

# Dr. Ann and the Zacatón Xplorers



They start down together, dropping like rocks through the blood-warm water. Knees bent and streamlined for speed, Dr. Ann Kristovich and Jim Bowden are going deep just as fast as they can.

Above, twin bubble trails rise toward the brightness of the surface. Below, there's nothing but space, shading off into a darkness that easily swallows their lights, giving up nothing in return. Between the two, a descent line speeds by at a hundred feet a minute, the only available point of reference. For a moment, a sulfur cloud obscures the line—a byproduct of the geothermal pressure cooker that feeds this place—and the darkness closes in.

But, just as quickly, they pierce the cloud's bottom into clear water, and Kristovich begins to pull away from Bowden, falling faster into the depths. Something looms up at her out of the gloom; that would be the first big ledge, the one at 250 feet. Four years before it had snared a plumb line and been taken for the floor of this sinkhole, the Mexican *cenote* known as Zacatón. That was before Bowden brought Sheck Exley down here for the first time, before Exley found that the ledge sloped off into a pit whose bottom lay far beyond the 407-foot limit of his dive, before the pit was sounded and found to reach an astonishing 1,080 feet into the bowels of the Earth.

It's into that pit that Kristovich now plunges, leaving the ledge and Bowden further behind. At 280 feet, she switches from air to trimix, without slowing her drop, deftly changing from her back-mounted 95s to one of two 80-cubic-foot tanks mounted under her arms. A few breaths of heliair 9.5 quickly clear the fog of nitrogen narcosis that has accumulated in her brain.

She free-falls alone, the walls of the *cenote* rapidly retreating back into the gloom that engulfs her. Even the faintest traces of sunlight are gone now. Kristovich's world has shrunk to the safety line and her pressure and depth gauges, digits rushing by like the numbers on a gas pump. Three hundred sixty, 370, 380 feet. A glow filtering



down from above tells her that Bowden is catching up, and a few moments later, he slides into view.

Three hundred ninety, 400, 410. Kristovich has just broken the women's world deep-scuba record, set four years earlier by Mary Ellen Eckoff. She and Bowden continue to drop, falling in tandem toward another ledge, this one at 500 feet. Now Bowden pulls away, his lights fading down into the black just before Kristovich reaches the 500-foot ledge.

Kristovich is all alone in the dark again, dropping deeper and deeper into one of the most hostile environments ever penetrated by a human being. The weight of the water above her is terrifying, crushing down with a pressure seventeen times what her body was designed to take. But terror is the farthest thing from her mind. As she passes 500 feet, Kristovich finds herself filled with an almost otherworldly elation. Out of sheer joy, she yells into her mouthpiece, and breaks out laughing when trimix turns her yahoo into something worthy of Donald Duck—Donald Duck, all alone down here in the Abyss! Then it's back to business, cranking her thumb down hard on her BC's power inflator button, using buoyancy alone to arrest her dive so as to avoid any exertion that might increase her vulnerability to decompression sickness. At 554, feet she finally stops sinking. Then she begins the long journey back to the surface, spiraling slowly around the safety line as she ascends.

Four hours later, when Ann Kristovich emerges into the bright sunlight of a September afternoon in northeastern Mexico, she does so as the first female member of deep scuba's most exclusive circle. Only six people have successfully made the long jump from the surface past 500 feet on open-circuit scuba. Their names read like a *Who's Who* of deep-diving pioneers: Jochen Hasenmayer, Sheck Exley, Nuno Gomes, Jim King, Jim Bowden. And now, Dr. Ann Kristovich. Six years after her open-water certification, the 42-year-old oral surgeon from Austin, Texas has made a dive into history.



Dr. Ann Kristovich and Jim Bowden computing their dive at Zacatón.

The story of how Kristovich got there, and her part in the dramatic events that followed at Zacatón—the mingled tragedy and triumph of Sheck Exley's death and Jim Bowden's record-breaking dive in April 1994, the continuing deep work by the *Proyecto de Buceo Espeleologico Mexico y America Central*, the preparations for a further dive to bottom out what may be the world's deepest water-filled pit—is one of discovery and obsession, of a quest for adventure that took her from an Austin swim-

ming pool to the dark and watery labyrinths beneath Mexico and Central America. It's a story of equal parts exhaustion and exhilaration, of moments of sheer heart-stopping beauty, of moments so thoroughly painful that, as Kristovich's partner Jim Bowden puts it, "you're afraid you're gonna die and afraid you aren't."

It's a story, after all, with its roots in sump diving—the "graduate school of cave diving," which brings all the physical and mental rigors of dry caving together into an unholy alliance with the most difficult and dangerous of underwater disciplines. Think of it as a kind of underground Ironman event, combining hours—even days—of torturous crawling, climbing, and rope work, with solo forays underwater into small- to medium-sized sewer pipes. After the descent, as a bonus workout, sump divers get to hump their tanks back *out* of the cave, retracing their steps through what may be miles of uphill passage.

