OCEANOGRAPHY-PHOTOGRAPHY

Underwater Camera

Pictures are taken automatically by means of a trigger which sets off a flashlight when it touches the ocean floor; without a photographer, animal life is not disturbed.

See Front Cover

➤ A NEW UNDERWATER camera that will help science uncover secrets of the ocean's floor was revealed by Prof. Maurice Ewing of Columbia University, and a member of the Woods Hole Oceanographic Institute, at a meeting of the Optical Society of America, held in New York.

The camera is its own photographer. A special trigger hangs down from the bottom of the camera. When the tip of the trigger touches the ocean floor, it sets off the flashlights and clicks the shutter. The tip of the trigger may be extended to any practical length, and the lens adjusted so that the picture taken will be in focus, Dr. Ewing reported.

The main advantage of the new camera, Dr. Ewing stated, is that it can be lowered into a submarine world, 100 fathoms or more down, and take its pictures with less disturbance to animal life, and at a lower cost, than by other means. The camera located the sea-pens shown in the center foreground on the front cover of this SCIENCE NEWS LETTER, in waters where they were not previously known.

Two types of camera have been developed, he declared. One has a ballast and a float. The complete unit is tossed over the side of a ship. The ballast carries it to the bottom. When it gets there, a trigger starts clockwork for taking a series of picures at any pre-set time interval. When the last picture has been made, the camera releases the ballast, and the float carries it back to the surface. A compass and a drift indicator may be suspended in the field of view of the camera to show changes that occur in the direction of the current while the series of pictures is being made. The other type of camera is lowered on a wire, and makes just one picture.

There are many ways in which scientists may be expected to use the new camera, Dr. Ewing reported. Already it has been used to study the habits of deep-sea life in an undisturbed state. In very deep water it has proved valuable for taking a census of the animal population. The camera is better than a collecting net for this purpose, since many fish escape the net, or are so fragile that they are destroyed by the net before reaching the surface.

Geologists use the camera to study the ocean floor. The camera revealed sand ripples at 97 fathoms, proving that there is enough current at this depth to move sand around. A series of pictures showed that the direction of the ripples changes with tides, proving constant movement. The camera is expected to help uncover many interesting facts about the submarine canyons off the Pacific coast of the United States, Dr. Ewing pointed out.

The first underwater photographs were made 54 years ago in 1890 by a Frenchman named Boutan. The camera he used consisted of a sealed unit for the camera, and a shutter control that extended to the surface. The camera was lowered into shallow water, and the shutter was clicked by means of pulling on the shutter cable. For the next 40 years divers took their cameras down with them, encased in rubber jackets. Dr. William Beebe took pictures through the thick window of his bathysphere. Dr. Williamson took pictures from the window of a gondola dropped beneath the surface, with a flexible tube large enough to permit a man to pass through it, extending from the surface to the gondola.

The new camera returns to the principle of the Boutan camera, Dr. Ewing stated.

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ENGINEERING

Square Telephone Poles Used by Signal Corps

➤ SQUARE-SAWED telephone poles, cut on standard sawmill machines, are being used in war theaters by the U. S. Army Signal Corps for telephone lines, in place of the old-type round poles. Change from round to square poles, the War Department states, has resulted in savings in time, manpower and lumber.

In 100 miles of poles, 250,000 board feet of lumber may be saved by using square poles. They can be turned out many times more rapidly than the round type, as mill-made units. Square poles, the Army found, are easier to store than round poles, with a great saving in space. There is also a saving in shipping weight of more than 800,000 pounds for 100 miles of the new poles as compared with the old type. In addition, they can be handled in the war theaters with far greater ease than the round type, and they are easier for the soldiers to set up.

The old type of pole, cut round from yellow pine stock, was impregnated with creosote, a heavy oily liquid obtained primarily from coal-tar. The new square pole is protected against decay and termites by a green salt treatment. The green salt preservative, unlike creosote, is non-inflammable, consequently the fire hazard in storage and in transit is greatly reduced.

Douglas fir stock can be used in place of yellow pine stock with the green salt treatment, thereby releasing for other essential uses vast quantities of vitally needed pine. Douglas fir strongly resists the penetration of creosote, but the new method drives green salt preservative deep into the wood by means of air pressure and small incisions to insure uniformity of penetration. Many more poles can be processed at one time by the green salt method, than by the older creosote system.

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MEDICINE

Cellophane Strips Aid Production of Penicillin

➤ FASTER production and increased yields of penicillin are obtained when bags or strips of Cellophane are placed in the culture medium in which the penicillin-producing mold grows, Dr. Gregory Shwartzman, of Mt. Sinai Hospital in New York, reports. (*Science*, Oct. 27).

In one test, the mold growing with the Cellophane bag or open bowl started producing penicillin three days earlier than mold without the Cellophane. On the day when penicillin first appeared in the cultures without Cellophane, the concentration of the drug in the Cellophane cultures was already 30 times greater.

Observation that young colonies of the mold tended to develop nearer the side walls of the flask they grew in than towards the center of the surface of the fluid suggested that introduction of some supporting material would help them grow faster.

Even under conditions unfavorable for the production of penicillin, the Cellophane speeds production and yield.

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