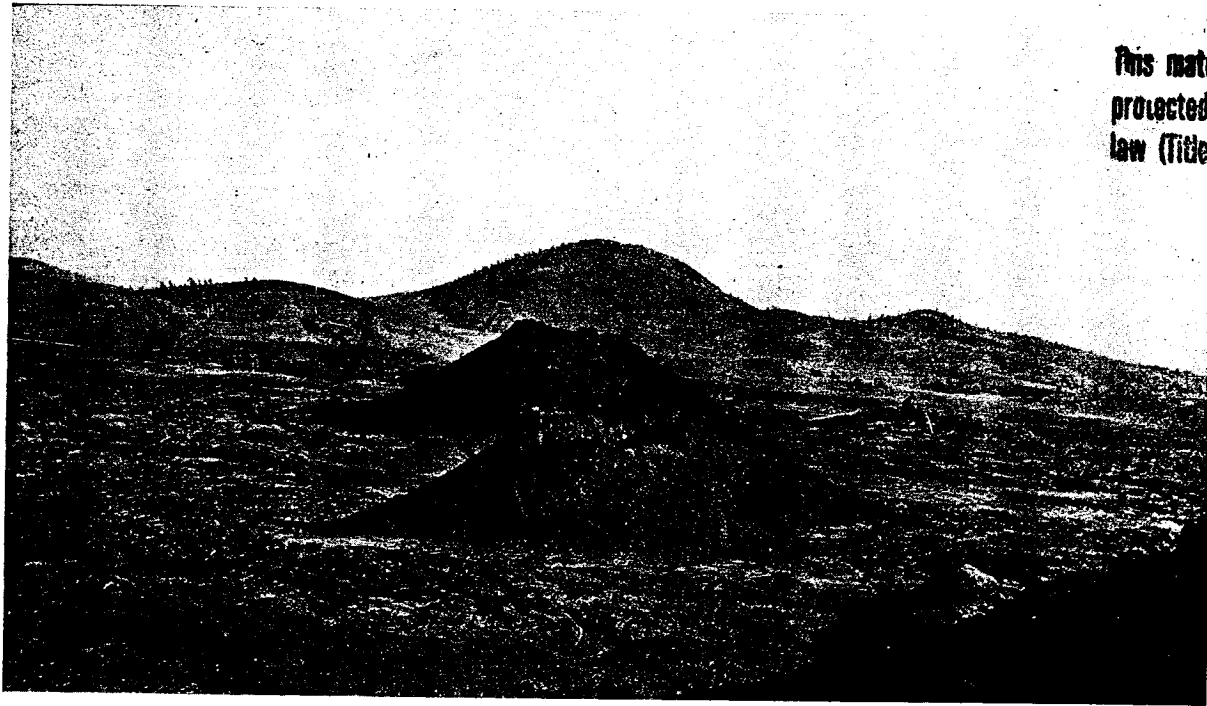


▼ CONES like these which dot the landscape led an imaginative observer to dub the region, "Craters

of the Moon." Big Cinder Butte, the highest point in this area, may be seen in the distance



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U. S. Geological Survey photo

Cinder cones, perpetual ice, and blistering heat make Idaho's Craters of the Moon unique among the nation's wonderlands

By KEITH BARRETTE

HE water bubbling from the mound of basaltic sand was ice cold. It was so cold it made your teeth and jaws ache to drink it. But the sand from which this crystal spring gurgled was hot. Too hot for comfort.

In Idaho's Craters of the Moon National Monument, paradoxes such as ice water from hot sands are commonplace. Located in the central part of the State, 22 miles south of the little town of Arco, the Monument is included in an area that is the result of the most recent fissure eruptions in the nation.

The old-timers who swarmed into the Lost River Valley in search of gold and grass called the region, "the tail end of creation." Not understanding the volcanic origin of the place, they believed it to be the final corner of the earth to be created.

Their guess, in a sense, was disturbingly accurate. Geologists of a later generation have agreed that this great, charred vista of lava fields is the result of eruptions occurring within the past few hundred years. Some scholars

divide these occurrences into three periods: the first about 700 to 1000 years ago and the last and most recent about 150 years ago. The second series of outbursts are placed about half-way between the first and third.

The relative infancy of this volcanic area is further attested by the presence of "surface bloom" on some of the lava flows. The "bloom" is totally absent from flows known to be much older. This "bloom" is a bluish glaze, a gloss which resembles the polish that mother used to give her newly baked bread by brushing the loaves with milk just before popping them into the oven.

In the beginning, this bizarre world of tumbled lava, leering craters, and weird formations was a green, lush, and slightly rolling plateau. In luxuriant meadows that carpeted it, deer and antelope grazed. At night they bedded down among the trees that covered the slopes and hillsides. Several rivers and streams ambled across the scene on their way to join the waters of the Snake River.

Today, these streams are vanished,

and between the northern boundary and the southern edge of these lava fields—a distance of 200 miles—not a drop of water reaches the Snake River through surface channels.