Ann Kristovich got her first taste of sump diving in January 1988, a scant two months after completing her open-water scuba course. Thirty-six years old, in her sixth year practicing oral surgery in Austin, she started diving as part of what she looks back on as her "water fall," a long wet season of daily rowing practice on the nearby Colorado River, lap-swimming, and even, she jokingly recalls, a watercolor painting class. While she loved her job ("Being a surgeon's fun. It's a real privilege to run around in somebody else's body," she says), it was as though she were on a search for something else—a quest that brought her, time and again, back to the water. In the end, it seemed, nothing short of total immersion would do. She took a scuba class through the University of Texas, thinking it might be a good way to meet people who weren't her patients. Her instructor was Jim Bowden. "I just walked in [to the class]. I didn't know anything about him, didn't know his reputation or anything." Although she didn't know it at the time, Kristovich had found the one person who could help guide her in her quest.

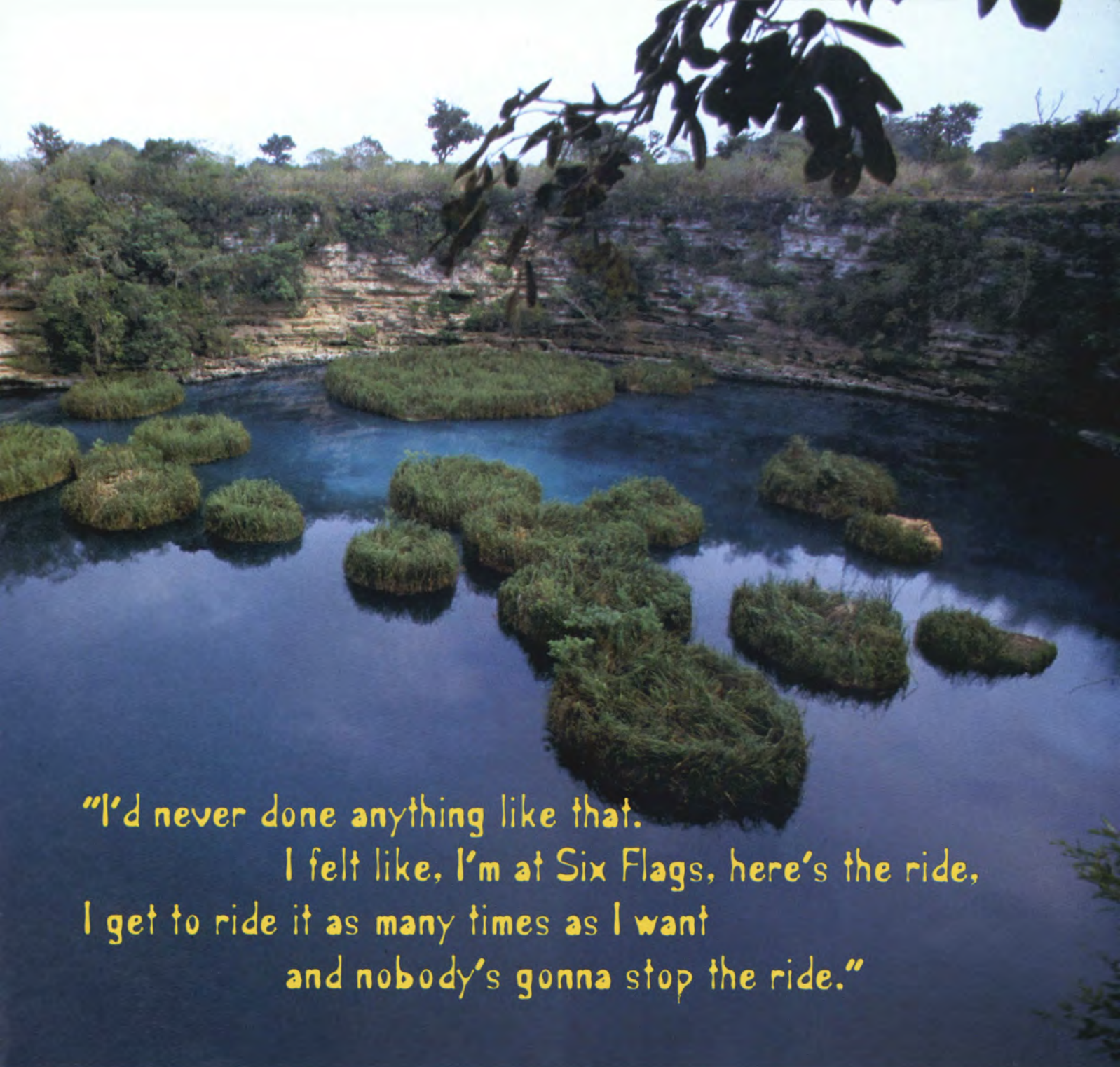
At 45, the already white-bearded Bowden had devoted the better part of the previous decade to exploring the river caves of Central America. Austin was his base of operations, but he was most at home in the field, either working solo or with his companion Karen Hohle. Bowden taught Kristovich's open-water class while



Zacatón—one big hole

taking a break between expeditions in Belize. Impressed by his new student's abilities and enthusiasm, he invited her on an excursion to Texas' Honey Creek Cave.

