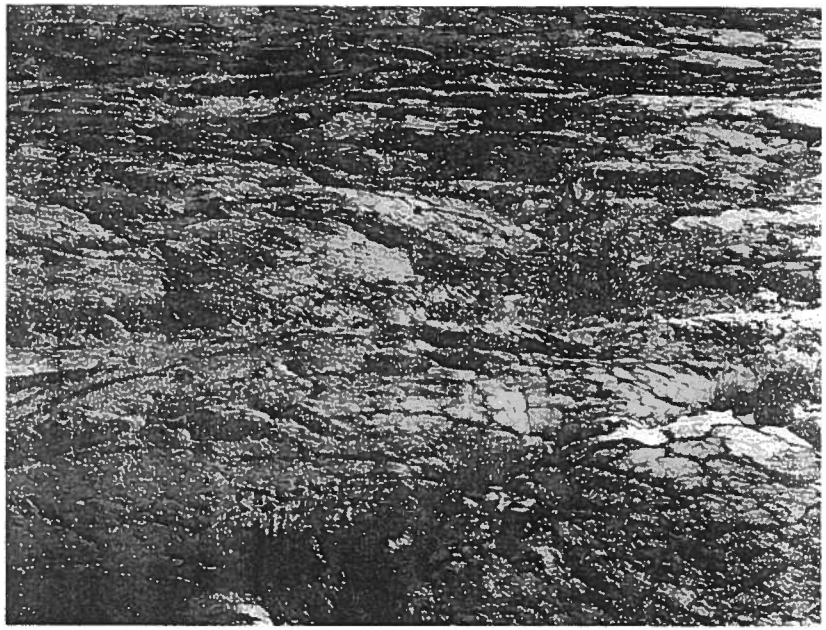
TECHNICAL NOTE

USDA NATURAL RESOURCES CONSERVATION SERVICE HAWAII

Soils Technical Note - No. 6

THE LAVAS OF HAWAII

This coversheet transmits a document originally developed by Dr. Wade McCall, Extension Soil Specialist, University of Hawaii in 1968. Although the document is old, "The Lavas of Hawaii" the descriptions and photographs of aa and pahoehoe lava are still useful today.



The Lavas of Hawaii

AA is a form of lava very common in Hawaii. Aa may erupt directly from the volcano or may be formed from Pahoehoe. It is formed where lava is lower than 1400° C (2550° F) in temperature and is highly charged with gas. The gas escapes rapidly as the lava moves along producing rough clinker-like blocks or stones at the surface. There is a hard core of rock in the center where gas content was low, that produces "blue" rock which is desirable for building purposes. Plant life can establish early in Aa, where rainfall is adequate, due to large amounts of space for roots to establish and for weathering to take place with the release of essential nutrients for plant growth. Most of the lava in Hawaii is of this type. The Aa in this picture was erupted in 1960 near the village of Kapoho on the Island of Hawaii. The village was destroyed but no life was lost. Some plants are beginning to grow in this lava in 1967.

PAHOEHOE is a form of lava common in Hawaii. Pahoehoe usually erupts directly from the volcano and may flow for long distances due to its being very fluid. It is formed where the lava erupts at a temperature above 1400° C (2550° F). Pahoehoe contains less gas than Aa although in Hawaii it contains more than lavas found in other parts of the world. Pahoehoe has a ropy type of surface that looks much like pulled taffy candy. The surface is very hard and plants cannot establish themselves easily in this type of lava, even in areas of high rainfall. When the lava cools, or when it flows over rough terrain, it may change to Aa, but the Aa never changes to the Pahoehoe. Pahoehoe often cools on the surface while the molten core continues to flow, forming lava tubes or caves; many of these are large enough to walk in for long distances. The Pahoehoe in this picture was erupted over 200 years ago in 1750. Only a few small herbs, shrubs, and clumps of grasses are growing in the lava at the present time. However, where rainfall is high, plants will grow more rapidly than shown in this picture.

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