bilities of the image orthicon in photography of star fields, nebulae and spectra will be described.

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The Occultation of the Crab Nebula by the Solar Corona in June 1959. WILLIAM C. ERICKSON, *Convair Scientific Research Laboratory, San Diego 11, California*.—During June 1959, observations were made of the occultation of the Crab nebula by the solar corona at the Clark Lake radio astronomy station. The observing frequency was 26.3 Mc/sec (11.4 m wavelength). These observations extend the work of other observers to this lower frequency. Effects due to the scattering of radio waves in the solar corona have been found to a distance of 25 solar radii. These results are in agreement with those of other observers when scaled to their frequencies; however, they extend the observations to larger distances from the sun than those over which effects have previously been observed.

A Model for the Decimeter Radiation by Jupiter. GEORGE B. FIELD, *Princeton University Observatory*.—The model is based on emission at the cyclotron frequency by electrons trapped in Jupiter's magnetic field. The decimeter waves originate close to the magnetic poles, where the field strength must exceed 1200 gauss. The theoretical spectrum is proportional to λ^3 and agrees satisfactorily with the observed one. The polarization should be almost completely linear, with the magnetic vector parallel to Jupiter's magnetic axis. The required electron densities are of the order of 10^{-2} cm^{-3} if the electron energies are about 40 kev, as for the outer radiation belt of the Earth. The solar wind appears capable of supplying many times the radio-frequency energy.

The source and observable effects of such a strong magnetic field are considered. It is shown that the field can be primordial, being frozen in the metallic-hydrogen core of the planet, provided that the interior temperature does not exceed 800°K . The polarization of 20 Mc bursts can be explained provided their source is between 30° and 40° latitude. Both Zeeman effects and aurorae should be observable on Jupiter.

Meteoric Dust Particles and the Anomalous Polarization of Jupiter. GEORGE B. FIELD AND JOHN E. GAUSTAD, *Princeton University Observatory*.—It is suggested that the polarization in the polar regions of Jupiter is due to meteoric dust suspended in the atmosphere. The dust is accreted gravitationally

from the interplanetary medium, and, because of its electric charge acquired from the free electrons in space, is funnelled by Jupiter's magnetic field toward the poles. The rate of accretion, the required magnetic field, and the mechanism of polarization are discussed quantitatively.

The Protection of Frequencies for Radio Astronomy. J. W. FINDLAY, *National Radio Astronomy Observatory, Green Bank, West Virginia*.—The Administrative Radio Conference of the International Telecommunications Union completed its work at Geneva just before Christmas 1959. The final acts of the Conference, which will be incorporated in the new radio regulations, will come into force in May, 1961. These radio regulations will contain considerable material of importance to radio astronomers. The amount of frequency protection for radio astronomers contained in the acts of the Conference will be described.

In addition to the clearance of the hydrogen line (1400–1427 Mc), bands of frequency were designated by the Conference and given various degrees of protection at points throughout the radio spectrum from 2.5 Mc to 31.5 kMc. The value of this protection to radio astronomers will be discussed and suggestions made for further work by radio astronomers to improve the protection for the science in the future.

The Flux Density of Radiation from Cassiopeia A at 1400 Mc. J. W. FINDLAY AND H. HVATUM, *National Radio Astronomy Observatory, Green Bank, West Virginia*.—As a part of the program of source calibration at the National Radio Astronomy Observatory experiments have been started to measure the flux density from the Cas A source. One major experimental difficulty in such measurements is to determine exactly the effective collecting area of the antenna that is used. To minimize this difficulty a horn antenna of about 10 square meters collecting area has been built. This horn is large enough to give an antenna temperature from the Cas A source of about 8°K . The gain of such a horn can be calculated from its linear dimensions to a high accuracy. The horn is fixed in position at an elevation angle of 30° and is used as a transit instrument. It is 120-ft in length and is made of sheet aluminum with all joints internally welded to ensure high electrical conductivity. The design of the antenna and of the associated receiving equipment will be briefly described, and first measurements of the flux density from the Cas A source at frequencies near 1400 Mc will be reported.