Honey Creek is the longest cave in the state, a half-flooded maze with passages that twist and turn for miles through the ancient limestone beneath the Texas Hill Country west of Austin. Bowden wanted to check out some shallow sumps—tunnels no more than ten feet underwater—unexplored by the University of Texas cave club which had done most of the work in the Honey Creek system. Kristovich went along as non-diving support for what would turn into a day-long endurance test. After what seemed like an eternity worming her way into the watery inner recesses of



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I felt like, I'm at Six Flags, here's the ride,  
I get to ride it as many times as I want  
and nobody's gonna stop the ride."**

Honey Creek, came the highlight of her trip: she had to "chip at a hole for, like, two hours, standing in water chest deep, knocking away limestone for Jim to get through."

To cave divers spoiled by the easy access offered by the springs of North Florida, that may sound like an incredibly miserable, almost masochistic undertaking. But what some might consider a nightmare, Kristovich experienced quite differently. "The cave just knocked my socks off," she says. "I'd never done anything like that. I felt like, I'm at Six

Flags, here's the ride, I get to ride it as many times as I want and nobody's gonna stop the ride. I literally did the whole tour. We went in there for eight hours, *way* in, found virgin passage on my first cave trip...it was absolutely the most exciting thing I'd ever done. I was totally hooked at that point."

For Kristovich, learning to dive had been a revelation, an opening into a whole new world. Now, at the bottom of a hole in the ground, that revelation redefined itself, taking on new direction and intensity. Right

then, Kristovich says, she knew what kind of diver she wanted to be—a diver like the one out there at the end of the safety line, pushing his way into unknown territory. She also knew she needed to get a lot more diving experience before she would be able to make that desire a reality. Much of it she would be able to get on her own, in the rivers and lakes of central Texas. Still, Honey Creek aside, cave diving was hard to come by near her home in the state's capital.

As it turned out, the solution to that problem was also out there at the end of the safety line; Bowden always needed help on his expeditions. The work he and Karen Hohle had been doing in the Caves Branch area of Belize, connecting St. Hermann's and Petroglyph Caves and the inland Blue Hole, offered a rare opportunity for a neophyte diver to participate in genuine exploration. Kristovich made the most of that opportunity. Taking advantage of an enviably flexible work schedule as a partner in the oral surgery practice, she says, "I just walked in, picked up my appointment book and said I'll be out these two weeks." She started traveling with Bowden to Belize.

There, miles back in the jungle, in a vast river cave system straight out of an Indiana Jones adventure, Kristovich began her apprenticeship as an underground explorer. Climbing, vertical ropework, and cave survey techniques became her bread and butter. There was always gear that needed hauling into the cave and the team shared the heavy lifting equally ("Nobody *sherpas* for anybody else," Kristovich says of the attitude that still prevails in the group). It was *work*, but it was also a chance to be part of something most people only dream about—an adventure into an uncharted world, exploring not just new cave passages, but new personal limits as well. Kristovich loved it.

She continued learning the basics of cave diving from Bowden during his breaks from solo pushes into the Belizean swamps. Within six months of her excursion into Honey Creek, she earned her cavern certification in the Nacimiento Mante, the high-volume Mexican spring where Sheck Exley had just made a world-record 780 f/232 m dive. By December 1988, when Kristovich traveled to North Florida to officially complete her training as a cave diver, she'd already logged 36 dives learning her craft in caves all over Mexico and Central America.

That training would be seriously tested in the next year, when Bowden redirected the team's efforts into Mexico's Santa Clara cave system. Located at the base of the El Abra mountains not far from Mante, *Systema Santa Clara* goes deep. At the farthest reaches of the push team's exploration—1,400 feet into the system—passage depths exceeded 250 feet. Lacking knowledge of mixed-gas techniques, the members of the *Proyecto* were attempting deep-cave exploration on air, all the while painfully aware of just what a risky business that

could be. Kristovich remembers the pains they took getting "a ton of gas depoted throughout the cave," in an elaborate stage bottle system meant to save a diver in the event of an emergency down deep. Kristovich did most of her diving solo, working surveys near the cave's front at the comparatively shallow depth of 140 f/42 m. She wasn't on the push team, but she was spending longer hours in the cave than anyone else. And seeing the difficulties that Bowden and others were having trying to push the cave on air, she could tell that approach wasn't going to take them much farther in the Santa Clara. This deep stuff was an entirely different proposition from the dives they had been doing in Belize.

Work commitments pulled Kristovich back to Austin after two weeks in the Santa Clara. She didn't expect to miss anything; the team was wrapping up the project, looking instead at a return to Belize, where they would concentrate their efforts for the next two years. All they had planned were a few more forays into the Santa Clara and some proficiency dives near their camp at Mante, honing skills and techniques for possible future deep work.