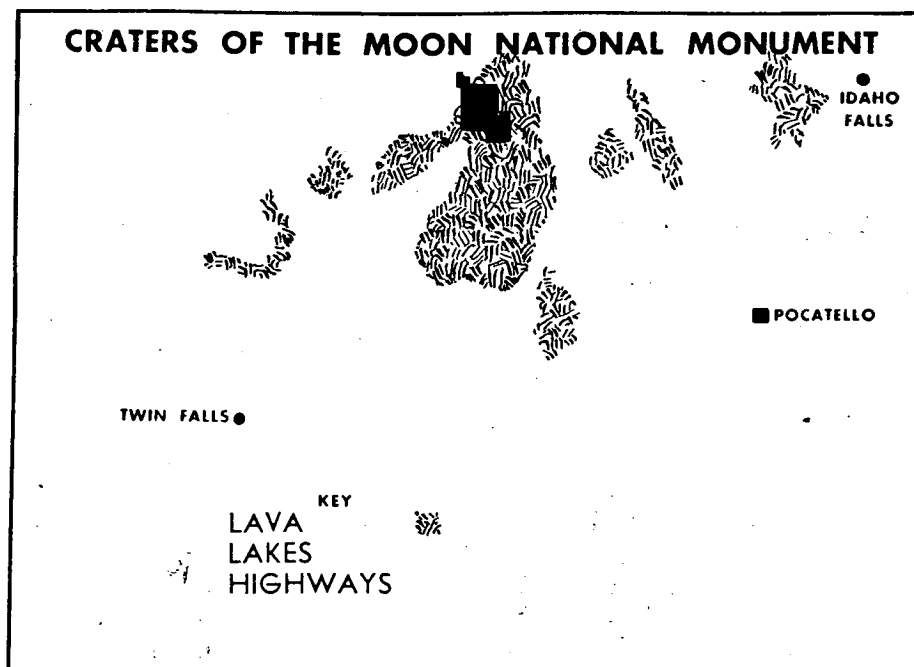
Southeast of the White Knob Mountains (a chain of hills west of the mining town of Mackay), fissures began cracking the face of Mother Earth. These crevices comprised a general rupture, later known as the Great Rift, which runs parallel to the Rocky Mountains. Deep below, pockets of molten basaltic rock were simmering and seething, the while gas was exerting a tremendous pressure against the retaining walls.

As the molten mass moved upward, the restraint grew weaker, until at last, with a terrific, gushing roar, the gases suddenly found escape. Streams of flaming lava spewed forth and traced mill races of fire across the once peaceful plateau.

Sometimes obstacles divided the molten current, and it sent out arms, groping paths in divergent directions. Again, one swiftly moving flow would overtake another and the two would swell into a torrent which consumed everything in the way.

Among the victims of this volcanic blitzkrieg, were the green groves that dotted the plateau. Cottonwoods, aspens, and piñons could not halt the forward sweep of the lava. Entire tree trunks were engulfed by the

Tail End of Creation



burning tide, and the intense heat soon reduced them to charcoal. Where once these trees stood, now stand tubular molds, with bark patterns deeply impressed into the inside walls.

Fragments of rock, dust, and lava were hurled hundreds of feet into the air by the explosions, scattering debris for miles in every direction. After this first outburst had relieved the subterranean pressure, the volcanic ac-

tivity subsided until more gas accumulated and demanded outlet. With each explosion, the flows spread more and more widely, until at present more than 200,000 square miles of Idaho are covered with black lava.

As a result of this spectacular activity, the geography of the plateau was changed from one reflecting the piety of Nature into one of desolation and violence.

Spotting the landscape, like a black pox, are the "blowholes," or fumaroles. These were formed around al-

▼ GROTESQUE PATTERNS are made by these "ropey" folds in the major lava flows. The molten rock poured forth when long pent-up gases suddenly burst through the surface in an upward surge

Photo by the author



▲ A VISITOR examines a block of vesicular lava. The fragment is dark on the surface and a dirty salmon inside. Its many large holes give it the appearance of a petrified sponge

➤ SIXTY-THREE lava and cinder cones march out of sight into the desert haze that covers Idaho's lava fields. The presence of trees and flowers here belies the story that the lava fields are devoid of vegetation



U. S. Geological Survey photo

▼ EARTHQUAKE CRACK crossing over a cone. Crevices like this are part of a general rupture, the Great Rift, which runs parallel to the Rocky Mountains. They are only one of the many spectacular volcanic features of this region

U. S. Geological Survey photo



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▲ "THEY CUT DOWN THE OLD PINE TREE." This tree was 457 years old and had been dead only about two years when it was cut down in 1926

➤ A STALWART TREE once stood here; only this tubular mold recalls its presence. The eruption that formed the Craters of the Moon was so recent that the open fissures have not been filled with wind-blown material

Photo by the author



most every vent by the molten lava piling up around it. They have perpendicular throats from four to 20 inches in diameter and are rifled like a gun barrel. Soundings of a number of them have been attempted, but the plummet never touched bottom.

