IMPERIAL COLLEGE CAVING CLUB
IMPERIAL COLLEGE UNION
PRINCE CONSORT ROAD
LONDON SW7 2BB

Journal No.21 – Summer 1998

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Weekly meetings are held on Tuesday evenings at about 9:00pm in Southside Upper Lounge.
Messages can be left with the Student's Union (Tel: 0171-589-5111).

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Articles, letters, photos, surveys etc. for publication can be sent to the same address.

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INSIDE:

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COVER: Sarah Wingrove at the bottom of the last main slope of Exhibition Road, Level 2, Migovec System, Tolmin, Sovenia.
Photo by Dave Wilson, 1997.

Editorial

Introduction

After two years of studious inactivity on the newsletter front, suddenly it seems, everyone has learned to write. Even Shed has discovered the pointed end of a pen and what it's for. Thanks to all who contributed - please keep it up.

Originally, when started in 1983, this publication was envisaged as a newsletter aiming to keep the whole club together, that is both people at college and the old lags that had left. It has however become not so much a newsletter (the grapevine is much more effective at distributing news) but more of a journal or review of the past year's activities. Consequently, now that we've arrived at the 21st issue I've decided to change the name from ICCC Newsletter to ICCC Journal. Note that this is just a name change and the numbering continues as before.

So welcome to ICCC Journal number 21. As well as covering tours and expeditions over the past two years there's also the more random scribblings of people on various caving topics: there should be something for everyone. Some articles are quite a bit longer than is normal in such publications but I feel this is justified considering who the immediate intended readership is and that this issue might have to keep you going for a year or more. Nevertheless I had to heavily edit some articles for length and clarity. And spelling. Although I will warn you about one persistent spelling error you're still likely to find. Microsoft Word 97 doesn't like "cavers": it doesn't think they exist and constantly changes them to "caverns". If I was more suspicious I'm sure I could start another Bill Gates conspiracy theory here.

Comment : The thirst to be first

A current advert for Rolex Explorer watches goes:
"The back of Erling Kagge's wristwatch is engraved with these words: North Pole 1990, South Pole 1992-3, Mt Everest 1994. It says explorer on the front as well".
And there was me thinking that both poles and the top of Everest had already been discovered! Exploration, it seems, is now primarily equated with adventure and in breaking spurious records.

Seriously though, you too, could climb Everest – for a price. In recent years there has been a proliferation of companies offering to guide inexperienced mountaineers to the place above all others. Classified adverts in sports magazines offer *"Your best chance of reaching the top of Everest. All you need is £16 000 and a little bit of mountaineering experience"*. The offers have been taken up eagerly. At one point in 1996 there where almost 40 people standing on the roof of the world, an area about the size of a large room. Meanwhile people are dying. Within 24 hours of those 40 photographing each other on the top, nine of them were dead including one of the guides.

Going to Everest now is like arriving at a Disneyland spectacle. The place has been torn out of context and the only thing it serves is the selfish gratification of the paying customer. The mountain itself has turned into the highest rubbish dump in the world, with discarded shit, food, equipment, and the bodies of those that didn't make it, strewn all over the place. Reaching the summit has become the visitors' only desire: they don't care how they do it.

And a major part of this trend is trying to achieve records. A certain David Hempleman-Adams is aiming to be the first person to do the so-called "Grand Slam" the highest peaks in each of the seven continents plus the north and south magnetic poles. As I write he may already have achieved this goal. Similarly the papers were recently applauding the first all-woman group to reach the North Pole. Whatever next, the first person to get there walking backwards, or with their arms tied behind there back? Rather than doing firsts, shouldn't we be using the trips to conduct research on the melting ice caps? To clean up all the crap on Everest, or do some real exploring like going where no one has gone before (eg. the thousands of genuinely unexplored peaks in the Himalayas) or discovering something previously unknown.

I feel that the true fault lies with the current supermarket-adventure culture. Much of the travel industry is about making remote places accessible to the masses and making the masses think they're boldly going where no one has gone before. People who haven't even filled in their own visa application are shipped out to test their Range Rover driving skills in the Sahara, or to blunder around Amazon trails thinking themselves to be the new Fawcett (but expecting a discount if they get mosquito bites). People love, even expect,

the "safe-risk" bought off the shelf. Bungee jumping, parachuting, scuba-diving, abseiling, caving etc, are all risky activities that, helped by better equipment can now become part of the funfair, charity event or a management training course. In such circumstances the adventure has been wrung out of them and all that remains is the perception of risk among those who never really appreciated the dangers involved. And with this failure to appreciate the real risk comes the total absolution of any responsibility. If I pay you to take me canoeing/climbing/caving then I am a customer - I expect you to look after me (and I'll sue if I'm either disappointed or hurt). Yes the litigation lawyers are not far behind.

Even famous "explorers" nowadays expect the world to be domesticated. Ranulph Fiennes (*"the worlds greatest living explorer"*, as the Guiness Book of Records dubbed him) in 1996 was attempting to be the first person to walk across Antarctica. When his feet got sore and his back was chafed by hauling the sledge, he gave up but there was no risk he was going to die. Like a motorist stranded on the hard shoulder, he telephoned the polar equivalent of the AA and within a day he was in the Chilean city of Punta Arenas. I'm not against adventure and I'm certainly all for minimising risk and being as safe as possible, but I question the whole purpose of trips such as this: they're just stunts.

But what worries me, is that sooner or later the record hunters and peddlers of safe-excitement will notice caves. How soon will it be before the deepest caves on each of the continents is added to the Grand Slam? And then someone starts offering to guide people down the Gouffre Berger – for a price. Would it matter? Maybe in isolation, no, but caves are not playgrounds, they are some of the last genuinely unexplored places on earth, they're fragile and you can't just be helicoptered out from the bottom.

But my real concern is not for the deepest caves in the seven continents (anyway you'd probably have to keep doing them as the list is constantly changing) but for the dumbing down of ordinary caves and caving. Caves like Swildons are already awash with school kids, management trainees, and squaddies getting "adventure" ie getting their wet feet. I fail to see how shepherding a person down a cave is supposed to encourage initiative and self-reliance. As to records, we've already had various people attempting to do the highest peaks and deepest caves in the UK, within a week, in 24 hours, faster than the last team. Have-a-go caving doesn't encourage safety, and competition caving doesn't bode well for cave conservation.

The total artificiality of traditional sports bores me – I completely fail to see the point of trying to get balls into nets, through hoops, into holes in the ground or using them to knock bits of wood over. And I especially despise the gang/nationalistic mentality that seems to be the essential accompaniment. One reason why I enjoy caving is its lack of artificiality or competitiveness.

Sadly though, I'm increasingly seeing competitiveness in cavers. There are those that won't do a trip because they've already "done" that one, that compare trip times, that won't spare the time to train others, or who only turn up for the "good" trips. Thankfully ICCC seem largely free of this but we're about to go into a summer expedition where someone almost inevitably is going to be the first to get below 1000m in Migovec. Whilst we'd all like to be that person we should all remember that it is truly a team effort and the credit is shared by all those who have contributed over the years.

But everyone going to Slovenia in the summer can rest satisfied that with a bit of effort, discomfort, a modicum of risk, and a decent helping of self-reliance, they too, unlike Ranulph Fiennes, can truly go where no one has been before and contribute to the knowledge of the planet. And that's what exploration should really be about.

The real explorers have always had the imagination to discover the unknown rather than merely follow someone else's packaged itinerary.

Clive

Clive Orrock (editor)

Quote - Unquote

"With the exception of the Antarctic, the oceans, the highest peaks and the deepest caves nearly the whole world has been explored. Indeed it was never unexplored. All the famous explorers during the so-called Age of Discovery were rarely doing original exploration. Rather they were just visiting people around the world who already knew exactly where they were!"

President's Report

1996-1997

It was the second of the Evans brothers who first approached the young man. At any rate, that was the way the young man preferred to remember it. In all fairness, it was the young man's highly irritating curiosity and downright foolhardiness that drew him into the whole sordid intrigue.

At first it was nothing more than a passing comment or a strange aroma that interested the young man in Evans. However, he soon began to notice that on many Monday mornings Evans would often arrive at work caked in mud, looking tired and dishevelled. On such days he would usually fall asleep in the afternoons, slumping over his desk as the pen slipped from his scabrously callused hands. Weary of his own work and drawn by that curious scent, the young man eventually overcame his inhibitions and asked how Evans spent his free time. Evans raised his eyebrows, wiped his nose on his sleeve and gave his reply. His words sounded hollow and false, and the incessant fumbling with his crotch only heightened the young man's suspicions. Gardening? It sounded ridiculously implausibly fantastic. Moreover, Evans lived South of the river, where there were no gardens. He pressed him further. Evans fumbled, heavily this time. Yorkshire he said, or Wales, mostly just village horticultural shows. Although he was no athlete and nor was he particularly interested in animals, the young man had always remembered his father's tales of gardening adventures. Falling to his knees, he begged Evans to let him come on the next gardening trip, as Evans had known he would since the day they first met.

And so it was that a few weeks later, the young man made his way to a dark cellar where he was told the other gardeners would be waiting. Entering that foul smelling room, the young man immediately found himself grasped by many strong hands as blows rained down on his head and face. Drugged, or maybe hypnotised - he could never recall - he was bundled into the back of a small charabanc and was soon speeding along the old turnpike road past Dover, over the mighty Forth Bridge and into Wales.

ICCC Executive 1996-97

President	Paul Wilcox	(Cox)
Secretary	Kathryn Atherton	(TW)
Treasurer	Anthony Woods	(Pants)
Tackle	Tim Wright	(Shed)

Anyway, to cut a long and largely implausible story short, the young man was eventually installed as a puppet president of the gardening club, which had been re-named the caving club to keep women and normal people out. He was aided by a book keeper, the sinister Mr. Pants. There was something of the night about Mr. Pants, which in the main prevented him from participating in any horticultural or caving activities. Another major protagonist who had already had several involvements within the club was a furtive female who continued to carry out specialist secretarial duties, frequently and vigorously.

Of course, by this time, many more fresh young men had joined the club. Two to be exact. The dark overlord Clewin the Keen was often to be seen shimmering in his black Perfecto leather jacket and Reactolite prescription sunglasses, whilst the the fiery eyes of The Goatman glowered above his black beard, totally belying the rank incompetence behind them. Shed was there too, but he has his own story to tell. And Ollie occasionally turned up, but usually only when he wanted something.

A year past, some gardening and even a bit of caving was done, between numerous culinary activities. Notts Pot, Eastwater and OFD were among the many fine English country gardens and shrubberies visited. The club even stretched to a two car transcontinental trip to the famous rockery at Dent de Crolles. Of course, such a horticulturally successful year was not without its mishaps, not all of which could be blamed on Shed. The remainder can be attributed to The Goatman, who could usually be relied upon to forget anything that Shed had accidentally remembered.

The young man is an old man now. The drug, or was it hypnosis, has worn off, and he no longer goes gardening, because it's too

dangerous and makes you smell funny. Evans settled down with his young wife and eventually left the country to make water in Africa. Mr. Pants left London to return to the fenland swamps in Cambridge. And so it goes on, year follows year, the old chaff makes way for the new seeds etcetera etcetera. Of course, some things never change, Clive still does the newsletter, Dave Wilson still looks after the equipment and Jim still runs the club.

Paul (more Alva than Alva) Wilcox

ICCC Executive 1997-98

President	Tim Wright	(Shed)
Secretary	Clewin Griffiths	(Clue)
Treasurer	Mike Rogerson	(Goaty)
Tackle	Jan Evetts	(Jesus)

El Presidente Dictates 1997-1998

Well, the end of another season of caving. This year has been fantastic. OK enough bullshit I'll tell it like it is. With me as President and Goaty as treasurer it was going to be an interesting year. We got off to a good start - we actually had an entry in the union handbook, and the Freshers' fair was OK - but the shit hit the fan by the cheesy wine evening. It turned out the room hadn't been booked but in true caver style we somehow managed to survive the evening, (except for Tetly who got exceptionally drunk) and the bollocking I got from Ken Wier was not too painful.

The freshers' trips represented the first trip to the Mendips since being banned from there in 1996. This year we showed the novices Goatchurch which immediately turned them into experienced cavers, so the joys of GB and Longwood could be enjoyed!

After the whittling down and removing of riff raff, we ended up with a few keen new members. One of these members (Shrub, so called because of his desire for a stupid name) has even become Secretary and probably will end up doing a little treasury work too! (Haa Haa!). We have also been joined by the lovely innocent little French girl, Fabienne, who never causes trouble!

Goatman and my self blundered our way through the year, booking the van on every occasion and never making mistakes that left us substantially better off! It is in fact, surprising we managed to organise a very successful Majorca trip.

Seriously, I have really enjoyed this year and would like to thank everyone for their help. It has been a bloody good laugh ... and the caving was quite good too. Next year the Caving Club is being run by Colm Carrol (Comf. Master). He has gone to the trouble of drawing up the Comf. Caving Guidelines. Next year only caves that meet this standard may be entered:

1. No cave passage must contain any water.
2. No cave passage must be below 17°C.
3. No cave passage must be lower than the shortest member of the trip.
4. No cave passage must be narrower than the fattest members of the trip (unless that person is Jim).
5. All caves must be decorated with Mars bar trees and have beer points at 20m intervals.

I am going to continue as Treasurer, but will share the work with the newer members of the club.

Anyway to finish off, that loads to every one, especially Clive for sorting out this most excellent newsletter and to every one that contributed.

Tim Wright (Shed)

And finally,

Here is the theme tune of the 1997/98 season (sung to the Itchy and Scratchy music, from The Simpsons):

They fight
They're shite
They fight, they're shite, they fight
Fight, Fight, Fight
Shite, Shite, Shite
The Shed and Goaty Show!

Deep Intentions

Easter '96

Trip participants:

Bruce Drinkwater
Jim Evans
Mark Evans
Joel Gustafen (Jack Shit)
Tony Hayden (Tonx)
Herman Hertz
Iain McKenna
Jos Visconti (Froggy)
Paul Wilcox
Sarah Wingrove (Scuzza)
Tim Wright (Shed)

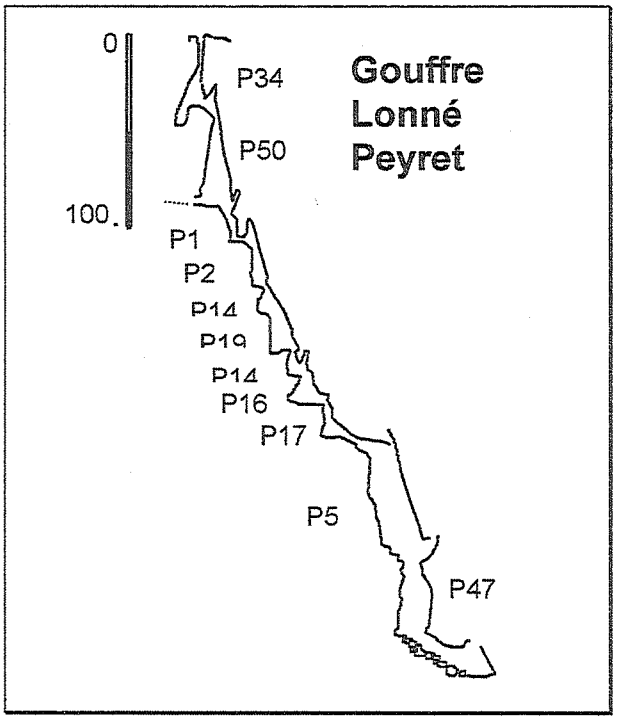
When the Vice President of Tours (or is that President of Vice-Tours) caught wind of the exceptional opportunities of the Pierre Saint-Martin massif in the western Pyrenées, it was clear that we were going to have to go there. There are few European destinations that can match the PSM's extensive collection of sporting trips to depths of more than 1km. Only a fraction of the experienced student cavers in the club had attempted such great depths and there was also the need to train for the summer expedition (where we were sure to be exploring below 1000m!) so the Pyrenées seemed to be an obvious choice for an Easter Tour.

Amongst the piles of encouraging advice received from Michel Douat (of l'A.R.S.I.P. and guidebook fame), Mr Lock, and a certain froggy - Jos, was a more cautious underlying message: the local temperature could severely restrict the caving possibilities. If the spring thaw was underway, many pitches would be impassable. We didn't have the luxury of being able to organise a trip at the very last minute so needed to risk booking and planning things a bit in advance. But encouraged by a few £50 deposits and Iain's written promise to go caving every day, we bought 400m of new rope and took the gamble, keeping it all crossed for a window of icy weather. Our plan should it prove possible was to do the renowned PSM traverse, rigging in through the Tête Sauvage and exiting out of the EDF Tunnel (-876m).

So eventually eleven of us set out for the St. Engrace gîte d'étape, unwittingly diverting to the wrong side of France to drop off a Frenchman (who let him map-read?!?). After a taste of Herman's driving, a general navigational crisis near Pau, and 30 hours spent trying to get horizontal in a minibus full of front-facing seats, we finally managed to find the gîte.

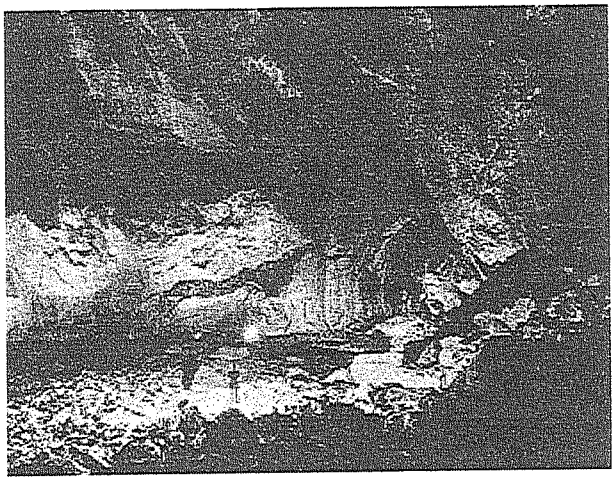
Despite our booking Jack Shit was the only one who got a bed - the place was packed with French, Spanish and Bulgarians from whom we soon learnt that Tête Sauvage (D9) was flooded. Next morning IC^3 moved their pits from the graveyard into the dormitory and everyone else moved out of the building for the rest of our stay - we seem to have that effect on people!

We attempted four caves during the course of the week: Lonné Peyret, Couey Lodge, EDF-Verna-Chevalier-Lépineaux in the Réseau PSM, and Trou Renard.



Lonné Peyret and Couey Lodge took a considerable time to locate due to the danger of falling into gaping limestone crevasses obscured by thigh-deep snow (as demonstrated by Herman) and because of the soup-thick fog at altitude. The significant yet curtailed depths attained in the almost entirely vertical entrance series' of these two caves were partly a consequence of water activity but also the size and experience of the groups. However, had the froggy twits who'd bolted the caves not placed the rebelays in the waterfalls but just a little to one side where it was dry, we might have rigged considerably further.

An excellent trip was made in the PSM going in through the 700m long EDF tunnel to the massive Salle de la Verna where we peered out into the gloom knowing that the opposite wall was fully a quarter of a kilometre away!! We then trudged upstream through huge passages and chambers to the boulder pile at the foot of the Lépineux shaft where the only real difficulty was in knowing which side of the passage to be on.



As a change, a memorable day was had skiing (or, for Bond, clipping his skis back onto his feet and hurtling uncontrollably towards more trees), and another walking up a gorge patrolled by eagles and taking the inevitable photographs of Tonx.

The Trou Renard (<50m) although hopelessly sticky in the lower regions, was a short pleasant finale to this year's caving in France. the curious formations within demonstrated the great diversity of the potholes on and around the massif with respect to depth, length, volume, decoration and difficulty - all the qualities which have helped to make the PSM an all-time classic summer tour venue. There is also still considerable potential for original exploration.

Scuzza
November 1996

Left: A corner of the Salle de la Verna, PSM

Prints of Darkness

Caving is not usually a recreation you can pursue at home. But now, from the comfort of your own armchair you can go caving into some of the most inaccessible caves.

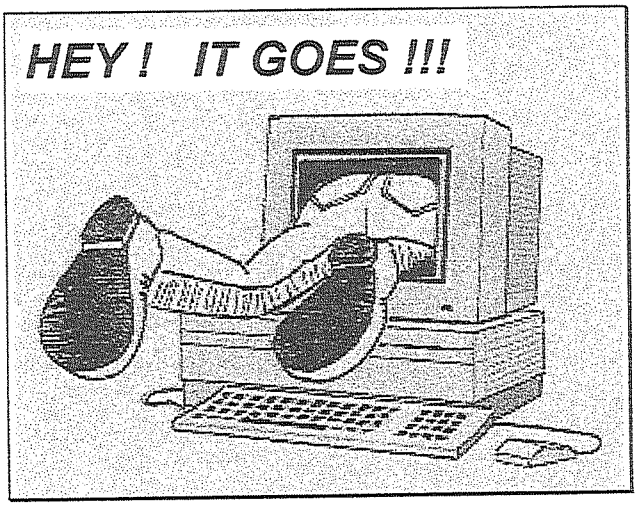
Access to the famous prehistoric cave paintings in the recently discovered Couscer Cave near Marseilles is restricted by the authorities as well as by its severe entrance dive. But soon anyone with a PC should be able to gain access.

The Couscer Cave entrance is 37m below sea level from which a 175m long tunnel leads to the main chamber full of formations and priceless cave paintings. These palaeolithic paintings are believed to be older than those at Lascaux and are the only ones this far south in France. However attempts to study the paintings are hampered by their fragility and by the difficult access - 3 people have already died attempting the entrance dive.

So the French authorities decided to make a copy. Using a laser scanner borrowed from the French Nuclear Authority they took 5,000,000 data points roughly 2cm apart throughout the 70m long chamber. Simultaneously a video camera recorded the colour and texture of the rock, stal and paintings. This has been used to create a virtual cave now on show in Marseilles museum and soon to be available on the Web. The cave itself is now sealed except for official scientific work.

Other cave art previously hidden in the depths of the Vallon-Pont-d'Arc caves in the Ardèche region of France are already available, see:

http://www.culture.fr/culture/arcnat/chauvet/en/gvpda-d.htm



Subterranean Clambers

The Dent de Crolles Easter 1997

Trip participants:

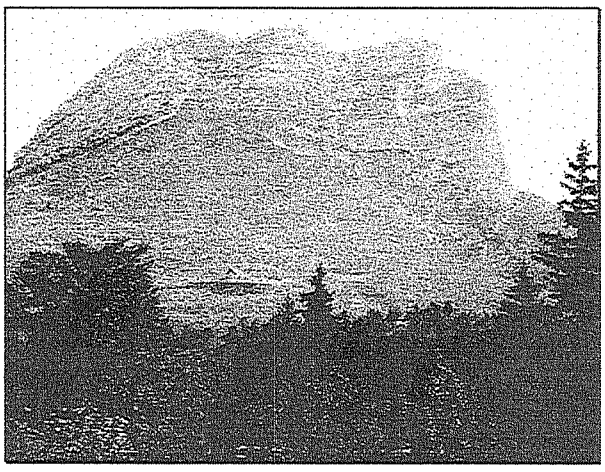
Alva Gosson, Jim Evans, Iain McKenna (The Batchelors)
Mark Evans, Jackie Wiersma, Kathryn Atherton, Paul Wilcox, (The Couples)
.....and also starring:
Emmanualle, Jocaster, Kylie, Natasha, Flossy ..... etc. (the Tackle Bags)

A pilgrimage to the roots of Caving and of ICCC.
"Begluckt Darf Nun Dich" **(Pigrims Chorus)**

While the Christian world was remembering its spiritual origins at Easter the Caving Club took a pilgrimage to its own birth-place: the Dent de Crolles in Chartreuse. This massif or rather the caves in it was the inspiration for Petzl and Chevalier's development of modern vertical caving back in the late 1930s and our club's first foreign venture in 1962. Our last visit was in 1990. This year we repeated its two classic trips: the Trou de Glaz to Grotte d'Annette Bouchecourt traverse, and Trou de Glaz to Grotte de Guires-Mort traverse.

Composed of labyrinthine passages at three levels the cave looks daunting on the survey and has a reputation for ensnaring the unwary, fitting my memories from 1990. Our first concern though was securing a knowledge of the exits positioned high on the faces of the dentine monolith. The late melting of snow this year meant that the road from St. Hugues to the Col de Coq, at the foot of the mountain, was impassable to vehicles and from here the walk to the Trou de Glaz involved traversing several hundred meters of steep snow - less than ideal for the average caver kitted in a toboggan. Contrary to advice from the local tourist centre we pursued our goal. In addition to caving during the week Katheryn and Iain spent two days climbing, and most of the rest of the time was spent in the kitchen of our homely gîte in the service of our stomachs.

By Easter Monday we were ready to rig the Trou de Glaz to the insignificant junction joining Guires-Mort to Annette. Iain, Jim and I, the bachelors, using crampons and ice axes hiked to the entrance around the impasse to the Col de Coq. Entering the large slot over an obscuring bank of snow, the cave's naming became clear. An ice flow built from a small central waterfall sheeted the floor and from the walls and roof hung a series of huge glistening icicle groups. At the limits of daylight a translucent parade of ice stalagmites stood in rank and file across the grand East Passage their heads bowing into the cave in deference to the winter inflow of air: the ices last stand against that hidden realm which knows no winter. (*Gawd blimey its bleedin' Oscar Wilde! - Ed*). Beyond this we passed east, rigging the three pitches and traversing onto the Annette level, stopping after three hours at the Puits Fernand (named after Fernand Petzl). Mark, Jackie, Paul, and Katheryn, the couples, reccied the crawling Guires-Mort entrance to the first pitch, Puits Pierre (named after Pierre Chevalier).



The Dent de Crolles massif.

After driving the kit around on Tuesday via Grenoble and a reccy of the Annette exit, came the main assault on Wednesday. Taking no chances this year we equipped ourselves with compasses and photocopies of the survey. Mark, Paul, Katheryn, the couples minus Jackie put off by Tuesday's trip, undertook the traverse to Annette. The

bachelors aimed for Guires-Mort. In 1990 the former took 10 hours the latter some 12 hours after both these trips had been washed aground in unsettling periods of disorientation.

Annette starts off large and high for half its length before dropping into large passages progressively more and more broken up by bolder-chokes. Things to avoid when travelling in this direction are, firstly, a hidden traverse, the lower level leading to a sump, and a pile of minotaur bones recorded in the original exploration. The second an odd looped figure eight passage which drops you back before you went wrong, and where the eventual way on is back down under a higher crawl. These problems are not present in reverse (the bachelors and Jackie derigging on Friday) but the Diaclase Annette, a vertical crack running perpendicular to the passage, is still easy to overshoot.

The Guires-Mort route passed with even less hitch. On the pitch after the starting 45m drop we decided that rumours that the cave was rigged were true and we therefore invited Emmanuelle and Jocasta to join us on a through trip. Meanders gave way to the phreatic Galleries des Champignons with bulbous calcite formations on the floor, which took us round to the north and toward our destination. In three hours we arrived at the Cascade Rocheuse the half way stage and it dawned on us that this was not the trip it had been in 1990.

The curving rope of the Puits Bananes led off to the Galleries des Tritons with its floor channel and then the Galleries sans Nom. The way on then takes a surprise turn into an immediately less grand side passage, before continuing to where we got lost in 1990. A small floor collapse has opened up this way, but nevertheless with good map, compass, route markings (red and white stripped tape here, red paint spots in Annette) and experience, route finding in general was easy. The following crawl led us to a traverse around the impressive Puits Isabelle and then rapidly to the Puits Pierre and the final crawl. We were through in just 6 hours.

Walking down the cavernous passage to the Guires-Mort resurgence and wading through its waters, our carbides running out of rock on which to glow, we were met by a clear, early evening sky holding, high above the mountain treeline, a comet; the astrological symbol of change (*now 'e's gone all Mystic Meg! - Ed).* This reminded us that the club has grown and moved on, and that the Dent de Crolles, while remembered as it was in our Petzl equipment, is now different from how it had been for the less experienced club in 1990, to the newly founded club in 1962 and to the caving world in 1940. The Dent de Crolles is a striking parallel in every respect to Migovec: now a monument to its spirit reborn and living once again in Slovenia.

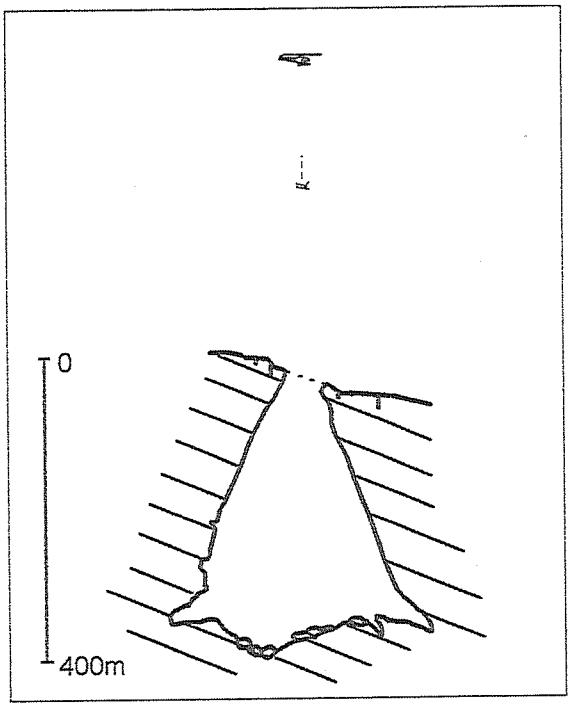
Alva Gosson

Chuting Stars

Of all the crazy ways of descending a pothole, that used by sky-diver Patrick Gayardon on the BBC's "They Who Dare" must be one of the riskiest. Dropping from a helicopter hovering a kilometre above the open shaft of Mexico's Golondrinas Pit, he steered himself in free-fall to plummet through the 50m wide entrance at about 70mph.

In the sudden darkness, unable to see the floor, he had to allow just enough time to fall through the shaft's narrow neck before finally releasing his parachute. He completed the descent in tight circles to avoid getting caught on the walls.

Luckily he'd also remembered to rig a rope so he could prusik the 350m back out.



A Comedy of Errors

Jim, Shed and Jan go to Belgium

Easter 1997

We finally left London late on Friday night having been delayed whilst Jan tried to find out what his mystery illness was - he was covered in a big red rash. But, being the hard bastard that he is, Jan decided to fuck it and go caving anyway. We travelled to Dover and got the ferry at midnight arriving in France 2:30 local time.

From here the trip to Liege became a bit of an epic. Just as we crossed the Belgium border it was obvious that Jim was not going to make it. Shed took over the driving and with the speedo fucked we apparently averaged 150 mph for the rest of the way. We arrived at Liege about 5:00am to eventually get to bed for a well deserved 5 hours sleep!

Next morning after a late breakfast we drove over to the cave: Trou Bernard. Here we discovered that Jan had forgotten to load the FX2 batteries so we were delayed another hour whilst we bought a couple of dodgey headlamps which we tied to our helmets.

Eventually by 2:00pm we were ready. We planned to do an exchange trip: Shed, Jan and Michelle Pauvels (Belgium caver) on one trip, and Jim, Cecile, Jean going the otherway. The Trou Bernard is Belgium's deepest (-120m) and very sporting with several interesting pitches and climbs. At the bottom of the cave the Shed/Jan/Michelle team negotiated a dodgey crawl and met the others. This pitch had a really tight take-off that only Cecile and I managed to pass – and it took me some 45 minutes to get about 2m. I have never been so knackered in my entire life. However talking to a French guy afterwards it turned out that we'd been in the wrong bit – it was easier higher up!

After the cave, under clear skies, we walked back to Liege, briefly stopping to rescue a mass of frogs who were waited to be squished on the road.

We change at the University and then went for pizzas with the rest of the Liege club. The remains of the night was spent sampling various Belgium beers around the town.

The following day was spent lazing around Liege: magnificent cathedral!. We left early, got lost on the way back to the ferry, and got stopped twice by Customs before eventually arriving back in the early hours of Monday morning. A good trip.

Shed (Tim Wright)

Famous Five go to Majorca

Easter 1998

During the Easter holiday of 1998 Goatman, and myself introduced the apprentices of the club to the joys of caving tours. Shrub (Pete) was in charge of all things to go with getting fucked after the caving trips while Ben and F.A.B. headed the photographic section.

