





# **UNDERGROUND** **in ARABIA**

**John Pint**

Selwa  Press

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First Edition

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Published by Selwa Press

[www.SelwaDigital.com](http://www.SelwaDigital.com)

[www.SelwaPress.com](http://www.SelwaPress.com)

Queries: [Editor@SelwaPress.com](mailto:Editor@SelwaPress.com)

Made in the USA

To Susy who let me lure her into the adobe of the jinns



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## INTRODUCTION

It was thanks to John Pint, a delightfully eccentric professor from the United States, who went to Saudi Arabia some 30 years ago to explore caves, that I had the chance in 2003 to be invited by the Saudi Arabian Geological Survey to spend a week visiting the most interesting desert caves of that country.

Before flying to Jeddah I tried to learn as much as possible about Saudi society, which, of course, is a little bit different from that of “Old Europe.” I was ready to dress much more formally than I was used to in my University, and also to avoid any direct contact with females, no matter their age, but I would never have supposed that the hardest thing for me in that country would be, by far, the simple act of eating.

This was due not to the food, which was always very good, nor to the fact that often we had to use our hand instead of a fork. The problem was that the one hand allowed for eating is the right one, but tragically I am completely left handed! Therefore each lunch or dinner became for me a true nightmare. I tried every imaginable way to keep my left hand out of sight by inserting it into my pocket, by sticking it under my left foot and by tying a heavy stone to it. But it didn't matter, suddenly I would realize that I was placing food in my mouth with the “dirty hand.” Moreover, my total inability to use my right hand resulted in me spreading most of the food most of the time over most of my face. The result was 1) that I often failed

to eat as much as I would have liked, and 2) I was forced to waste lot of water cleaning my face.

But now it is time to speak of karst (limestone riddled with holes) and caves. If Saudi society is a little bit different from that of “Old Europe,” the karst is definitely startling. Believe me, because during more than 40 years I have visited caves in over 70 countries on four continents. In Arabia, searching for caves simply means walking around on a flat, endless, sand plain, with a GPS in your hand because there are no landmarks, searching for a small hole often even less than one meter in diameter. When the entrance of the cave has been found, a new problem arises: to what will we attach the rope and the cable ladder in this “sea of sand?” Our Desert-Cave colleagues solved the problem in a brilliant manner by connecting it to the bumper of the nearest Land Cruiser. In many caves of the world when you go down into a pit you may be completely soaked by cascading water or injured by a falling stone. In Saudi Arabia, no. Instead, you might just be buried under cubic meters of sand, which somehow gets into even the smallest pores of your skin, to say nothing of your eyes, mouth and other holes.

Despite the hot, totally dry, external environment, desert caves are magic places where the climate is pleasantly fresh and gypsum flowers or calcite helictites bloom from walls and ceiling. A true paradise for a caver who would never survive being on the surface, which in the summer is a burning hell.

Surely the best example of Saudi Arabia’s strange cavities is Murubbeh cave, which acts as a gigantic, natural freezer, expelling hot air while trapping cold air. Even a large Bedouin tribe with tents and camels might easily be accommodated in its huge chamber some 40 meters below the surface where all the year round the temperature stays at a steady 16°C (62°), some 8-10 degrees Celsius less than the yearly average external temperature.

My three days of camping in the desert flew by rapidly and smoothly. All was perfectly organized, not only the cave explorations but also food, accommodation and even an exciting “bocce”

tournament over a big sand dune at sunset. I must say that, considering my entire stay in Saudi Arabia, this experience remains, even now, among my four or five most favorite cave expeditions all over the world.

On my way back home, relaxing on the flight from Jeddah to Rome, I thought about all the caves I had visited and all the new experiences I had. I felt extremely satisfied, not only because I had ended up being the very first Italian caver ever to visit the Saudi Arabian karst, but also and perhaps even more because I had the privilege to come into contact with an extremely different society where I met a lot of simpatico persons, some of whom I now count among my true friends.

Grazie per tutto questo, John!

Paolo Forti

Paolo Forte is a professor of Speology and Gemology at Bologna University. His main fields of interest are cave creation and the minerals associated with underground formations. He is the co-author of *Cave Minerals of the World* and the former president of the International Union of Speleology (IUS).



## PROLOGUE

### *The Blowing Hole*

The Summan Plateau – December 1983  
250 kilometers north of Riyadh, Saudi Arabia

The hardpan stretched off into the distance, as far as my eye could see. The only shade anywhere lay beneath a lonely green bush that seemed out of place in this parched and barren desert.

I walked toward the bush simply because it was there. A few moments later I came to a small hole in the ground, about the size of a dinner plate. It had been invisible three paces back. Of course, any hole is of interest to a caver so I picked up a stone to drop into the void.

As I leaned over the opening, I felt a steady breeze bathe my face with warm, humid air. I dropped the stone, but heard nothing and suddenly could see nothing, for my glasses were completely fogged, an extremely rare occurrence in a desert.

More than once in history, a small blowing hole has turned out to be the entrance to a fascinating labyrinth of underground passages. I walked back to our campsite and told my wife Susy and partner Dave Peters, what I had found.

Twenty minutes later, limestone chips were blowing into our eyes as we chiseled away at the blowhole, unaware that on this day, a new era in cave exploration was about to begin for Saudi Arabia, as well as an adventure that would keep us enthralled for the next twenty-five years of our lives.



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## CHAPTER ONE

### *From French Mud to Arabian Sands*

The Jura Mountains, France – August, 1981  
Forty meters from the drop into Pourpevelle Cave

We were all huddled together inside the tent of our leader, Gérard, president of the Spéléo-Club Hautes-de-Senne. Our esteemed chef was holding an old and well-stained sock over a battered tin pot, into which a brown liquid was steadily dripping. The sock was stuffed with coffee grounds and small squares of bittersweet chocolate. Another member of the club poured boiling water into the sock while yet another added the last drops of pastis from a nearly empty bottle.

This was not the mixing of a Druidic potion, but an after-dinner café as only French spéléologues would do it.

“Bonba, we have a little problem,” said Gérard. We had traveled hundreds of kilometers from the Parisian suburb of Clamart, stuffed inside a decrepit Citroën deux-chevaux – together with all our camping and caving gear – to explore the famed Pourpevelle Cave. We had suffered major breakdowns and had driven most of the distance without benefit of headlights, depending entirely on a caver’s flashlight, held out the window on the co-pilot’s side, to illuminate the road through the inky darkness. And now, mon dieu! – what did we find at le Gouffre de Pourpevelle but thirty some tents belonging to caving groups

that had come from as far away as Belgium with exactly the same plan as ours.

Ah, but Gérard had not been elected president of the club for nothing. He had a strategy.

“The cave is now full of foreigners,” he said, deliberately not looking my way, “but they are enjoying the cave by day and will exit it by night. We, instead will sleep by day and explore the cave at night – alone – just nous and the cave, as it should be. We go in at midnight.”

Well, by then there was not a whole lot of day left for sleeping, but I got in a few winks before we made our way through shadowy tents to the edge of the great entrance hole and added our rope to the dozens of others that festooned it like party ribbons. A 50-meter rappel brought us into an impressive room beyond which we could enjoy – alone, just nous and the cave – all the pleasure of a typical French gouffre: nearly freezing waist-high water, smooth, wet walls of bare rock utterly bereft of anything interesting to look at... and beaucoup de boue: lots and lots of mud.

From the entrance room we made our way into a rather narrow river passage where we did our best to stay out of the water by walking along narrow ledges on the side walls. This proved to be only partly successful and after slogging along for quite a long time, we all ended up soaked to the waist. Eventually, we came to a hole. “This is a short passage that leads directly to a room with exquisite formations,” someone announced. This news was greeted with great enthusiasm by a new member of our group, a mountain climber who was exploring a cave for the very first time in his life. I too, was delighted because I had yet to see a single stalactite after a year of caving in France.

We crawled through the hole and found ourselves in a wide passage with a very low ceiling. At this point, it was suggested that the fastest way to get to the beautiful room was for us to leave all our cave packs right there at the entrance to this passage

and – thus unencumbered – make a dash for that enchanted inner sanctum that beckoned us from afar. This we did and off we went. However, the roof in this area was just low enough so we couldn't crawl through it on hands and knees, which cavers can do at a pretty fast speed. No, the only way to negotiate this passage was to lie on your side and propel yourself forward with a push of an elbow and a kick of a leg. Now, this would not have been too bad a way to travel because the floor was very smooth, but every once in a while we would come to a wide puddle of muddy water whose temperature was about one degree above freezing. Slip-sliding along, we were in a perfect position to channel the icy water down our necks and backs, which, of course, inspired us to wriggle forward even faster, but – *Helas!* – we never reached that beckoning room of delightful formations because, one by one, our headlamps began to fail and we had to consider the distinct possibility that we might not have enough lights among us for getting back to our packs, which, of course, contained our spare batteries and carbide.

Eventually, we were forced to admit defeat and Gérard reluctantly gave the command to turn back. Once again we found ourselves sliding along the “short” passage on our hips, in and out of icy mud puddles, with nothing to look forward to but plunging into the cold river followed by a hard climb up several cable ladders linked together in the entrance pit.

When we finally hauled ourselves over the lip and stood beneath the summer sky once again, the mountain climber in the group, now covered with mud and dripping wet, turned to us and said, “*Merçi beaucoup, les amis. Zis was my first caving trip and I am quite sure it is also my last.*”

That also turned out to be my last caving trip in France. Tired of dreary, wet weather, I had signed up for a teaching job at the University of Petroleum and Minerals in Dhahran, on the east coast of Saudi Arabia. “I'd do anything for a little sunshine,” I told myself.

## CHAPTER TWO

### *The Good Old Days of Caving in the Desert*

I naively imagined Saudi Arabia to be a vast sandbox where I would never need my helmet, lights and other gear, which I put into a box and stored in the wine cellar, appropriately called cave in French, of a friend in Paris. However, only days after arriving in Dhahran, I received a phone call from Bruce Davis, an old caving buddy from Los Angeles and a fellow member of the NSS (U.S. National Speleological Society). “I’m here in Dhahran,” he announced. “In fact there are three cavers here altogether and we’ve found a local guy who’s going to take us to some very interesting holes out in the desert.”

This informant was Will Kochinski, a wiry adventurer who worked for Saudi Aramco (Saudi Arabian Oil Company) and who had been exploring remote areas of the desert for years with several old-timers who had taught him many of their tricks for survival in one of the world’s harshest climates. In 2003, I interviewed and taped Kochinski on “the joy and terror of caving in Arabia in the early days.” He had quite a story to relate and here it is in his own words.

“In those days, before the GPS, we would find our way around the desert by using the triangulation stations that Aramco had established on various promontories and from these we would know exactly where we were. We would set up a compass and one of the cars would take a direct bearing along the route

and the other person would direct him with hand signals and we would go two or three kilometers, as far as we could, until the car was going to be out of the line of sight and then he would stop along the bearing and we would catch up with him and we'd repeat the process. We could navigate 20-30 kilometers (12-18 miles) on a dead line and that was the only way you could really find these caves because the ones that were not well known or established were often impossible to see until you were right on top of them.

“One of the most difficult to find was Jibu Al Kaliqa, an enormous pit approximately 75 meters across (225 feet)\*, which was cleverly masked by the terrain. There's a 10 to 15 meter drop down to the bottom with cave entrances at both ends. In order to get to the bottom of this pit and most of the others, we built ourselves a rope ladder which was made of several hundred feet of discarded polypropylene rope and we cut 60 or 70 steps out of plywood. Now, the way we secured them to the rope was just by putting a nail through the twist in the rope into the end of the step and then we rolled it up. So if you didn't get killed by the fall, you'd at least get stuck with the nails. Now sometimes, those nails came out, but fortunately, there were so many of them that you could always go to the next step. Still, it was fairly common that you would grab the rope and get stuck by a nail. It was a big, ungainly contraption that took up half the truck and when it was rolled up, it would bounce around and punch holes in everything.

“One of the two caves in Jibu Al Kaliqa was filled with hundreds, maybe thousands of bats, all flying around like crazy. And I remember standing deep in bat guano, climbing around and having a great time until one of my companions, a veterinarian, casually mentioned something about rabies. So I said, ‘What? They might have rabies?’

“‘Oh yes,’ he replied, ‘we've identified many bats with rabies – I'm sure glad I've had my vaccine!’

\* Note: multiply meters by 3 for approximate conversion to feet.

“And after that, it was never quite so much fun to enter the bat cave.”

While Will Kochinski’s rope ladder got him and his friends in and out of shallow pits, it was clearly unsafe for getting to the bottom of several really deep holes they eventually located. Elsewhere in the world, “Single Rope Techniques” had been developed for solving this problem. Speleologists would rappel down specially made nylon ropes and come back up using mechanical ascending devices which would allow them to “rope walk” under their own power and at their own speed. Having no knowledge about such devices, Kochinski and his friends worked out their own system.

“Once, we discovered a deep pit up in the north. It was a tube heading straight down for approximately a thirty meters. This was too deep for our rope ladder, so we rigged a system with an I-beam lying across the cave entrance, to which I’d welded a pad-eye or attachment point. From the pad-eye we suspended a block and tackle pulley system with four pulleys and a sling below the bottom pulley, which we would use to lower ourselves down. And I did that. I started lowering myself down, using this green clothesline that had been quadrupled as it went through the pulley system. But, unfortunately, about half-way down, because of the twist in the rope, the whole assembly took about 20 or 30 turns and froze.

“Well, I couldn’t communicate very well with the people upstairs and I had myself a little problem but eventually we got it sorted out and I continued to head down to the bottom. Another problem was that the clothesline was so thin that it was difficult to grip and after a while it began to slip because my fingers were cramping, but the worst thing was that as I got near the bottom I realized that I had run out of rope.

“So, there I was, holding on to this clothesline which I had now wrapped around my wrist because I couldn’t hold it with my hand anymore and it was completely cutting off the circulation

and I was still about 10 meters from the bottom and it looked pretty rocky down there...

“So I started yelling! I was still spinning at this point and at the same time I was screaming to the people up top through this tube 25 or 30 meters long and they’re saying, ‘What? What? What did you say?’

“Eventually I got them to understand that they had to take the rope and put tension on it so I wouldn’t fall to the bottom. So they started a discussion: ‘Which one is it? Is it this one or that one?’

“Finally, I got to the bottom and I was never so glad to put my feet on the ground in all my life.

“Later, another person came down to join me. Of course, we had to leave one person at the top to hoist us out, otherwise it was going to be hand over fist all the way back up, which would have been impossible. It was very dangerous and very stupid and I would never, ever, do something like that again. Fortunately, when you, Bruce Davis and other NSS cavers arrived on the scene, we learned the proper techniques for using caving rope and jumar-type ascending devices.”



The Early Days of Caving in Arabia. Explorers using a ladder made of polypropylene rope and plywood rungs. "If you didn't get killed by the fall, you'd at least get stuck by the nails."

## CHAPTER THREE

### *In Search of Ma'aqala*

During the ensuing months I visited several desert caves with Will Kochinski and friends. Some of these were horizontal, some vertical, but in none of them did I see a single stalactite or stalagmite. In fact, the most interesting “cave formation” we came upon was a large truck tire jammed between the roof and floor of a room in Abu Sukhayl Cave, some 60 meters below the surface. Saudi Arabia had caves alright, but, like the harsh desert itself, they seemed Spartan, to say the least.

A few months later, something happened that turned this picture upside down. It all began when we bought a used Toyota Land Cruiser from someone at Aramco and discovered a faded, twenty-year-old topo map in the glove compartment. In those days, good maps were just about impossible to come by, and this one was not only accurate, but very detailed, showing a section of the Summan Plateau, some 250 kilometers (155 miles) west of us. The fascinating thing this map revealed was a concentration of dahls around a tiny village on a desolate plain near the edge of the Dahna Desert. Dahl is a Bedouin word for a natural – and often deep – pit that just possibly might provide access to water. The village at the center of all these holes was a place called Ma'aqala.

On paper, Ma'aqala looked like a caver's dream, and I made several unsuccessful attempts to reach it before teaming up with Dave Peters, a biologist with an amazing talent for finding his



way around desolate deserts. One blistering day in April of 1983, we decided to “find Ma'aqala or bust.”

With a five-gallon desert waterbag sloshing behind, and a cooler full of non-alcoholic “Near Beer” sloshing within, our Land Cruiser roared up a beautiful new divided highway leading to the old Trans Arabian Pipeline (Tapline) road 150 kilometers (93 miles) northwest of us. By the time we reached the unpaved town of Na'ariya, it was time to have dinner.

In most parts of the world, travelers are used to stopping at roadside restaurants. I wasn't. It was my first such experience in almost two years of living in Arabia. The reason, of course, was that there had always been one or more women in the party, and, back in those days, anyone introducing a woman into so public a place as a truck stop would have been in danger of losing more than his Diner's Card. (This is no longer the situation. Today a network of good restaurant-motels for the whole family spans the entire country.)

We stepped inside. Instead of oriental rugs and plush pillows on the floor, there were bare tables and chairs. But the walls were plastered with the gaudiest, floweriest wallpaper a trucker could ever wish for. In a nook at the left, we found a small sink with a bar of soap and a box of Tide. “They use the Tide for washing out their mouths after eating,” Dave explained, but I couldn't believe it until I actually witnessed several hearty Bedouin truckers working up a mouthful of suds. Fortunately, as foreigners, we were not obliged to participate in this blend of an ancient custom and a modern detergent.

Dave informed me that a menu would not be necessary. Truck stops served more or less the same thing all year round. “*Kabsa d'zhuzh!*” he shouted to the waiter, pointing, for my sake, to the plates of steaming hot saffron-flavored rice that everyone else was enjoying. On top of each heap of rice, there was either a whole or a half chicken. If you don't specify *nusf*, you get a whole one just for you!

We sat down at one of the long tables and asked for *shai*, which is heavily sweetened tea. Water or Pepsi were the only other choices. Then we dug into our *kabsa*, literally, our fingers doing the work of spoon, fork and knife. Dave had already developed an “asbestos hand” and, in five or six squeezes transformed a handful of the not-so-sticky yellow rice into a lumpy wad which could be daintily tossed into the mouth. I quickly learned to sit on my left hand to keep it out of action while struggling with my right. In Arabia the left hand is only used for things better left unmentioned.

Once we left the Tapline highway, we found ourselves on a rough road heading in the general direction of fabled Ma’aqala. Actually, it wasn’t a “road” in the usual sense, but a series of parallel tracks, one of which had recently been scraped by a grader. The “improved” track was the roughest of all, a kind of rocky washboard, so we kept to the sandiest routes we could find. Amazingly, all the parallel tracks got back together every time the terrain grew difficult. This phenomenon is called a *kula wahed* or all-is-one road. After a while you learn to distinguish the many versions of the main drag from similar roads leading elsewhere.

We continued southwest, through a broken escarpment rich in bright, earthy colors. Soon it was evident that whatever we were following was not the track on our map! Hours later, it took a mysterious jog to the north, and we began to feel a bit concerned. Fortunately, we had just spotted a bedouin tent in the distance, so we decided to seek assistance.

It was a classical camel-and-goat hair tent and all the side panels were up. We approached slowly, to allow the women folk time to hide. Our *salaam aleicum* was answered in kind by the master of the house, who, with a gesture, invited us to enjoy the cool breeze and shade of his tent. So we sat down upon a soft, hand-woven rug, dipping pieces of flat Arab bread into a butter-like liquid called *saman*, and started discussing the road ahead.

Finally we bid our hosts *Fi Aman Allah* (Go in the care of God) and continued on our way.

Many hours of following our noses rather than the map, brought us to a tiny village whose silhouette is dominated by a large mud-brick fortress, a remnant of former glory. We had succeeded. This was Ma'aqala, in bygone days the last source of water for caravans traveling along the Darb Al Kunhari caravan trail and about to enter the red sand dunes of the Dahna Desert.



The Red Sands of the Dahna Desert near Ma'aqala. Under the dunes lie extensive beds of limestone honey-combed with caves.

The first thing we did was to present our credentials to the local Emir (excellent preventive medicine against an unexpected weekend in jail). The Emir was a distinguished, wise-looking man. He wore the same simple dress that all inhabitants of Arabia – rich and poor – have worn since Mohammed taught them the vanity and divisiveness of ostentatious garb. His spotless white, long-sleeved *thobe* reached almost to the ground. His head was covered with a *guttrah*, a triangularly-folded square of white cloth that protects the wearer from cold, heat and stinging sand. This is held in place by an *agaal*, a loop of black rope, twisted into a figure-8 and folded over on itself. His sandals, too, were the ideal

thing for desert living. Try climbing a sand dune wearing anything else, and you'll soon see why!

The Emir sat us down on the thick carpet of his living-room/office and offered us tea while he and the elders of Ma'aqala carefully inspected our documents. Once they were satisfied, we cautiously produced a photograph of a typical dahl entrance. Were such places to be found around Ma'aqala?

"*Na'am*" (yes), replied the Emir. Such places did exist.

"*Kwais!*" (great!), we said in our halting Gulf Arabic. "Could we visit a nearby one called Dahl Abu Tuqqah, before the sun goes down?"

"But there is no water in it," said the Emir.

"*Kwais!*" we replied.

Thinking we had misunderstood, the Emir again pointed out its lack of water. When we enthusiastically reaffirmed our desire to see that dry hole, he and all the others gave us a look that said, "these are odd men indeed, that would go to visit a well without water." But, in the rapidly descending twilight, we were herded into a pickup and driven two kilometers to Abu Tuqqah, a small hole less than one meter in diameter, in quite solid limestone.

We removed the oil drum blocking the entrance and peered inside. We could see a floor about 8 meters below. Though he was wearing sandals, Dave began to climb down. "No! No!" shouted our companions, "you will die if you go inside!"

That was one of who knows how many ancient myth that we quickly disproved, for the pit was easy to climb, and at the bottom we made a discovery that reimbursed us a hundred-fold for those months spent searching for Ma'aqala. There were two horizontal passageways leading straight back into the darkness and one of them was blowing!

We were dying to explore these passages, and the Emir was insisting we stay the night, but we had already used up 24 hours of the Thursday-Friday weekend, and there was no way we'd be

back in our classrooms Saturday morning if we didn't leave immediately.

Wondering at the incomprehensible foreigners who had driven over 450 kilometers of bone-joggling desert just to spend 20 minutes in a dry well, our hosts bid us *Ma'salaamah*, (Good Bye) and thus ended our first visit to what would become the richest caving grounds in all Arabia.



The Tallest Caver in the World. Speleo-biologist Dave Peters checks out holes on the Summan Plateau north of Riyadh, hoping to find the entrance to an underground labyrinth.

## CHAPTER FOUR

### *“Sister” Explores the Harem*

The following winter we decided to dedicate our entire mid-semester vacation to exploring the caves of Ma’aqala. This time we tried an approach from the south, along an Aramco rig road that led us to an enormous derrick surrounded by a “portable town” swarming with oil men. From there we four-wheeled it across the desert. Bouncing over sandy hummocks called dikaka mixed our food with our equipment as efficiently as a washing machine, and the prickly rock near Ma’aqala nearly made mincemeat out of our tires. By the time we reached the Emir’s house, we were ready to drop, and gladly accepted his invitation to stay the night. We were elated that our new but tortuous route had taken only eight hours instead of 24!

We had been somewhat taken aback when the Emir first greeted us. He was much slimmer and younger than he had been eight months earlier. In fact, he was a different man altogether, the son of the Emir who had previously befriended us. This meant many hours of scrutinizing our documents, drinking tea, asking questions, drinking tea, conferring with the elders, drinking tea, going off to pray and more drinking tea. We would, in actual fact, probably have drowned, if my wife, Susy, had not been along.

A woman, of course, does not sit in the same room with a group of men. Susy, therefore, had been shuttled off to the harem,

the women's quarters of the house. We had to drive her to a side door where, wrapped in her black abaya, she had been utterly swallowed up as hands reached out for her through the partly opened door. Unbeknownst to us, she quickly became the focal point of entertainment for the Emir's wife and the other women, as she laughed, joked and danced for them. Unlike the men, the women soon dispensed with all formalities and renamed Susy "Seestair," one of the few "English" words they knew. Eventually, news of her exploits reached the Emir's ear. If Seestair was such a hit, those two dry-well explorers escorting her might have to be humored after all.

The next morning, after a breakfast of omelettes, olives, cream and cheese, we found ourselves once again in front of the electric heater, still sipping tea and waiting for something to happen. By now the children were getting used to our strange faces and ways. They were the only ones that could freely move back and forth between the men's part of the house and the women's. "Are you Muslims?" asked one little boy wearing a light grey winter thobe. "No, we're Christians," we answered, not at all thrilled to be drawn into such a delicate topic. "Why aren't you Muslims?" asked the boy innocently, and we stared at each other, wondering how we were going to get out of this one with our Me-John-You-Abdullah command of Arabic. The boy's older brother came to our rescue and proved to be wiser than his years: "They might just as well ask you why you're not a Christian," he told the little one. With smiles of relief, we then steered the conversation to more mundane subjects.

The best English speaker among the natives of Ma'aqala was an old man with a grey beard and a sparkle in his eye. He had worked for Aramco years before and had acquired a colorful, if not always practical vocabulary. His favorite expression was "Shut yer mouth!" which he always pronounced with an endearing smile. Sultan was his name (not his title) and he was the one the Emir finally appointed as our guide.

Sultan first aimed us in a southerly direction, along a series of dusty trails that would eventually lead us to a hole called Dahl Hashami. Within a few minutes of leaving Ma'aqala, we spotted five very promising caves which, Sultan informed us, were mere nothings. "I'll show you where there are many, many more!" And, in fact, a few minutes later, we came upon a place which could only be called the Plain of Many Pits. Here one could scarcely walk 50 paces without falling into a hole ranging from one-half to three meters across. "*Wajid dubul!* (Many dahls!) *Wajid! Wajid!*" Sultan repeated again and again. Although we had the impression that none of these was deeper than 10 meters, we were overwhelmed by their number. The whole area was, in fact, much like a giant piece of Swiss Cheese.

