

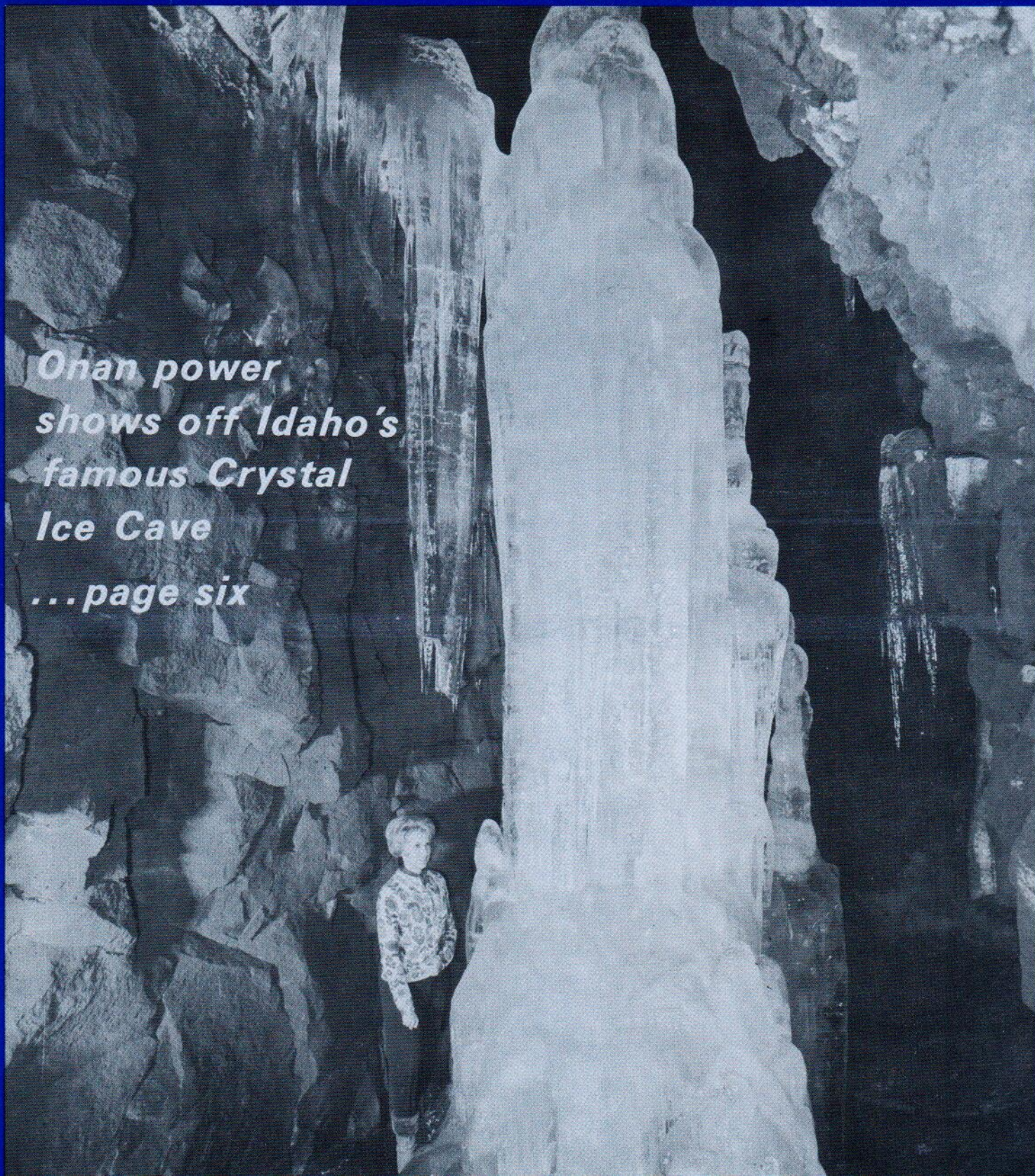
ONAN

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*Onan power
shows off Idaho's
famous Crystal
Ice Cave*

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Onan power lights Cave in the deepest open Volcanic Rift on Earth

In the vast inner reaches of the Snake River Plain, an immense volcanic rift slices through the earth. Deep inside this extinct volcano an inferno once raged ablaze with fiery light and filled with noxious, choking gases. Now it is a dark netherworld — silent, cold and concealing magnificent crystalline ice formations which were not seen by man until a few short years ago. The tale of how the Crystal Ice Cave near American Falls, Idaho, was discovered is a fascinating one, the story of its development unique. No power lines cross the rugged lava landscape, yet the icy splendor of the cave has been brilliantly illuminated for people from all over the world to see. No water can be found on the surface yet cool, pure drinking water is pumped from 800 feet below the surface and modern restroom facilities are enjoyed. How did it all happen?

When Jim Papadakis first decided to develop the Crystal Ice Cave, the project seemed alarmingly difficult. The shimmering beauty of the cave was encased in solid lava and 160 feet below the surface. Thousands of tons of rock would have to be removed to make a trail to the cave. Should any of the blasting destroy the ice, the work would all be in vain. On the surface, the blistering summer sun scorched the desert and the wind offered no relief from the heat because it, too, was hot.

