Volcanoes Put Salt In The Sea

Geophysics

Following are reports of the meeting of the American Geophysical Union at Washington.

The old question of who put the salt in the sea was referred to Vulcan, mythological patron of volcanoes, by Dr. E. G. Zies of the Geophysical Laboratory of the Carnegie Institution of Washington, who attributed some of the chlorine content of the oceans to the outpourings of hydrochloric acid gases from fumarolic areas, such as the Valley of Ten Thousand Smokes in Alaska. The hydrochloric acid gases change to salt in contact with sodium mineral content of the rocks and water, just as the acid contents of the stomach produce salt when they come in contact with soda or baking powder.

These minor volcanoes and other eruptions also belch forth considerable quantities of hydrofluoric acid gas. This is the acid that will etch glass. To it is due fluorine content of the sea. Recently the sea was discovered to be a veritable mine of fluorine and a floating chemical plant was placed aboard a ship to extract this valuable chemical from the seawater. Dr. Zies declared that so much fluorine is sent down to the sea that some unknown chemical mechanism must be at work to precipitate most of it to the submarine rock floor.

Floating Mountains

Mountains float. This theory, advocated several years ago by Dr. William Bowie, of the U. S. Coast and Geodetic Survey, is now upheld by delicate observations of a moving pendulum, on a submarine in mid-ocean. C. H. Swick, Dr. Bowie's colleague, told of the results of the submarine observations, recently completed by a Dutch scientist, Dr. F. A. Meinesz.

What has been done, Dr. Bowie pointed out following Mr. Swick's paper, is really to weigh, as if on a balance, areas of the ocean bottom against similar sized areas on land, and to show that a mountain, for instance, weighs as much as the corresponding submarine region. Since the ocean area is not as voluminous as the mountain, it must be denser, and this follows his theory of isostasy.

Previously, such measurements of gravity, with the pendulum, have only been made on land, which meant that the 140 million square miles of ocean area could not be surveyed in this way. With the Meinesz apparatus used on a submarine, the ocean regions can be charted for gravity, just as now they are charted for depth.

An idea of the accuracy with which modern land surveys can be made was given by H. G. Avers, also of the Coast and Geodetic Survey. In a levelling survey recently in New England, it was found that the error was only four tenths of an inch in a hundred miles. That is, modern surveyors can start a line a certain distance from the earth's center at Boston, and continue it by means of their levelling instruments to Meriden, Conn., where it will still be within four tenths of an inch of the same distance from the center of the earth.

Such measurements are referred to sea level, but, it was pointed out, sea level varies. Sea level in Maine is a foot higher than in Florida, the height of the Pacific Ocean along California is about eight inches higher than the Atlantic at North Carolina, for example. Recently, it was said, there was some controversy between American and Canadian engineers at Rouses Point, New York, as the Canadian surveys gave results a foot higher than the American. At first each group thought the other in error, but it later proved that the Canadians had referred their measures to Canadian sea level, which is a foot higher than that of the United States.

Recent Active Volcanoes

Recent years, including 1926, 1927 and the first part of 1928, have been of moderate volcanic activity, despite the major eruptions of Mauna Loa in April, 1926, Dr. Harry S. Washington, of the Carnegie Institution's Geophysical Laboratory told the Geophysical Union. This eruption, however, lasted only about three weeks. Since then it has been quiet.

"Subsequent to the very violent explosive eruption of Halemaumau in Kilauea (May, 1924) the crater of Halemaumau has been absolutely quiescent, the lava having sunk out of sight some years ago. There are no signs of renewed activity," Dr. Washington reported. "The 20 odd volcanoes of the Aleutian Islands would seem to have had a season of unusual activity during 1927, according to Dr. Jaggar who visited them that year. Mageik, near the volcano of Katmai (Valley of Ten Thousand Smokes) was in eruption in October, 1927, when a large area was covered with ash. Throughout the Pacific volcanoes generally have been quiet, except for an eruption at the Tonga Islands (1927) and a new volcano at the Galapagos (1926).

"Lassen Peak was quiet during most of this period, but there was a big eruption reported in May, 1927. An observatory was established at this volcano in 1926 to study the volcanic phenomena and earthquakes. In Japan there were two volcanoes in eruption on the island of Hokkaiddo during 1926 which did considerable damage. Izalco, in San Salvador, almost continuously active had a specially violent eruption in November, 1926, when 56 people were killed by a flood of lava. Colima, in Mexico, was reported as active in January, 1926, after 12 years of repose.

"Vesuvius was in its usual state of minor activity, but had eruptions in the summer of 1926, when lava is said to have poured down the outer slope. This was much exaggerated in the newspapers. The reported activity of the Solfatara is somewhat doubtful (1926). The eruption of the Fouque Volcano at Santorini, Greece, which began in August, 1925, came to an end in 1926, but it is reported to have resumed activity in May, 1927. The volcanoes of the Dutch East Indies appear to have been in their normal condition of activity, except that an apparently somewhat violent submarine eruption of Krakatoa took place in January, 1928. It is not known whether this is continuing or not. This is the volcano that had a first magnitude explosive eruption in 1883."

Science News-Letter, May 5, 1928

Young wild animals taken from their mothers too soon and placed in zoos often develop rickets.

Some of the streams rising in Yellowstone National Park eventually flow into the Atlantic and the Pacific Oceans.

The Boston Museum of Fine Arts has acquired one of the oldest known paintings from China, bearing a date corresponding to 607 A. D.