Interferometric Radio Source Polarization Measurements at 10.6 cm. V. RADHAKRISHNAN, G. A. SEIELSTAD, AND G. L. BERGE, *California Institute of Technology*.—Twenty-five radio sources were investigated at a wavelength of 10.6 cm for possible linear polarization in their radiation. The twin 90-ft paraboloids at the Caltech Observatory were used in an interferometer arrangement with an east-west baseline of approximately 600λ . Seven of the 25 sources gave a positive result with polarizations ranging from 3% to 12%, and three more showed indications of polarization. Of the seven sources that appear convincingly polarized, one is Taurus A, which has been studied by a number of investigators. Another is NGC 5128, which was recently discovered to be polarized by Mayer *et al.* at the Naval Research Laboratories. The latter source has been investigated at several frequencies both by them and by the Australian group at CSIRO, Sydney, with the new 210-ft paraboloid. We are indebted to C. H. Mayer and J. G. Bolton at the above establishments for very kindly providing us with some of their results prior to publication.

The other sources we find polarized are Hercules A, 3C353, 3C270, 3C161, and 3C286. Three others which appear polarized are 3C147, 3C273, and 3C433. In his private communication, J. G. Bolton has indicated that measurements with the 210-ft antenna show that Hercules A, 3C353, and 3C270 are polarized at several different wavelengths. These are extragalactic double sources like Cygnus A and NGC 5128, which also are polarized sources.

Of the 10 sources, the first five (Taurus A, NGC 5128, Hercules A, 3C353, and 3C270) were heavily resolved by the interferometer at the spacing used. If there is a difference between the brightness distributions of the polarized and unpolarized components of the radiation, then the polarization measured by the interferometer method may differ from the average value obtained by using a single antenna with a beamwidth larger than the source. In fact, observations on two of the sources at different effective baselines showed a marked dependence of the measured polarization percentage on the degree of resolution of the source. It is planned to undertake observations to determine the brightness distributions of these sources as functions of polarization.

A knowledge of the polarization distribution over radio sources would provide a picture of the magnetic fields involved, and lead, perhaps, to a better understanding of the emission mechanisms in these sources.

The observations reported briefly here will be published in detail elsewhere. The work was supported by the Office of Naval Research under Contract Nonr 220(19).

Photoelectric Comparison Spectrophotometer. JAMES P. RODMAN AND HARLAN J. SMITH, *Yale University Observatory*.—A dual-channel comparison photoelectric spectrophotometer with pulse-counting digital output has been designed and constructed at Yale during the past year and a half. It is possible to simultaneously measure the ratios of the strengths of two spectral lines to adjacent portions of the continuum. The output is printed on paper tape by a digital recorder, and printout is followed by an automatic recycling process. The spectrophotometer, presently mounted on the 20-inch Cassegrain reflector at the Bethany Observing Station of Yale, is now being used in an optical search for Jovian aurorae at the $H\alpha$ wavelength. The first results of this search are presented. With the second channel set to calcium K, the spectrophotometer may also be useful in a search for weak flares among local late-type stars.

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Kinematic Determination of the Angular Velocity of the Sun about the Center of the Galaxy.

VERA C. RUBIN, *Georgetown College Observatory*.—From the catalogue of galactic space motions of O-B5 stars (Rubin *et al.*, *Astron. J.* 67, 491, 1962), the component of motion Π radial from the center of the galaxy is available for 888 stars, computed with conventional parameters of the solar motion and $R_0 = 8.2$ kpc, $\Theta_0 = 215$ km/sec, and $\omega_0 = 26$ km/sec per kpc. For these stars, distances from the center of the galaxy R range from 5.8 to 10.3 kpc. It is possible to determine $\bar{\Pi}(R)$, the variation of the mean value of Π , as a function of distance for 454 stars of $l^{II} \leq 180^\circ$, and the corresponding $\bar{\Pi}(R)$ for 434 stars, $l^{II} > 180^\circ$. For stars $l^{II} \leq 180^\circ$, values of $\bar{\Pi}(R)$ are systematically about 5 km/sec more positive than corresponding values for stars, $l^{II} > 180^\circ$. Assuming symmetry in the galactic plane, an analysis of the kinematic motion shows that for a value of Θ_0 too large (or R_0 too small), $\bar{\Pi}(R)$ will be systematically positive for stars, $l^{II} < 180^\circ$, and will be negative for stars $l^{II} > 180^\circ$, with respect to the mean Π curve, for all stars. From an analysis of the data, a value of $\omega_0 = 18 \pm 2$ (est.) km/sec per kpc will bring the two $\bar{\Pi}(R)$ curves into coincidence.

Radio observations show an analogous effect in the circular component, Θ (Kerr, *Astron. J.* 66, 47, 1961). The 21-cm rotation curves $l^{II} < 180^\circ$ and $l^{II} > 180^\circ$ can be brought into coincidence only by altering the component of solar motion at right angles to the direction of Θ , i.e., the radial com-