the color-magnitude diagram. It is pointed out that the heavy-element abundance in young stars and star clusters may differ from the average heavy-element abundance of the interstellar gas, if a significant fraction of the heavy elements in the interstellar medium are locked up in grains. Radiation pressure from O stars might produce a partial segregation of gas and dust. Stars which are very rich in heavy elements might have been formed from dusty interstellar clouds.

At a given abundance of carbon and nitrogen the rms cosmic dispersion in $[\text{Fe}/\text{H}]$ is found to be less than 0.10. This observation appears to indicate that the interstellar gas is well mixed on a large scale.

Observations of all northern G stars, which are known to be nearer than 20 pc, are used to derive the frequency with which stars of different heavy element abundance occur near the sun.

From observations of reflected sunlight the ultraviolet excess of the sun is found to be $\delta(U-B) = +0.017 \pm 0.025$ (m.e.).

M Stars in the Region of the South Galactic Pole. F. C. BERTIAU, S. J., M. F. MCCARTHY, S. J., AND P. J. TREANOR, S. J., *Vatican Observatory*.—An infrared objective prism survey for M stars in an area of 165 square degrees centered on the south galactic pole has been made with the ADH Baker

Schmidt and 3° objective prism. Positional data and spectral classification for 100 stars, mostly M2 and later, are given in a finding catalogue. Identification charts are provided for 86 of these stars. The distribution of spectral types is in general agreement with the distributions found in other high-latitude surveys. The surface density of M stars found in this survey of the south galactic pole and in various surveys of the north galactic pole depend critically on the limiting magnitudes, on account of the preponderant role played by M dwarfs fainter than $V=12$. The statistics of the present survey do not indicate any striking difference between the distribution of M stars in the north and south galactic poles.

A Study of Photoelectric Observations of SW Lacertae. BEVERLY B. BOOKMYER, *Villanova University*.—Approximately 3000 photoelectric observations of SW Lacertae were obtained in the yellow and blue wavelength regions during the 1960 and 1961 seasons with the 28-in. reflecting telescope of the Flower and Cook Observatory of the University of Pennsylvania. Five well-defined light curves, Curves I through V, were derived from the observations at each wavelength. The average probable error of a single observation is $\pm 0^m.006$ in yellow light and $\pm 0^m.008$ in blue.

Variations in the shape of the light curve were studied. The range in the variations between successive curves of one season does not exceed $0^m.03$; the range among the curves of the two seasons is about $0^m.06$. A comparison between Curves I through V and curves observed photoelectrically by other investigators revealed a change of about $0^m.3$ in the amplitude of the light curve. From a study of those curves which have essentially the same zero point, it was determined that this change was due primarily to the decreasing heights of the maxima.

A study of the times of minimum light indicated that at times there is a displacement of secondary minimum from phase 0.5, and that the amount of this displacement varies. The outside-eclipse portions of all the light curves were analyzed, and it was established that there is a correlation between the coefficient of the $\sin \theta$ term, which indicates a difference in the heights of the maxima, and this displacement. It was also found that the value of the coefficient of the $\cos \theta$ term is negative in Curve IV and positive in Curve V although the observations defining these curves were made only one month apart.

The observations defining Curve IV were analyzed for an orbital solution. This curve was adopted as a reference curve, and the intensity differences between it and Curves I, II, III, and V were removed rather satisfactorily by representing the differences by a