

GEOPHYSICS

Drowned Archipelago

Numerous submerged flat-topped mountains have been located in the Pacific between Hawaii and the Marianas by means of echo-sounding apparatus.

➤ AMERICAN WARSHIPS, steaming westward from Honolulu to liberate the Philippines, passed right over a great drowned archipelago, existence of which had never before been suspected. At the American Geophysical Union, in Washington, Prof. H. H. Hess of Princeton University told how 160 submerged flat-topped peaks, rising from the ocean floor between Hawaii and the Marianas, had been discovered by means of echo-sounding apparatus carried by ships.

The drowned mountains may have been a cluster of atolls, like the Marshalls, site of this summer's atom-bomb tests. This is suggested by the flatness of their tops. If the water were drained away from Bikini or one of its sister atolls, it would appear as a steep-sided mountain with a slightly raised rim around its flat top. This rim is all that now appears above the water, as the islands and reefs of the atoll.

There is just one thing wrong with that theory, Prof. Hess stated: these drowned mountains don't have any raised rims. On the contrary, there is a gently sloping shelf, like a beach, around most of them. He advanced the tentative hypothesis that they are volcanoes that emerged from a very ancient sea, were planed off by wave action and subsequently immersed by the simultaneous sinking of the ocean floor and rising of the sea level. He thinks that this may have occurred as far back as pre-Cambrian time—something more than half a billion years ago.

Without question, this lost island empire will be made the locale of Atlantean romances as soon as fiction-writers hear about it. Prof. Hess, more practical-minded, merely suggested more thorough sounding and more complete charting of the area.

Speaking for a committee on the study of ocean basins, of which he is chairman, Prof. Hess strongly urged a program of deep drilling on Pacific atolls. How these curious ring-shaped islands came into being has been the subject of speculation and discussion ever since Charles Darwin proposed the first scientific theory, more than a hun-

dred years ago. But so far no one has undertaken to find out actual facts by boring a few deep holes.

Prof. Hess also announced the forthcoming publication by the Hydrographic Office, U. S. Navy, of a detailed chart of the ocean bottom in the western Pacific area, covering the area from Japan to northern New Guinea and including the Marianas, the Western Carolines and the Philippines. This has been made possible by the tens of thousands of echo-soundings recorded by cruising Navy vessels during the war. Similar bathymetric charts for the areas from New Guinea to New Zealand and from Hawaii to the Marianas are also in prospect.

It's Been Getting Warmer

➤ WHEN THE present generation of youngsters get to be oldsters they may be able to tell their grandchildren that "summers were lots hotter when Grandpa was a boy." Since the 1870's, winters have been growing milder and summers hotter, J. B. Kincer, veteran of many years' service with the U. S. Weather Bureau, reported to the meeting. However, he added, there are indications that a reversal of the trend is about to take place.

Mr. Kincer's exhaustive statistical analyses of weather records from all over the country show this to be true not only of average temperatures but also of extremes. For example, days with temperatures of 90 degrees Fahrenheit or higher in Washington's notoriously uncomfortable summers averaged 34 per year for the 20 years ending 1945, whereas for a 20-year period ending 1907 there were on the average only 19 days per year. On the other hand, days when the thermometer failed to rise above freezing point (which is really cold weather for Washington) were less numerous in the recent period than in the earlier one: an average of 11 as against 17.

Mr. Kincer believes that studies of this kind may have some value in efforts towards long-range weather forecasting,

provided too great demands are not made of them. They are valuable, he said, "in affording an indication of expectancies or probabilities of future weather beyond the range of standard synoptic forecasting."

Waves Can Outrun Wind

➤ "SWIFTER than the wind" is literally true of some ocean waves, reported Dr. H. U. Sverdrup, director of the Scripps Institution of Oceanography. With W. H. Munk, he has been making a study of wave behavior with relation to the wind; some of their results were of great value in naval operations and beach-head seizures during the war.

Wind can start and speed up waves in two ways, Dr. Sverdrup stated. One way is by direct push at the water surface. This in itself would never generate waves able to outrun the wind that raised them. However, there is a second effect of the wind "brushing over" the surface of the water and creating drag, or skin friction. With this added impetus, waves take on additional speed and sometimes literally run away from the wind.

How earthquake-recording instruments can be used in locating and forecasting the movements of storms at sea was told by Marion H. Gilmore, director of hurricane microseismic research for the Navy.

Instruments Place Storms

➤ IT HAS been amply demonstrated that slight tremors in the earth's crust—mere ripples as compared to earthquake waves—are set in motion by storms, especially by violent storms of the hurricane type. By close study of the shapes of the "squiggles" that appear on the seismograph record, it is possible to tell how far off the storm is, and by coordinating the data of two or more stations it is possible to tell exactly where it is, and how fast and in what direction it is moving.

It used to be conjectured that "microseisms" were caused by the battering of huge waves on the shore. However, the studies demonstrated that the tremblings are started on the ocean bottom, right under the storm center itself. How the energy of the wind is transmitted through the water and into the rocky crust underlying the ocean has not yet been determined.

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