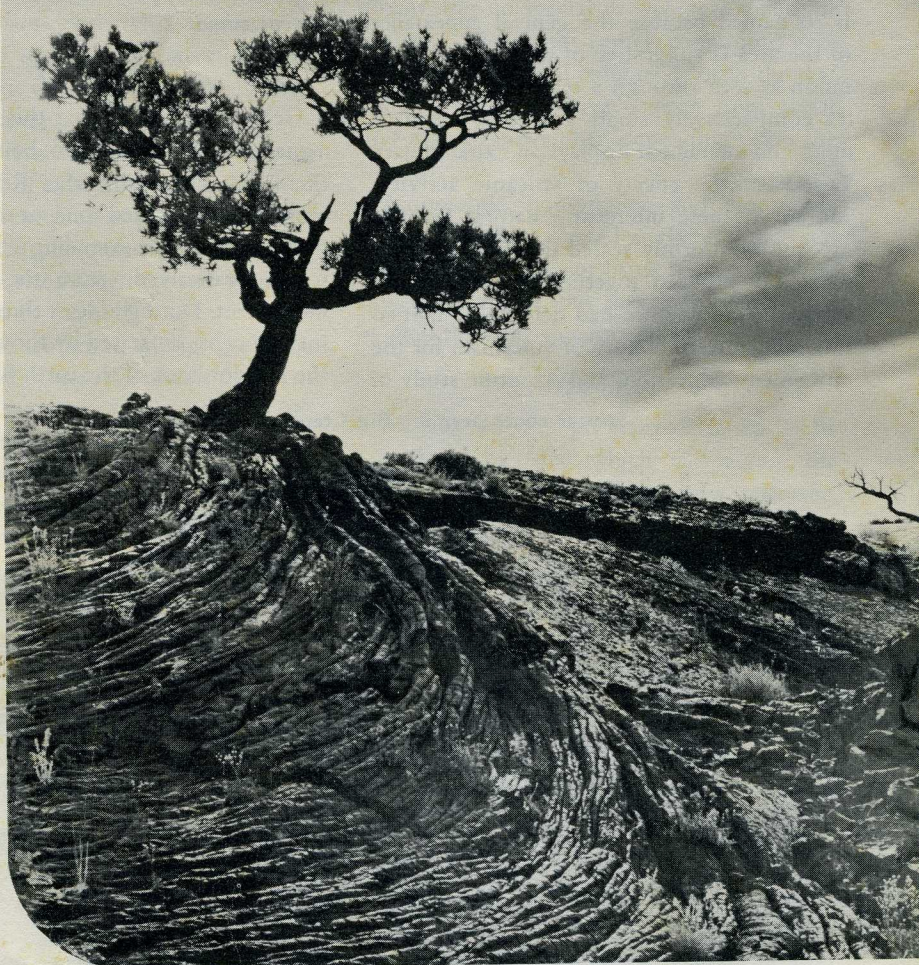


Craters of the Moon



NATIONAL MONUMENT
I D A H O

Craters of the Moon National Monument



UNITED STATES DEPARTMENT OF THE INTERIOR

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Spectacular display of lava flows, cinder cones, and other products of volcanic activity

Craters of the Moon National Monument, located in the central part of southern Idaho, is so named because the general appearance of the area is suggestive of the surface of the moon as seen through a telescope. Within its comparatively small area of 75 square miles, the monument displays an extraordinary variety of the effects of volcanic activity. Moreover, these interesting natural features are quite uniformly scaled down in size and so closely grouped together that one might easily imagine nature had definitely planned this miniature laboratory of volcanism for the enjoyment, education, and scientific study of

men, without their having to make extended trips to distant portions of the earth for such observation.

The Rift

Geologists explain that this unique monument area has come into being because of the Rift. Essentially, this Rift may be described as a weakened zone, or series of fissures, in the earth's crust, extending in a northwesterly to southeasterly direction the length of the monument. During at least three different geologic epochs, separated by thousands of years, the interior lavas of the earth issued along the

Spatter cones near the Big Craters (Franz Lipp photo)



Rift with every kind of volcanic activity. There seems to be no evidence of cataclysmic or destructive eruptions such as are associated with several famous volcanoes.

There is reason to believe that the latest major eruption terminated about 1,500 years ago. This eruption and the preceding activity left the vast lava flows which cover most of the monument, the string of about 35 cinder cones, spatter cones, lava tubes and bombs, natural bridges, tree molds, and other interesting evidences of volcanism.

Cinder Cones—Lava Cones— Spatter Cones

The cinder cones, each with its crater, together with the lava and spatter cones, are adjacent to each other and extend the 12-mile length of the monument. The largest cinder cone is Big Cinder Butte which rises about 800 feet above its base. Although this is a small volcano, it is among the largest purely basaltic cinder cones in the world. The cinders forming the cones are hardened lava froth, rounded like gravel to pebble size. They are produced by the expansion of gases within the exuding lavas and the churning, expulsive, and explosive ac-

tivity of the eruption. Cinder cones are symmetrical and graceful in appearance.

