

# A VOLCANIC CYCLE, AS EXHIBITED BY ITALIAN VOLCANOES

Dr. Fred M. Bullard<sup>1</sup>

## ABSTRACT

It has long been believed that volcanic eruptions, like the weather, exhibit a cyclic pattern and that if this pattern is known, the prediction of the course of a volcanic eruption is possible. Various attempts have been made to work out the pattern of behavior of numerous volcanoes with widely diverging results. Such a variety of factors combine to determine the eruptive character of a volcano that no two volcanoes would be expected to follow the same plan. Continuous observations over long periods of time are a prerequisite for studies of this nature. Such observations are generally lacking. It is perhaps significant that the eruptive pattern is better known on Vesuvius than on any other volcano and it is also perhaps significant that Vesuvius is the best known volcano. It seems profitable to review the eruptive pattern of Vesuvius and to try to evaluate some of the factors which combine to determine the pattern of the eruptive cycle. While other volcanoes would not be expected to follow the same pattern, doubtless such a study will be of tremendous aid in the investigation of the less well known volcanic regions.

The eruptive cycle of Vesuvius is, in general, about 40 years. After a grand eruption, marking the close of a cycle, the new period is initiated by a repose period averaging 3.5 years. This is followed by mild explosive activity in which the upper part of the cone (usually destroyed by the grand eruption) is rebuilt and many small (slow) lava flows appear in the crater or emerge on the sides of the cone from cracks in the upper part of the rim. The cycle is brought to a close by the grand eruption in which rapid and large streams of lava issue from fissures on the lower part of the cone followed by tremendous explosions which usually destroy the upper part of the cone. The volcano then lapses into a repose period which marks the beginning of a new cycle.

In comparison, Mt. Etna has a much shorter period, averaging only about 3-1/2 years between eruptions, but the character of the eruption is quite different. Stromboli, on the other hand is in a continuous state of mild activity, although it is believed that the violent eruptions which are superimposed on the normal activity follow a definite rhythm.

<sup>1</sup> Professor of Geology, University of Texas,  
Austin, Texas.