Before the team concluded its trip, the divers decided to check out another site that had piqued Bowden's interest. Like many cavers an inveterate browser of topographical maps, Bowden had come across a reference to large sinkholes within day-trip range of Mante. That aroused his curiosity, because it tallied with rumors about *cenotes* he'd heard from local people. Bowden had never thought of the plains of northeastern Mexico as *cenote* country. Yet the map showed sinkholes, close enough to warrant at least a look-see. So Bowden, Karen Hohle, and team member John Orłowski took a day off from diving and piled into a truck, never suspecting that what they would find would change their lives forever.

The holes were there all right—five of them, aligned generally east to west, bubbling with geothermal warmth and sulfurous odors. They ranged in size from tiny 68-by-120-foot La Pilita to giant Verde, more than 600 feet in diameter. In between these two extremes was a 380-foot-diameter *cenote* with undulating walls rising 70 feet straight up from the water. Drifting slowly across the water's surface like giant lilies in a goldfish pond were a multitude of curious floating islands, formed by thick mats of the tall grass called *zacate*.

It was from this grass that the *cenote* took its ominous-sounding name: Zacatón.

Ann Kristovich didn't see Zacatón herself until about a year later, when she and the rest of the team stopped off there en route to Belize. The Central American river caves had once again become the *Proyecto's* prime focus. For the next two years, Mexico took a back seat to the work going on in the Belizean jungle, as the team added more than 1500 feet/457 meters of water-filled passage to its survey and found downstream tunnels that promised a connection to the nearby Actun Tah system. But all the while, Jim Bowden kept thinking about those *cenotes* he'd found in northeastern Mexico. The *Proyecto* had obtained permission to dive from the owner of the land surrounding the *cenotes* (called the Rancho Asufrosa, after the sulfur that permeated its water), and the brief surveys the group had been able to manage had produced intriguing results. The holes were deep—tiny La Pilita's breakdown cone plumbed out at 360 f/107 m—and connections between them seemed likely. Bowden and team member Gary Walten had already found a link between Zacatón and the Nacimiento River; a 600-foot tunnel Bowden dubbed "El Pasaje de Tortuga Muerte" for the skeletons of drowned turtles that littered its floor. Swimming into the passage through a small cave in the Nacimiento, Bowden and Walten came out where the unfortunate turtles had gone in—26 f/8 m below the surface of Zacatón.

Still, however interesting the Rancho Asufrosa sinkholes may have been, one serious obstacle stood in the way of their exploration. Like the Santa Clara, they were too deep to be worked on air, and no one on the *Proyecto* had any experience with mixed-gas diving. But Bowden knew someone who did: deep caver Sheck Exley, holder of the world scuba depth record.

Bowden had met Exley at Mante in April 1988, driving up to the legendary diver's camp to find Exley's three-man support crew—Ned DeLoach, Sergio Zambrino, and Angel Soto—awaiting his return from the giant cave. Exley went to 780 feet that day, diving alone into Mante, breaking his own 660-foot world depth record. Bowden hung around until Exley surfaced after a ten-and-a-half hour decompression, then introduced himself. The two men hit it off, bonding on the common ground of their love for diving, exploration, and Mexico. When Bowden

wrote Exley to say that he had found another deep system not far from Mante and needed to learn how to dive on mixed gas, Exley was intrigued. He agreed to teach Bowden trimix diving.

By the spring of 1993 the *Proyecto* had wrapped up its Belizean efforts and Ann Kristovich was back in North Florida, getting trained on trimix herself. It was clear that Bowden next wanted to go deep—in the Rancho Asufrosa and Santa Clara systems—and she had no intention of being left behind. Like Bowden, she learned mixed-gas diving from the master, Exley; Bowden helped out with the class. And one of the major topics of conversation, Kristovich remembers, was the *cenotes* of Rancho Asufrosa. Exley found them especially interesting, since they seemed a promising alternative to Mante for ultra-deep trimix work. While the *cenotes* were apparently shallower than Mante (Zacatón's true depth was not yet known), they were also far warmer, and free of the current that made deep dives into Mante more difficult. "We spent a lot of time looking and going back to this Mexico site," Kristovich says. "Sheck got enthused, because of the depth, and he was very curious about the system. He wanted to come along."

A month later Exley got his wish, traveling with Bowden and Kristovich to the plains of northeastern Mexico for a firsthand look at the *cenotes*. Equipped with trimix, he and Bowden checked out each of the sinkholes in turn, beginning with La Pilita, where they discovered a passage leading southwest at 358 f/107 m. When Zacatón's turn came, they went down on air, accessing the sinkhole via the *Pasaje del Tortuga Muerte*. Kristovich and Gary Walten had previously plumbed the pit at 250 f/75 m, and the team had no reason to suspect there might be anything wrong with that measurement; ordinary air seemed adequate for the anticipated depth. But when Bowden and Exley reached 250 f/75 m, the bottom was nowhere in sight. There was a wide ledge, and then a sharp drop into...nothing. Amazed by their find, Bowden stayed near the brink of the drop and let Exley, with his unmatched deep-air skills, push on alone.

