

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 descended 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 sta-

tion 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 tapings 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.

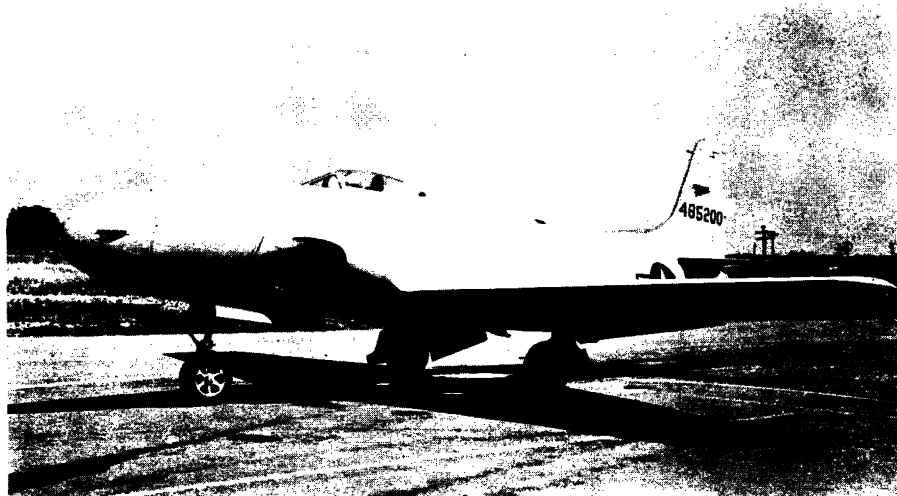
Science News Letter, July 12, 1947

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.

used such non-scientific apparatus as a couple of her mother's washtubs to build her snow-maker. She built the unique equipment as an exhibit for the Rhode Island Science Fair. Naturally, the judges were "snowed under" and gave her first prize. Since then, Miss Roan has shown her home-made snow device to Vincent J. Schaefer, the General Electric Company scientist who first "made" snow. He suggests snow-making may become a hobby of many young scientists.

Miss Roan first made a refrigerator from a small wash tub placed inside a larger one, with rock salt and chopped

ice between the tubs. By breathing into the smaller tub when the temperature inside it had dropped below freezing, the young scientist produced a super-cooled cloud in which the water droplets remained liquid though the temperature was actually below freezing.

Then, dry-ice was sprinkled over the cloud, and snow crystals appeared.

Other equipment used by Miss Roan included a lamp inside the wash tub to illuminate the snow-making process, a packing case for the tubs and sawdust for insulation.

A little snow might look mighty nice one of these hot summer days.

Science News Letter, July 12, 1947

PALEONTOLOGY

Bones of "Hand Animal"

Prehistoric animal that got its name from the prints made by a foot resembling human hand may now be studied for first time. Bones found in Arizona may be his.

► BONES of the "hand animal," the dinosaur's granddaddy which dominated the world from about 150 to 200 million years ago, may now be in the hands of scientists for the first time.

Chirotherium, which got his nickname because of the amazing resemblance of his hind foot to a human hand, left beautiful footprints all over the world in the mudflats of the lower triassic period of geological time.

But paleontologists have been a little uncertain of what he looked like because they could find no fossils of an animal which might have made such tracks.

Dr. Frank Peabody, of the University of California Museum of Paleontology, has been studying some well-preserved footprints of Chirotherium found in the dull red sandstone beds between Winslow and Flagstaff, Ariz. From these same beds he has recovered fragments of the pelvis, jaw, and skull of an animal which he believes is probably Chirotherium.

The footprints the "hand animal" left in Arizona are so perfect they could have been plaster-of-Paris impressions. So clear are the prints the phalanges of the foot can be counted. The print of the largest specimen is about 15 inches long.

By analyzing the prints and trackways—interval of step, size of print, gait—Dr. Peabody and others have reconstructed Chirotherium's appearance. Members of the Chirotherium group are estimated to have ranged in size from that of a modern chicken to a monster

standing six feet high or more at the hips. They had a tendency to be bipedal, with front feet about half the size of the hind feet.

"University of California field parties have already found bone fragments which almost certainly represent Chirotherium, but as yet positive proof in the form of a complete or nearly complete skeleton has eluded them," Dr. Peabody said.

