Devil's Hole

"Beware of Wild Dogs and Buckshot!"

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Jack McKenney

I looked at the sign and then I looked at my friend Jack. How we were going to proceed from this point was entirely up to him. Out in a remote corner of the Amargosa Desert of Nevada, one didn't just drive into a place that had a sign like that without giving it a little thought. On the other hand, we were lost, had almost torn the car apart on wretched roads, and even though it was almost dark, it was a sweltering 100 degrees in the shade. This was the first hint of civilization we had seen in a while.

We were looking for Devil's Hole, an enormous, water-filled earthquake fault that is part of the Death Valley National Monument. We figured something like Devil's Hole would be easy to pick out in the parched, flat landscape, but we figured wrong. After zig-zagging the desert for a good part of the afternoon, our good dispositions were evaporating with the outside heat.

At the very bottom of our increasing uneasiness was the fact that once we found Devil's Hole we weren't sure what we would be able to do with it. We had tried for weeks to get permission to dive and photograph it, but National Park Service restrictions were severe. A number of divers had died in the hole, and the cave was also the only home in the world for the endangered Devil's Hole pupfish. Just as the snail darter had halted the mega-million dollar construction of a dam in Tennessee, the Devil's Hole pupfish has stopped the pumping of water from underneath the Amargosa Desert.

It was all a heated matter and, in the middle of the fire, I had convinced a major magazine that a story on Devil's Hole would be rather good. The magazine had given us a go-ahead, depending upon the pictures we could get. The National Park Service, however, didn't want unnecessary people stepping on the pupfish and that was that. The Park Service had given me permission to make one dive, as a safety diver for the scientist who counted the fish every month. I had convinced Jack to go with me to Death Valley to see what photos we could scare up. There were other springs and sinkholes which could be part of the story. Now we couldn't find the springs and sinkholes, nor Devil's Hole itself.

Jack McKenney is an old friend of mine with whom I'd worked on other underwater assignments. I wondered what he was thinking now as he looked at the wild dogs and buckshot salutation.

"What the heck," said Jack. "Let's give it a try."

I was relieved to hear that Jack's sense of adventure was far from dead.

We drove into the fenced area toward a tin shack set in the middle of a large collection of rusted bedsprings, old appliances, benches, kitchen sinks, machinery and other odds and ends. The only thing missing from this permanent swap meet was a rusted-out car on its axles, a sight quite common in the desert.

Immediately, two big dogs charged at the car, barking and snarling, one at each door. "Nice doggy," said Jack. That was an enormous amount of optimism, the type Daniel must have had when he faced the lions that were supposed to eat him.

A man emerged from the tin house (without a gun). He didn't seem belligerent, and he called off the dogs.

"We're lost," Jack called out. "Could you tell us where Devil's Hole is?"

"Shore!" said the man. "Why don't you come in and sit a bit?"

This wasn't buckshot by any means. We proceeded to get out of our car, only to find that the wild dogs jumped up on us like big puppies.

"Down, boy!" yelled the man. He extended his hand to us. "Name's Rex," he said.

Jack and I introduced ourselves and told him what we were doing. "What do you know?" Rex said, "Follow me."

He led us over to an area of his yard which was fenced in by the circular ends of enormous wooden spools, and pointed off in the distance. "See that mountain over there?" he asked. "The very last one

The arid Death Valley region, a dry camouflage for the elaborate water system that flows beneath the sand.

of that bunch?"

We said that we did.

"See that dark spot? Near the base of it?"

We made out the dark spot.

"That's Devil's Hole."

He drew a map for us in the dirt and told us how to get there. "You know, he said, standing up, "there's a hole right here, next door to me. A big one. Used to be bottomless until one of them atomic bomb tests caved the thing in."

Jack and I looked at each other.

"It's deep, you can dive in it," he continued. "Sand is boiling up all the time."

"We'd like to see it," I said. "Could we?"

"Shore!" said Rex. He gave us directions on how to get there through his property. "Leave the gate down when you come back through," he said. "So that the horses can get back in."

We went immediately to look at Rex's spring. It was exactly what we had been looking for. It was 30 feet deep and the sand was boiling up at the bottom as he had said it did, like bubbling lava. Contrary to Rex's imaginative tale, the pool hadn't really been caved in by a bomb blast. Instead, it was a perfect example of the geologic phenomenon of the desert sinkhole, where water dissolves the bottom of the pool as it pushes up from an underground water supply. Our photographs would show perfectly this vital link in the desert water system.

