ELECTRONICS

Peacetime Radar

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➤ MARINE RADAR for peacetime use, to help avoid collisions and to save lives, property and time, must be properly designed for the job. The radar set on a vessel must be reliable, not too costly, have low minimum range, and be capable of operation by the regular complement of officers of the ship.

Military radar systems, developed for such varied purposes as surface search, aircraft detection, height finding, gunfire control, range finding and other wartime uses, were designed for these special purposes. The very design elements that produced excellent military radar are often those which make for an unsuitable peacetime radar, according to radar experts.

This is the opinion of L. H. Lynn and O. H. Winn, both of the General Electric Company, expressed at the meeting of the American Institute of Electrical Engineers in New York. They discussed the design requirements for peacetime radar, particularly as applied to surface ships.

"Maximum ranges of military equipment frequently exceed a hundred miles and require appropriate high power for such a range," they said. "A passenger ship is much more concerned with an obstacle which may be only several miles away, hence a large equipment is neither justifiable nor desirable."

"Minimum ranges of a destroyer's radar may well be a mile or two, on the theory that an enemy must be discovered long before he can approach that close," it was explained. "Minimum range of a radar for a cargo ship is required to be less than a ship-length, the shorter the better, in order that navigation may be safely accomplished in congested harbors."

Early in 1943, a modification of the military ship-borne search radar was installed as an experiment on an ore boat on the Great Lakes. It proved to be a highly useful navigational tool, the G-E engineers stated, but was too complex for non-technical personnel to use. As a result a relatively simple radar system was developed which is now called an "Electronic Navigator."

This has three units, antenna system, console and motor-alternator. The console, they explained, contains the transmitter, receiver, cathode ray tube, sweep circuits, pulsing circuits, rotating field mechanism, appropriate power supplies and controls.

"The pulse," they continued, "is considerably less than one microsecond in length and repeats at approximately 1000 cycles per second. Thus the peak power delivered to the magnetron is of the order of kilowatts, though the average power is but a few watts."

At the same meeting, R. C. Jensen and R. A. Arnett, also of General Electric, presented technical information on the peacetime role of airborne radar for navigation and obstacle detection.

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Vanilla was unknown throughout the world except to the Aztec Indians in Mexico until 1518, when Spaniards under Cortez landed at Vera Cruz.

Dithane, a new organic fungicide developed by the Connecticut Agricultural Experiment Station two years ago, is effective in controlling celery blight.

A *helicopter* has been used experimentally to deliver pipe for pipelines to inaccessible places in swamps and jungle; it carried 1,000 pounds of pipe strapped to the outside of the plane.