The trip was first dreamed up several years ago by the legendary Mark Evans who has fled to Ethiopia. This time, the five being the disorganised rabble that we are (with the exception of F.A.B.) left organising the trip until the last minute but eventually planned the trip for the first week of the Easter holidays. A late booking was made in the resort of Sa Coma for £159 per head. We consulted our map and were pleased to discover that Sa Coma was in the north west of the island very close the caving territory. Insurance was sorted out at the last minute with the BCRA and that was about all the planning we had to do. We were very kindly provided with information on the caves by several people but particular thanks go out to Wookey.

The day before the flight we all piled down to stores to pack the kit. Packing 300m of rope, hangers, tackle bags, slings, bolting kit etc as

well as personal kit into 5 bags with a weight allowance of 20kg each seemed like an impossibility. In fact it was an impossibility. Goatman was prepared to wear 40m of rope and 20 hangers on the flight but this decision was left until we got the airport in case we got away with it. One major advantage was that oversuits and furries were not needed because the caves are very warm.

The flight was at some obscene time the following morning so we decided not to go to sleep that night, but just stay up until the taxi driver arrived at 2am. The trip to the airport was an epic in itself. The taxi driver was barely conscious and the taxi dangerously overloaded. Somehow we managed to get there in one piece.

When we arrived at Gatwick our main concern was the baggage allowance. Luckily for us, the conveyer belt at the check-in desk had stopped and the girl just told us the load all our bags on. She failed to notice that the weight was well over the limit, my bag alone weighed 35kg. Anyway the journey from here was pretty normal until we got off at the other end.

We piled though customs, picked up our luggage and bimbled off to meet out holiday rep. He was a total cock. So fucking nice and helpful. The journey to the hotel from the airport was by coach and it then that we realised that we weren't going to Sa Coma, or at least the one we were thinking of. On consulting the map (with no help from Prick the Rep) we found to our horror that there were 3 Sa Comas on the island! Fortunately Majorca is quite a small island and it was still possible to drive to the caves quite easily. This was a particular relief when we arrived at our peach-coloured apparent block in our Sa Coma and released the name of the place was the same in English as Spanish, The Coma! So we were staying in a dead-end shit-hole that was basically still a building site. It took them four days to fill the swimming pool with a garden hose and the only available restaurants can be summed up by one being called "Britannia Pub Grub".

We were down hearted, but just could not wait to go caving. We consulted our literature and decided the first cave would one called Penya Rosta. It is situated at the end of a peninsula in the north east corner of the island. We had a car and next day 9am we were ready to go by 9:00am. (Perhaps the club trips could learn something from this!)

Penya Rosta

Penya Rosta looked like a very odd cave. It was described as an inverted bowl, with amazing decorations, but the path to the cave sounded just as interesting. The path clings to the edge of a peninsula, some 200m above the seal. We managed to follow the path until we got to the end of the peninsula where we apparently took a wrong turn. We spent about 2 hours, picking our way down several very dodgey scree slopes and generally getting lost. Eventually we found the way and followed it round to the end of peninsula where there was some kind of old settlement: it was very odd. We were standing over a 60m cliff and apparently the entrance to the cave was directly below. The way down from here was to beat a path through the undergrowth and eventually we arrived at the cave. The entrance was amazing. When you approached it a blast of warm air hit you. The entrance was shaped like an upside down smile about 7m long and 3m high. Sitting just inside, the view was stunning.

When we were all ready we entered the cave. As I mentioned before the cave is an upside down bowl. As this was our first trip we had no definite objective, except just to look around for a few hours. We had some rope with us, but it turned out we didn't need it. Just in from the entrance was a chamber full of sand. This made crawling in T-shirt and army trousers very unpleasant. From the back of the chamber a slope led up to another chamber above the entrance. It was here we got our first glimpse of the stal' in the cave: a huge column about 1.5m in diameter (I made this figure up as I can't remember, but it was damn impressive!).

From here on in it's very impressive with many steep sloping chambers with low roofs. The place is covered in huge quantities of stal' and helectites. We also found some bones in the cave which we discovered later are extremely old (but don't know just how old).

Next day we took off. We attempted to go down a cave but it was on other side of some private land with no access. We were stalked by a big fat security guard (Cherry Lips). The land was owned by the manager of a very posh hotel, but when we went to see him he still would not give us permission as the land was rented out to other people.

So we went for a drive down crazy roads - all very scared as I was driving - up to a lake in the mountains. We ended up getting chased by men with guns. It seems there is some kind of military installation on top of tallest mountain.

Sa Coma

The next day we did Sa Coma. Fuck me, very impressive. The walk to it was difficult, tacking round the side of large mountain. The cave is basically a series of massive interconnected chambers. First chamber is about 25m deep. Pitch from ledge. From the back of first chamber you walk into second with a 9 second echo (no joke!). It took 40 minutes to walk all round this chamber. There were a few massive stal' bosses 4-5m high. The bottom end of the chamber goes down a big rock slope about 90m long and 15m wide. Very impressive. The only need for a rope is at a small section, but we put it all way down as we had some anyway. From bottom a squeeze through a dig leads into another huge sloping chamber. This was smaller but had massive amounts of big pure white stal'. It was fucking amazing: I have never seen anything like it. On the way down thought the chamber there were also some mud sculpures including one of a 4ft tall dick.

Then we went through an arch into another huge chamber, which was probably 60-70m high and about 150m long with a 30m pitch/slope into main part of chamber. There were loads of mud slopes, and masses of calcite. We also found a very beautiful crystal pool.

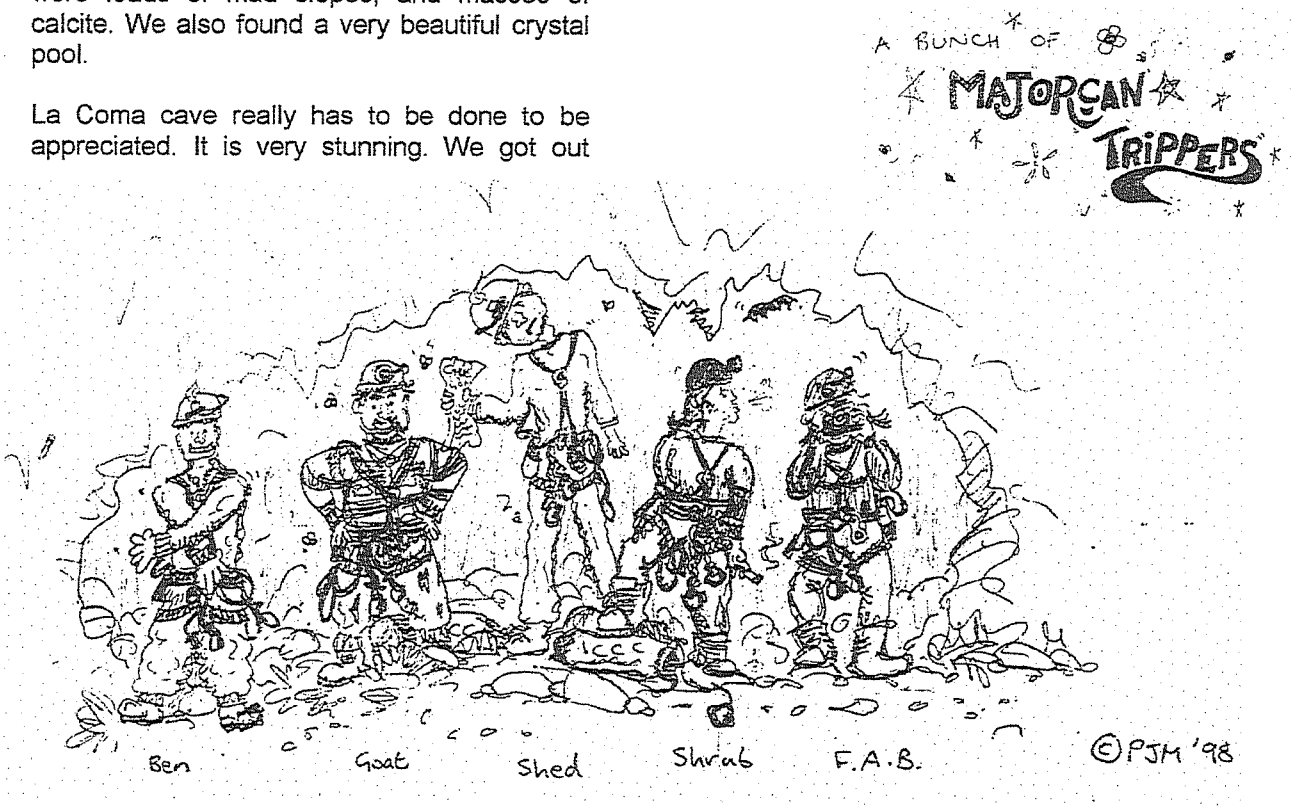
La Coma cave really has to be done to be appreciated. It is very stunning. We got out about 1:00am and sat outside the cave listening to the sea and watching the stars. It was really warm. A couple of us heard rustling in the undergrowth and saw a flash of light, similar to cats eyes. We are convinced that is was a mountain cat that we'd frightened off. We didn't actually see it because of the dark, but there are some in that area as very few people ever go there.

We took the following day off, getting up late and driving to a quite beach. We were not going to stay the day in the total dump that was our "resort".

The final day's caving was intended to be an epic with a 145m surface shaft. It was a long walk to entrance and Goaty and I buggered off ahead to rig the cave. However we forgot the bolting kit and were disappointed to find all the bolts were fucked. Nevertheless we did get about 60m down with the use of several crazy deviations. We used everything is it possible to use to make deviations. From this point it is possible to throw stones to hit the bottom 90m below. Very, Very pant filling and impressive.

Majorca must be returned to. There is a lot of fantastic caving. It can be summed up as: big mad surface pitches, big mad stal' and small mad crazy twisting roads.

Shed (Tim Wright)



Slovenia 94-97:

Adventures in the Hollow Mountain

'It really does look like the end', was Pete Hambly's first impression at the end of the rift and who could blame him.
'It looks bloody tight', said CV Pete
"I'll try and squeeze over the top", said Scuzza, the smallest member of the group. She carried on high in the rift while CV Pete and I carried on hammering the beginning of the rift. After a while we could tell that her grunting was taking on a resigned tone.
"I'm coming back, it's getting tighter".
We discussed the possibilities. An alcove lower in the rift might be possible to squeeze into but it looked very tight and didn't seem to lead anywhere. We were grasping at straws and this was really the only option; it was either that or call it a day in Torn T-Shirt
"We'll give it a bit more hammering and then I'll give it a go", said CV Pete.

After another ten minutes of hammering CV reversed himself into the rift and guided himself to what looked like the widest section and started to push himself through the squeeze. There followed the usual series of grunts and straining associated with negotiating such places, then after about ten minutes it stopped.
"Are you through?"
"No I'm just having a rest, I'm getting there though. I hope this will be worth it".
There was a further ten minutes of grunting and obscenities before; *"I'm through. It looks like there might be something round the corner".* There was a pause while he recovered from the effort.
"There's another tight tube leading down.I'll just get some rocks to throw down. OK here goes".
"Rattle, rattle...boom...boom.....BOOM !!"
"Jesus Christ ! It goes !!"

An ecstatic feeling went round the group. But negotiating the next squeeze would have to wait for the next day, as it went straight into a pitch head and needed a rope.

This trip described above pushing through Optimisqueeze - although it only gained about 4m of grotty passage leading to another squeeze even tighter than the first (Turtle Head) - is probably my best memory of all from all my trips in Migovec. Part of the reason is that it overcame a big barrier mentally and physically for us at the time, and because, after all the other squeezes which we'd negotiated that year, these were almost a matter of course.

Our Introduction to Migovec

When Mark and I joined the club in October 1991 ICCC had just returned from an eventful summer tour in Monte Canin straddling the Italian and Slovene border. The main objective of the trip had been the deep caves on the Italian side, in particular the Gortani entrance to the Complesso Col Delle Erbe (-935m) and the Abbisso Modonutti-Savoia (-800m). They had successfully bottomed these caves, although the trips were not uneventful. These caves were undoubtedly dangerous, further born out by the fact that they all seemed to be named after dead Italian cavers.

During this tour a number of people started to get interested in the exploration potential of the Slovenian side of the Julian Alps and the last week was spent in (very) newly independent Slovenia looking at the potential and taking advantage of the favourable exchange rate.

The potential looked excellent. Monte Canin illustrated this perfectly: the Italian side had many caves over 600m in depth having been explored for the last 20 years or more, the Slovene side on the other hand had only two, Veliko Sbrego (-1198m) and Skalaria (-995m), Italians and Slovenians having explored these only very recently. Consequently a number of us returned from the tour very enthusiastic about the idea of exploration in the Julian Alps.

In our first year with the club, there were too many other things to learn other than expeditions. Our first real challenge came in the summer, however, when the club went on a tour out to the Pyrenées. The main objective was of course the PSM traverse itself, but while the experienced cavers were busy rigging and preparing this, Mark, Andy, Frank and I began a project of our own by rigging the

Gouffre du Couey Lotge (-625m). It took us quite a few trips to get to the bottom but we really learnt a lot.

My trip to do the PSM traverse ended in us turning back at a rigged traverse which we thought at the time, couldn't possibly be the way because it looked so badly rigged - we hadn't seen much alpine rigging at the time. In fact it was indeed the correct route, well over half way through. The long climb back out of the Tête Sauvage ended up being about 20 hours. That summer tour taught us much about deep alpine systems, and long caving trips.

The following summer (1993) the club went to that popular caving destination the Vercors. Here we got experience in bottoming a few deep caves, Antre des Damnés (-723m) and Scialet Trisou (-232m). We were also interested to find out what underground camping was like. Mark, Iain and Richard Moon tried out an underground camp in a relatively easy environment (Fumant). They had a very uncomfortable night by all accounts and one major thing learned from this experience was that if you are going to camp it must be well organised and comfortable, otherwise you might as well just keep going.

At the beginning of the 1993-94 term we were really beginning to get into the idea of having a serious expedition. At first there seemed to be two possibilities: an area near Malaga in the South of Spain, which Harry, Chris and Andy had visited the previous year, or the Julian Alps in Slovenia that people had been enthusiastic about since summer of 1991. Slovenia was soon chosen as being the best option.

Mark, Harry and I began the task of literature research and writing to Slovenian and Italian cavers to try and gain permission to explore in an area. We were very successful in gaining grants for the expedition but gaining permission was proving to be more difficult. Letters we got back from Slovenians were often ambiguous or had misunderstood us thinking we wanted a paid guide to visit caves. We still had no definite plan at the beginning of 1994 so decided to have a reconnaissance in May to try and meet people and organise a plan for the summer. I sent off letters to various people saying that we would be coming to Slovenia and would be interested in meeting. In the end I got two responses: a rather confusing letter from Gregor Pintar and a postcard from Andrej Fratnik saying simply, *"Your Welcome"*.

1994 Reconnaissance

Shortly after arriving in Slovenia we went to see Gregor on a Sunday evening. His letter had been a little bit ambiguous so we weren't sure exactly what to expect, however he had said in his letter: *"Together with a pint of lager on the table we will find out all the details you require, including some you are even not aware of now"*. This sounded reasonably promising and after giving us generous portions of Slivovic and beer, Gregor proceeded to describe recent events on the Canin plateau.

Italian cavers, from Trieste (CGEB) had been exploring near Rombon in an area he'd allocated them. Their most recent discovery had been Ceki 2 (-1393m) a cave originally explored by Czech cavers and then extended significantly by the Italians. The Slovenians from Lubljiana (DZRJ) had a smaller operation in the form of a two week camp every August. They had found a significant cave though; Vandima (-1100m) which was still going. They were hoping it would finish soon (!) as only two people could reach the bottom of the cave and it was very dangerous when it was wet.

Gregor was not sure if we could get permission to work with his club or not and said we would need to ask the people in the camp at the time. This didn't really seem very concrete ground on which to organise an expedition but it was all we had at the time.

The following day we drove over to the Julian Alps to look at possible group accommodation and then in the evening to meet Andrej, Simon and Dejan (Tolmin cavers). They didn't know much about what was happening on Canin and told us that their main project was Malu Boka the resurgence cave to Canin, which they had already pushed to +400m. Then they told us about Migovec. They said they had worked on it a few years before, but they lacked the man power to work on it at the moment. They believed it had potential and said we could explore there if we wanted. It looked promising and Simon agreed to take us up the hill later in the week.

Over the following two days we walked up to the Skalaria hut, checking out the karst of the Canin and Rombon Plateau. It looked very impressive, like a lunar landscape. We found the Velico Sbrego entrance rigged Italian-style with a single plate and stopper knot at the top. We arrived back at the car with dehydration, sunburn and blisters with a sudden realisation

of the slog it was going to be to carry caving and camping gear to the top of these mountains. The following day we checked out Mangart, further north. The resurgence marked on the map seemed to be a fairly insignificant, a small river coming out of pebbles. As we walked to the summit we could see a lot of surface drainage, the limestone appeared to be the dolomitic, and we saw very little evidence of cave development.

Next we drove up to the small village of Tolminski Ravne, which is the nearest place to Migovec by road to meet Simon. We were on the top of the mountain after about two and a half hours, and Simon showed us M1 and M16. Unfortunately we didn't pay that much attention at the time and ended up taking a few days to find them again in the summer. The area looked like it had real potential. We had a plan at last and could hardly wait to return in the summer.

1994 Expedition

Torn T-Shirt entrance was found one August afternoon when myself, Clive and Malcolm were prospecting along the eastern edge of the plateau. Malcolm saw a likely hole and crawled in for a look.
Ten minutes later he returned.
"Well the good news is that this cave is 350 metres deep... the bad news is that it's a second entrance to M2". Disappointment. Our hopes had been built up for him being gone for a while and then dashed on his return.
"Here's another likely looking hole", said Clive, *"Jim I believe its your turn".*

We cleared away some of the scree at the entrance, and I continuing head first into the cave. I got to a tube rift and continued to the head of a 6m climb. This looked promising but I didn't want to continue any further with just shorts and T-shirt. I headed out ripping my shirt to bits in the process and told the others it looked promising. We decided to use bits of my T-shirt to mark the entrance and return as soon as we got a chance.

It was a few days before I got a chance to return to the cave however. With Rob and Iain, we free-climbed the pitch to the head of a moderately large pitch, hammered in two bolts for a Y hang and rigged a rope. I made my way down.
"Nice shaft...ROPE FREE... Can't see any obvious way on but you might as well come down".

"Looks like something here up this climb", said Iain, always keen to climb where possible.
"It looks well loose though we'd better garden a bit", was Rob's response -gardening being Rob's favourite activity - he was right though - it needed doing. After a while we proclaimed it safe and crawled through the passage under a boulder and down a dodgy climb (later rigged as a pitch) to find ourselves at the head of a short pitch into a chamber. A further trip down to this point with a drill and we rigged our way down into this chamber. Again no obvious way on ...but there...a squeeze up into the rift.

We headed down the rift (now known as Shreddies) for the first time - negotiating the awkward sections, climbs and squeezes in haste - eager in our discovery. The rift started to slope steeply down and we sensed that some sort of transition was coming. Then round the next corner it seemed to close down again. On our return could hear booming noises in the rift and rivers suddenly started coming out all over the place which all turned out to be due to a violent thunderstorm. We were unable to find a way on that day but I was convinced that it must go and persuaded more people to go and have a look. Unfortunately that was as far as we got that year.

There was some debate on what to call the cave, one possibility was 'Lightening Hole' because of the storm, but that sounded a bit corny. Mark started to call it Jimsky Jama to go with Harry's Hole over the ridge, but we decided naming things after people was not exactly the spirit of group exploration and as Clive started calling it the cave marked by the Torn T-Shirt that name kind of stuck.

Iain in Torn T-Shirt entrance rift.
Photo by Scuz, 1996

Apart from the discovery of Torn T-Shirt in there was also a certain amount of exploration in M16. As this was the deepest cave in the area (-547m) we were keen to rig it, if only to get a bit of deep caving done. Also from looking at the survey it had looked feasible that there could be new areas to find. After taking a few days just to find the entrance the cave was rigged over a number of trips, putting bolts in as we went. One of the first extensions in M16 was when Mark and Simon decided to push past a very tight rift leading off the bottom of Brezno Strahov. It led them to a small pitch and then a rift carrying on for a considerable way before it got extremely loose: they decided not to push it any further under the circumstances.

Another extension came when Frank and I found a way on through the boulders at chamber below Brezno Strahov. Climbing down through the boulders we reached a small sharp rift which we followed for about 30m. We noticed small pieces of brown cotton in various places along the way but were not sure what it was, finding out later that this was Topofil used by a French party for surveying the area a few years before. We reached a climb down into a chamber with a small inlet river coming in. The way on looked tight, but after some faffing Frank managed to squeeze through at the bottom of the rift, and I followed him after a number of attempts at working out which way to approach it. This led straight onto a difficult climb down and then the head of a pitch. We bolted and descened this (10m) and arrived at another drop almost immediately. We placed another two bolts and then left the cave with stories of an exciting lead to tell the camp.

On the following trip we recruited Malcolm to come with us and set off with plenty of rope. Now familiar with the route we wasted no time in arriving at the limit of our previous exploration and quickly dropped the pitch we had bolted. This led to a difficult looking climb, which Malcolm climbed down with great agility, as soon as he saw a black hole in the corner at the bottom of the chamber. Throwing rocks down this hole it was obviously a long way to the bottom.
"No need for any bolts here", said Malcolm, rigging his way onto a few questionable naturals. We said nothing. *"I'll just go down a bit and see what the pitch looks like, I think I can see a ledge not far down".*
After a bit of a pause he shouted back with the news, *"There seems to be another rope on the opposite side of the pitch. Looks very familiar".*

This was a disappointment. We had obviously only found an obscure way to the top of Ta Moka. On exiting the area we decided to have a closer look at any ways off in the passage, we climbed up a few pitches of an inlet which got tighter and more difficult to climb until we gave up. Malcolm climbed his way into a chamber which seemed to lead back into the rift on the opposite side of the chamber (in fact we missed the climb up into Bats Hit passage here which was discovered two years later). Heading back out of the rift, I noticed that, instead of climbing out of it back up through the boulder choke there was a possible way to continue along the rift. I went to investigate while the others waited. It carried on for a bit, and then it seemed to be opening up, and then...
"Wow a big chamber.....Oh.....Shit!"
Malcolm was laughing: *"If I needed a concise summary of what you'd found that was perfect".*
I had broken back into M16 between the chamber and Ta Moka. The whole area seemed to be a complex maze of interconnecting passages (and what we didn't know then was we hadn't seen the half of it).

The way Galactica chamber is drawn on the original survey, there seems to be a passage high in the roof leading off. As this is all we had to go on in the UK a lot of time was spent analysing this survey and trying to work out where to look. We had decided that we should attempt to reach this passage and would therefore need a bolting platform. Rob's dad designed and built an excellent platform which was first tested slightly closer to home (in the QT extensions).

Hopwever once in Galactica Chamber we could not see any obvious passage way, despite some fairly intense looking. The closest thing that resembled a passage was about 20m up at the lowest part of the chamber. We decided to have a go at reaching this passage, Malcolm doing some fairly hairy climbing to get himself up to a flake about 8m up.
"Looks a bit dodgy to carry on...I'm going to put a bolt in".
"Good idea". I was getting a bit nervous of how precariously he was balanced.
After hammering the bolt in he then assessed the climb: *"I don't think this is free climbable. I think you'll need to use that platform".* I noticed he'd used the word 'you' and took the hint. I began to assemble the platform while Malcolm dropped back down. Once I'd prussiked up to

the point I began installing the platform. Once I was standing on the platform I began hammering a bolt in.
"Hey, this is quite comfortable when you get used to it".
"Good, but it won't be comfortable to lug out of the cave" was Malcolm's response.
A couple of bolts later and I was almost at the top. But my hand was now quite painful from an earlier carbide burn and I needed a break. Once I had descended the pitch and the adrenaline of the climb had gone I realised that my hand was actually very painful and so we left the cave.

A few days later Andy and Iain, who had been doing a lot of climbing together, finished off the climb but unfortunately only found an alcove at the top. Later speaking to Andrej he told us that the passage leading off Galacica Chamber can only be seen from the top of the pitch and we must have been looking in the wrong place, so it seems there is still a lead to be investigated here.

Other than this a number of fairly unproductive trips were made to try and push high level tight rifts in M16 and Torn T-shirt. These were mainly by Simon, Mark and me who were obsessed by the idea that the caves can't just go down - in fact we were right but either we weren't looking in the right place or we weren't thin enough!

A few other caves were discovered or extended that year. Harry and Chris found a cave over the Eastern ridge which over a series of trips, with Rob and Iain, led down through a hole in the snow to a massive snow pile and some beautiful ice formations. This cave was named 'White Shiver', 100m deep, the deepest and most impressive cave discovered that year.

Chard, Tony and Stu found a similar type of hole on the plateau, which turned out to be M17 and was pushed a further 50 m in depth to -90m. Close to M17 another cave was found by Chard and Tony which had such a strong draught it *"blows your carbide out"*. None of us believed this story at the time so the cave became known as Bullshit Pot. In fact having seen some very strong draughts on the plateau since, I have no difficulty in believing this story now. The cave was pushed to -97m where it reached a very unstable section. Plotting this cave with the system shows that the bottom of it is close to one of the avens in NCB passage.

So by the end of this trip we had all gained in experience, and done a lot of cave exploration but we had no real going leads, and so had no clear objective for the following year.

1995 Reconnaissance

In 1994 I remember asking Andrej about the plateau beyond the ridge in the North.
"There are no caves there".
How do you know that for sure?"
"Because when you look at the area from the ridge in winter, there are no holes blowing through the snow".
It seemed that in winter the whole plateau was covered in these "blowing holes" and that's why Andrej was so convinced of the cave potential.

So a plan was conceived to mount a winter reconnaissance to the area, find these blowing holes and log their position with a GPS or paint, and then relocate them the following summer. Chard always keen as he wanted to do some mountaineering. Jos, from France, knew all about blowing holes through his exploration in the Vercors and was keen to try out the GPS. I was very keen that an experienced mountaineer would come on the trip and so when Iain got interested in the trip as well, it looked as though the trip was on. Mountaineering gear was borrowed from the IC Mountaineering club and a GPS was scrounged off a navigation company.

After flying to Venice and renting a car, we arrived late at Andrej's house, but still in time for a few generous measures of his home made Zeganija (Schnapps). As we caught up on the news he told us about the considerable risk of avalanches in the area and the best route to get to the top of the mountain. The following day we tried to obtain skis to make the journey to the plateau easier but the only skis available were downhill. We drove up to Tolminski Ravne in the evening where there were only a few patches of shallow snow.

After a night in a farmer's barn se set off. As we walked up the snow got deeper: at first a few inches, then a foot and then knee deep. Moving was becoming difficult and we were getting tired. A bit further and the snow was chest deep and for a section we had to crawl to prevent ourselves falling through the snow (we really needed skis or snowshoes). As we gained altitude the temperature dropped, which saved us as the snow got harder despite being very deep. We arrived at the shepherd huts after a six-hour slog (this takes about an

hour in the summer) and we were pretty tired. The weather was turning bad so we decided to stay there for the night and head to the plateau early in the morning. That evening we realised that we had badly underestimated how much food we would need for the next two days. Food had to be rationed and we spent that day and the next somewhat cold and hungry.

Rising at 4:00am to try to get a full days light, everything was frozen including all our water and our boots so it took some time with a stove to prepare ourselves for the ascent. Going up to the plateau was actually just a slog although there were one or two occasions where the ice axes and crampons were necessary. Once on the plateau we very soon we came across a number of blowing holes which we were able to climb down and log. However the GPS did not seem to be working and we ended up using just paint and compass triangulation to locate these entrances. We spent a good few hours up there that day and then decided that the best thing to do would be go down to the town, stock up with food and sort out the GPS and come up again the following day. Getting down from the top to Ravne was much easier: we just slid on our bums.

The following day Jos calibrated the GPS and made sure it was working while we stocked up with plenty of food in preparation for the trip to the shepherds huts that evening. This time the walk up to the huts was much easier as we already had our previous tracks to follow and the temperature was also slightly lower. In the morning we had white out conditions so we spent the day around the hut. The next day was clear and we headed up early to the plateau to continue the work. We logged around 60 entrances and as some of the draughts coming out of the holes were very strong, we were very hopeful for the summer.

On the final day of the recce, three of us flew over the plateau in the hope of seeing blowing holes from the air but it wasn't too useful as the pilot wasn't prepared to go very close to the plateau. Iain spent the day skiing on Kanin and probably saw many more blowing holes than us. This was a useful trip and gave us many leads to work on in the summer of '95.

1995 Expedition

It was by no means sure that we were coming back to Migovec when we left in 1994, for me the moment when I realised we should return was after Tim Guildfords' Picos talk at the BCRA conference. Talking to Clive in the car afterwards we realised that's its only through perseverance and hard work that you find cave systems. The winter recce to the plateau had demonstrated that there must be a large system under Migovec and we just hadn't found it yet. This renewed our enthusiasm to find it although we realised that if we were going to get anywhere we were going to have to do some digging. We also began to see the importance of draughts for indicating cave potential. The second significant event before the summer was joining the underground camp in Daren Cilau with Andy and Angie Cave. All our dried food was based on what they did in the 'Restaurant at the end of the Universe'. Apart from this I also got a feel for what long-term exploration is really like: nothing comes easily and everything must be worked for.

The first couple of weeks of the 1995 expedition were spent looking at some of the holes found in the winter. There were no major finds here but a few exciting moments spring to mind. Alva and I were high on the north end of the plateau when he suddenly Alva noticed that flies were being sucked into a fist-sized hole in the earth. We dug for a bit to reveal a short pitch. Could this be the entrance to the Migovec System? We really thought so at the time. As it turned out Venus' Divot was only a 10m pitch and a 100m crawl heading to the cliff with no way on. But the initial excitement of finding the cave was unforgettable. Another memorable moment was climbing up a gully in the cliff on the south face of Migovec with Peter and Alva. After chasing lots of shadows we arrived at a large walk in cave entrance with a significant draught. Walking in for 5m or so we got to the head of a 15m pitch. We really thought we'd found something here but once down the pitch there seemed to be no way on in the bolder chamber. Significant digging efforts on another trip never yielded any success in Gulliver's Kipper.

The beginning of the trip was characterised by events like these- high spirits as we thought we were into a system and then low spirits as the leads dried up. One blowing cave which did turn out to be a sizeable pot, was found by Alva and I in the southern valley of the plateau. We found a small hole with a draught blowing out of it and started digging it and removing boulders. It seemed to be getting somewhere but it was tiring so we stopped for a break. Alva wandered off for a minute and then called me over. He was looking down at a pile of boulders and as I got closer I could see, or rather feel, that it had a howling draught. This looked promising, although it would need some

work. Over the next week or so, Alva, Tony and Pants worked on this project, inventing new digging and boulder moving techniques as they went and pushed the cave down to -120m. There seemed to be possible ways off at the bottom although the cave was very cold and dripping at this point. The cave was named PF10 after a Kevin Bloody Wilson song, which had been popular at the camp.

After about two and half weeks into the expedition we decided to have another look at Torn T-Shirt. Scuzza, CV Pete, Pete Hambly and I went to the end and broke through as described at the start. This was the turning point in the expedition as we realised that the way into the system was what had been staring us in the face all the time - we just weren't looking hard enough!

The next day in the cave we broke through Turtles Head squeeze, popping into the top of a shaft on a rope. Rigging down this pitch we found no obvious way on at the bottom except for a climb to a small hole. Again we had hit a wall, but this time the feeling was more of a temporary barrier as our mental attitude to the situation had changed. Mark noticed a small rift off halfway down the pitch and followed this for a while but it started to get tight. Afterwards I thought, this has to be it: its probably getting tight because its getting to another pitch head. So with Scuzza I went to have a look at this rift. It did get tight, but not before we noticed a considerable echo: there was obviously something large on the other side. The next trip, breaking through Nutcracker and Orgazmatron, I left this to the experts at tight spaces – CV Pete, Scuzza and Mark. On the following trip Mark was able to guide me through the widest parts of the rift although it was still necessary to take my SRT kit off, squeeze through and then put it back on while straddling the 15m pitch.

