of two drift records (and for some declinations as many as five drift records) were averaged for each declination and the interval between declination scans is 20'. The area mapped contains approximately 9000 beam areas at 1415 Mc/sec.

Data processing (including contour map plotting) has been done on IBM 1620 and 7094 machines and preliminary results show approximately 300 radio sources of 0.3 flux unit or greater giving 1 source per 30 beam areas at 1415 Mc/sec. Computer plotted charts of the region have been made. A tabulation of the sources giving their positions and flux densities is in progress.

The Object η Carinae. LEONARD SEARLE AND A. W. RODGERS, *Mount Stromlo Observatory*.—We discuss observations of the novalike object η Carinae. From the 17th century to 1843 this object irregularly brightened from the fourth magnitude to become the second brightest star in the sky. A rapid decrease of brightness of about 9 mag. occurred in the subsequent 50 yr followed since by a slow, irregular brightening to nearly 6th mag. Our observations, obtained during the 1964 and 1965 observing seasons, consist of spectrophotometric measures of the continuum and line spectrum using the Newtonian and coude spectrographs of the Mt. Stromlo 74-in. reflector and scans in blue and near infrared wavelength regions. We have found no evidence for a stellar component of η Carinae. A smooth continuum, identified on the coude plates, is shown from the scanner observations to consist of a Balmer recombination continuum superimposed on a continuum of the form $F_\nu \propto e^{-\alpha\nu}$ of unknown origin but which is similar to that observed in other objects with violent internal motions, e.g., the Crab nebula, the Seyfert nucleus of NGC 4151 and some quasars. This continuum dominates the Paschen continuum and the Paschen jump is entirely suppressed. The Balmer decrement agrees with no known physical theory and there is appreciable self-absorption in the Balmer lines. The $H\alpha$ emissivity and the emissivity of the forbidden lines of S II and N II lead to a value of $10^6/\text{cm}^3$ for the mean electron density and an electron temperature of around $30\,000^\circ\text{K}$. We derive a mass of approximately $0.5 M_\odot$ for the ionized material in η Carinae.

Brightness Distributions of Polarized Radiation in Discrete Radio Sources at 10.6 cm. G. A. SEIELSTAD, *California Institute of Technology*.—The twin-element interferometer at the Owens Valley Radio Observatory has been used to measure the brightness distributions of the polarized radiation at 10.6-cm wavelength from the radio sources 3C33,

3C98, Pictor A, Taurus A, 3C270, Centaurus A (central component), Hercules A, 3C353, and 3C452. The measurements consist of transit observations with east-west separations of 100 ft (289λ), 200 ft (577λ), 400 ft (1155λ), 800 ft (2309λ), and, in some cases, 1600 ft (4607λ). In addition, tracking observations over periods of several hours were made at various antenna configurations. The data were analyzed by constructing model sources, selected on the basis of simplicity and plausibility. The results indicate that in all cases the polarized radiation is confined to a smaller region than the total radiation.

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H, C, N, O Abundances in M Giant Stars. HYRON SPINRAD AND M. S. VARDYA (present address: Utrecht Observatory, Netherlands), *University of California*.—We have computed the relative abundances of the light atoms H, C, N, and O for several M stars from the intensities of molecular bands. The near-infrared lines of H_2 , H_2O , CN, TiO, and VO were measured to establish stellar molecular concentrations, and then molecular equilibria for a range of temperature and pressure with different atomic compositions. The theoretical molecular compositions were fitted to the observations through model atmospheres and crude "one-slab" models. Large uncertainties in the effective temperature scale for M stars is the worst problem. In cases where a temperature may be reliably specified, relative atomic abundances of H, C, N, and O may be obtained.

We find that for several low-velocity Mira variables $\text{O}/\text{C}=1.05$, $\text{O}/\text{H}\sim 10^{-3}$, and $\text{N}/\text{C}\simeq 2$. The nitrogen excess, compared to the solar N/C ratio, may be a consequence of mixed material brought up from a region of previous CNO burning.

Techniques for Measurement of Lunar Photography. L. HAROLD SPRADLEY, *U. S. Air Force, Aeronautical Chart and Information Center*.—The program of lunar and planetary charting by the U. S. Air Force has placed considerable demands upon photography as a prime source of information. This has been particularly true in the quantitative description of lunar surface features. To meet the accuracy requirements of the charting program, new techniques and instrumentation have been developed for measurement.

In studies of the figure of the moon, measurements are made upon sequences of photographs to reduce errors of differential distortion due to atmospheric seeing. Microdensitometer scans are performed and used for more precise location of unresolved image