Science News Letter, July 12, 1947

ORNITHOLOGY

Sea-Faring Bird Goes To Philadelphia's Zoo

► A WINGED landlubber that strayed 300 miles out over the Gulf of Mexico is now safe in the Philadelphia Zoo.

The wandering bird, now safely in a cage at the zoo, is a smooth-billed ani, a native of South America and the West Indies. It is larger than a robin, with black plumage and large hump on its bill.

The bird flew aboard the S. S. Fredericksburg as the tanker ploughed through the Gulf of Mexico.

Other sea-going birds which have gone to the zoo in recent years include a snowy owl, picked up off the coast of Greenland, and an Indian crow that flew aboard a ship 100 miles off Hindustan.

Science News Letter, July 12, 1947

AGRONOMY

Paper-Mill Waste Good For Liming Acid Soils

► FARMERS in northern Wisconsin have found that a paper mill waste—the greenish, ill-smelling sludge dumped by the mills after pulp is processed for paper—is rich in lime and just the thing for acid soils.

The mills are gladly cooperating with the farmers in making the sludge available to them, because getting rid of the waste has always been a serious problem. County agricultural agents, too, are cooperating by making available testing facilities to determine whether soils need lime.

Science News Letter, July 12, 1947

SCIENCE NEWS LETTER

Vol. 52 JULY 12, 1947 No. 2

The weekly summary of Current Science, published every Saturday by SCIENCE SERVICE, Inc., 1719 N St., N. W., Washington 6, D. C., North 2255. Edited by WATSON DAVIS.

Subscriptions—\$5.00 a year; two years, \$8.00; 15 cents a copy. Back numbers more than six months old, if still available, 25 cents.

Copyright, 1947, by Science Service, Inc. Reproduction of any portion of SCIENCE NEWS LETTER is strictly prohibited. Newspapers, magazines and other publications are invited to avail themselves of the numerous syndicate services issued by Science Service.

Enterer as second class matter at the post office at Washington, D. C., under the Act of March 3, 1879. Established in mimeographed form March 18, 1922. Title registered as trademark, U. S. and Canadian Patent Offices. Indexed in Readers' Guide to Periodical Literature, Abridged Guide, and the Engineering Index.

Member Audit Bureau of Circulation. Advertising Representatives: Howland and Howland, Inc., 393 7th Ave., N.Y.C., Pennsylvania 6-5566, and 360 N. Michigan Ave., Chicago, State 4439.

SCIENCE SERVICE

The Institution for the Popularization of Science organized 1921 as a non-profit corporation.

Board of Trustees—Nominated by the American Association for the Advancement of Science: Edwin G. Conklin, American Philosophical Society; Otis W. Caldwell, Boyce Thompson Institute for Plant Research. **Nominated by the National Academy of Sciences:** Harlow Shapley, Harvard College Observatory; Warren H. Lewis, Wistar Institute; R. A. Millikan, California Institute of Technology. **Nominated by the National Research Council:** Hugh S. Taylor, Princeton University; Ross G. Harrison, Yale University; Alexander Wetmore, Secretary, Smithsonian Institution. **Nominated by the Journalistic Profession:** A. H. Kirchofer, Buffalo Evening News; Neil H. Swanson, Executive Editor, Sun Papers; O. W. Riegel, Washington and Lee School of Journalism. **Nominated by the E. W. Scripps Estate:** Max B. Cook, Scripps Howard Newspapers; H. L. Smithton, Executive Agent of E. W. Scripps Trust; Frank R. Ford, Evansville Press.

Officers—President: Harlow Shapley. **Vice President and Chairman of Executive Committee:** Alexander Wetmore. **Treasurer:** O. W. Ford. **Secretary:** Watson Davis.

Staff—Director: Watson Davis. **Writers:** Frank Thone, Jane Stafford, A. C. Monahan, Martha G. Morrow, Ronald Ross, Alexa M. Carroll. **Science Clubs of America:** Joseph H. Kraus, Margaret E. Patterson, Henry Platt. **Photography:** Fremont Davis. **Management:** Albert de Wolf Erskine. **Sales and Advertising:** Hallie Jenkins. **Production:** Dorothy Reynolds.