Tonx in Turtle Head squeeze.
Photo by Mark Evans, 1995

At the bottom a tight little alcove led to the head of another pitch about 30m. Another dead end unfortunately: there didn't seem to be any way down the rift from here so we decided to head up the pitch looking at leads off the side. There seemed to be a large alcove at the top of the pitch so I decided to swing in and have a look to see if there were any ways off.
"Hey!... this seems to be a passage, with really black rocks, and wow, shafts all over the place".

We had broken into NCB passage and now the leads were multiplying by the minute. A few more trips in NCB and we had crossed two traverses and had a 250m passageway, but the many shafts along its length all seemed to be blind. We were beginning to run out of steam.

This was an appropriate time for a real break from the exploration and in some ways I think its what the expedition has been missing in recent years. We took a few days completely off and visited Trieste and the Postojnja Jama - had a real laugh with the obligatory Alva nob shots in the train etc, ate lots of pizza and beer and worked out what we should do next. We decided that a camp in NCB passage would be an effective way to explore the area.

A number of ways on were investigated in these camping trips at Cub Mig. I remember Mark, Oliver and Pants arriving back with grins on their faces:
"We have found an underground river, and also if you climb along that tube", Mark said pointing vaguely at the wall, *"after about ten minutes you get to a small hole looking out onto a void'.*
This all sounded very exciting. We decided to look for the void at first, but we climbed up a few different holes and couldn't find it.
"Maybe he meant on the other side of the Passage", said CV Pete, *"I'll have a look at this pile of boulders down here. Looks like a bit of a slippery drop. I'd better get a rope.Its becoming a bit of a pitch, hold on I'll get some rocks to through down. OK, here goes"*
".....;.....;.....;.....; BOOM !"
"That's over 4 seconds..... it must be over 100 metres deep !!"
We de-rigged all the bits of tat around the NCB passage and joined them together. Unfortunately it wasn't enough to get to the bottom and Scuzza was left dangling in space after working out how to pass knots from first principles! Luckily she has a cool head for heights.

That was how the 1995 expedition was left, with a number of very exciting leads with a huge pitch which we named Godzilla. The expedition had broken through the difficult stuff (so we thought) and we were into the big pitches. It seemed sure that we would be returning the next year.

1996 Expedition

We thought there would be no problem to persuade lots of people to come, but in fact this turned out not to be the case. Mark and I had done a few calculations and worked out that there was a reasonable chance that Godzilla was in fact Tolminski Silos in the M2 system. At the conference our finds still didn't look that impressive when you looked at the bottom line -232m. Fortunately one or two key people started to take an interest in the expedition. Tetley, then a veteran of two OUCC expeditions who I had met a few times at conferences and the Hunters was beginning to get interested in our bullshit stories. He went on a few trips with us and I travelled up to Oxford for the odd talk and by midway through the year it seemed definite that he would be coming. It looked like Iain would be giving up his job at British Aerospace to go into teaching and if he timed this right he should be able to nicely fit the expedition in. Of course there was never any doubt that Scuzza would go: she had seen the big pitch and wanted to get back as soon as possible. Dave Wilson started to show an interest and apart from building most of the electronic gadgetry that year he also managed to turn up for a few weeks. Janet Cotter-Howells one of our referees, after reading the proposal got interested in the project as well and actually managed to turn up on the expedition.

We decided to install Club Mig again in NCB passage and a myself Iain and Tetley set off with numerous tackle bags to do the honours. Getting all the tackle bags through nutcracker was slightly comical and required a certain degree of acrobatics. Scuzza was keen to get Godzilla knocked off so on the next trip, Tetley, Andrej and Scuzzer rigged the pitch to the bottom. Some way down the pitch Andrej began to have a bit of deja-vu and then on a ledge near the bottom of the pitch it was confirmed. He found plumb stones that he'd left as a lad seventeen years earlier while exploring M2. So our suspicions were confirmed, Godzilla was in fact Tolminski Silos, this was disappointing but at least we had a system now.

Colm, Iain and I looked at a climb half way along NCB Passage heading north. It turned from a stooping to crawling and then to flat out into a loose chamber. There seemed to be many ways on but loose boulders were all over the place and it all looked decidedly dodgy. The area became known as Dodge City. The following day we decided to have a look at the void. The tube looked tight, but with a bit of hammering a rope was rigged and Colm reversed himself into the hole. Awkward would probably be a better description than tight for this tube, especially on the return. The tube became known as Tradesman's Entrance because it seemed to be the back door into the side of a beautiful shaft. Abseiling down to a flat floor 15m further down, stones thrown over the ledge told us that there seemed to be another 40m pitch immediately after. The bottom of this was a flat floor with a tight pitch heading off, but it needed hammering to get through. The next camp of Tetley, Shed and Scuzza made a significant breakthrough across the void into a continuation of Tradesman's Entrance, named 'Faulty Towers' and dropping down a couple of pitches to 'Level 2' which seemed to be a large-scale version of NCB passage. The passage had four huge pitches cutting through it, the two ends were named 'Challenger' and 'Titanic' because they were going down. The other two later became known as 'Ariane 5' and 'Divine Brown', because they were also going down.

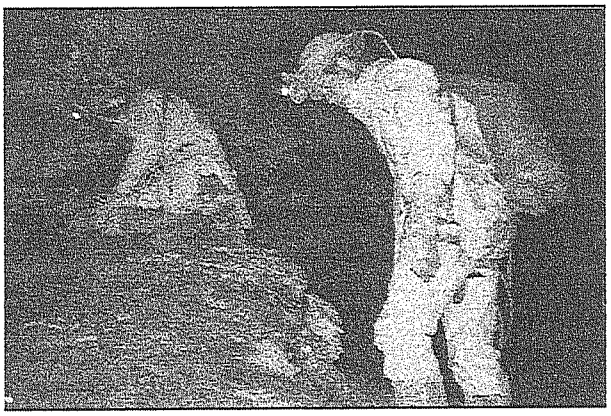
Although the trip through the rift to the camp was tight and awkward, we all became very familiar the route and the easiest way through during our many trips that year. All trips were negotiated with a tacklebag so a routine was established. If you were taking a few tacklebags through this section then the logistics had to be thought out before hand, generally three people spaced along the rift to pass the bags as far as the alcove was the best technique. Once at the bottom of this pitch it was a short pitch and a swing into NCB passage.

The following camp was our first attempt at 'hot bedding'. Colm and Tetley went down at midnight intending to cave all night while myself Iain and Sos would go down and sleep. We were awakened in the early hours (the time was irrelevant in fact) by Tetley and Colm coming back with news of a pitch which had rocks rattling down for 8 seconds: a huge void which they had named Mig Country. They had done some dodgy traversing across Titanic and found about 50m of passageway and

climbed up onto a ledge looking out into the huge pitch. This all sounded very exciting so the three of us carried on down to Level 2 and Mig Country to take a look at the finds. We were very impressed, and thought to ourselves, this traversing game seems to be very productive, lets have a bash at Challenger.

Challenger was indeed a challenge to traverse, a few bolts down the line and we could see that the rock was too crap to continue at this level, we would have to drop a bit and see if there was a better level further down.
"There's a reasonable piece of rock here. I'll put a bolt in", said Iain with a slightly freaked tone to his voice. It was undoubtedly not an easy bolt to put in and was taking quite a while to put in. Sos and I went off briefly to fill our carbides with water, and were probably gone for about ten minutes.

On our return Iain was across the traverse, just finishing hammering in a second bolt to complete the traverse. Evidently when we were gone he had finished the bolt and decided rather that put any more bolts in just to go for the climb. He was shaking so much once he'd got up it that he placed a bolt in about 5 minutes. This was a mad piece of climbing and the traverse gained the name Spirit of Elvis. Even with a rope this traverse can still cause problems for the inexperienced.



Getting onto the traverse in Exhibition Road. Photo by Scuz 1996

Once I was across, Iain had a quick look and said it looked like a blind alcove.
"Ah well, you win some you lose some".
"Hold on, what's that small hole in the corner".
"That's not a small hole, it's quite a large hole".
We climbed down the passageway and and passed a few shafts. It just seemed to carry on getting bigger and steeper. Then round the next corner we found ourselves looking down into a huge chamber with a fantastic arch above us.
"That's got to be Marble Arch, but what are we going to call the chamber?"
No name immediately sprung to mind for this impressive piece of cave. We had found 350 metres of huge passageway that day, the large passageway seemed to stop at this point but there seemed no shortage of shafts and small ways off to investigate along its length.
"I know", said Iain *"Exhibition Road, because its like an exhibition to look at this stuff"*.

On the next camp efforts were concentrated on Mig Country. Tetley with Andy Trousers bolted down the pitch (60m) and found a way through the boulders to the head of a short pitch. Iain and Rob continued this down a couple of pitches until the cave started to flood in that area and they made a hasty retreat - having to dig their way out of the boulder choke. Andy Trousers and Sos started bolting up through a hole in the side of Mig Country which seemed to be going NE towards M16. As a connection seemed likely Scuz, Colm and I started rigging and surveying our way into M16 so we could get the relative positions of the caves.

The next camp in were Iain, Scuz and Colm, planning to work around Mig Country, knowing that others would be in M16. On arrival at M16 they gave a yell and to their amazement they got a reply. And soon saw lights high above them making their way down to the top of what became know as Gladiators Traverse. Mark, CV Pete and Sos had been making their way down M16 looking for the link, when Mark noticed that just below Brezno Strahov there seemed to be a sudden draught which was not noticeable further up. Looking around at the top of the pitch he saw a black area which looked like a passageway. Sos managed to climb her way up into the passage.
"It's a passage way. Looks very similar to NCB passage but its absolutely freezing".
The other two climbed up into Hotline and started to survey their way NW. They soon got to a pitch which had to be traversed and Mark gave a yell.
"Hellooooooooooo".
"aiiiiiiiiiii-ooooooooo", came the reply
Mark's bolting speeded up and he rigged the rest of the traverse on naturals. Soon they were facing each other across the void. It was not going to be easy to rig and would require some fairly unusual rigging from both sides to get across. Agreeing to meet at a specific time the next day the two groups parted. The camping party returned into the Boulder Choke below Mig Country to retrieve some gear and a

moving Boulder managed to crush Iain's finger, forcing him to exit the cave.

The following day, a large party went down to see the connection. Dave did most of the technical rigging of the traverse, while Mark and I investigated further leads in Hotline. Heading SE the passage continued down a few climbs and along a fairly small crawl. We poked our heads into the side of another large void. But we'd have to wait to finish it off: the previous nights curry was begging to get the better of me:
"Mark, do you think I could borrow your survival bag".
"Use your own, they are only for emergencies you know".
"I've already used mine and this IS an emergency!".

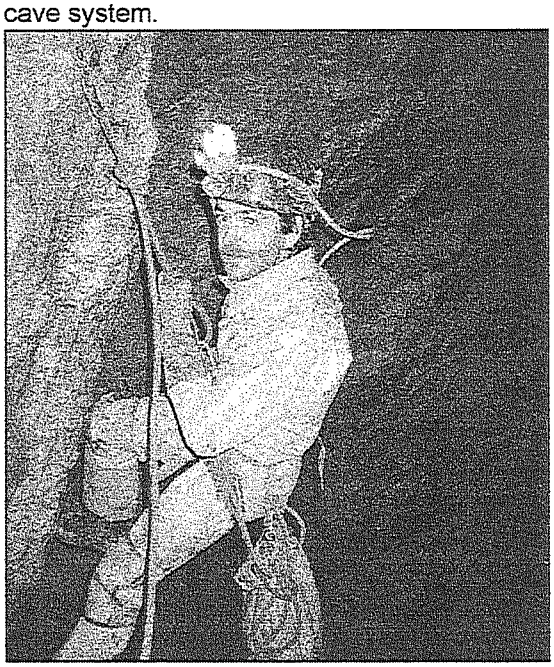
CV Pete and Scuzzer did some further exploration in NCB passage finding a tight rift leading to the head of a sizeable pitch which thrown stones suggested was around 80m. The pitch remains undescended as yet. There were also few photography trips, now using the convenient M16 entrance. One photography group with discovered a rift at the bottom of Exhibition Road. We couldn't immediately think what to call it but then decided to call it 'Bikini Carwash' because of Scuzza's swimming costume that she wears when caving. The pitch at the end looked really promising and on a tourist trip with one of the Slovenes, Dejan, I showed him this as one of the best leads.

1997 Expedition

Because of the enthusiasm, preparations for 1997 got going fairly early in the academic year. At the conference we talked to Huggy about the possibility of him doing some geological work. He seemed keen and started making contacts in Slovenia to get any reports he could. We got occasional and slightly confused reports coming back from the Slovenians about how they were getting on in the system beyond Bikini Carwash. All we knew from Andrej was that they had been down pitches of 50m then 100m and the cave was about 500m deep. Simon's email suggested that they were more like 600 metres deep but on previous experience we were more inclined to go with Andrej's more conservative estimate. Even so it was exciting news.

On arrival in Tolmin we met up with Mick Playford from Australia (who was at the end of an 18 month 'Overseas Experience) and Rob who had been up to top camp and begun setting it up, and then moved up to Ravne. Andrej had told us that he would be coming up later that day with a survey of the system to help us find our way at the bottom and when he and Dejan turned up we were just gaining CB radio contact with the top camp. They showed us the sketch, which turned out to be fairly rough, just an idea of how many pitches and approximate lengths, it looked like we would have a fair bit of surveying to do before we could get down to any exploration.

My first trip in the cave started off with Jan and our intention was to rig the entrance series with 11mm rope as it would be seeing a lot of traffic. With 200m of brand new 11mm Marlow in two tackle bags we got tangled up at first with all that weight until we started to lose some of it. The rope made it to the bottom of Brezno Strahov and then we were able to use a bit of tat for the connection into Hotline. We carried on to the bottom of Exhibition Road to dump gear and give Jan a familiarisation to the cave system.



Dave Wilson on main Brezno Strahov drop. Photo by Scuz, 1997

While Tetley, Scuzzer and Mick were busy surveying the new pitch series discovered by the Slovenians in the winter months. Goaty, Alva and I went to investigate the Goody Bag pitch but we didn't get far before Alva noticed that the majority of the draught in Hotline seemed to be going down a shaft near where you come up from M16. Putting a couple of bolts in we slid down the rope. We bolted the top of the next pitch and soon Alva was ready to abseil into the unknown.

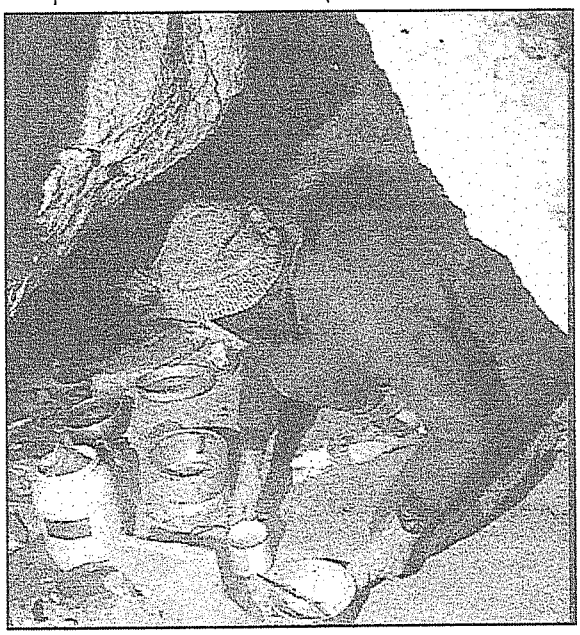
"Wow it's a big chamber here. I feel like I'm the first man on the moon. Hold on.....bollocks!"
"What's wrong?"
"Footprints!"
We had inadvertedly made our way back into M16 a few pitches further down, almost exactly the same place as I had gone into while exploring under the boulder choke with Malcolm in 1994. On prussiking back up the pitch, we could see that our pitch head was only a few metres from the original M16 pitch head and the permanent plate hanger could be seen. In hindsight it was not entirely surprising considering how close it was to M16 in the first place! We surveyed WOFT passage (Waste of Fucking Time) and headed out of the cave slightly disappointed.

The first camping trip in 1998 with Tetley, Oliver and Alva myself intented to re rig and survey some of the streamway and set up the camp. Tetley and Alva set off first and the first time I was aware of them in the cave was when I saw one of there lights from the top of Sajeta. At the bottom of XXX pitch the way to the top of Sajeta is not particularly obvious and it took a while climbing around boulders before we climbed down the right part of the choke. At the bottom of Sajeta the way on was again not obvious and we ended up following a rift for quite some time, eventually realising that it could not be the right way as it seemed to be undisturbed. Back in the chamber we found the right way to be a short climb down behind a boulder straight into a short pitch. A short series of rifts and pitches led us on to the head of Pawoden, a 50m shaft with a very nasty take off. On landing at the bottom of the pitch I could see the names of Rok and Dejan (the two Slovenians who got there the previous winter) scribed on the wall with carbide. We met up with Alva and Tetley, who were waiting for us in an alcove by the pitch. After fettling carbides and having some food Oliver turned up, having become disoriented between Sajeta and Pawoden.

We all headed down the rift with tacklebags to find the camping spot. It seemed a long time in coming and we were debating on whether a few very unlikely spots were in fact the camp. None of them looked particularly pleasant though and we carried on in the hope of finding something better. While negotiating this rift I remember we were trying to think of a name for the camp, something that gave an impression of somewhere to hang out. We already had Club Mig up in NCB passage; Daren boasts a Cafe and a Restaurant; so what to call this? Then suddenly Alva came up with it: *"I know ... Hotel Tolminka".*

We were just beginning to wonder whether in fact one of those rock chambers we had dismissed half an hour back was in fact the camp when we arrived at a short wet pitch. Descending this and a traverse line took us round the side of a large pitch into a flat sandy alcove. In the centre of the alcove was an unopened can of Zlatarog beer. This was it, we had arrived at Hotel Tolminka. There were still bags left at the bottom of the large pitches and at this point we had to decide whether to get them or not. I didn't feel too bad and Tetley looked pretty fresh, so we both volunteered to go back and get the bags while the others set up the camp and got some food going. In fact as with most caving, once you know where you are going it seems much easier, and going steadily back up Warriors for Mig took us about 40 minutes: coming back was considerably less. We returned to a hot cup of tea and the usual dinner of smash and cheese 'medallions'.

The next day Tetley and Alva set off to survey the 'Warriors for Mig series while Oliver and I went to the 50m pitch beyond the camp to check out the rigging. It needed extra bolts and while Oliver was hammering in a rebelay, I continued over the pitch head rift to see if there was anything beyond. After a short time I arrived at an aven with a waterfall coming into it. The water seemed to be disappearing down a small unpleasant looking passageway, which, after poking my head into, I decided not to push. I returned to camp to wait for Oliver.



Hotel Tolminka: Huggy makes himself at home

As I waited, with no one else around I was suddenly overcome with the sense of isolation of the place. I switched on the tape recorder, it was the Beethoven tape I recognised from a previous camp and suddenly I felt more at home. I had a chance to absorb the atmosphere of the camp.

The passage was a narrow oxbow with a flat sandy floor and a roof that narrowed to a point. There were candles perched on any available ledge in order to try and give an overall lighting to the area. Piles of bedding and dry furries lay strewn around the sandy floor in every corner, with survival blankets guyed up to try and reduce the draught. The constant noise of the waterfall going down Porcelain Pitch was almost soothing, although it played havoc with my bladder control. Alva had acquired a picture of a semi-clad German girl which was hanging from the ceiling suitably entitled 'Regina' as it was next to the Union Flag that Mark had brought out in case we got to the K. Daren drums and bags of food were messily scattered around the meths stove. Another corner had a pile of ropes and hangers and a BDH full of carbide. As I sat there I realised I was shivering, it was cold in there. I quickly put a space blanket on and lit the stove for some tea.

Oliver came back fretting that he had had some problem getting the bolt in because it was at such an angle. But it had been worth the effort as it kept the pitch more or less dry. We then continued up stream, putting bolts in occasionally and caught up Alva and Tetley just as they were finishing off the last bit of surveying. We then headed out, putting one more bolt in at XXX and having a brew stop at Bikini Carwash before exiting the cave.

The next camp in the cave was Scuzzer, Mick Playford and Goaty on his first trip deeper than about -200m. They carried on beyond the camp down the wet pitch which Oliver put the re-belay in, surveying as they went. They followed the water down a small passage at the bottom of the pitch that the Slovenians had told us about. Surveying down the nasty wet rift for a fair way, it got to a low duck. At this point they decided to go back and have another look at the pitch. Back at the pitch. Scuzza climbed up to a nice dry bypass, Cold Feet Passage, which seemed to be a much more promising lead. From here they continued down a steep rift, surveying as they went until they ran out of rope, with the cave going like a storm.

Meanwhile on the surface we were unaware of the exciting progress underground. The Slovenians Andrej, Dejan, Milan and Simon, turned up in the evening intending to push the cave the next day. Milan was a new face to us: Simon told us that he was the best caver in Slovenia. He spoke no English and his Slovenian had a more Russian hint to it. This, combined with his crew cut, large build and harsh feature made us all a bit wary of him at first. In fact he was very friendly once you got to know him.

The following morning Andre, Dejan, Milan and Oliver set off down the cave, with drills and explosives, intending to push the wet way (not knowing that the previous group had already found a bypass to it). Tetley and Simon slept during that day intending to go down in the evening, Colm and I the next day. On meeting the previous party in the cave the Slovenians changed plans. Dejan and Milan went on a mammoth trip pushing down Cold Feet Passage until they ran out of rope at around -880m, while Andrej and Oliver pushed a pitch series above the camp, Wonderstuff. They got to the top of a pitch, from which they could hear water beyond. Tetley and Simon turned up at the camp having already heard the stories of Cold Feet Passage from Scuzza et.al. and excited about the prospect of depth.

With the return of Dejan and Milan to the Hotel, they grabbed a couple of hours sleep and then with Andrej headed out of the cave. The remaining three, Oliver, Tetley and Simon were left with two possibilities. To carry on rigging down Wonderstuff or to push the deep end and possibly get to -1000m. Ever since I've known Simon he has always been obsessed with the idea of reaching -1000m, we used to joke that the majority of his English conversations with us consisted of the following speal:
"Yes of course .... Of course ..... Really ..... really .... to minus one thousand".
So I can imagine that at this point there was little option in his head of what to do. Wonderstuff was derigged (and unfortunately not surveyed) and the 200m of 9mm used to push the end. A note was left in the camp for us when we arrived which said something along the lines of:
"We have gone to push -1000m we will need beds when we get back".

According to Oliver's description Simon was like a man possessed as they headed down the steep sloping rift, bolting madly while Tetley and Oliver followed on behind

surveying. The cave was shooting down fast and excitement must have been rising, then suddenly at -958m the rift stopped and it was immediately apparent that there was no obvious way on here. Again Oliver told me that Simon became very quickly disappointed and just wanted to head out of the cave. So they started to derig.

Meanwhile Colm and myself had arrived at camp and found the note. We were excited at the prospect of the cave going deep, but at the same time a bit annoyed that there seemed to be a bid for glory from the lads (and probably a bit disappointed that we were going to miss out on it). We were ready to push so we decided to head off and find them. There seemed to be a lot of short pitches and nice rift passageway. It wasn't difficult to see where the British rigging stopped and the Slovene started because of the sudden economy of bolts, also they use a kind of rawl bolt which is really quick with an electric drill (as the depth is not critical). The occasional piece of 8mm rope did also not escape our attention - we re-rigged this on our way up.

After a few dry pitches we could hear the distant sound of water. Soon the water joined us in a chamber but after another short pitch it had gone off down a separate rift. Another 100m of abseiling and we found the others derigging and got the story of what had happened. Simon was keen to call the area Good Not Great, which is what we called the area until it was pointed out that Good Not Grand is more appropriate. Tetley, Oliver and Simon headed back to the camp while Colm and I derigged the rest of the 200m and took it up to the next obvious lead, which was the wet way, 100m further up the cave.

There was quite a bit of spray going down this and the place was cold and draughty so we were keen to try and avoid the spray with careful rigging. We negotiated the first pitch with some swinging and then placed the bolts for the next pitch. The way looked promising, but it was by far the wettest thing I'd seen in the system and although it looked OK we had no idea how the area would respond in a violent thunderstorm, which was an additional worry for all future trips in that area. We left an pitch undescended for the next day and headed back to camp. On arrival we found the other three sleeping soundly but using all the bedding. We woke them up and shared the gear around, unfortunately although there were 5 sleeping bags there were only four Karimats. A few hours later Tetley and Simon began to prepare to leave the cave but Oliver wanted to sleep for an extra few hours (he ended up exiting the cave alone and had bad nightmares about it the next night so no one else in his tent got any sleep). Dave and Huggy arrived at the camp just as Colm and I were fettling carbides, we made a plan for the other two to push down the wet way while we surveyed the end of cold feet passage (it hadn't been surveyed properly) and caught them up. We named the bit we surveyed Glory Boys as a bit of a joke on the previous days exploits.

Once the surveying was finished we headed back to camp. As we felt reasonably fresh at that time we just had a quick break and then headed out, though by the time we got out we were completely knackered and moving slowly. On the way we met up with Mick, Scuz and Clewin going down to the camp to continue pushing. Dave and Huggy ended up pushing down a few more pitches leaving it at a very wet looking pitch. Mick, Scuz and Clewin had the pleasure of rigging this pitch which they later named FA999 (Fucking Awful call 999) because it's so wet and nasty. At the bottom of this they decided to head out because everyone was so cold and wet, this was Clewin's first deep trip beyond about -200m!

Following a bit of a break the next camp was Mark, Tetley, Shed, and Alva. Their plan was to push further down FA999, and also Mark was keen to get some photos of the cave particularly some at depth. Shed and Tetley went to the bottom of FA999 to see if they could push any further. Once at the bottom there was a narrow tube leading shortly to another pitch, all very wet. They sensibly decided that it was too dangerous to push the cave in this area with unstable weather conditions - if this was going to be pushed it would have to be in the winter.

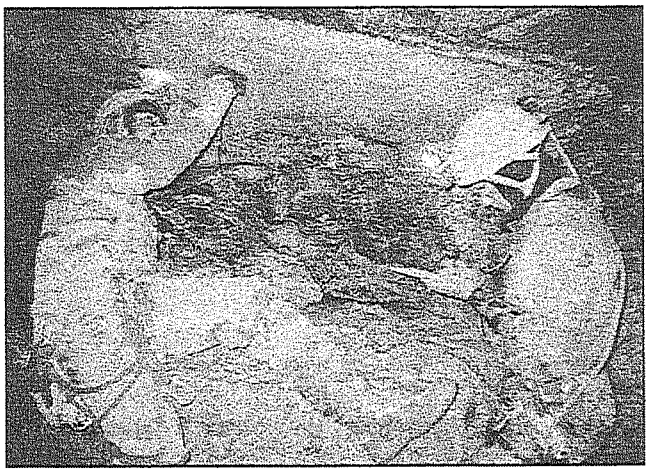
Alva and Tetley also investigated Rameses, a small crawl leading off higher up in Cold Feet Passage. A small tight rift off to the side led to an aven with water coming in and a wet passage continued to the head of a pitch. This way looked promising and they surveyed their way back to the main cave. Set to continue this work, the next camp was Goaty, myself, Oliver and Clewin. Goaty and I set off first and headed down to the start of FA999 to haul the rope up to Rameses. The plan was for Oliver and Clewin to push down the pitch at Rameses while Goaty and I explored upstream of the source of the river going down to FA999. Our trip was not helped by the fact that Goaty had a bit of a bowel problem and we had to stop on

a number off occasions while he frantically removed his kit to fill a small plastic bag. We followed up stream which after an initial boulder choke quickly developed into a wide 70° rift. Climbing upwards, we continued, surveying as we went until we were unable to climb further with out the use of bolts. We called this area Teotehuacan - Mayan for 'The Place where Gods are Born'. Oliver and Clewin meanwhile had pushed down two pitches and had ran out of rope. We met Clewin at the Rameses junction returning to retrieve some rope to carry on rigging. He sounded very excited:
"Looks like we've found a 40m pitch its really opening up". We followed him down to take a look. After two pitches we got to the rift junction. *"Oliver is just down there. There are pitches going down everywhere but we've chosen the best one".*
"Have you looked up in the other direction from the rift?"
"No we haven't had time".
"OK we'll have a look then".

Once through a waterfall on the other side of the passage, the way on continued in a stooping sandy passage with pitches going down. It carried on for quite a long way and had a howling draught. We were getting quite excited at this discovery: it seemed strange to find such a long horizontal passage at this level. At the end we got to a short pitch but the cave seemed to continue beyond. We decided to survey what we'd found as time was now getting on.
"This has to be Paradox Passage", said Goaty

We discovered just how draughty the passage was during the surveying. By the time we had finished the other two had bolted down the pitch and we went down to join them. It was a spacious 40m pitch but the way on looked a little awkward to rig and the noise of thundering water could be heard beyond. We gave the surveying kit to the other two so they could survey Oliver and Clewin's Stonker as they wanted to call it at the time (it later became Limestone Cowboys). We weren't back at camp for more than an hour when the others turned up. They had had a light failure and decided to leave the surveying to another day (and another party as it turned out!).

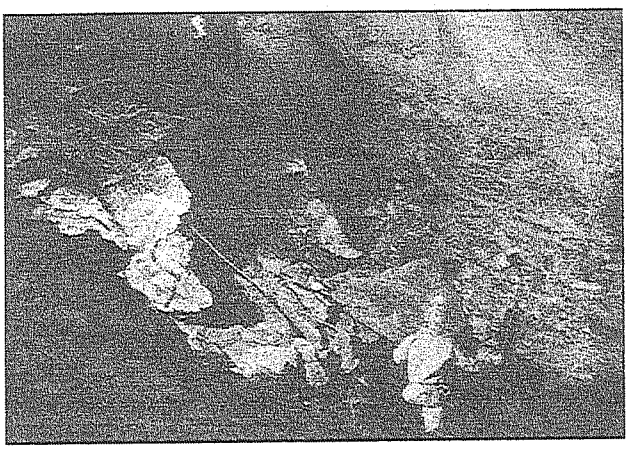
On the final camp a large group of us finished off the surveying in this area and then de-rigged sections of the cave and the camp. Four of us camped (Goaty, Alva, Clewin, myself) and two people came down for a day trip (Mark and Oliver). As the camp was being dismantled we kept the tape recorder running, it was 'Last Night of the Proms' and it was quite a surreal experience to be preparing to leave the damp and cold cave while having a spirits raised by 'Rule Britannia'.



Geologists Goaty and Huggy doing their bit. Photo by Scuz, 1997.

Titanic Pitch in Level Two was pushed by Clewin, Oliver and Colm on two trips down two 30m pitches, followed by an amazing 80m free hanging pitch which was named Britannic. After this there was an awkward rift leading onto another pitch (30m) which dropped to the head of a further pitch, left undescended. On two trips with Tetley, Mick Playford and Hugh Penney I returned to the area in M16 which I had looked at with Malcolm and Frank in 1994. The previous year while looking for the connection between M16 and M18 Tetley and Andy Trousers had visited this area and found one or two passages leading off. As it seemed to be heading in the wrong direction they left it and it wasn't till a year later that we finally got round to visiting the area again. Andy had described the area as having lots of Bat Shit in it, so it was always referred to as the Bat Shit Passage lead.

On the first trip with Tetley we surveyed our way to a large boulder choke chamber and explored leads off this. One of these was a climb up in the roof leading to a large passageway that looked like it was going on. We shook hands thinking we had made a big discovery but round the corner it ended almost immediately in a climb up, a little bit disappointing, We called this area 'Ridum Lawnmower after a book we'd all been reading. Later Mark climbed this pitch but found another more difficult climb almost immediately.



Mark and Tetly in Hotline.
Photo by Dave Wilson, 1997

A few days later with Hugh and Mick we followed up one of the inlet rifts. Climbing up some tight pitches we passed a flat out squeeze where there was a pitch which seemed to drop into the rift. Hugh pushed this for a while and it seemed to be going back into the known cave although we never pushed it to the end. We ended up calling this Onion Bhaji inlet as we were barfing them up all day. Elsewhere in the cave, Alva and Clewin investigated the Goody Bag lead that Mark and I had found the previous year. They descended the first pitch, which was about 25m to a second smaller pitch (Baddy Bag) which ended in a flat floor and a very horrible looking crawl at the bottom (Body Bag).