We were really happy right then and drove back to thank Rex. He was in his tin house when we arrived, wrestling with some frozen orange juice cans on top of his wood-burning stove. "Can't get enough darn cans together to organize this," he complained. He turned to a cupboard over a crude wooden table and fished around for what I thought would be something to organize the orange juice. Instead he pulled out a cereal bowl, filled it with cat food and set it on the floor. A gray kitten materialized out of nowhere and began to eat. Rex went back to his orange juice project. Watching over him from the wall was Christ, who looked out over the one-room desert cabin in a handsomely framed print of The Last Supper.

I asked Rex his last name.

"Just start spelling," he answered.

I got out my pen.

"S-c-h-n-e-e-h-a-g-e-n," he spelled.

"Schneehagen?" I asked.

"What nationality is that?"

"American," said Rex.

Jack and I were in the highest of spirits as we drove toward our lodgings in Furnace Creek. We now knew where Devil's Hole was and Rex Schneehagen was a gold mine. The next day we'd be able to dive and photograph in Rex's spring. We'd get the magazine assignment for sure. It was all a stroke of luck.

Then it hit us. Adventure was really the thin line between boom or bust. We'd both felt completely helpless five minutes before we'd met Rex Schneehagen, and now we felt grand. We realized, too, that if everything had been set up for us without the risk of failure, we would have had the security of knowing exactly what we were doing, but none of the thrill of chance. Chance is the very stuff adventure is made of. We might have fallen flat on our faces, but since it looked as if we might make it, the sense of victory seemed ever so much sweeter. We'd done it on our own, made our own discovery, broken our own trail. Though others had probably done it a thousand times before, it made no difference; we had done it all ourselves.

I had heard about Devil's Hole just after I had returned from exploring the freshwater caves of South Australia. I was sitting around the living room of my friends Chris and Hadda Swann one evening, telling them about the caves. I told them about diving in the middle of a sheep pasture, underneath a forest and a road, and about what it felt like to crawl and swim around darkened, flooded passageways and rooms with light and lines. Chris, who is British, jumped up with an "Aye Saye," and ran to get something from another room. He came back with an old film festival program describing Merl Dobry's documentary on Devil's Hole. In the program was a diagram of Devil's Hole, showing what was underground and underwater, describing what the hole was about and how it had been formed. I had heard of Devil's Hole because of the pupfish issue, which had been U.S. news, but I had never imagined that it would be so big, deep and complicated. From the diagram I could see there were multitudinous passageways that angled off the main shaft. A narrow slot edged to one side of the main shaft and opened into a giant air-filled room underneath the mountain. Below a narrow passageway that descended to 160 feet was an enormous chamber of water that continued to at least 260 feet. No one had bottomed the hole, so its exact depth was unknown.

From the diagram and description, Devil's Hole appeared to be more exciting than any of the holes we'd dived in Australia. In looking at all of this material, I found myself becoming a little excited and curious.

The desert of Death Valley is geology in action, a silent, eternal kiln where panoramic rocks are fired day after day in sun that never quits. It is a harsh, untamed land that bears names like Furnace Creek, Desolate Canyon, Badwater, Dante's View, Hell's Gate, and Ash Meadows — home of Devil's Hole. The land seems fluid still, with its boiling, bubbling, moving, cracking and faulting earth now frozen in time. Mountains have spilled their volcanic ooze down bumpy canyons in roller-coaster paths of heated chocolate bordered by vanilla-colored pumice and sand. Dark rivers of black ash snake through mounds of caked mustard clay. Sharp, jagged crags, once buried deep in granite, shoot upward in violent explosions that are frozen in midair. The land is untouched by man because it is so untouchable. The only evidences of his being there are the occasional giant anthills where he has dug for minerals. Zeolite, the soft green, moonlike rock used to filter water, is piled up beside the roads. Old scars in the sides of mountains reveal abandoned gold or silver mines. But it is borax, the "white gold" of the desert, that is important here. Borax gave Death Valley its twenty-mule-team history.

It was hard to imagine that at one time the dry, salt-encrusted desert on which we stood was a fertile, green, fresh-water land of lakes and rivers. It was even harder to imagine that such an enormous amount of fresh, pure water was now underground, hidden from sight.

