(Woltjer, L., *Astrophys. J.* **136**, 1152, 1962) that depolarization is produced by Faraday rotation effects within the radio sources themselves. Sources with high magnetic fields will therefore only exhibit detectable polarization at centimeter wavelengths. At these wavelengths they will have large depolarization rates and consequently large rotation measures due to their internal Faraday rotation. Such sources in contrast to the majority of those studied hitherto will therefore show poor correlation between rotation measure and Galactic latitude and an enhanced correlation with depolarization rate.

This work was done under contract Nonr 220(19).

Light Variations of Certain Cataclysmic Variables. GEORGE S. MUMFORD, *Tufts University*.—The principal new results in this continuing study, which is based on photoelectric observations of various old, recurrent, and dwarf novae obtained primarily at Kitt Peak, are:

- (1) The period of *EM Cygni* is probably nearer 7.00 h than 4.89 h as reported at Tucson;
- (2) The short-cycle oscillations of *SU Ursae Majoris* are not strictly periodic;
- (3) Color curves of *EX Hydrae*, particularly at eclipse, are quite different from those of apparently similar objects;
- (4) There seems to be a phase shift, especially in ultraviolet and visual light, of *U Geminorum's* eclipses at the start of its December 1962 outburst.

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Far Ultraviolet Spectrometer-Spectroheliometer for the OSO-B Satellite. W. H. PARKINSON AND E. M. REEVES, *Harvard College Observatory*.—A combination spectrometer-spectroheliometer has been designed and constructed by Harvard College Observatory for solar observations in the vacuum ultraviolet region of the spectrum from above the earth's atmosphere. The instrument will be carried in a spacecraft which is scheduled for launch early in 1964. This satellite is very similar to its predecessor, the S-16 satellite and consists of a large wheel rotating about an axis perpendicular to its plane on which the sail of the spacecraft, containing the solar cell array, is mounted. Facility is provided for two experiments to be attached to the sail with solar pointing to the center of the solar disk to an accuracy of ± 1 min of arc. The satellite also possesses the facility for offsetting the direction of pointing, providing a raster scan of a square pattern 40 arc minutes on a side, centered about the solar disk. These two modes of operation may be selected upon command.

The Harvard instrument can record the spectrum

from a selected central portion of the solar disk 1.8 min of arc on the side, over the wavelength region 500–1350 Å. A provision is also included for stopping the spectral scan at a preselected wavelength, and initiating a raster scan of the sun, which can be used to construct spectroheliograms in the radiations of the far ultraviolet. The design and constructional features of the instrument are discussed in some detail, as is the method of calibration. The absolute sensitivity of the instrument has been determined in the laboratory, by separately measuring the reflectances of the platinized imaging telescope mirror and the platinized or gilded grating as a function of wavelength. The photomultiplier of the windowless crossed electric and magnetic field type uses a tungsten photocathode. This detector was calibrated against a piece of tungsten of known photoelectric efficiency. A rocket version of the above instrument was flown on an Aerobee-Hi rocket on 6 September to verify the operation of the instrument and its absolute calibration.

Search for Line Emission from Interstellar OH Radicals. A. A. PENZIAS, *Bell Telephone Laboratories, Inc.*.—A search for 1667-Mc OH line emission from the galactic plane was carried out using a fixed horn-reflector antenna and a multichannel radiometer. The antenna was oriented so that its beam would drift through the galactic plane at longitude 58° and at the anticenter. From a plot of the average of twelve 24-h scans no emission was detected, with sensitivities of 0.05°K and 0.15°K for the two longitudes respectively. (The measurements at the anticenter were less sensitive because of the proximity of the sun to this direction during the period of observations.)

These measurements allow us to place an upper limit of 10^{-7} on $n_{\text{OH}}/n_{\text{H}}$ for the regions investigated, provided that the excitation temperature of the transition is much larger than the background temperature.

The principal excitation of this OH transition comes from an interaction between the fields of passing ions and the permanent electric dipole moment of the radical. The cross section for this process, computed from a Fourier analysis of the interaction, is $3 \times 10^{-11} \text{ cm}^2$ for a particle velocity of 10^5 cm/sec . We obtain an excitation temperature of approximately 50°K from this process, for an ion density of $5 \times 10^{-3} \text{ per cm}^3$.

A comparison of our result with recent successful OH absorption measurements indicates that the typical value of the OH excitation temperature is probably closer to 10°K , suggesting that the actual ion density in interstellar clouds is substantially smaller than the generally accepted value employed above.