

## VOLCANOLOGY

# Steam Blows up Volcanoes As It Does Defective Boilers

Not Caused By Magma Gases, As Formerly Believed,  
But By Volcanic Furnace Lowered Below Artesian Level

**P**URE STEAM plays an important part in the explosive destructiveness of volcanoes, Dr. Thomas Jaggar, research associate at the University of Hawaii, and volcanologist at Kilauea Volcano for 30 years, told the Hawaiian Academy of Science.

Dr. Jaggar has shown that the blasts consist largely of pure odorless steam which does not come from the magma gases, as geologists formerly believed, but is "formed by a volcanic furnace being lowered below the artesian level."

This process was essentially the same in the volcanic eruptions of Mount Pelée, Soufrière, Santa Maria, Vesuvius, Bogoslof, Katmai, and Lassen. The mountains split in a rift, sometimes several miles long, and lava came out below sea-level, or flowed into deep cracks intrusively. Following almost immediately after the split came a terrific explosion. The magma lowering had produced an empty space below the ground-water level which became a steam boiler.

Dr. Jaggar has collected a series of more than fifty accounts by eyewitnesses at these cataclysms. A colored servant girl on one of the boats in the harbor told him of the eruption of Mt. Pelée which occurred in 1908. According to this girl and other surviving passengers, the mountain split from summit to base and then a black cloud rushed down, traveling the four miles in one and one-half minutes. The blast struck the ships, sinking many. Everything was covered with "hot moist ashes and boiling splattering splashes," and hidden by darkness.

On May 18, 1924, a man approached Kilauea volcano on the island of Hawaii, to take pictures. He had been told by the volcanologist that an explosion was imminent but disregarded the warning and was caught by a tremendous blast which threw out aqueous mud, steam, and fifty-ton boulders. The man was finally rescued, minus a foot left under a boulder, but died from shock and burns although his clothing was unscorched.

"Lava lowering and engulfment have long been known but have been disre-

garded," said Dr. Jaggar. "The evidences of such are easily missed. The rift vents seal themselves afterward with mud and lava, and the terrific steam blasts are phenomena that men flee from, effectively removing all witnesses."

The steam factor is, however, of tremendous importance, Dr. Jaggar says. There are oceans of water under all the volcanic islands. "Engulfment breakage below the ground water level breaks the seal. The magma is the furnace, rupture pulls the trigger, and the water boiler has burst." Steam-blast eruption is a surface incident totally different from lava-gas effervescence.

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## NUTRITION

## Vitamins Added To Beer By New Invention

**E**NRICHED beer may be expected presently to be adding its appeal for public acceptance to that of enriched bread. A method for restoring the natural yeast vitamins to beer, from which they are lost in modern clarification processes, is covered by patent 2,273,853, issued to Albert M. Fischer of Chicago, and assigned by him to the Rotary

Extractor Corporation of Long Island City.

Beer brewed by old-fashioned methods is rich in vitamins, which are contained mainly in the yeast cells which remain in the beverage, Mr. Fischer explains. To get the very clear fluid demanded by present-day beer trade, these are filtered out, and most of the vitamins go with them.

In Mr. Fischer's process, a portion of the filtered-off yeast is first treated with a mixture of salt and sugar, which "draws" out part of their cell contents. Then the treated yeast is whirled in a centrifugal extractor, which separates the vitamin-containing liquids. These can then be restored to the beer, without damage to its clearness.

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## BOTANY

## Tobacco Users Warned To Avoid Young Tomatoes

**I**F YOU smoke, chew or dip snuff, you are not fit company for young tomato plants, warns C. E. Scott, plant pathologist at the California Agricultural Experiment Station.

Not that tomato plants have any morals to contaminate; but a serious disease of tobacco, mosaic, can be spread to the tomato foliage by contact with the hands of tobacco-using workers. After that, insects in the greenhouse can continue its spread.

Mr. Scott recommends that any worker who uses tobacco should wash his hands with strong soap before handling tomato plants.

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