LECHUGUILLA
– AN EIGHT DAY EXPEDITION

David Wools-Cobb
PO Box 20 Ulverstone TAS 7315

PHOTO: DAVE WOOLS-COBB

Crystal Tree. Photo Competition Third Prize for a Digital photograph in the Cave Decorations, Formations and Deposits category.

INTRODUCTION

Lechuguilla is considered by many cavers to be one of the most beautiful caves in the world. It lies under the Guadalupe Mountains in New Mexico, close to Carlsbad Caverns tourist cave. The entrance of the cave chamber has been known for many years. However, it was not until the mid 1980s, after several digs through rock "air holes", that the cave opened up to eventually become one of the greatest cave discoveries of the twentieth century. The known cave is now 184 km long and 457 m deep, making it the third longest in the USA and the deepest on the US mainland.

I first heard of "Lech", as it is often called, in the mid-1990s, and soon after saw the book *Lechuguilla - Jewel of the Underground.* At the Hamilton ASF conference, I saw a video film of a major rescue of a caver from Lech. It was about then that I decided to add a visit to Lechuguilla Cave to the list of experiences I wished to achieve in my lifetime!

After a few inquiries and discussions with US cavers I discovered that the chances of a caver from Tasmania getting into Lech were virtually nil. Access to the cave was highly restricted and full of political in-fighting, so much so that the cave was closed for a two-year period. For some time, the only access seemed to be by "lot" – hoping your name came out of the hat. I even heard rumours that this lot was rigged. For a few years I put my Lechuguilla project on the back burner. Just then I found that Jeff Butt had managed to get a trip in.

He just happened to be in the right place at the right time. Soon after, I hosted Peter and Anne Bosted - two American cavers renowned for their cave photography. I spent a fortnight taking them around some of our best caves. Peter & Anne seemed to get reasonably regular trips into Lech, and managed to get an invitation for Jenny & Garry Whitby of Newcastle and Hunter Valley Speleological Society to join an expedition.

Around this stage the "politics of Lech" were changing. More often private expeditions lead by well-accredited cavers were gaining permits. The Lechuguilla Exploration and Research Network (LEARN) was still active and still relying on the "lot" method, or who you know. Jenny and Garry managed to impress the US cavers enough to x't a second invitation for an expedition in 2003 and then mentioned that they knew of a crazy Tasmanian caver who would be keen to join them. I was most fortunate that, through my relationship with Peter Bosted and the Whitbys, I was invited to join the October 2004 expedition led by John Lyles and Peter Bosted. The invitation arrived in adequate time to allow me the opportunity to prepare and arrange time off work.

PREPARATION

Planning for eight days caving in a cave halfway around the world is a considerable undertaking. Jenny & Garry's advice was invaluable. My biggest challenge was adequate light. I had previously made up a 'sewer light' for an caving visit to Iceland, however the globe used still chewed up batteries. Just in time, a new technology was released called "Everled". These globes are LED-based, but many times brighter than ordinary LEDs, and have a regulator built into the housing, so they just slip in as replacement globes without any alteration to the basic light design. I tested this system on a large cave like Kubla Khan, and found it more than adequate. My first set of 3D cells lasted 34 hours! Back-up lights were also a variety of LED based lamps, all taking AA size batteries to be compatible with all my flash & camera gear.

The next challenge was to cope with the cave conditions. Lech experiences 20 degrees Celsius and 99% humidity most of the time. By Tasmanian standards that is very hot, especially on exertion. I have caved in similar conditions in China and South Australia and found it very uncomfortable. For Lech it was a case of "Coolmax" shorts and tee shirt, and good elbow and kneepads to lessen injuries. A good collapsible water container, both for each day's outing from camp and to store water at camp was also essential. For storage I used wine cask bladders, and for each day - a collapsible hydration bag with tube and valve.