The geologic history of Death Valley tells us how this water system came to be. In late Precambrian and Early Cambrian time, Death Valley was beneath the sea, as much of the world was. The shoreline, it is estimated, lay to the east near modern Las Vegas. By the Middle Cambrian to Permian time (550 million years ago), the skeletal carcasses of innumerable generations of corals, shellfish and other sea animals had created an enormous mass of lime and sand. This mass then consolidated into a limestone and dolomite layer more than two miles thick in some areas, perhaps only tens of feet in others.

In Mesozoic time (225-65 million years ago), a chain of volcanoes arose along the present Sierra Nevadas, and the sea withdrew. The limestoned Death Valley region became a highland.

Limestone is porous, and the rainfall from a big area of Nevada northeast of Ash Meadows and Death Valley collected underground, forming a major water table. As it ran in the direction of Ash Meadows, this water dissolved the limestone. In some areas where it collected and pooled, it ate upward through the limestone until the surface land collapsed downward, creating the sinkhole. This was the same geologic process that had created the sinkholes in South Australia.

Devil's Hole, on the other hand, is a flooded earthquake fault, formed by one of the earthquake or faulting actions of the Mesozoic period. Extending into the earth from the base of an unnamed mountain in the Amargosa Desert, it filled with the water that permeated the rest of the underground area. In Devil's Hole, the water began to eat away at the limestone fissures, enlarging the caverns and creating new passageways, new tunnels and chambers.

The bottom of Rex Schneehagen's spring in Ash Meadows, officially called Big Spring, was disintegrating before our eyes and, during some geologic time down the road, the bottom of that spring would collapse, perhaps opening up into some enormous chamber like that of Devil's Hole. Or, perhaps it would only be a shallow pool or underground river. One needs X-Ray eyes to see what is underneath that bubbling sand pile.

At 8:00 a.m. the next morning, Jack and I arrived at Devil's Hole.

It looked like a prison camp sunk into one side of a volcanic mountain. Giant coils of barbed wire tangled with the metal mesh of a high, impenetrable fence to seal off the confining pit from the outside world. At one end was a heavy gate, sealed shut with a massive chain and padlock. Just inside the gate was a steep rock cliff, bridged by a wooden ladder propped against its uppermost ledge. A rock slope descended the rest of the way to the bottom of the cavern, where a rectangular trough of water emerged from underneath the mountain. That trough of water was bottomless, a flooded earthquake fault.

At 8:30 Jim Deacon arrived. So did Pete Sanchez from the National Park Service, Bob Yoder from the U.S. Fish and Wildlife Service, and a representative from the Bureau of Land Management. It was all serious business. Pete Sanchez, who'd been with the Park Service in Death Valley for 12 years, sat with me on a rock and in casual conversation I asked him if he had ever found anything valuable while poking around in the desert sands.

"Sure!" he said.

"Like agates?" I asked.

"No!" he answered emphatically. "Nothing monetary. Only plants and animals. Things other people might not think valuable, things you can't put a price on. But to me those things are valuable."

Pete Sanchez was not only resource management specialist with the Park Service, he was head of the desert pupfish council. It was obvious to me that he was the best possible choice for both jobs.

Jim Deacon prepared for the morning dive. He laid down a narrow bridge of boards over the shallow shelf of bright green algae where the pupfish live, and then we geared up. There would be three of us on the dive — Jim, me, and Park Service safety diver Bob Todd.

As I tight-roped across the narrow boards in my heavy diving gear, I looked down at the tiny fishes, each one of them no bigger than a minnow. They swam leisurely around their shelf, picking at algae, oblivious to the human *sturm und drang* above them. They didn't know about the badges or the barbed wire. Most likely they were oblivious to the fact that there are so few of their numbers left in the world. They are tiny little fishes under enormous lock and key.

I carefully put one foot on the very edge of the shelf and lowered myself backward into a drop-off of clear, blue water. As I waited for the others, I looked down through my facemask and could see the first ledge below me at 30 feet. Swimming in the 92-degree water was like swimming in nothing. It was so clear that visibility might have been 300 feet. It was like soaring in air, the closest thing to flying I'd ever known.

As the three of us sank through that giant, water-filled crack in the earth — so deep it hadn't been bottomed — I was reminded of how I felt during our exploration of the Australian sinkholes. The feeling of anticipation, wonder and excitement at swimming into a dark underground, underwater cave was just as strong now as it had been then.

