ELECTRONICS

First "Sofar" Station

Navy is using new method for locating survivors at sea by underwater sound system. Picks up sound over 3,000 miles distant.

➤ THE FIRST "Sofar" receiving station in the new Navy long-range, underwater sound system for locating air and ship survivors at sea, is ready for operation. This station, located at Monterey, Calif., recently heard and recorded the sound of a bomb exploding under water 2,300 miles away.

This Monterey station is the first of four which will be used to cover the Pacific. A second will be located at Point Arena, northwest of San Francisco; the other two on separated islands in the Hawaii group. All will be ready for use later this year.

Sofar is a war-developed system coming as a by-product of submarine-detection studies carried out under the leadership of Dr. Maurice Ewing of Columbia University for the Navy at Woods Hole Oceanographic Institution in Massachusetts. In tests made in the Atlantic over a year ago, sound was picked up 3,100 miles from its source. It is expected that this range will be doubled with improved equipment.

In the system, a bomb designed as standard equipment on lifeboats is dropped overboard by the survivors. It is triggered to be exploded by the water pressure when it has decended about a half mile. It is then in a layer of water, from some 2,000 to 6,000 feet below the surface which, somewhat like a speaking tube, confines the sound waves within itself and transmits them for long distances.

At the receiving station, recording equipment is connected by submarine cables to nearby hydrophones which are set deep in the water to receive the sound waves. These hydrophones pick up the underwater sound waves much as the ordinary telephone picks up the air sound waves from the human voice.

One Sofar receiving station alone can not determine the position of the exploded bomb. Two or more are required. The sound waves, which travel at about 4,800 feet per second, will reach them at different times unless they happen to be at the same distance from the sound source. In operation, each station reports by wire or radio to a central station immediately upon receiving a sound signal, giving the exact time received.

From the differences in time of receipt the location of the bomb explosion is rapidly computed. Then rescue crews are ordered on their way. Tests show that the location is accurate to within a mile or so of the correct position.

Science News Letter, July 12, 1947

ELECTRONICS

Dancing Rainbow Used For Transmission of Voice

➤ WAVING a rainbow to send signals is the newest thing in light-beam communication methods. U. S. patent 2,423,254 has just been issued on a system using what amounts to that, to Michael Rettinger of Encino, Calif.

The rainbow in this case is an artificial one, produced by projecting a narrow light beam on a prism, but it is just as real a one as the spectrum-arc painted on the heavens by falling raindrops.

In Mr. Rettinger's invention, the sender's voice or code tappings are put through an electro-magnetic circuit that causes the prism to dance up and down. This in turn produces up-and-down swings in the rainbow-hued band of light projected at the distant receiving station.

At the latter point the spectrum falls on a photocell that is most sensitive to red, least sensitive to blue-violet. The dance of the rainbow, therefore, produces a fluctuating electric current. This is put through an amplifying system, and comes out as a reproduction of the voice or other signal used at the sending station.

This light-signalling system, since it uses light-waves of differing frequencies at a constant intensity, bears to blinkers, heliographs and the like the same relation that frequency-modulation radio does to the older amplitude-modulation kind—for blinking a light on and off is simply producing the widest changes in its intensity, from full-on to completely out.

Rights in Mr. Rettinger's patent are assigned to the Radio Corporation of America.

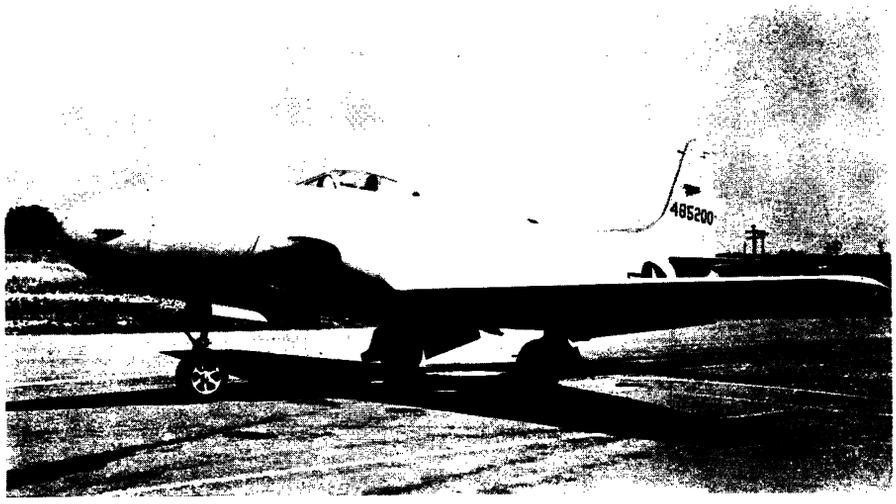
Science News Letter, July 12, 1947

PHYSICS

Highschool Girl Makes Snow-Making Device

➤ MAN-MADE snow, first produced by a scientist in a laboratory and later in natural clouds, can now be made in your own home for $4.32—if you are as ingenious as one 17-year old highschool girl.

Kathleen Roan of Providence, R. I.,



SPEEDY PLANE—The world's speed record is held by this P-80R, a special version of the Army's noted jet-propelled Shooting Star. Leading wing edges are sharper, pilot canopy is lower, and air intakes are redesigned to lessen drag.