

METEOROLOGY

Weather Radars Ordered

Weather Bureau makes contract with Raytheon for powerful, new radar sets especially designed for weather forecasting needs. Delivery scheduled for 1958.

See Front Cover

► THE WEATHER BUREAU'S 31 new, powerful radar sets will form part of a storm-warning network that will eventually blanket the United States, detecting and tracking hurricanes, tornadoes and other severe storms that are as much as 250 miles distant.

The continuously operating radars, tailor-made for weather forecasting needs, are expected to be especially helpful in improving predictions of flash floods. Since they can show where and how much rain or snow is falling as it falls, weathermen will be able to warn of flash-flood threats much sooner than now possible.

Radar signals bounce off rain drops in storms and are reflected back to the antenna where they are electronically converted to the picture seen on the radar screen. Brilliance of the image is a measure of the rain's intensity.

Dr. D. M. Little, the Weather Bureau's deputy chief, said exact locations for most of the new radars have not yet been picked. They will be installed both inland and along the East Coast at sites giving the maximum amount of protection to the greatest number of people.

He said that Raytheon Manufacturing Company, Waltham, Mass., will produce, at the rate of five per month, 39 of the new radar sets, of which the U. S. Navy's Bureau of Aeronautics will use eight here and abroad. Delivery on the \$3,800,000 order is scheduled to begin in early 1958.

Because of limited funds, the Weather Bureau has been using converted military radars with a range of up to 150 miles for storm detection. Even with these rather obsolete sets, weathermen now track hurricanes, tornadoes and thunderstorms with a precision never before possible.

As the new radars become available, they will replace those now in operation at selected locations. The old sets will be reconditioned and installed at Weather Bureau stations now radar-less, filling out the inland and coastline networks.

The hurricane watching circuit will stretch along the Gulf and Atlantic Coasts from Brownsville, Tex., to Maine. Radars of a different type, although with a 250-mile radius, are already installed at Cape Hatteras, N. C., and in San Juan, Puerto Rico. Another is scheduled to start operating soon at Nantucket, Mass.

All tropical storms that have slammed into the U. S. mainland have come within radar range of Cape Hatteras where the powerful radar is now operating.

In the Midwest's tornado belt, more than 24 radar-equipped stations scan the skies for the tell-tale six-like figure on the screen that indicates a tornado or severe storm. Some of the new radars as well as reconditioned sets will be used to round out this warning system.

Both are likely to be joined into a nationwide network expected within several years to provide the entire country with electronic warnings of stormy weather.

Using the new radars, meteorologists will be able to keep a continuous check on storm progress and development. The sets will be convertible, operating at one of three different wavelengths, about 9,300, 5,600 and 2,800 megacycles, whichever is most suitable for the particular weather conditions expected.

During the hurricane season, transmitters ideal for hurricane detection will be used along the East Coast.

When the hurricane season is over, the instruments can be quickly converted to operate on another wavelength more suitable for less severe weather.

PUBLIC HEALTH

Health Training Program

► A "TREATY" between modern science and the medicine men of old, designed to raise the health of the Navajo Indians, is now in force at the Navajo Reservation, Window Rock, Ariz.

The "treaty" is a new health training program initiated by the University of California School of Public Health, Berkeley, in cooperation with the Division of Indian Health of the U. S. Public Health Service.

The incidence of tuberculosis and the mortality rate from infant diarrhea are relatively high among the Navajos. Family care for accident victims is also important since many of the Indians live in remote places.

In the past, one of the big problems in improving the health of the Navajos has been the lack of trained workers "socially" close enough to them to be effective.

One way of closing the gap is to call upon the medicine men.

"We try to show them," said Dr. Dorothy Nyswander, professor of public health at the university, "that there are some forms of disease which doctors can handle best and others which they can handle best."

The medicine men are important in estab-

● RADIO

Saturday, August 18, 1956, 1:45-2:00 p.m. EDT

"Adventures in Science" with Watson Davis, director of Science Service, over the CBS Radio Network. Check your local CBS station.

Prof. Brooks F. Ellis, chairman of the department of geology, New York University, and chairman of the department of micropaleontology, American Museum of Natural History, will discuss "Studying the Ocean Floor."

Shown in the photograph on the cover of this week's SCIENCE NEWS LETTER is the radar screen of one of Raytheon's new storm detectors, picturing the storm's circular motion.

The operator can single out a particular area of the disturbance for magnification if more detailed analysis is desired.

The weather radars also promise to be a valuable research tool for meteorologists, since photographs of the radar screen will record a storm's entire life cycle, from birth to dissipation, for later study.

Dr. Little also reported that scientists at Cornell Aeronautical Laboratory, Inc., Buffalo, N. Y., are hopeful they can work out a system, using the Doppler effect on which some radars for detecting speeding automobiles operate, to identify the rotating funnel of tornadoes, since raindrops on each side of the center whirl at different speeds.

If this can be done, the new radars would need only the addition of a "little black box" to use the method.

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lishing confidence in the program and in carrying on mental therapy with whole families.

Under the program, community health workers and aides are being trained. Wherever possible, the workers will be Navajos, and they will supervise the aides, all of whom will be Navajos. The aides will be responsible for most of the educational work in the field.

The program is making use of films, taken on the reservation and in the Navajo language, dealing with hygiene, sanitation and tuberculosis.

The first trained community health workers have been assigned to Tuba City and Chinle, where they will teach aides and expand services and facilities for the Indians.

William Griffiths, associate professor of public health at Berkeley, is associated with Dr. Nyswander as a director of the project, and they are assisted by Scott K. Simonds, Berkeley researcher, and two health educators, Allen Buckingham and Carl Miller, who work on the Navajo Reservation.

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On the average, 4.09 pounds of food are required to produce one pound of fish.