

RADIO

Radio Reception Forecast

Predictions made twice a week at National Bureau of Standards were furnished during the war to Army and Navy. Now available to public.

► LIKE the weather man, radio experts are "sticking their necks out" in an attempt to predict several days in advance if the radio reception on short-wave sets will be good or bad.

A prediction can be made on Wednesday, for example, that owners of short-wave radio sets will probably have trouble the following Monday and Tuesday getting programs broadcast from Moscow, Stockholm and London.

The semi-weekly forecasts, furnished the Army and Navy during the war, are issued by the Interservice Radio Propagation Laboratory at the National Bureau of Standards. During a magnetic storm, high-frequency transmission may be upset. If the storm becomes violent, however, the reception of local broadcasts may become poor and telegraph messages fail to get through.

The first radio paths to become dis-

turbed are those crossing the polar regions such as from New York City and Washington to Moscow, Stockholm and London.

The predictions are based in part on the degree of solar activity. The greater the number of sunspots—and the public is once again to get up-to-date information on sunspots—the more likelihood there is of a magnetic disturbance.

Disturbance in the ionosphere, the complicated layer more than 50 miles high from which radio waves are reflected back to the earth, are associated with the magnetic storms at lower levels. Thus conditions of the ionosphere as well as geo-magnetic and auroral conditions are all studied in venturing a guess as to just how good the high-frequency reception will be several days in the future.

Science News Letter, November 3, 1945

The General Electric-designed thermal jet engine in the Fireball is far more powerful than a conventional engine of the same weight; working alone, it can streak the plane along at approximately 300 miles an hour. The Wright Cyclone gives the craft a maximum range of 1,500 miles cruising at 207 miles an hour, and can develop a speed of 320 miles an hour. Operational features of the plane are good maneuverability, fast climbing, easy handling and speed.

Science News Letter, November 3, 1945

CHEMISTRY

Shark-Repelling Chemical Used for Mackerel Nets

► THE SHARK-REPELLING chemical which was developed during the war to save the limbs and lives of "dunked" flyers and sailors promises to be a major money-saver to commercial fishermen. A test made at the suggestion of the U. S. Fish and Wildlife Service by the mackerel seiner *Angie* and *Florence*, operating out of Gloucester, Mass., showed that it was effective in keeping these toothy raiders away from a large net full of mackerel, saving both fish and net.

Shark attacks on heavy netfuls of fish have long been a major problem of commercial fishermen. The loss in fish is serious enough, but damage to the net may be even more so, for a good mackerel net costs several thousand dollars.

AERONAUTICS

Jet-Push Plus Propellers

Combination of conventional propeller-drive and jet-propulsion features new Navy fighting plane; powered by two engines operating together or alone.

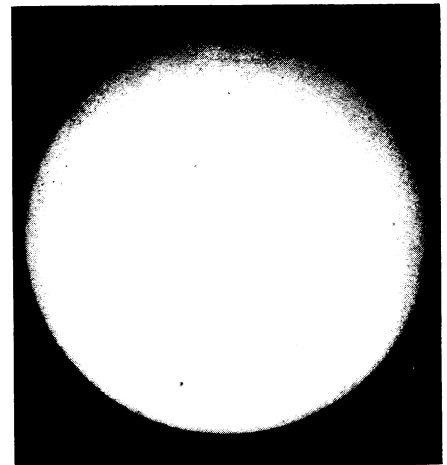
► SOMETHING new in aircraft propulsion, a new Navy fighting plane equipped both with conventional propellers driven by a reciprocating engine and jet-push from an improved jet propulsion engine, was demonstrated in Washington before a group of scientists by the U. S. Navy, which also released many of the details of the plane and its power plants.

The two engines may be operated at the same time, to give maximum performance, or either may be operated alone. The unique power combination makes the plane equally efficient at high or low levels. It also combines the advantages of good cruising characteristics with high tactical performance.

The reciprocating engine, a Wright Cyclone radial power plant, is in the front of the plane, and the jet-propulsion engine, made by General Electric, is in the rear. This gives an even weight distribu-

tion that contributes to the plane's efficiency. The plane, already dubbed the "Fireball," is a low-winged, single-seat monoplane that at first glance appears to be a single-engine craft. Both engines are completely enclosed, and air scoops for the forward engine are within the engine cowling. The air intakes for the jet engine are in the leading edge of the wing near the fuselage, with the jet exhaust opening coming out under the tail.

This new plane is a product of the Ryan Aeronautical Company of San Diego, Calif., and when the war ended was beginning to roll off the production line. A Navy fighter squadron to be equipped with Fireballs was already in pre-combat training when the Japs surrendered. The Fireball never saw combat, but already the principles developed for its operation are being applied to a possible civilian version.



NOT A SECRET—The second largest number of sunspots for the year is shown in this photograph by the U. S. Naval Observatory. There are not many large spots, but numerous small ones. The more spots, the more activity there is on the sun. Information about sunspots is no longer a war secret and can be obtained from the Observatory.