There's a photo of Sheck Exley that hangs over Jim Bowden's desk, taken

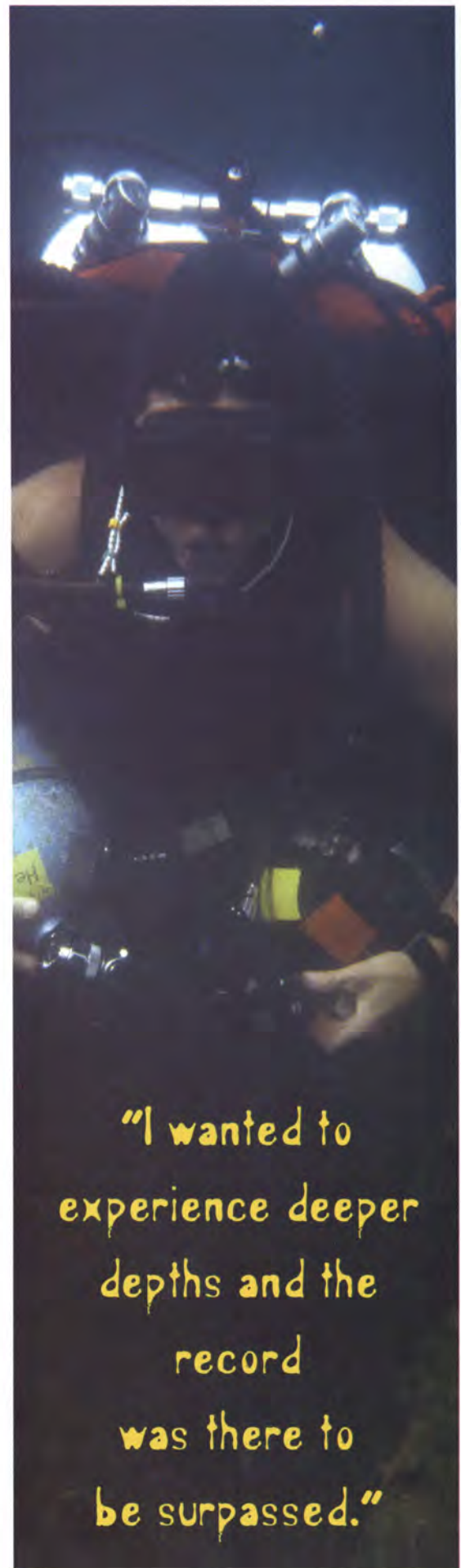
just after he surfaced from his first dive in Zacatón. Chest-deep in the water, a broad grin spreading under his dark mustache, he holds up four fingers—one for every hundred feet of depth he'd gone to. Not only had he not reached the pit's bottom after diving 407 f/121 m, he hadn't even been able to *see* the bottom. He and Bowden were ecstatic—"like little kids who'd just gotten a lifetime supply of free ice cream for a Christmas present," Kristovich remembers. But the best was yet to come. The next day, when Bowden, Exley and Kristovich came back to re-plumb the *cenote*, they watched in awe as the pit swallowed more than a thousand feet of weighted line.

They had discovered a monster.

The effort to reach the bottom of Zacatón was born out of the events of that week in April 1993: trimix dives by Bowden to 504 f/150 m and Exley to 721 f/215 m, nightly campfire bull sessions on the system's possibilities, Bowden and Exley's now-famous vow to return and bottom out the *cenote* together. They wanted to conquer this inverted Himalaya "like Hillary and Norgay did Everest." Deep fever had taken hold of the team, and Kristovich was no exception. "We were sitting around the campfire and I said 'Sheck, what is the women's record?'" she recalls. "Because Sheck held so many records, and he was a documenter. He was a historian for cave diving. And he said 400 feet. I'd already been to 350 by this time. And I said 'Mary Ellen hold it?' He said yeah."

Mary Ellen is Mary Ellen Eckoff, Exley's companion and dive partner, who had set the 400 f/119 m mark in Mante in 1987. Kristovich knew of her reputation and greatly admired Eckoff's accomplishments as a cave diver. Eckoff had never played up her record; to her it was incidental, a byproduct of a dive with very different goals. "I was never interested in setting a record," she says today. "The fact that there was any publicity at all about my dive was all because Sheck wrote it up. I saw myself as doing a dive that he'd already done, and there was absolutely no glory in my mind in it at all."

To a degree Kristovich shares Eckoff's view of depth records. "I try not to call



"I wanted to experience deeper depths and the record was there to be surpassed."

attention to it," she says. And she isn't very comfortable with the notion of a "women's record" in an endeavor where the physical differences between the sexes don't seem to matter much at all. But at the same time, she says, "I wanted to experience deeper depths and the record was there to be surpassed." The women's record would give her a benchmark against which to measure herself. Her own substantial competitive instincts would push her even deeper. "I couldn't go down and dive to 425 and say yeah, I broke Mary Ellen's record," Kristovich says. "There's no way. I would have no respect for that. So I decided that if I was going to attempt a dive that was deep for deep's sake, I was really going to have to push through the record by a long distance. And that's why I set my maximum dive goal on that dive as 550 f / 164 m."