Suddenly Sultan announced we had come to Abu Hashami. It was obviously different from anything we had seen previously. For one thing, it was too deep for us to see bottom from its two large openings – each three meters wide – connected by a kind of natural bridge. Sultan explained that this had once been a famous well, but was now dry. He then showed us a set of grooves that had been made by ropes raising water from the well. Although the rim was solid limestone, some of the grooves were deeper than two inches. We wondered how many years or centuries had been required to produce them, and decided that Abu Hashami, and whatever lay at its bottom, would definitely merit a return visit.

Now we were racing northwest, with a long series of sand dunes on our left and flatland, low hills and scrub on our right. Soon we were speeding back the other way. Sultan was having problems locating Dahl Abu Marwah, which was not surprising, since most dahls are invisible three meters away. After a bit of aimless wandering, we stopped near the base of the dunes. There wasn't a cave to be seen anywhere. "Abu Marwah *hallas!* (finished)" announced Sultan, spreading his arms to indicate that the cave was completely buried under the sand. This we found



hard to believe, and, in fact, a few minutes later Dave drove to a low spot surrounded by shrubs, and there in the middle were two smallish holes. "Abu Marwah! This Abu Marwah!" cried Sultan. Relieved that Abu Marwah had so easily been saved from eternal obscurity, we went over a rise and came upon a hole at the bottom of a small, sandy wadi. It was about four meters in diameter. "If the last set of holes were Abu Marwah, what's that?" we asked. "Why that's Abu Marwah, too," said Sultan with a toothy grin, and he leaned over to pick up a smooth piece of milky white chert. "See this? This is *marwah*." And we concluded that Abu, or Father of Marwah was this whole region where chert is found lying on the surface. Only much year later did we discover the Abu Marwah that Sultan had been looking for: a large collapse some 35 meters in diameter, which, unfortunately, doesn't have much in the way of cave passages.

Eventually, we brought Sultan back to Ma'aqala and picked up Susy from the Emir's house, which turned out to be an unforgettable event. I discovered she was not in Ma'aqala, but picnicking out in the desert, which, she told me later, was a favorite treat for the ladies, who normally spent all their time indoors.

We approached each other in an open place, in full view of all the females of the village, who watched us from the top of a low hill. "Ahem," said Susy. "The women have a request. They actually took a vote about this and their unanimous decision was that when we meet, we should kiss...like right now."

Well, we kissed, hamming it up in true Hollywood style, which our audience apparently found delightful because all of them let out with loud ululations – their equivalent of clapping and cheering – which we could still hear as we drove off toward our camp at Abu Marwah. Something tells me they may be talking about that event even to this day.

We set up camp in the little wadi at Abu Marwah Pit Number Two, which immediately became "The Foxhole" due to

the tracks we found at its sandy bottom, eight meters below. This cave and several others we casually discovered while playing Frisbee, turned out to have horizontal passages, every one of which ended up plugged with sand after only a few meters. We decided to call such cavers' disappointments "sand sumps."

## CHAPTER FIVE

### *Dahl Sultan*

It was near our campsite next to the Foxhole that we discovered the entrance to a maze of limestone passages, a cave that convinced us that speleological exploration in Saudi Arabia was well worth the effort. We eventually named the cave Dahl Sultan after the colorful guide who had brought us to this marvelous place of many holes.

The small, blowing entrance hole I described at the beginning of this book was only 100 meters from our tent, in a perfectly flat, featureless plateau, beyond which we could see the silhouette of an *irq*, a long “finger” of dunes topped with whipped-cream-like waves.

After an hour or so of chipping at the ten-inch-wide hole with hammer and chisel, it looked just wide enough to squeeze through. Dave backed his Pajero up until the towing hook was right over the hole. We then attached my home-made cable ladder to it, hoping its seven meters would be enough to get us to the bottom. The only way you could squeeze through the enlarged hole was by letting out your breath and lifting your arms straight above your head. Even then, your helmet would catch as you eased yourself downwards, your feet swinging to and fro on the free-hanging ladder only six inches wide.

Seeing the problem Dave had telling his invisible feet what to do, I decided to rappel down. A few inches below the surface,

I was hanging in space at the top of a large bell-shaped pit that turned out to be nine meters deep, but close enough to one wall to allow us to get off the ladder and scramble to the bottom. The room was seven meters in diameter and – *Al Hamdulillah!* (Thanks be to God) – did not have the sandy bottom that characterized all the other pits we had explored.



Squeezing into the entrance hole of Dahl Sultan.

We began to move along the rough, irregular walls, searching for a passageway. There was a crack on one side and Dave squeezed through a narrow opening in it, almost as tight as the entrance hole above. “It goes!” he shouted a moment later, and I joined him in a small room approximately 11 meters below the surface. There was an opening to the left and another to the right. We went right, squeezed under a low ledge and carefully stood up. We were in a rather large room, maybe four meters high. Grotesque, twisting “arms” of rock reached toward us from every direction. The beams of our flashlights revealed at least three directions in which we could walk. “We’ve got ourselves a real cave!” shouted Dave and we shook grimy hands, slapped

each other on the back and wished for a bottle of champagne, not only to celebrate, but also to quench our thirst, for it was exceedingly warm and humid in that room and we suspected that we were only at the beginning of the tour.

A quick look around told us that this was the sort of cave in which people could easily get lost while blinking. There was nothing smooth or tunnel-like about it; in fact, it had the wildest, most unpredictable surface imaginable, as if we were inside a gigantic, hollow piece of chert. So, the first thing we did was build a cairn out of chunks of breakdown, to mark the way out. There is, after all, no cave rescue team in Saudi Arabia!

The more we looked around this room, the more we saw. On one wall there was a cascade of white flowstone, dripping with stalactites. In a little niche we discovered a collection of pure white curlicues that looked as if they had just been squeezed from a toothpaste tube: gypsum flowers! And just above the foot-high entrance, I noticed an oval-shaped object attached to the wall. It was about a foot (30 centimeters) long and at first I thought it was a bird's nest. But a closer look showed it had a chert core covered with carbonates. There were four or five bird-sized holes at odd places on the smooth outer surface. It could have been a freak of nature, but only a few meters away, there was another, smaller one. These "bird's nests" were obviously natural formations, but a type we had neither seen nor heard of before. Eventually, we found a broken half-nest on the ground, and we had the proof that the things are as hollow as they appear to be.

Stalactites! Gypsum flowers! Flowstone! Our heads were spinning because the few existing articles on Saudi caves stated that such things had never been found; findings backed up by the investigations of geologists at the University of Petroleum and Minerals and Aramco as well as pioneer cavers like Bruce and Anna Davis and Will Kochinski. But now we had abundant proof that the caves of Saudi Arabia contained more than

weathered popcorn, which, up until this moment, had been the most spectacular decoration anyone had encountered. There was plenty of that here, too, but we hardly noticed it as we moved back to the entrance to tell Susy the good news.

The next day our little hole was “really blowing” according to the opening entry in my log book:

-The air is perfectly still, and miserably humid, even though the ground is dry. Temperature: 80° F. Every movement starts a river of sweat down my brow. This is definitely a T-shirt cave. Without Dave’s anti-fog spray for glasses, I wouldn’t be seeing any of it.

-We come upon room after room, each more spacious than the last. There are usually several possible ways to go, and almost always the first one we try leads to somewhere interesting. We don’t even bother with the others. Much time consumed piling up rocks so each station will be within sight of the last. We don’t talk about it, but we both realize the consequences of making one error in this maze of passage-ways.

-Almost every room is decorated. One has a stalagmite smack in the middle, standing on a small hill, like a lonely watchtower. On the right there is another stalagmite, a fat one which turns out to be hollow and extremely fragile. It is guarding the tiny entrance to a small room about 3 meters wide. We peer inside and gape at what appears to be a giant pink tulip hanging upside down from the ceiling by a thin stem. A nearby room has no formations, but the entire ceiling is a rich, vibrant red. We move on to discover a fountain of stalactites hanging from above like a chandelier. And here is another gypsum formation: not flowers this time, but long, thin, white hairs that are invisible from a few feet away. The whole area around them is alive with sparkles. In a corner of the next room, we find a lovely white stalactite just touching

a stalagmite – the birth of a column! In another, a lone, squat stump, less than a meter high.

-The passage suddenly gets wider. I thread my way around huge, jagged blocks fallen from the now rather high ceiling. I take another step and feel as if I have just walked out of the cave onto a seashore on a moonless night.

I am standing at the edge of a great stretch of *sand*. And running diagonally across the wide, spotlessly clean expanse is a dry stream-bed cut 10 centimeters into the surface. At the far end of this large room, we find a wondrous sight: a high curtain of flowstone, with a glorious display of stalactites and thin, striped, “breakfast beef,” which is what they call this particular product in Arabia. The formation is white, cream-colored and tan; it is translucent and when we fire the flash through it, the spot thermoluminesces for a few seconds... an eerie green glow.

-I experience a rush of joy at feeling “out in the open.” Helmet and gloves come off and leisurely I set up the tripod, feeling as though I am at the beach, taking time exposures at night. The photos require six or seven flashes from my small unit. We take advantage to make funny shots of Dave watching Dave fighting Dave.

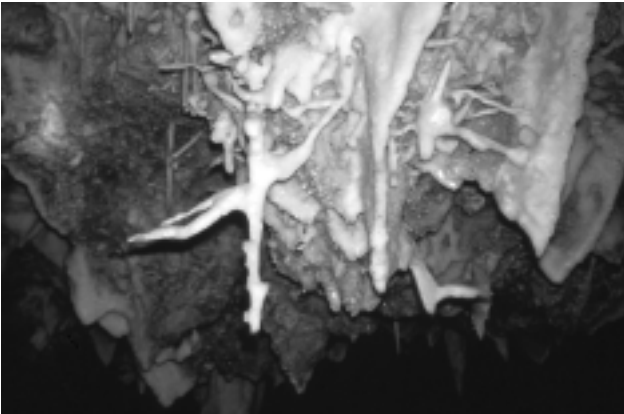
-Running out of time. Told Susy we’d be out before sunset. Reluctantly, we decide to turn back, leaving this beautiful room only partially explored. We allow an hour for our return, hoping we won’t miss any of our rocky markers and signals.

Six minutes is all it actually took. A survey we made later showed that the hours of cautious progress we had made during our first exploration had brought us only 130 meters from the

entrance. Dripping with sweat, we pop out of the tiny entrance hole and excitedly describe everything we've seen to Susy.

On our next visit, Susy and Henri, a French geologist, joined us in our exploration. When we reached the Beach Room, I turned my attention to taking more photos of our most stupendous discovery, while Dave and Henri checked out some of the leads. In the meantime, Susy wandered about admiring the room's many treasures. This was, after all, her very first experience as a "vertical" caver!

About half an hour later, Henri quietly entered the room and tapped me on the shoulder. "Sorry, John, but zees room eez nothing; eet eez merely a TOILET." He and Dave, it seemed, had followed a sandy path out of our "enormous" Beach room and had discovered a long chamber 3 or 4 times its size.

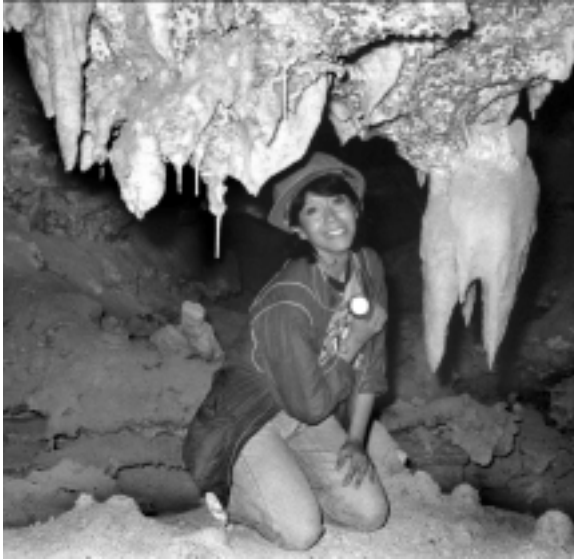


The Ice Dancer. A stunning helictite defying gravity

That room led to another big one and to more passages adorned with bizarre stalagmites, and weird formations like the eerie Fickle Finger of Fate which points to a frozen whirlpool of mud, suggesting the possibility of another level below the present system. But, by far the most beautiful decoration we found was the Ice Dancer – a milky, white helictite, which looked like a skater forever frozen in a graceful leap.



Helictites are among the most bizarre of cave formations. Instead of pointing straight up or straight down, they seem to have been grown in zero gravity, going off in any direction and frequently shaped like spirals or helixes. Exactly why they do this has been the subject of much discussion among speleologists with no theory yet declared the winner.



Inside Dahl Sultan. We chiseled our way into this cave in 1983, discovering formations no one had suspected might be found in Saudi Arabia. Here, Mexican explorer Susy Pint is shown with "The Tooth," one of the first speleothems ever seen in the Kingdom.

### **Lost in the Dark**

On one of our trips to Sultan, we decided to pitch our tents among the undulating dunes of the Dahna Desert. We set up camp in a well-secluded spot and then drove off to the tiny cave entrance. By now, Susy had succumbed to the lure of Sultan's mysteries and had developed into a regular caver.

Down the cable ladder we climbed and became so absorbed in our exploration of new cave passages that we forgot all about

the passage of time. When we surfaced once again, it was dark. I popped my head out of the entrance hole, which was barely wide enough for my shoulders to fit, and found myself eyeball to eyeball with a camel spider. These solifugids have the largest mandibles – in relation to their body size – of any creature on earth. The camel spider seemed to be as surprised to see me as I was to see it, and shot off instantly.

A few minutes later, the three of us were in Dave's car, racing along the track that parallels the Dahna sand dunes. Unfortunately, the landmarks we had noted by day seemed to have vanished by night and we had no idea where our camp was, having deliberately chosen a hidden spot where "nobody would bother us."

Now, Dave Peters prided himself on his navigational skills and with good reason. He had never before failed to relocate a place he had found previously and he was not about to let his reputation go to pieces because he couldn't find his own tent! Therefore, we cruised up and down the track paralleling the dunes until we were all very hungry and even sleepy. Finally, Susy and I suggested giving up the search and resigning ourselves to a miserable night with no food.

At this point, Dave mumbled something under his breath that sounded like, "OK, OK, I give up." But, instead of parking, he started driving directly toward a faint, distant light on the horizon, a light neither Susy nor I had even noticed. We drove in complete silence until we arrived at several large Bedouin tents.

With an abashed look on his face, Dave stepped out of the truck, greeted the first man he saw, and said, "*Minfadlak, wein beitna?*" (Please, where is our tent?)

The Bedu was taken aback for about half a second, then said only one word, "*Yalla!*" (Let's go!) and walked over to his little pickup truck. In the typical fashion of a Bedu guiding a bunch of greenhorns, he took off at high speed and never slowed down for a second as he shot straight up and over a high sand dune

behind his camp. Here, Dave's desert driving skills came into play as he tore after the fleeting pickup, which raced up and down dune after dune in a beeline, until, of course, he jerked to a stop right in front of our tents.

As we repeatedly and profoundly thanked this man, I could see a little glint of amusement in his eye. We had never met, yet he knew who we were and where we were camped. This was just one of many times Bedouins befriended us in the desert, inviting us to eat, bringing us camel's milk in the morning and even insisting we come stay with them "for at least a month."

## CHAPTER SIX

### *Missing While Mapping*

Since Dahl Sultan was our first big discovery, we naturally wanted to survey and map it, so we set up a special trip for this purpose with enough volunteers to form a survey team plus explorers who would investigate where the cave's many side passages led.

One member of our team was Ron Kummerfeldt, an instructor in desert survival, born in Kenya. While the rest of us fussed over compass, clinometer and measuring tape readings, Ron came upon a side passage no one had ever entered. "I'm going to check this one out," he told us. "See you in a few minutes."

The passage was typical of Dahl Sultan: rock projections reached out from every side like thick tentacles trying to catch or trip up the unwary visitor. Ron made his way carefully. Because no other entrance to Dahl Sultan had ever been found, apart from the small hole we had opened with hammer and chisel, he knew he was the first person in history to step into that dark gallery. Then, for some reason, he happened to glance upward. There was a hole in the ceiling above him. Could there possibly be a room up there?

Ron took off his backpack, placed it on the floor, and began to climb. An instant later, his head popped into a low passageway. It looked like he'd discovered a second level to Sultan – a cave above the cave.

On hands and knees, Ron Kummerfeldt crawled forward, hoping the small tunnel might open up into a large chamber. A moment later, it did open up, but not as Ron expected. With a rumble, the floor beneath him gave way and the surprised caver found himself falling into darkness – quite literally, because his headlamp had gone out the moment the floor collapsed. Now, he laid who-knows-where, only slightly bruised, but surrounded by an inky blackness that is never experienced on the surface, even on the darkest night.

As you would expect a survival trainer to do, he remained calm, did not move and methodically took stock of the situation. "My headlamp seems to be broken, but the torch that was in my hand when I fell has to be somewhere around here." Not wanting to move for fear of another collapse, Kummerfeldt collected a number of pebbles and began to toss them in every direction. After a long time, he finally heard a metallic ping. He reached out, picked up his flashlight and made the unpleasant discovery that it, too, had been broken in the fall.

Ron sat there in the dark, waiting for help. The rest of us were so taken up by our survey, that it was only hours later we remembered him, backtracked to where he had gone off and found Ron sitting on the floor of the passage he had originally entered. The moment our lights illuminated the shadows around him, Ron spotted his backpack – which contained the spare bulbs he needed – only a few meters in front of him. This incident alerted us to a Rule of Caving we have paid attention to ever since: never separate yourself from your cave pack.

By May, 1985, over 600 meters of passage had been explored in Dahl Sultan, with countless leads still to be checked, and no end in sight. But for all we know, the entire area we mapped may someday turn out to be, like the Beach Room, "merely a toilet."

## CHAPTER SEVEN

### *The Bottomless Pit*

One day in 1985, we were wandering through Scribner's Canyon near Hofuf, admiring the strange beauty of the canyon walls, which were overhung with a caramel-colored substance that baffled us. "What you're looking at is called duracrust," explained a geologist in the group. "It's formed when capillary action lifts water up to the surface where it evaporates, and in the process toughens the highest layer of the rock. This accounts for the overhanging layer in this canon, and also the mushroom shaped formations in the desert all around here."

Naturally, being conscientious cavers, we asked our informant if he had come across any caves in the course of his desert explorations. To our surprise, he told us the story of a curious hole he had seen somewhere north of Riyadh. Many of the local people claimed the hole was bottomless, he mentioned, while others held there was a river far below and that a tree trunk thrown into it had surfaced in Hofuf, 500 kilometers away.

I might have scoffed at the tree-trunk tale, knowing that desert dwellers wouldn't throw such a valuable find down a deep hole, but what of my informant's claim that a stone-filled Pepsi can had continued clattering and bouncing for a full sixteen seconds after he had dropped it into the void?

At this time I was an English teacher at the University of Petroleum and Minerals in Dhahran, now called KFUPM, but

on weekends, Susy and I would roam the desert, usually in search of caves. So my students were not surprised when I queried them about the bottomless pit near Riyadh and one of them immediately replied that a friend of a friend knew the location of this very place and he would be happy to make arrangements for the trip – How about next weekend?

My student, Abdulaziz Al-Agili, would be our guide. Accompanying Susy and me would be our friend Ron Kummerfeld, the survival trainer, and his dog Cricket, a Vizsla pointer from Hungary. All of us were packed into a new Land Rover that was soon speeding past the sand dunes, escarpments and barren wastes found along the road from Dhahran to Riyadh. Our precise destination was Majma'ah, a town 186 kilometers northwest of the capital. There, on the following morning, we were to meet Aziz's contact who turned out to be none other than the mayor of the town.

At 1:00 AM we rolled into brightly lit, but soundly sleeping Majma'ah and located our meeting place, the second gas station on the left. The only problem was that Abu Nassar, the mayor and our guide, wouldn't be coming until 6 AM. We camped in a dusty spot on the outskirts of town, caught a few winks of sleep and somehow managed to creep out of our tents at sunrise. Little did we know it was going to be one of the longest days of our lives.

While Susy and I prepared coffee, Ron and Aziz went to meet Abu Nassar, a man who was both friendly and very practical. He took one look at our puny cook stove and cold-cereal breakfast, turned around and drove back into town. In no time at all he was back with an enormous barbecue grill, charcoal, two legs of lamb and several large sacks of tomatoes and onions. He had no intention of letting his guests starve on his turf.

We drove out of town for about thirty kilometers and then headed off into the desert until we reached a picturesque, grassy

spot, just beside a low escarpment. "This we call a rawdah," said Abu Nassar. "For us, this is a woods."

It was a rich green meadow with hundreds of low trees, just tall enough to provide shade. We were now more disposed to believe the tale about the tree thrown into the pit, which we assumed was somewhere nearby. But Abu Nassar informed us this little corner of paradise was merely our camping spot (who could argue) and that we should unload our gear and set up our tents. We'd then be off to the hole in no time. This said, he drove away and we unloaded.

Just a few minutes later a Datsun pickup appeared. It was Abu Nassar's friend Sa'ud. "Are you going to leave all these things here?" he asked. "They'll be stolen! Better put them into my truck." Only later did we discover that Sa'ud was the top police official for the area and knew what he was talking about. So we picked up our scattered gear and dumped it into the back of his truck, jumped into the Land Rover and followed Sa'ud along a track that parallels the escarpment.

Suddenly we came upon the last thing we ever expect to see in a desert - a lake! It was only 20 meters or so in diameter and its water was slightly salty. This hole, we learned, was associated with a sudden collapse which occurred while a camel herder and his animals were crowded around a well that used to be where the center of the lake is now. The herder didn't survive and the twenty-foot hole slowly filled with the water that had fed the well.

When we finally came to The Pit, we immediately knew it. First of all, someone had gone to the trouble of bulldozing a dirt rampart all around the place, an enormous circle about 50 meters in diameter. Then, there was the stillness. It felt menacing. We climbed atop the wall of dirt and gazed at an open maw a good 25 meters across. You couldn't really see into it from there or from any safe vantage point, so we cautiously crept to the fragile looking rim, lay down flat and peeked over the edge. We were



peering down into what looked like a great crater with steep, nearly vertical sides. In the middle of the crater's floor, we could see a big, square hole and beyond the hole, nothing but inky darkness.



Dharb al Najem, the Place of the Fallen Star. Saudi Arabia's deepest cave is a single chamber about 100 meters high and wide, home to countless rock doves.

"You're not going down there?" exclaimed Susy. Ron and I put on our best macho fronts, gulped down any second thoughts about how much bigger this was than what we had expected, and began studiously to check each side of the hole for the most advantageous rigging point. Since cavers in Arabia normally tie their ropes to their vehicles, our first plan was to drive over the rampart in order to get closer to the edge. But for some reason, we changed our minds. It turned out to be a wise decision.

We had no idea what lay beyond the ledge overlooking the square hole, so we tied our longest rope of about 100 meters (330 ft.) to the Land Rover's towing hitch and threw just enough out toward the center to get it into the fifty-foot square hole. Then we eased the rest of the rope over the side, hoping the other end would reach the floor of the "bottomless" pit.

We now had an audience of young boys who seemed to have appeared out of nowhere and who gaped in wonder as we put on

our harnesses and snapped on carabiners and various pieces of clanking climbing gear. Next, we padded the spot where the rope passed over the crater rim and put a short line or "tail" alongside, to make it easier to get over the lip on the way back up. Everything had to be perfect, as our lives would depend on this one rope, at least that's the way cavers usually do it, but when Ron suggested we use a belay or safety rope, I couldn't think of any good reason not to, although I've heard cavers say they just get in the way. So, when I leaned over the edge, ready to jump off, a brightly colored mountaineer's rope was attached to the sturdy triangle on my harness.

I took the final step into nothingness and began to fall slowly into the abyss. The rope was sliding through the aluminum bars of my rack, a favorite rapelling device of American cavers, and I glided down to the floor of the crater. I made my way to the edge of the great, square hole and peeked over. I could barely see anything. This lip also got padding and a tail, after which I slipped down into the shadows of the deep void.

I expected to be going down a shaft about twelve meters wide, but I had barely got over the edge when I discovered where I really was. As I descended, the walls began to move away from me and as my eyes got used to the weaker light, I saw that I was hanging in free space at the top of an enormous, nearly spherical room, as wide as it was high. I was the size of a tiny spider coming down through a knothole in the ceiling of a vast basement. Suddenly, I heard a great WHOOSH and the flapping of wings all around me as a flock of grey rock doves shot up out of the hole, indignant at being disturbed in the intimacy of their private chambers.

I continued down, reflecting upon the relative thinness of this big room's ceiling and how lucky we were not to have parked the Land Rover any closer to the crater's edge. Then Ron shouted: "How much further to go? I have about fifteen meters of safety line left." I peered down at the chasm below me. It seemed we

had greatly miscalculated the distance. I was at the top and the bottom was nowhere in sight! I slid down another ten meters, stopped and disconnected the safety line. I began to understand why cavers don't bother with them. I ventured another look at the bottom and my heart skipped a beat. At last I could see the floor, but it looked like the rope did not reach it. I glided down a little more, looked again and seemed to make out a foot or two of rope lying on the bottom. I stopped holding my breath, relaxed and looked about me.

I was halfway down a vast cavern that looked a good hundred meters in diameter, with walls made of crumbly dirt. No limestone or rock of any sort visible. As I lowered myself down, I was very slowly rotating and along the distant walls, I could see doves nesting in long, horizontal fissures which looked ready to fall at the flap of a wing. Most of the floor was covered with rocky rubble, forming a sizeable hill. I assumed this had originally constituted the missing portion of the ceiling. When I finally touched bottom, it felt as if a great weight had been lifted from my shoulders. I was delighted that, by sheer luck, the rope was exactly the length we needed, plus an extra meter to spare.

