

Mr. E. F. Florman visited the Hastings Instrument Company September 1, to take part in the field testing of the new equipment used in the "Raydist System." This system, which measures distance by means of the shift in relative phase between rf voltages received at two locations from a common source, is believed to have great potentialities in radio wave propagation research. In the equipment tested on 2398 kc. the effects of the induction field were noted when the receiver was within 200 feet of the transmitter, giving errors of the order of 18 feet; however, some of this could have been caused by overloading of the receiver by the transmitter. This part of the test was made to determine the presence of these effects, although they would not affect the performance of the instrument in ordinary use.

At the D. C. laboratory, a complete set of Raydist equipment was obtained, on loan from the Army Air Forces, and preliminary laboratory tests were made on it.

Calculations of the vertical-radiation pattern of the Sterling, Va., rhombic antenna directed on White Sands, N.M., for the azimuth of the center of the main lobe, and for an azimuth 5 degrees off the center, were made. A family of graphs of sky-wave delays was also calculated and plotted, using simple geometrical considerations.

In the UHF radiometer project, the first Giant Wurzburg antenna was erected on a 70-ton concrete foundation. The antenna is mounted on a polar axis which can be adjusted exactly parallel to the earth's axis. By means of motor-driven gears, it is possible to automatically "track" the sun's position throughout the day. Provision is made for periodic adjustment of the declination of the antenna to correct for seasonal changes of the sun's position. Repair work was begun on the second Giant Wurzburg antenna for a similar installation.

Field Operations (Section 7). - One officer and six enlisted men of the U. S. Army Signal Corps completed the first part of a course in ionospheric measurement techniques, September 11. They are scheduled for three weeks of duty at the Holabird Signal Depot, Baltimore, and will then return to CRPL for about three more weeks of training, after which they will go to Adak, Alaska, to undertake the operation of the radio propagation field station there.

The Section Chief returned September 3, from an extensive tour to nearly all the radio propagation field stations, completing the trip by visiting Anchorage, Alaska, the University of Alaska, Fairbanks, and the Canadian ionosphere stations at Prince Rupert and

Portage la Prairie. Numerous photographs were taken at the field stations and associated radio propagation laboratories.

In order to compensate for the changes from day-to-night ionospheric conditions, the control of receiver gain in the CRPL Model C-2 automatic ionosphere recorder at the Sterling laboratory was connected through suitable relays to the master time clock.

One of the rhombic antennas, formerly used on the Model B automatic ionosphere recorder, was disconnected from the building, after discovering it was arcing to ground and causing interference.

Both the receivers used with the manual ionosphere recorder were realigned and put into better working condition.

Three new Brown electronic recording potentiometers were received at the Sterling laboratory and tested for accuracy and sensitivity. Also, three HRO-5 receivers were modified and made ready for use with the recording units.

For the past month a daily record of relative humidity in the oblique-incidence field-intensity building has been tabulated and is being studied for possible correlation with observed changes in the tuning and sensitivity of the receivers used in the field-intensity recording equipments.

A new chart-drive clock, obtained from the Department of Terrestrial Magnetism, was installed on the magnetograph after failure of the old unit. The magnetograph was then recalibrated but the change of sensitivity was found to be quite small.

Mr. A. O. Crawley returned from the Manila Radio Propagation Field Station after a period of temporary duty during which time he made arrangements for closing of the station. After Mr. Hutchinson's visit, he made the final arrangements for returning Army equipment to the Army and shipping Bureau property to designated consignees.

High-Frequency Standards (Section 8). - Work was started on equipment at station WWV to make automatic voice announcements of the time, using the 12-hour system, to supplement those in international Morse code now being broadcast.