Near the climb up into hotline from M16 Iain negotiated a loose traverse over a shaft into a new section of cave. It went for around 100m of stooping passage with no obvious leads off (The Lost City). Shed and Clewin dropped some of the large shafts in the second level. Gladiators' Traverse turned out to be part of the Mig Country pitch and Challenger turned out to be blind, although a passage half way down led to an alternative way into Exhibition Road.

My last trip in the cave was with Alva to derig and remove some equipment from Bikini Carwash. We decided to have a good look at Exhibition Road on our way down, got quite enthusiastic trying all the various ways, and so managed to lose track of time. It was worth it however, as one of the last things we found was a small passage leading off leading to a pitch at the top of which was a 2m stalagmite. At the bottom of the pitch a passage was clearly visible, leading off away from the main direction of Exhibition Road. This seemed to be another sound lead for 1998 to add to the collection. On exiting the cave we found the others had been a bit worried, as there was now no more caving kit on the mountain for them to come and look for us with!

The last four years have been a great adventure for everyone involved, and there are more leads now than ever. When Andrej said to me a few years ago *"This mountain is hollow"*, it seems he was right.

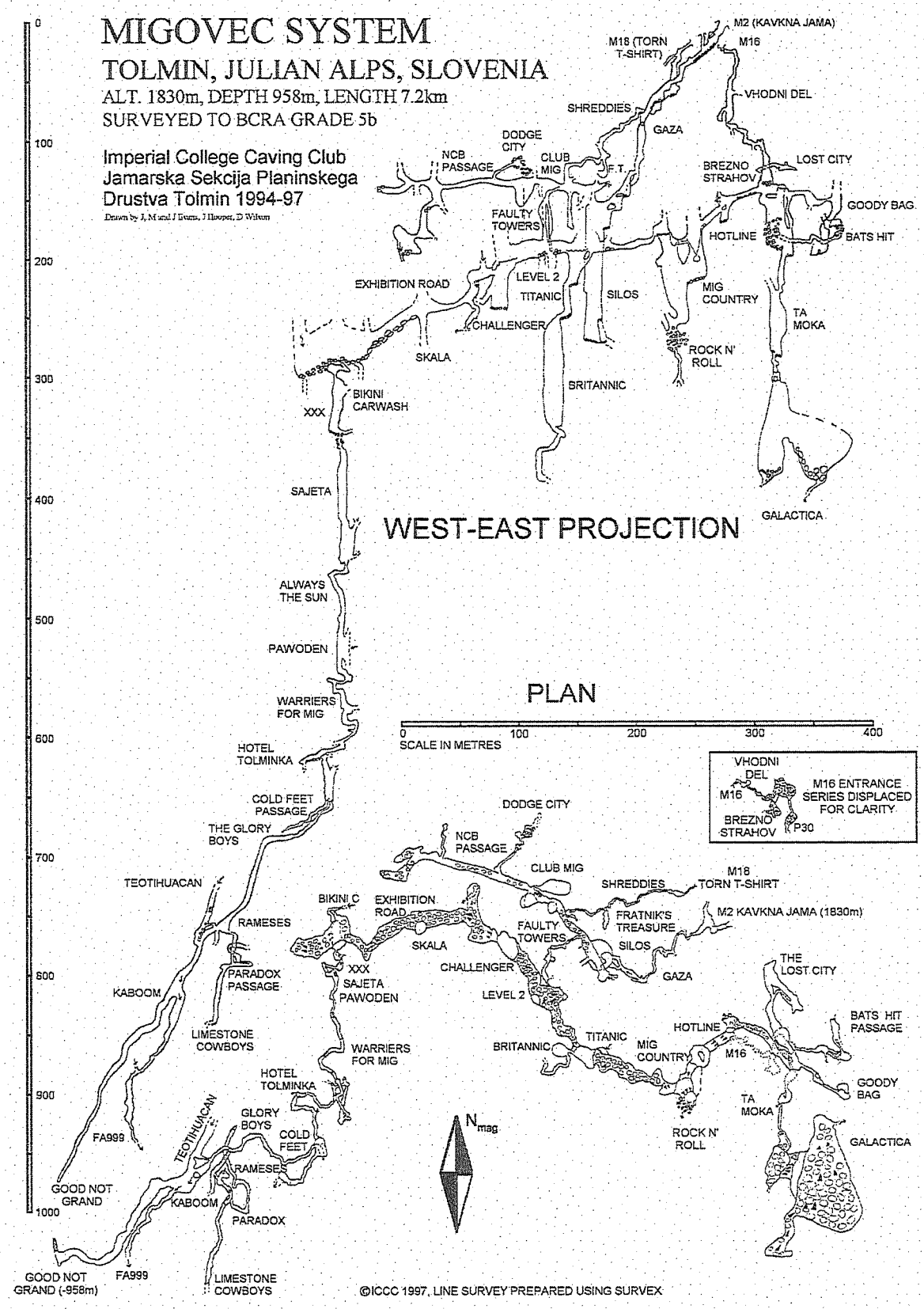
To be continued .....

Jim Evans

People:

Stu Adler (94,96), Richard Anderson – Chard (94), Andy Atkinson – Trousers (96), Malcolm Barr (94), Flo Babolat (97), Chris Birkhead (94), Helen Birkhead (94), Claire Bradley (94) Colm Caroll (96,97), Frank Cooke (94), Janet Cotter-Howells (96) , Pete Eland – CVPete (95,96), Jim Evans (94r, 94, 95r, 95, 96, 97), John Evans (94) Mark Evans (94, 95, 96, 97), Peter Evans (94, 95), Jan Evetts (97), Andrej Fratnik, (94,95,96,97), Simon Gaberscek, (94r,94,95r,97), Alva Gosson (95,97), Clewin Griffiths (97), Pete Hambly (95,96), Tony Hayden – Tonx (94,95), Gavin Hayman (94), James Hooper – Tetley (96,97), Herman Hertz (94), Paul Huggins - Huggy (97), Rob Lea (94,96,97), Harry Lock (94r,94), Oliver Mann (95,97), Zetko Matkaz (97), Iain McKenna – Eebs (94,95r,96,97), Dave Mountain (94,96), Clive Orrock (94), Hugh Penney (97), Michael Playford (Mick, 97), Andy Radcliffe – Radders (94r, 94), Dejan Ristic (96, 97), Chris Roberts – Sos (96), Mike Rogerson – Goaty (97), Maria Simon (94), Milli Smythe (96), Rok Stopar (97), Jos Visconti (Jos, 95r, 95), Jackie Wiersma, (94,95,96), Paul Wilcox - Cox (95), Dave Wilson - DW, (96,97), Sarah Wingrove - (Scuz/Scuzza (94,95,96,97), Anthony Woods - Pants (95,97), Tim Wright - Shed (96,97)

Night in the bivi.


MIGOVEC SYSTEM
TOLMIN, JULIAN ALPS, SLOVENIA
ALT. 1830m, DEPTH 958m, LENGTH 7.2km
SURVEYED TO BCRA GRADE 5b
Imperial College Caving Club
Jamarska Sekcija Planinskega
Drustva Tolmin 1994-97
Drawn by J, M and J Evans, J Hooper, D Wilson
M2 (KAVKNA JAMA)
M18 (TORN T-SHIRT)
M16
VHODNI DEL
SHREDDIES
GAZA
DODGE CITY
NCB PASSAGE
CLUB MIG
F.T.
BREZNO STRAHOV
LOST CITY
GOODY BAG
FAULTY TOWERS
HOTLINE
BATS HIT
EXHIBITION ROAD
LEVEL 2
TITANIC
SILOS
MIG COUNTRY
TA MOKA
CHALLENGER
SKALA
ROCK N' ROLL
BIKINI CARWASH
XXX
BRITANNIC
SAJETA
GALACTICA
WEST-EAST PROJECTION
ALWAYS THE SUN
PAWODEN
WARRIERS FOR MIG
HOTEL TOLMINKA
COLD FEET PASSAGE
THE GLORY BOYS
PLAN
SCALE IN METRES
VHODNI DEL
M16
M16 ENTRANCE SERIES DISPLACED FOR CLARITY
BREZNO STRAHOV
P30
DODGE CITY
NCB PASSAGE
CLUB MIG
SHREDDIES
M18 TORN T-SHIRT
TEOTIHUACAN
BIKINI C
EXHIBITION ROAD
FRATNIK'S TREASURE
M2 KAVKNA JAMA (1830m)
RAMESES
FAULTY TOWERS
SKALA
SILOS
PARADOX PASSAGE
XXX
CHALLENGER
GAZA
THE LOST CITY
KABOOM
SAJETA
PAWODEN
LEVEL 2
BATS HIT PASSAGE
LIMESTONE COWBOYS
HOTLINE
TITANIC
WARRIERS FOR MIG
BRITANNIC
MIG COUNTRY
M16
HOTEL TOLMINKA
GOODY BAG
GLORY BOYS
TA MOKA
TEOTIHUACAN
COLD FEET
FA999
ROCK N' ROLL
GALACTICA
RAMESES
GOOD NOT GRAND
KABOOM
PARADOX
GOOD NOT GRAND (-958m)
FA999
LIMESTONE COWBOYS
©ICCC 1997, LINE SURVEY PREPARED USING SURVEX

Slovenia 96:

Slaves to the System

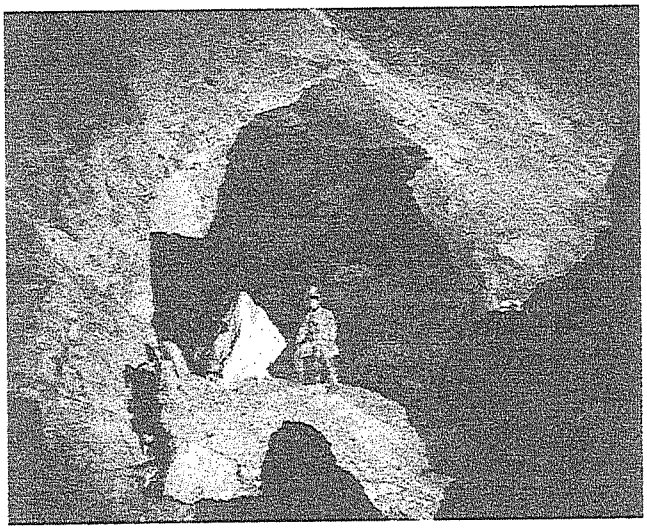
The perfect antidote to a long caving trip beneath the Migovec plateau is a game of canasta in a three player tent. The normal 24 hour daily cycle has to be restored somehow, and lingering card games interspersed with fitful bouts of sleep in stuffy, safe surroundings seems to offer the perfect road to recovery.

In order to lose your normal daily cycle it is necessary to spend at least two days at the underground camp, affectionately known as Club Mig. There, twelve hour bedding sessions and three hours eating and coping with bodily functions is followed by twelve hours of exploration and three hours of eating and coping with bodily functions. Sixty hours later it is possible to re-emerge from the entrance of Torn T-Shirt Cave to embark on another canasta session in the tent, a process similar to the decompression period experienced by deep sea divers.

In this way exploration in the first three weeks of the 1996 expedition continued, and the "hot-bedding" technique, where two teams alternatively caved or slept, worked well and the discoveries continued apace.

The real breakthrough had come with the breaching of a tight passage near the underground camp, beyond which a menacing echo could be heard from any voice carelessly dropped through a knobbly tube. Beyond this tube was The Void. Some prolonged hammering had allowed the smallest caver present to reverse into the tube, in the now familiar superman position with a rope tied around the waist. What a feeling to emerge in a beautiful 40m shaft at around its midpoint, with just a rope around your own midpoint. The hole in the floor did lead to another shaft with a two second drop, but the way on to the galleries, as yet undiscovered, laid directly across the pitch in the continuation of the knobbly tube that had been christened Tradesman's Entrance. These galleries heralded the start of the cave maturing into a system of venerable complexity and we called this region, for obvious reasons, Level 2. Undescended shafts abounded and the potential of each was confirmed by the free-fall time of the loose boulders that were thrown down into the black holes.

Many would call it impudent to ignore these leads that were obviously of the highest quality. But at the time, following gut-feeling, instead of descending it proved productive to ignore the shafts and initiate traverses across the yawning black pits at the end of the galleries.



Scuz in Level 2 near the bottom of the final pitch from TT. Photo Dave Wilson, 1997.

"*Anything you can find we can find better!*", would sum up the feeling that each team had on their return to camp to stir the other team of damp, weary cavers into action. A difficult and exposed traverse had led the first team to a huge black gaping emptiness that we named Mig Country and which seemed to drop to oblivion. A desperately loose and sensationally appointed traverse at the other end of Level 2, completed by a caver with an absence of any rational thoughts of self-preservation, led to a disappointing chamber. But wait! There in the corner, a dark shape could just be seen in the beams of the head torches and on we went to investigate. At every turn we were confronted with ever more caverns, until eventually it became impossible

to judge the scale of the situation. At over 250m down we were now deeper in the system than at any time before.

Many further leads were noted during the surveying, but for the time being a rest on the surface was what was needed: especially as one of the team was still recovering from a particularly nasty toilet experience the previous day.....

"But what do you do with the shit?", is one of the first questions, that for some strange reason is always asked when the subject of camping underground is raised. With a combination of our camps being long and these caves being dry, there was no question about any solid waste remaining in the cave. It all had to be taken out with us. Our system employed plastic bags, tie-wraps and a BDH container as noble martyrs in the cause of hygiene. This particularly nasty toilet experience occurred on the first trial of the, still evolutionary, waste disposal system.

Now, on the trip before this trial took place, Tetley and I were dismayed, but by no means surprised, to hear the familiar exclamation: *"Iain, Tetley - I just gotta have a shit",* one of two things that Jim takes great satisfaction in telling you, ... the other being when he has just had one. This trip to the camp had been a stocking up exercise but the BDH had not yet materialised, and so James ruined yet another innocent survival bag in the cause of common decency. This hazard was sealed and left close to the camp to be deposited in the BDH when it would be brought down on the next trip.

This was duly done but not before somebody had also dumped a large quantity of carbide waste in the same BDH container, as this too is removed from the cave. A pinto bean curry the previous evening had provided the need to use the facility and in the gloom of NCB passage, and closely observed by the fellow hot-bedders, the lid was slowly unscrewed from the top of the BDH. Unfortunately, the spent carbide dumped in the container had filled it with acetylene, and the flame of the caver's carbide lamp ignited this causing a significant explosion.

"Oh, shit!", he observed as the crap container blew up in his face. With his clothes around his ankles, the poor unfortunate was launched backwards in the very close vicinity of a 30m pitch (still undescended). But we were only in the second week of the expedition, so there would be time for the eyebrows, and other body hair, to grow back.

So far most injuries had been confined to accidents on the surface, usually sustained after drinking the Smirnoff Black Label that had been kindly donated by United Distillers as a morale boosting essential. Only one small accident (other than the exploding DBH) happened underground and here the small amount of vodka that was smuggled to Club Mig was put to good use.

The accident happened during the middle two weeks when attention was focused on Mig Country, and the series of ledges that again traversed this huge pit. Dropping to the foot of this 60m pitch we were a bit dismayed to find yet another boulder choke - and an unstable one at that. Some digging gave access down through 40m of boulders to a small pitch series. It was here that two of the team were rigging the pitches when a pulse of water came down through the boulders. Leaving much of the equipment, they made for the security of the huge chamber above, but were now confronted by a uniform ceiling of boulders instead of the "superman tube" that had been cleared on the way down. Fortunately ten minutes of loosening and collapsing boulders produced the desired effect and the escape route was assured.

The following trip to retrieve the equipment again encountered a blocked way and during the dig one member sustained an S.T.I. (soft tissue injury) which ensured, once out of the cave some 20 hours later, a life of luxury for a whole week while the healing process ran its course.

The team was at full strength again, however, for the anticipated linking of Mig Country with another cave, M16, a short time later. Using the computer programme, Survex, the underground and surface surveys had shown that at a specific depth, the areas of these two caves were only about 20m apart. With watches synchronised and a predetermined time agreed upon, a team in each cave were able to shout a coded message and hopefully hear a reply. The system worked and after some confusion because of echoes a visible link was made. Soon after, a fantastic Tyrolean traverse line was installed and an easier way into the depths of the new system, via M16, was established.

It was with some sadness that the now redundant camp was dismantled, meaning also that the exceptionally sporting entrance through Torn T-Shirt Cave was also likely to see much less passage of people. At least now, any serious injury beyond The Shreddies Series of the entrance would not mean an enforced encampment at Club Mig until a full recovery was made.

As icing on the cake, the dramatic link from Mig Country to M16 made the Migovec System 547m deep, and was just a reward for all the work people had put into the venture over the past three years. The expedition had been a success because of the three most important ingredients for cave exploration: persistence, optimism and luck.

It was with a lovely feeling of satisfaction that we could turn our backs on the base camp for the last time and walk to safety - at least for 1996.

Iain McKenna

Slovenia 96:

Discovering Level 2

The discovery of Level 2 was the first significant new find during the 1996 expedition. Two days prior to the 2 day camping trip that discovered this passage, Andreaj Fratnick had found that the 130m pitch that was our best lead was in fact part of another cave M2. He'd found a plumb stone at the bottom of the pitch, which he remembered eating nearly 20 years ago. There was a real need to find something new.

With that goal in mind, Tetly, Scuzz and I set out to explore a place know as The Void. This was my first underground camping trip and I really looking forward to it. After the 3 hour entrance series, we stopped to dump our stuff at camp, have a cup of tea and some food. The camp in NCB passage made the bivi look like the Hilton, but although this was my first camping trip and I soon got used to it. Water had to be collected to make tea, and dinner, which was soup thicken up with Smash and lumps of cheese. After dinner and several more cups of tea we prepared to go pushing. I went off ahead to rope the first climb up.

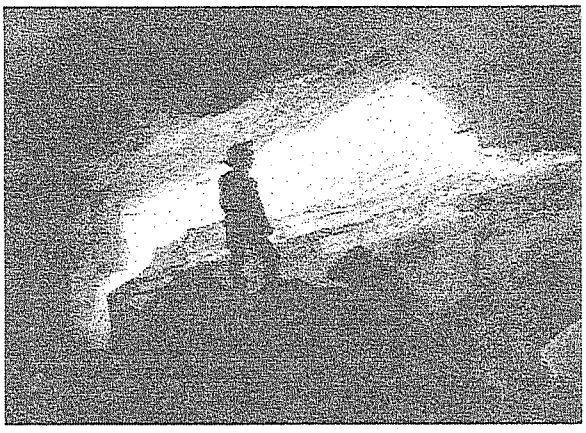
Just down from the camp a small passage leads off from the roof. After crawling down for about 5 minutes the passage turns sharply right, gets even smaller and breaks out the side of a vertical pitch: The Void. It was this undescended pitch that we were interested in. There was quite a large echo, and stone dropping also indicated it might be quite deep. Tetley set about putting in a bolt, and squeezed feet first through the hole and popped out over the pitch. He put another bolt just below the hole on his side and descended down to a ledge about 15m below.

Next if was my turn through. The Tradesman Entrance, (the name we gave to the hole that break out over the pitch), was more difficult than it sounded. The secret was to make sure you did not fall out the hole onto your cow tails, as getting back up to take them off was very difficult. I was soon down with Tetley on the ledge, followed by Scuzz. The ledge overlooked another 30m shaft, and we were soon at the bottom of that.

There was a noticeable difference in the rock. The top of the pitch the rock was more orange coloured and very fractured but the rock at the bottom and very smooth and white. The other strange thing was that the only way off from the bottom was a tiny squeeze. The floor was completely flat and there was a small channel which water ran along and through this small hole. We were determined not to be beaten so we hammered our way through the hole until we could get through. On the other side was a small 10m pitch, at the bottom of which all the water disappeared down a hole about the size of a mouse. This pitch was known as Alfs Hole, as Alf (Annoying Little Fucker) is the name of the mice that live in the bivi. At this point we decided to head back to the camp, surveying back as we went. It had taken several hours to get this far. We were also looking for any leads on the way up: there was just something not right about this.

On the way back Tetley spotted a hole opposite the Tradesman Entrance. The theory is that the passage that leads of NCB passage was quite old, and had only recently been cut through by the formation of this new pitch (The Void). When we got back to camp we were all wondering what would we find tomorrow. The answer to that question was even better than we imagined.

The next day we headed back to get to the new passage. Tetley descended down to the Ledge below Tradesmans Entrance and climbed up the other side. The rope now went down at 60° and disappeared in a hole on the opposite side of the shaft. The passage soon broke out at the top of a chamber. When we all got down to the ground we had a good look around for leads, but there was only one, a series of small pitches below. This was my big moment, I bolted the pitches and descended down them first. They were only small about 10m but there were three of the them. The next pitch we couldn't get down because we ran out of rope.



Scuz between Titanic and Ariane 5
Photo: Dave Wilson, 1997.

We all stood around the top of the pitch and did the normal series of tests. The first thing to do is to shout, to hear the echo. Normally several different frequencies and durations of yell are tried. Secondly drop a stone down and count the time it takes to hit the floor. The rocks seemed to be falling forever, one stone took about 12 seconds of rattling around. Lastly every one is completely silent, you event hold you breath so you can listen for any sounds of water. We were sure that we could here a trickling of water, which we later proved was true, but after sitting in silence for so long, you eventually start to hear things. After the standard series of test we were impressed, and could not possibly wait a second longer than necessary to get down and see what was there.

The pitches above us were re-rigged to free up 30m of unused rope from the bottom of the last pitch so we could get down. I was given the job of placing the last bolt in, a re-belay just a little down from the pitch head. Tetley and Scuzz went to find a draft free dry shelter for half and hour while I put the bolt in and went down.

I stood in a massive chamber, the next level down in the cave. About 5m below the re-belay the rope pops through a hole in the roof. The floor of Level 2 chamber steeply slopes upwards in one direction. In the chamber itself were two pitches. One of them is actually a dead end, the other is still undescended. More importantly however a passage was found. We all climbed up the pile of boulders into a passage about 6m wide and 3m high. We stomped down it to see what we would find. We were soon looking over the edge of another seeming bottomless pitch. I commented that it was, *"big and going down"*, so we named it Titanic. It became s obvious to us that going down is not always the best strategy. The next trip down was going to try and traverse round the top of the pitch to see if the passage continued.

We headed back in the direction of Level 2 chamber, surveying as we went. Tetley actually spotted that the passage continued and found yet another large pitch, Challenger. We got back up the camp and packed our kit, were eager to get out of the cave to tell the other what we had found. The survey data was plotted on computer, and it became apparent that Level 2 passage in the direction of Titanic was heading towards M16. If a connection was made with M16 then access to the cave would be much easier.

Three weeks later the connection was made. I was very lucky that my first real exploration trip, and my first camping trip was so good. We had found significant amount of cave which completely changed the direction of the exploration of the cave after that.

Shed (Tim Wright)

Tetley = James Hooper
Scuz = Sarah Wingrov

Slovenia 97:

A Pitch Too Far

It all began by sending a simple postcard:

"Hi Pauline, I'm in Beijing at the moment but am about to catch the Trans-Siberian train back to Eastern Europe. I want to spend the summer caving again in Europe. Any suggestions?"

Pauline was the leader of the Oxford University caving expedition to the Picos Mountains in Spain that I had gone on the year before. I got my reply in Helsinki where she suggested I join up with the Imperial College expedition to Slovenia.

A few phone calls later and I had vague directions to meet up with the group in the town of Tolmin about a month later.

A month later I got off a bus in the pouring rain in Tolmin and wandered down the street trying to work out what to do. A man ran out of a cafe greeted me like an old friend and dragged me in for a drink. This was Andrej, from the local Slovenian caving club. He introduced me to his two friends who it turned out had just come out of the cave after a mammoth 20 hour caving trip.

The lads from London were supposed to arrive that night, but didn't. I spent the night on the floor in Andrej's factory. The next day was sunny and I spent the morning lazing in the sun and swimming in the river. After lunch they turned up and we all drove up to the end of the road halfway up the mountain. This was quite an undertaking in itself. The van was so loaded with equipment and supplies that the back was completely filled up except for a small space beneath the ceiling. In this gap five cavers had to lie flat like sardines. To make things easier, three more climbed up onto the overloaded roof racks.

However the road was much too steep and windy for the van. We ended up unloading half of the load and driving up twice. At the end of the road is a friendly farmer who let us park the van behind his house and leave the gear stockpiled in his barn. After sorting out equipment we started on the first climb up to the Plateau at the top of Migovec mountain.

As is usual on the first carry everyone had vastly overweight packs and it began as a sort of race. The steep and unrelenting trail soon sorted us out and slowed the march to a lung-busting, sweat-drenched struggle. For the first hour you climb up a steep tree covered gully. Just above the treeline on a long spur jutting out from the mountain are three shepherd huts. The way on is a slightly easier if more rugged traverse around to the back of Migovec, and then a final, never ending climb up to the Plateau. All told the carry takes about three hours. For the next four days we did one or two carries a day, not quite enjoyable but necessary and a good way to get fit for what lay ahead.

On the second day a very friendly family moved into the Shepherds huts for their summer holiday, and it became a welcome stop on the hard climb up. They would offer us tea made from mountain flowers, vodka and wine, and there were three adorable daughters about our age to flirt with. Because it was so hot in the middle of the day the carries were usually done in the early morning or evening, and it was not unknown for one or two guys to be running late leaving the Shepherds huts and end up having to spend the night there. Despite the benefit of good company this was not all it was cracked up to be, because it was darn cold without a sleeping bag and with only a hard floor to lie on. Eventually we were ready to go caving.

My first trip underground was actually a bit of a mess. The entrance series was rigged with a rope that had been in there since last year. My group: Tetley, Clewin and me, ambitiously planned to zoom down these ropes and traverse along the Level 2 passage to deposit a pile of gear at the far end of Expedition Road, with a second group following us in to slowly replace the entrance series rope with

new stuff. The Slovenian's had recently been in the cave so we thought the old rope was still OK. Well the rope was marginally OK, but some of the rigging was atrocious, which we had to tidy up just to go on, and then we reached a 15m pitch which the Slovenian's were free-climbing. There was no way we were going to free climb down that particular pitch, so we rigged it with one of the spare ropes we were carrying in. Finally we lost the way. After searching around for a while the second party caught up with us, led by Jim who did know the way. But there were now too many cavers in the one spot in the cave and any further progress was going to be slow. I volunteered to return to the surface with all the old decrepit rope we had already replaced. I had not even got down to -100m and spent only four hours in the cave. To make myself feel useful I walked down the mountain in the afternoon and bought up another load of food, my fifth journey in 4 days.

The next day just Tetley and I went in to Expedition Road on a familiarisation, load carrying and surveying trip. Well the entrance series was now nicely rigged on 200m of 10mm rope. There was no point cutting the rope as the pitches just linked up one after the other. You start off by crawling down a little rat run and sliding through a body size hole in the wall, which happens to be the top of the first pitch. There are 4 pitches one after the other, down to a reasonable sized chamber. Things went severely wrong for me at this point. My carbide suddenly refused to work and after five minutes of examination I found that the hose to my helmet had melted through where it joined the carbide container. Out came the pocketknife and with a few oaths I made my hose a few inches shorter and could go on.

From here you have to prussik 4m up a wall, clamber around the corner and abseil 15m down the "free climbable " pitch. At the bottom is a pit which is traversed around in a precarious balancing act, then through a series of crawls and tight bits with a couple of short pitches thrown in down to the 40 metre deep Vhodni Del ("wet pitch"). Then comes the Connection Rift which joins this cave with Level Two. The Connection Rift was still rigged on old, well-used and very smooth rope. It was very, very fast. 8m uncontrollable abseiling down was a ledge where we connected onto another rope and prussiked 8m up into another hole in the ceiling (not a bad free climb for whoever the joker was who first did it), into Hot Line.

Hot Line is called Hot Line because it blows a gale of freezing cold air. By about this depth in the cave I'm told the air temperature is down to about 2°C, and I'd believe them, it is very cold. The best thing to do is just keep moving. Hot Line is the start of Level 2 which slopes down for over a kilometre all the way to Expedition Road and Bikini Carwash. However its not as simple as just stomping down the large phreatic passage, there are some pretty amazing obstacles in the way which help explain why this is the best sporting cave I have ever been in.

We wandered down Hot Line for a bit to Ulrica Jonction where you have to climb around a corner over a forty-odd4 metre deep hole. Don't worry Mum there was a rope in place to clip on for safety, but it was quite an interesting move just the same. A bit more of Hot Line and then the passage pops out overlooking this large deep chamber - Mig Country. Hot Line is a hole high up on one wall and Level 2 continues off from high up on the far wall. To get down and up involved a frightening but amazing tyrolean abseil down to a huge raised bounder in the middle of the chamber and then an equally frightening and amazing prussik up to Mig Country. One of the scary things is that beneath the boulder the cave continues down for well over 100m.

From Mig Country are three utterly amazing traverses over huge deep pits. The first is Titanic, a 7 bolt traverse along a conveniently

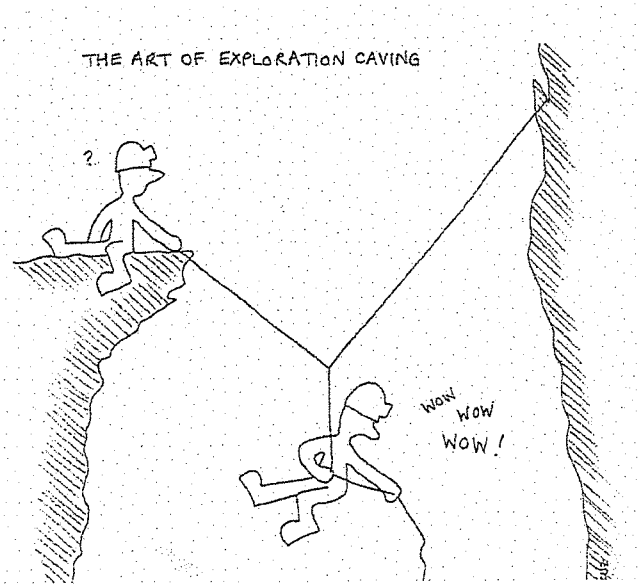
situated one metre wide ledge. But let me assure you it is no place for anyone with vertigo. The second, Challenger, takes you along another crumbly unstable looking ledge over another large pit. Only this ledge ends half way across and you have to clip on, swing out and prussik up 15m to the most awful pitchhead I have ever seen. You have to pull yourself around the corner from a series of bolts whilst free hanging in a very tight nasty wedge between a rock and a hard place. This is near Club Mig where last year's underground camp was situated, and what an awful looking spot to spend the night, windy, covered with boulders on a slope, with water dripping all around. Yuck.

The last traverse, The Spirit of Elvis is the best. Whoever rigged the way across this pit was inspired if not half crazy. It starts by a 20m traverse along a rope on a slippery mud slope followed by three short abseils, each of which swings you sideways along the wall. The last section before safety can only be described as mad. You clip a karabiner directly from your harness onto the fixed horizontal rope and launch yourself over dizzy nothingness, pulling yourself along the rope à la SAS style and climb up the far lip where the passage continues, now with a proper floor.

From here to the end is Expedition Road, where Level 2 is at its largest, often over 20m wide and high. It slopes down at about 35 degrees, a huge boulder slope to be carefully negotiated. There are more pits but these are easy to climb around. Well by this time you are an expert. The end of Expedition Road is a huge chamber with a boulder covered floor. By this time we had been caving for about 5 hours slowed down by my unfamiliarity with the cave and by our heavy bags of gear.

After a snack and a carbide fettle, we climbed up into Bikini Carwash. I have no idea why it was named thus, but what a name for a cave passage. The hole is tight and downright awful with a heavy bag because its one of those tight rifts where the only way on is a horizontal slide/climb through a series of tight holes 4m above the floor. A bit of a grunt, and for the inexperienced young punter a 10 minute ordeal, to go about 20m horizontally. Finally a small stream is reached, a small chamber, with a hole in the floor and a big pitch: TripleX.