Then I looked up. This was the most overwhelming moment of the whole trip. The wide gap I had come down through, now appeared like a tiny white square, miles above me. A shaft of sunlight was streaming from it, all the way down to a spot on the floor of this huge room and dozens of doves were soaring in and out of the long, slanting beam. I stood transfixed, unable to believe I had come from 'way up there. Then a few stones came trickling down from the surface. Whether they had been dislodged by the doves or tossed in by the kids up above, I didn't know, but I decided to get away from the center of the room. I detached my rack from the rope and clattered towards the wall, making my way over and around large boulders which obviously had fallen from above. Only now did I notice how cool the place was. I also noticed that my knees were shaking, so I sat down for

a few moments, once again gazing up at the incredible height and size of this cathedral-like chamber.

I made my way to the wall and found myself standing on a smooth, dirt floor. I started walking and, every few steps, would jump back in surprise as a startled dove rose up out of nowhere in a wild fluttering of wings and shot past me. Apparently they felt so secure in this inaccessible spot, they had taken to nesting on the ground. Soon, I came to a muddy area, obviously the lowest part of the pit. The water that had stood here had never risen above an inch or two in depth and nowhere could I see signs of drainage.

So how was this hole formed? This was the question I pondered as I made my way along the almost perfectly round perimeter. If this room had once contained dirt or some mineral, where had it all gone? Maybe the place was just a large version of the collapses we had seen earlier, but how had it come about and how could such a gigantic empty space sustain itself with only dirt walls and ceiling?

I heard a tiny peep of a voice far above me. Ron had just come over the edge and seeing him up there brought the whole room into proper scale. He looked the size of an ant! It was a spectacular sight and I stared in awe.

I couldn't wait to see Ron's reaction when, after making a safe landing, he first looked up at the far-away ceiling and the tiny looking hole he had come through. When he hit bottom, before he removed his harness, Ron slowly turned, taking in the whole panorama. "John this isn't just big, it's BIG."

We continued my tour of the perimeter and came upon one of the few snakes I've ever seen in a cave over forty-some years of exploring. Of course, according to Saudis, not to mention Hollywood, there ought to be at least a dozen snakes per square foot in any cave worthy of the name. This lonesome creature was about two feet long and beautifully mummified. The only other creatures – aside from the omnipresent birds, which we

now estimated to be in the thousands – were prickly little hedgehogs or what was left of them. Their porcupine-like quills were in fine condition, but not the rest, which had been completely devoured by whatever predator had dropped them there. We suspected there were more than just doves living in the crevices far above us.

We made a complete circuit of the well-lit room, peering into every crack for signs of a side passage, but all we found were more flustered rock doves. Had we found a passage, each of us was generously prepared to give the other the honor of crawling into it through the thick layer of bird droppings plastering every nook and cranny.

But no passages appeared and, having done our duty as cavers, we headed back towards the rope with only an occasional nervous glance at the millions of tons of soft dirt being held up above us by forces beyond our comprehension. We picked our way among the boulders, bald tires and rusty basins, carefully stepping on every Pepsi can to see whether it might be full of stones and sixteen seconds' worth of dents. No luck. Though neither of us is an archeologist, we both had a strong suspicion artifacts like these were not going to require carbon dating.

I prepared myself for the trip back up. I put on my harness and snapped three ascending devices onto the rope. Alternately lifting my legs and pushing down with my feet, I began to climb the rope, "frog style." Twenty meters up, I heard Ron utter a word not fit to print. He had just discovered he was out of film. "Susy can throw you one of our rolls," I suggested. Then, as I slowly made my way up, I heard this conversation:

Ron: Hello, Susy!

Susy: What?

Ron: I'm out of film. Would you mind throwing me...

Susy: What?

Ron: I – am – out – of ...

Susy: What?

Ron: FILM. THROW. DOWN.

Susy: What?

You'll have to believe my version of this conversation, because I was the only one able to hear what both parties were saying! Yes, this was a mighty deep hole and the dialogue sounded like two people trying to shout through a brick wall. I made my way up a bit higher and called down to Ron that I would solve the whole problem by speaking to Susy in her native tongue.

John: Hola, Susy!

Susy: What?

John: Tira una película... (Throw down a film...)

Susy: What?

John: Una película. UNA PELICULA!

Susy: ¿Qué?

John: (a few feet higher) PE - LI - CU - LA

Susy: ¿Película?

John: Sí sí sí sí sí sí - ¡Película~ ¡Envuélvela en algo suave!  
(Wrap it in something soft.)

Susy: ¿En qué?

John: Algo suave ... SU - A - VE !

Susy: ¿En un TOMATE? (In a tomato?)

John: ¿Qué? Un tomate? (What? A tomato?)

Somehow, part of the message must have got through, for, a few minutes later, a plastic bag came whizzing through the air and disappeared into the shadows below. Ron's voice was barely distinguishable: "...only slightly exposed, I think..." were the few words I caught. Apparently, the film magazine had exploded on impact and Ron was trying to put it back together in a desperate attempt to get at least one shot of the spectacular view from the bottom. Unfortunately, we had decided to take only one camera down. Ron was to get pictures from the bottom and Susy from the top.

I kept inch-worming my way up until suddenly the safety line was beside me. Although emergency ropes "just get in the

way," I found myself snapping this one to my harness with a sigh of relief. Now I could relax for a few moments to take in the magnitude of this impressive pit and enjoy looking down at Ron, who once again appeared the size of an ant.

With Aziz belaying, I reached the first lip and discovered that the rope my life depended on had been rubbing against a rock throughout my ascent! Apparently, it had slipped off its padding when Ron went over the edge. Part of the outer sheath was gone, but the inner fibers seemed okay. I got up and over the spot in a flash, padded it and told Ron to climb "as lightly as possible."

Then I looked up and saw a sight I had never seen before, a scene I would immediately have described as sheer fantasy had anyone ever suggested such a ridiculous idea. I saw my wife Susy standing in a crack at the very lip of the crater, high above me, leaning over the edge, snapping pictures like mad.

"Hey," I shouted, "I didn't know you had a twin! If that's you, what happened to your vertigo?"

"It's gone," she replied, she who used to clutch the nearest tree with both arms and legs at the slightest hint of a drop four meters away. And though she didn't descend that particular pit, from that day on, Susy has been the most ardent rappeller in our organization and usually needs to be restrained whenever we drive over high bridges, so strong is her urge to jump over the edge.

Susy, Aziz, Sa'ud and his little daughter all welcomed us enthusiastically as we came over the crater rim. They had been languishing in the heat while we had been strolling around the cool bottom of the pit. So we immediately got to work pulling up our ropes and gathering our gear. Meanwhile, I asked Aziz, "Just what is the name of this hole and has anyone ever been down it?"

"The local people call it Dharb Al Najem," he replied. "*Dharb* means a hit and *Najem* is star, so you could call it The Hit of the

Star or The Place of the Fallen Star and you are definitely the first to reach the bottom and come back up alive."

Sa'ud brought us back to Al Nadhim, "The Grassy Place," where we immediately set about the task of roasting the half-ton of meat given to us that morning, as well as cooking eggs, hot dogs (made of beef, of course), potatoes and other foods we had originally planned to eat. Aziz guaranteed he'd be able to eat anything left over. There is something universal about the size of teenage appetites.

All around the oasis, there were other groups of picnickers gathered around smoky fires. It was, after all, a beautiful Thursday night, the end of a long working week. Somehow, word of our exploits must have spread among the barbecuers. A tall, heavy set man came toward us carrying a big metal pot and shouting, "Eat! Eat!" He had noticed we lacked the traditional mountain of rice to accompany our half ton of roast lamb and so, here was a pot of kabsa to help us scrape through. A pot of salad soon followed and, eventually, a visit by our mysterious benefactor's entire party, all of them dressed in flowing white thobes.

One of our four visitors spoke excellent English and well he should have, for he introduced himself as the local Minister of Education. He and the entire group were most interested in the depth and size of the Dharb Al Najem and, of course, the amount of water that might be in it. As we talked, we discovered that the man who had brought us the kabsa was no one less than the regional governor. Another member of the party was the local Minister of information and even the cook turned out to be the local Minister of Water.

In the course of that evening, we had to decline numerous invitations to tea and further dinners. Someone brought us a pail-full of laban, the watery yogurt that is popular as a refreshing drink in this part of the world. The donor was urging us to drink more (We still had three-fourths of a bucket to go), when the first drops began to fall.



In Saudi Arabia, a sprinkle of rain is a real treat, but we had been so busy entertaining guests and stuffing ourselves that all of us had neglected to put up our tents. The rain pattered on as we hurriedly set them up, threw our belongings inside and jumped in to escape what was now a genuine drizzle.

No sooner were we inside the tents than we began to feel that drowsiness that follows a long and strenuous day. Time for bed, no matter whether our watches – so out of place in this natural paradise – insisted that it was only 8:00 PM. After a little while, the drizzle subsided and the stars came out, but Susy was already asleep, Ron was snoring in his bag, stretched out beside his car and Aziz had just crawled into his gently flapping tent. All was quiet, except for an occasional clap of distant thunder.

Thunder? In Saudi Arabia? Yes, it's true that it rains only rarely in the desert – all the more reason for nature to put on a real first-class show. In seconds, the far-off flickers turned into lightning bolts right over our heads. Then the gale hit us full force. First, the northeastern side of our dome tent bulged inward until it touched the southwestern! Then a ton of water hit us like a tidal wave. Both of us leapt up and pushed back the sail-like wall, which was already soaked through and dripping. I reached through the fabric and grabbed two of the fiberglass poles that had been bent almost to the snapping point. We leaned against the bulge and our combined strength was barely enough to keep the wind from turning over the tent, which, of course, we hadn't pegged to the ground. Dome tents don't need it, right?

For ten minutes we held on, rainwater streaming down our arms. Both flashlights had perversely decided to quit on us, but I could feel what was happening to the floor of the tent: sleeping bags, clothes, books, shortwave radio and cosmetics were all floating in a cold, wet, muddy soup. KRRRACKK! A bolt of lightning exploded an inch from our bedraggled shelter, scaring the daylight out of us.

"Abandon ship!" I yelled to Susy. "Grab anything that's worth saving and get it into Ron's car! I'll try to keep us right side up a few minutes more!" Trembling, Susy unzipped the tent door. Outside, the storm was raging. Lightning flashes showed camping gear flying every which way. Ron and Aziz, safely inside the truck, understood our need at once. Ron started the engine and drove closer to the tent, unknowingly squashing the boxes we had stored beneath the Land Rover.

One hour later, four wet cavers and a ton of gooey, flattened equipment, all mixed into one great heap, were rolling in the open desert. It was 9:00 PM. Somehow we found our way that dark and wild night across thirty kilometers of rough wasteland and actually came upon the Majma'ah road. After that, we drove in shifts until, bleary-eyed, we pulled into Dhahran at sunrise, Friday morning. The entire Dharb Al Najem adventure had taken place on one very long Thursday, but some of us didn't recover for a full week. And, of course, we realized that the pit we had bottomed couldn't have been the deep chasm the geologist had spoken of. If we had had our fill of adventure exploring a hole only 100 meters deep, what awaits the lucky cavers who will someday descend the real Sixteen-Second, Stone-Filled-Pepsi-Can Pit?

The Ultimate in Cave Security. The police chief of Majma'ah guards the rope used by John Pint and Ron Kummerfeld on the first descent into Saudi Arabia's deepest cave



## CHAPTER EIGHT

### *The Mournful Wail of the Whistling Teapot*

Riyadh 1994

I left Saudi Arabia in 1985 and spent the next nine years exploring the natural wonders of western Mexico. Still, I could never forget those intriguing desert caves we had discovered and eventually I applied to teach English at an institute in Riyadh, which, by pure coincidence would place me only a few hours' drive from Ma'aqala. My arrival at King Khaled International was something I'll never forget.

I'm standing at the end of a line so long I can't believe I will ever get through immigration. A plane from Pakistan arrived at the same time as mine, crammed with workers who look just as worn out from their flight as I am. If there's air conditioning in this room, I can't notice it and we are all dripping with sweat.

I finally get my passport stamped and clear my suitcase through customs. It's now the wee hours of the morning and I hope the person from the institute who is supposed to meet me hasn't given up and gone home. Then I see a sign with my name on it. I walk up to a tall Arab who is not smiling. "I'm John Pint," I say, "and thank you so much for waiting for me." The man looks me in the eye and extends his right hand, not in greeting, but palm up. "Passport!" he says gruffly and that's all he says.

I hand him my passport and he checks whether I look like the guy in the picture, then spins around and walks away quickly. I attempt to keep up with him, pulling my big suitcase behind me. In the car, I discover that my pick-up man doesn't speak a single word of English – a bit of a surprise since he represents the large English school that has hired me.

At about 3:00 AM, we walk into the lobby of a building. There's a desk and a sleepy-looking clerk who has me sign my name in some kind of ledger. I try to ask him whether this is housing for the Institute, because I'm still not sure I've been picked up by the right guy, but this man doesn't speak any English either and simply hands me a key.

I open the door to my room. That's all it is, just one room. This is where I'm going to live? It's grim. There are no windows. It has an air conditioner right above the bed, but there are no bedclothes. No towel. No toilet paper. No drinking water! Amazingly, I don't feel depressed by all this. All I want to do is turn out the light and sleep. It feels heavenly.

The next morning I go down to the lobby and find a Filipino sweeping the floor. He speaks English and assures me that I am exactly where I'm supposed to be. "You shocked them by arriving without your wife," he says. "They couldn't put you, a lone male, in the Married Housing, where there's an apartment waiting for you, so they put you in a spare room here, where the bachelors are housed. The Institute is only a few blocks from here. Would you like me to show you the way?"

At the Institute, I meet the genuinely friendly Director who, nevertheless, has some bad news for me.

"I know you were promised a thousand dollars settling-in allowance," he says, "but the accountants discovered you've worked in the Kingdom before, meaning you've already received the allowance."

"But that was thirteen years ago."

"I understand. But these are accountants we are talking about."

The Director lends me a little cash from his own pocket, but surviving for a month until my first salary payment requires all my ingenuity. I discover cheap restaurants where the Filipinos go. I learn how to make my own "tubs" for washing clothes out of two discarded paint buckets lined with garbage bags. I scan the city's empty lots for wire coat hangers. I survive.

Several months later I'm receiving a salary and feeling relatively rich. I start hunting for cavers and find three in Riyadh. One is French, one is Puerto Rican and one is American. The latter has a friend who loves climbing. The Saudi Arabian Cave Exploration Team is back in business.

When I told the American caver, mining engineer Dave Canning, about Dahl Sultan and its marvelous formations, we started making plans for relocating it and finally recording its location on a new-fangled gizmo he introduced me to, called a GPS. Joining us on the expedition would be Husam Al Madkhali, a Saudi English teacher at the Institute who had been fascinated by the very idea of caves under the desert, and French cave documentary maker, Christophe Delestre, driving a Russian-made Lada 4x4 in which no one (not even he) had any confidence.

Early one Friday (the Muslim holiday) we headed northeast out of Riyadh hoping we might be lucky enough to relocate our blow-hole on the first try, an unlikely proposition since the sand dunes we had previously used as landmarks would surely have shifted. But, if we could reach this spot just once and get a GPS reading on it, we'd no longer have to waste precious time every trip, just trying to find the hole.

Less than two hours from Riyadh, we reached the little town of Rumah on the edge of the Dahna Desert. All we had to do was figure out how to cross its treacherous sands which consist of extremely long, parallel dunes known as *irqs* or "fingers." At the camel market at the far end of town, Husam picked up an incredible piece of news. Only minutes from Rumah, a new road had been built, a road stretching straight in the direction of

Ma'aqala, a settlement quite close to the cave. Minutes later, we were speeding along a pristine ribbon of asphalt. "We'll be in Ma'aqala in fifteen minutes," exclaimed Dave. Unfortunately, no sooner had these words escaped his lips than he had to screech to a halt. Without warning of any sort, the marvelous highway to Ma'aqala suddenly ended.

There we were in the middle of a flat expanse of extremely loose sand, the home of the scorpion, the hairy camel spider and the *dhub*, a spiny-tailed lizard the size of an iguana that only feels comfortable when the temperature tops a hundred degrees. Unfortunately, this spot, like many other parts of the desert, was also favored by swarms of so called "house" flies which particularly savored crawling about on one's eyes, ears, cheeks and lips. These flies were so numerous that we had to cover our mouths with handkerchiefs when speaking to avoid getting a mouthful.

Our maps showed us that there ought to be an Aramco pipeline road only a few kilometers east of us. So we took a GPS reading at the end of the blacktop and merrily drove off – only to get completely stuck in the sand just three minutes later. Well, I must admit it was only the "amazing Lada" which got stuck, but I should probably mention that Christophe was a complete novice at driving on sand, which requires skills not unlike those learned in climates of ice and snow.

After rescuing the Lada on several occasions, we bounced along the rough pipeline road and finally cleared the last irq of the Dahna. Here we turned right onto the flat, hardpan of the As-Sulb plateau and drove along the edge of the dunes.

### Bedouin Tea Party

Everything looked familiar and everything looked the same, for kilometer after kilometer. It would take a miracle for us to come upon that little hole purely by chance. But – *Al Humdulillah!* as

they say— our wish for a miracle was fulfilled that day. Spotting a Bedouin tent in the distance, we sent Christophe and Husam over to talk to them. Christophe was back in a few minutes, telling us that we had just been invited to tea and soon, there we were, seated in the cool shade with several men and two veiled but uninhibited women, laughing and joking thanks to Husam's instant translations (into both English and French). The tent was of faded green canvas, very sparse, with none of the luxurious hangings and trappings of Hollywood movies. We learned that these bedu had no idea where Dahl Sultan was, as they had just come to that place from somewhere far away and in a month would be off again to who-knows-where. Just as we were in the process of saying our *ma'salaamahs* (good-byes), a pickup pulled up and a young man in a flowing white robe joined us. He had just stopped by for a visit, but of course we asked him about Dahl Sultan.

"That blowing hole?" he said. "Yes, it's right nearby; I know exactly where it is; I'm the one who guided the son of the Emir of Ma'aqala to that dahl and I've even been inside it." This must be one of those coincidences that only happen once in a millennium. Anyhow, off he drove to show us the way... only to stop, after barely a minute, right next to a small opening which was blowing lots of air. "Just thought you'd be interested," commented our guide. Well, I was dumbfounded. Our famous blow-hole was not the only one in the area.

This little hole looked deep, so I tied a flashlight to a string and lowered it down the narrow tube and about a meter below the surface, it appeared to open up. I got the flashlight oscillating and it was soon swinging in a wide arc, touching nothing on either side. At about 10 meters, it came to a rest on a sandy bottom. Prospects for a fine new cave were looking very good.

We took the coordinates for this little hole, which was promptly named the Tea Pot, because without that invitation to

tea we'd never have found this pit, which the British, of course would call a "pot."

Our guide had claimed Dahl Sultan was "right nearby," but we had to drive 13km to get there. That's how far our search had been off the mark.

### **From Virgin to Violated**

At last, I was peering once again down the entrance to Dahl Sultan. It was interesting and maybe alarming to note what had happened to a previously virgin cave over a period of ten years, even though its entrance was unmarked and it was located in the middle of nowhere. The first difference was that the entrance hole was no longer just wide enough to admit an adult of medium build. Someone had worked hard to enlarge it enough for a Santa Claus to fit through. As a result, sand had been trickling in steadily for a decade, raising the floor by well over a meter. We descended our cable ladder, slid down a sandy slope, gingerly passed over a very foul-smelling, "ripe" sheep carcass and entered what had once been a tunnel leading off in two directions. Now it only went to the left. The room that had once been on the right, noted for a large number of hollow "bird's nest" formations covering its walls, was completely sealed up by sand.

The rest of the cave was still accessible, but empty film boxes and many meters of strung-out audio tape told us a sad story about those who had visited the cave over the years. We even found several cracked off stalactites that someone had carried to the entrance room but had apparently forgotten to take out. To remove any doubts about who these visitors were, they had spray-painted their names in large letters all over several walls.

This was particularly hard to take, as Dahl Sultan had been "our baby," but as time went by we saw the same fate befall many other caves in the Kingdom and try as we did, we were never



able to get the powers that be to protect these marvels of the Saudi Underground.

## **Down the Tube**

Having ascertained that Dahl Sultan was still there, though considerably worse for wear, and having determined its location by GPS, it was time to get to the bottom of the vigorously blowing Tea Pot.

On our next trip, I navigated, shouting "left!" and "right" with the GPS unit in my hand as Dave Canning roared over sandy hummocks and between towering dunes until "approaching Tea Pot" suddenly appeared on the screen, accompanied by a loud series of beeps. This seemed odd, because not one of us could see any sign of the little barrel end that had covered the hole last we'd seen it.

"Left – left, steady," I shouted, watching the countdown: 50m, 30m, 10m and finally exactly 00.0m, whereupon Dave brought us to a complete halt.

We looked left and right and saw no barrel. Then I leaned out my window and looked straight down. I couldn't believe it – the hole was right there outside my door! We all let loose a spontaneous cheer for technology. This was, in fact, practically a miracle, because in those days the US military was deliberately distorting the GPS signals received by ordinary, everyday civilians.

I jumped out and removed the sand-filled barrel end from the hole. "Nobody could possibly have stuffed a dead sheep down this one," commented Dave, perhaps a bit prematurely. This brought up the question of whether any of us human beings could actually squeeze through that opening, which turned out to be only fourteen inches wide and, to make matters worse, wasn't straight. We would have to wriggle past a sharp bend in the tube, which was over a meter long, too long to even dream about widening with a chisel.

We attached our cable ladder to the truck and I slipped into the opening. Surprisingly, the kink in the tube caused no problems as gravity helped me past it. But what would it be like trying to get back up?

The cable ladder came to an end nearly a meter above the floor. I jumped off and looked around me. I was amazed. Every other dahl I had been in had wildly contorted, highly irregular walls. But those of this well-shaped room, which was nearly circular, were unusually smooth. There was no water in it, though there surely had been in the past. Now, only a few black beetles scurried about in the sand, trapped forever in the darkness. At last the beam of my headlamp came upon a triangular opening in the wall, maybe 75 centimeters high. The cave continued.



The Whistling Teapot. A strong current of air from this blowhole convinced us we had to squeeze through the tight tube into the cave below, because in Arabia, "little holes lead to big discoveries."

## The Howling

As I prepared to crawl into the small tunnel leading out of this room, I became aware of a very strange sound coming from wherever this passage led. At first, it was like a soft whistle, rising and falling. What in the world was that?

As I moved along the low, narrow passage, which almost seemed coated with whitewash, the weird warble grew stronger until it was a wavering howl that brought visions of graveyards and banshees. Didn't they say that genies – known here as jinns – lived in caves? What lay at the end of the tunnel?

Little did I suspect, as I turned two sharp bends in the unadorned passageway, that at the end of it I would enter one of the most beautiful chambers in the whole country. I turned the last corner and there they were, covering the walls and ceiling: hundreds and hundreds of shimmering, milky-white helictites. This display looked very much like a company of ballerinas, frozen in the midst of an ecstatic dance. To add to the beauty of the scene, the floor of this room was covered with a smooth layer of rich, red Dahna sand which contrasted with the shining formations.

Nothing so elaborate had ever been found in any other Saudi desert cave and I was delighted to point out my find to mountaineer Dave Black who had squeezed through the entrance hole and found me admiring that wonderful display.

There was, however, still the wailing of the banshee to deal with. We continued on, following the spooky noise until we found a small alcove at the very end of the cave. In its wall was a round hole about six inches wide, through which a strong wind was blowing with enough force to produce the strange sound that reverberated through the passages of the cave. It was a sort of natural whistle! However, while one mystery was solved, a new one was born, for beyond the small hole, the beam of my flashlight revealed an intriguing room. Were the 30 meters of passages we

had found merely extensions of a much bigger cave that lay on the other side of that final wall? Was there any way we could get inside?



The Howling. Having passed through the tiny entrance hole, mountaineer Dave Black hangs from a cable ladder listening to a mysterious wailing which reverberates throughout Teapot Cave.

### **The Desert-Cave Self-Extractor**

Unfortunately, there was no time to dally, for it was getting late and we wanted to re-cross the treacherous sands of the Dahna while we still had light. However, in my enthusiasm, I had forgotten one small detail: would it be possible for me to squeeze back up and out of the hole we had come in?

I climbed the swaying cable ladder and soon had the upper part of my body inside the wickedly curving tube. My shoulders

fitted the space entirely and I wondered how Dave Black, who is bigger than I am, had managed to get through it. I continued moving upward until I could see faces up above, peering at me. At that moment, I discovered a major drawback to cable ladders. If you are in a tight enough spot, there is no way you can bend your knee, so it was impossible for me to lift my foot to take another step!

This was a very frustrating experience, being able to see the outside world, yet unable to reach it. Sheepishly, I grinned at Husam and, with some difficulty, raised one arm above my head. "Can you pull me out?" Instantly, several strong Bedouin arms were thrust into the hole – along with a few kilos of sand – and I was lifted straight up into the air, coughing and sputtering, but free.

Dave Black had been extracted in the same undignified but well-appreciated manner. As we pulled up the cable ladder, he suggested that next time we could rig a system of pulleys, by which each climber could extract him or herself, without the need for outside help.

Thus was born "Dave's Autohaul" and it proved to be a true blessing on our further visits to the cave when no Bedouins could be found in the area, our friends having picked up their tent and moved on. Here's how this desert-cave self-extractor works:

First, you drive your vehicle right up to the edge of the hole. So far, this has been possible for just about every pit we've found in Arabia. Now, from the highest point on the back of your truck, you use webbing and carabiners to create a two-to-one advantage (or better) pulley system. Both ends of this system are left inside the tube into which you plan to disappear. On your way back out, all you have to do is wriggle your way up far enough to clip the "weight" end to your harness. Then, your only problem is to get one arm above your head (in the Tea Pot, that's the best you can do). Finally, pull on the other end and up you go.