That summer, while they waited for the rainy season to end in Mexico, Kristovich and Bowden immersed themselves in deep-diving physiology. Every day, Kristovich remembers, they hit the books for hours: "Bedside reading and daily reading was Bennett and Edmonds." They used Exley's Dr. X software to cut literally hundreds of decompression tables, making tiny changes to their dive profiles and then crunching the numbers all over again to see what would happen. And they got in touch with experts in hyperbaric medicine, trying to find out what the research community could tell them about how to take open-circuit scuba deep in Zacatón. As it turned out, that wasn't very much. Most of the deep-physiology work focused on



Ann Kristovich and Karen Hohle bathing in the jungle.





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surface-supplied, habitat-supported commercial diving; ultra-deep scuba was an unknown quantity. What *was* known was that there were a lot of ways you could die or get hurt doing it. You could get bent—on nitrogen *and* helium. You could push yourself over the line into central nervous system oxygen toxicity or debilitating nitrogen narcosis. You could be incapacitated by the tremors and visual disturbances of high-pressure nervous syndrome, exacerbated by the rapid descent rates a limited gas supply required. And that same limited gas supply could easily come up short if you changed your breathing rhythm even slightly under the pressures of the great pit.

As a deep explorer in training, Kristovich mentally confronted the dangers of Zacatón on a daily basis. Whatever the tables said, however foolproof the plan, equipment and training, she knew that somebody could die. Then again, that knowledge and the fear that came with it were nothing new for Kristovich. And she'd long been familiar with the process Exley referred to as "addressing our fears."

"The project in Belize, where we worked for two years, the first sump is about 1,100 feet long," she says, when asked whether she ever thought about dying in Zacatón. "[I was] all the way back there, doing the survey by myself. Anything can go wrong. I can't come up, there's no air bells, nothing. And so, yeah, a long time ago [I came to terms with the possibility of death]. As soon as your participation allows you into a realm where you're on your own, then the potential for death rearing its head is there."

As the *Proyecto's* medical officer, she bore the burden of additional knowledge and the responsibility of coping with a possible emergency in the field. The nearest available recompression chamber to Rancho Asufrosa was at Galveston, Texas, a minimum of eight hours away. Lacking immediate access to a hyperbaric facility, Kristovich prepared herself to treat decompression sickness without one. Formally untrained in hyperbaric medicine but seasoned by a four-year surgical residency at Dallas' Parkland Hospital (the "knife and gun club of Dallas" she calls it), she familiarized herself with the use of oxygen, the controversial French-developed steroid therapy, and intravenous fluids. Both she and Bowden came to see aggressive hydration as key to minimizing the dangers of DCS; they planned to replace lost fluids with Gatorade-loaded bota bags staged on the descent line, and an IV at the surface.

By the end of August, Kristovich, Bowden and the rest of the *Proyecto* team were back in Mexico. On September 2, Kristovich made her record-breaking 554 f/165m plunge. Bowden, diving with her, went deeper still—to 744 f/221 m. Neither suffered any ill effects. The way seemed clear for Bowden and Exley to make a try for the bottom by the end of the year.

But nothing ever goes quite as expected in exploration. In late November 1993, Bowden caught the flu while at Zacatón preparing for the one additional deep dive he felt he needed before he and Exley could push

## getting to the bottom of Zacatón

by Jim Kelly

Plunging more than a thousand feet into the eerie landscape of northeastern Mexico, swirling with ghostlike sulfur plumes belched up by geothermal fires, and bearing a name straight out of *The Lord of the Rings* or one of Edgar Rice Burroughs' adventure stories, the *cenote* called Zacatón seems tailor-made for exploration. It also seems ideal for ultra-deep scuba work, with its still waters, 87° temperature, and unmatched 1,080 f/332 m vertical drop.

Zacatón's depth was not originally known to be beyond 1,000 feet. In 1990, Gary Walten and Ann Kristovich, members of Jim Bowden's *Proyecto de Buceo Espeleologico Mexico y America Central*, dropped a weighted plumb line down the *cenote* and measured it at 250 f/75 m. Little did they realize at the time that their plumb line merely rested on a prominent ledge approximately one-quarter of the way down.

The deepest of five contiguous *cenotes* aligned generally east to west, Zacatón was discovered by the *Proyecto* in 1989, as the team was exploring and surveying the Nacimiento Santa Clara cave system.

They returned in April 1990 to search for passageways connecting holes. In May, Jim Bowden and Walten found one, a 600 foot passage leading from El Nacimiento at the western boundary of the ranch, which emerged at a depth of 26 f/8 m in Zacatón. They surfaced and encountered the splendid entrance to Zacatón: a circular pool, 380 feet in diameter, and 70 feet below the surrounding land.