Lava cones are produced by nonviolent flows of lava from a fissure opening. The fluidity of the molten rock produces low, rounded forms more accurately described as lava domes.

Spatter cones are formed of lumps of hardened lava, and with an opening at the top which is usually small, the crater often widening below in an inverted funnel form. They show evidence of a spattering type of activity as molten chunks or blobs of lava were ejected. Some of these cones now collect winter snows and freezing moisture which remain as ice throughout the summer.

Lava Flows—Lava Tubes

It is evident that most of the flows covering a large portion of the monument oozed in peaceful fashion from numerous fissures and openings of the Rift and did not erupt from craters. There are two types of lava flow: the aa (pronounced ah'-ah) which is extremely rough, broken into irregularly shaped blocks with jagged corners and sharp spines, very difficult to traverse, and the pahoehoe (pah-hoe-ay-hoe'-ay) type which has a smoother surface





Pahoehoe lava near Indian Tunnel (Franz Lipp photo)

of billowy, ropy, conformation. The pahoehoe type is comparatively easy to walk across, notwithstanding a wide variety of lava twists, folds, pleats, ruffles, bumps, and holes. Both flow types are dark in color; but some pahoehoe flows, notably the Blue Dragon, show a highly polished, or glossy, veneer which is iridescent in sunlight. Pahoehoe flows cover nearly half the monument. Seen from an elevation, some lava flows resemble a wide, smoothly flowing river. The very recent flow from North Crater is of this type and is of special interest because it shows so clearly how the side wall of a cinder cone gave way before the lava pressure. It also shows how the collapsed segments of the cone

dropped upon the moving lavas and were carried away, piece by piece, floating on the lava stream for several miles.

Interesting lava tubes have produced the many caves and numerous natural bridges of the monument. A lava tube is formed within the lava flow by the hardening of the surface of the molten stream and the stiffening of its side walls, while the liquid interior drains away, leaving an empty tunnel of varying diameter in different flows. After the tube has formed, there are portions of its roof which are unstable and the collapse of a portion of the roof forms an entrance to the tube, making a cave. Many such caves collect winter snow and frozen moisture

to form "ice cayes," which in summer become a frequent source of water supply. Collapse of parts of the roof of a tube may leave a narrow segment which forms a natural bridge.

Lava Bombs—Tree Molds— Pit Craters—Waterholes

Among the curious lava features are the "bombs" which are scattered about the cinder and spatter cones, where the sputtering lavas have ejected blobs of magma varying in size from a quarter of an inch to several feet, and which hardened sufficiently while in the air to retain a globular tear drop, or spindle shape. Some of them have slender tails which are often partially broken away.

Tree molds were formed by hot lavas flowing about the trunks of existing trees, cooling and hardening sufficiently upon contact with the moist wood so that the mold, in the form of a cylindrical cavity, remained as the tree was completely consumed by the heat.

Pit craters are common along the Rift, where subsidence of the lava after a period of flow has caused portions of the surface to collapse, leaving craterlike depressions. In these depressions clear, cold water is often found. Most of such water is undoubtedly the result of melting snow and ice accumulations of winter in the ice caves and interstices of the very much broken lava flows. In many waterholes, there is sufficient flow through the subterranean seepage ways to keep the water cold and refreshing on even the hottest days of summer.

Flora—Fauna

Contrary to the general impression, a fair amount of vegetation exists, principally upon the cinder cones and cinder fields of the Rift. Limber pines, aspens, and chokecherries reach tree size, and shrubs such as mockorange, sage, bearmat, and rabbitbrush are common. Many beautiful flowers cover the cinder fields in season. The usual birds and small animals found in western semiarid areas exist in the monument, and deer may be seen.

Indian Trail—History

Following the Rift is an ancient Indian trail which is now becoming faint. Indians used nearby caves as strongholds and transient habitations. About 15 semicircular heaps of stone, possibly used to anchor the windward sides of tepees, and spear and arrow points have been found at Indian Tunnel.

About Your Visit

Camping space is provided within the monument, but no special provision is made for trailers. The visitor center, containing geological and historical exhibits, is open the year round. The loop drive is open from about mid-May to November, depending upon the weather.

Automobile, housetrailer, and motorcycle permit fees are collected at the entrance station. The fees are not listed because they are subject to change, but they may be obtained by mail from the superintendent.

Mission 66

Mission 66 is a program designed to be completed by 1966 which will assure the maximum protection of the scenic, scientific, wilderness, and historic resources of the National Park System in such ways and by such means as will make them available for the use and enjoyment of present and future generations.

Administration

Craters of the Moon National Monument was established on May 2, 1924. It is administered by the National Park Service, U. S. Department of the Interior. A superintendent, whose address is Arco, Idaho, is in immediate charge.

The National Park System, of which this area is a unit, is dedicated to conserving the scenic, scientific, and historic heritage of the United States for the benefit and enjoyment of its people.

Northwest Part of
**CRATERS OF THE MOON
 NATIONAL MONUMENT**
 Idaho