On this occasion, we surveyed the cave with Mike Gibson, who also produced an unforgettable video on the Tea Pot, the Autohaul and desert caving in sand storms. Since our map of this cave got lost somewhere between Arabia and Mexico, the video is even more valuable as a documentary.

## Sand Sump

Now we were calling the cave The Whistling Tea Pot and thinking about how to get past that wall separating us from The Closet of the Jinn. We decided to try a dig. Christophe Delestre and I would be the excavators while my wife Susy would carry tools and messages from our outside support man, David Canning, who had obviously grown so fond of Saudi kabsa (a mountain of spiced rice often topped with a whole sheep) that not even a liberal coating of Slick 50 could slip him through that little entrance hole. Since most communications got translated in and out of French, English and Spanish several times along the way, Dave on the surface was sometimes more in the dark than the rest of us underground.

Perhaps if we had had some experience in escaping from prisons, we might have known how to dig a proper hole under a wall. We soon discovered you couldn't just go straight down one side and come up the other. The human body simply doesn't bend that sharply, even though we did our best to get Christophe through just such a siphon-like tube. Eventually we accepted the fact that we would have to dig a "bath tub" on our side of the wall, big enough to hold the trunk of a person in a prone position. This meant a whole lot more digging – all by hand, since there was no room for a shovel – and consequently swallowing copious amounts of the sand which was now fiercely blowing through the new hole we had made.

Eventually, all three of us wriggled our way under the wall and into the Closet of the Jinn. The walls of this little room

were covered with flowstone of various colors and strangely contorted formations. It was a great place for a Jinn to hang out, but apparently he wasn't home that day. We did find, though, what may have been his lunch: the head and backbone of a small lamb with flesh still on the bones, and smelling none too nice. Knowing no animal could have reached this room the way we had come, we realized that one of the many small passages leading out of the Closet must reach the surface. In fact, one such hole proved to be the source of the airflow moving through the whole cave, but, like the all the others, was too small for a person to fit through. Where all this air comes from we never learned, but a large cave system may still be awaiting discovery somewhere beyond the mysterious Closet of the Jinn.



Hidden Beauty of Whistling Teapot Cave. Lying on a bed of red sand deep inside the cave, Mike Gibson admires a lavish display of gravity-defying helictites.

## CHAPTER NINE

### *The Secrets of Murubbeh Cave*

Our next project was to look for a “Bat Cave” shown on a rough sketch of the Ma’aqalah area by my old caving partner, Dave Peters. “Do you think you could find it? I asked GPS Wizard Dave Canning. “Humph!” was his only reply, but a pained look betrayed injured pride. A week later, we were back in the desert, peeking over the edge of a deep, dark collapse about 15 meters wide. “Looks like a good place for bats, doesn't it?” said Dave with a triumphant smile.

Picking our way down the steeply sloping breakdown, we found ourselves in a large room 50 meters across. Sunlight streaming from the entrance showed us patches of picturesque red sand beyond a field of broken rocks. The far wall immediately attracted our attention. “It's like a giant tostada floating in the air,” shouted Susy. What she had found appeared to be a thin, lacy layer of gypsum that had separated itself from the wall ages ago. It really did appear to be suspended there and, of course, it was extremely fragile. This Tostada Curtain covered many square meters of cave walls.

By now, Dave and Carol Canning were well into a side passage from which we could hear shouts of “lots of bones” and “recording tape.” As for the bones, there were at least three collections of them and no way to tell how deep the deposits might go. They looked like camel bones to us, but no one could



imagine how or why a whole herd of camels could have or would have negotiated two very long and steep climb-downs (one in complete darkness) as well as the narrow passage leading out of the big room. Without a doubt, an archeologist could have a field day reconstructing what actually transpired in this place and when.

The tape, similar to that left in Dahl Sultan, possibly left there by Dave Peters, stretched off into the darkness, reinforcing our belief that this might indeed be Bat Cave. But where were the bats?

### **Frosted Feathers**

Once again, I heard shouts up ahead. "Incroyable! Extraordinaire!" exclaimed Christophe, while Dave Canning's voice echoed from a small passage on the right: "John, you've got to see this."

Moving forward, I found more walls covered by the gypsum "tostada facade" while in other places, thin wafers of this stuff, maybe 10 centimeters around, were perpendicularly "glued" to the wall or ceiling, that is, sticking straight out from it. How they got themselves into such a position, I could not imagine.

Christophe and Susy's "incroyable" find left all of us gasping. The low ceiling was covered with hundreds of aragonite crystals which resembled feathers dipped in frost. They were only six centimeters at the longest, but the heaped up breakdown permitted us to get as close as we wished.

None of us had ever seen crystals like these before and all our attention was focused on the nine square meters or so of ceiling where this curious crop of "feathers" had grown.

### **Cavers in White Robes**

Then we noticed the fireflies. At least, that's what they looked like at first: three or four tiny pinpoints of light bobbing around

far down the passageway. But after a moment or two the fireflies turned into candles and we could hear the voices of their owners.

Never having encountered anyone but ourselves in a Saudi cave before, we were a bit apprehensive. What was this approaching party after? Would they look upon us as intruders?

As the candle-lit figures drew near, we saw the happy faces of several laughing and joking teenagers dressed in long white thobes and sandals. These boys appeared delighted rather than annoyed by our presence in "their" cave, and we soon learned they were from the nearby community of Shawiah. This cave, a perpetually cool respite from the outrageous heat of summer as well as the cold winds and sandstorms of winter, was their favorite weekend hangout. They called it Murubbeh, or "The Square Place" according to British explorer Andy Thompson, who did an excellent job as translator.

While the Saudi "cavers" enjoyed themselves posing for pictures with the (unveiled!) ladies in our gang, Christophe and I finally made our way over to the side passage Dave Canning had been raving about.

## Hypnotic Sparkles

You shine your light into this tunnel and you're immediately dazzled by the sparkling reflections of light. Both ceiling and floor are made of what seems like gypsum flowstone and stalactites with plenty of thin "tortilla chips" glued on. We carefully maneuver our way through the delicate ceiling appendages, but every footstep we take sounds like an elephant tiptoeing through a bin of broken champagne glasses. At the end of the short passage, Dave invites us to enter two little rooms the size of telephone booths.

Standing up in one of these Starlight Chambers was like finding myself inside a geode. A universe of twinkling lights are reflected from my headlamp: 360 degrees of mesmerizing,

tantalizing sparkles that make me feel I've been beamed to another dimension.



Cauliflower Ceiling in Murubbeh Cave. Just one of this cave's beautiful and delicate features, some of which have already been vandalized. It is one of several Saudi caves that ought to be protected, but aren't.

### **Women Behind the Scenes**

The fragile beauty of Murubbeh Cave reinforced our worries about the future of Saudi Arabia's Dahna Desert Caves. The two decorated caves we had discovered, Sultan and Whistling TeaPot had tiny entrances requiring vertical gear and agility. Murubbeh, instead, had an inviting, walk-in entrance and a large room with natural lighting. How many visitors would it take until the "wrong person" came along with a hammer in one hand and a gunny sack in the other?

Keeping quiet about our discoveries might have benefitted the blowhole caves, but we felt that Murubbeh needed protection, so we put together a slide show and began our search for a government entity that might be willing to start a Cave Conservation project for Saudi Arabia.

I was busy teaching English every day, so Susy started making phone calls and was soon giving presentations to various women's groups. She was assured that women – though they wear the veil and are forbidden to drive – nevertheless wield considerable influence in Arabia, but behind the scenes. Within days, we had an appointment with Hesham Elabd of the Riyadh Development Authority who saw our slides and immediately declared, "I would like to see this cave. When can we go?"

### Celsius 45.1

At this time of the year, temperatures were over 45°C (112°F) and you could fry out in the desert if you ever had an accident. However, we easily found two more carloads of volunteers for a camping/caving trip and a week later, there we were, following Hesham's GPS, well, not exactly back to Murubbeh Cave, but very close. Close, however, isn't good enough when there's nothing in sight anywhere to use as a landmark. Don't forget, before May of 2000, the signals received by the GPS were notoriously and deliberately inaccurate. So, as the sun began to set, the three vehicles in our expedition were frantically driving around in circles trying to find, but not fall into, a hole 15 meters wide. The orientational skills of Dave Canning who wasn't along this time were fully vindicated.

Finally, the sun slipped below the horizon. We had hoped to spend the evening studying and surveying the cave, but it now looked like we'd be camping just anywhere. So near and yet so far, when suddenly we saw a distant set of headlights blinking in the darkness. One of the cars had found it.

So, a combination of satellite technology and good luck allowed us to camp next to Murubbeh's entrance, which, in turn, put us in the right spot at the right time to observe the bats of Bat Cave streaming into the sky. Those clever little creatures were using an unimpressive hole on a side of the collapse that had appeared to lead nowhere. Now we found that the unpretentious opening led to a whole new section of the cave we had never seen before.

Showing off the cave to new visitors brought to light so many details we ourselves hadn't spotted earlier, that suddenly it was 10:00 PM and we hadn't surveyed an inch. Susy and I decided we would at least start the job and made our way to the far end of The Camel Aisle. However, after only two stations, we had to give it up. "I'm freezing," claimed Susy, which prompted me to consult my handy Campmor keychain thermometer. 16°C (65°F) is what it measured.

"What?" cried the people outside when I told them why we'd abandoned the survey. "It's nowhere near that cold in there. Besides..."

"Yes, I know," I replied, "Saudi caves are always a nice warm 26°C (78°F) all year 'round, but this one is cold. Maybe that's because it's twice as deep as the other caves around here."

That night, Susy and I set up our tent on the sandy floor of the Clubhouse, the big room where the local boys used to play cards and such. The very fact that we needed to use our sleeping bags convinced me that my little thermometer had been correct.

## **The Elusive Camel Spider**

Suddenly, in the middle of the night, my eyes popped open. Something was wrong, but I didn't know what. I had heard a few passing bats and even the wings of an owl without fully awakening, but now there was something else. And then I saw it, a faint beam of reflected light barely visible through the door

mesh. It was a car's headlights, I decided, but the night was dead quiet, so they had to belong to one of our own. After a few moments, the lights went out and I drifted back to sleep.

The next morning, over a hearty breakfast, we heard the story of The Great Camel Spider Walkabout.

Three members of our party, whom I will discreetly call X, Y and Z, had found it too warm to sleep and for some strange reason, hadn't wanted to spend the night in the nice, cool cave. At midnight, these three decided to go off for a little walk. By this time there was no light coming from our campsite, so they made it a point to keep in mind which way was back. However, in the course of their wanderings, they came upon a camel spider, a big, hairy creature you rarely see during the daytime. Fascinated, the trio ran this way and that, wherever the wee beastie led them, until finally it disappeared down a hole. Then, of course, came the moment of reckoning: "I say, does anyone recall which way is back?" No one had a clue.

X suggested the "great circle" technique: the other two should stay put while he would walk in a wide circle, communicating with occasional flashes of light. "I'm bound to come near the camp sooner or later," said X.

Y, however, the more he thought about it, was convinced that a certain distant glow corresponded to the correct direction of the camp. "We'll save lots of time if you just walk towards the glow," he told X.

So, X set off for the glow, but after an hour and no sight of camp, headed back towards his occasionally blinking companions. "So much for that theory. Now let's try my idea."

The circular approach turned up the camp's location fairly quickly, but when the midnight hikers finally collapsed on their cots, it was 4:00 AM, just a few minutes after someone had finally noticed their absence and had flashed his headlights, the reflection of which had awoken my Inner Watchman, down inside the cave.

## "Majnoon" in June

Susy's contacts eventually led her to two outstanding women who arranged for us to be interviewed on a children's TV show as well as a popular program on environmental issues. The children were so enthusiastic and had so many questions on caves, conservation and bats, that four shows were filmed instead of just one. A month later, "Children's Choice" was pleading the cause of Saudi Cave Conservation on nationwide TV practically every day and we had high hopes that all the hullabaloo would catch the eye of some VIP who would like to see the Desert Caves preserved for future generations.

As a matter of fact, word did reach a staff member of the Ministry of Petroleum and Mineral Resources who pointed out that they indeed were the ones responsible for such things as caves in the desert. So why not set up a trip so he could have a look at them?

I phoned up Dave Canning. "Hello Dave. Now that it is mid-June and thermometers that only go to 120°F are exploding everywhere, only a genuine madman would want to drive out to the caves, right? Which is why I'm calling you."

Knowing it would be my last chance to show Murubbeh Cave to the man from the Ministry, Dave agreed to a trip and we worked out a timetable that would avoid exposure of our parked vehicles to the full brunt of the noonday sun. "We can drive out late in the day, explore by night – maybe even squeeze in that survey – and head back early the next morning," I suggested.

"I caught that casual aside about surveying," replied Dave, but I must admit I'd like to bring a digital thermometer into the Camel Aisle just to prove the temperature is not 65°F." Next, Dave the Mining Engineer went into an explanation of the Laws of physics governing underground rock temperatures which demonstrated that a few hundred meters this way or that way

doesn't mean a thing, in fact an extremely deep cave would actually be warmer than one nearer the surface. I had to admit that my counter argument ("But it feels like 65°.") didn't carry much weight against the laws of Newton and Canning.

A day or two before the trip, I got a call from the Ministry. Apparently someone had pointed out to them that it would be totally majnoon (crazy) to drive out into the trackless desert in 120° temperatures. So the trip was off. However, when I called up Dave, we discovered that each of us had secretly been looking forward to one last desert sortie and since when did a wee bit of heat ever stop real cavers?

### **A Totally Cool Cave**

So, on June 22, 1995, we reached Murubbeh's entrance early in the evening. A pleasant breeze was blowing and, although it wasn't cool, neither was it anything like the oppressive, stifling atmosphere of Riyadh in the summer. Without asphalt and concrete to retain the heat and buildings to block the breeze, the capital must have been like this in olden times.

We proceeded to the far end of the Camel Aisle and began the survey. After a while, Dave said, "OK, I give up. I've been monitoring the temperature for half an hour and there's no doubt: it's 62°F (16°C) in here." It was a relief to know that my keychain thermometer's reputation had emerged unscathed.

All we needed, then, was an explanation of why this passage, 35 meters deep, is much colder than nearby cavities at both greater and lesser depths. The best theory I've heard was given by geologist/caver Chris Lloyd after seeing a video tape of the cave. He pointed out that the large entrance plus the closed-off lower passage form an ideal cold air trap which would be replenished every winter by the occasional near-freezing temperatures. Chris also pointed out that many formations in Murubbeh are very similar to those of Lechuguilla, a cave in the



USA famed for its beauty, suggesting that sulfuric acid may have played an important role in its formation.

### **In the Hands of the Vandals**

Speaking of formations, our survey brought to light a suspiciously bare spot in the ceiling just next to the aragonite feathers. "Someone was at this with a hammer," exclaimed Dave. "It looks like there was a big gypsum formation up here." Sure enough, a look at the ground below revealed broken pieces of what were once grooved gypsum needles over a centimeter thick. Whatever they removed had been very different from the other formations in the cave, perhaps its crowning glory.

Next morning, just before we left, I went into the Clubhouse for a few last minute pictures and measurements. In the course of my wanderings, I came across two heaps of trash and garbage. Rotting sheep bones and crushed soft-drink cans demonstrated how badly the local people are in need of environmental education. However, in their hands lies one of the most beautiful and fragile natural wonders of Saudi Arabia. Perhaps it is inevitable that the rest of the formations will go the way of the smashed gypsum needles, but I continue to hope that steps will be taken to educate the local people and enlist their aid in protecting and preserving Dahl Murubbeh, their unique and beautiful "crystal palace."

### **The Skull of Najran Anne**

One of the nicest by-products of caving in the desert is camping under a night sky filled from horizon to horizon with more stars than you can ever see anywhere else. Once again, Dave Canning and I were heating up the traditional can of Dinty Moore's in front of the spacious entrance to Murubbeh Cave, also known as B7 or Dahl Shawiah. Our plan was to spend the evening

solving a fair number of the world's problems and the next morning to take up the far more mundane task of completing our survey of the cave. Little did we suspect that the cave had already been thoroughly surveyed years earlier, but that knowledge and much more would only become available to us later on, when the influence of the Internet would dramatically change the story of speleology in the Kingdom of Saudi Arabia.

That night I pitched my tent on the soft sand floor of the large (50 by 50 meter) entrance room of the cave, while Dave braved the chilly winter winds above. During the night I was awakened two or three times by a large white owl flying over me to reach an occasionally peeping baby. Suddenly I heard a voice. It was clearly audible, low-pitched and vibrant, coming from right outside the tent and it spoke what sounded like two words, not in English: "NAJRAN ... ANNE"

I opened my eyes, very surprised. It was daylight, about 6:30 AM and I immediately looked outside the tent, but saw not a soul. From up on the surface, I could just barely catch the sounds of Dave working on breakfast. Neither of us could explain the strange voice I had heard, but more than one Saudi friend has suggested that a genuine jinn or spirit may have been trying to tell me something. After all, jinns are said to inhabit caves, and look what we stumbled upon a few hours later.

Our survey took us through some big chunks of breakdown, past a few piles of bat guano and into a large room some 60 meters long. Everywhere we looked in this room we found bones, all of them covered with a thick layer of dust that suggested they might be very old.

The biggest bones looked like they had come from camels, but there were lots of medium-size ones, countless tiny bones and a surprising number of pointed black gazelle horns about 10 inches long as well as a single porcupine quill, about a foot long. Was that all that remained of the creature?

"It looks to me like this was the lunchroom of one or more predators," said Dave. "Maybe some sort of hyena used to bring its booty in here, but there's been enough water flow to wipe out all the footprints." What the hypothetical bone collector did leave us was an enormous amount of droppings, measuring around 2 x 3.5 centimeters (1 x 1.4 inches). These, like the bones, appear to be very well preserved, probably because this cave, unlike most in the area, is very dry and a cool 62°F .

Some months later, thanks to e-mail, I learned that a team of speleologists from the Austrian Academy of Sciences had found this room and mapped the cave in 1986 and had learned through carbon dating that these animal bones were approximately 1000 years old.

Intrigued by this natural museum, we forgot about the Joy of Surveying for a while and began poking around in the breakdown. There seemed to be yet another level below us. A few moments later, I heard, "John, come over here." I joined Dave at a spot on what seemed to be the real floor of the cave, just a couple meters from the remarkably smooth back wall that enclosed the whole place. Dave just pointed.

There in the sand, nestled between two rocks, covered with the dust of ages, was a perfectly preserved human skull, the jaw bone lying right next to it. There was no sign of a skeleton nearby and we speculated that "the predator" may have dug up a shallow grave somewhere outside the cave and made off with the skull. Was this the final resting place of the head of Najran Anne? Had I actually heard a voice urging me to look for it? If so, this frustrated phantom may never rest in peace because it looked like she had been bisected centuries ago. I'm pretty sure no human power will ever put Annie together again.

A few meters from the skull, at chest height, we found a sort of shelf in the big back wall. It was about three meters wide, close to a meter high and maybe six meters deep with what looked like a continuing passage in the back. On this shelf lay a multitude

of mixed bones of every sort and countless coprolites, the scientific name for petrified poops. "If this isn't the creature's den, I'll eat one of these bonbons," I thought.

At this point we realized we'd have to avoid moving anything near the skull or in the den or otherwise incur the wrath of whichever paleontologists or archaeologists we could convince to come out and have a look at what we'd found. As we walked away, I glanced back at the skull. I may be wrong, but it looked to me like Najran Anne was smiling upon us.

### The Underground Zoo

My next visit to the Chamber of Bones in Murubbeh Cave took place in 1998. Now I was living in Jeddah and "commuting" to Riyadh for caving in the Ma'aqala area. This time Dave Canning and I brought along a vet and an MD, Doone and Tim Watson, as well as dentist-photographer Lars Bjurström.

Relocating the skull proved somewhat tricky due to the multiple levels in this part of the cave and the countless nooks and crannies created by a huge amount of breakdown. However, all we had to do was pull out our newly drawn map and we quickly found Najran Anne's lair. Once we had photographed the skull in situ, Tim examined it and found it was in perfect condition with no sign of having been gnawed by an animal. "The size of the skull suggests that it belonged to a woman," he said. He also pointed out that the zygomas on both sides of the skull were perfectly intact, although they are extremely fragile. Lars noted that the worn condition of the teeth suggested that this woman had lived to a ripe old age. All in all, it didn't seem likely that hyenas had brought the skull into the cave without damaging it in any way.

Nothing else we found that day proved to be human, but Doone recognized the heads and parts of ungulates like donkeys and gazelles, various carnivores like sand cats and foxes as well

as a number of ruminants, including camels, of course. The scat in the predator's den contained lots of fur and in some cases, insect parts. She speculates that hyenas may have lived in the den over long periods of time. As we learned later, experts in Austria were able to positively identify hyenas as the predators that left their tooth marks on many bones.

Another dimension was added to the story when several animal skins were found. These had all been prepared by human hands and one large, beautifully preserved piece of leather found by Lars was the size of a small blanket, very neatly folded into a compact package. This, plus the pristine condition of the skull, suggested that human beings, as well as hyenas, may have inhabited or used this cave at some point.

### **The 2,000-Year-Old Fox**

In time, more animal remains as well as another human skull were found in the Chamber of Bones, but the most unforgettable discovery was the Fox. In 1999 I was hunting for unexplored passages in the Bone Room and found two big ones which had escaped the notice of the Austrian surveyors. The possibility of crawling into a space where no human being had ever gone before is, of course, one of the big attractions of cave exploring and I was thrilled to find that one of these rooms held lots more bones, including the complete head of a gazelle. This was more than a skull, as all the hair and flesh were perfectly intact and “naturally mummified” thanks to the cave’s cool temperature and low humidity.

Swedish explorers Lennart Richt and Lars Bjurström later returned to this room, checked it out thoroughly and discovered on the floor the perfectly preserved body of a canine, eventually identified as an Arabian Red Fox (*Vulpes vulpes arabica*) by the British Museum. This was a truly beautiful creature whose every whisker was in perfect condition. Later we sent a sample taken

from the Fox's bone to the Swiss lab ETH (which had dated The Iceman) and discovered to our amazement, that the mummy was 1,890 years old. The Gazelle Room apparently belongs to a much earlier period in the cave's history. Although we brought all this to the attention of animal experts in the Kingdom, no further investigation of this room – or any part of Murubbeh Cave – has ever been undertaken, even though it might offer insights into the nature of fauna in Arabia 2000 years ago.

Eventually it was decided to remove the Fox from Murubbeh Cave because of the threat of vandalism. Geologist Mahmoud Al-Shanti was given charge of the mummy and carried it out of the cave to our campground. Since, at that time, the delicate animal was thought to be a thousand years old (but actually turned out to be older), he decided to take it into his tent at night for safekeeping.

However, in the middle of the night, "weird noises" woke Mahmoud out of a heavy sleep. He switched on his flashlight and saw that the strange sounds were coming from the Fox. "Suddenly I remembered all those movies about mummies coming back to life," said Mahmoud, "and then I saw the ancient fox begin to shudder and to move!" After his heart skipped a few beats, Mahmoud discovered that a large black beetle had somehow got into his tent, took a liking to the mummy and was apparently trying to carry his prize home.



The 2000-Year-Old Fox. This naturally mummified Arabian Red Fox (*Vulpes vulpes arabica*) was found deep inside the Bone Room of Murubbeh Cave, 200 kilometers north of Riyadh, Saudi Arabia.

## CHAPTER TEN

### *Surprises and More Surprises*

Our 1983 discovery of stalactites, stalagmites and other picturesque formations in Dahl Sultan inspired both professional speleologists, dedicated cavers and just plain spelunkers to start hunting for more caves in the Ma'aqala karst.

#### **The Austrian Survey**

In 1986, the Austrian Academy of Sciences and the King Fahd University of Petroleum and Minerals (KFUPM) launched a systematic, meter by meter search for caves in the area. Ralf Benischke, Gerald Fuchs and Volker Weissensteiner found 58 caves, mapped them and produced over 500 pages of scientific documents on their findings. One of their principal goals was highly practical: to discover the role that limestone caves play in replenishing Saudi Arabia's aquifers. Their findings were illuminating: they calculated that 45% of the area's yearly rainfall reaches an aquifer via the caves. This information would have proven invaluable in planning the development of towns, industry and roads in Saudi Arabia's karst areas and in safeguarding the nation's precious fresh water supply. Karst, of course, is a kind of limestone which is full of holes, like Swiss cheese, where extreme care must be taken – and special laws enacted – to prevent water pollution. Amazingly, the detailed Austrian reports were not



disseminated in the Kingdom at all, but were locked up in a safe and forgotten.

Among the many caves studied by the Saudi-Austrian team were Murubbeh (which they named B-7) and UPM Cave. The former is described above and the latter features a large room measuring 45 by 80 meters, which probably contained an underground lake in the past. This cave also houses a small, but still active gour or rimstone dam and a nest of “cave pearls.”

### **Diving in the Desert**

One of the most extraordinary caves on the Arabian Peninsula is Ain Hit where a long, steep passage offers direct access to an aquifer, where you can literally go “diving in the desert.” Ain Hit is located near Kharj, a town just south of Riyadh. The cave became enshrined in the history books when King Abdul Aziz ibn Saud invited several geologists to have a picnic there in 1938. The geologists discovered that the cave bores right through the layer of anhydrite that caps Saudi Arabia’s oil deposits and this supposedly spurred them on to new discoveries.

At the time of the King’s Picnic, the cave was apparently flooded at the level of the entrance hole. Today, after years of pumping out this 10,000-year-old, but still good to drink, fossil water for various kinds of agricultural projects, one must hike down to over 100 meters below the surface to find the water. The passage is filled with giant blocks of breakdown and has an average slope of 33 degrees, which, according to explorer Chris Killey, is the steepest angle that a rubble pile can reach before it turns into a landslide.

In 1994, Swedish explorer Erik Bjurström (Lars’s brother) began exploring Ain Hit using scuba gear. Here is his description of the first dive.