Nature had created a geological phenomena in the central portion of the Snake River Plain — an area of 20,000 square miles which is mostly uninhabited. The plain cuts across the mountain ranges of southern Idaho in a huge, sweeping arc and runs from Island Park, Idaho to the Oregon border. The closest towns, Aberdeen and American Falls are both about thirty miles away.

All power and phone lines stopped at the last farmhouse some ten miles distant. "To live here," Papadakis said, "we'd have to have a reliable source of power. We'd need water, and that meant drilling a well. We'd need lights, both above and underground, communications of some kind, and certainly air conditioners. In this hostile environment we'd have to have the best, something we could really depend upon because our very existence would hinge upon the power source."



The natural entrance to the Crystal Ice Cave was discovered as a result of a lost flashlight.

In the Fall of 1963, after a good deal of investigation, Papadakis purchased a three-phase, propane fueled Onan electric generating set from our Salt Lake City area distributor, the C. W. Silver Company. The set was ferried across the lavas by a truck and bolted into place on a cement slab in a newly constructed building. The 15RJC delivers 120/208 volts and it has four wires which carry three circuits running from the plant to the cave, and is a remote start type so it can be started from the office (which is close by) or from the entrance of the cave by the guides as they begin their tours. The two starting positions are extremely handy because the entrance of the cave is about 600 feet from the office.

In the Fall of 1964, after the power plant was in place and the well had been dug Papadakis was ready to blast. He had explored the inky blackness of the rift and carefully planned his tunnel alongside it. A pattern of eighteen holes was drilled in the rock and fitted with a total of forty sticks of dynamite and then the blast was set off. Each blast loosened four feet of lava which was hauled away by an ore carrier. Each three inches of completed tunnel represented one ton of rock removed. As the men inched their way underground, they would string incandescent lights in the tunnel to see by.

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Papadakis, shown inspecting a six foot-wide dike, blasted for two years to complete the tunnel to the cave.



Because of the area's similarity to the moon's surface, Papadakis guided the Apollo 14 crew and its geologists through the cave and some of the lava areas in Aug., 1970.



Onan power illuminates 1,200 feet of underground trail so visitors can view the spectacular, centuries-old ice formations.

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Blasting continued relentlessly for ten months to complete 1,000 feet of tunnel. The deeper they went, the slower the work became. Near the cave, development slowed to a snail's pace. Finally the job was completed. That was three years ago. Today, there is 1,200 feet of tunnel which has been blasted through solid lava and leads 160 feet underground into the depths of the Great Rift alongside the cave. Twelve hundred feet of incandescent lights glow softly against the lava. The cave itself is brilliantly illuminated with indirect lighting from low temperature fluorescent fixtures.

The Great Rift is the longest volcanic rift in the United States and the deepest open volcanic rift known to exist on earth. It has been explored to a depth of 800 feet and is over forty miles long. It came into existence when tremendous pressures from below caused the earth's crust to split. Molten lava then surged across the land, covering everything in its path. During development, Papadakis discovered a small piece of sagebrush root beneath the flow which had only been partially consumed by the heat. With the help of Idaho State University personnel, he got it out

and it was sent to Whitworth College at Spokane, Washington. There, carbon dating established the age of the Great Rift at 2,100 years.

The Indians, early pioneers and local adventurers were all aware of the Rift's existence, but it wasn't until recently that the cave was discovered.

In September of 1956, two ardent spelunkers (or cave explorers) decided to systematically probe the depths of the Great Rift. No one had really penetrated its interior which was shrouded in mystery. The "expert" speleologists knew fissures in the earth were fairly common, but that they usually didn't amount to anything. Previous reports of the rift had been taken lightly and many found it easy to jest about such an area, refusing to believe the story of a rift over forty miles long.

Dave Fortsch, then a geology student at Idaho State University, and Perry Fenstermaker, an Aberdeen school teacher, came upon a particularly deep abyss about a thousand feet north of the King's Bowl, a huge pit which had been much explored by the local people, and who apparently had pretty much ignored the remainder of the rift. Fortsch and Fenstermaker

descended to the bottom of the awesome crevice and were immediately disappointed as all they saw was a small hole in the ice floor which did not look particularly promising. Thinking they had reached an apparent dead end, the two men started to turn back. As Fortsch began the ascent he dropped his flashlight. It slid toward the hole in the ice and then disappeared into it. Annoyed, he decided to go after it. To his surprise the hole became larger and he found himself in a box tunnel about ten feet long. It suddenly ended with a glistening fall of ice which cascaded down into the cave. Fortsch slid down and found his flashlight at the base of a giant ice formation. Stunned he called back to his friend who was still in the tunnel.

After a cursory exploration the two elated men returned to town and told of their discovery, but no one believed them. After all, how could ice exist on the hot, parched land of the lavas? Indignant, the two explorers dubbed their find "Liar's Cave," which remained in its wild state for the next several years. The rough access was tried periodically by a few adventurers, some of whom unfortunately were hauled out with broken bones.