This is as far as they had got on the last expedition. But the Slovenians had since rigged this pitch and continued on down. The cave was looking decidedly interesting. However the Slovenians hadn't mapped what they had descended and so we started surveying on down. I went first with one end of the tape measure and Tetley followed. 50m and 3 rebelays later was a small ledge still 10m above the true floor. To go straight down would have meant getting severely wet. Not a good idea in a cave like this, so instead you traverse along a rope secured by bolts along the wall. Unfortunately it could do with another bolt, and with the key bolt in the middle being positioned about 2m higher. Climbing around that wall and down to the floor was the scariest thing I had to do on the entire expedition. Still we made it without shitting ourselves too badly.



Across the floor of this chamber was another narrow rift which we worked our way down to a little ledge in a turn of the passage. Beyond a large boulder was another slot in the floor, this time above a really big pitch. Unfortunately it was rigged off a single bolt, and since we had been told that it was about 90m deep we decided that it would be a good idea to take the time to put in a back-up bolt. (In fact when finally surveyed it was only 75m deep, with 5 rebelays on the way down). Tetley hammered away and I curled up in a corner of the ledge, feeling cold and tired.

Tetley was sort of keen to continue surveying on down, but I was feeling knackered. It was my first cave in 12 months and I was apprehensive about the prussiking I still had to do to get out. Because it was such a long

pitch, and would be a grunt to get back up, to go on basically meant going all out on a mega trip to make it worth while. In the end we decided it was better to go out, get a good nights sleep and come in again tomorrow. As it was, by the time we got out we had been underground for 14 hours: quite a productive orientation trip. In the days to come, Bikini Carwash to the entrance was like the home stretch, even if it was a final 3 hours of full-on caving. The 75m pitch and Triple X were such large pitches that once you were up them and at Bikini Carwash the tension just fell away and you just knew you would be able to get out OK.

Early the next morning I had to get up to relieve a full bladder. Unfortunately Tetley heard me and stuck his head out the door of his tent. With a stupid, really, really sick grin on his face he asked was I ready to go back down the cave. Swear words, long and profound! It was only 6am. *"At least let me have a crap first",* which I did before struggling into my cold damp furry suit, smelling strongly of sweat from the day before.

By 6:30am we were in the bivi depression heating up some water for tea and preparing heavy bags of ropes and the like to carry down the cave with us. Just then a fuzzy blonde mop of hair popped over the edge of the bivi followed by a huge backpack. It was Sarah. Sarah is a mechanical engineer who's first job out of university happens to be working on North Sea oil rigs, and let me tell you she is stronger then me. She had flown into Ljubljana yesterday and got as far as the shepherd huts last night. No-one else was up yet so we suggested she come caving with us. It was not hard to twist her arm.

So down we went, not exactly bombing down as we were pretty weighed down by heavy bags again, but faster than yesterday at any rate. Some of the gear we were carrying was for the underground camp we intended to establish at the Slovenian limit at -600m. One of the essential items was a tape recorder because last year they had been able to pick up radio stations at -200m. Although we did not expect to be able to repeat that at the very bottom, we agreed that it would be good for morale to be able to blast out tapes of Jimmy Hendrex and Last Night at the Proms whilst being miserable and cold at the underground camp.

When we got to the top of the 75m pitch we set the music blaring because Tetley and I were going to survey the pitch on the way down and that was going to take some time. Because we had re-rigged the top yesterday the rope lengths were all out and so I, being first had to re-rig the pitch as I went. Just below the top, the crack I was abseiling in opened into a huge chamber with a waterfall going down one side. It had a fantastic echo and was utterly huge. In all there were five rebelays on the way down to redirect the rope away from the wall which took a while to re-rig. In fact it was about an hour before I touched the bottom, and my legs racked of pins and needles from sitting in the harness for so long. But it was fun with Tetley hanging above me joking and offering good advice and with the music blaring a long, long way overhead.

Across the chamber was a narrow crack in the floor which was the way on. This pitch was also rigged off only one bolt so Sarah stayed behind to add an extra bolt and tidy things up a bit. Tetley and I continued on surveying and carrying multiple bags, now including the two that we had deposited at the top of the 75m pitch the day before. The cave was now in a completely new phase: we were in an active streamway, fortunately not too big. The rock was brighter and cleaner than higher in the cave, and the passage was newer. The stream wound on for a bit and down a 10m waterfall with a bit of a pool down the bottom. The rope that was rigged on this pitch went around the corner to a further pitch I could not see. However the Slovenians had not left enough slack and half way down I was caught at an angle on a very taunt rope. I had to drag myself down and ended up cutting the rope at the bottom and rerigging the next pitch.

This pitch around the corner started from a small crawl hole shared with the stream and was about a 30m drop. You have to abseil out at a ridiculously severe angle to a bolt placed far out on the wall, positioned so as to avoid the water. It was a real beauty of a drop. Beyond was a narrow rift with water spraying lightly in from the roof at spots along its length. A fair way along this was another 50m pitch, which had a really difficult start-off. That can be excused as the only good rock to put a bolt in was beneath the lip of the drop. It was a free hanging pitch for most of the way, a bit wet and not that nice. (Later Tetley put a bolt in from a bit of rock sticking off the far wall, this kept you drier, but involved some fun

aerobatics to get to and from. I don't know how he was ever able to swing out that far and put it in, most impressive!).

By this time we had been on the go for about 12 hours, and had done a lot of surveying. We found a carbide dump left by the Slovenians, had a chocolate bar (our only meal of the day), left our bags and slowly made our way out. We had been down to about -500m, again a very productive trip, but a long 17 hours on the go. The next day I did not go caving.

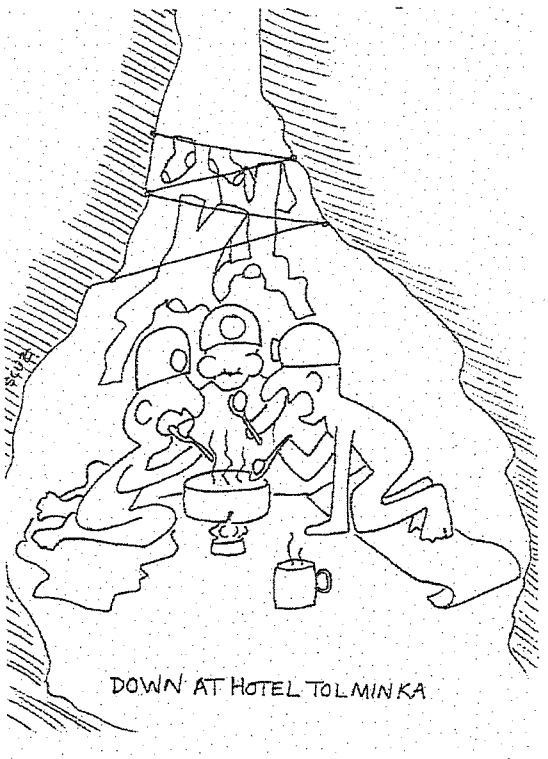
Whilst Tetley, Sarah and I had been working in the far end of the cave the others had been on a series of shorter trips looking into the pits we had traversed around in Level 2 and checking out other leads in the top sections of the cave.

The next day Tetley Alva, Oliver and Jim set out to the bottom of the cave to establish the underground camp at -600m and finish off the survey. They camped the night down there and seemed to enjoy themselves. Tetley is a strange boy. He has done a lot of underground camping in his time but has a philosophy never to crap in a plastic bag. To see him emerge from underground after a multi-day trip, face contorted in agony, tearing off his gear in a desperate urge to empty his bowels is really quite amusing.

When they came out two days later it was my turn to go back in. Down to the Slovenian limit and beyond. Sarah and Goatee came with me. Goatee is a first year geology student, with a beard. He had never been deeper than about -150m, the limit for caves in Yorkshire, and although apprehensive was willing to give it a go. In fact he had never even been to Mig Country so he was going to see a lot of new cave on this trip. Beyond the carbide dump, where I had got to two days before, the cave continued as an active streamway with lots of short pitches. We did not get soaking wet but it was pretty hard not to get damp all over. About seven pitches in all and lots of great caving before we got to the underground camp.

t is the prefect underground camp. You approach it by abseiling down a little waterfall onto a little ledge. The water continues over a lip and down a 30m pitch but we traversed along the ledge into a side passage. In here it was dry, with no breeze. It had a nice flat sandy floor and was small and intimate, which made the place seem cozy. The sleeping bags were laid around the walls on sheets of plastic and covered with space blankets (a further protection against the cold). A cooking stove and bags of food were sitting in a central location. At one end was a store of all the rigging equipment, carbide and ropes brought in so far. At the other, around the corner out of sight and smell was the toilet. This composed of plastic bags to crap into and twist tops. (Unfortunately they had brought the wrong size bags down. Have you ever tried crapping into a sandwich bag!).

After a late lunch of instant mash potatoes and a cup of tea we set off to see what we could find. This was were it got strange. This offshoot passage led around the corner, past the dunny, to another streamway, running completely separately from the first. The 30m pitch before the camp remains undescended and could well be the way down to a kilometre depth, as could another dry passage branching off two pitches further up. (This passage was latter pushed by Oliver and Andreaj down over 100m with no end in sight but was then derigged to provide ropes for the bottom of the cave).



Anyway, by going past the toilet and following the windy passage you get to the top of another 50m drop. Well its actually 25m freehang down to a broad wet ledge which you

scramble across to the other side, swing around the corner and down another 20m.

The cave then enters a small low passage, angling down at a constant 30 degrees with the bedding plane. It has a series of 2 and 3m drops in it but was mostly tight and wet, very wet, and distinctly unpleasant. I was getting very bad vibes that if it continued like that it was not going to be worth following, it was just too awful. After a while the passage restricted to a belly crawl in the water (2°C) and we decided that was enough for one day. We sent Sarah back to the big pitch below the camp to rerig it a bit better whilst Goatee and I surveyed back up. It took over an hour and was the worst surveying I have ever had to do. Moving slowly in those conditions, having to sometimes lie in the stream to get a compass bearing, is a guaranteed way to freeze, it was just awful.

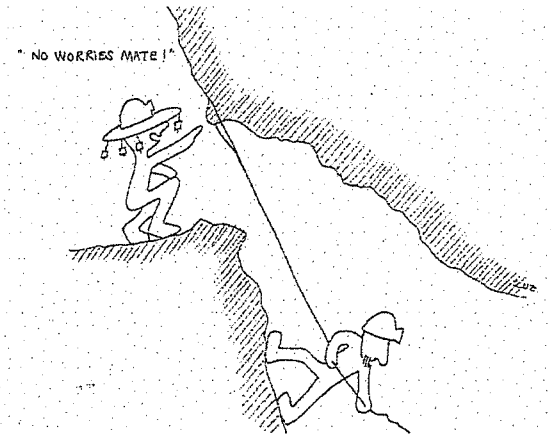
By the time we made it back to the big pitch we had had enough. We met up with Sarah there, just as she spied an interesting hole. By clambering up to a ledge on the far side of the waterfall, we found ourselves in the old stream passage. The reason the passage we had just been surveying was so small and wet was because it was so new. If this was the old abandoned passage then it promised to be roomer, and more importantly, dry.

But we left it for the next day. As it was, it was about one o'clock in the morning by the time we got back to the camp. We stripped out of our wet caving gear and put on a layer of dry thermals and then sat in a circle around the stove making hot drinks and a meal of sorts. We had the tape player blaring to cheer us up, to drown out the waterfall behind us, and make us forget we were a very, very long way from the sun and safety. Dinner was a mixture of pasta, instant mash potato, dehydrated Yorkshire stew, and cheese sauce all cooked in the one container, and eaten from said container with three spoons. We also had a chocolate bar and a swig of vodka to try and send us to sleep. We were all exhausted and very cold and soon got into the sacks to sleep. Unfortunately we had not worked out best how to wrap ourselves in the space blankets and plastic sheets and the sleeping bags on their own were not enough. As a result none of us slept very well, just lying there cold, trying to recover as best we could.

In the end it was the person with the fullest bladder that had to get up first, and that happened to be me. So after 10 hours in the sack I started organising another meal for us: lumpy porridge with lots of sugar. Only when it was ready did the other two reluctantly get up. It took about 2 hours from when I first got up until we were all ready to go. It is very difficult to get yourself motivated and every job, from crapping in a tiny plastic bag, to cleaning out and refilling your carbide lamp, takes forever. Still it beats prussiking all the way to the surface to sleep and than having to turn around and come back in.

Eventually we were on our way with a fair haul of ropes and rigging gear to explore our dry way on - named Cold Feet Passage. It was everything we had hoped for. We sent Goatee on to the first pitch to try his hand at bolting (he had never done it before and that particular pitchhead was a nice comfortable place to learn). Sarah and I stayed behind to complete the survey down the 50m pitch to what we had mapped yesterday.

We linked up with Goatee just as he was finishing up, and a nice bolt it was too! (His next couple of bolts were not so crash hot, but as a wise old man once said to me *"a bolt hanger will hide a multitude of sins*"). Four or five more drops, a dodgy climb down and the cave levelled out a bit into a narrow serpentine shape which wound on for quite a way. Finally around a corner and through a hole was a short pitch, followed by a short pitch, followed by ?.!



The cave had struck a fault line in the mountain and was now following it down at about 70 degrees angle in a series of short drops, one after the other. After a few of these

we ran out of rope but could see the cave disappearing down the rift as far as our lights could shine. We were ecstatic, if only we had brought more rope down from the underground camp we would have just kept at it until we dropped. We still had a lot of surveying to do: linking in our new bit of cave with the rest and that took ages. We did about 12 hours actual caving that day and again got back to the sleeping bags about midnight. It was a similar routine to the night before only we drank lots more vodka to try and help us sleep, sorted the bags out better, and were so much more exhausted that we all slept like logs.

The third day was the long haul out. Not something you look forward to enormously but something which has to be done just the same. You can't get a helicopter in to pull you out of the bottom of a cave. Surprisingly that day turned out to be one of the best caving days of my life. Just before leaving the camp, we played a song by The Stranglers called "Always the Sun". It just had the right rhythm and was so optimistic that it played in my head the whole way up. It was one of those golden days where everything goes right, and you are relaxed and confident that everything is alright, where every movement is a sort of poetry, all in rhythm to your feelings and thought. My senses were heightened and I was just so enjoying myself despite the hard work and concentration, and the music in my head just summed up everything that is good in life.

We only had to take out one bag between us, which Sarah and I shared, containing our waste carbide and crap, all securely wrapped up in a plastic drum. We were slow and steady. It took us about 6 hours to make it back to the sun, and it was only when we got there that we realised that we had forgotten to stop for a bite to eat on the way.

Actually I do remember stopping for a few minutes on the way. The cord leading from my foot ascender to my feet broke when I was about 25m off the ground and I hung there for a while whilst I rigged a new set from some odd bits of cord I had on me. At the top of that particular pitch we ran into 3 Slovenians and Oliver on their way down. The Slovenians were up for the weekend and were delighted when we described the way on that we had found. We found out days later that Oliver and Andreaj rigged about 100m down one of the leads just above the camp before derigging it to take the ropes down to the bottom of the cave. The other two, I never learnt their names, did a mammoth 36 odd hour trip without a sleep, pushing on down Cold Feet Passage to the intersection with yet another stream at about -800m.

Anyway we got to the surface around sunset which was just amazing. After seeing only darkness and grey colours for 3 days (it was a 57 hour trip) the contrast on emerging onto the top of the mountain to see a beautiful sunset over the Adriatic Sea was just great.

After dinner Tetley and Simon (another Slovenian caver) set off down the cave. They were also gone for 2 days, and pushed on from the intersection at -800m. At the intersection a stream crosses through Cold Feet Passage and continues on its own very wet way. But Cold Feet Passage also continues on separately and just kept going down and down. The Slovenian's were so confident when they emerged that the cave would go to one kilometre that we, on the surface began to take it for granted. Unfortunately it was not to be: not this year at any rate. At -958m Tetley and Simon landed in a sump pool, and that was it. But what a cave! In the matter of about 3 weeks the cave had been pushed from Bikini Carwash at -280m down to -958 metres in some of the best sporting caving I have ever done.

The 8th and 9th trips down the cave derigged the bottom bit back up to the intersection at -800m and started bolting down the wet streamway. The streamway was a deep steeply sloping rift and it was possible to bolt the rope high in the ceiling above the water and thus keep dry. These trips also did a fair bit of geological analysis as well as photography.

After that 57 hour trip I spent a few days on the surface recovering. I did not actually sleep well at night being overtired, and full of nervous adrenalin. Also my hands ached as if they had very bad arthritis, I suppose from the cold. In fact they ached so much it would wake me in the night. I had to give up writing my diary as I was finding it hard to hold a pen.

On the first day I walked down the mountain with Iain and his French girlfriend. They drove me down to the river for a swim, to wash a weeks worth of sweat and grim off. What a

pleasure that was. Lying in the sun afterwards was also just grand. We stopped off in Tolmin for a pizza and ice-cream. That evening we carried a food load back up the mountain which sort of defeated the whole purpose of having a bath. I amazed myself by how easy it was now to climb up to top camp. All that exercise was getting me fit, even if I did ache all over.

The days on the surface were spent sleeping in late, cooking and eating heaps of food, reading and generally just lazing in the sun and doing sweet precious nothing.

After 3 days recovery on the surface it was my turn to go back down, and the following is something I wrote a few weeks later about it: *"By the time I had hammered in the third bolt I was exhausted. I had been hanging in my harness for well over half an hour, my legs were a blazing pain of pins and needles from lack of circulation, my hands cramping from holding the bolt driver and hammering away with the hammer. I was soaking wet and freezing cold from the waterfall I shared the shaft with. The joys of expedition caving at -900m."*

Sarah, Clewin and I had set out from the surface at 9 o'clock that morning passed through the underground camp around 3pm. where we stopped for a late lunch. A third of a bowl each of instant mash potato with a bit of melted cheese stirred in. We then reused the bowl to make up a container of very sugary tea. Then on to the bottom of the cave to continue the exploration.

The pitch at the current limit of exploration didn't look at all pleasant. The previous team had placed an extremely poorly situated bolt at the top in a narrow slot: too narrow to pass a body through. You had the choice either to squeeze beneath the tight bit sharing the narrow space with the stream, or clamber out over the top (ideally where you would have placed the bolt) and wedge your way down.

My immediate impression was just to place another bolt. This lead to an argument with Sarah who just wanted to get on with it, her argument being that this was an expedition not weekend caving. I was about to launch into a lecture how having an accident at -900m did not really appeal to me. That the rigging should be good regardless of the type of caving, and that the thought of exploring a kilometre deep cave meant nothing to me if I, or a friend, had to be pulled out in a body bag. But I saw that she wouldn't understand, so looked once more to ensure that I at least would be able to make my way back up past it, sighed, and began to gingerly squeeze my way down.

In order to stay out of the waterfall (impossible really as the ice cold spray filled the shaft) and to prevent the thin 9mm thick rope from rubbing against the wall I had to place bolts every so often on my way down. After three bolts I was a mess and I was only half way down. I wedged myself in the corner of a small sloping ledge about the size of two telephone books and shouted up to Sarah to descend to continue the rigging. I couldn't make out their reply because of the noise of the waterfall and I guess they couldn't hear me. In the end I just resigned myself to huddling in a wet, cold miserable ball. My carbide was long since killed by the spray and because I had not changed it for well over 9 hours it was pretty useless anyway. My electric which I had used for bolting was also well on the way to a pathetic glow but by turning it off to let the battery recharge a bit and then briefly turning it on I thought I could make out the floor 20 more metres beneath me.

Unfortunately instead of Sarah, Clewin had come down the rope. Like Goatee, he had never before been below -150m and having never put a bolt in before, rigging a bloody awful shaft at -900m was not really a sensible proposition. My God, if I had been doing this sort of caving when I had only been caving for a year I would have been shitting myself stupid. I could only groan and with a silly tired grin invite him to join me on my ledge. At least I had something slightly warmer than the wall to cuddle up against. Another yell and soon Sarah joined us, her earlier enthusiasm fading fast. *"Oh my God, what an awful pitch...what are you doing there?"*

"I got a bit tired and wanted you to come down and takeover for a bit, but Clewin came down instead."

"Look this is rather dangerous having all 3 of us hooked on to the one rope"

Time for that silly tired grin again. Via a bit of complicated manoeuvring we got her passed us on the rope and directed her down a bit to a rocky outcrop which she could use as a

natural anchor to retie the rope for the next bit of the pitch. It was off to one side and Clewin and I were slightly paranoid that she was going to pull us right off our little ledge.

Once she got that set up she abseiled on and started bolting further down the shaft. I asked Clewin to prussik back up the rope and not wait for us at the pitchhead but to retreat back to the dry abandoned streamway at -800m where he could huddle under a spaceblanket and wait for us.

Three is not an ideal number for vertical caving, particularly rigging at depth in cold, wet conditions. We had to be sensible so I told Sarah not to worry if she did not make the bottom of the pitch but just place the bolt and come up. I prussiked up and waited at the pitchhead. The top of the pitch was a real bastard. It was a classic fuck-up of magnificent proportions. But with a great deal of grunting, a good hit of fear and adrenaline and with feet flailing and slipping on the walls I managed.

I spent the time recharging my carbide so I could actually see something and standing ankle deep in water singing softly to myself, waving my arms around and beating myself in a feeble attempt to get warm. I failed miserably.

I waited for ages. Every now and then I would yell at the top of my voice *"Cooee!"*, hoping to hear a vague noise in reply letting me know Sarah was OK. After about an hour I started to get worried and was tossing over in my mind going back down to check. However the thought of coming back up through the slot was just too awful to contemplate and I keep putting that option off. Then I heard a faint call drowned by the noise of the waterfall. It sounded like *"Help!!!"*.

"Shit, Shit, Shit", I swore to myself, looked at the pitchhead, pondered whether I had actually heard correctly and decided to yell *"Are....You....OK...?!"*.

That faint cry again: was it *"Help"?*.

I really, really did not want to go down so I waited a minute and yelled again. I heard *"I'm OK"*, and it was distinctly nearer which meant she was coming back up.

When Sarah got below the slot she had a rest on the ropes and told me how she had got tangled up changing over ropes at one of the bolts on the way up. She had not far beneath my little ledge, certainly not to the bottom of the shaft. It was just too wet and she was basically too exhausted, so she had put just the one bolt in. Realising her limit she had given up and had then tried to prussik up to me to rest but lacked the strength to get past the bolt. She really had yelled *"Help"* but when I had not responded had struggled harder and finally made it. She was not very impressed by the pitch. We decided to name it Pitch FA999, which was a mixture of; Fucking Awful please ring Scotland Yard for help.

We got to about 930 metres, not quite as deep as the dry way; Good Not Grand, and not down to the magic kilometre but it was just too dangerous to go on. Maybe in winter when the water level is lower.

We made our way back to the Kaboom Intersection where we met Clewin huddled under a space blanket. It was called Kaboom Intersection because a container of spare carbide had been left there. On the way down Sarah had opened the lid and been engulfed in a ball of fire..."Kaboom!!". Some water had been in the container with the carbide, creating lots of acetylene gas which had ignited when Sarah opened the lid. She got away with burnt eyebrows but it was quite a sight being at the top of the pitch, maybe 30m above her, seeing this huge ball of fire explode around my caving partner.

It took about 3 more hours to prussik up the ropes to camp but it did not take long to cook up a meal and collapse into the sleeping bags exhausted. The next morning, after a slow start we began on the slow prussik to the surface.

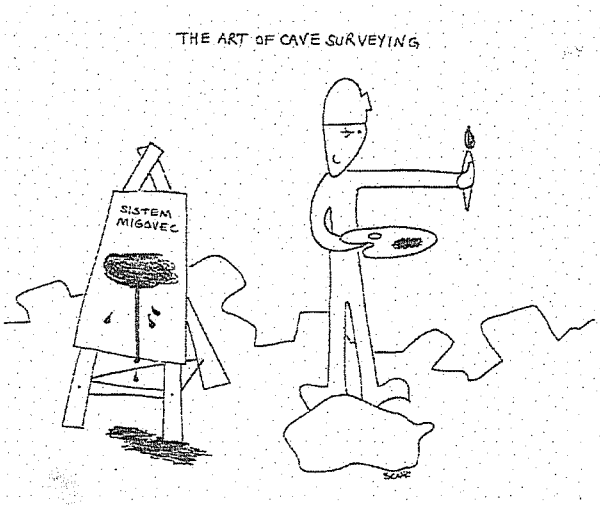
The day after that 31hour trip the whole expedition walked down the mountain to Tolmin. That night Mark and Andreaj did a joint slide talk to the townsfolk about the caving we were doing on the mountain. It was also a welcome chance to wash, muck around and eat pizza for a change.

When we climbed back to the top camp a team composed of Tetley, Alva, Shed and Mark went down to the underground camp to see if they could push beyond the FA999 pitch. To cut a long story short they got to the

bottom of the waterfall but around the corner the stream ended in a very narrow slot above a further pitch and they decided it was just to dangerous to push any further. It took a long time to survey and then derig what Sarah, Clewin and I had found on the previous trip.

They also investigated a hole I had spied back in the Glory Boys series. This led to quite a lot a horizontal development and another way down which looks like it will have to wait until next year to explore.

I had another 3 days to go before I was to leave the expedition which I filled in by a few easier one day trips closer to the surface. The first was a photographic trip in to Hotline, which was a disaster as it was too cold in the cave for the camera batteries to work. Standing around trying to get them to work was really awful and when we got just to cold we gave up and came out.



The second started off a bit earlier than I had hoped for. Clewin and Oliver had gone down to Titanic the previous afternoon to explore down this immense hole which we had been traversing around all expedition. It was not suppose to be a long trip but at 5am Jim woke me to say he was worried because they had not returned yet. I told him to go back to bed and wait a bit longer before we thought about a rescue. I could not get back to sleep so after a bit I got up and suggested we perhaps should go check up on them. By the time we had had something to eat, got into our caving gear and organised a first aid kit and other rescue equipment another hour had gone by. I led in first and got as far as the Slovenian Free Climb before I met them slowly heading out. The reason they were so long was they had had a very successful if slow trip. Jim had been smarter after sending me down the cave he had decided he needed to do a shit, which he was just finishing off as I emerged. Thanks mate!

After a few hours to recover from the ungodly hour Jim, Hugh and I went in to explore a new bit of horizontal section beyond the connection rift. We found a lot and left lots of unexplored leads behind. We did some hairy climbs and "interesting" balancing acts across suspended boulders. Quite a bit of fun except a lot of it was tight and crawly. I finally tore my caving suit to complete shreds in there and when I got to the surface threw most of my trashed gear on the fire. That way I was sure I would not have to go caving again.

The expedition had three weeks to go but it had now lost it urgency with some key people leaving. A lot of the remaining time would be spent derigging the underground camp and exploring the leads closer to the entrance. There still remains a distinct possibility that the cave will be pushed to the magic kilometre next year as there are still at least four good unexplored leads at depth and a huge number of leads off Level 2.

On my last day I spent the morning slowly collecting my gear together. My tent and some of my clothes I left behind for Jim as a present. After a very late breakfast and a bit of a read in the sun I said my goodbyes and with a bulging backpack weighing close to 30 kgs set off on a 6 hour walk down to Tolmin.

My journey was coming to a close. The next day I planned to catch an early morning bus back to Ljubljana and on to Romania, Bulgaria and finally back to Istanbul to catch a plane home to Oz. I had an awesome time on this caving expedition. At times I felt a bit stale from having been travelling for so long. But they were great people to cave with, good friends, and the caving: the best I've ever done.

Mick Playford
Maquarie University Caving Club
Sydney, Australia

Cartoons by Scuz (Sarah Wingrove)

Slovenia 97:

Onion Bhajis and Deep-fried Mars Bars

A personal look back at Mig 97

Having finished surveying Bats Hit, Mike, Jim and myself went to look at Ride-on Lawnmower, deciding not to climb it because we thought we would like to give someone else the excitement. And if you believe that you'll believe anything.

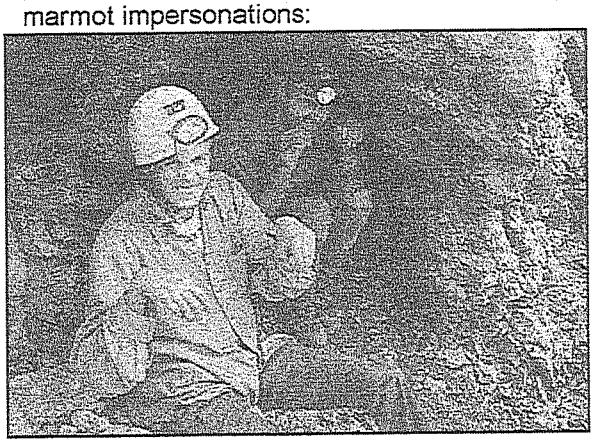
We returned to the chamber and after some furtling headed off over a rift, traversing a couple of areas of loose rock. After 40 metres or so the rift ended and there was a way on through a flat-out bedding crawl that dropped 3m into a small streamway. We got down (funky!) and wriggled off along an attractive, narrow, meandering stream for miles, into galleries decorated with fabulous crystals. Sorry, just my imagination running away with me: it ended at a 3m drop about 30m in. It appeared to be the same stream that we had been above in the rift and is probably not significant in terms of the whole cave.

The name "Onion Bhaji Inlet" comes from the food that fuelled its exploration. We had lived almost exclusively off bhajis for two days. The expedition diet seemed to vary wildly, form the relatively healthy to the frankly, deadly. Before I got there they had been deep-frying Mars bars!!! I think the Evans boys must have been behind this as it's a renowned Scottish delicacy. We also made lots of doughnuts. (It must be understood that you really crave fat when doing lots of exercise, this was not greed!). The only trouble was that the doughnut dough kept growing until it was starting to look like the scene in Woody Allen's Sleeper, where he uses too much pudding mix. The first night we ate some, but by the next morning the dough had just filled the wok again, we were only just able to keep pace with it. In the end we managed to eat it all before the dough took over the whole camp, but it was a close run thing.

In all seriousness, appetising food and a good camp are of vital importance to the success of any expedition. It might sound frivolous to be deep-frying things up a mountain, and it involves some effort in carting the gear up there, but it is actually well worth it in terms of morale and, well, happiness!

A comfortable camp is also a pre-requisite to a successful long expedition. Obviously on a short recce you can't carry so much up the hill, but on a six-week trip you can afford to make yourself comfortable. The effect of this is that when you are on your way back to camp after a hard trip, you are actually on your way home.

Frivolous activities are also a good way to pass the time at camp (Can a sweepstake on the number of flies to get stuck on the flypaper, be called frivolous? By the way, if no-one wins the sweepstake there's a roll-over jackpot the next day). Other activities included "hunt the dormouse" as these endearing creatures were interpreting the rules of property rather too liberally vis-à-vis the food. Animal impressions are always a good standby when trapped up a mountain for weeks on end with unusual people, and Alva and Shed both do quite good marmot impersonations:



Despite this foolery I was sometimes amazed to hear the conversation round the camp go off into deep philosophical discussions about this or that, but it always lapsed back into the lowbrow pretty soon.

An excellent trip, and I look forward to returning in 1998. Maybe we'll deep-fry the dormice this year.

Hugh Penney

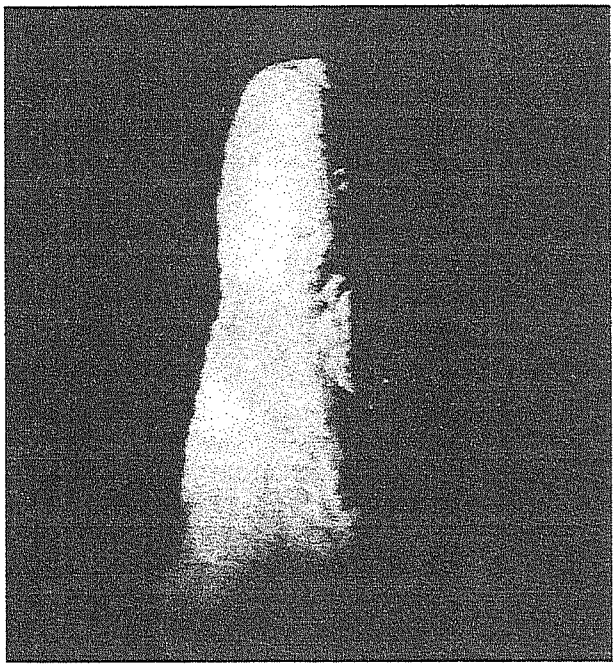
Caving Potential in Laos

As an ex-caver, I know how exited cavers get by the possibility of virgin caves in exotic foreign locations, so I thought I'd tell you a little about the caves I encountered whilst on holiday recently in Laos.