The sides of the main shaft of Devil's Hole consist of white limestone, laid down 550 million years ago and chiseled over the years by water into smooth slopes on either side. Rust-colored organic material on top of the elevated ridges of stone created an ethereal, other-worldly effect. At 60 feet, I turned and looked up toward the surface. The bright blue of the shallow water at the surface illuminated the main shaft and silhouetted the sloping wall on the right side. From where I hovered, I

could see people standing around on the rocks above, almost as clearly as if there had been no water between us. Just as distinct was the long, rectangular lamp which hung over the water, positioned over the pupfish shelf and turned on when algae production needs a boast. Another shaft of light beamed down from behind a rock in back of the main entrance. The slope of limestone leading up to it created a narrow ledge against the ceiling of the cave.

I turned again toward the bottom and the three of us switched on our lights. We sank to 90 feet where an enormous flat stone called Anvil Rock signalled the deepest part of our dive. This stone, shaped like an enormous anvil and obviously shaken loose from above, marked the deepest spot where the pupfish wander from their shallow shelf. Jim started counting at this point while I beamed my underwater light down beyond Anvil Rock to see what I could see. I knew that below Anvil Rock was the narrow funnel that went to 160 feet and the deeper chamber. Merl Dobry had explored this chamber, the area that had invited trouble in the past. Nitrogen narcosis had robbed at least one diver of judgment and common sense here. It was in this chamber that the two divers had disappeared in earlier years, their bodies never recovered. One needed good lights and a safety line system to explore Devil's Hole.

The most exciting area of Devil's Hole Merl had described was Brown's Room. This huge, air-filled, underground chamber is accessible only through a narrow slit that angled off to the left of Anvil Rock. Merl had talked about the squeeze in getting past the opening, about the enormous, cathedral-like room that opens into an air-filled chamber beneath the mountain.

While poking around Anvil Rock, I saw a line, tied permanently around a rock, angling up through the narrow passageway that leads to Brown's Room.

I looked at the other two. Jim was counting fish at about 60 feet and Bob was watching him count. I wasn't going to see Brown's Room on this dive, so I swam up and joined the others.

Later, over pizza at a mid-desert saloon near the California/Nevada border, Jim explained that the pupfish had been stranded in Devil's Hole 20,000 years ago, when the freshwater system of the desert began to dry up and recede. Because Devil's Hole was one the the higher habitats, these creatures were the first to be stranded, the first of the desert pupfishes to evolve into its own, distinct species.

The continuing dessication of the area resulted in similar isolation and consequent reduced survival odds for other populations of desert pupfish. The Tecopa and Shoshone pupfish are extinct already, and the Warm Springs pupfish are endangered now. Other desert pupfish in the area, such as those in Crystal Spring, are all right for the moment, said Deacon, because at that desert level, the water is still flowing between the springs and ponds where the fish live and propagate.

All pupfish species have tolerated periodic difficult living conditions, usually associated with summer heat. When the sun is hot, their habitats dry up. Some pupfish survive parched summers in homes the size of a teacup. When water evaporates in these limited living quarters, salinity levels increase. The desert pupfish, Jim said, is one of the few fish in the world that can tolerate such concentrations of salt. The fish also withstands freezing temperatures of winter and a host of other difficulties, which include competitive, foreign species of fish and crayfish that fight the pupfish for food and space.

The irony is that the adaptable little fish probably cannot withstand what humans beings want to do to it. Yet another battle was brewing in Ash Meadows over water rights at the very moment Jack and I were there. The pupfish was again threatened by a land development scheme which planned to turn 13,000 acres of Ash Meadows into a recreational-housing golf course development. It was going to be a war for water, and again, the Devil's Hole pupfish were going to be under the gun.

While we sat in the mid-desert saloon, Jack played devil's advocate and put forth the loaded question to Jim. "Why save the pupfish?" he asked.

Jim Deacon is one of those rare individuals whose work is serious, but who doesn't take himself seriously. He answered the question as if he had answered it many times, yet he was just as interested in the concept of what he was saying as if he'd thought about it for the first time.

"Two ways of looking at that question," he said. "One, if you value the earth, then you must also value the way it functions. Extinction of a species is a momentous event, because it removes one irreplaceable role in the functioning of the earth. Man is causing extinctions at an alarming rate. If the process continues, the resulting instabilities will affect the way the world works, making it less reliable for humans, as well as for other populations of animals.

