has reported somewhat lower rates of increase at 3.75 and 2 cm. For the QSS 3C273, we find an increase of 2.3 flux units/yr at 22 cm, an increase of 1.5 flux units/yr at 11 cm, and no change in 1 yr at 6 cm. Dent has reported increases of 3.5 and 8.5 flux units/yr at 3.75 and 2 cm, respectively. For the QSS 3C345, we have observed an increase of 1.8 flux units (28%) at 22 cm since 1963.5.

The observed variations and the form of the spectra at cm wavelengths suggest the presence of components which are optically thick to very short wavelengths. It can be shown that the uniform expansion of an optically thick source of synchrotron radiation will cause the flux density to increase as the third power of the time. The observed rates of variation then indicate ages of 5–10 yr. If 3C273 and 279 are at the distances corresponding to their redshifts, then the energy contained in relativistic particles is greater than 10^{58} ergs, and it is difficult to see how so much energy can be generated in such a short period.

High Galactic Latitude A Stars. A. G. DAVIS PHILIP, *University of New Mexico*.—Photometric and spectrographic studies have been made of high galactic latitude early A stars. An analysis of such stars measured by Philip and data from Perry's catalogue of Henry Draper A0–A2 stars in an area surrounding the north galactic pole show that the Henry Draper spectral classes for these stars are systematically earlier than classifications by the MK system. If corrections are applied to the HD classes of stars in a region at $l^{\text{II}}=76^\circ$, $b^{\text{II}}=-30^\circ$ analyzed by Philip (*Astrophys. J. Suppl.* 112, 1966), the absorption is found to be essentially zero out to a distance of about 600 parsec (300 parsec below the galactic plane). Before the corrections were applied, the visual absorption at 600 parsec was calculated to be 0.4 mag. Perry found that up to a distance modulus of 10.0 there was no absorption at the NGP.

A program is now underway, using the telescopes at the Kitt Peak National Observatory, to obtain spectra of A stars to 13th magnitude at a dispersion of 120 Å/mm and also 4-color and H_β photometric measures. This will allow corrections to be made to the HD classes in the magnitude range 11 to 13 and thus the absorption to greater distances from the galactic plane can be determined.

When the spectrographic and photometric data have been accumulated and combined with Schmidt photographic magnitudes and spectra, work will proceed in studying the following quantities as a function of galactic latitude: (1) the interstellar absorption; (2) the stellar density function; (3) the luminosity function.

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Formation of Prominences by Thermal Instabilities. P. K. RAJU (introduced by L. OSTER), *Yale University Observatory*.—The condensation of solar prominences by thermal instability of the coronal plasma has been computed, using the nonlinear equations and the most complete set of radiative cooling functions available. A necessary condition for this process to work is an initially reduced magnetic field strength. Characteristic times for prominence formation are derived that are compatible with the long life time of quiescent prominences.

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The Cygnus Loop at 3200 Mc/sec. K. V. V. RAMANA (introduced by J. M. MACLEOD), *National Research Council, Ottawa, Canada*.—Observations of the Cygnus Loop have been made with an antenna beamwidth of $0^\circ.63$. The integrated flux density of the whole region was measured as $(145 \pm 40) \times 10^{-26}$ W m⁻² cps⁻¹. In comparison with earlier measurements from 38–960 Mc/sec, this yields a spectral index of 0.37. The general features of the radio emission from this region are found to be similar to those at longer wavelengths, and the separate components *A*, *B*, and *C* reported by Mathewson, Large, and Haslam (*Monthly Notices Roy. Astron. Soc.* 121, 543, 1961) at 408 Mc/sec as well as by Harris (*Astrophys. J.* 135, 661, 1962) at 960 Mc/sec are distinctly evident in this survey. The three surveys are compared after numerically convolving the 3200 Mc/sec contours to those that would be produced by an antenna beam of half-power width $0^\circ.8$. The spectral indices derived for sources *A* (south of the nebula, not identifiable with any optical feature) and *B* (identified with NGC 6960) from a comparison of the integrated flux densities at the three frequencies are found to be nearly the same as that of the whole region. The spectrum of *C* (NGC 6992-5) is appreciably flatter with a value of approximately 0.2. An attempt is made to interpret the radio emission from NGC 6992-5 as mainly thermal.

Cosmic Ray Variations from Supernovae and Galaxy Core Flare-ups. STEPHEN ROSEN, *State University of New York at Fort Schuyler and Adelphi University*, AND S. N. MILFORD, *Grumman Aircraft Corp. and Adelphi University*.—Approximate constancy of the primary cosmic ray intensity over periods of 10^8 – 10^9 yr and slight variations over