“I was excited. We had no idea what lay before us. I thought about the current I had seen at the waterholes in Al Kharj and

wondered if we would encounter a similar current here and be swept away. I instructed the lifeline holder to keep the rope tight at all times so we could have signal contact with him. With my heavy diving and photography equipment, it was tricky to get the few steps down to the water, but soon we were on our way.

We went over a ledge and down in a big underwater room with crystal-clear water. With our torches we could illuminate the entire room. The bottom was covered with a very fine silt of dissolved anhydrite, like flour. When stirred up, it made the water like milk. We had to be very careful. In the silt I could see the glitter of beautiful gypsum crystals. We laid out the light sticks to mark the entrance and went on. The cave forked in two directions. Straight ahead it narrowed into a black tunnel, while below it fell away in a narrowing canyon. We could see a black hole where it went out of sight.

We decided to explore the forward route first. My partner led with the lifeline while I followed with a hand on the rope. The shapes of the walls were surreal, seamed with shelves of different strata in the cliff. They were covered with white silt as if it had been snowing. When our exhalation bubbles struck the roof, flakes of loose rock came falling down like snowfall. They did not affect the visibility. But the silt was a different matter. We had to move very carefully, gliding through the water with almost no movements. Neutral buoyancy was imperative. The tunnel narrowed more and more. Finally, after swimming about 150 meters, we struck the roof and came to a dead end.

“We turned back. The line-holder was doing his job well and we had no problem in following the rope as we retreated. We decided to see if the canyon below led further. We swam down in a zig-zag course avoiding the silt-covered shelves. We saw several side tunnels leading in other directions but followed the main shaft. It became narrower and narrower. At last we ended up at an opening only big enough to let one person through. I looked at my depth gauge: 17 meters, then glanced

back the way we had come. I could see the rope had snagged the rock in several places, meaning that we no longer had contact with the line-holder. Also we had kicked up silt that now came rolling down towards us like fog...

“I began to feel uneasy; if we lost visibility now, our situation would be dangerous. My partner had considerably less diving experience and seemed unaware of the danger. The situation rapidly went from bad to worse. Before I could signal to him to turn back, he started to crawl through the opening making violent kicks with his fins. In an instant all visibility had gone. We were left groping in a milky soup. There was no way of judging direction. Only the rope leading upwards, white in the torch beam, offered a chance of returning safely.

“The silt begins to rise.

“Desperately signaling to my partner to turn back, I began a slow ascent, following the rope hand over hand. I saw the gleam of my partner's torch, and knew that he was following. Fear started to slow down my thinking. I knew I had plenty of air left but I started to breathe heavily. I felt I was not getting enough air. I had to lie down and control myself before I did something irrational like leaving the rope for an uncontrolled ascent. I went on and came to a rock where the rope was jammed. I had to put the light aside. In total blindness I loosened the rope with my fingers, entirely by feel.

“We went on. After several similar stops, the rope was finally free and I was back in touch with the line-holder and my feeling of security came back. Soon we found the light sticks marking the tunnel entrance. Our land support team was worried since they had lost contact with us. We were shaken by this incident and I was glad to see the sun again after an exhausting climb back up to the main entrance.”

## Steamy Crawlways

Another notable discovery in the Ma'aqala karst was Gecko Cave, named after a very photogenic and incredibly patient gecko which "posed" for us on a stalactite for about one hour and would actually move up or down, as we required, whenever we tapped him or her on the nose or tail. This cave featured a nice sandy floor: very convenient since 99 percent of the passages can only be visited while crawling on hands and knees.

A special feature of Gecko Cave was the Steam Room at its far end, where the humidity rose to 100 percent, condensing on the pieces of flagging tape we hung from the ceiling for our survey and dripping off of them. A few centuries from now these may have transformed themselves into stalactites.

Equally steamy is Mossy Cave, named for the bright green moss growing all around its entrance: a definite attention getter in the desert. This cave is full of gorgeous stalactites and bizarre rock formations, inevitably viewed through a river of sweat running down the visitor's brow.

Friendly Cave is one of Lars Bjurström's many discoveries. Bjurström decided that the only way to discover beautiful caves in the Ma'aqala area was to systematically go down every single hole and have a good look. "Friendly" in fact, has a rather unfriendly 11.5 meter deep entrance hole, infamous for spilling tons of sand in the eyes of anyone rappelling into it or prusiking, (using mechanical ascenders that allow you to "walk up the rope" at your own speed) back out.

Nevertheless, in comparison with other caves in the area, this one was friendly enough because a short walk, not a crawl, mind you, of 40 meters brings the visitor to a room filled with rows of picturesque stalactites and stalagmites.

## **The Most Beautiful Cave of All**

Now when it comes to beautiful decorations in the Saudi Underground, the winner is probably Surprise Cave, found by Lars Bjurström and Lennart Richt in 1999. Here is Lars' description of how the cave was discovered.

“Early Thursday morning I went to the cave area. It was a very disappointing day. I think I went down 12-15 holes, most of them resulting in nothing. And nowadays I don't give up easily. In the afternoon I was dead tired, bruised and with aching knees. I found one rather big one but ‘hostile.’ By that I mean lots of tight passages, sharp and difficult floor, gray, dusty, dull and with no decorations whatsoever. You can see it is dead. At that time I was ready to give up caving altogether. A sheep herder I met at a hole said: (in Arabic, but I got the meaning) ‘Don't go down there. There is nothing to see and it is dangerous. You are crazy!’ And he shook his head. I almost agreed with him, but I went down. When I came back up, after rather a long time, he was still waiting for me and I could clearly see he was surprised I was still alive. I also saw my first snake, a small one that quickly disappeared.

“On the way to my camp in the sand dunes I found one interesting hole close to Friendly Cave but I decided to check it the next day when I planned to meet with Lennart Richt. He seems very interested and as crazy as me.

“I had a nice, peaceful evening by myself in the sand dunes testing my new car tent which is fixed to my new roof rack and which I can roll out to make almost a Bedouin tent. It worked fine. The sand was very firm after heavy rain and it was really fun to drive up the highest hills with no difficulty. Beautiful evening.

“The next day I met Lennart at Friendly Cave. We had some difficulties to find a cave he had told me about and I stopped at a small hole 90 centimeters in diameter, not much bigger around

than Dahl Sultan, to have a quick peak. I could chimney-climb down approximately fourteen meters and to my happy surprise, to say the least, a nice, beautiful, cave presented itself! It was clean, so big that I could walk upright, had a nice, sandy, floor and with lots of really beautiful decorations. So I named it Dahl Surprise.

I walked as long as I dared but soon went back to get Lennart. We brought all the marking line we had and started to explore it. And it went on and on until we had no more line and did not dare to go further. We were also very tired. But it is a major cave, that's for sure. And friendly! No dead sheep, no really tight passages, except at the entrance, and very beautiful. Also, the temperature is relatively cool. It was lots of 'My God!', 'Sh--!' and 'Wow!' Not to mention 'It continues further!' or 'You have to see this, Lennart!' We stayed for three hours and some very delightful hours they were. All my troubles from before vanished with the wind."

In time, a second entrance to Surprise Cave was found and 652 meters of passages were mapped, with plenty of others still to be investigated.

### **At the Mercy of Vandals**

One of Surprise Cave's surprises is that many of its stalactites are dripping and still active. This is in contrast to the typical formations in Saudi caves which apparently formed and stopped growing a million years ago. Surprise also has old stalactites which were coated with a thick layer of translucent calcite. These have pointy "ducktails" at the bottom, slanted at a 45° angle. On top of that, there are segmented clusters of pure white gypsum crystals of extreme fragility and beauty.

Unfortunately, the combined inventions of the GPS and email have made it easy for great numbers of people to discover the exact locations of cave entrances, even extremely small ones

like the little hole leading into Surprise. Eventually, the coordinates fall into the hand of an occasional “bad apple” who can destroy natural marvels formed over millennia in an instant. Surprise Cave is one of nine outstanding Saudi caves whose entrance we felt should be fenced or gated. We petitioned various government agencies to do this in 2001. A committee was formed to look into the matter and apparently they are still looking. Meanwhile, not a single cave has ever been protected and many have been vandalized.



Surprise Cave. Susy Pint exits the easy-to-miss entrance to 652 meters of explored passages, containing some of the most beautiful formations in Saudi Arabia. Many parts of the cave still await exploration.

## CHAPTER ELEVEN

### *The Great Pit of Albahol, Father of Fear*

Some time ago, a road builder for Saudi Aramco, named Qurian Al-Hajri, was driving through a flat, featureless, hard-pan plain somewhere west of Saudi Arabia's Ghawar oil field, the largest of its kind in the world. Suddenly, an enormous hole appeared before him, almost out of nowhere and by the time he put on his brakes, he was only meters from the edge of a great pit, so deep that he could not see its bottom. Realizing the serious danger this wide cavern mouth represented for anyone crossing the desert on four wheels, Al-Hajri immediately arranged for a rampart of dirt to be erected around the hole, which was so impressive, he never forgot it.

Years later, the story of Qurian Al-Hajri's encounter with the formidable pit reached our ears, as many people in Saudi Arabia knew that we were interested in exploring caves, the deeper the better. Having discovered his office phone number, we decided to give him a call.

"We heard about the huge pit you found in the desert. Do you have the GPS coordinates?"

"I am a bedu. I don't need a GPS. Aramco gave me one, years ago, and I put it in a drawer where it still lies. But I'd be happy to meet you and take you to the hole."

We immediately contacted our caving friends and began planning a visit to Qurian's abyss.



## Hot Pipes and Soupy Fog

So it was that one very cold day in December we found ourselves driving from Al Kharj (just south of Riyadh) toward a GOSP (Gas Oil Separation Plant) not far from the lonely outpost of Al-Haradh. Susy and I had spent the night shivering in our little tent only to be woken up at sunrise by an interminable procession of heavy vehicles lumbering along the network of rig roads that crisscross the Ghawar oil field. But when we poked our heads out to see what was making all the commotion, we were amazed to find ourselves surrounded by a wall of white. A pea-soup fog was the last thing we expected to encounter in a desert.

Precisely at 10 AM, our colleagues, Mike Gibson and Arlene Foss pulled up next to us and a few minutes later, a white Explorer appeared.

“*Kayf al baal?* You are John? I am Qurian. Nice to meet you. *Yalla, yalla.* (Let’s go)” said the wiry man inside. Qurian led us through a maze of graded Aramco roads, stopping occasionally to show us what the oilmen are doing in the area. “This pipe with all the valves on it is called a Christmas Tree. Oil was found here long ago, but only recently did we open the valves to let it out. Now it’s flowing through this pipeline. Can you hear it?”

The pipe was humming, and hot to the touch. In Saudi Arabia the problem is not pumping the oil out, but keeping it in.

Beyond the oil field lay the empty desert whose most salient feature was the lack of features. There wasn’t even much sand to be seen, just a hard, white, flat surface that stretched off in every direction. Again I asked Qurian why he didn’t use a GPS.

“Now I am very sensitive to the smallest details of my surroundings. I have to keep myself razor sharp. But if I used the GPS, I would lose my edge.”

Curious about this man’s outlook, we asked Qurian how much of him was Bedu and how much Aramcon.

“I am doing all I can to keep up the way of life I was taught

as a child. It was a hard life and it made me strong. But today, people have it easy and as a result, they are becoming weak. So, I don't live in Aramco housing – I live in a black, goatskin tent that was hand woven by my mother, in the same lonely spot where my grandfather dug a well long ago. You want to know how strong people were in the old days? I'll tell you the story of how I was born.

“When my mother sensed that the time had come to give birth, she slipped out of the tent and walked seven kilometers out into the desert, to a place where no one could see her or hear her. You see, she was shy and didn't want to disturb anyone. Maybe she was a little embarrassed as well – it was the first time she was going to give birth, you know.

“Well, after a while, I came out into her hands. That's when she realized she had forgotten to bring along a knife to cut the cord with. So she had to bite it in half with her teeth. Then she wrapped me in her head scarf, slung me over her shoulder and walked the seven kilometers back to the campsite.

“There she saw my father standing beside the tent. ‘I have a man for you,’ she said, placing me in his hands. My father was astounded. ‘What? Didn't I see you a couple of minutes ago inside the tent? How is this possible?’

“Now my father is dead and it's my responsibility to care for my mother. And let me tell you, she still takes off a shoe and whacks me when she has a mind to, but when that happens, I thank her for her admonition and I kiss her on the top of her head, exactly like a well-educated child should do.”

With stories like these to listen to, time passed quickly. Suddenly, about twenty kilometers into the desert, the dull white of the landscape was broken by a circle of deep green. It was a round wheat field irrigated by a slowly rotating water pipe. This was obviously the landmark Qurian had been looking for.

“The big hole is out in that direction,” said Qurian through the open car window, pointing west. And off we went, our cars

three tiny specks on a vast white sheet, bright and glaring in the afternoon sun. For most of 50 kilometers I could distinguish no features that might be helping Qurian to orient himself. How did he do it?

A half hour later, we saw a low, dirt rampart breaking the monotony of the flat plain. Standing on top of the rampart, we looked down into the mouth of a huge hole, a great, black scar contrasted against the shimmering white of the desert. No bottom could be seen. Mike and I had figured the hole would be thirty meters deep at the most. Now we were glad we had several hundred-meter ropes along. While we circumnavigated the irregularly shaped chasm, looking for a good rigging point, Qurian pulled out what looked like a briefcase and turned on a satellite phone which he used to contact his headquarters. "Even though we're fasting for Ramadan and our office hours are up, I'm always getting calls. Aramco never stops."



ARAMCO Road Builder Qurian Al Hajri. "They gave me a GPS, but I put it in a drawer. I need to keep my edge."

Then, out of nowhere, a pickup truck appeared and out stepped several bearded gentlemen wearing dark “winter” thobes. They were from Al-Hunay which would seem to be the closest settlement to this hole – maybe 30 kilometers away. They seemed delighted that we had come “all the way from Jeddah” just to visit this unusual spot. “We call this dahl (cave) Abalhol,” they told us, “because it’s BIG!”

“What does Abalhol mean?” we asked.

From their and Qurian's explanation, we gathered that Abalhol was the name of a “very large and very ancient Egyptian.” Only later did we learn that this old Egyptian giant is actually the Great Sphinx of Giza and “abalhol” is short for Abu Al Hol which means Father of Fear.

After a while, our visitors left, including Qurian, who urged us to come visit his tent at Ain Dar, where he had “one hundred camels which Susy will enjoy milking.”



The Gaping Maw of Abalhol. Mike Gibson and John Pint (in the sunbeam) on their way to the bottom of the cave.

## **Hanging in Space**

We then went to take a good look at the pit. The mouth was twenty by thirty meters and a string lowered to the bottom indicated it was around 70 meters (225 feet) below us. This suggested that Abahol might be the fourth deepest cave in Saudi Arabia.

We connected two ropes to one of our vehicles and then threaded the ropes through the bars of our “racks,” friction devices attached to our harnesses, permitting us to slide down the ropes slowly.

About ten meters below the surface, Abahol opens up into a huge, fully illuminated single room, which gives you the feeling that you are hanging in space, maybe the way you would feel if you were suspended from a helicopter over an enormous canyon. As we dropped into the pit, we found ourselves among hundreds of rock doves soaring across the vast, almost perfectly round, room. We landed on the steep hillside at the bottom and scrambled down to where we could gaze at the huge dome above us without fear of getting hit by debris from above. It was a spectacular sight.

About half the cave can be easily reached by walking around the perimeter. The rest is covered by giant blocks of breakdown which look very unstable. We moved along, looking for passages, but for the most part only succeeded in surprising the many doves that were blissfully roosting on the floor. These birds would inevitably pop up right in our faces, scaring us as much as we scared them. Other features at the pit bottom included truck tires, sand-filled soda bottles and the corpses of numerous dehydrated doves.

Having found no significant passages or formations and having thoroughly worn out our welcome with the doves, we prepared our return to the surface. For this we use mechanical ascenders which slide up the rope easily but hold tight when

pulled downward. As I prepared for my climb, I saw Mike stuffing our various bags of photo gear and such into a giant duffle bag.

“Mike, that looks like the Abalhol of all gear bags. Shouldn’t we send up one bag at a time?”

“It’ll be a lot easier to do it all in one haul,” were Mike’s last words as I started up the rope, and unforgettable words they proved to be.

By the time both of us got out of that hole, darkness was fast approaching.

“Quick, let’s get the gear bag up while we have light,” I said. Mike leaned over the edge of the great pit and tugged on the rope. “Argh! I can’t even budge it. Maybe we can pull it up with the car.”

“Wait a minute – our video camera is in that bag! Let me try a cave rescue pulley system we used to use in Mexico.” Well, it took an hour to set up this clever arrangement which uses only three pulleys to give you an eight-to-one lifting advantage. All four of us were then kept busy either pulling on the rope or repeatedly returning various ascenders to their original positions as the weight below slowly rose.

“OK, John,” said Mike, “it’s working, but we have to pull ten meters of rope to lift the bag a couple inches. This is going to take all night!”

To make a long story short, it took us another two hours to haul the heavy bag up and over the lip but when we did it, we declared ourselves qualified and ready to pull the fattest camel in the Kingdom out of the deepest pit, as long as nobody was worried about how long it might take.

Then we walked back to our tents, just as a full moon rose into the sky, lighting up the desert all around us and casting spooky shadows deep into the throat of Dahl Abalhol, which at that moment looked like it truly deserved the name Father of Fear.

## CHAPTER TWELVE

### *The Howling Winds of the Far North*

Just before the 20th century ground to an end, email came to Saudi Arabia. The service was rudimentary and could only be accessed via loudly screaming but exceedingly slow modems. Those modems, however, were good enough for sending low-resolution photos and I decided to start a website about Saudi Arabia's desert caves, even though the Internet itself was still not allowed in the Kingdom. My principal motive was to create a central repository for data on speleological studies carried out in this country over the years, because I realized that most of this work was being done by foreigners who would come and go, taking their maps and findings with them. Each foreigner was, in effect, starting all over from scratch instead of building on the discoveries of those who came before him.

#### **Saudicaves.com is born**

The pictures and stories I sent to my computer-savvy friend Tom Ross in Superior, Wisconsin and he did all the rest. That's how [www.saudicaves.com](http://www.saudicaves.com) was born in 1999.

Our 1983 discovery of Dahl Sultan had proven the geology books wrong. The deserts of Saudi Arabia were rich in beautiful caves well worth visiting and studying. Just before the start of the new millennium access to the Internet was approved in the

Kingdom, Saudicaves.com proved to be a big eye-opener, not only to cave explorers around the world, but especially to Saudis themselves.

We had already experienced the reaction of Bedouins to photographs we had taken of gorgeous formations inside the caves of Ma'aqala. "*Jameel*," (beautiful) they would say. "In what country do you find these marvelous things?"

We would point down the small hole at their feet. "*Hinna, hinna*," we would say: right here, under the ground." And what interesting looks we would get in reply!"

One day in the year 2000, as we used to call it, we got an email from Dr. Maher Idris, vice-President of the Saudi Geological Survey. "I saw your web page," he said, "and I was amazed. We are the ones who should be investigating caves in our country, but what you have found is entirely new to us. I'd like to learn more."

A few days later, Dr. Idris was in our home watching a slide show about caves we had been studying over a period of 17 years. When he discovered I was about to head back to Mexico after a three-year teaching stint in Jeddah, he shook his head.

"No, no, you can't leave Saudi Arabia. We want you to come work for us and to teach our geologists all about caves."

I couldn't believe my ears. Somebody actually wanted to pay me to explore caves? It was a caver's dream come true and before the year was up I was back in Jeddah, training enthusiastic Saudis in cave exploration, safety, conservation and surveying. Life was good.

### Searching for Habikah: Dhubbs and Wolves

Not long after arriving at Saudi Geological Survey, I received an email from another fan of the Saudicaves.com website. "There are several caves near a small place called Habakah in northern Saudi Arabia," wrote Mr. Faisal Al Zamil of Al Khobar. "You should really check this place out."



Just finding Habakah on the map turned out to be quite a feat. It looked like two houses next to a spring, located some 50 kilometers south of the border with Iraq, without even a track leading to the place. But the time was ripe for seeking new caves. In fact, I had spent many weeks providing basic speleo training (in and out of caves) to some fifteen Saudi geologists and they were ready to test their new skills “where no caver had gone before.”

“What’s the nearest airport?” asked Mahmoud Al-Shanti, project leader of the newly founded Cave Unit. This question might seem surprising to typical cavers used to driving for days to visit a likely looking hole, but Saudi geologists, I discovered, were accustomed to flying to the airport nearest their work site, where they would be met by drivers and fully loaded vehicles. Of course, I didn’t object to flying instead of driving, as long as somebody else paid for the tickets.

The nearest airport to Habakah is at the tiny town of Rafha, only 6 kilometers south of the border. Here we met our drivers and headed west along the Trans Arabian Pipeline road until, to our surprise, we spotted a sign reading “Habakah Thataway” in Arabic.

“Aha!” There’s a track after all,” I shouted with glee, only to discover after ten minutes that it wasn’t just one track, but dozens and they weren’t all going the same direction. However, we had a GPS fix on Habakah, so it didn’t really matter.

The area we were traveling through was about as desolate as it gets: flat, powdery hard pan where not even a cactus could grow. The only living creatures we saw for hours were dhubbs or spiny-tailed lizards and these we spotted everywhere, madly dashing for their dhubb-holes at our approach. Occasionally we would come upon a flock of sheep, the shepherd always a wire-thin Bangladeshi with skin as black as basalt. Unlike shepherds in other parts of Saudi Arabia, these men had five or six dogs to help them watch over their flocks. “Why do you have all these

dogs?" we asked one of them. "Wolves!" he answered in the one-word sentence style so common in this part of the world. "And where do these wolves live?" we asked. The reply came instantly: "*Kubuf*, caves."

Eventually we came upon the last thing we expected to see in that stony desert: grass, wide fields of bright green grass. Next, we came to small lake. Buzzing above the lake in great clouds, we found something else we had hardly expected: mosquitoes, the biggest we had ever seen. Beyond the lake, a few houses appeared and we knew we were in Habakah.

We stopped to chat with the only human being we could see, a young man standing in front of a tin shack with the word "STORE" scrawled on it, in English, believe it or not. First, we learned that this place is called Ha-BI-kah, even though it is written Habakah, but vowels don't count for much among Arabic speakers. Next, the young man asked us why we had come to Habikah by such a strange route. "Why didn't you take the graded road? It runs straight from here to the highway." Instead of asking why the highway sign was standing several kilometers east of this fine new road, we brought up the subject of caves.

The young man's eyes lit up. "You like to go into caves? I've been waiting years for someone like you to come along." The young man's name was Sa'ad and he was the son of the local Emir. He began to tell us about two large caves he and his brothers had ventured into for some distance but had been afraid to explore all the way to the end.

### Tayib-Al-Issim Cave

The first cave we visited with Sa'ad and his little brother had a rather small walk-in entrance six meters wide and two meters high. It smelled of wolf, which made our situation almost ludicrous; a gang of men following two boys into the den of the beast. To be honest, we all thought this cave would end a few

steps inside. After it forked in three directions and the entrance faded from sight, Mahmoud broke out the flagging tape. "These are nice kids, but can they find their way out?"

Well, we soon came to some curious formations including a horizontal bridge stretched across the passage and connected to the ceiling by two round columns. Next there was a "giant wart" that seemed to be glued to the wall. The cave looked better with every step.

"Sa'ad, what's the name of this cave?" I asked. He looked surprised at the question, then smiled and said, "Tayib Al Issim" which means something like, "Oh, what a nice name!" It's a phrase which has long been used by local people to satisfy strangers who demand names for places without a name or places that are risquely named. You'll find more than a few Tayib Al Issims on many a map of Arabia.

Forty meters from the entrance we walked into a room whose walls were covered with curious, sausage-shaped formations. Each sausage was tipped with a sort of spiked crown. The next room was also remarkable. Bones galore littered the floor, the remains of animals both big and small. There were also plenty of ancient wolf and hyena droppings. We were in the wolf's den, but fortunately, no wolves were to be seen.

Now the cave opened up into a room some 25 by 35 meters. Here we found stalagmites that had been broken open at the top and appeared to have been "mined" for the soft white powder inside them by persons unknown and for purposes we couldn't imagine. Until this day, I believed all stalagmites had to be solid inside. It has been suggested that maybe these formations are made of gypsum and the powder inside them may be gypsum reverted to anhydrite. A study of the speleogenesis of this cave would probably be very interesting.

At the very end of the cave, we found the bottom of a gurba or waterbag. How long ago had it been since some brave soul had crept deep into this cave to collect precious water?



Black Scorpion Cave. This is the largest of numerous caverns found near Saudi Arabia's border with Iraq. Rumor has it that the two countries are joined by at least one underground passage, though the authorities did not allow us to investigate

### **Black Scorpion Cave**

Kahf Al Aqrab Al Aswad got its name when we first tried to camp next to the entrance. Somebody picked up a rock and found a big black scorpion under it. Somebody else picked up another rock and found that scorpion's twin brother. When a third person found yet another scorpion under yet another rock, we decided to look for a different campsite.

This cave has a big, impressive entrance room 60 by 45 by 10 meters high, well lit by rays of sunlight streaming down the long downslope from the surface. Wandering about the room, you might not even notice a pile of breakdown at one end, but these rocks are hiding a small opening that leads to the rest of the cave. The first time we squeezed through it, we got smeared with fresh proof that wolves still make their home in this cave.

A fifty-meter-long walking passage leads to a big room called the Wolves' Assembly Hall, with a great heap of breakdown blocks running down the middle. Between the breakdown and the long, straight, west wall, lies the biggest collection of bones we've found in Saudi Arabia. On the east side of this room, there's an alcove whose walls and ceiling are covered with swirling gypsum flowers as well as tiny needles. This area is also home to foxes, some of whom may have been the visitors whose eyes we could see every night, peering from the darkness surrounding our campsite. But all of us agreed we'd prefer foxes over scorpions any day. The Wolves' Assembly Hall is eighty meters long and seventeen meters high.