The *Proyecto* began an intense focus on Zacatón in April 1993, when Bowden and cave-diving pioneer Sheck Exley made their first mixed-gas dive into the sinkhole and the team discovered its true, monstrous dimensions.

In fifty-one diving days over the next year, the *Proyecto* managed 316 dives, including seven sub-500 f/149 m trimix dives between Bowden, Exley and Kristovich (who set the women's depth record at 554-f/165 m), all in preparation for a joint attempt on the pit's bottom by Bowden and Exley.

They decided to dive on independent descent lines to avoid possible interference during the very rapid descent. Exley used trimix 6/29 (6% O<sub>2</sub>, 29% He, balance N<sub>2</sub>—note that this can also be referred to as heliair 6) as his bottom mix, and Bowden, trimix 6.4/30.6, and each configured similar tables with Dr. X software.

The attempt to reach the bottom ended tragically in April 1994, when Exley failed to surface. A gas shortage forced Bowden to turn back at 925 f/276 m, giving him the world scuba depth record, but denying him his primary goal: a glimpse of Zacatón's floor.

Despite Exley's death, Bowden remains determined to bottom out the *cenote*. He and his team were back in Mexico this spring, exploring sub-300-foot passages in neighboring sinkholes and working on deep-trimix techniques and new gear configurations. One additional piece of equipment, a small habitat for decompression, has yet to be fabricated; it should be ready by this Fall, when Bowden plans to make his next try for the bottom of Zacatón.

for the pit's floor. His bottles already staged, his team ready to go, Bowden suffered through a week on decongestants, "shivering in his tent," as he puts it. Eventually impatience got the better of the 53-year-old caver. Not entirely recovered, and not taking proper account of his dehydrated state, Bowden went ahead with the dive. He broke 800 feet—and returned as Kristovich's first DCI patient. "Once they hit the surface, Karen [Hohle, Bowden's safety diver] called out, 'He's bent!' And at that point you could hear Jim groaning," Kristovich says. "He had multiple joints—both shoulders, both knees, both hips, both arms. Really stabbing, excruciating pain. Really, really bad... We got him out of his stuff, and his color was poor—he was really cold-looking, so he had that blue, purple color of being cold, but also very pale, like people who are getting ready to get shocky on you. Really in pain."

Kristovich put Bowden on 100 percent oxygen and an IV, dosing him with the steroid Decadron. By the next morning the injured diver had improved markedly—after going through three bags of intravenous fluids, supplemented by intense oral hydration. When Kristovich took him back into the water for a recompression dive, Bowden's symptoms abated almost completely, leaving him with only a memory of the agony he had suffered. Still determined to see the bottom of Zacatón, he had been offered a foretaste of just what that might cost.

Four months later the *Proyecto* returned to the Rancho Asufrosa, ready to go for broke. In the preceding year, team members had dived past 500 f/149 m in Zacatón five times, and Bowden himself had racked up more than 30 dives deeper than 300 f/89 m. Making heavy use of La Pilita as a training site, Kristovich had put Bowden through intensive deep-air proficiency exercises to build his narcosis tolerance. Accompanying him to the *cenote's* bottom on trimix, she posed him hypothetical problems printed on flashcards, and graded him on his response. Good performance while under the influence of narcosis was critical to the dive's success; Bowden would be operating with an equivalent narcotic depth of 330 feet in an effort to avoid the effects of HPNS. Less than six months before, diving to 863 f/257 m at Bushmansgat, South Africa, Exley had noticed progressive symptoms of the mysterious high-pressure malady as he went past 750 f/224 m—his entire field of vision had filled with small congruent circles, a stinging

sensation erupted all over his skin, and tremors shook his body wildly. Something that debilitating, on its own or in combination with another problem, could spell disaster in Zacatón.

On April 6, 1994, after rigging two descent lines and dozens of stage bottles, with Ann Kristovich, Karen Hohle and Mary Ellen Eckoff standing by as support divers, Bowden and Exley dropped away from the surface, bound for the bottom of Zacatón. Each carried back-mounted doubles and a pair of side-mounted tanks, and planned to inflate his BC from his bottom mix. Exley also packed an air-filled stage bottle that he would clip off at 290 f/86 m when he made the switch to his travel mix; Bowden, not wanting to slow his descent, chose to start out breathing from a 15-cubic-foot pony bottle kept on his back. Because of the difference in their dive profiles, Bowden quickly lost visual contact with Exley. Still, free-falling into the black at 100 feet per minute, he felt good—better than on his previous dive, he says. Between 750 and 800 f/224-238 m he slowed up to minimize HPNS, and was rewarded with just the barest flutter of nervous tremor.