One amateur investigator dropped a gas lantern tied at the end of a rope into one of the fumaroles. He watched the white glow of the lantern sink deeper and deeper into the stygian gloom, until at the end of 200 feet of line a pin point of light continued to stare up at him, but the heavy cord was still taut in his grasp.

Kinds of cones

As the steaming lava poured from the numerous vents and flowed east, south, and west across the plateau, other craters were made. These craters or cones fall roughly into three classifications: cinder cones, consisting of piles of lava froth hurled up by the action below; spatter cones, formed when clots of lava, hurtling upwards, spilled in a semimolten condition and adhered to one another; and lava cones, created by the lava welling springlike from isolated openings and running down the gentle slopes of the dome-shaped mounds.

~~Sixty-three~~ craters, lava and cinder cones form a line of march, Indian file, two or three miles wide and 30 miles long, across this weird fantasma. Perhaps nowhere else in the United States are there to be found so many spectacular volcanic features grouped together in so small an area.

The abundance of these craters led some imaginative Romantic to dub the region, "The Craters of the Moon," because he thought it resembled the surface of the moon as viewed through a telescope.

In 1924, President Calvin Coolidge took cognizance of this strange country and caused about 80 square miles of it to be set aside as a National Monument to be known as, "The Craters of the Moon."

Prior to 1923 only cursory exploration had been made. The majority of the investigations were carried out by curious travelers, who studied the terrain more by whim than by rule. The ranchers had no occasion to explore the place, because it is practically nude of pasture.

Itinerant prospectors had no reason to venture into such a forbidding

paying quantities of gold or silver. True, a few reckless adventurers wandered into this wilderness, but their objective was the search for a legendary cache of silver bullion supposed to be hidden there by a wounded bandit after holding up a stage coach.

Superstition kept the Indians away. They believed the region to be the abode of various evil spirits and sardonic devils.

But in the late summer of 1923, R. W. Limbert of Boise, Idaho, headed a party that explored a large portion of what was then called the Idaho Lava Beds.

However, there is still much of the region awaiting more thorough investigation. The major obstacle is the lack of water. True, in crevices and "sinkholes" water is to be found, but travel is hazardous without a foreknowledge of the location of these reservoirs. Many men have ventured out into the black expanse of desolation, but in almost every case thirst has driven them back.

Several years ago, a party of three men almost perished. They set out in high hopes to test the authenticity of a legend which said that somewhere a crystal lake of azure water sparkled in a setting of lava flows and craters. The group returned just as a searching party was about to set out to look for them. They straggled back to civilization haggard and half-crazed by the withering heat created by the unrelenting reflection of the sun against the almost unbroken sheet of lava. To increase their misery, the ruff, rasplike surface of the lava practically ripped the soles from their boots, and much of the return trip was made almost barefoot.

Eighty square miles is comparatively insignificant when viewed in comparison with 200,000 square miles. But in this restricted space there are enough volcanic oddities to keep the average horizon chaser busy for weeks. Innumerable caves and tunnels wander about beneath the lava flows and present a continuous challenge to the spirit of adventure.

Perpetual winds blow through some of these caves. Whence they come or where they go is still a secret wrapped deep within the inscrutable countenance of Nature herself. Other caves are eternal cisterns of water too cold to drink, while others are sheathed in blankets of ice that never melt

mer. It is a profound paradox that what was born in the grate of volcanic violence should later be the fount of so much refreshment.

These subterranean passages were made by the formation of a crust on the outer layer of a flow while the core was still in motion. The basaltic center continued its fluid movement until the embryonic tunnel was emptied of its fiery viscera.

Big Cinder Butte

The highest point in this weird jumble of craters, fumaroles, and twisting lava flows is Big Cinder Butte. It is of reddish and black volcanic fragments and it is one of the largest basaltic cinder cones in the world. The slopes of the butte are splattered with lava "pancakes" and volcanic "bombs," which were thrown high into the air with a whirling motion and fell.

At one time, geologists estimate, Big Cinder Butte was probably twice as high as at present. A subsequent eruption, however, blew the "roof" from the cone and scattered this additional stature over the surrounding terrain.

Down the sides and on the bottom of the cone, piñons of several varieties are growing. Presence of the trees belies the story that the lava fields are devoid of vegetation. The truth is that lupins, wild geraniums, and myriads of other western wild flowers spread a blanket of color over their gloomy habitat during the spring and summer seasons. Despite the fact that the region is desert, no snakes have been found.

Visitors experience a variety of emotions when they visit the area. A sense of eerie loneliness grips some the first time they view this wonderland. Others gazing upon the geologic confusion have felt as though they had been suddenly transported from the earth and were standing upon the face of another planet.

But there is the story of one traveler, who visited the lava beds and reacted differently from all others. Silently he went from one phenomenon to the next, until at length, he stood upon the summit of Big Cinder Butte. He gazed at the broad, unbroken stretches of lava fields and looked down upon the belt of craters, all without comment. Presently he turned to his companion and said: