

Craters of the Moon



NATIONAL MONUMENT
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Craters of the Moon National Monument



UNITED STATES DEPARTMENT OF THE INTERIOR

Douglas McKay, *Secretary*

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

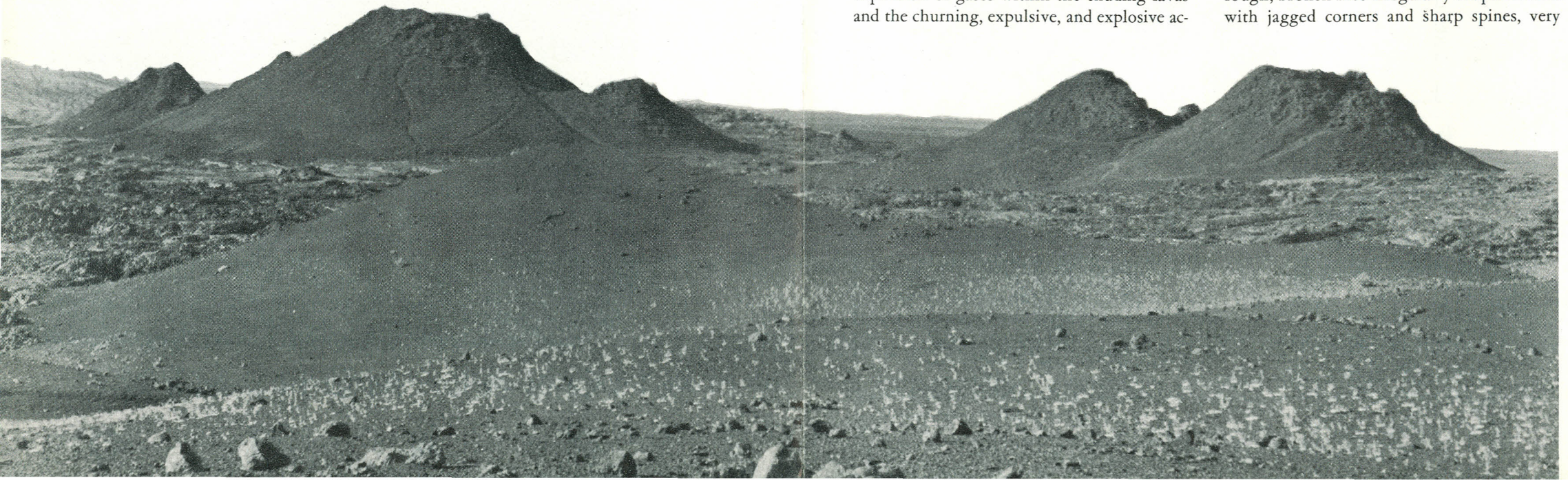
Craters of the Moon National Monument, located in the central part of southern Idaho, is so named because the general appearance of the area is suggestive of the surface of the moon as seen through a telescope. The monument displays within its comparatively small area of 48,003.86 acres of Federal lands an extraordinary variety of the phenomena associated with 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 Great Rift

Geologists explain that this unique monument area has come into being because of "The Great 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 prehistoric epochs, separated by perhaps many hundreds of years, the interior lavas of the earth issue along

Spatter cones near the Big Craters (Franz Lipp photo)



the rift with every kind of mild volcanic activity. There seems to be no evidence of cataclysmic or destructive eruptions such as are associated with several of the earth's famous volcanoes.

There is reason to believe that the latest of these mild eruptive epochs terminated within the past 500 years, after many years of activity, leaving the vast lava flows which cover most of the monument; the string of about 35 cinder cones and vents; the 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. This small extinct volcano is among the largest purely basaltic cinder cones in the world. The "cinders" forming the cones are really 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 smoothly 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 differ radically from the cinder cones, being smaller in size, 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 Great 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



Pahoehoe lava near Indian Tunnel (Franz Lipp photo)

difficult to traverse, and the pahoehoe (pah-hoe-ay-hoe'-ay) type which has a smoother surface 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 caves," which in summer become a frequent source of water supply. Collapse of different 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 are really lava casts of the trunks and roots of trees. They 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 Great Rift, where subsidence of the lava after a period of flow has caused portions of the surface to collapse, leaving craterlike depressions. It is in these depressions that 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 seepageways 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 Great 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 are sometimes seen.

Indian Trails

Following the Great Rift is an ancient Indian trail which even today is readily discernible. There are legends of the Indians' use of the caves as safe strongholds and for transient habitation, while at Indian Tunnel there are perhaps 20 semicircular heaps of stones used to anchor the windward sides of teepees against the prevailing winds. Arrowheads and spearheads are sometimes found.

Facilities

Adequate camping space is provided at the monument, and a limited number of tourist cabins, with provision for meal service, are available during the season. An entrance fee of 50 cents a year is charged for each automobile, trailer, and motorcycle.

Administration

Craters of the Moon National Monument is one of the areas of the National Park System owned by the people of the United States and administered for them by the National Park Service of the Department of the Interior. The area was established as a national monument on May 2, 1924.

A superintendent is in immediate charge of the monument. Communications regarding the monument should be addressed to the Superintendent, Craters of the Moon National Monument, Arco, Idaho.

NORTHWEST PORTION OF CRATERS OF THE MOON NATIONAL MONUMENT IDAHO

