SCIENCE NEWS

Science Service, Washington, D. C.

A NEW UNDERWATER CAMERA

A NEW underwater camera that will help science to uncover the secrets of the ocean's floor was described by Professor Maurice Ewing, of Columbia University, a member of the Woods Hole Oceanographic Institution, at a meeting of the Optical Society of America held in New York City.

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.

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.

Two types of camera have been developed. 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 pictures 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. 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 showed 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 to uncover many interesting facts about the submarine canyons off the Pacific coast of the United States.

The first underwater photographs were made fifty-four 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 forty years divers took their cameras down with them, encased in rubber jackets. Dr. William Beebe took pictures through the thick widow in 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.

ITEMS

YOUNG psychologists serving in the Army as enlisted men are now offered an opportunity to obtain commissions as second lieutenants, upon applications made through their immediate commanding officers. Those considered best qualified will be put directly to work at tasks for which their professional training and experience qualify them, ranging from psychological testing and counselling to teaching in colleges and care of mentally and physically handicapped cases. Minimum education requirements are a bachelor's degree in psychology, sociology or educational or industrial psychology.

CROWN gall, a disfiguring and destructive disease of plants that is often called plant cancer, has been cured with penicillin in the plant pathology laboratories of the University of Arizona by Professor J. G. Brown, head of the department. Crown gall is caused by a bacterial species, differing in this respect from human and animal cancers which it resembles in many other ways. So far as known, human and animal cancers are never directly produced by bacterial attack. Regardless of whether or not Professor Brown's discovery proves to have significance in the fight on human cancer, it promises practical results in the immediate field of plant pathology if it leads to a practical treatment of crown gall in the field. This disease is known to attack at least a hundred kinds of plants, and is an especially destructive enemy of young shrubs and trees in nurseries and orchards. The crude penicillin extract used in the experiments successfully cured the soft type of crown gall. It cost two cents per quart, and a quart is sufficient to destroy many small galls.

THREE-DIMENSIONAL pictures of views through an electron microscope revealing the shape of ultra-microscopic crystals, of which magnesium and other metals are composed, were demonstrated publicly for the first time at the twenty-ninth annual meeting of the Optical Society of America. The point of a common pin can be made to appear as vast and rough as a mountain range when photographed through an electron microscope, and enlarged to 100,000 diameters on a three-dimensional Polaroid vectograph. In these three-dimensional pictures, it is now possible to study and measure the shape and space characteristics of minute structures that are extremely difficult to see in ordinary photographs. The demonstration of techniques in applied electron microscopy was made by Robert D. Heidenreich, of the Dow Chemical Company, Midland, Mich., where the electron microscope has been used in the investigation of corrosion phenomena in magnesium alloys.