Another challenge was photography. I knew that this was a "work party" and my job would be surveying. This meant that there would be little time to take photos. How could one go to Lech and NOT take photos? Weight and a quick set-up was the principle that led me to decide to "go digital"; something I had only dabbled with previously in caves. Due to the high humidity I purchased a waterproof housing, which added bulk and weight but would ensure the camera did not fail. I also carried two flash units with Firefly slaves. Despite having been sealed in plastic bags, the humidity wrecked one flash unit. Although I prefer to spend time setting up for a good cave photo, I decided due to weight considerations, to dispense with a tripod and hope that others would have flash units available to assist with lighting up large areas. I was severely disadvantaged from a photographic point of view: a new camera, no tripod and minimal flash units. Also, I was a volunteer surveyor and any shots would have to be quick efforts.

Food was another huge challenge: enough for eight days, light weight, able to handle humidity and easy to cook. Our expedition leader offered to purchase "Mountain House" freeze dried meals, so I opted for a two-person pack for each evening meal, and packed muesli and dried milk for each breakfast. I made up a "scroggin" mix of chocolate, cashew nuts, sultanas, dates and dried fruit in lunch bag lots, plus of course a few snack bars to ensure I did not starve. I also carried 500g of staminade to ensure adequate electrolyte replacement.

GETTING THERE

I met with the Whitbys at Sydney airport and we flew through to Los Angeles. Here I discovered that my backpack was still in Melbourne, which is a bit distressing as all that technical gear would be very difficult to replace quickly. I made arrangements for my pack to follow me to El Paso (Texas) and fortunately it duly arrived 24 hours later.

We hired a car and drove to Carlsbad, staying with caving friends overnight before heading up into the Guadalupe Mountains to Carlsbad Tourist Cave and checking into the cave research huts where the whole group would be meeting. To fill in time the Whitbys and I arranged a free self-guided tour of Carlsbad, which is huge and takes about 3.5 hours.

TRIP PREPARATIONS

Every member of an expedition into Lechuguilla has to fill in all sorts of "Parks" paperwork and is in-effect a volunteer worker, covered by workers' compensation. We were required to view an extensive PowerPoint presentation about the cave, with the standards of caving, camping, water collection, surveying, etc being spelled out. The Parks staff seemed genuinely appreciative of the work of cavers done within the cave, but stressed that all survey data and inventory would become the property of the Park (and in effect cannot leave the Park).

CONDITIONS IN THE CAVE

Lechuguilla is a serious trip with many pitches and considerable climbing. The psychology of not knowing what lies ahead does make it somewhat daunting. I had read about "Terror Traverse" and heard stories of some very difficult sections, but frankly most of the "trail" through to the Western Borehole section is pretty easy BUT with a 22 kg pack on your back, it becomes a hard and very hot trip. It took six hours to get to the campsite at Deep Secrets. The cave IS hot, which means carrying plenty of water, and drinking continually – that adds considerably to the weight one has to carry.

There are severe restrictions on where water can be collected in the cave, and how this is done. The principle is to minimize any possibility of contamination as this could be disastrous both to the cave environment and to further expeditions. A jug is in place some distance from the water source – only this is used within the pool, then carried some distance to your water container area and must not touch your container while decanting. Fortunately water was available only ten minutes from the campsite, so each day empty containers were left for a refill on the way back to camp.

The campsite managed to accommodate all twelve of our group. Camp consisted of spreading out a plastic ground

sheet, then a thermorest sleeping mat, and then a sleeping bag. All cooking, eating etc is done over the ground sheet to ensure no foreign particles are left in the cave. The toilet area was about 100m from the camp, with urine stored in wine cask bladders or similar containers and faeces double-wrapped in plastic bags. Some cavers seemed more sensitive to the smell than others.

Visiting the toilet involved covering boots with plastic boot covers so as not to transport any foreign bacteria or whatever back on to the trail.

ACTIVITIES

Each day (without a sunrise!) parties of four cavers would be assigned to an area to survey. Each party was lead by a sketcher, with one member responsible for all inventory recording (everything between stations), someone "on point" setting up survey stations and doing back-sights and someone on instruments. No "scooping" was allowed - a term used for checking out leads for some distance ahead without surveying them. Our expedition worked in the Western Borehole area, with groups being given either a specific area to follow up known leads, explore further and sometimes check survey errors from previous expeditions.

By 2004 all of the easy surveying had been done! Hence most of the surveying I was involved in was in fairly tight, sometimes gnarly type passages. "Work sites" were sometimes 2.5 hours away from camp, and at times involved negotiating several pitches or climbs. Most days involved between 12 and 16 hours of caving, often depending on how much new passage was discovered and how enthusiastic the group was to survey it. In all, our expedition added 1300 m to the cave and re-surveyed almost 500 m.