So far, things had gone just fine. But at 900 f/268 m, Bowden got the first in a series of nightmarish surprises. A gauge check showed his trimix 6.4/30.6 bottom mix down to just over 1000 psi, 800 psi less than planned, and only 500 psi above the point where his regulator, working against an ambient pressure close to 30 atmospheres, would no longer be able to deliver gas. Immediately, he began inflating his BC (consuming more precious bottom mix in the process), bringing his descent to a stop at 925 f/276 m. Ascending to his first decompression stop at 450 f/134 m, Bowden watched his gas supply dwindle. He had virtually exhausted his two side-mounted tanks—one containing bottom mix and the other a trimix 10.5/50 travel mix—by the time he reached his first stage bottle, at 350 f/104 m. And there he got his second surprise: the stage bottle's regulator went into free-flow when he turned it on, wildly spewing bubbles each time Bowden opened the tank's valve. With eight minutes of stops scheduled before reaching the next bottle at 300 f/89 m, Bowden fell back on a technique he'd practiced but hoped he'd never need—using the tank valve as a manual air control, opening and closing it with each breath. Blurring through the stops on his schedule and trying to compensate with

a longer hang at 310 f/92 m, Bowden made it to the next stage bottle. Now he was in familiar territory.

But what Bowden refers to as the "fickle finger of fate" had one more surprise in store for him. He got his first hint at 130 f/39 m, as he switched from air to EAN 30. The light filtering down from the surface was bright enough to let him see Exley's line for the first time since his descent, and see also what was hanging on that line: Exley's stage bottles, unused. Sheck was still down there somewhere. Bowden's confidence in Exley kept him from the obvious conclusion. The master diver had gone deeper than he, Bowden decided, perhaps even to the pit's bottom. No doubt Exley was still decompressing below.

Nearer the surface Ann Kristovich knew better, and had known for some time. Exley's bubbles had vanished. He would not be coming up alive. Holding back her own emotions, she helped the grief-stricken Eckoff through the *Pasaje del Tortuga Muerte*. Karen Hohle took the bad news down to Bowden, breathing EAN 50 sixty feet below the surface. Stunned, Bowden says he completed the remainder of the dive "mechanically," surfacing after almost ten hours of decompression to take a DCI hit in the shoulder. While he spent the next three days convalescing, Kristovich and Hohle shouldered the task of recovering the team's equipment from Zacatón. On the third day, they pulled up Sheck Exley's body.

It's been a little over a year since the events of that week in Mexico, and Ann Kristovich is discussing their significance over a Sunday buffet lunch at Nell's Steak and Bar B Q in Branford, Florida. Like a good third of the customers in the restaurant, she and Bowden have come to town for the NSS-CDS spring workshop. A few tables away, Wes Skiles, Jim King and Bill Stone are refueling after hashing out the preliminary details of what may become a second Wakulla Springs Project; at the opposite end of our table, a bystander listens while Bowden enthusiastically outlines his plans for another attempt at Zacatón's bottom in late 1995. This time, he's saying, he'll carry far more gas—additional back-mounted tanks for BC inflation, and twin aluminum 100s under each arm, manifolded for convenience. He's also going to do part of his decompression in a "habitrough," a tiny two-person bell just big enough for Kristovich to give him IV fluids. He and Kristovich have been down in

Mexico working on equipment configurations, and so far he's satisfied.

"A caver, a cave diver who wants to explore a new system, wants to see everywhere it goes," Kristovich says. "And where Zacatón goes is deep. But it's still the end of the cave. It's just like a cave that's horizontal, you desire to see where it stops." She pauses for a moment, as if working out what she's going to say, and then plunges in.

"Sheck had had a long-term goal, a desire to dive to a thousand feet... I mean, he started cave diving when he was 16, and he had just turned 45. Six days later he died. It had been a lifetime pursuit for him, the unexplored, the unknown. You are so completely alive when you're exploring something that's unknown. I mean, they talk about the Star Trek syndrome, you know, going where nobody has gone before and so forth. The fact is, as trite as it sounds, it's true. It's an incredible opportunity. It's a rush. Sheck was more alive the moment he died than most people will be ever in their lives. And that's the same experience of life Jim experiences, and the same experience of life I think I've experienced in exploration. In being in an unknown place."

Kristovich still feels the pull of the deep unknown, the force that drew her down into Zacatón. She's looking forward to going back to the *cenote* with Bowden this fall, to help him push for the pit's bottom. That will be it for Zacatón, she thinks, unless the *Proyecto* can borrow a Newtsuit: "We know we're not going to be able to swim around at 1,080 feet." But there's plenty more deep work to be done in neighboring *cenotes* like Caracol and La Pilita, in the Santa Clara system, and at a multitude of other sites Bowden has identified throughout the Sierra Madre Oriental. And while she says she has no further interest in "chasing records," she means to keep pushing into the darkness. If that means going deeper, well, she's ready for that, too. "I think that what I need to do is to continue doing what I love the most, and that's exploring," she says. "If the exploration of certain systems is going to require that I dive deeper, I will. I don't feel hesitant about that."

Spoken like a true explorer.

[Ed: Note that depths are stated in feet of fresh water.]