

currents in this region, concerning which little is known at present.

There are over 20 islands in the atoll, of which Bikini is the principal one. This coral ring, 21½ miles long, is about 2100 miles from Honolulu and 2450 from Yokohama. The 167 men, women and children living on the island, of Melanesian and Chamorro extraction, consented to be moved to a previously uninhabited island 109 miles east, in the Rongerik atoll.

Atoll of Live Corai

An atoll is formed from a bed of live coral which is thought by some scientists to have been built upward gradually from submerged mountain peaks that at some time in the geological past rose close to the surface of the sea. Presumably because the coral polyps at the edges of the bed, and particularly to windward, receive more food, they build more rapidly and form an irregularly circular reef of live coral surrounding a shallow lagoon. The maximum depth of the Bikini lagoon is about 200 feet. The bottom is flat and sandy except where cones of live coral rise to or near the surface.

By breaking off fragments of coral and carrying them inward, the waves have created islands here and there around the reef. Elsewhere the reef, typical of atolls, rises only to or near the surface of the sea at high tide, and is broken at one or more places by passages through which the tides flow to and from the lagoon.

Geologists hope to find the depth of the coral layer through the atomic bomb explosion and to determine definitely whether the peak upon which the atoll is built is of volcanic origin. After an explosion has been set off, much can be told concerning the type of material through which the vibrations travel by clocking the time needed for them to be "echoed" back to the surface by the various layers.

Waves near the explosion are expected to be several scores of feet high but the



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The region abounds in geological and historical interest—dinosaur bones, marine fossils and implements used by the Indians many years ago.

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wave height will rapidly decrease much like the height of ripples when a pebble is dropped into a pond. Thus, the waves will probably not break over any of the islands in the atoll even though the highest point on any of these is only about ten feet. "Wave people" are on the scene to measure the height, wavelength, and speed of the waves with instruments, cameras, echo-sounding machines, and television.

Unanswered questions include how such waves would act and how much surrounding islands would interfere with their normal course. All the instruments set up to measure the waves are remote-controlled so that the people in charge will be a long, long way off.

Participating Agencies

A number of institutions are taking part in this scientific survey. They include the U. S. Navy Hydrographic Office, the Woods Hole Oceanographic Institution, U. S. National Museum, the Fish and Wildlife Service of the U. S. Department of the Interior, the U. S. Geological Survey, and the U. S. Coast and Geodetic Survey. The University of California through its College of Engineering and the Scripps Institution of Oceanography, the University of Southern California and the University of Michigan will also be represented. The U. S. Navy Electronics Laboratory at San Diego, the Geotechnical Corporation of Boston, the U. S. Navy Mine Warfare Test Station at Solomon's Island, Maryland, and the Bureau of Ships of the Navy Department will also cooperate in the study.

Two ships belonging to the U. S. Navy's Hydrographic Office are on the scene. Complete floating laboratories, the *USS Sumner* and the *USS Bowditch*, include all the equipment necessary to survey the area, test ocean currents, take the temperature of the water, identify material on the ocean bottom and study weather conditions. Both are stocked with all the apparatus needed to design and print maps on the scene. In addition, six smaller ships are being employed.

As this area will probably be the center of scientific investigation for years to come, the results of these surveys will be coordinated and published by the newly-established Division of Oceanography of the Hydrographic Office, so that all known information on this closely-scrutinized geographical guinea pig will be available.

Science News Letter, June 1, 1946

INVENTION

Electric-Eyed Machine "Inspects" Plants

➤ A HOEING MACHINE, designed for thinning and weeding operations in such crops as sugar beets and cotton, "inspects" the plants with an electric eye before it chops out weaklings and weeds, sparing the stronger, more promising specimens. It is the invention of Leo A. Marihart of Monterey County, Calif., who has just been granted U. S. patent 2,400,562 on the device.

Mechanical cotton-choppers and beet-thinners have been invented, but they have the weakness of being entirely mechanical. They knock out predetermined spaces in the rows of young plants, and it is a matter of chance if they spare the right ones.

In Mr. Marihart's invention there is a revolving set of blades that block out whole segments of the line. Following after it, however, is another set of blades whose action is intermittent; they swing round and clip out finer bites of soil and roots only at the bidding of photocells that "look" at each plant through light filters and "decide" whether it is a weed or a desirable citizen of the crop community.

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