

## SCIENCE NEWS

*Science Service, Washington, D. C.*THE EARTH'S MAGNETIC FIELD AND  
LONG-RANGE FORECASTS OF  
THE WEATHER

THAT long-range weather forecasts based on fluctuations in ultraviolet radiations received from the sun can obtain great help from a century's accumulated records of changes in the earth's magnetic field, was suggested by Dr. H. B. Maris, of the U. S. Naval Research Laboratory, at the meeting of the American Geophysical Union.

Calling attention to the pioneer work in correlating solar radiation changes with cycles in the earth's weather carried on by Dr. Charles G. Abbot, secretary of the Smithsonian Institution, Dr. Maris pointed out that the earth's magnetic field affords an instant and sensitive index to any change in ultraviolet radiation coming to us from the sun.

The great mass of earth-magnetic records show many persistent cyclic changes and these represent world-wide changes as contrasted with weather records, which usually represent local conditions. There is thus available to the weather forecaster, in the magnetic records, a vast store of information about solar radiations which probably can not be equalled by direct radiation measurements in 50 years.

An analysis of the magnetic records has led Dr. Maris to certain general conclusions, which, he cheerfully admitted, "are probably wrong." However, he challenged, "any one who proves them wrong must produce evidence to support a better guess."

One seventh of all magnetic fluctuations he considers due to gases from the tails of comets, swept up out of space by the earth as it swings across the cometary orbits. The relation of these orbital magnetic disturbances to weather, he said, should be quite different from that of the solar disturbances which are caused by ultraviolet radiations.

The remaining six sevenths of terrestrial magnetic disturbances Dr. Maris considers due to fluctuations in ultraviolet radiations originating on the sun. Dominating these cycles of ultraviolet changes, he stated, are three great eruptive solar disturbances—veritable giant fiery geysers—that have persisted on the sun throughout the past century. Study of the records of these, especially during the past forty-four-year period, has convinced Dr. Maris that their periodicities have had close correlations with weather cycles on the earth.

## ITEMS

PLENTY of moisture in the soil to insure a big food crop—more than plenty in some places—is the encouraging report of the state of the nation as a whole summarized out of hundreds of individual observers' dispatches at the U. S. Weather Bureau. The corn crop, though late in getting planted, is as good as "made" even before the seed go into the ground. The one troubling exception is a strip of drought along the Atlantic seaboard, covering

most of New England and running from New Jersey to Georgia. A drought area in the Southwest has been given at least a good dampening-down during the past week. A wide zone covering a large part of the prairie area west of the Mississippi continues rather too wet. The wettest spot is in central Iowa, where the Des Moines river and its two principal tributaries, the Raccoon and Skunk Rivers, are still above all flood marks since 1903. The soggy-ness rises to a second climax near the Gulf, where eastern Texas reports fields exceedingly muddy, and where Louisiana cotton farmers are still unable to get their planting done.

A NEW contagious disease with symptoms so mild the sickness may go unnoticed is reported by Dr. Carl H. Smith, of Cornell University Medical College and the New York Hospital, in the forthcoming issue of the *Journal of the American Medical Association*. The chief feature of the disease is an increase in the lymphocytes, one of the kinds of white cells in the blood. Although the number of white cells may be increased almost tenfold, the lymphocytes are not abnormal or atypical. Fever and vomiting, pain in the back of the head and neck, or pain in the abdomen suggestive of appendicitis may occur in this new disease, but when they do, these symptoms last only a few days. In one case Dr. Smith reports, the child had fever, vomiting and abdominal pain, but a brother and sister had only symptoms of a mild cold. Only since 1939 have cases of this disease, called acute infectious lymphocytosis, been reported. The cause has not been identified but is believed to be a virus. The disease apparently attacks young children chiefly and they all seem to recover.

A NEW concrete wind tunnel has been put into operation at the Edmund T. Allen Memorial Aeronautical Laboratory, of the Boeing Aircraft Company, at Seattle. The 18,000 horsepower electric motor, built by Westinghouse Electric and Manufacturing Company, is capable of generating super-hurricanes in the 700 miles-an-hour range, about five times the force of an average hurricane. In this wind tunnel, the largest operated by any private aircraft manufacturer, Boeing engineers will test the behavior of planes, wing shapes, and other parts or sections of aircraft at speeds approaching the speed of sound, around 750 miles an hour. The need for a wind tunnel producing high speeds became evident when it was discovered that the aerodynamic rules that hold good at present speeds may not apply to the planes of the future. It is believed that present-day aircraft at their moderate speeds affect the air ahead of them in such a way that the air can readily flow about their wings and bodies. The airplanes of the future are expected to cruise at speeds from 600 to 800 miles an hour, and a different type of airflow will occur at these higher speeds.