Laos (or more properly, the Lao Peoples' Democratic Republic) is a landlocked country in S.E. Asia enclosed by Thailand, Vietnam, Burma and China. The north of the country is dominated by limestone geology covered with tropical monsoon forest vegetation (ie. Exceedingly wet for 3 months and dry for the next 9 months of the year). Evidently, the high purity of calcite and the geological structure are such that parts of the limestone succession are conducive to cave formation. Caves are abundant in Northern Laos: often an important supply of water during the winter months and sometimes worshipped with Buddhist shrines (see photos).

Laos has had some interesting recent politics. In a similar fashion to other ex-French colonies in the region (Vietnam and Cambodia) the communists were gaining power in the early 1970's. Whilst engaged in Vietnam, the USA was also involved with a (then) secret bombing campaign in eastern Laos, financed by the sale of opium, in an effort to prevent a communist government. The communists (known as Pathet Lao) eventually won and took over control from the Royalist government in 1975. It is estimated that three quarters of the country's intelligentsia then left Laos fearing either prison or re-education camps (to which 10% of the population were sent). The country was closed to most foreign visitors (especially westerners) from 1975 until recently. This isolation from the western world means that Laos has retained a rather primitive style of living. What few concessions there are to the latter half of the century are mainly from China (Chinese cars, lorries etc.) and there is very little industry (one cement factory and one major coal mine). For the most part, Laotians live in self-sufficient villages, operating "shifting" or slash-and-burn cultivation in a sustainable manner as they have done for centuries. A real eye opener for the western traveller.

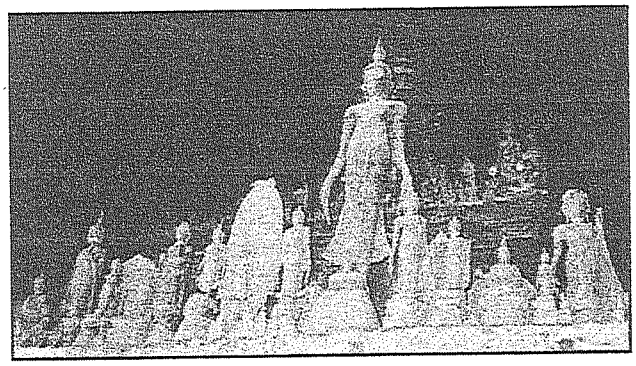
Accessible, pretty caves generally make for a good attraction and Laos is no exception. I went to see two "show" caves. The first was in Van Vieng, near Vientaine (the capital). The scenery was typical "sugar lump" type karst with disjointed hills about 400m high. Perhaps not the best potential for a large cave system but interesting walk-in caves none the less. We were shown the way to the caves by a local farmer for a small charge. A short easy walk led us to an opening about 50m up from the plateau. Inside was a large dry cave on several levels roughly the size of a large church with excellent formations from ceiling to floor. The sun shining in made certain formations look rather rude (see photo), no wonder they have a shrine here!



Every day at a certain time, the sun illuminates this rather rude formation in Van Vieng. A nearby shrine in the cave demonstrates that this phallactite is worshipped as a symbol of fertility.

The second show cave was Pak Ou Caves, upriver from Luang Prabang, the ancient Buddhist capital (and now a UNESCO World Heritage site), accessible by boat and one of the major tourist attractions in Laos. It really was a stunning set of caves with a large staircase ascending from the jetty on the river making a grand entrance to the caves. For centuries, until being ousted by the communists, the King and Queen of Laos placed a statue of Buddha in the caves on a

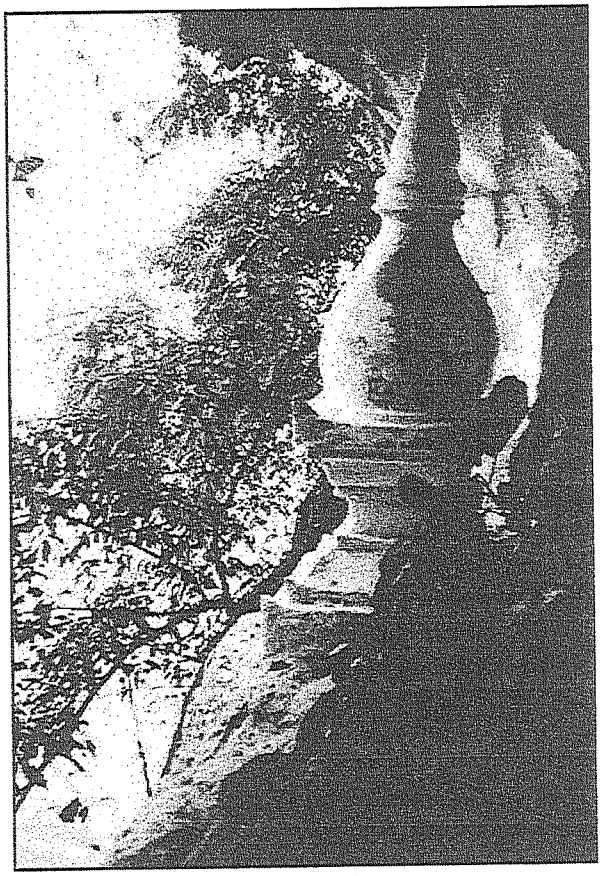
certain day each year. As a result, the caves are stuffed full of all types of Buddha statues. This enormously valuable collection of ancient Buddhas is only now being catalogued by a joint project with an Australian University.



Buddhas in Pak Ou Caves

Whilst the limestone is rather disjointed at Luang Prabang, to the north it becomes more massive. Again, caves abound. During one short walk in the (easily accessible) agricultural area I found an obvious wide shaft of some 40m depth near the top of a hill. Locals reported a ""walk-in" cave at the base of the hill suggesting a promising virgin cave of approximately 200m depth. Not bad for an afternoon's stroll! This region would be my recommended area for exploration. The area is quite agricultural so there are lots of networks of small tracks and tramping through the forest is kept to a minimum (I am a lazy explorer!). The locals operate traditional shifting cultivation systems whereby plots are cleared, used for crops and then the forest (and fruit trees) allowed to grow back. Therefore, most of the older villagers know the local caves, even if they are hidden in current day forest. All you need to know is the Lao for cave: taam.

To the east of the country, in the Annamite Hills, the topography again grades into more massive mountains. According to the Lonely Planet (1996) travel guide, the area of Vieng Xai is "a striking valley of verdant hills and limestone cliffs riddled with caves". In fact, there are 102 known caves. These caves were the headquarters of the Pathet Lao during the "secret war". After the war, the King and his wife were banished here until their reported death a few years ago. They were kept under house arrest (should that be cave arrest) in a cave deemed fit for royalty: "wooden walls and floors, as well as natural cave formations, divided the cavern into a bedroom, meeting room and various other spaces". Another cave housed the communist chief and "extended 140m into a cliffside that was scaled by a rope before steps were added. Its various rooms included a political party centre, reception room, meeting room and library". Other caves housed a hospital, weaving mills and printing presses. I never saw these caves, partly because you need special permission from tourist authorities in Vientaine but also, because this area housed the Pathet Lao headquarters, it was heavily bombed by the USA and Royal Lao Army. This bombing and defoliation has left a scarred landscape and its legacy is present in the faces of the people, the craters in the hills and the missing limbs of children. Suffice to say that although this area has excellent potential for large cave systems, exploration isn't recommended due to numbers of unexploded bombs. However, the British-based Mines Advisory Group apparently have a presence here and they may be able to give advice.



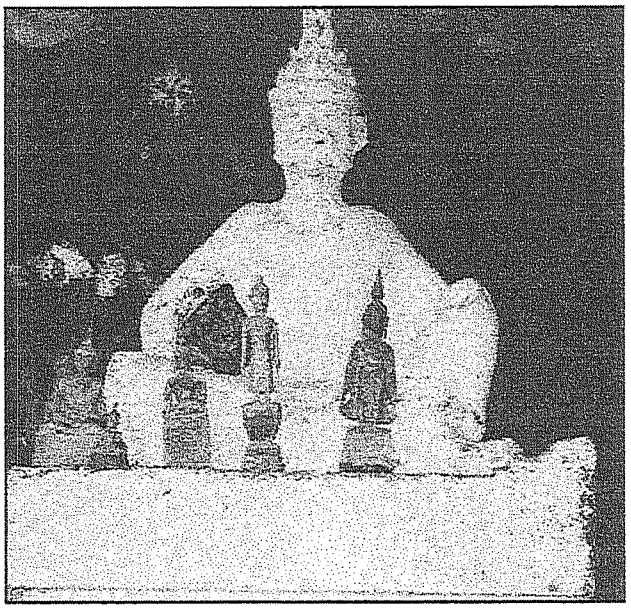
Stupa carved into the limestone rock – Pak Ou Caves.

Most of the caves I saw or heard of were apparently fossil caves, although it is difficult to be sure because I went in the dry season – it may be a different story in the rainy season! Active cave systems must exist though because the resurgences are used for water,

and some of the streams in these areas were a blue colour, characteristic of cave outflow. There are huge areas of karst which I suspect have never been explored for caves, yet have considerable potential. As Laos has only been open to the independent traveller for two years now, it is likely that many expeditions are underway. A brief trawl through the literature didn't come up with anything but I'm not making any claims here as my cave literature searching techniques are a bit rusty! *[Internaltional Caver No. 22 (1998) published as we go to print describes a cave reconnaissance in central Laos – Ed].*

Although the logistics of an exploratory expedition may be slightly difficult (eg. Public transport is variable, the buses only go when they're full!) and paranoid officials can make life difficult (I'm sure they thought all westerners were spies in some regions), the rewards could be enormous. Laos is accessible from Thailand, making cheap flights to Bangkok a possibility. The cost of living is fairly cheap and the people were so lovely, making my trip one of the most pleasant I have ever made. Fresh food was abundant: the Lao are clearly a nation of forest people who know all the plants to eat and how to cook them. I'm sure they would be delighted to demonstrate to an expedition chef! It's hard to believe that these friendly (but shy), helpful, Buddhist people are enjoying their first 25 years of peace and stability after more than two hundred years of war.

I'm sure that Laos will quickly become developed now it is open for visitors and trade. Whilst this may make for an easier expedition, it will undoubtedly lose some of its charm. Also, someone else might discover that vast cave system! My advice is to go as soon as you can, even if not for caving, it's a great place. If anyone wants more information on Laos, then contact me at the address below- I'd be only too pleased to help.



Statue of the Happy Hermit in Pak Ou Caves. The tourist information says that he is happy because he knows the medicinal properties of the plants in the forest. Maybe he also knows a secret or two about the opium poppies too!

Janet Cotter-Howells

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A letter from Antarctica

This year I've been with the biologists. Started of with 2 months on a remote glacier 500 miles south of Rothera Base. The mountains there were just like Scotland - except for the glaciers, so the ski mountaineering was very good. There were also some very spectacular cliffs but, being very dangerously loose, I could only look at them. The work involved collecting and measuring mosses and lichens, but we had other fun (like sinking a skidoo in a lake - followed by a scientist on skis, a tent ripping open in a storm, and two 5-day storms).

I spent Christmas in absolute nowhere, in the middle of the vast white desert at the base of the Antarctic Peninsula, manning an ice runway. At least the weather was great. It's renown for its wind (which is needed to keep the snow off the runway), but we had ten days of nil wind and blue skies. At the end of the runway is pleasant mountain, plus another good one 5km away. Both of these gave 300m of French D climbing, which had to be soloed

as the guy with me didn't want to climb (though, as he snowboards, we took it in turns to skidoo each other up the back of the mountain). Descent from each peak was by ski, which was scary because they were steep (46° and 50°). Not all play, though. Christmas Day we had to move and stack 28 drums of aviation fuel, as well as digging out our ice garage and toilet.

After Christmas I worked on a remote mountain island, 6 miles from base. Getting to it is fun: boating round the icebergs, whales etc. The island is only a mile across but with 1500ft of mountain in the middle, so it's pretty spectacular, especially in a bay surrounded by big mountains and glaciers, with icebergs drifting past the front door every few minutes. Some days they roll and crash, so it's a bit like living next to a motorway. Loads of birds (Adelie penguins, skuas, blue-eyed shags, petrels, terns, gulls), and seals. Also lots of good climbing on the mountain (I climbed five new routes! each 400m to 500m long). I'm now back on base, with only one trip left to the Island to go and collect the rest of our equipment.

Last Saturday evening we had the Folk Night, when loads of people do anything from reciting poetry, to doing sketches, bands, etc., as well as the presentation of awards for cock-ups. The standard of everything was extremely high and it proved to be a most entertaining evening. I teamed up with one of my scientists as the band "The Leonitics". We did two songs, both with guitars - one by Radiohead and one from The Jungle Book! We seem to have lots of parties, discos, barbecues, etc here, which is great.

With all the fresh snow that fell last week the skiing conditions in the mountains have improved greatly so I spent most of Sunday up there with a bunch of people and a couple of skidoos. Most of us were working on our Telemark skiing, which I've only done once before, and were really pleased with our progress. Being St David's Day all the people on base with Welsh connections did the evening meal (three courses). Everything was done up with candles, bottles of wine, giant paper leeks on the tables and served by people dressed as sheep, leeks, daffodils and Welsh peasants.

Last Monday we had a very unforgettable day. The sky was cloudless without a breath of wind, so we went joy-riding in the aeroplanes. The main idea was to allow those of us who are wintering to get a look at where we can travel to in winter, and for us GA's to have a good look at the route through the (mega) crevasses to the back side of Adelaide Island. We were up for about three hours, every minute of which was stunning. We flew past and close to beautiful mountains, low-level fly-pasts of the Chilean bases (now empty) and three old British bases, up narrow fjords, along ice cliffs. The number of whales in the sea was staggering. Our pilot was into his whales so every time we saw any he would drop a wing and dive down to about 200ft above them. What was really nice was that we could ask to look at a particular mountain, or have another look at something, and we would just do it.

Some of the areas we saw we will be starting to reach about a week after the ship leaves (i.e. about four weeks time). Having seen it all from above, I can't wait to get out there on skidoo. I think everyone who's staying here is really looking forwards to the whole winter.

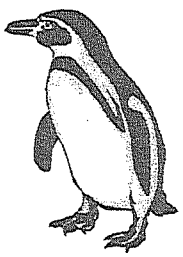
Yesterday we had a German ship here for the day. Since the sea was rough they used their helicopters to fly us between the base and the ship, as well as around the mountains. I never knew helicopters were so much fun (so I ended up having four flights!). I bet the pilot that he could not make me vomit, so he tried. Exciting stuff (and I didn't throw either!!). The ship was great. They gave us free beer, as well as the use of their swimming pool for polo and sauna.

This morning I had my diving medical, so I should start to do some diving within a couple of weeks.

The aeroplanes have now left Rothera until October. In ten days the ship arrives. When that's gone, there will be 23 of us here, alone, for the Antarctic winter. As well as servicing the equipment my main job will be to take people out on their winter trips (holidays). Everyone gets a week before mid-winter and a week after mid-winter, so I will be out a lot on skidoos, skis, boats, etc. We also have a lot more spare time to really enjoy ourselves.

All the best

Phil



Phil Wickens
British Antarctic Survey
March 1998

Ethiopia 1998

In search of the Holy Grail

"On the 4th of November 1770 I ascended the place and observed everything with great attention; I discovered first two round fountains each about four palms in diameter, and saw, with the greatest delight, what neither Cyrus, the King of Persians, nor Cambyses, nor Alexander the Great could ever discover. The two openings of these fountains have no issue in the plain at the top of the mountain but flow from the foot of it. The second fountain lies about a stone cast west of the first!"

James Bruce of Kinnaird.
Travels to discover the source of the Nile in the years 1768 to 1773.

When Mark and Jackie were first offered a VSO place in Ethiopia, we racked our brains for what we knew about the place and realised it was, in fact, precious little. Mark could remember a talk at the last caving conference by John Gunn entitled "Guns, Bats, Raw Goats and Dust" or something like that. I remembered hearing about a book written by Graham Hancock who traces the location of the lost Ark of the Covenant to Ethiopia - a kind of real life "Raiders of the Lost Ark". Having a sudden reason to be interested in this country I dug out a copy of this book and read it. Like most Graham Hancock Books I found it compulsive reading and could hardly it put it down.

Hancock's investigations uncover a plausible sequence of events, which lead from the disappearance of the Ark from the Temple of Solomon to its supposed resting place in a church in the ancient town of Axum in Northern Ethiopia. He also describes how over a number of centuries various grail seekers came to Ethiopia to try and find the Ark. At first it was the Knights Templar in the 12th century who came to the "Land of Prester John" and assisted in building some of the amazing rock hewn Churches of Lalilbela (Templar croix-pattées can be seen all over these churches). After the Templars had been banned by Pope Clement V in 1307, members of their descendant societies, the Portuguese, "Knights of Christ" and the Scottish "Freemasons" took an interest in Ethiopia. The Scots Mason James Bruce of Kinnaird spent six years in Ethiopia supposedly searching for the source of the Nile. The mystery of this work is that Bruce had blatantly plagiarised the work ("A Voyage in Abysinnia") of two Portuguese priests Paez and Lobo who had discovered the source some 150 years earlier in 1618. Hancock explains this mystery by suggesting that Bruce's search for the source of the Nile was in fact a cover for a search for the Ark of the Covenant.

What caught my interest from a speleological point of view however was Bruce's description of the source coming from the bottom of the mountain, as described above. This sounded very much like the description of a cave resurgence. The altitude of some of the mountains in this area is over 4000m, could I be looking at a clue to a deep cave system? And if so what ancient relics could be stored in them? I got very enthusiastic about this and based on this information alone Tetley and I decided to organise a "Source of the Nile" expedition.

Ethiopia's history spans back thousands of years. The city of Axum in the northern region of Tigre was capital of an ancient kingdom whose last and most famous monarch was Queen Mekeda who is better known in the west as the Queen of Sheba who reigned in the 11th and 10th centuries BC. According to tradition the queen travelled to Jerusalem to visit King Solomon, and the two struck up a close relationship, which resulted in the Queen returning to Ethiopia converted to Judaism and pregnant bearing a son, Menelik. At the age of 22 Menelik returned to Jerusalem and spent three years in the temple learning the laws of Moses. He then returned to his homeland to take his throne, but not before he stole the most important relic of the Jewish church. All this is described in a history of Ethiopia known as the Kebra Nagest which is written in their old religious language of Ge'ez. Since Menelik there have been 237 descendant monarchs, the last of which was Haile Salassie. These kings were Jewish after Menelik but became Christian a few centuries after Christ. A minority community of Jews, known as the Falashas continued and are still in existence today (although most of them were recently airlifted to Israel). An Islamic presence in Ethiopia dates back to the time of Mohammed and except for a 30 years war in the 16th century they have generally lived peacefully alongside Christians.

Ethiopia is the only African country not to have been colonised by a European power, although Mussolini's Italy briefly occupied it (1935-41). The allies liberated the country in 1941. Haile Salassie, the last emperor of Ethiopia, was overthrown by a revolution in 1974. What took over was the oppressive regime of the "Dirg" and the dictator Megistu who seems to have been universally hated throughout Ethiopia. A counter-revolution started soon after his ascent, mainly organised by the Eritrean separatist movements and the Tigray Peoples' Liberation Front (TPLF). The counter-revolution finally defeated the Dirg in 1991. Eritrea was given independence in 1993. Since then Ethiopia has been peaceful and the people seem to be relatively free although admittedly no democratic elections have yet been held.

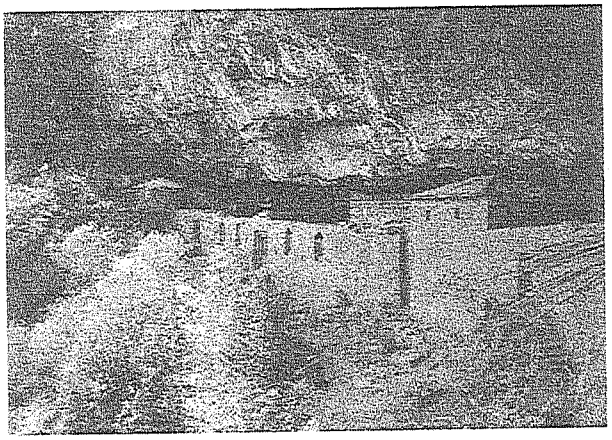
Ethiopia has a Christian majority in the North and a Muslim majority in the North South but there are communities of both religions in most areas. Because of the wars and the resulting famines much of the infrastructure of Ethiopia is severely limited. Roads are mainly dirt tracks and many towns have little or no electricity. Water supply can be a problem, especially in the north, and in many places people have to walk for miles to get water. Despite these hardships Ethiopians seem to be happy people, with generally sufficient to live on. In my experience they are usually very friendly and honest people. White people (or forenges as they are known, apparently because the first white people in Ethiopia were French), cause a lot of interest especially in rural areas and with children.

We managed to get hold of a geological map of Ethiopia, which Goaty borrowed from the Royal School of Mines library. Looking at the map the first thing we noticed was that the area around Lake Tana was not in fact Limestone, but volcanic. At this point I couldn't help but be reminded of Tony Waltham's Himalayan expedition, which drove all the way out there in 1970 based on a short extract in Maurice Herzog's famous account of his ascent of Annapurna, which simply said, *"we made our base camp by the cave entrance"*. Relocating this entrance after much effort they found it to be only a few metres long and they jokingly described it as *"the longest walk to the shortest cave in the world"*.

From the map we could see that the main limestone regions were an area southeast of Addis Ababa around a town called Bale, an area east of Addis around Harar and an area in the northern region of Tigray around the town of Mekele. We were more interested in the northern region, because by now we knew where Mark and Jackie would be staying, a town called Meychew, which was only 100 km from Mekele.

The main source of speleological reference in existence is the account of the 1972 British Expedition to Ethiopia in the Transactions of the CRG. The expedition spent six months in the field and produced a comprehensive report of all the areas. The main cave they explored was Sof Omar in the Bale region which is a complex maze of passages on two levels which they had surveyed to 15 km. They spent some time in Tigray province and covered a number of areas, but only found a few short caves. The longest cave (300m) in this region was found by a previous expedition by two Wessex members Causer and Wheeler and is behind a rock-hewn church known as Zayei. This was limited information to go on, but at least we knew there were some caves there.

One thing we thought might complicate our investigations was that this area is very famous for churches carved out of solid rock: absolutely amazing places and quite unique to Ethiopia as far as I'm aware. They are exemplified by the huge rock Hewn churches in Lalibela, said to be built with "the help of angles". No one actually knows how these churches were built and they rank alongside other wonders of the ancient world such as the pyramids and Machu Picchu. Often these churches have been built into the entrance of a cave, so we thought that gaining access to caves may be a problem in some places. The other problem we foresaw was that people may think we were looking for these churches when we asked them where the caves were.

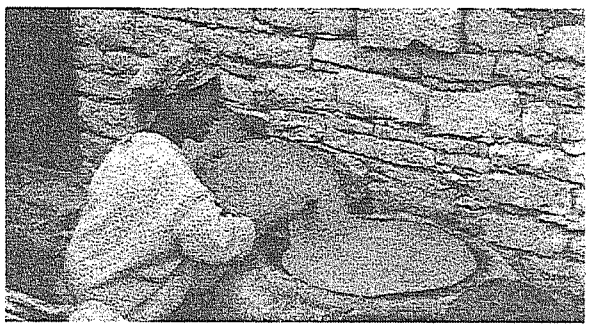


12th century church built into a cave near Lalibela.

The expedition was planned for the Easter break and we recruited Bobby Kinneston from North Wales CC on the trip. As we got closer to the date, Mark and Jackie left for Ethiopia and took up their VSO placement. They were able to do a considerable amount of background research, made various contacts and set everything up so we had lots to go on when we arrived. I wrote off and e-mailed lots of people and got some interesting responses which gave us a couple more leads to go on. Tetley sorted out the visas and the transport and Bobby sorted out the gear. We all met up in Heathrow, overloaded with gear about one hour before the flight was destined to take off.

The flight was fairly uneventful. We had arranged to meet a geology student, Tesfu, who Mark had made contact with, and met up with him outside the airport. We sorted out a taxi for about five pounds (50Bir) and headed off to a Hotel that Tesfu recommended as the one where Mark and Jackie had stayed.

The Central Shoa Hotel, was quite expensive by Ethiopian standards (although we didn't know this at the time) at about 15 US dollars a night. It was a fairly luxurious with hot water and television in the rooms. We showed Tesfu all the information we had managed to gather and told him that we planned to head North as soon as possible. He said he could sort us out for the bus first thing in the morning and we agreed that this was a good idea. The rest of that day Tesfu took us round Addis, to the British Council where we could send e-mail and then to the bus station where we bought our tickets to Meychew, for about 70 Bir each (not bad for a 2-day journey). Taking Tesfu to a restaurant we were able to sample injura for the first time - a type of pancake which closely resembles carpet underlay. Generally injura is served on one plate for all with various sauces on the top. As it was a time of fasting, all the food was vegetarian. Our first impression of this food was not particularly favourable, but over the next few weeks we were to become very familiar with it.



Making injura in Mekele.

On returning to the hotel we had a few beers with Tesfu and quizzed him about caves in Tigray. He advised us to contact a mining company in Mekele, who could give us useful information on where to look. He also told us a story of a tunnel from Axum to Eritrea built in ancient times (this was a story which we heard from a number of people as we travelled around and was clearly a well known fable). The essence of the story is something like this: Two men were digging the tunnel, after a day of digging they exit the tunnel one man has a hand full of sand. Once they get out of the tunnel he finds that his sand has turned to gold. For some reason, which I can't remember, they can't return to the tunnel, the other man curses himself for not carrying out sand. The man with the gold curses himself for not taking more.

This tunnel has never been found and researching the source of this myth might be a worthwhile exercise as if there was a tunnel it would have to be at least a few hundred km long.

The bus left the next morning at 6.00am international time (that's 12.00 Ethiopian time). The bus station was hectic and we drew a fair bit of attention, especially from the beggars. We quickly got our heavy packs onto the roof (wondering if we would ever see them again) and boarded the bus to find it was apparently full. In fact a number of people were not travelling and we managed to get a seat without too much difficulty. I sat next to an old man with a turban who I could communicate with only by pointing and facial expressions. After about an hour the bus pulled off and it appeared we were underway. But two minutes later it stopped for no apparent reason and about 8 people boarded all heavily laden with food and cheap plastic goods. For the next twenty minutes the whole of the bus seemed to be shouting at each other as money and goods changed hands in a sea of frantic bargaining. I became aquatinted with a guy behind me who spoke excellent English and introduced himself as Yeni. He told me that the bus was refuelling and we'd be off soon. He told me that it was common for these tradesmen to come on and try and sell goods as it was a long journey. He was with his mum and sister and were going to the wake of his aunt in a small town. I was beginning to wonder if we were ever going to get out of Addis when the bus finally pulled away.

The journey was pretty uncomfortable as I remember it, with the tape recorder constantly

blaring away some particularly un-tuneful Ethiopian music by Sammy Bohanis (I think the driver only had one tape which we all became very familiar with). We seemed to be the fastest thing on the road and were overtaking other buses and lorries periodically. The one lasting image I have from the journey is the drivers face in his mirror, he had bucked teeth which made him look like he was constantly smiling - but it looked more like a psychotic smile than a happy one. During the journey we passed through a number of very impressive tunnels, Yeni told me that the Italians had built them during the war. They reminded me of the long tunnels on the rough road to Mangart in Slovenia, which were also built by the Italians in the Second World War during that occupation. The old man sitting next to me got very excited while approaching the tunnels, smiling and pointing. In the darkness of the tunnels I could still see the whites of his eyes and his teeth smiling at me.

After a long day we eventually stopped for the night in Hayk. Bobby had met a man from the military on the bus who showed us a good place to stay. That night after a meal with the driver we were persuaded to try '"chat" which is a leaf that is chewed and has the effect of keeping you awake. I found it pretty disgusting to be honest and fortunately I was so tired that it didn't keep me awake.

Another early rise saw us leave Hayk before sunrise and on the road to Meychew. A long and hot day saw the roads deteriorate in quality significantly as we climbed huge mountains and gradually gained altitude. By mid afternoon we were in Meychew swarmed by hundreds of children as we unloaded our bags. And headed up to the technical college.

Mark and Jackie seemed to be very pleased to see familiar faces and we caught up with the news. Jackie had an English class that afternoon and we all attended it so the group could practice discussion, during the discussion I again heard the Axum tunnel story. We decided that after two days of travelling we could not face another day on the road and that the following day would be spent relaxing in Meychew. In the morning we went to the Tuesday market with Jackie, an amazing place that seemed to sell a whole range of goods, from sandals made out of tyres to coffee stoves made out of EC cooking oil containers - necessity has certainly forced the Ethiopians to be resourceful. In the afternoon we walked up a nearby hill and were joined by Shamus, an American Peace Corps volunteer and the only other white person in Meychew. He had done the walk before and said he knew the way to go to avoid landmines, which were still a hazard in this area. Also joining us on the walk, but not by invitation, was about ten children. At first we were worried that they would get tired, but in fact these children were fitter than us and we had difficulty keeping up with them. Small wonder that this area has produced a string of world class long distance runners with the combination of attitude training and steep fell running.

The following morning Mark took us to the bus station and put us on the bus to Meychew. For the next four hours we were shaken to bits on the worst roads I'd ever experienced (at the time) and were very glad to get off the bus at the earliest possible opportunity. On the bus we met a number of school students who were travelling to Mekele for the day to sit exams, the rough trip had not been the best preparation for them.

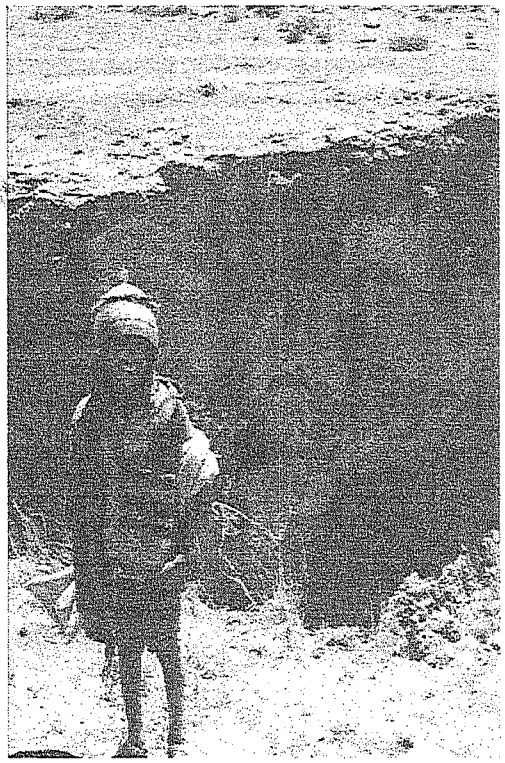
Booking into the Green Hotel we then set out to find information and make contacts. Mark had given us the name of an Irish Geologist, Ken Douglas, in the Ashanti Mining Company. He was not around but an Italian colleague of his talked with us and then said we should talk to another man in the company, Kiroos who would know more. We had a meeting with a number of these people and were able to show them our reports and plans. They were very interested in what we had and wanted to help, setting up a meeting with the Bureau of Mines and Energy for the following day. That night we met up with Ken Douglas and a number of his friends in the "Castle" which is the plush government hotel on top of a small hill in the east of the town: they were all there because they had no electricity in the houses. The town seemed to have a considerable electricity shortage, the solution of which was to cut off blocks, but what was most frustrating for the residents was that there was no forward warning or rota as to who would be cut off and when.

