The Naval Research Laboratory recently obtained photoelectric night airglow measurements from a photometer sensitive to a 52 Å (hw) band centered at 2985 Å from a rocket flight at White Sands, New Mexico. The absolute intensity of radiation within the band derived as a function of altitude is discussed. Variations of intensity as a function of parts of the sky observed are to be noted.

Rotations and Forms of Galaxies. THORNTON PAGE, *Wesleyan University*.—Inclinations of lines have been measured in spectra of 100 galaxies taken by Humason and Mayall, most of them indicating constant angular velocity in a central region near the nucleus. The central-region densities derived are later to be correlated with surface brightnesses and colors of the same regions. Failing such detailed photometric data, they have been used to estimate total masses, using density distributions derived by Perek, de Vaucouleurs, the Burbidges, and others. These approximate masses are roughly proportional to total photographic luminosity, but indicate different values of M/L for the various morphological types.

Cosmic Noise Survey in 5, 10, 20, 30, and 50 Mc/sec at 65° (N) Declination. R. PARTHASARATHY, *Geophysical Institute, College, Alaska*, C. G. LITTLE, AND G. M. LERFALD, *Central Radio Propagation Laboratory, Boulder*.—The survey was conducted for over 15 months beginning summer, 1961, with identical antenna beams of 60 deg between half-power in all vertical planes. In each of the frequencies 5, 10, and 20 Mc/sec noise levels were obtained simultaneously in the two opposite circular polarizations, and using the technique due to Little, Lerbald, and Parthasarathy (to be published) the true noise temperatures were obtained for all sidereal hours. Linearly polarized antennas were used for 30 and 50 Mc/sec.

The lowering of the temperatures in 5, 10, and 20 Mc/sec compared with the extrapolated values from VHF data is shown with definitiveness (because of the dual-polarized observations). The data are also discussed in terms of the synchrotron hypothesis: If the relativistic electrons in the galaxy are represented by a power spectrum

$$N(E)dE = \text{const} \times E^{-\beta} dE, \\ E_1 < E < E_2 \\ = 0 \text{ elsewhere,}$$

then the noise temperatures in any two frequencies f_1 and f_2 can be shown (see Pawsey and Hill,

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$$\frac{T_1}{T_2} = \left(\frac{f_1}{f_2} \right)^{-\frac{1}{2}(\beta+3)} R(\beta, E_1, E_2, f_1, f_2, H).$$

Using the frequency exponent, 2.26 between 10 and 30 Mc/sec and assuming a field of 10^{-6} G for the halo (from considerations of isotropy and galactic confinement of cosmic rays), E_1 becomes 8.4×10^8 eV.

If Fermi mechanism in the galactic disk were responsible for the generation of these relativistic electrons, then, near the cutoff energy of E_1 the rate of energy gain (ϵE) due to Fermi collisions should equal the energy loss rate due to the ionization, bremsstrahlung and synchrotron processes. Using the commonly quoted loss rates due to ionization and bremsstrahlung it was found that ϵ values less than $10^{-16} \text{ sec}^{-1}$ are inadequate to account for the relativistic electrons down to 8.4×10^8 eV. Values of ϵ between 10^{-16} to 10^{-15} yield increasing disk fields from zero to 1.5×10^{-5} G; the derived field values for higher choice of ϵ varies as the square root of ϵ .

The disk field values obtained through other considerations (including the equipartition of energy density between the magnetic and kinetic modes) are $\leq 10^{-5}$ G. It thus seems possible to specify ϵ within one order of magnitude, providing Fermi mechanism between the disk clouds is the dominant process.

Ionospheric Refraction at Decameter Wavelengths. KENELM W. PHILIP, *Yale University Observatory*.—Solar continuum activity records made at the Bethany Station of the Yale Observatory in 1959 and 1960 have been analyzed to give the spherical and "wedge" components of ionospheric refraction at frequencies below 25 Mc. The instrument used was a multifrequency phase-switched interferometer, yielding successive measurements of the apparent position of the source of continuum radiation at time intervals of about 5 min. Differences between observed and computed times of interferometer lobe crossings were reduced to give curves of spherical refraction versus altitude; marked refraction was observed at frequencies above 20.0 Mc. Anomalous results before solar transit are interpreted as being due to substantial wedge refraction.

A New Effect in Eclipsing Binaries. DANIEL M. POPPER AND MERLE F. WALKER, *University of California, Los Angeles, and Lick Observatory*.—In an earlier note (*Publ. Astron. Soc. Pacific* 73, 333, 1961)