PRELIMINARY REPORT OF THE JOINT PHILIPPINE-AMERICAN ECLIPSE EXPEDITION TO CANTON ISLAND, SOUTH PACIFIC *

By F. N. Glover, S.J.

The Manila Observatory, Ateneo de Manila University, was recently invited by the U. S. National Bureau of Standards to participate jointly in an eclipse expedition to Canton Island, in the South Pacific. The object of the expedition was to make measurements of the ionization in the earth's upper atmosphere during the period of the eclipse, February 5, 1962, to be used in studying the processes of ion production and recombination in the ionosphere. The National Bureau of Standards offered to supply all the necessary equipment but requested the assistance of the Manila Observatory in making the observations. Fr. Francis Glover, S. J. of the Manila Observatory and Mr. G. H. Stonehocker of the Bureau of Standards jointly made the necessary observations.

Canton Island in the South Pacific was selected as the site for observations. Canton Island (Latitude 2° 46′ South, Longitude 171° 43′ West) lay almost in the path of totality, and the eclipse occurred there shortly after noon. Air transportation between Honolulu and Canton Island was furnished by the Federal Aviation Agency. All equipment was functioning properly on the day of the eclipse, and the observational data obtained appear to be valid.

In this article the nature of the research problem and the type of observations made on Canton Island will be presented. Since the data obtained have still to be processed abroad by a high speed electronic computer, the final results of the trip are still forthcoming.

The sun's radiation causes the gases of the earth's upper atmosphere to become ionized, that is, the incoming solar photons are able to detach one or more electrons from an atom or gas molecule in the upper atmosphere. The rate of ionization depends upon the number of incident photons, the number of target

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