Now the ceiling drops and after a short distance, the passage splits. On the left, there's the Macaroni Room in which an amazing variety of gypsum formations are concentrated on every surface. There are miniature flat-sided swords, fine needles, wildly spiraling filaments, curly flowers, straight, brush-like flowers, cotton-candy balls, belly-button fuzz... well, you couldn't come up with enough names to describe them all, but this gives an idea how easily you could become mesmerized in this passage.

My photographer's assistants were so busy looking and modeling that we didn't realize how many hours had passed until we heard a strange noise coming from just outside the Macaroni Room. We tiptoed out and discovered Abdulrahman, one of the geologists, stretched out on a bed of hard, dried, wolf and hyena droppings, snoring away peacefully. These guys are able to catnap just about anywhere.

The cave continues southward, featuring ever narrower passages, eventually leading to the Majlis al Khafafeesh or Assembly of the Bats, filled with hills of very old-looking guano. In some places water has eroded the guano, leaving a sort of canyon wall which shows strata of different colors and consistencies. Many hundreds of bats, probably *Asellia tridens*, swirl around the room.



Driver-turned-caver Sa'ad al Slimi with one of hundreds of gypsum formations found inside Black Scorpion Cave.

### The Blowing Caves of Munbateh

We soon discovered that the Rafha airport is more often closed than open. We couldn't even get into the airport to find out the flight schedules. Turned away by armed guards at the gate, we headed west along Tapline toward Ar'Ar, which had been the hub for road traffic between Saudi Arabia and Iraq before the Gulf War. As we drove along, the sky grew darker and darker and the wind began to howl. When waves of sand began to wash across the highway, I knew we were in for a shamal, or sandstorm. I had experienced some memorable ones in which visibility was reduced to a few inches from the end of my nose, but in that kind of sandstorm – the kind that can strip the paint off a car – you wouldn't want to open your eyes anyhow.

In this case, we could just barely see the road and crept along through the swirling sand for about an hour, after which the sun came out and the winds slowed down to what we would later call Ar'Ar Standard Windspeed," meaning just strong enough to wreak havoc and make camping miserable.

Walking into any airport in the world with bags and bags of cable ladders, racks and ascenders, not to mention battery rechargers, slave units, anemometers and other electronic gear, inevitably draws attention, especially of the soldiers who must decide whether they are going to let you on the airplane. We found that official letters proclaiming us to be servants of the government carried no weight at all with the military, but when we opened a folder of 8 by 10 photos, it was another story.

First, they wanted to know what country those caves were in. "This country!" we said, but they didn't believe it until we showed them pictures of ourselves inside the caves. Each picture resulted in much discussion until the soldiers' commanding officer appeared. He was just as interested as all the others and in the course of several more visits to the 'Ar'Ar airport, we made fast friends with this officer and several others who introduced us to the most intriguing cave zone in the whole country: Munbateh.

There couldn't be more than a handful of Saudis alive who would know where Munbateh is. To the south of it lies the Nafud desert, to the east, hard pan strewn with boulders too big to drive over and therefore almost impossible to navigate. I don't know what lies to the west, but you'd have to cross 132 kilometers of it to find the first paved road. That leaves an approach from the north. Guided by GPS, you find your way across 50 kilometers of barren wastes until you come to a little depression five meters in diameter and three meters deep. In the wall on one side there's a low shelter cave. It doesn't look like much, but it's strangely cool inside and there's a breeze.

The blowing hole of Munbateh is at the left end of the shelter cave. It's only 65 centimeters wide and one day I measured the wind speed at 18.6 k/h (9.2 knots). However, on some occasions, we saw it blow harder and at other times (like in the middle of the night), it sucks instead of blowing. Before we acquired an anemometer, we used the Bedouin approach to measuring the

wind speed of blowholes. This has proven useful when trying to get decent information about a rumored cave.

“There is a blowing hole in such-and-such a place.”

“OK, will it lift a Kleenex?” Then it’s a class one hole. Possibly interesting.

“Will it lift a ghoultra (headscarf)?” Hmm, class two, definitely interesting. (In Mexico, substitute sombrero for ghoultra.)

“If you throw a full box of Kleenex inside, does it fly back out?” Ah, that’s a class three blowhole, the very best. This kind will also fully inflate a thobe, the long white garment worn by men in Arabia.

The Munbateh blowhole was a class three and its cool breezes were appreciated even by the local animal population. One evening we found a baby hedgehog in the shelter cave, enjoying the natural air conditioning. But where was all this wind coming from? Belayed by Mahmoud, I wriggled down the sloping tube below the hole to a vertical drop only three meters from the entrance. The walls were smooth and covered with milky-white flowstone.



Geologist Mahmood Al-Shanti demonstrates the powerful air flow of the Munbateh Blowhole near Ar'ar. Similar phenomena in the area suggest that a very large cavern lurks beneath the surface in the far north of Saudi Arabia.



We rigged a rope and rappelled in through shimmering flowstone and stalactites. It was a glorious entrance to a rather disappointing room at the bottom. This chamber was rectangular in shape, about eight by fourteen meters, with no decorations and piled high with great heaps of very fragile breakdown covered with a thick layer of white powder, a handful of which could easily be squeezed into a ball. It just happened to be that time of day when the wind stops blowing, so we had no air current to follow. However, as we made a complete circuit of the room, we realized that every low, narrow “passage” we discovered looked ready to collapse, as did the ceiling of the entire room. We both agreed that this room was not a good place to linger and we got out as fast as we could.

Next, we decided to have a close look at another blowing cave we had come upon by pure chance. As we drove off, we noticed that most of our tents had been blown down. This happened all too frequently at Munbateh and eventually, we bought Eureka and North Face tents to replace our shredded Colemans.

The entrance to Star Cave is also found on the side of a shallow depression and is also too low to stand up in, but it’s a lot bigger than the Munbateh shelter cave.

We crawled inside and Mahmoud sniffed. “Wolf!” he said as we broke out our survey equipment, which consisted of a very precise compass (the most famous brand is Suunto), a clinometer to measure up and down angles and a new-fangled, very expensive gizmo called a Disto, made by the Leica company. This is a laser device for measuring distances that works marvelously well in Saudi Arabia’s usually dry caves where there were no suspended droplets in the air to deflect the laser beam.

By the way, one of the lesser known advantages of using a Disto is that no one has to crawl into those spooky dark corners in order to measure the passage width. This decreases the likelihood of your running into a wolf and I think the Leica people could allude to that in their ads.



A River of Bones. Over thousands of years, hyenas, wolves and foxes have carried bones into Saudi Arabia's caves, where low humidity and a steady temperature have preserved them.

Star Cave has a number of dusty old formations including columns about twenty centimeters wide. Just how old they are, we discovered when Bern University researchers tried to date them using the uranium-thorium method. The Swiss were hoping to discover just how far north the Monsoon used to reach into the Arabian Peninsula, by looking at the isotopes of oxygen from tiny bubbles of water eternally trapped inside stalagmites. Heavy rains, it seems, produce water with different isotopes than from light rain, so every stalagmite (but not stalactite) is a data base for weather studies. However, to the great surprise of the Swiss and everyone who has tried to estimate when Saudi Arabia's inland caves were formed, the stalagmites of Star Cave as well as those of the Ma'aqala karst turned out to be over 400,000 years old and impossible to date by the U-Th method.

Star Cave is 43meters long and 13meters wide. At its far end, we found an opening from which cold air was blowing so

vigorously (actually it was about 62°F (16°C) that we were soon shivering while trying to complete the survey. Outside, it was around 100°F (37°C) in the shade. I hadn't thought there were any blowholes in Arabia stronger than the Kleenex-Box ejectors, but here was one we would have to call a class four!

Beyond the opening at the end of Star Cave, which we could name the Star Gate, lies a gradually widening, vertical fissure with smooth walls of calcite. Five meters away, the fissure opens upon a drop of unknown depth. Once again, we determined that bolts were needed to follow the airflow and this time they'd have to hold fast in flowstone.

Something is breathing under the desert south of 'Ar'Ar and we wonder who will be the lucky ones to discover what it is.

## CHAPTER THIRTEEN

### *The Caves of Kishb*

The project to hunt for caves in the vast, volcanic wastes of western Saudi Arabia, got its start with a little push from “the grand old man of US caving,” Bill Halliday. No sooner had I arrived at the Saudi Geological Survey in Jeddah, than I was handed a computer printout by my new boss, Mohammed. “Someone has sent you an Email, John,” he told me. Well, I didn’t even have an Email address yet, so I figured this must really be important, and so it was:

“I notice there are lava fields not far from Jeddah,” wrote Halliday. “Are there any lava tubes to be found? Please let me know at your earliest convenience.”

Well, I repeated that question to quite a few French, US and Saudi geologists during the next few months, but none of them could give me an answer. “The man you need to talk to,” they all replied, “is Dr. John Roobol. He spent years in those miserable lava fields. Right now he’s on leave, but he’ll be back.”

Nearly a year went by before John Roobol finished sailing around the world and by then I had forgotten all about searching for lava caves, completely distracted by limestone caves filled with fascinating calcite and gypsum formations, great caches of mysterious bones and several fiercely blowing leads. But then, one fine day, the doorway to my office was filled with the frame of a big, big man. “So you’re interested in lava tubes,” boomed

the voice of John Roobol and there and then began a new chapter in Middle East speleology.

Yes, said Roobol, at last answering the question of Dr. Halliday: there were lava tubes in Saudi Arabia. Many of them he had spotted during helicopter flights over vast stretches of lava and he had actually entered one of them, where he found beautiful, long, spindly lava stalactites hanging from the ceiling. However, to his knowledge, that was the extent of lava-cave exploration in Saudi Arabia, with no maps or surveys ever having been carried out.

I learned that there are about 89,000 square kilometers (34,363 square miles) of lava fields on the Arabian Shield, which covers most of western Saudi Arabia. Reaching the majority of these areas by helicopter is difficult, due to the great distances involved, refueling problems and, of course, astronomical costs. If, however, you have a vehicle with good tires and several spares, you can attempt to navigate the Bedouin tracks that criss-cross the lava fields, locally known as harrats. "The shortest distance between two points, when you're driving across a harrat, is not a straight line," said John Roobol, because the sharp-edged chunks of basalt are death to tires. You have to stay on the tracks, but the tracks go every which way.

Obviously, a guide is invaluable for Harrat navigating and I was delighted when Roobol offered to lead our first volcano-speleological expedition to Jebel Hil, a scoria cone near which he had seen at least a half dozen lava-tube entrances some years earlier.

Jebel Hil is located in Harrat Kishb, a lava field located only some 250 kilometers from Jeddah. I thought my caver-trainees would be delighted about this, but they told me "Those lava fields are thick with mosquitoes and if you light a lantern at your campsite, you'll see big scorpions running towards it in minutes...and every pool of water you find out there has huge black snakes in it which are famous for jumping right out of the water and attacking anyone foolish enough to come near."

It sounded delightful, but we had heard even worse stories about what is supposed to lurk inside limestone caves and had lived to tell the tale. So, in November of 2001 our expedition of ten men and one woman, my wife Susy, of course, drove off towards Harrat Kishb. Our hopes for success on this mission were greatly bolstered by a bit of pure luck. By sheer coincidence, John Roobol had been handed a set of photographs, taken somewhere in Kishb by a hunter. Several imposing lava-tube entrances were shown, proving that large walk-in caves were waiting for us, but, unfortunately, we had no clue as to exactly where the pictures had been taken.

Because we had gotten off to a typically late start, darkness had already fallen as we approached Wahbah Crater, a monstrous, two-kilometer-wide hole in the ground created by a series of explosions caused by spring water reaching a deep area of thermal activity. This is a favorite hiking and camping spot for foreigners living in western Saudi Arabia and easy to reach by road. However, our caravan would have driven straight over the crater edge if our fellow caver, Mahmoud Al-Shanti hadn't wisely stopped just beyond a "barrier" of three side-by-side oil drums. In the lights of our three Land Cruisers and one truck, we walked forward a few steps and discovered we were right on the edge of a 200-meter drop to the bottom of the crater. This, it was decided, was a fine place to camp. "The strong breeze will keep away the mosquitoes," said Mahmoud. Apparently there were no sleepwalkers in the group and no-one minded camping four meters from the brink of a deep chasm.

## **Stuck**

For hours we worked our way through great black blankets of volcanic rubble, broken by occasional smooth, flat areas dotted with acacia trees. In one of them we found "the only thick sand I've ever seen around here," according to John Roobol and, of

course, we managed to get our ancient pickup truck hopelessly stuck in it. After doing our best to burn out the engine, we finally resorted to the infallible way to get out of the sand: we let the air in our tires down to 15 lbs, drove right out, and then spent a very long time pumping the air back in, using my 12 volt air pump.

At last we found ourselves on top of a somewhat flat place alongside Jebel Hil and lo and behold while searching for a good camping spot, we spotted a dark patch on a low wall. This proved to be a vertical cave entrance about 20 meters high. Leaning over the edge, spacious tunnels could be seen going off in opposite directions. Our first lava tube.

We set up camp nearby, ate and decided to go have a look at the series of holes proceeding from Jebel Hil. A ten-minute drive brought us to a lookout point right beside the volcano. We had a magnificent view of the flat plain below us but, alas, couldn't see the line of collapses from this position. "You can see everything from the top of volcano," remarked John Roobol, who (as is his way) immediately began climbing. Well, it was about 4:45 and it looked like we could just make it to the top and back before sunset, so we all followed him.

### **Roobling up the Volcano**

Ah, but this "Hil" is not a "hill" up which one can merrily prance while filling the air with the sound of music. No, I swear the sides of this volcano are as close to 90 degrees as I would ever want to get and only 20 meters or so on the way up you could see almost every member of the group hanging onto some tiny knob of rock, the only thing solid in a sea of loose scoria (which is like lightweight gravel), almost everyone, that is, because Abdulrahman, the biggest guy among us (excluding JR, of course) was dashing up that exasperating mountain like a rabbit. "He's a bedu; that explains it," I said to myself, but then who did I see

right behind Abdulrahman, but Saeed, who is not a bedu and who usually looks terrified every time he has to do a rappel.

“Gulp, I guess if they can do it, so can I,” I muttered and began inching my way up that wretched slope, which grew ever steeper as the few handholds were replaced by fine scree. By then I was halfway up and could see the silhouettes of my two trainees on top of the cone. I had to keep going.

It seemed as if an eternity passed before I made it. After catching my breath, I began to take pictures of the magnificent interior of the crater, in which you could see a wide, flat “ledge” which had once been the surface of a lake of lava, and the collapsed hole through which lava had flowed into. On the plain far below I could just discern one of those collapses in what must be a mighty impressive lava tube.

And then I heard a female voice. I couldn’t believe it! Susy’s head popped over the edge. Later she said, “When I saw that you had made it, I knew that I could too.” Now tell me, is this a compliment?

John Roobol and Ghassan came over the edge next and he was the last. As we walked along the crater’s narrow rim, John enthusiastically described Jebel Hil’s geology and history. Meanwhile, sunset was approaching and we were wondering just how we were going to get back down. “Well, certainly not the way we came up,” said John. “It’s much too steep. We’ll go down another way.”

We continued walking a lot farther and then checked the slope. It was even steeper than where we had climbed up and 100% scree. Besides, it looked like there was a sheer drop about halfway down.

“John, how did you go down last time?”

“Well, now, the last time I was here, as you may recall, was by helicopter.”

“You mean you’ve never climbed down before?”

“Nor up.”



## **Burnt Bottoms**

This explains how six apparently rational beings sat down on a nearly vertical slope and tried to slide down on their posteriors, hoping they wouldn't make the small mistake that could start them tumbling down the volcano's side like snowballs.

Well, most of us ended up shredding the seat of our pants, all except JR, who used his rucksack as a sled and came out of it with his backside unscathed.

Somehow we all survived and may even have achieved fame as the first brave souls to have climbed and butt-tobogged down Jebel Hil. In addition, we had all learned that John Roobol is even crazier than a caver.

## **The Bed That Ate Shoes**

On Tuesday morning we split into two groups. Four valiant souls went to hunt for the lava tube holes below Jebel Hil. They trudged some 12 kilometers over a very rough lava bed, visiting each entrance, noting depth, diameter and amount of collapse, etc. They found ten vents, six of which were collapse openings above a cave floor lying from 22 to 42 meters below. The lava tube appeared to be about 20 meters high and at least three kilometers long. Commented Mahmoud: "There was pahoehoe lava above the lava tube, but what we had to walk over was prickly Aa lava most of the time with irregular, loose chunks ready to break your ankle mixed with thin pieces ready to collapse under your weight. John Roobol kept reminding us to be careful with every step because 'We could all die out here.'" They returned, not dead, but dead tired, around 5 PM, having lost considerable shoe leather. But, they had documented a long, east-west oriented lava tube with secondary tubes leading north and south from several of the vents. To this writing, no one has returned to actually step inside any part of Jebel Hil Cave.

I was in group two, whose mission was to map the three lava caves seen by John Roobol's hunter friend, which we had managed to locate the day before with the help of some Bedouins. I "guided" our driver "Eagle-eye Sa'ad" to the site using GPS coordinates, a method of navigation Sa'ad did not approve of at all. On the way back he asked me not to use the GPS and he got us home in half the time, by an entirely different route.



This cave is part of a series of tubes and pits on the side of Hazim al Khadra Volcano, which, we discovered, is not entirely dormant.

### **First Lava Tube Survey**

Upon reaching the entrance to the first cave, I think I sent my three Saudi trainees into a state of shock by announcing that they would carry out the first survey of a Saudi lava tube. Susy and I would merely assist.

We then spent a while practicing how to use the compass, clinometer and Disto digital measuring device as well as how to put data into a survey book. This lava tube is about four meters

high, 157 meters long and easy walking all the way. About half-way in, we began to see small basalt stalactites which had once been drops of molten lava.

According to John Roobol, the cave was 1000 degrees Fahrenheit, walls glowing red, when this happened. Seventy-five meters from the entrance we found a raised side chamber with what appear to be very old hyena, wolf and who-knows-what droppings, surrounded by bones.

Twelve survey stations later we came to the end of the cave and the home of a handful of bats. The floor was smooth, dried mud of undetermined depth, sectioned in a nice-looking pattern. Near here were also a number of “soda-straw lava-mites,” thin and delicate-looking, but, of course, hard as rock.

Exiting this cave, I asked the surveyors what they wanted to name it. “Kahf Mut’eb” they told me. This translates as Very-Difficult Cave. Now, if this is how my trainees categorize surveying a flat, smooth easy-walking single passage, what would they think of the kind where you have to take readings while lying on your belly in a tight crawlway half full of a gooey mixture of guano, mud and bat urine?

Worn out from their “ordeal” and aching for lunch, the survey crew preferred to stand by and let me have all the pleasure of exploring the 7-meter-deep hole just a short walk away.

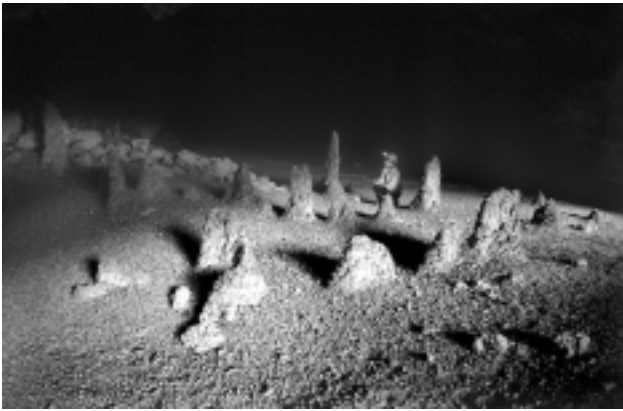
## **Ghostly Cave**

There was a big pile of breakdown below, on one side of the hole, so I only had to climb the ladder five meters to reach these rocks. I could see passages going off in opposite directions. I walked over to the one heading west. The entrance to it was long and low. I bent over and peeked inside. In the half-light beyond, I could see a large chamber filled with figures. It was as if I had surprised a gathering of skinny goblins and they had immediately turned to stone.

Slowly – and I do mean very slowly – I stepped into the room. “These statues look like stalagmites,” I thought to myself, “but there are no stalactites above them, and, besides, I’m in a lava tube, not a limestone cave.”

On closer examination I found that these strange figures were made of bird droppings. There must have been fifty of them in there, the tallest standing one and half meters (5 ft). Now, one rock dove had flown out of that room when I entered, but what had happened to all the others?

I also wondered how old those “guanomites,” as we began to call them, were, as I made my way through them, deeper into the cave. The floor consisted of fine, powdery dirt covered with a thin layer of bird guano. It crunched like snow. At one point, I broke through the crust and my foot sank down 20 centimeters. This was a new sort of cave experience for me and I regret I was in a hurry and couldn’t examine the place better.



The Twilight Zone of Ghostly Cave. This lava tube received its name from this forest of “guanomites,” some of them nearly two meters tall, deposited by rock doves.

I followed this passage to its end where I found stuffy air and a handful of very small bats. A later survey would show I was 135 meters from the entrance. On the way back, I checked out a short passage parallel to the main one. On the floor I found

a flat, vaguely L-shaped stick which I thought was a bit curious. I stuck it into a hole in the wall and followed this passage to its end, which was blocked with breakdown through which I could see daylight. However, I couldn't get through, so I made my way back to the collapse entrance the long way.

The eastern passage of this cave also looked interesting, but I was running out of time. I took a quick peek, though, and saw only a few guanomites inside a big room some 40 meters wide. A large part of the wall and roof were covered with a crispy crust of a pure white mineral which I imagined was gypsum. At the end of this room the passage kept going. Good reason for a return trip, I figured and headed back to the cable ladder.

A few months later found us back in Harrat Kishb. This time we decided to pitch our tents on a flat patch of black ash just a short walk from Ghostly Cave.

As we stood at the edge of the entrance collapse, I was impressed how easily our team of Saudis were now handling knots, ladders, belaying, cable ladders and surveying. Indeed, with the three geologists handling the mapping, Susy and I could concentrate on photography the whole time.

We spent some time shooting the entrance with the tall guanomites lurking just inside like silent statues, and the remains of a very old stone wall poking out of the guano-covered floor. Then the survey team reappeared, all three of them coughing, rubbing their eyes and wondering how a khawagi (foreigner) had ever talked them into entering a place like that.

The cause of their misery was, of course, the thick layer of white "dust" on the passage floor. But, as good geologists, they had taken a sample of it, which showed it consists mainly of calcium, potassium and phosphate. JR called it "bone dust" and it is so thick inside the cave that a crust has formed on the top which your foot breaks through, sinking into very light powder.

We then took a look at the large room and passage on the east side of the entrance hole. This one led about 100 meters

back to a bat chamber where a glimmer of daylight could be seen through the obviously thin ceiling, which sported several brown bat-urine stains.

In this section of the cave, Mahmoud discovered a flat, nearly L-shaped stick much like the one I had stuck into the wall in the small parallel passage, which stick he had also retrieved. Both of them looked like boomerangs and Roobol later remarked that throwing-sticks like these were used in this area by Neolithic people six to eight thousand years ago, a claim he later backed up by showing us pictures of rock art – discovered near the town of Hail – which depict flat-headed people holding L-shaped sticks much like the ones in Ghostly cave.

We spent that evening sitting on our carpet, near a blazing fire under a starry sky, playing “Oh Guano!” by the light of a gas lamp and to the hubbly-bubbly sound of a water pipe. I’m sure it was the first time in the history of Harrat Kishb that such an activity had been undertaken by three Saudis, an Afghan, a Gringo and a Mexican, female, to boot.

### Knotty Curse

The next day we spent some time taking photos in Mut’eb Cave. Deep inside the cave we needed a hiding place for a Coleman lamp and I asked Mahmoud to lift up a big, flat rock lying on the dirt floor. He picked up this rock and suddenly I heard a gasp and “Oh no!”

“What’s wrong, Mahmoud?” I cried, “Are you OK?” He put down the rock carefully and pointed his trembling finger at what had been under it.

“Do you know what that is?”

I saw a very old-looking piece of rope with a knot in it.

“Looks like a very old piece of rope with a knot in it!”

“John... This is –how do you call it—a curse.”

“A curse?”

“Yes, the knot represents a spell and it was hidden in a place like this so the victim couldn’t come and untie it.”

Well, here was a whole new use for caves I knew nothing at all about. Anyhow, after a short reflection, Mahmoud uttered a short prayer and carefully untied the knot. I hope that gave some relief to someone somewhere, but if the rope was as old as the boomerangs we’d found, Mahmoud may have undone one of the longest-lasting curses in history.



Throwing Sticks Found in Ghostly Cave. The curved upper surface of these sticks provides aerodynamic lift. They are thought to be Neolithic but have never been carbon-dated.





## CHAPTER FOURTEEN

### *Ghar Al Hibashi Lava Tube and the Dust of Ages*

Before 2001, not a single speleological study of a lava tube had ever been carried out in Saudi Arabia. Only three years later, mineralogist Paolo Forti declared Hibashi Cave, located 243 kilometers east of Mecca, one of the ten most important lava caves in the world – “mineralogically speaking, of course.” About the same time, extraterrestrial-cave researcher Penelope Boston declared that Hibashi Cave had been an invaluable help for producing robotic motion simulations for navigation inside Martian lava tubes. How had so much happened so fast?

I first heard about Hibashi Cave at the end of 2002 in the course of my work as a caving consultant to the Saudi Geological Survey. One day geologist Mahmoud Al-Shanti dropped a tabloid newspaper, written entirely in Arabic, on my desk. “I think you’re going to like this,” he said. Mahmoud translated the lurid headlines:

*“Man Survives Deadly Cave Ordeal for Twenty Days – Lives on Cave Grass”*

The details of the article were even more attention-getting. The man had wandered into Ghar Al Hibashi, a cave located deep inside a huge lava field, and gotten himself hopelessly lost. During his three weeks he had stumbled around in the dark where he had battled ferocious wolves and hyenas, breathed poisonous fumes and endured the bites of disease-laden bugs.

