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Book Reviews

The Eruptions of Hekla in 1947-1948, 1. The Eruptions of Hekla in Historical Times. S. Thorarinsson. Vísindafélag Islendinga, Reykjavík, 1967, 183 pp., 27 illus., 11 tables, U.S. $5.80.

The somewhat cumbersome title indicates that in 1947 after a century of quietness Hekla erupted again, and at that time a master plan was set up for a thorough description of this eruption and its products. As an introductory volume a historical survey of all earlier known eruptions was planned. However, the preparation of this survey proved much more troublesome than anticipated, and it has only been completed with a ten years delay.

In a way we may be thankful for this delay, because a much more valuable book lies before us now. Hekla is to the northern Europeans, what the Eolian Islands were to the Greeks. It is widely known as a destructive volcano and, in many cases, as the entrance to hell. Its historic record goes back to the beginning of this millennium, and as such it is one of the volcanoes of which the longest record of eruptions exists. Nevertheless it proved to be too scanty in detail, which, at least in part, goes back to the fact that the vellum on which the records were written served as a substitute for food during several of the famine winters Iceland has known since.

A method to supplement the historical data has been offered by Dr. Thorarinsson in 1954. This is based on the fact that several of the more severe eruptions of Hekla - and of some other Icelandic volcanoes too - start with a rhyolitic pumice fall, followed by basaltic lavas. By identifying and correlating the whitish ash layers in a large number of sections, a so-called *tephrachronological* sequence could be established.

Dr. Thorarinsson is suited, as no other, for a combined study of the historical and the tephrachronological data, because apart from a volcanologist he is a poet and a historian. The result is that we now possess a detailed account of fourteen major eruptions and of a number of doubtful ones. Moreover, through an analysis of the tephra and the lava produced by each eruption, a differentiation diagram of the Hekla magma could be drawn up, based on the eruptions since 1510, which show a surprising regularity. At each eruption the SiO_2 content falls to about 55% in the lava outflows. After the eruption it rises gradually. If eruptions follow each other with intervals of about 50 years, the SiO_2 content will stay below 60%, but during longer intervals it rises still higher, to for instance 63% in the 1947 eruption, and even to about 70% for the prehistoric eruptions which produced the white tephra layers H_3 and H_4. A quiescence period of about 250 years preceding these eruptions is therefore postulated.

Whilst it can be said that the other volumes on the 1947-1948 eruption form a standard of description for a major volcanic eruption, the present volume sets a high standard for the historic description of a volcano's former eruptions.

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