"The other things," he continued, "is that every living species represents a complex living system — a library of information. If man's uniqueness is his ability to know, then we have to protect that library of knowledge, which in this case is a live pupfish."

Deacon sat back and thought.

"Actually, do you know what the best answer is?" he said. "It's because they're here. That's all the reason you need."

Jack and I later went to dive in Crystal Spring, fed by Devil's Hole over two miles away. When I free-dived to the bottom of the spring, I felt the enormous rush of water coming in from the bottom, almost 4,000 gallons per minute. At the height of the controversial pumping of the underground water supply of the desert, the water pressure in Crystal Spring had declined to 1,670 gallons per minute, less than half its normal capacity.

Big Spring, a sinkhole in the desert.

Crystal Spring is one the bigger holes in the area. The smaller pools, under such abuse, would literally dry up, never to return, even if the pumping were stopped. Once dry, always dry — that's how it works. The main flow of water in Crystal Spring comes in at its deepest part, in 30 feet of water. As we swam around the other areas of the spring, we saw the water pushing in from beneath the limestone bed, creating little circles of bubbling sands where the pupfish liked to congregate. It was as if they enjoyed the massage they got from the miniature water jets, or perhaps there was an oxygenation of the water they took advantage of.

There is plenty of water in Crystal Spring. There also seems to be an infinite amount of it in Devil's Hole and in the entire network of the desert's underground passageways. However, what happens in one spot affects another almost immediately. The system is fragile, temperamental. The water is the arterial life blood which cannot be siphoned lest the veins collapse.

We dived a number of the desert sinkholes, but in my mind I could still see Brown's Room and the permanent safety line tied around the rock leading up to it.

Some weeks later, Jack and I returned to Devil's Hole.

We carefully laid down the narrow bridge of boards over the shallow shelf where the pupfish lived and we geared up quickly. We stepped on the very edge of the shelf and lowered ourselves backward into the flooded drop-off. With our powerful underwater lights switched on, we swam quickly to the first ledge below, at 30 feet. Even in the dark, the water was warm and clear. We sank down through the main shaft until we were at Anvil Rock, at 90 feet. Again, I saw the permanent safety line and pointed it out to Jack. We quickly went for the line.

With our lights picking the way through the narrow, dark crack, I followed Jack along the safety line, which I held in my left hand. The back of my tank scraped the limestone wall overhead as I pulled myself along on my stomach through the narrow opening. When we cleared the opening, we were at the bottom of the cavern I'd been told about. Our lights illuminated the entire, flooded room. Enormous limestone walls rose up from 80 feet and

Following the line, we rose up through the clear, transparent water. It was still as warm as at the entrance of the main shaft, because this water is heated by the depths of earth rather than by sunlight.

The reflection of my light hit the surface of the water, becoming silver as mercury against the bright white walls. Because of the clarity of the water, it was almost impossible to tell the depth in which we swam. We had moved from 90 feet to the surface in a matter of minutes.

*Author Hauser sinks knee deep in the limestone sand at the bottom of Big Spring (**above**), and underwater in Devil's Hole (**right**).*

When we broke through to air, I was completely stunned by what I saw. The cavern of Brown's Room is enormous, probably 50 feet from the surface of the water to the ceiling. About ten feet above us, a dry passageway led off into a dark crack, another passageway. According to the diagram of Devil's Hole, that dark crack turned down again into yet another water-filled chamber. The walls of the main chamber were rusty brown and ancient. We were completely sealed off from the outside world, underneath a mountain in a Nevada desert. It was like a scene from *The Phantom of the Opera.*

We pulled our regulators out of our mouths and took a taste of the air. It was musty and we didn't know the quality of it, so we immediately switched back to our regulators. I turned off my light, Jack turned off his. Instantly, the room became pitch black. That was enough. We turned our lights on again and headed down, free-falling along the safety line until we came to the narrow crack that led us back to the main shaft. We squeezed through the passage, inching our way along on our bellies like snakes, and we came out at Anvil Rock. Together, we rose up through the main shaft until we were back at the first ledge at 30 feet. Here, we stopped to have a long, close look at the tiny fishes.

The Devil's Hole pupfishes are living in a palace fit for the king of fishes — the Eighth Wonder of the World.

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