During his ordeal, he had eaten “cave grass” and drunk “cave water” until he surfaced through a hole located 17 kilometers from the cave entrance.

Such a cave appeared worthy of investigation, even if it turned out only one tenth as long as the newspaper claimed. During the first week of January, 2003, we set out on our quest. All we knew about the cave’s location was that it lay somewhere between the towns of Ranyah and Turubah that meant a mere 130-kilometer stretch of tire-eating lava to investigate. “I think I’ll sit this one out,” Susy had commented, “until you actually find the cave... if it’s really a cave at all.”

We drove out of Jeddah, took the Christian Bypass around Mecca, obligatory because I was in the party, and climbed the escarpment to an altitude of 1700 meters. At last we entered the 11,000-square-kilometer lava field (3876 square miles) known as Harrat Nawasif/Buqum. All we could see was rubble in every direction. We drove along a wide dirt track and stopped to question the few people we came across. Many hours later we were still nowhere near the cave and the sun was about to set. Since you can’t find a black hole in black lava in the dark, we pulled off the road to an isolated spot and began to make camp near the mangled remains of a tanker.

### **A Roar in the Dark**

As usual, I picked a spot far from the camp to set up my tent, knowing how late the others usually stay up. I found a patch of sand between some lava chunks and thorn bushes and had just finished putting on the rain fly (Yes, it rains on this escarpment) when I heard a very strange sound in the total darkness, somewhere far behind me. It was a long, slow, throaty growl and it made the small hairs on the back of my neck stand straight up. Then I heard it again, this time a lot closer.

I couldn't believe my ears as it sounded exactly like a lion, but there haven't been any lions in western Arabia for thousands of years. The rumbling growl came again, even closer. Could it be a wolf? There are definitely plenty of wolves in these parts. I edged away from the tent and carefully made my way back to the cars. Without a doubt, there was something weird out there. I told Mahmoud I thought I had heard a lion and he gave me a very peculiar look. Then he asked everyone to shut up and he heard it too. His eyes bulged and he walked over to the truck and picked up a heavy metal pipe. The whole gang of us now tiptoed behind Mahmoud as he very carefully made his way toward my tent. Suddenly, we saw a movement in the beams of our collective flashlights. Mahmoud stopped, turned to me and in a low voice, said, "John, there is your lion," pointing towards a camel, whose head could be seen just above a large bush behind the tent.

### **Lost in the Lava**

The next day found us wandering all around the Harrat, trying unsuccessfully to communicate among our three vehicles using some cheap walkie-talkies we'd bought. We might have spent years crisscrossing that lava if we hadn't topped a small rise from which we could see, in the distance, several large white tents, neatly arranged all in a row. Bedu. As usual, a couple of these astoundingly generous people immediately volunteered to lead us to the cave, which they said was nearby. After a kilometer or so over typically savage lava-field tracks, we were standing on the edge of a hole nearly 20 meters across... and freezing. Yes, a lively wind had risen and it was a relief to jump from rock to rock down into the shelter of a room so large we couldn't make out its other end.

Because it had a flat floor, plenty of room and a pleasant temperature, Mahmoud declared that here is where we were

going to camp. There were a few looks of surprise at this and a few murmurs about the minor problem of transporting our gear (you can't imagine how much stuff we take on these trips) all the way down from the surface. But soon we were busy forming a human conveyor belt. There was just one slight problem. As so often happens, somebody had decided this cave was a fine place to throw his dead sheep, and there were three bloated carcasses perfuming the air of our new home. Fortunately, there were sandy spots near the sheep, so I decided to abandon the chain gang and bury the bodies. This turned out to be more of a job than I had figured, but in the end it was well worth it as our new home smelled as lovely... well, as lovely as you could ever expect a cave to smell.

Which brings me to the subject of the cave floor on which we spread our carpets and tarps. This lava tube, like all the others we've seen in this country has a deep layer of powdery sediment covering the original floor. Now, a dirt floor would not be bad to camp on, but this first room of the cave had obviously been used as an animal corral in the past, as witnessed by the remains of an old stone wall near the end of the twilight zone of the cave. Amazingly, it took only a few hours for us to forget that we were camping on top of billions of little sheep and goat balls, and soon the drivers began to prepare a meal.

As usual, chicken kabsa was the only item on the menu, but this time it was lightly spiced with the dust which rose every time anyone took a step on the sheep-dung floor. After a few cups of tea, it was time to go have a look around the cave. We put on our helmets and picked up a Coleman lamp because the great size of the passage facing us plus the flat floor suggested this was going to be an easy-walking cave. We also took along a couple of stout sticks because we had spotted the large imprint of an unknown, five-toed animal's paw on the ground.

The passage we were in had an arched ceiling and smooth walls 16 meters apart. It felt like we were walking in a man-

made tunnel. The floor was composed of very fine dust which had been blown or washed into the cave during ages. Here and there we saw shallow depressions. Later we learned these were sleeping spots made by hyenas and/or wolves which had previously – we hoped previously – lived in the cave.

Comparing the ceiling arch to the shape of lava tubes where you can see the original floor, I figured that this Saudi lava tube had been filled with several meters of fine powder, deposited at some point during its million-year history. What archeological treasures lie buried in the dust was anyone's guess because no archeological studies have ever been carried out in a Saudi cave, even though this part of the world is considered "the Cradle of Humanity." On close inspection, the side walls revealed runny lava "dribbles" and small lava stalactites. Here and there were found lumpy lava stalagmites, up to 30 centimeters high. But the most interesting formation of all was a 13-meter-long lava channel on the inclined floor of a side passage. It looked as if a tongue of lava had run up the slope and then drained, leaving a V-shaped groove along its length.

A few steps further, the floor suddenly turned to ash. Bones and even rocks lying on this light-grey surface were charred on the bottom but not on top. The burnt area covered a large part of the cave and appeared to be a layer of guano that had caught fire and smoldered for a long time. Some parts of the ceiling in this area were covered with a shiny, sticky, rather hard black coating caused by this fire, here and there dotted with tan-colored stalactites of an equally sticky substance. We had seen several small wood fires on the floor of this cave, perhaps used for lighting purposes and it may have been one of these that set the guano on fire, but how long ago?

An interesting feature of this cave was a very large, well-shaped dome with the usual high heap of large chunks of breakdown beneath it. We placed a hygrometer and mini-max thermometer in this area and got 48 degrees humidity and a

pleasant temperature range of 22-24 degrees Celsius (71-75°F). The low humidity means Hibashi Cave is ideal for preserving anything that has found its way inside of it.



Campsite at Hibashi Cave. Problems of excessive heat, cold and wind on the surface convinced us we ought to camp inside the cool, quiet cave.

### **The Murdered Maiden**

The next day, the three geologists mapped a large part of the cave while I went around taking photos. They got the worst end of this arrangement because three people stir up a lot more dust than one and all of them returned to Jeddah with bad coughs and burning throats. But by being off on my own, I missed the most exciting find of the whole trip. Deep inside the cave, Abdulrahman found a large rock upon which someone had placed two parts of a human skull. Because the cave had had graffiti-writing visitors in recent times (thanks to that wildly exaggerated newspaper article) we decided to take these pieces with us.

Our survey of the cave showed Hibashi was 689.54 meters long (the tabloid was only 16.31 kilometers off) with extensive

burnt guano zones at its east and west ends. The vertical difference was 26 meters and everywhere we found caches of bones on the dusty floor, apparently carried into the cave by hyenas or wolves, which had left coprolites everywhere. Besides bones, we also came across gazelle horns, hedgehog parts and porcupine quills.

At last, we finished our work and broke camp. Carrying our tons of gear up the long slope to the surface was not exactly fun, but the cave had given us shelter and warmth, a fact we were reminded of the moment we were blasted by the cold wind whistling across the stark stretches of Harrat Buqum. Upon our arrival home, we showed the skull to volcanologist John Roobol. "Probably some poor girl who was raped and killed," he commented. Then we sent pictures of it to various knowledgeable people by email. "It is a human skull," they assured us, "and the teeth indicate it was a young woman 12 to 18 years old...and didn't you notice that the brainpan has been sliced off?" So it seems Roobol was right and this skull tells us a story of foul play. Carbon dating later told us that the unfortunate owner of the skull had died  $425 \pm 30$  years ago. We found neither poisonous fumes nor grass nor water in Hibashi Cave, but we did find enough other things to start a few legends of our own.

## The Forti Connection

Not long after mapping Hibashi Cave, we were visited by Paolo Forti whom I had asked to come to Arabia to evaluate certain limestone caves for their tourism potential. Knowing that Professor Forti is co-author of *Cave Minerals of the World*, we naturally loaded him down with samples of formations, sediments, etc. from all the caves we had recently visited.

On his return to Italy, Paolo submitted our samples for analysis by stereoscopic microscope, powder diffractometer, Gandolfi camera and electron scanning microscope.

Several months later came the results. To Paolo's surprise, the samples contained not only the expected minerals, such as calcite and gypsum, but a great variety of other minerals rarely found in caves, including glauberite and palygorskite. Most surprising of all were the 14 minerals found in samples from Hibashi Cave.

The list of Hibashi minerals includes nearly unpronounceable apthitalite, a rare, natural soluble sulfate first discovered in 1835 at Mt. Vesuvius and whitlockite, a rare phosphate mineral which has been found in Martian meteorites and in human kidney stones and which takes the form of polished red pearls in some caves.

Even more curious is arcanite. This mineral was first identified in 1845 in a pine railroad tie in the Santa Ana tin mine of Orange County, California. The Medieval Latin alchemical name for Arcanite is Arcanum duplicatum, which means "double secret," perhaps suggesting that the mineral can only be found in hidden places. This unusual name is no doubt responsible for fictional "uses" of arcanite elaborated in fantasy novels, where arcanite is described as the best possible material for making magic swords, chain mail, etc. Readers of such stories might be surprised to find that the most likely origin of arcanite is bat urine.

Previously, arcanite had only been identified in five caves around the world, all of them in Africa. Paolo's team, however, found it in four different samples taken from Hibashi Cave. It was found not only in dry bat guano, but also in the black plastic-like coating apparently deposited on the ceiling of the cave during the guano fire. It is also found in the tan-colored, organic "stalactites" up to four centimeters long, which appear to have grown in places where bats made it a habit to urinate.

Apparently the guano fire melted these "stickytites" as we called them and the baking process produced even rarer minerals such as pyrocoprite and pyrophosphate.



While Paolo Forti was identifying these strange minerals, along came another researcher interested in Hibashi. “I understand you have found a bed of loess inside a cave; how deep is it and how old is it?” asked Peter Vincent of Lancaster University, who just happened to be involved in a project studying Saudi Arabia’s silts. We showed him a sample of the powder on the cave floor and he found it consisted of quartz, feldspar and kaolin with a mean particle size of about 10 microns. Vincent and his team found this very interesting and we set up a joint expedition to learn more about the cave’s powdery floor.

One day at the end of August, we returned to Hibashi Cave and made our way down the entrance slope. Once again the cave gave us relief from the weather on the surface, which, for a change was sizzling hot instead of ice cold. We measured the depth of the loess by driving an iron rod through it down to the original floor and got a maximum depth of 1.5 meters. That was easy, but next came the hard part. We wanted to get a sample of the stuff at the very bottom of the loess layer, which we were going to put into a light-tight container for age-dating by Optically Stimulated Luminescence (OSL) which basically tells you how many years your sample has been lying in the dark.

To get down to the original floor, of course, we had to dig a hole. If you’ve ever tried digging a deep hole in dry sand and discovered how frequently everything collapses, you can appreciate the problem, but believe me a five-foot thick layer of dust is much worse! Even with the help of a pressurized water sprayer, it was a miserable experience, with everyone involved enveloped in clouds of choking dust, but we got our samples and eventually learned that the oldest loess had last seen the light of day  $5.8 \pm 0.5$  thousand years ago.

When photos of this adventure reached scientist Penny Boston, it immediately gave her second thoughts about the Arizona lava tube they had been using as a model for the underground environment microrobots might find on Mars.

Since the surface of the Red Planet is covered in fine dust, she reasoned that microbots in a Martian lava tube would probably be plunged into something much like the thick layer of loess on the floor of a previously unknown lava tube in Saudi Arabia called Ghar Al Hibashi.



Dust of Ages. Hibashi Cave has 690 meters of passages, all of them covered by a layer of fine dust (loess) at least one meter thick, deposited around 5000 years ago.

## CHAPTER FIFTEEN

### *The Lost City of Shuwaymis*

In Saudi Arabia, you often end up with a great caving story long before you ever step inside the cave. Just getting there can be an unforgettable adventure. My best story of What Happened on the Way to the Cave may be the tale of the Lost City of Shuwaymis.

It was the first day of Ramadan, the month of fasting. Susy and I were traveling with John and Peter, two friends who had previously been shown the entrances of two caves not far from Shuwaymis, a town located about 200 kilometers NE of Medina.

We drove north from our home in Jeddah, along a typical Saudi highway with four lanes and no potholes. When we reached the small town of Al Hayit, we rolled off the asphalt onto a wide track covered with powdery dust. “This track goes straight to Shuwaymis. We can’t miss it,” said our companions. “We should get there just in time for Iftar.”

Now, Iftar, is the meal that breaks the Ramadan fast (which is very strict and allows no food, drink or even swallowing saliva all day long) and it begins exactly at sunset, which is announced by a cannon shot in many cities.

Well, we heard no cannons and enjoyed no Iftar meal because, as the sun slowly dipped below the horizon, our wide track had utterly vanished and we found ourselves in a lovely but lonely plain dotted with acacia trees and surrounded by low mountains.

“It seems like we missed it after all,” announced our friends, who then mentioned that neither of them had bothered to take the GPS coordinates for Shuwaymis because it had been so easy to find, the first time they'd gone there.

So, Peter figured out the coordinates from the topo map, put them into the GPS and we set out to find Shuwaymis in the dark, although I would have preferred to camp right there in that beautiful spot and do our hunting in the daylight.

Unfortunately, bad luck continued to plague us because when we reached the spot which coincided with the location of Shuwaymis on the map, there were no bright lights anywhere to be seen, only utter darkness shrouding what looked like the remains of a ghost town. But we could see a dim glow in the far distance and we assumed that was Shuwaymis.

Off we drove through billowing clouds of choking dust until we finally came upon a few buildings and several human beings. We asked if this was Shuwaymis.

“Shuwaymis?” It’s twenty kilometers from here, thataway. Just follow the wide track – you can’t miss it.”

Ah, but we could miss it and we did, once again finding ourselves winding through sharp-edged basalt rocks on an ever narrowing track growing fainter by the moment. “Let me try to recalculate the coordinates from the map again,” suggested Peter.

An hour later we were back at the ghost town.

“What else can go wrong on this trip?” shouted John and Peter. Now, I believe this question was meant to be rhetorical, but the answer came literally with a bang as one of our tires exploded.

Next we discovered that the ruts underneath us were so deep that there was no way to set up the jack without wriggling into the space between the bottom of the car and the sharp rocks and choking dust. It was the sort of place even a caver would hesitate to crawl into and, once I had squeezed underneath, I was hardly overjoyed to discover that our official Toyota jack required the

strength of Hercules to crank. Well, we took turns grunting, sweating and cursing until we were at last able to raise the car and change that poor, destroyed tire. It was approaching midnight when we finally limped to the least stony spot we could find in the neighborhood and tried to get some sleep.

As for the sumptuous Iftar meal we had dreamed of, we were forced to make do with a miserable bag of potato chips. "Things can't get any worse," we said before going to bed. "Tomorrow we'll be fine."

In fact, we rose with new enthusiasm and started the new day with a truly luxurious breakfast which even included pancakes, whose batter Susy had prepared in advance at home.

Now that it was light, we could see a town not far away and we assumed it must be Shuwaymis, but, once we got there, we weren't greatly surprised to find that it wasn't. "Well, where is it?" we asked the two Bangladeshi mechanics who were busy patching the huge rip in our tire.

"Shuwaymis? It's about twenty kilometers from here. Just follow those power lines, you can't..." Well, we didn't bother waiting to hear the rest of the sentence and, of course, the power lines soon went off in one direction while the track went in another.

But at this point, our luck finally changed. We had flagged down an old man with a long white beard, who had told us we were still twenty kilometers from Shuwaymis (No big surprise at this point) and who was giving us directions, when Peter and John happened to mention they were friends of the Headmaster of Shuwaymis.

The old man did a double take, his eyes lit up and he reached out to shake our hands, as if we were meeting for the first time. "Hayakallah!" he said, which is a warm greeting that Bedus use amongst themselves. We had obviously moved up to a much higher category in his estimation and the greeting ceremony was being repeated in a proper Bedu manner.

“I will take you to Shuwaymis!” shouted the man as he jumped into his truck, even though he had been headed in the opposite direction.

At last, we broke the 20-km barrier and arrived within sight of the Shuwaymis water tower, where the old man bid us Ma’salaamah (good-bye). On arrival at the Headmaster’s house, we were greeted by his son Khalid who told us his father was out in the hills and was worried that we hadn’t shown up the night before. “I will take you there,” exclaimed Khalid, and off we went.

At last we came to a wind-sculpted sandstone jebel (hill) where we finally met Headmaster Mamdouh Al-Rashid, who, from that moment on, took care of us as if we were his own children. Of course we told him all about the frustrating attempts to locate Shuwaymis.

“Ah, but Shuwaymis is in the wrong place on all the maps,” explained the Headmaster. “You see, we moved the town to a new location a number of years ago. The place your GPS kept leading you to is the old, abandoned site of our town.” At last, the mystery of the inescapable ghost town had been resolved.

And at last we got to enjoy a Ramadan Iftar, which Headmaster Mamdouh, realizing how tired we were, arranged to take place right in front of the high sandstone outcrop where we would camp for several nights. Mamdouh explained that those cliffs were famous for rock art but it was only until the next morning that we could take a good look at it.

We were astounded at what we saw: ostriches, domesticated cows, hunters with bows, even a lion. We learned that the hundreds of petroglyphs in these hills had been drawn in Neolithic times and they painted a picture of a lush, African-like environment utterly unlike the harsh desert conditions of today.

After we had taken lots of pictures in the good, early-morning light, Mamdouh said “Today I’m going to take you out

to a dahl,” The five of us piled into the Mamdouh’s car along with his young son, because it was taken for granted our poor-quality tires would never survive the trip!

We drove for hours, circling around a mountain, over 1600 meters high, until we were well inside of Harrat Khaybar, where Saudi Arabia's most picturesque volcanoes are located.

Soon we arrived at the entrance to Dahl Rumahah, which you would never find if you weren’t looking for it. But what you do see on the surface is a long, low, curving wall built of rocks.

“This wall channels runoff rainwater into the dahl,” explained our guide. “Once upon a time this cave was kept secret and its entrance hidden because it was a valuable source of water, a reservoir actually.”

Mamdouh was amazed we planned to go inside with our dinky little headlamps and flashlights. “Now, this is the kind of light you need for a cave,” he announced, holding up a gas lantern, unconcerned about what would be the result if the lamp ever received a good knock.

As soon as we went inside, through a narrow, one-meter-high entrance hole, we assured the Headmaster that his dahl is indeed a lava tube (a point that had been disputed). The ceiling had the classic arch and a few small levees here and there and, of course, the cave was in basalt. The tube meandered in several directions and had a couple of side passages.

This cave, known as Dahl Rumahah, was generally about two meters high and varied in width from 1.5 to seven meters at the most. In places, the ceiling and walls were draped with impressive flowstone due to calcium and carbonate-rich water leaking through cracks in the ceiling.

Rumahah has areas filled with countless thousands of bones and coprolites. Among these we found a porcupine quill and a small wooden hand tool. Once again, no attempt has been made to dig into the sediment floor, whose depth we didn’t even try to determine. We also found termite tunnels on one part of the

ceiling. These may go back thousands of years to when there was a different climate and vegetation on the surface.

Another curiosity of the cave is the high humidity at the far end, which results in a “Milky Way” coating the ceiling. It looks like sparkling, silver or white paint from a distance, but is actually formed by tiny droplets of water, suspended over what we think is a coating of cave slime. This is the first lava tube we have found in Saudi Arabia where you can see water dripping from both basalt and calcite stalactites and one of the few places in Arabia where you can actually enjoy a belly crawl in the mud.



The Natural Bridge of Dahl Rumahah. On our first visit to this cave, we were guided by the headmaster of Shuwaymis, Mamdouh Al-Rashid (armed for our protection) and his son Ahmed.

The next day we headed for home. Well, not quite. “We can’t leave here without saying goodbye to the Emir (the local representative of the Saud family) said Mahmoud and off we went for several hours of coffee, tea and incense in a huge tent big enough to hold a couple hundred people. When we had finally



said goodbye to the Emir, we went not home, but straight to Mamduah's place for yet more tea drinking and such.

Finally, as sunset approached, we drove off the highway onto a sandy plain, looking for a camp site.

"This is a bad place," said Obaidullah, one of the drivers. "Many many snakes here." Much discussion then ensued with considerable shouting and gesticulating. Then everyone returned to his car and I thought we would drive to some spot they had agreed upon. Instead, each car took off in a different direction at high speed. Obaidullah raced to the foot of a distant, red sandstone escarpment as if getting there first would establish his preferred spot as our campsite. In fact, the soft, ruby-red rock, eroded by eons of wind, rain and hot sun, was beautifully sculpted and no one could resist getting out of the cars and going for a walk in such an enchanting place. And there's where we camped.

"So, Obaidullah," I said, "you chose this spot. That means there won't be any snakes here, right?"

"Only a few," he replied with typical Bedu reserve.

## CHAPTER SIXTEEN

### *Across the Great Nafud*

April, 2007

I am in Jeddah, once again working for the Saudi Geological Survey and eager to be back in a desert cave after a two-and-a-half-year absence. My first field trip will be to a limestone area in the far north of Saudi Arabia. "I missed you on my last trip to Al Greya," says Mahmoud. "I can't find anyone else here willing to go with me into tight passages that no sane person would crawl into."

Well, I took that as a compliment and now here we are, heading north from steamy Jeddah in two Land Cruisers piled high with camping and caving gear. "We've found a new route to the far north," says Mahmoud, "which you will love. We are going to drive straight across the Nafud Desert."

Anyone who has seen the film *Lawrence of Arabia* ten times, as I have, will remember that the Nafud is the scorching hot, pitiless desert where the Lawrence and his Bedouin friends nearly died trying to sneak up on the Turks in Aqaba from a totally unexpected direction. Remembering Aqaba, I pull out my map of Arabia and notice that Al Greya, where the caves are, is as far north as Petra, in Jordan, where I remember shivering in an unheated hotel room. Maybe I should have brought much warmer clothes, but now it's too late.

Four hours north of Jeddah, we are hit by our first sandstorm. The world turns yellow. Only the air conditioning saves us from choking on the fine dust swirling around our car. Visibility is reduced with each kilometer we drive until we are forced to a crawl. Can't see more than two meters ahead and suddenly it begins to rain. Water plus fine sand and dirt equals mud. One side of the car is dripping with it when we finally emerge from the sandstorm.

### **The New Nafud**

After driving in a straight line through the town of Hail, we take a brand-new paved road heading straight into the Nafud. Unfortunately, it is now pitch dark and all I can see is inky blackness on both sides of the highway. Finally, we stop to camp, but with only soft sand surrounding us, we are forced to spend the night next to a microwave tower. Instead of enjoying the sounds of the desert which we can't see, what we get is the roar of a generator under the tower. Thus, I am forced to use earplugs in the Nafud Desert!

Next day, we awake to find out that we are in the middle of a great sea of sand. I should only have an eye for the beautiful dunes, but the truth is I am fascinated by the highway we are on. Only one side of it is finished, so we can see the techniques being used to build the other two lanes. In some places we can see up to twenty bulldozers literally resculpting the dunescape, filling huge valleys with sand and leveling some high places. Mahmoud points out that most of the construction is being done with materials found locally. No, I don't mean sand. These guys are actually digging down beneath the sand and extracting the dirt and gravel they need for their work. "And when they want water," says Mahmoud, "they just sink a well."

Of course they are building a road similar to the one crossing the Rub' Al Khali. They create a sort of "artificial dune" with

just the right amount of curvature and then they put a road on top of it. On this curved surface, the sand just blows off instead of accumulating, so you don't get the "buried highways" which plagued the first road builders in this country.

Monday, April 9, 2007. We arrive in Sakaka at 10:30 AM and meet Awad Al Falleh, Majed Al Auda and Hytham Al Auda. Each of their trucks has the logo "FriendsofDesert.Com" on the sides, with color posters of Mahmoud (lifted from my website) admiring stalactites in a cave. We joke about "royalties" as the team from Sakaka shows us how they have adapted their vehicles for the desert. On one side they have two spigots: one gives you soap and the other water (from a built-in, 60-liter tank). They are not really an organization, explains Mahmoud, but three friends who spend a great deal of their time in the desert and are fully committed to preserving its beauty. They hope to learn as much as possible about cave exploration and conservation during this trip.

We load up with food and are soon off road, roaring through hills covered with sand and dotted with black rocks. Half an hour later we come to the first limestone outcrops. We are no longer in the volcanic Arabian Shield but have entered the western end of limestone beds which stretch all the way to Ma'aqala, where Saudi Arabian speleology was born in the 1980s when we first crawled into Dahl Sultan. An hour later we come upon a pickup in a very lonely spot. A man next to it waves his arms wildly and comes running. "You must not leave here without helping me!" he shouts, trembling and crying. He tells us his car broke down yesterday and his brother set out walking for help at eight this morning. We give him our Thuraya satellite phone to call his relatives and he learns that his brother is okay and help is on the way.