Unfortunately there was little time for serious photography, with most photos taken while en route to the work area or returning. This severely limited the time that could be spent setting up a shot, but I had to accept that I was there to work. Each day's walk west took us past Lake Louise, our water supply and along the same route for at least an hour, so very quickly what had been some considerable effort on the first trip out along the bore hole, involving several handlines, two vertical rope climbs, a crawl and a very long "trog" soon became very familiar, easier and less sweaty! I guess I was getting fitter and more acclimatized.

LESSONS LEARNED/PERSONAL OBSERVATIONS

I found the heat and humidity very difficult to get accustomed to, especially when involved in considerable physical exertion such as prussiking or caving with a full pack. My pack with all food, spare batteries plus normal caving and vertical gear, weighed about 22 kg. Caving with such a weight is about six times more difficult than caving with a daypack! However the heat had its compensations. I never felt cold, although sometimes others did.

The pitches were easy with no rebelays, and most climbs and traverses only became a challenge because of the weight and bulk of gear being carried. I found I drank about 3 litres each day, but my appetite was greatly reduced, possibly because of the heat. At one stage I thought: "this is great; I'll loose heaps of weight" (but have to carry out a lot of food), but then I worried about keeping up enough energy. Usually I ate virtually nothing between breakfast and the evening meals (sometimes after midnight). It is so different to caving in cold Tasmanian caves.

Flagging tape is used throughout the cave for several reasons:

1. To mark both sides of the trail, limiting the damage of caver traffic and marking all turnoffs and survey offshoots. This makes navigation very easy on "the main drag".
2. To leave permanent survey stations, with the survey series numbers system unique to each survey leg and a definite point as the actual survey mark.
3. To mark off very delicate areas or special features – this alerts cavers to be particularly vigilant and also provides the ability to relocate features such as fossils.

Surveying and drawing is done to a very high standard. All sights are done as forward and back sights with the expectation of a measurement error of two degrees or less. Distances are done by Laser Disto, measuring twice to reduce measurement error.

The inventory is extremely extensive, involving walls, floor, room, biology, types of speleothems, all crystals and many other features (frankly to do it properly you would need several geology-related degrees). On "point", one would only scout ahead for a short distance before deciding to survey as great criticism has been leveled at previous explorers for scooping and then not bothering to survey (many great leads have remained undiscovered because of this). My team's greatest effort was 500 feet of survey in one day, breaking into a whole new section of cave at about 21:00 hrs – we didn't return to camp until 03:00 hrs, leaving more surveying to return to.

When checking previous survey errors it was easy to be critical. In the early days when walking passage was involved, with survey legs of over 100 feet, no back bearings and a mad rush to find more big cave, standards were certainly compromised. (Some survey stations were not marked, making relocation impossible).

The cave has an airlock near the entrance to maintain the conditions that existed before the dig through. The cave is also left rigged on all handline traverses and vertical pitches – some vertical leads have only been examined once but a rope is left in place in case further investigation is required. Overall, I was very impressed with the "management" of the cave. A huge effort has been made to protect as much as is practical from human impact, or at least limit damage to the main trail and certain other areas.

Standards for collecting water, camping and toilet regulations are strict to minimize human impact and contamination. Camping sites and water sources are severely limited. The survey standards are high and applied in such a way as to minimize the possibility of requiring re-survey and hence more caver impacts.

Without extending this article into the complex geology of the cave, Lechuguilla has some incredible secondary deposits that are almost unique: gypsum bowls 1 m across, dogs-tooth spar about 25 cm long, chandeliers 4-5 m long, mammaries and aragonite trees up to 2 m high. I am sure my photography has not done it justice.

I feel Australians would do well to adopt many of the standards set for cavers in Lechuguilla, particularly in potentially extensive and/or well-decorated caves. When it is done right the first time it will pay great dividends both for the cave and cavers in the future.

Lechuguilla is certainly one of those "trips of a lifetime". I felt privileged to have been able to experience at least some of this wonderful cave for eight days. ■