Our meeting with Mines and Energy the next day proved very useful: they gave us a loan of the detailed topographic and geological maps of the area and gave us a letter of official permission to visit the caves. They offered us a guide and the use of a land-rover for the following day. This sounded great and we accepted the offer gratefully. That night in a pub, we bumped into a man called Dewit, who it turned out Mark and Jackie had met when they visited a month before, he was very keen

to be our guide and in fact it sounded like he had done some background research already. We began to get a bit suspicious though and asked him how much he would cost, he told us 160bir a day, which sounded a lot. We told we already had a guide for the next day and arranged to meet him in the evening.

The following day we were to visit an area in the North East by the town of May Mekaden. After picking up the land-rover and finding a petrol station that worked, we picked up our guide, Adidia, who spoke excellent English and was interested in renewable energy. He was thinking about visiting Europe and possibly Reading so we had lots to talk about. On the drive to May Mekaden we saw limestone for the first time. The area appeared to be very barren.

May Mekaden itself was a small town with little memorable about it. On talking to some of the town elders Adidia arranged for us to be taken to a cave near the town. It turned out to be a walled up rock shelter full of junk from the people, the man told us it had been used as a hiding place in far off times. After further discussions the man agreed with Adidia that he would take us to a number of other caves in the area which were along the side of a gorge. Waking down the gorge took us about two or three hours and was quite hot work. With the help of a number of local shepherd boys we were shown to lots of cave entrances. Unfortunately, although all the entrances were decorated with lots of calcite, the caves were all just shallow shelters, none longer than a few meters.



Shepherd boy by cave entrance near May Mekaden

After returning to Mekele, Adidia said he would take us to an area South of Mekele, which had an impressive gorge in it. We agreed and after a half-hour journey we stopped at a small town, Debri, and had lunch of bread and tinned fish. The tins were taken off us to be used as water containers. A short walk from Debri and we were able to look down on the impressive gorge, which must have been at least 100m deep with a small river going down it. On the side of the gorge, on a piece of rock jutting out, a Church had been built in the last century. Adidia talked to the priest who told him there was a cave further down the cliff, but no one had visited it in recent times as they needed a rope. This sounded exciting and we decided to get the SRT gear and take a look. The priest said that the cave had been used by priests during the Muslim-Christian wars to hide important Christian relics and literature Bobby rigged a couple of naturals and a rope protector, cautiously sliding down the rope it was some time before we heard from him. He sounded quite excited: *"People have been here and there are alcoves carved in the walls to hold things".*

We followed him down and had a good look round, there seemed to be a cremation area, a cooking area and an area where things were stored. Excited by our discovery we documented and photographed everything before heading back up and back to Mekele, hungry and dehydrated.

From what we had read and picked up, it seemed that our best chance of finding caves was around a small town known as Hagre Saleam (Land of Peace) which was a 3 hour bus journey north-east of Mekele. After fobbing off Dewit with a cock and bull story we decided to make our own way up there the next day in an early bus.

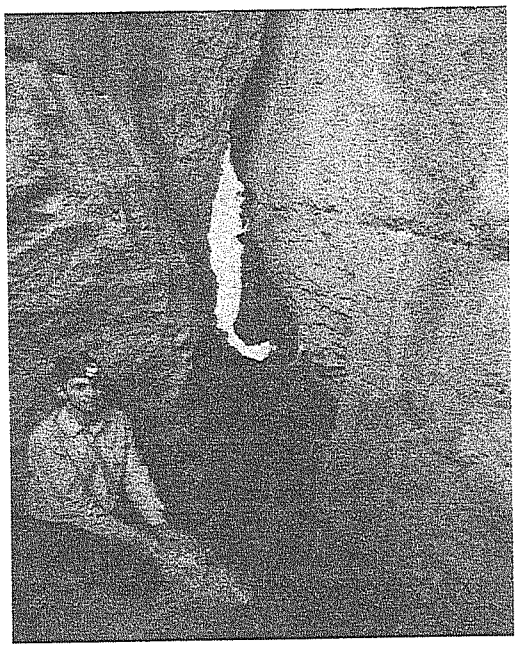
I knew from Cecile that there was a Belgian geologist, Jan, working in that town who could be a useful contact. Hagre Saleam seemed to be an extremely basic town, we were shown to the only hotel which was a few mud huts - no water or electricity of course but what do you expect for 10 Bir a night. In fact there was no water and electricity in the whole town. After settling in we set off to find Jan, who's house wasn't difficult to find as "Mr Jan" seemed to be known by everyone. Jan was not there however, but his wife was and we arranged to meet up that evening.

In the meantime his wife recommended us a couple of guides who could show us around that day. They said they knew where caves were and led us off to an area south of Hagre Salam. One hour of walking and we were shown to the "caves". They were the caves made and used by the TPLF during the last civil war. Although interesting, they were not what we were looking for and so after explaining more clearly what we meant by caves we headed back to the village for lunch.

In the afternoon we headed out to an area in the north. Walking past mud huts and women carrying water we reached a dry stream bed which had cut deep through the soils during the wetter seasons. Following this down we reached a cliff and could see that there could be caves in it. The first we were taken to appeared to be a flat out crawl, which Bobby immediately volunteered to investigate. The locals were scared however and were not keen on him going in the cave: they told us that there was a dragon in it. Bobby laughed, *"There are no such things as dragons - I'm going in".* The guide picked what looked like the quill of a feather with no fluff on it and said, *"Look, here, a dragon".*

After a minute we heard from Bobby: *"I'm face to face with a snake, I m coming out".* What the locals had meant by dragon however, as we were later to discover, was a porcupine. Fortunately Bobby did not find one of these. Following this, a local militiaman with a Kalashnikov began to ask questions about us and wasn't keen on us visiting the caves. After showing the map we managed to persuade him, and were shown to a number of other small caves in the area.

That night we met Jan and he told us of a number of places we could visit. The locals had told him stories of caves with rivers in but he had never had time to visit them. He also gave us a number of his publications, which included a geological survey of the area: the limestone seemed to be about 700m thick. This all seemed very positive and he had a lot to go on for the next few days.



Bob Kyneston on a cave near Hagre Saleam

We planned a long day next and as the heat was really tiring we decided to leave as early as possible to do most of the walking early in the morning or late at night. Leaving Hagre Saleam well before dawn we made a fast pace to our objective for the day, which was a resurgence valley a few miles away. Just before we arrived we were taken up the side of the mountain to a series of caves which the locals knew of. We weren't sure what they were going to be like because they were in the sandstone layer. They turned out to be a series of interconnected chambers probably formed by wind erosion. Entering one of the caves Tetley saw a large animal moving around in the back. It was a porcupine and we suddenly realised what the guides were so worried about the previous day: this thing looked evil.

By around 10am we had found the resurgence, which was clearly emitting a considerable amount of water judging by the lush green areas around its mouth. Several hours of scouring this area resulted in the discovery of a number of smallish caves, the largest of which was on two levels and had a small wall on the lowest level. Heading back for the day we found a large rift at the top of the cliff which went on for about 15m before coming out of the other side of the mountain.

Back at the town that night we were all pretty tired and run down. We wolfed down injura and salad, and got an early night with the intention of another long day the next day. I took two litres of water to bed and during the night I drank it all.

Another early day saw us heading east along the main road. We were hoping to get a lift a few miles down the road to where we split off but were not lucky. We made a fast pace, only stopping to take photographs of the sunrise. Turning off the road and heading down the fields we could see the limestone gorge in the distance. The sun was beginning to heat the air and we still had a bit of time before we got there. We arrived at the head of the gorge just as it was beginning to get hot. Sitting in the shade we made plans to go down the gorge

once it had cooled a bit. Bobby was lethargic and didn't look at all well so we decided to head back. We stopped in a mud hut on the way back for a rest as Bobby now wasn't looking well at all. Over the next few hours we saw a steady deterioration of his condition and when we finally decided it was cool enough to head back he was quite ill and needed help to walk. I went ahead to try and hail down a vehicle to get us to Hagre Saleam. Fortunately a vehicle arrived just as he was getting to the road and took him all the way back. There was not room for Tetley and I however and we walked back.

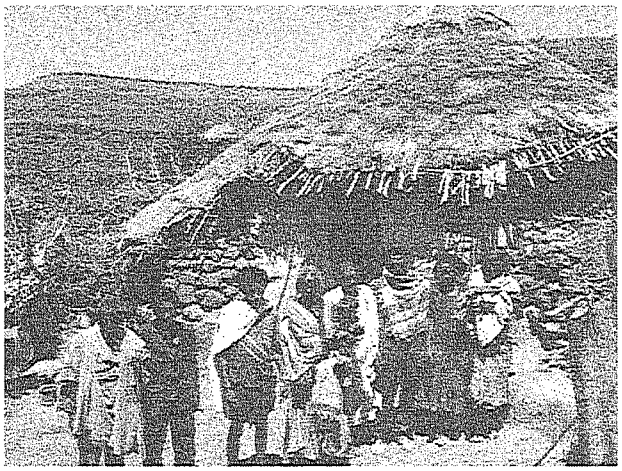
That night Bobby was up and down to the shit hole like a yoyo and the only course of action was to go back to Mekele first thing in the morning to seek medical attention. Bobby did very well during the journey somehow managing to hold in his urges in the crowded bus. In Mekele I accompanied him to the hospital where he was prescribed some drugs, while waiting around for Bobby I realised I also seemed to have the shits and was beginning to feel ill.

That night Tetley was witness to a relay race to the toilet and back as Bobby and I made sure it was in almost constant use. Lying around and recovering the following day, I bought myself the same drugs as Bobby which seemed to do the trick, Bobby was feeling better, but Tetley seemed to be coming down with some sort of chesty cough: it seemed none of us were to escape heath problems. Bobby was due to fly off the next day and we planned to get the bus back to Meychew to spend the weekend with Mark and Jackie and climb a 4000m peak. One of the VSO people, Muir Forrest, was also flying that day, and was able to make sure that Bobby was OK.

The bus journey back to Meychew seemed like it was never going to end. First they couldn't find anywhere to fuel the bus and ended up hand pumping the fuel in. Getting close to Meychew the petrol tank burst and was leaking. We though we would have to walk, but the driver decided to carry on. Next we had a puncture, again the driver carried on and we limped our way into Meychew weary from our long journey.

Mark and Jackie were pleased to see us and had planned the trip up the mountain for the next few days. It was still early afternoon, and, eager to make the most of the rest of the day, Jackie and I headed off on the mountain bikes. We ended up descending about 1000 m to a small town nearby. The journey back was a killer and I got completely dehydrated half way up the hill, crawling my way back into Meychew I gulped down a few litres of water before I was able to say anything.

Over the following couple of days, Mark Jackie, the college head, Tetley and I walked up the nearby 4000m mountain, Booka. Sleeping in a traditional mud hut in the evening we were warmly welcomed by the local family. The walk to the top was pleasant, with the air noticeably thinner at the top. Just walking around the corner leading to the final col very close to the top we were met by a shepherd who was grazing his sheep: there don't seem to be any uninhabited places in Ethiopia.

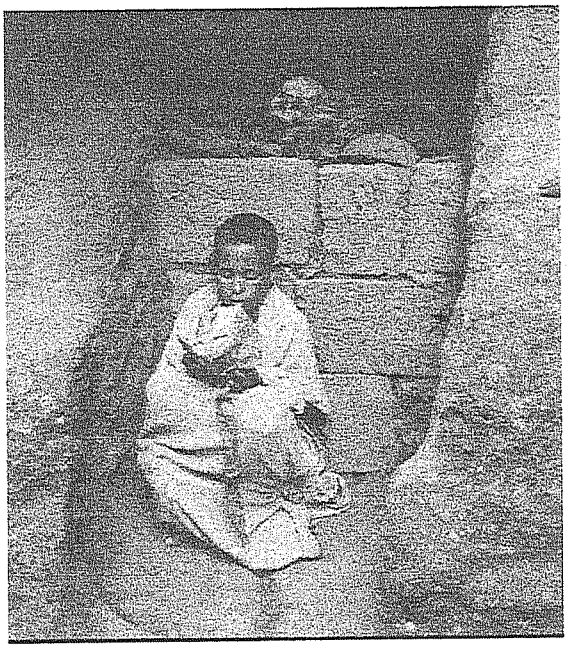


A family on the Booka.

Having heard stories of the amazing churches of Lalibela we thought that seeing them would be a fitting end to the trip. We allowed a generous 2 days to cover the 150km on public transport. In fact we need every minute of it. The first day we hitch hiked on a lorry which broke down a couple of times and never went faster than about 25km an hour. On top of this the driver stopped at every town for a beer and was clearly getting pissed, the only words he seemed to know were *"TPLF Tigray"* and *"Man friend - no good English"*.

If we thought that was bad, it was nothing compared with the hectic bus journey down the back road to Lalibela the following day. Truly the worst roads I have ever experienced the bus managed to get stuck trying to pass a lorry with a puncture. An hour of frantic activity followed in which everybody seemed to be in charge, and after a number of failures the bus was finally pulled out. We were both fairly cynical about Ethiopian public transport after that journey. The fraught journey was, however worth it as over the next two days we went

round the famous rock-hewn churches. We managed to visit the area at 6am when they were performing Mass and wandering around the churches while priests were chanting from ancient bibles by the light of tapers or candles had a real atmosphere of ancient medieval monasteries.



Young deacon reading from a bible near Saint George's church in Lalibela. Note the ancient corpse looking over his shoulder.

With this relaxing end to our trip we flew back to Addis on an empty plane and then after one night in Addis back to London on a half full plane. After all those rough journeys in the buses the trip was absolute luxury, especially as I managed to get 3 seats! Arriving back in London, the weather was cloudy and drizzly, which were able to appreciate. The trains were full of commuters, just like the train we had set out to Heathrow in 3 weeks before - it seemed like nothing had changed here. I said goodbye to Tetley as we arrived in Putney. We hadn't found any big caves or the Ark of the Covenant, but it had been an amazing adventure.

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Jim Evans

Sistema Purificatión, Mexico

Christmas 1997

Dewi Lloyd, Pete Hambly, Tim Palmer and Katrina Hawkins (NPC) joined a two week caving trip to the Purificatión Karst of Mexico organised by the Texas-based Projecto Espeleológico Purification (PEP) who run trips to this area.

We left a chilly Manchester the Thursday before Xmas, and arrived in a warm Austin many hours later having entered the US at Chicago O'Hare, where US immigration had let us all in! We were met by Bill Mixon, in whose large 4WD Ford pickup truck we would travel to and from Mexico. The next day, after breakfast in a MacDonalds and several hours of grocery shopping in a large supermarket (I don't think Bill wants to go grocery shopping for two weeks food with 4 Brits again), we set off for Mexico.

That evening saw us bivving beside the Rio Corona just off the main highway north of Ciudad Victoria. The next day was up into the mountains to a little place called Conrado Castillo. Very little of this part of the journey is on tarmac roads, the majority being rough dirt roads. For a more comfortable, scenic and entertaining ride, the useful place for passengers is the back bumper - this can be exciting but it is scenic. To get in or out of the mountains, takes about 6 hours on these dirt roads and some the views (and the drops) are spectacular.

At Conrado Castillo, PEP rent two houses. These provide areas for cooking, storing gear and sitting round the wood burning stove. Tents are pitched to sleep in. The houses are

conveniently located for Brinco, the main entrance to Sistema Purificación - the longest cave in Mexico (90km long and 950m deep with a through trip of that depth which takes about 30 hrs). Water was from a spring which was a half mile walk away and had to be chlorinated.

Over the next day or so, almost the entire crew assembled (3 more joined us after Christmas). At this stage, we were 25 (5 British, 2 Irish, 1 German, 4 Canadian, 13 Americans). The group was quite varied but contained a substantial proportion of students (those people with long holidays) and for a caving group the gender mix was remarkably good with a 64% / 36% male / female mix. The whole group appeared to get on very well for the entire trip and I enjoyed their company tremendously.

The next few days were spent prospecting for, or surveying new caves in the area. Several were found but nothing of exceptional note. We also had a major trip into Brinco, with 18 people undergound in 5 different teams: 3 survey teams, 1 climbing team bolting up an unclimbed pitch and a photographic team. I was part of the photographic team with Dewi, Kat and Pete. We had a pleasant 9 hour trip into the World Beyond, made more interesting by taking Pete as a non-swimmer through a swim and Dewi's camera failing! Brinco is a tremendous cave with lots of interest, plenty of climbing and water and calcite formations but no pitches requiring rope.

On Christmas Eve, whilst walking to another cave, we found a very small (10-15cm) draughting hole. This enlarged with manual and chemical persuasion to reveal a 2-3m shaft which we left for the next day. On Christmas Day, a little bit more work got us into the cave. We surveyed it but it was a little disappointing. So off we went to a resurgence cave (worked by Dewi and Pete Hollings two years previously). Two loud blasts later we were in; Bernard (our resident German) reported that it became too tight after about 15m; so without enthusiasm Charley and Bernard surveyed it. Bernard then decided to have a go at the tight bit and got through to discover a 20m pitch. After some modification by hammer both Charley and I could get there too but we had to leave it until another day!

On Christmas Eve and Christmas Day (and New Years Eve) lots of beers and other dubious beverages were drunk; songs were sung (helped by a number of very competent musicians). On Boxing Day, we moved to Tinajas. To the locals, we must have looked like a travelling circus with 4 big 4WDs and the Bus (a 1950s Dodge Power Wagon painted orange). Tinajas was an area that had been little visited by cavers. A small trip the previous year had found a number of leads, surveyed a couple and left. The main lead was Sima de la Chupacabra - a short entrance pitch (15m) leading to a big pitch (~150m) with an awkard pitch head.

Over the next week, Chupacabra was pushed and surveyed to over -400m - virtually all pitches with limited horziontal development. The cave ended at a sump but the draught had previously disappeared up an aven (the lead for the next time). It was an excellent cave: even with the tight bits (some of which were chemically annihilated on the final day). I discovered that a Petzl Stop descendeur does not stop well on new 8.5mm PMI rope and a few seconds later discovered that if (a) you can't control your abseil speed well and (b) have one end of a 50m tape tied to harness and (c) the other end is tied to Kat, the following things happen: (d) Kat shouts and shrieks at you a lot and (e) the tape breaks!

During this second week, numerous other caves were explored and surveyed mainly short (20-30m). The other notable find was Pozu del Lantrisco, a 150m deep shaft system. Unfortunately after two weeks, it was time to start heading home but before stopping for beers, etc in Zaragoza (a small Mexican town) and Austin and also visiting one of the largest gypsum caves in the world.

PURIFICACION SPELEOMETRY

Tamaulipas and Nuevo León, Mexico

		Length	Depth
1.	Sistema Purificación	90470	957
2.	Cueva del Tecolote	32031	424
3.	Sótano de Las Calenturas	8308	121
4.	Cueva de La Llorona	3540	412
5.	Sótano de la Cuchilla	2327	207
6.	Cueva del Río Corona	2301	101
7.	Cueva Paraíso Difícil	1799	178
8.	Cueva del Borrego	1354	58
9.	Sótano de Trejo	1160	80
10.	Sótano de San Marcos	1019	126
11.	Sima Chupacable	486	399

The main PEP contact is Peter Sprouse:
Projecto Espeleológico Purificatión,
PO Box 8424, Austin, Texas 78713, USA

Tim Palmer

Tales and Exploits in the Imperial System

It was late on a Tuesday night nearing closing time in Southside Bar and three intrepid explorers, Colonel Wicky , Seargent M'arse and Petty Officer Jism were finalising their plans for the evenings assault. Their plan was to scale the QT Extensions of the Imperial System to its highest point- Green Dome Peak and leave a flag to stake their claim to the first ascent. The assault was to conveniently coincide with the graduation day celebrations of the students for maximum exposure of their crafty endeavours. Once the detailed plans were finalised they made their way to the caving storeroom for the final equipment check-

"SRT kits"
"CHECK !"
"Climbing equipment"
" CHECK !"
"Photography"
"CHECK !"
"Caving Helmets"
"CHECK !"
"Jolly Roger "
"CHECK"
"OK, looks like we are ready to go lads", blurted Sergeant M'arse

The three headed towards a discrete entrance to the system at Exhibition road- and with the road deserted they jumped the gate and climbed down to the doorway entrance. In the system they climbed down the iron ladder to the start of a tunnel which heads west to the QT. Quickly making their way down the large passageway past the large piece of graffiti 'RAT SOC' (a defunct club who's aim was to explore the tunnels) to a corner and a series of pipes they crawled under the pipes down a small passage and a two metre crawl and they were directly under the base Queens Tower. Within this quadrangle four shafts led up to the inside of the tower.

Donning SRT kits and helmets they climbed into the shaft, which had been bolt climbed previously, and prussiked into the Queen's tower. The room they arrived in was a sort of disused museum with a number of 1960's pictures and plans including pictures of the old Imperial Institute and pictures of the 'Colcott Tower' (The old name for the Queens tower). From this small room lead a narrow ascending stair case into a series of disused rooms and more stairs until the first dome is met. From this vantage point it is possible to see across the London and hear the noise of the city. A metal winding staircase in the centre leads up into the wooden green dome- this area is full of graffiti from the years when it was open to the public (it is now out of bounds even on open days). Climbing a further set of stairs led to the small balcony - the highest point reachable by stairs.

Here a quick recce of the area was made- a spot light on the tower made them rather conspicuous to anyone who happened to be looking at the tower- but soon this would be going off for the night. The exposed nature of the top made it gusty and isolated, they would have to be wary of this. Sergeant Wicky the accomplished climber in the group donned his leading kit and looked for suitable belay points as he began to scope out the climb, P.O. Jism secured himself to a number of handrails to enable a safe belaying stance.

"Right lads, I'll see you on the other side", said Wicky with a grin and began to climb the dome standing precariously on the top of the balcony he secured his first extender and started to pull himself on to the top of the tower- all of a sudden we heard a voice booming from below:

"OI ! WHAT ARE YOU DOING UP THERE !!!"

Their hearts started racing and Wicky came down to discuss the situation, they would still have time to sneak down the shaft without anyone noticing and they could hide in the tunnels until the commotion was over. Swiftly they tied the flag to the balcony and exited. Waiting in the tunnels for a time before slipping into the unsuspecting campus grounds at around 3.00am.

The ascent would have to wait for another day, but with the rope still in situ it seemed that day would not be too far away.

The stories and myths of the labyrinth of tunnels under Imperial College is something that almost every student of the college is familiar with. Some variations of the stories include mention of 'underground rivers, links with the Science Museum and with a nuclear bomb shelter in Hyde Park'. There was a tale that by following a certain passage northwards one would eventually reach two guards with machine guns. The most far-fetched tale of all came from a member of the rugby club who later became union President (and was therefore able to put his considerable skills of rhetoric to good use). He claimed that somewhere in the tunnels was a very large fan. This fan ran permanently except for one hour a day when it was switched off to allow its bearings to cool, and during this period it was possible to step through the fan and access a whole new series of tunnels.

It was with more interest than most that certain members of the adventurous clubs around college (i.e. Caving, and S+G) listened to these tales. And over a period of a few years a number of exploratory trips were made around the campus.

At first it was necessity which lead M'arse, Jism and Goss who were living in caving stores to a familiarity of the tunnels north of Prince Consort road. The need to get into stores when there was a function going on at the union lead to the discovery of a tunnel leading under Prince Consort Road and conveniently by climbing through a window into the stores area. A desire to attend the Freshers' Ball without paying led Goss on an obscure route through the biology to the roof of Beit, around the roof and down North East stairs into the hall walking past the back of the security guard. Exploration of the course of the pipes by stores lead to the back of the S+G store room and a further set of nasty crawling passages leading around Beit quad.

Wicky and Friends were more interested in the climbing potential around college and over a series of excursions managed to climb the front of the union as well as the front of the RSM building. Working on a lab in the basement of Mechanical Engineering, Jism and M'arse began to explore this area. They found that it is possible to access the main tunnels very easily from the inside of Mechanical Engineering during the day, but even at night when the main door is locked it is possible to get in via an obscure squeeze past a pipe. The tales of a river were cleared up when a large pipe spouting water into an open tank were found. It did indeed sound like a river from a distance and the source of this flow is not known, but is unlikely to be caused by the combined toilet flush of the building!

After a while the cavers and climbers started sharing stories and a few combined trips were undertaken- the most convenient entrances to the system were found to be Mechanical Engineering, Chemistry (this is now covered by the medical building) and at the base of the Queens tower. The tunnel under exhibition road was found which seemed to lead directly into the back of Southside bar as well as to a shaft to the roof of the halls. One excursion through Chemistry happened to coincide with the burglar alarm at the Science Museum going off and we were caught by a snooping policeman as we were going in - some fast talking being necessary!

During a last night of the proms filming session at the Royal Albert Hall Jism Wicky and M'arse managed to bullshit their way into the car park under the RAH. While Jism diverted the guard's attention Wicky and M'arse took a look at a doorway at the back- it seemed to have that familiar smell of disused tunnels and would be worth further explorations.

But the most exciting lead of all was a 20metre shaft leading into what looked like a grating and then the lights of a room. Looking at this we realised that it wasn't possible to climb it, but with the help of a bolting kit and a few etriers it was possible to get to an intermediate ledge about 4 metres up. The noise of the bolting hammer was clearly audible from the outside of the tower, but as it wasn't clear where it was coming from, no one seemed to care- no one would have imagined what we were actually trying to do. From this point Wicky did a bit of hairy acrobatics and managed to gain a few more meters.

Exploration went a pace as we were able to put equipment bought for the Slovenia expedition to good use- the bolting platform and the Bosch drill! We had a few scares during these bolting sessions, but the only person who noticed our activities was the old tramp who lives down in the tunnels. We spoke a few words occasionally to him but generally just said hello. After about two years of occasional exploration trips we finally managed to climb our way into the QT, rigging a permanent Y hang for future trips. The first

person on future trips would always use a second dynamic rope and the intermediate bolts with extenders so they could check the rope in safety.

On a later trip Froggy took his full cave photography equipment and took some excellent photos of the shaft - (before he dropped his camera daren drum down the shaft!).

The obvious next stage with exploration of the Imperial System would be to start drawing up a survey - unless someone can manage to bullshit their way into getting a copy of the plans of the tunnels and building's of the South Kensington Campus.

Neva Jism

Participants:

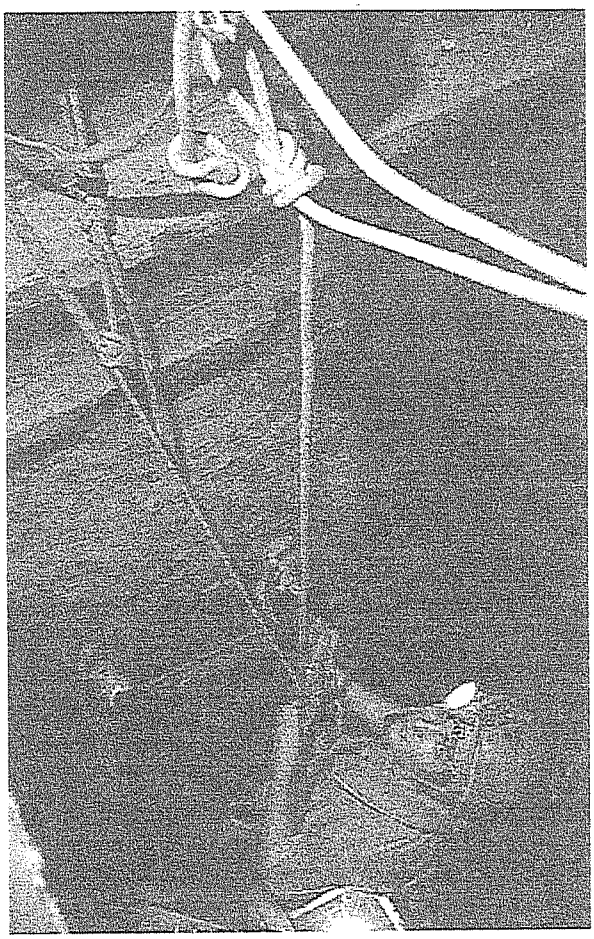
Jism - The identity of Neva Jism is a secret as he is still trying to finish his PhD.

M'arse- Mark Evans is safely away from the authorities in Ethiopia - on a quest to find the lost Ark of the Covenant.

Wicky - Phil Wickens couldn't be much safer than being in the South Pole!

Goss - Alva Gosson is still in London but as you will read from other articles, his mind is safely in another dimension.

Froggy- Jocelyn Visconti is doing his Maths PhD in Grenoble, far away from *'theurse bleurdy stupid Ros Bifs"*



Above: The main shaft – QT in the Imperial System, South Kensington, UK.

The Kensington Master Cave

The River Westbourne is a major tributary of the Thames (about the size of Fell Beck) which rises on Hampstead Heath and originally flowed through Kilburn, Maida Vale, Paddington, and Knightsbridge to join the Thames at Chelsea. Nowadays, but for a brief appearance as the Serpentine in Hyde Park it is nearly all underground. But it's still there gurgling along in the dark. The upper reaches above Hyde Park flowed in the open until urban encroachment forced it underground in the 1850's. The lower reaches were always mostly swamp and the haunt of highwaymen, particularly where the Kings Road crossed it via a bridge.

Today the Westbourne exits Hyde Park at Albert Gate and passes under the Park Tower Sheraton, down William Street and Lowndes Square, on under Cadogan Lane, and crosses the Kings Road at Cliveden Place.

It crosses over the District and Circle Lines via a big cast iron pipe above the platforms at Sloane Square Station and then continues down Holbein Place and under Chelsea Barracks. Here it divides into two. The western branch crosses Chelsea Bridge Road and Ranelagh Gardens, to fall into the Thames between Embankment Gardens and Chelsea Bridge (the resurgence being visible at low tide). The other branch crosses Elbury Bridge Road to enter the Thames at the Grosvernor Canal, under the railway tracks approaching Victoria Station.

So much for the route but where are the entrances?

Refs : The Lost Rivers of London, N Barton, Historical Publications (1992).
London Under London, R Trench & E Hillman, (2nd ed) John Murray Publishers (1993).

Trees or Tarmac?

The caving connection

Most of us will by now have heard of the Road Protesters. These untamable hippies seem to be protesting any new development in a bid to halt the progress of society with their dramatic antics capturing wide media coverage. What should we do? Should we lock these hippies away and throw away the key? Transport them to a remote island to let them live their sustainable lives without bothering the rest of us? Or have they got a point? Are we facing a country covered in tarmac in the name of progress? Should we be more conscious of this encroachment on the countryside? Perhaps we should give up our careers (what careers?), run naked and join them?

I have been pondering this question. In the course of my enquiries, I visited the protesters last year at the Manchester Airport Second Runway site before the eviction. I found quite a few unexpected connections with the caving world...

A new cave system ?

The first thing that struck me on entering the site was that far more organised than I had anticipated. It was basically a small village complete with an information/visitors centre. The second thing that struck me was that there was an enormous range of people from long hair to short, granddads to children, and from permanent residents to weekend visitors. It seemed as though people from all walks of life were there. A far cry from the few renegade hippies I had expected. Perhaps this is more of a movement, with supporters growing stronger by the day. Not all the people were die-hard "chain yourself to a dolphin" types waiting for the big showdown: many were there just to simply help.

The site consisted of maybe five or six of camps, with each camp made up of about eight or so tents. Some of these tents were between 20 and 40 ft up in the trees (how?). The main stores was run by a lovely "girl next door" type with a mobile phone (now <u>the</u> essential item in any protest). She explained to me how the protesters use caving kit.

The kitchen at one of the camps

SRT

SRT is used for getting in an out of tree tents. The harness, stop, descender, chest and hand jammers could all have been bought at Inglesport (or even Bernie's these days). Also, static rope is used (obviously enough I guess). An elaborate system of walkways existed between each tree tent where you clip on with cowstails (sound familiar?). Any good tree-hugger evidently lived in his harness and SRT kit. It stuck me that there are very few sports that abseil <u>and</u> prusick on a regular basis and that any caver would be uniquely qualified to live in a tree tent should (s)he so decide.

Tunnelling

Well, this is just good old fashioned caving. Get ya spade out and dig. It's messy and it's dirty - cave heaven to some people perhaps. I didn't find any evidence of breakthroughs into large systems though. Ventilation is a major problem and they go through a lot of batteries using headtorches.

Locking on

This was intriguing. Apparently the protesters attach themselves to a concrete slab in a tunnel with a chain and a karabiner (preferably a screw-gate). The idea is that the slab and

karabiner are so placed within the tunnel that the protesters can free themselves but the baliffs have to dig them out from the top.