Caravaning like this, you must constantly keep an eye on the car ahead of you. We only slip up once and suddenly have no clue where to go. We follow our noses and end up finding the

best-looking prickly rock (karst) I've ever seen in Arabia. It's dolomitic limestone, very hard. I take the waypoint and soon we reconnect with the others. A little later, we stop for a rest and find we're surrounded by pieces of bizarrely shaped, highly polished, curiously colored chert. As an incurable chert collector, I'm impressed and can't resist taking some along.

A little later we come to green meadows guarded by ferocious sheep dogs. Mahmoud says some kind of gypsies (salub, or People of the Cross) live here. Could they be remnants of the Christian communities that lived in these parts, long, long ago?

Now we are in Bowaitat, which means "The Houses." All around us are the remains of homes built of flat slabs of limestone. Some are round with domed roofs, built igloo style. Awad tells us this area was lived in 5,000 years ago, but the houses were rebuilt periodically. They apparently didn't use any sort of mortar or packing to keep out the wind. A picturesque tower we saw here five years ago now sports bright red graffiti. A lot more friends of the desert are needed in order to protect treasures like these. Just at sunset, we arrive at Abid Cave and set up camp. For the next three nights, this is our home.

## **In The Bowels of Abid**

Next day, Mahmoud and I enter Abid Cave with the three Friends of the Desert. We rig a handline to assist in climbing down the entrance hole which is just a few meters deep. Inside, we find a series of rooms gradually taking us deeper and deeper. To my surprise, we come upon the only cave pearls we've ever seen in Arabia, apart from those celebrated and still-growing pearls in UPM Cave. The Abid pearls look very old and seem to be the only calcite formations in this cave.

Eventually we come to a hole about a meter in diameter that puts you into a stoop-walking/crawling passage which immediately makes a U-turn. The walls are now smooth and

polished and a strong, cold wind is blowing in our faces. It's obvious that this passage has received huge quantities of water traveling at high speed. Debris stuck to the ceiling shows that the tube fills completely with water and we speculate how long ago there was so much water in this place. "This debris could be from thousands of years ago," we say and then discover, to our chagrin, half of a very modern-looking shoe stuck near the top of the tunnel. Later we find two plastic Pepsi bottles and figure they must get some pretty powerful storms in these parts. "I sure hope it isn't raining out there right now," I tell Mahmoud, remembering the dark clouds we had seen on the horizon this morning.

At the end of this passage we come to a T where we find water dripping from the ceiling. Hmm, maybe it is raining up there! The two passages we have come to at this point eventually become too tight for crawling, but wind whistles through them. We decide to head back and that is when Awad whips out a big trash bag, which we help him fill with bottles and cans as we make our way out. I think we cavers could learn a lesson or two from these Sakaka guys. Before leaving the cave, Mahmoud hides candles in one of the rooms (where there is less wind) and we do about twenty takes to get one good picture.

After we go to bed, a strong wind, typical of the "far north," arises and tests our patience. This especially goes for Mahmoud, who gets "slapped in the face" all night long. But in all fairness to Eureka, I must mention that he hadn't put in any stakes.

### **Stalagmites by the Dozen**

The next day Mahmoud is busy studying geology and I go off with a couple Friends of the Desert to try to find a cave. After a while, we come upon a big collapse which looks anything but promising. Nevertheless, I go through the motions, moving along the wall of rubble, looking for a hole – and finding one. It's only

about 75 centimeters in diameter and has no airflow, but I see darkness beyond and I crawl into it. One glance inside and I shout to my companions, "Stalagmites! Big ones!" They have no helmets, but can't resist joining me to have a quick look around. The cave has huge blocks of breakdown lying on what is essentially a flowstone floor. There are stalagmites all over the place and stalactites, many of which are either broken off or crumbling from weathering. At first I attribute the breakage to vandalism, but later Mahmoud points out that this cave has been subject to various forces, from collapses to flooding. Everything we see is covered with a layer of brown dust.



Dahl Majed by Candlelight. The cave is located in Al Greya, just north of the Nafud Desert and is chock full of ancient stalagmites.

We go back to tell Mahmoud and the others about our find and soon we are surveying what we now call Dahl Majed. A closer look at the ceiling reveals an area filled with cauliflower and helictites. At one end of the cave, we find a great wall of flowstone stretching from ceiling to floor, with an opening at

the bottom. We crawl in and find a second room. It has upper passages with strong airflow, but the ceiling here looks very fragile and ready to collapse. The cave goes, but we are not willing to risk our necks to see where or how far it goes. While we are inside the cave, one of our drivers, Abdulwahed, has collected arrowheads and a cutting tool made of chipped chert, reminding us again that this area was inhabited long ago. We head back to camp, just as a strong wind begins to rise, blowing sand and dust everywhere. Awad and company, however, are ready for any contingency and unroll a collapsible “instant wall” which indeed gives us welcome protection from the cold wind.

Just after sunset, we see three goats walking by in the distance. “They are lost,” says Hytham and he jumps into his truck. “I will catch them and we’ll keep them here until the owner comes along,” he says and off he roars into the darkness. Well, we see neither hide nor hair of him for an hour, just an occasional flash of light in the far distance. “Don’t worry, he has GPS,” say my companions. Finally, even they get a bit worried and drive two cars to the top of nearby hills and flash emergency lights. At last, Hytham appears. Amazingly, he tells us that he caught the goats and somehow found their owner. After giving the animals to him, he then found his way back to our camp. As we are surrounded by hundreds of very similar low hills and it’s pitch dark, I assume it was the GPS that led him back to us. “GPS? No, the battery is dead,” he says without blinking an eye. What remarkable people.

Next morning, as we break camp, Abdulwahed finds a seven-centimeter-long centipede hiding under his pillow. “That’s nothing,” says Mahmoud, “on a previous trip, Sa’ad, lifted his pillow to discover not one but two scorpions under it, fighting each other to the death.”

A lone white egret watches us from a nearby hill as we collect all our trash and burn it. Friends of the Desert have come to the same conclusion as we about this. Carrying garbage to the nearest



gas station, American-style, doesn't work out here, as it just ends up right back in the desert anyhow.

Our Sakaka friends are disappointed that we don't have time to accept their invitation to a meal on the way back, so they radio ahead and we find Hytham's brother waiting for us in Sakaka with gifts of extra-virgin olive oil, honey and deliciously sweet dates, all products of Al Jowf, which is the name of this region in the northwest corner of Saudi Arabia.

We drive into the Nafud and camp out again, this time far from any towers. At 6:00 AM we are awoken by the RAKATAKATAKA BEEP-BEEP-BEEP of bulldozers and trucks just a few hundred meters from us. It's the new song of the Nafud, welcoming us back to civilization.

## CHAPTER SEVENTEEN

### *The Longest Cave: Mysteries of Umm Jirsan*

After crawling around limestone caves in north-western Saudi Arabia (Did I forget to mention our meeting up with sand vipers on several occasions?), it was time for a change and we decided to pay a visit to what I consider the most fascinating lava field in the whole country: Harrat Khaybar, home of Saudi Arabia's incredibly beautiful Black and White Volcanoes. I must confess we were partly motivated by hopes of finding a lava tube longer than Al Fahda Cave in Jordan which, at that time, held the record for being the longest surveyed lava cave on the Arabian Peninsula (923.5 meters).

#### **The Monster Hole**

May 15, 2007. This is Field Trip 62 for the SGS Cave Unit, which now consists of only three members: Mahmoud Al-Shanti, Mohammed Moheisen and me. Politics and infighting have reduced government-sponsored cave exploration to the minimum.

We are heading for a spot only 128 kilometers north of Medina, so we expect to be at the cave before dark. We were given these coordinates by geologist Jamal Shawali who visited the cave by helicopter. "I see the route includes 50 kilometers of bone-jarring, tire-slashing lava rubble," I comment to Mahmoud.

“Yeah,” he says, without hesitation. “It’s a piece of cake. I checked it out on Google Earth.”

As we drive, we program co-ordinates into our GPS’s. After seven hours, we leave the highway and find ourselves in a vast field of lava chunks criss-crossed by tracks running every which way. Our waypoints prove invaluable, though, and moments before sunset, we pull up next to a huge black hole much, much bigger than anything we had expected. It’s a monster of a collapse 89 meters long with passages heading off in opposite directions. We slap one another on the back: “Now, this is a real cave!”

We had hoped to camp inside the cave, but it’s a 13 meter drop to the bottom of the collapse, reachable via a narrow trail that hugs one wall. Besides, our three drivers take one look at the big hole, shake their heads and declare that they are camping on the surface no matter what, even though the wind is howling like crazy. Putting up a tent under these circumstances is a real challenge. During the night the temperature drops to a comfortable 18°C ( 64°F).



Doorway to Umm Jirsan Cave System. A spiny-tailed lizard (dhubb) keeps watch over Saudi Arabia’s longest surveyed cave (1481.2 meters). Jirsan is just one of some 40 lava tubes spotted by helicopter in Harrat Khaybar. There are 39 more still awaiting exploration.

## The 12 Mohammeds

Next day we breakfast at the edge of our enormous hole. Off in the distance, 20 kilometers to the northeast, we can see the White Volcano, Jebel Bayda, gleaming in the morning sunlight. We are surprised to see swallows darting in and out of the cave. We're used to rock doves living in Saudi caves but this is the first time we see swallows. Do they use echolocation to find their way around in the dark as do those on the island of Mauritius? We decide to enter the east passage, surveying our way in.

The sheer size of this lava tube is staggering. In one place it's actually forty meters wide. We've never found such a big passage in any of the other lava caves and I decide we must have a picture of this spot. I hand Mohammed a small flash unit and ask him to walk across the entire width of the passage in a straight line, pointing the unit at himself and pressing the manual flash button every few paces. I then open the lens of my camera, which is far away on a tripod, to catch the succession of flashes. In many of the world's lava tubes, this would be a tricky business for the model, because the original floor of a tube is usually covered with sharp-edged chunks of lava, but this cave is full of dirt which has been building up over its entire life, quite possibly several million years. At this point in the cave I have no idea how many meters deep this artificial floor may be.

Mohammed does a splendid job of going in a straight line despite the darkness, but I have no idea what was really involved in this until, back in the office days later, I show him the picture I took, which shows 12 Mohammeds lined up from one side of the passage to the other. "What an amazing shot!" I proudly say. But Mohammed winces.

"Now that was something I'd rather forget!" he says.

"Why?" I ask.

"Because I had to shoot off that flash right into my eyes twelve times."

“But why didn’t you just close your eyes each time?”

“Ooooooh,” says Mohammed, “I never thought of that.”

Umm Jirsan would be impressive for its size alone, but inside we find all sorts of interesting things.

In many parts of the cave, for example, the floor is broken up into evenly-spaced “domes” of hard mud, about 20 centimeters in diameter and 6 centimeters in height. It’s like walking on tightly packed giant ball bearings. We find wolf and hyena coprolites all over and plenty of bones. The walls are sometimes decorated with dazzling white gypsum or brownish calcite formations, including stalactites. In one place there is a huge block which seems magically suspended from the ceiling. Our survey covers around 50 meters between each station. Sometimes it’s farther than the practical range of our Disto laser measurer. After 948.6 meters, we reach a second entrance and the end of the passage. We have beaten the Jordanian record and now have the longest surveyed lava tube on the Arabian Peninsula!

Up on the surface, it’s beastly hot and the wind is still howling. Mohammed spots our camp in the distance and we walk back over the chunky lava. It was definitely easier to cover the same distance underground even though the cave has several curves in it.



Twelve Mohammeds in the Workshop of Jirsan Cave. A time exposure dramatizes the unusual width (40 meters) of this lava-tube passage, which is thought to be several million years old.

## Growling Wolves

After lunch, I go back into the cave to take pictures. When I come out, it's just getting dark. "Where are Mahmoud and Mohammed?" I ask the drivers, but they say they don't know. By 8:00, we are all getting worried. Suddenly a light pops up over the edge of the big hole and Mahmoud's head appears. Both he and Mohammed are panting and look agitated. "Wolves!" they shout.

They scramble up to the surface and as tea is poured, they tell us their story. "We decided to survey the other (western) passage," says Mahmoud. "After 341 meters, it got really dusty and stuffy and smelly. Rocky (the puppy Mahmoud adopted on our last cave trip) refused to go any further and seemed paralyzed with fear. There were all kinds of bones in this place and then we looked into an opening at the very end of the cave. It was full of wolf droppings, mostly fresh. And that's when I heard a kind of rumbling sound. I asked Mohammed if that was his stomach rumbling and he said, 'It's not me.' Then we heard something moving around farther inside and suddenly there was this loud growl and a kind of roar and we high-tailed it out of there with me carrying Rocky in my arms. That den at the back is full of wolves!"

Before going to bed, Mahmoud tells me he has a feeling that this cave was used by a lot of people in the past. We decide to spend some time the next day looking for signs of human habitation.

Friday. No wind today. At 4:45 AM I hear our driver Hamadi giving the pre-prayer wake-up call. This must have been exactly the right time to rise back when desert travel was limited to the cool morning hours, but I wonder how modern city folk (who like to stay up until the wee hours of the night) could possibly get their eyes open twenty minutes before sunrise.

After breakfast we all go down into the pit. For the first time, I notice that certain spots on the basalt "stairway" we are

using are highly polished. "Mahmoud is right," I say to myself: an awful lot of people have walked down this path."

I look for rock art on the pit walls, but I can't tell whether the animals I see are products of my imagination or vestiges of some primitive artist's masterpiece.

We go into the East passage. I pound an iron rod into the caves dirt floor, which turns out to be 1.17 meters deep. This sediment has been deposited sometime during the cave's three-million-year history. We speculate on what might lie buried beneath the floor's surface. No excavations have ever been done in any of Saudi Arabia's lava tubes, most of which have floors as thick as this one.

## **The Workshop**

We go around a big bend and approach survey station 5, which is 188 meters inside the cave. It is almost totally dark except for a faint glow from the entrance. The hard, smooth mounds cover the floor of the passage, which is eighteen meters wide. Mahmoud sits down on a flat-topped rock about 25 centimeters high and says, "John, come look at these." He shows me two "sticks" of basalt which were lying at the base of the rock he's sitting on. At first, these look like nothing else but fragments of rock to me, but I shine my light on the ground and find another and another and another, all about the same length and thickness. After we've found eight of these, I'm sure they can't be "just rocks." On close examination, we see each one has a convex and a concave side and in every case, one end of the "stick" is pointed. When held in your fist, your fingers fall into the concave groove. We look around a little more and find half-moon shaped pieces that fit nicely into your hand and have a very thin edge. These seem to be scraping tools while the others might be for gouging. Hundreds of chips of basalt are scattered all over the ground, covered by a thin layer of mud. Only a few steps away we find

two more flat-topped rocks convenient for sitting upon and each is surrounded by objects of the same shapes we have been looking at. “This is just like the obsidian workshops I saw in Mexico,” I tell Mahmoud. “All the pieces we are looking at are the rejects. The good stuff was carried out of the cave.”



The Wolf Passage. The large entrance to this section of Umm Jirsan Cave is home to swifts, while at the other end of the passage, we found wolves and 4,000-year-old skulls.

We walk back to the entrance and find that the drivers have lowered their tea-making equipment straight down into the entrance by rope. After tea, we three cavers – plus Rocky the cave dog – head into the Wolf Passage which I haven’t seen yet. The entrance to this side of the cave is spectacularly big. On top of the breakdown just inside the entrance we find a baby crow with a broken wing. Mahmoud immediately adopts the crow, as he did Rocky. This west passage has a flat floor with no mysterious mounds. It also has lava levees which the other passage doesn’t. At a certain point, we come upon lots of bones which look very old and a pile of feathers which look very recent. “Those feathers weren’t here yesterday,” says Mahmoud. It’s interesting that the predator brought the bird this far into the cave, where there’s no light at all. We go a little further and find



a huge Ibex horn. At this point, Rocky the dog lies down on the floor and refuses to walk. A second later, Mahmoud spots two red eyes watching us from deeper inside the cave. We decide it's time to leave. Mahmoud has his arms full carrying Rocky in one and the crow in the other. It, whatever it is, does not follow us.

Near dusk, the swallows return, swooping through the air like bats. Are they catching insects? We haven't noticed any flying insects around here at all.

Night falls. Along the edge of the pit we see flickers of fast-moving shapes. At first we assume it's the swallows but we find they are large bats, well, larger than *Asellia tridens*, which we usually see. The bats fly fast, round and round along the walls in a wave-like pattern, "cresting" barely one meter above the lip.

Next morning, we pack up to the shouting and banter of the drivers. Naturally the wind is howling like crazy, making it just as hard to take down my tent as it was to put it up. Everyone has cooperated to collect our trash for burning, but when I go off to answer nature's call, a long walk is required, I see that the black lava is now dotted with white spots as far as the eye can see: a sea of Kleenexes.

After our return to Jeddah, we email pictures of the basalt fragments we found to everyone we can think of. Replies come in:

"Stone age tools? They're fakes."

"Stone age tools? They're geofacts not artifacts."

"Stone age tools? Yes, that's what they are and they're at least 600,000 years old."

Return to Umm Jirsan

Two weeks later we're on our way back to finish mapping the entire system, which includes three sections of lava tube and three collapses. This time the only cavers are Mahmoud and I with our driver-cooks Sa'ad, Obaidallah and Hamadi all of whom have acquired considerable speleological skills over the years.

During the drive, we plot the location of our cave on the geological map of Harrat Khaybar and discover that we can

actually see the string of collapses we have been exploring. Our cave is in one of 40 Whaleback Flows, which are slightly elevated areas above lava tubes, always punctuated with a number of big holes where the ceiling has fallen in. What's exciting is that our survey of the cave confirms that there can be intact lava tubes between one hole and another. Since some of the Whaleback Flows are up to 17 kilometers long, it looks like there may be enough long lava tubes in Harrat Khaybar to satisfy an army of cave explorers.

### Starvation

After a long drive from Jeddah, we reach Umm Jirsan at sunset. Even though it's hot, we build a fire and sit around it drinking the traditional coffee and tea. Somehow, the conversation comes around to how tough life used to be "in the bad old days." Sa'ad then launches into another of his stories, telling us how his uncle was once obliged to roast and eat his camel-skin shoes for lack of any other food. I then tell them about Charlie Chaplin boiling and eating his shoes in *The Gold Rush*.

"Actually, that is nothing," says Sa'ad, with a straight face. "Many years ago, two of my cousins and I were starving. As one of these cousins was rather chubby, we decided we had no other choice but to eat him. So we sent him off to gather firewood, but he had no idea what we were planning to do with it. As our cousin was returning, we suddenly heard the braying of a donkey. 'Allah has spared you!' we shouted and we ran off to catch the donkey, which we then killed and roasted. While we were eating, our chubby cousin asked us why we had said, 'Allah has spared you' when we heard the donkey bray. 'O cousin,' we told him, 'if it weren't for that donkey, at this very moment we would be eating you!'"

It's hot and stuffy inside the tent, even with the door completely open. Only at 4 AM do I need to slip under a light

blanket. At 5, the drivers are up and shouting at one another. Their teasing goes on from sunrise to sunset and beyond.

Before nine we are in the East Passage of the cave, examining the area where we found the basalt pieces shaped like hand axes and blades. We sketch the area, assign letters to different sectors and take photos. We look around for some item that shows clear signs of having been worked, but only find more of the same: pieces of basalt that fit nicely in the hand and are pointed at one end. Assuming that the archeologists we have consulted are right and none of these fragments have been chipped or worked in any way, the fact remains that only in this part of the cave do we find a concentration of tool-shaped fragments. It could be that ancient people scoured the cave for basalt fragments useful for gouging and scraping, sorted them out the spot we call The Workshop and then left the cave with the best pieces. Investigation of more lava tubes in Harrat Khaybar might clarify this business. Strings of collapses shown on the geological map indicate there should be caves ten times longer than Jirsan.

We decide we've had enough of amateur archeology and pull out the tape recorder. We walk through the cave and Mahmoud gives a geological description of everything we see, which will later accompany our map of Umm Jirsan in a report. This technique allows us to focus our attention entirely on the features of the cave and I spot some things I completely missed when we were surveying, for example, lava levees on both sides of the far end of the passage and flat wasps' nests made of mud all over the walls at the other entrance. We also notice hundreds of fox tracks and the curvy lines left by a couple of snakes.

Fortunately, we run into only a few wasps and no snakes, so we survey our way for 56 meters across a collapse dominated by a Buzzing Tree. I assume it is bees doing the buzzing and keep my distance, but Mahmoud discovers they are flies.

This brings us to the third covered section of this lava tube: a cave only 28 meters long with a man-made stone wall in pretty

good condition stretching completely across it. Blast furnace temperatures welcome us when we get out of the cave, but we decide to walk back to camp over the surface in order to have a look at the places where water leaks down into the lava tube. We are delighted that our survey has extended the length of the cave system to 1481.2 meters. As soon as we arrive at our camp, of course, we go straight back into the cave and its pleasant environment of 21°C (70°F) and 55% humidity and our drivers waiting for us with cool drinks and what else? Chicken kabsa.

### **A 4,000-Year-Old Skull**

After lunch we all go over to the Wolf Passage. Mahmoud and the drivers go all the way to the far end of the cave and bring back a human skull, fragments of two even older looking skulls, a thick bone which would seem to be from some large animal and a springy curved stick made of very hard wood. I take pictures of the spectacular Wolf Passage entrance and find a small swift's nest on the floor. Woven into it are many strands of green plastic that look like they've been unraveled from a feed sack or tarp. So, in a cave deep inside a remote lava field, swifts are now building synthetic nests!

Later we sent the skulls and bones off to a lab. Surprisingly, the more intact skull is a mere 150 years old while the oldest skull cap is age dated at around 4040 years old. The animal bone turns out to be around 2285 years old and is from some kind of bovine (not from a camel). The mystery is why bones from such different periods are all lying together on the surface...and what might we find buried one meter deeper?

At 7:00 PM we exit the collapse and collapse. There's a slight breeze and it feels quite pleasant as we sit around the fire under the slightly fuller moon. Since we've been on the move all day long, we're all hungry and Hamadi decides to make his famous barbecue chicken. It's so good that we all decide Hamadi should

open a restaurant. “OK,” says Hamadi, “I will open a restaurant with Abu Adel...and Sa’ad will be the dishwasher.” That leads us to the subject of how each person has some special talent. “All except Sa’ad” says Hamadi, joking. These two guys have been pulling each other’s leg for all the years I’ve known them.

I intervene: “No, no. Sa’ad has a special talent too,” I state, obviously with Mahmoud’s help as translator.

“What could that be?” they ask.

“Why he’s the world’s greatest story teller,” I say, reminding them of how he pulled the wool over my eyes exactly one month earlier when we found a wide mud flat in the far north and he convinced me he used to play football there with the Beni Hallal, a legendary tribe that hasn’t been seen for a thousand years.

We leave Umm Jirsan Cave System convinced that Saudi Arabia’s Harrat Khaybar is, indeed, the most promising site for cave exploration in the Middle East and perhaps one of the most important in the world.



The skull found in Umm Jirsan

## CHAPTER EIGHTEEN

### *Saudi Arabia: A Caving Frontier*

For centuries people used to make pilgrimages to Jeddah (which, they say, means “grandmother”) to visit “the tomb of Eve.” The famed explorer Sir Richard Burton went to take a look at it and concluded, from the distance between the head and foot stones (200 paces), that the mother of mankind must truly have been a giant among women.

There are, of course, also stories about the resting place of Adam, but personally, if I were going to hunt for his bones, I think I’d start looking in the lava caves of Saudi Arabia, most of which are located not terribly far from Jeddah.

Although I wouldn’t bet on discovering Adam’s tomb, I am quite sure that in these caves archaeologists will find the bones of some of our earliest relatives, those brave souls who left Africa some 75,000 years ago, crossed the Red Sea at the Bab Al-Mandab and made their way north up the Arabian Peninsula. These travelers would have discovered, as we did, that lava tubes are marvelous shelters from the burning heat of summer and the icy winds of winter and they could not have failed to notice that many of them are natural catchments for rainwater. Succeeding generations discovered the same truths, as evidenced by the stone walls we found inside even the most remote lava caves.

If we found 4,000-year-old skulls lying on the surface of a sediment floor at least a meter deep, what will archaeologists

find when they dig deeper? Apart from that, the great spice routes and pilgrimage trails wind their way through several lava fields and we have historical proof that some of the most ancient peoples of Arabia lived at the edge of lava fields. The town of Khaybar, for example, is located at the western end of the lava field of the same name and has been around for a very long time, since the history books tell us it was captured by Babylonia in the year 552 BC. What better place to hide scrolls and valuable objects than the dark recesses of a lava cave?

I estimate that there are at least 400 kilometers of cave passages in the older flows of Harrat Khaybar alone. Only two kilometers of these have been studied by speleologists and not one inch of a Saudi lava tube has ever been looked at by an archaeologist.

Thanks to Google Earth, the gigantic kites (stone animal traps) of Harrat Khaybar are being studied with great interest by scientists all over the world who have never set foot on the Arabian Peninsula.

Saudi Arabia has around 89,000 square kilometers of lava fields awaiting exploration. As for the Kingdom's vast limestone deposits, the 207 caves we have registered so far are just a drop in the bucket.

What we did learn is that desert caves, with their low humidity and cool temperatures, are perfect for preserving bones, bodies and objects from the past. As for the minerals, microbes, flora and fauna which have developed inside these isolated habitats during their long history, we've seen just enough to suggest that wonderful things are lying dormant below the surface, just waiting to be discovered.







John and Susy Pint relaxing at their camp site after a long day of caving.

John Pint fell in love with caves as a Peace Corps volunteer in Jamaica. He later taught English all around the world and somehow managed to find caves everywhere that he went. After major discoveries in Arabia, he was hired by the Saudi Geological Survey to explore and document the country's caves. He wrote *Desert Caves of Saudi Arabia* in 2003 and today makes his home in Mexico where, with his wife Susana, he wrote *Outdoors in Western Mexico*. Stories of his adventures in both countries can be found at [www.saudicaves.com](http://www.saudicaves.com).