When Jim Papadakis arrived in 1961 he heard the story of the cave and recruited Fortsch and Fenstermaker to show him the area. The trio made the rigorous descent into the cave by rope and as the beams of light from carbide lamps and flashlights were reflected by the gleaming ice formations and delicate ice crystals, Papadakis dreamed of opening the beauties of the cave to the public. For two years he completed voluminous paperwork and corresponded with the government because the rift is on Federal lands. Finally, he received permission from the Bureau of Land Management, who administers the area, and started work.

Last year completed the third full season the area has been open to the public. Thousands of persons from all over the world have visited the cave, and though some don't speak English, everyone understands the beauty of it.

"Underground, guides turn off all lights and demonstrate what total darkness is really like," said Jim Papadakis' wife Peggy, "until you've experienced this sensation yourself, I don't think anyone really realizes what value lies behind the simple flick of a switch which wipes away the blackness of an unknown world with friendly, glowing light.

"Meanwhile in the brilliant surface sunlight, people are running drinking water, pulling cold pop from a vending machine, flushing toilets, and vying for seats close to the air conditioner. Yet, most of them never give all these power operated pleasures a second thought," she said.

"But with us, it's a different story. We know the water is coming from 800 feet below us by way of a 5HP submersible pump and into a 4,000 gallon cistern, and that a 1/3 HP pump is pushing it into pressure tanks. Our lights and appliances are subject to our power system.

"For seven years our Onan has given us trouble free service." It was with this power that we watched the Apollo 11 landing on the moon.

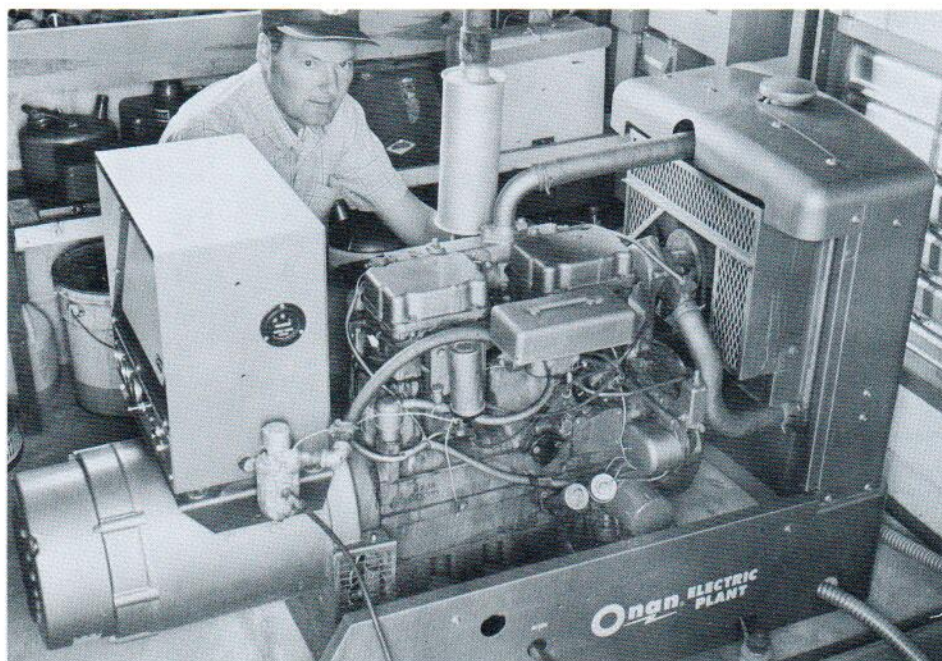
We were joking about all this one morning while I was fixing breakfast.

"Hey — make me some toast for breakfast, will you hon?" Jim called to me from the bedroom where he was dressing.

"I can't silly," I replied. "You haven't turned the generator on yet."

With mock seriousness Jim walked up to me and said, "Since this place is so comparable to a desert island, which would you rather go without — me or the generator?"

"Well, I took the fifth amendment on that one, but there's one thing we agree on for sure— when you need the best, use Onan, you can depend on it, we have."



The propane-fueled, 15,000 watt RJC engine-generating set supplies power to provide such essentials as lights, water and electricity for appliances.



A utility building houses the Onan electric generating set. Exhaust from the unit is piped out the rear of the building. Aluminum louvers directly behind the unit permit ventilation. Pressure tanks for the water system are located in the central portion of the building and the front end houses public restrooms.

Jim Papadakis is a geologist and the developer of Texas' superb Caverns of Sonora and Idaho's magnificent Crystal Ice Cave, both U.S. National Landmarks. Jim, a native of Wisconsin, is also a professional photographer whose award-winning work has been published in *National Geographic*, speleological publications and books such as, *Depths of the Earth* and *Visiting American Caves*. Jim and his wife

Peggy are making an extensive study of the volcanics of North America.

Peggy Papadakis is a native Idahoan and the mother of four children. She has been an executive secretary in private firms and in government work, but has more recently turned to freelance writing and photography. Her work has been published in leading newspapers and magazines.