Short-period intensity fluctuations (of the order of seconds) in the radiation from the Crab detected by Hewish and Okoye at 38 Mc/sec [*Nature* 207 (4992), 59–60, 1965] were looked for at 26.3 Mc/sec with the Christiansen array at Clark Lake, California. Scintillations of this kind have been observed for many small-diameter sources and are generally thought to be due to scattering of the radiation as it passes through irregularities in the extended solar corona (interplanetary medium). Scintillations observed in Tau A apparently come from a very small source (angular diameter about $0''.1$) in the Crab that has a high enough brightness temperature at low frequencies to account for an appreciable fraction of the total radiation from the source.

Records of Tau A were taken in August 1965, corresponding to one of the two yearly periods of maximum fluctuation found by Hewish and Okoye. Comparing these with records of Vir A, which presumably show no interplanetary scintillations, differences are indeed apparent. Although preliminary statistical study with the limited data on hand has not produced quantitative results, further work is planned.

Nuclear Reactions during Stellar Collisions. J. S. MATHIS, *Washburn Observatory*.—A solution for the time dependence of the pressure and temperature of the material in two colliding solar-type stars has been obtained, with an aim of determining if nuclear reactions during collisions can appreciably affect the chemical composition of stars in the nuclei of elliptical galaxies (where collisions can occur with frequencies 10^{-2} per year or greater). The impact parameter is taken to be zero and the relative speed at large separations to be 778 km/sec. The temperature throughout most of the colliding mass increases to slightly over 1.0×10^8 °K and the density to 500 g cm $^{-3}$. After remaining at these values for about 100 sec, both of these quantities decrease rapidly as the hot, compressed object expands almost adiabatically.

Nuclear reactions have a very small influence on the chemical composition of the whole.

The Polarization Parameters for OH Emission from W3. M. L. MEEKS, J. A. BALL, AND J. C. CARTER, *M.I.T. Lincoln Laboratory*.—The Stokes parameters as a function of frequency have been measured for the 1665-Mc/sec line of OH from the neighborhood of the radio source W3. With a frequency resolution of 1 kc/sec seven emission features are resolved, and the corrected widths to half maximum range between 1.4 and 3.0 kc/sec. Three of the features are 100% polarized, one is 90%, and one

50%. All five of these features are almost totally right or left circular (axial ratio $.9 \pm .1$), and the degree of polarization does not change significantly across the full widths of these features. The most intense feature, however, exhibits large continuous changes in polarization parameters as a function of frequency, going from purely left circular to right-hand elliptical. The remaining feature also shows variation in polarization parameters of smaller extent across its full width. These variations, however, can be accounted for by a model that superimposes two, phase-independent, nearly Gaussian features, each 100% polarized, to form the single features observed.

The more intense features were observed with right or left circular polarization and with a resolution of 200 cps. With this resolution the features appeared asymmetric and deviated significantly from exact Gaussian shape.

The character of these emission features cannot be explained by straightforward application of the Zeeman effect to thermally excited clouds of OH.

The Distance of Tycho's Supernova from 21-cm Absorption Measurements. T. K. MENON, *National Radio Astronomy Observatory*, AND D. R. W. WILLIAMS, *Radio Astronomy Laboratory, University of California*.—The 21-cm line absorption profile in the direction of the radio source 3C10, which has been identified as the remnant of Tycho's supernova, has been observed with the 300-ft and 140-ft radio telescopes at Green Bank. Definite absorption can be identified over a velocity range of +5 to –50 km/sec. From a consideration of a number of galactic rotation models the distance to Tycho's supernova is estimated to be about 3.5 kpc. From the known diameter and the age of the nebula and assuming no deceleration, the initial expansion velocity of the supernova is found to be about 9000 km/sec. Following Minkowski's method, the absolute magnitude turns out to be –18.82. The properties of various known supernovae are discussed with a view to a new classification scheme.

Infrared Stellar Spectra. LAWRENCE MERTZ, *Block Associates, Inc.*—A progress report illustrates the performance of a previously described Fourier transform spectrometer (Mertz, L., *Astron. J.* 70, 548, 1965) on the 61-in. telescope of Harvard's Agassiz Station. This is significantly larger than the 10-in. telescope which was used for the initial report.

Spectra of a variety of stars, including the cool star in Taurus (Neugebauer, Martz, and Leighton, *Astrophys. J.* 142, 399, 1965), are presented. We