

VOLCANOLOGY

Erupting Vesuvius

Far behind present combat line, but if activity of the ancient volcano had started earlier, it might have seriously handicapped American advance on Naples.

► ERUPTING Mt. Vesuvius, which on March 18 started its biggest show since 1906, will not affect the American activities in the Italian campaign, as the combat area is some 70 miles to the north, and relatively few troops are probably in the Vesuvius neighborhood. The damages so far reported are on the volcano's slopes, where American troops earlier in the campaign met bitter German resistance.

This ancient volcano within plain sight to the south of Naples, which has taken heavy toll in lives and property in the past 2,000 years, stood directly on the path which the Allied Armies had to follow from the south on their way to Naples. The routes to the north run on both sides along the mountain slopes, which extend toward the west almost to the shore of Tyrrhenian sea. Vesuvius helped temporarily hold the advancing Americans.

Vesuvius forms the southeast extremity of a highly volcanic area which extends into the arena of present fighting, but for over three centuries has been the only active crater in the district. Vesuvius is almost continuously active, but with a harmless action emitting smoke, steam and other gases, together with ash dust.

The first recorded eruption of Vesuvius was in 79 A. D., when Titus ruled Rome. It was at that time that Pompeii, Herculaneum and other places of lesser importance were buried in ashes with tremendous loss of life. Seven important eruptions are recorded between then and 1500.

For 131 years the volcano was then quiet and the crater became a famous grazing area. In 1631 came a terrific eruption, causing the death of perhaps 18,000 persons. Many eruptions of noteworthy importance occurred during the next 275 years.

Then came the great outbreak of 1906, one of the greatest eruptions on record. It completely altered the shape and height of the cone. In 1913, 1927 and 1929 were further activities important enough to attract world-wide attention.

The present outbreak, according to reports, puts all of these since 1906 in the shade. However, though dwarfing

the destructive fury of bombs and guns being loosed only a few score miles to the northwest, actually it is a rather feeble effort as volcanic activity goes, from the long-range geological point of view. Outbursts of the type that have characterized the whole known history of the famous volcano represent a stage of declining reserves in the reservoir of molten rock and heat energy deep within the crust of the earth.

There are three main stages in a volcanic cycle, geologists explain. The first, which no man has ever seen, is a vast, flood-like but unexplosive outflow of lava from networks of open cracks in the earth, covering thousands of square miles. Such lava fields are typically developed in our own Pacific Northwest.

The second stage, far less extensive than the first, is a continued outpouring of lava, but from single points only, and still mainly quiet. This forms volcanos of huge size, but so low that they are hardly recognizable as mountains. They have been given the name of "shield volcanos," in contrast to the great conical cinder-heaps that we usually think of when the name volcano is mentioned. Our own Kilauea, in the Hawaiian islands, is a typical shield volcano.

As the subterranean source of lava and heat-energy becomes still further depleted, we have formation of conical piles consisting of alternating layers of solid lava and fragmented material ranging from fine, ash-like dust to huge, bomb-like lumps of cooled and solidified rock. Because of this layering, such mountains are called "strato-volcanoes." Vesuvius and Etna are typical of this class.

Last stages in the dying-out of underground heat-sources no longer produce eruptions of solid materials, but simply the blowing of steam and other hot gases through vents known as fumaroles, solfataras, geysers and hot springs, such as we have in abundance in Yellowstone National Park.

The magma, or thick, viscid, porridge-like material from which a volcano gets both its supply of spouting, explosive gases and its stock of lava to pour down its slopes or blow high into

the air as dust, pebble-like "lapilli" and larger volcanic "bombs," is no longer believed by scientists to be stuff squeezed out from the middle of the earth. It is held to be of more or less local origin, probably reduced from an originally solid, cold state by the friction and pressure attending the enormous, slow bendings and pushings involved in the wrinkling of the earth's crust into mountain chains and ocean deeps.

The "fire" of a volcano is mainly the glow from the lava in its throat, reflected from clouds over the peak. There can, however, be real fire in a volcano, for some of the gases that spurt forth are combustible: hydrogen, methane and hydrogen disulfide. However, by far the larger part of a volcano's explosive energy is delivered in the form of expanding steam.

It is steam, and the expansive energy of other heated gases like carbon dioxide and sulfur dioxide, that blow part of the lava into the air, bursting it into fragments of all sizes. The largest fall near the volcano as dangerous missiles, like the plunging fire of mortar batteries. Finer bits are carried by the force of the explosion and by winds of the stratosphere to greater distances, depositing thick layers of ash on fields and cities scores of miles away. The finest fragments, microscopic in size and impalpable to ordinary means of detection, are sometimes carried high into the stratosphere, to drift for weeks, or even for two or three years, as disturbers of normal climates and causes of gorgeous red sunsets.

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ZOOLOGY

Coyote Seen Running With Deer in Pursuit

► A VARIANT of the "man bites dog" story was found in nature recently. Charles Vest of the Wyoming Fish and Wildlife Service reports seeing a big male coyote running at top speed with a buck deer in hot pursuit. When the deer caught up with the coyote, he knocked it down with his forefeet, then jumped on it.

After taking a hard pounding, the coyote managed to crawl into a brush patch which the deer circled until he saw Mr. Vest. Then he dashed away, followed by three does that had been waiting at a distance.

The coyote was so badly trampled that he could hardly crawl, and Mr. Vest easily put an end to him.

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