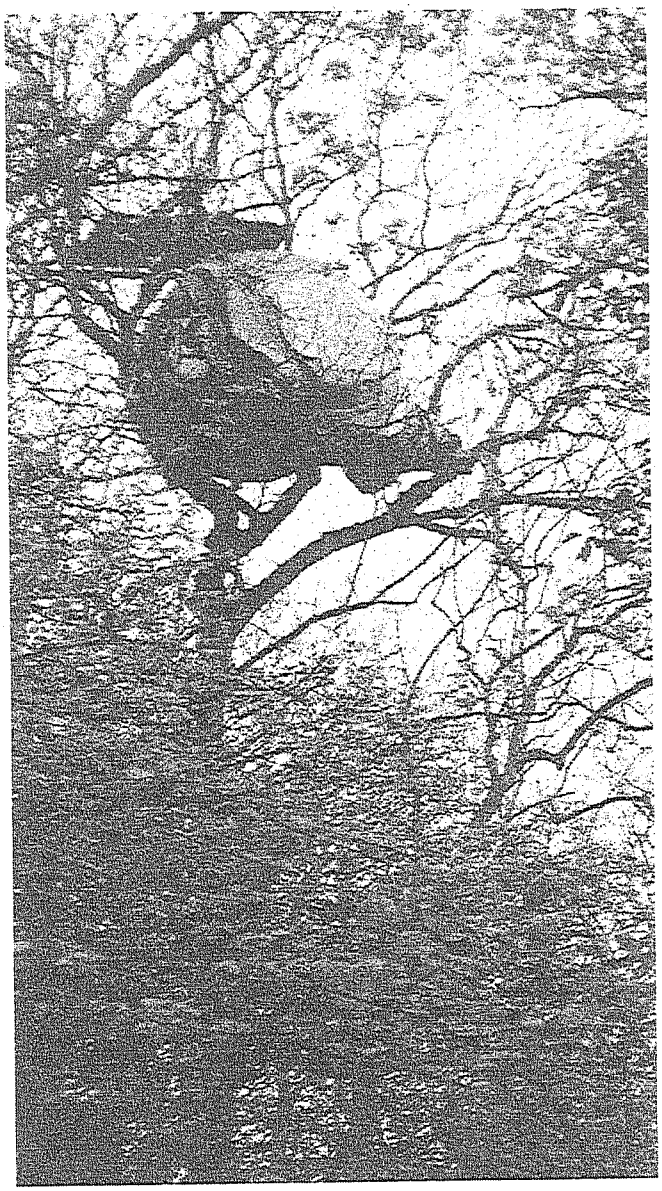
As I sat in one of their communal areas, I sensed that the mixture of rope, SRT kit, tents, innumerable tins of curry-type spices and people with strange haircuts and clothing was peculiarly familiar. Indeed, it was not unlike a scene from a caving tour/expedition. In fact, I felt so at home that I may yet run off and join the tree protesters. I always knew that caving would come in useful someday!

There were media reports that climbers and cavers have been helping the bailiffs with the evictions from tunnels in the North of England. During the Manchester Runway protests, The Edge indoor climbing wall in Sheffield imposed a ban on members involved in the eviction (Guardian, May 21st 1997). What was not reported, however, was that several cavers and climbers had actually been helping the protesters by making tunnels safe and teaching SRT. In fact one of the more mature protesters I saw looked so comfortable in his harness that I swear he must have had many years experience of caving/climbing!

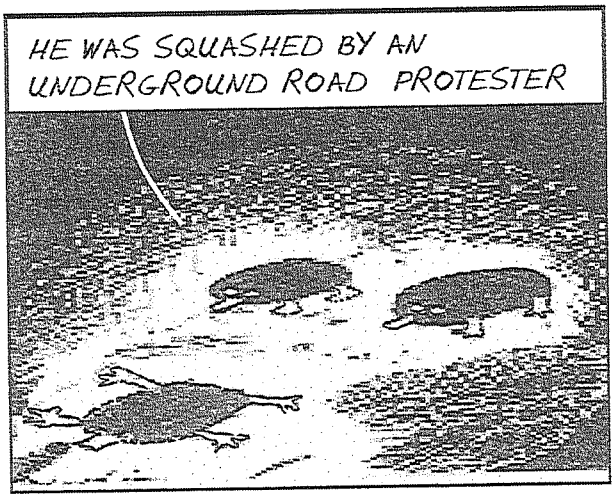
It is not my place to tell you what you think. Obviously I am sympathetic to the protesters. If you're also of this persuasion, the protesters are always grateful for any kit (but need to know the history of karabiners) – search the web or contact me for further information.

"The sleep of reason brings forth monsters" Goya c.1720.

Janet Cotter-Howells



A tree tent



The Good Old Days

In August 1882 a correspondent for *The Times* was enticed down Lamb Leer by local cavers:

"The final chamber was illuminated by pouring benzoline down the final slope and igniting the resulting stream. The party then sat down to luncheon in the Main Chamber and were waited on by two miners. A verse of the National Anthem was sung and a Bengal Light (a vivid blue signal rocket) was fired."

Somehow a little of the dignity seems to have gone out of caving since those days ..... To say nothing of the pollution.

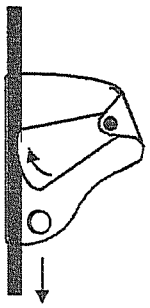
The Secret Life Of Ascenders

Fundamental to any rope-climbing system are mechanical ascenders - jamming devices that will slide up the rope, and then lock and not slide back down it when loaded.

All modern ascenders work on the same basic principle: a cam traps the rope against the body of the device when a directional load is applied. There are however, two distinct types: sprung-cam, and loaded-cam ascenders.

Sprung-Cam Ascenders

eg. Petzl
Jumar
Clog
CMI

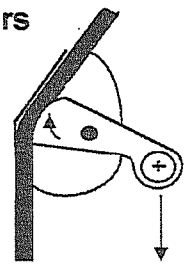


The load is taken on the body of the device and the cam is initially operated by a spring. To get an initial grip on the rope they use a toothed or ridged cam, but even so they can slip on muddy or icy ropes.

Typically sprung-cam ascenders fail at around 400-500 kg by the action of the cam stripping the rope sheath and then cutting the rope. In contrast cam-loaded devices tend to fail at higher loads, usually by starting to slip without seriously damaging the rope.

Loaded-Cam Ascenders

eg. Petzl shunt
Gibbs
Bonaiti



The load is applied direct to the pivoted arm of the cam which then grips the rope by a pinching lever action. Most cam-loaded devices have a tendency to slide down the rope when not loaded. However the pinching lever action means that they cannot fail to grip even on the most muddy or icy rope.

Unlike sprung-cam devices, cam-loaded ascenders usually have to be assembled round the rope to attach or detach. They are thus slower and more difficult to use, and accordingly not really suited to modern SRT use except for protecting abseils or in climbing. For general SRT, sprung-cam ascenders are used most extensively. Of the various types which appeared during the 1970s and '80s the Petzl (various models) holds almost exclusive sway in Europe, while in the USA the Jumar is still much favoured. (While Jumars are very rarely seen in Britain these days but I've included them as they give a very useful comparison to Petzl ascenders).

General Requirements

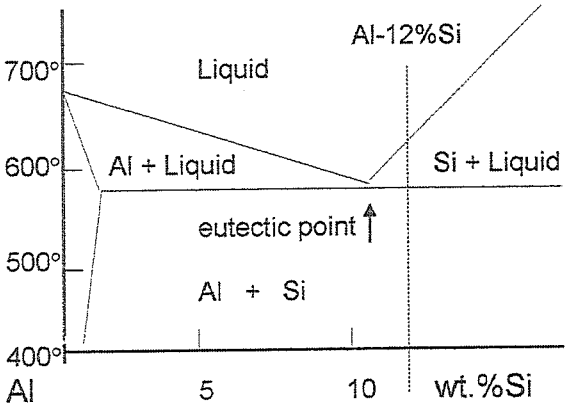
Ascenders have to be very clever bits of kit. The main body obviously needs to be very strong yet lightweight and not bulky. Moreover it must be sufficiently tough and hard wearing to endure a lifetime of knocks, bumps, scratches and other use and abuse - all in a cold, wet, gritty environment - without suffering any major weakening.

The other key component is the cam: the actual bit that attaches you to the rope. These, in addition to good strength must be superbly wear resistant to withstand a life of running up kilometres of often gritty rope. And they have to be able to be made into accurate, intricate shapes, since their geometry is critical. The most common types of SRT ascender currently in use worldwide, the Jumar and the Petzl, solve these requirements in different ways. A comparison of the materials used in these two types of ascender gives a good illustration of the sophistication of the manufacturers, as well as making for more informed understanding of the equipment used.

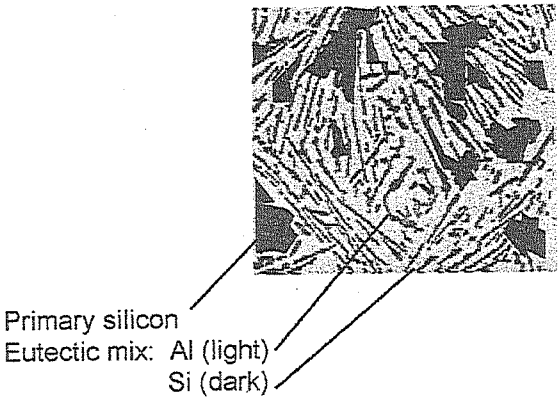
Ascender Bodies

For a combination of strength, lightness, corrosion resistance and cost, there's currently nothing to beat aluminium. (Titanium might be an option but it's trickier to work with and is currently a bit too expensive). Both Petzls and Jumars (as well as nearly all others) use aluminium alloys for the main body and cam housing. However, while the Petzl is of rolled and formed sheet, the Jumar uniquely is of cast construction. This was, as Walther Marti (co-developer of the Jumar) said: " *because it (casting) alone could give the ultimate in design for which we were looking."* (1)

If casting (ie. pouring molten metal into a shaped mould) is not to give problems of gas holes, poor shape, oxide inclusions, or other defects, then the alloy must have a lot of fluidity when molten, not be too prone to shrinking on cooling, and not be too susceptible to oxidation when melted and poured in air. The best addition to aluminium to get these casting properties is silicon which greatly lowers the aluminium's melting point, so reducing the tendency to oxidise and shrink, and makes the molten metal more runny.

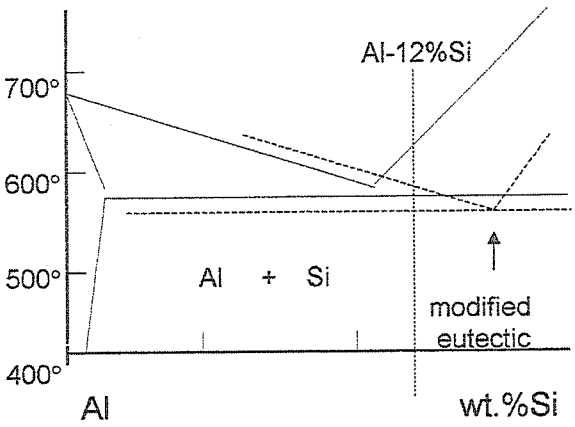


Jumars contain 12%Si which gives just about the minimum melting temperature (ie. it is close to the eutectic composition). If cast, this alloy would normally produce a microstructure composed of a few plates of primary silicon in a coarse mix of needle-like Si + Al mix (the eutectic mix).

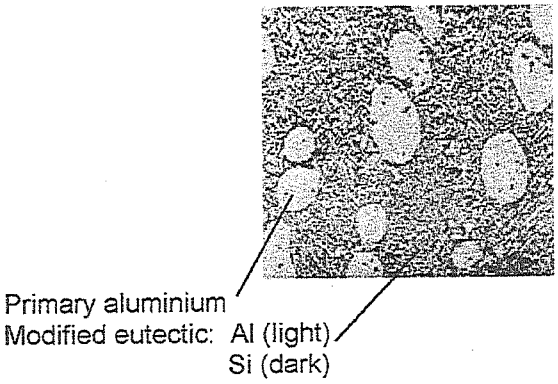


Such an alloy would be essentially free of casting defects but would still be found to be alarmingly weak and brittle. Pure silicon is quite weak and the large plates or needles of silicon make it easy for cracks to run right through the metal by simply following these weak crystals.

Consequently the Al-12%Si alloy for Jumars is modified by the addition of a small amount of sodium. This has the effect of shifting the eutectic composition to a higher %Si and of lowering the eutectic temperature:



The net result of this modification is a microstructure comprising primary dendrites of aluminium (not silicon) in a much, much finer "sea" of the Si+Al eutectic mix. The effect is to get a strong cast alloy that is also tough enough to withstand being hammered and mangled without cracking.



Because of the potential problems of casting defects and that the strongest aluminium alloys do not tend to cast very well, Petzl opted for a different solution to the ascender problems by using rolled and formed sheet.

The mechanical work put into an ingot of alloy to roll it out flat closes up casting defects and greatly refines the microstructure. As a consequence rolled sheet is inevitably tougher than if the same material is cast. The design of the ascender however must be simplified if a lot of expensive forming, pressing, or machining is to be avoided. However, if going down this route, since we don't need to worry about castability we can pick alloys with the very best strength properties.

Petzl ascenders are currently made of Z7GU alloy (Al-6.5%Zn-2.5%Mg-1.5%Cu) which is one of the strongest aluminium alloys. It is a

duralumin-type alloy in which some increase in strength is obtained by dissolving copper and magnesium into the aluminium but the main strength is developed by heat-treating the finished item to get precipitation hardening through the formation of very fine grains of $MgZn_2$ dispersed throughout the metal matrix: see also "Hooked On Heavy Metal?" (2).

Ascender Cams

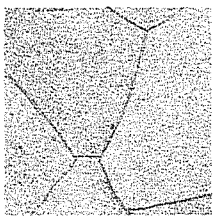
With sprung-cam ascenders the cam has to be self-engaging to pull itself into the rope which it does by having teeth angled into the rope. If it is not to have a disappointingly short working life these teeth have to be supremely wear-resistant. Further, because the frame has to be one-sided it cannot completely constrain side-to-side movement and so the cam must be able to withstand twisting and bending forces and have a strong hinge. Although it must be both strong and hard there must also be no tendency to brittleness - not an easy combination to achieve. If all that were not enough, they are also intricate shapes of precise geometry.

To meet all these demands the cams of both Petzls and Jumars are die-cast in steel. Steel is of course a blanket term covering literally thousands of different alloys but all are based on iron, usually with carbon, and often with a combination of one or more of: chromium, nickel, molybdenum, manganese, vanadium, tungsten, titanium, ... etc.....etc.

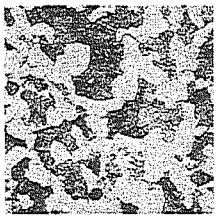
Adding increasing amounts of carbon to iron increases the strength and hardness (although tending to reduce the toughness a bit). Unfortunately the wearing surfaces of ascender cams require hardness in excess of what can be attained by simply increasing the carbon content. However it has been known since antiquity that a piece of carbon steel can be hardened by heating to redness and then rapidly quenching into water.

At room temperature the stable (equilibrium) phases are body-centred cubic iron (ferrite) and iron carbide (cementite) while at temperatures above about 800°C the stable phase is face-centred cubic iron (austenite) which is capable of dissolving much more carbon than ferrite. When very rapidly cooled from high temperature a metastable super-saturated solid solution (martensite) is formed. The carbon atoms that are dissolved in the high temperature phase don't get the time to diffuse and re-arrange themselves into a separate carbide phase before the energy to move is gone (ie its got cold) and they're stuck in place. The crystal lattice is deformed and under strain by these carbon atoms being stuck where they shouldn't thermodynamically be. As a consequence martensite is supremely hard but very brittle. Some toughness can however be imparted (at a slight loss of hardness) by tempering, that is re-heating to 300-600°C to partially transform the martensite to the equilibrium phases: iron (ferrite) and iron carbide (cementite).

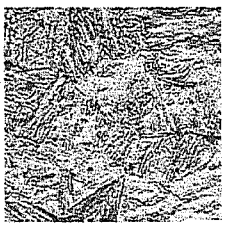
A : Above about 800°C:
Single phase face-centred cubic, fcc, iron (austenite) with all carbon is in solution



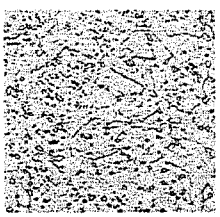
B : Slow cool to room temp:
2 equilibrium phases, body-centred cubic,bcc, iron (ferrite) and Fe_3C (cementite)



C : Fast cool (quench) to room temp:
single metastable (non-equilibrium) phase, martensite, a solid-solution super-saturated with carbon atoms.



D : Tempered:
Martensite partially transforms to the equilibrium phases



Again, while Jumar and Petzl cams are both of martensitic steels they are distinctly different. Jumar cams are cast in an alloy of Fe-15%Cr-3.5%Ni with 0.15%max carbon. Large amounts of alloying elements slow down the transformation reactions. Hence this alloy can be "quenched" in air to form martensite. Jumar cams clearly show a cast structure, so it is possible that all the martensite is formed on cooling after casting with no subsequent hardening heat-treatment. Because of the slowness of the transformations some ferrite forms along with the martensite. On tempering the martensite partially transforms to a very fine dispersion of very hard chromium carbide, Cr_7C_3. The result is a good combination of strength, toughness and hardness. The 15%Cr also imparts good corrosion resistance.

Petzl cams are cast in an alloy of Fe-3.5%Cr, with negligible nickel and carbon. As this contains so little carbon it will not respond to a quench (ie. it will not form martensite however quick you quench it). But the alloy is suitable for case-hardening. This is achieved by heating the metal to 800-900°C in a carbon rich environment (solid graphite particles; a liquid sodium cyanide, NaCN, salt bath; or in carbon monoxide gas) whereupon carbon readily dissolves into the metal surface raising the skin carbon content to about 1%C.

Now, when quenched, while the core of the metal remains relatively unchanged, the high carbon surface transforms to very hard martensite. Moreover, as the carbon content of the outer surface is very high, some fcc austensite is liable to be retained. (Carbon lowers the temperature at which the martensite reaction starts and finishes - above 0.7%C no matter how fast the quench, the transformation will never fully finish and some austenite will remain). It is then tempered to relieve stresses and to give some toughness to the wear-resistant skin. The result is a strong cam: very tough in the centre and around the hinge but superbly hard and wear-resistant on the bearing surface.

The chromium content at only 3.5%Cr is too low to impart any real corrosion resistance and so the metal will slowly rust in water. To counter this the cam is chromium-plated. Chromium is itself very hard but eventually will wear through over the cam teeth which is where you'll see the first spots of rust. The nice shiny chromium plate is essentially cosmetic. In practice the teeth are going to wear and the ascender start to slip on muddy ropes before widespread corrosion becomes a problem.

Conclusion

So there we have it. Ascenders are technically sophisticated bits of equipment and I hope that this article will lead to a more informed appreciation of their strengths and limitations. They are designed and built with generous safety margins and are intended to give many years of trouble-free use. Surprisingly (and thankfully) they do give very little serious trouble despite being, at best taken for granted, and at worst wilfully abused. The next time you're climbing a pitch have a look at the little steel cam enclosed in its aluminium housing. There's nothing like hanging over a deep black pit to focus the mind on the importance of the metal bits that are holding your life in their grip.

Parting Comments

The above article, together with that appearing in a previous issue (2) is based on my own metallurgical examinations, largely because the manufacturers are somewhat reluctant to give away trade secrets. The only information that they tend to divulge is that contained in their sales' catalogues which rarely goes beyond the simplistic "steel-or-alloy" level.

However every item of equipment made is a three-dimensional palimpsest with its own manufacture inscribed in the microstructure ready to be read with the aid of metallurgical microscope, electron microscope, X-ray diffraction and spectrographic analysis. The original idea came from a blend of curiosity, the questions of fellow cavers, and the realisation whilst teaching Materials Science, that nearly every basic metallurgical principle could be illustrated by studying the contents of an SRT bag.

Although necessarily a bit technical, I have aimed these articles to be of interest, and comprehensible, to the ordinary caver - or at least the immediate readership of the ICCC Newsletter which is supposed to be a bit more scientifically minded. Ultimately though it has all been as much for my own benefit as anyone else's - the justification for a pile of sawn up caving gear!

Clive Orrock, Jan 1998

References

(1) "The New Jumar", *Caving International* No.10 (1981) pp.42-46.

(2) "Hooked on Heavy Metal?", *ICCC Newsletter* No.17 (1993) pp.17-23.

Petzl Ascender

Notes

Body

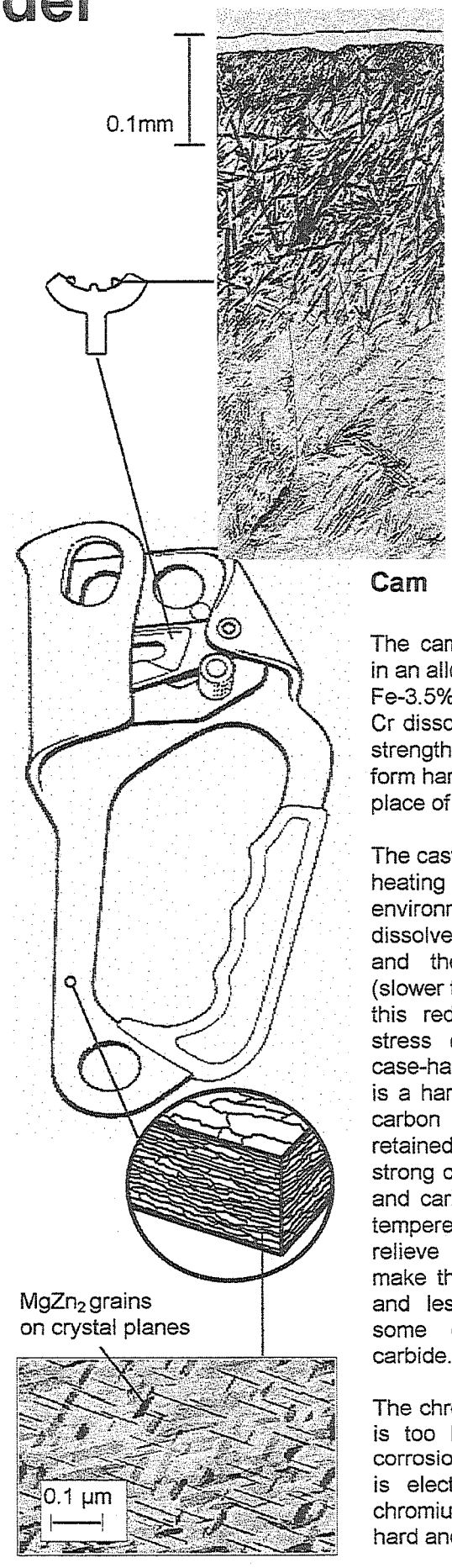
The body is stamped out of cold-rolled sheet of composition:
Al - 4.5%Cu - 1.5%Mg - 0.5%Mn, bent to shape and then heat-treated to develop hardening caused by the fine precipitation of $MgZn_2$ particles.

Anodising

The corrosion resistance of aluminium alloys is due to an oxide film that forms immediately on contact with air. This oxide layer is both adherent and relatively impermeable so that once the initial film is formed the metal is protected from further attack. This natural oxide film is sufficiently protective to endow the metal with a good resistance to corrosion in normal circumstances, but it is possible to build up an even thicker , and therefore more resistant film by electrochemical means.

The aluminium component is made anodic in an aqueous H_2SO_4 bath in which the oxide film is slightly soluble. When current is passed, oxygen evolving at the anode is absorbed in the slightly porous film, and so it grows continuously by oxidation of the under-lying metal.

Immediately after formation the film is very absorbent and can be easily finger-marked. It is therefore immersed in boiling water for a few hours which causes the oxide to hydrate and swell thereby sealing up the pores. If a suitable dye is applied before sealing an attractive coloured finish is obtained with the metallic lustre of the aluminium shining through.



Hardness (VPN):

1000 Cr plate
680
620
High carbon martensite
550
470
430
Low carbon martensite
430
430

Cam

The cam is a precision casting in an alloy of:
Fe-3.5%Cr-0.5%Si-low C-low Ni.
Cr dissolves in Fe to give some strengthening and a tendency to form harder chromium carbide in place of iron carbide.

The casting is case-hardened by heating in a carbon-rich environment at 800-900°C to dissolve carbon into the surface and then quenched into oil (slower than a quench into water this reduces the likelihood of stress cracks). The result of case-hardening and quenching is a hard surface made of high carbon martensite (with some retained austenite) and a tough strong core of low carbon ferrite and carbide. Finally the cam is tempered at about 150°C to relieve quench stresses and make the surface a bit tougher and less brittle by converting some of the martensite to carbide.

The chromium level of the metal is too low to impart any real corrosion resistance so the cam is electro-plated with a layer of chromium which is itself very hard and wear-resistant.

Jumar Ascender

Notes

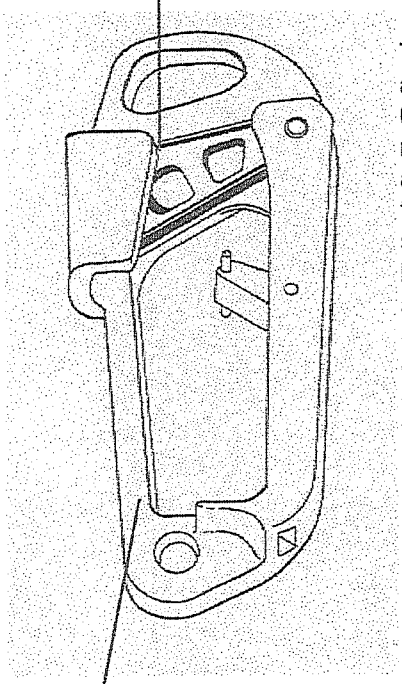
Body

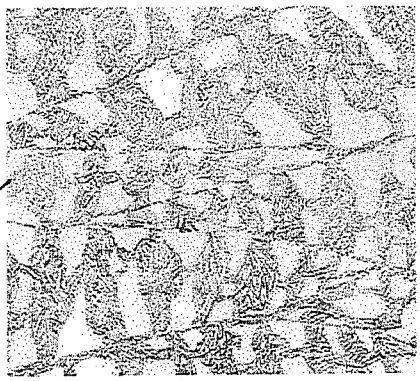
The body is a precision casting of Al-12%Si-1%Mg - Na modified. With a good rounded design and when cast correctly this alloy is very tough: Jumar bodies can be hammered and mangled without cracking.

Like the aluminium alloy of Petzl bodies the Jumar material could be heat-treated to develop age- or precipitation hardening. Typical heat treatment conditions for the alloy are a solution anneal for 2-4 hours at 530°C and quench into warm water, followed by a precipitation hardening treatment at 160°C for about 16 hours. This would raise the strength and hardness without much greatly reducing the toughness.

However, since the original as-cast dendritic structure is still clearly visible Jumars do not seem to be age-hardened and rely for strength on their bulky construction, good grain refinement and the (small) strengthening effect of Mg in solution.

By applying a plastic coating to the body the metal is protected from sharp scratches and dents. Sharp surface damage (or equally sharp surface features from design or fettling after casting) act as localised stress raisers which can also promote brittleness. The smooth plastic covered rounded shape is also of course more comfortable in use. Aluminium alloys have good resistance to corrosion in fresh water (although they suffer badly in sea water) so won't corrode evenwhen the plastic coat gets scored or worn through.





Cam

The cam is a precision casting in an alloy of Fe-15%Cr-3.5%Ni-0.2%max C. Because of the relatively high content of Cr+Ni alloying additions the martensite transformation is considerably slowed . The cam can therefore be "quenched" in air to form some ferrite along with the martensite. Because of the high chromium content the quench can be from a relatively low temperature compared to, say, a Petzl cam . This helps to minimise quench stresses and any tendency to crack, but it does mean that much of the as-cast structure is retained and still visible under the microscope. Indeed it is possible that the final structure is achieved simply on controlled cooling immediately after casting with no subsequent hardening heat treatment. After quenching the cam is tempered to improve the toughness without greatly reducing the hardness.

The high chromium content would cause the grains to grow large during prolonged heat-treatment and so the alloy cannot be case-hardened. Consequently the hardness is roughly the same all the way through. The high chromium content does however mean that the alloy is essentially rust proof even when the teeth are worn.

The Nature

of

Caves and Caving

(A Philosophical Treatise)

Or

Zen and the Art of Caving

Abstract

An inadequacy in the language and conception of caving is addressed, an inadequacy which is attributed to general problems in Occidental society and thought. In the 'Phenomenon of Caving' an aesthetic description attempts to focus the discussion by giving an immediate impression of the activity. 'A Hermeneutics of Caving' uses old conceptions of caves (valid because they are unhindered by impartiality and embed themselves better in the problem) from mythology and religious myth to augment and test a deciphering of what caving and caves mean. Caving is shown to make sense as an exploration involving the concepts of inside and outside, home and out-doors or better in Japanese uchi and soto. However on the other hand, caves are present in mythology because these concepts are also critical to our understanding of ourselves. We are entities whose essence is to have a place in the world (i.e. we are subjects) and this place incorporates both inside and outside. Caves thus have a special place in our world view because they represent fundamental structures of our being. As cavers then we are performing journeys that have a parallel with our very identity as humans. And these parallels, at different conceptual levels, are more than similar they are intertwined from which arises the problems (e.g. disparity between pictures above and below ground, inability to explain caving to non-cavers "You'll just have to do it") that are the source of the questioning that is this discussion.

Introduction

The cave is an unusual thing. It has many descriptions that attempt to clarify its nature and bring it within the locus of everyday experience, yet each one fails to grasp this at first hand. For the man of measure, a cave is of length, depth and size. For a man who enjoys the mountains that solidly rise into the sun-filled sky, it is an accident, a dark crevice formed by the removal of mountain. For them the cave is always reduced to a point of interest on the surface "it is below here", or "on this level into the mountain". To the scientist it is a mechanical feature of limestone or an entity controlling hydrology. To the city dweller it is a cold inhospitable place its shortness of space a symbol for its hostility. For the mythologist a place of magic and odd creatures - this is the most truthful. In exasperation, cavers are reduced to saying: "if you never see it, you'll never know."

To illustrate; take the photo of a cave scene. It has come to strike me as strange and claustrophobic. In the shelter of a lecture theatre we are asked to view a picture taken at some depth and distance within a cave. Indeed we now know what the cave looked like but the scene is wrong, the picture does not capture the cave as it was for the people who had to cave to get there - the scene demands a context which it hasn't got. Information about depth and distance only serve to show how inadequate the picture is, and conversely depth and distance cannot locate a 'situation' in the cave. A photo of a landscape captures both what can be seen and also the context: the distances and elevations, gullies and mountains they are integral: the photo is self-supporting. Have

you ever noticed how irresolvably disjointed photos above and below ground seem in a slide show?

In this sense caving is a whole body experience not convincingly reducible to just one sense. It takes people and people alone to get to a 'position in a cave' and the relationship between cave and surface is so mediated. When talking of caving our individuality is vertiginously present and our words offer too close a vision of the void that we offer to explain. This void, a metaphor taken from the cave itself, is the very nature of non-received experience, in other words the experiencing of the new in which we play the critical role in judging and making it meaningful. Caving brings us closer to this original birthing and primary experience and in reflection the cave itself is a fascinating and fearful place of the unknown.

Another way of expressing this might be that landscapes are too meaningful. Never, when we experience a landscape, are we brought to consider it in its novelty or reality. The sheer expanse of space hides the individual things that compose it, hiding their particularity, and in so doing raise us from the level of being in a situation to 'overlooking' and 'rising above' it. It is no accident that gods reside on mountains and in the Heavens, and considering the language of the last sentence we draw heavily on this experience to discuss such removal from the world. Landscape paintings address this by pinning down the situation often around some particular but distant object - then we have the interest of an actual experience crossed with the removal presented by the space. When caving, our attentions are essentially more focused. We are brought to consider individual rocks and pebbles, flakes and stal, and when we do this we are brought to an awareness of their accidental nature. Why here? Or why there? Or just why? And finally we are brought to the immediacy, the actual presence of the situation alone, and out of this meaninglessness we create original meaning. This is best captured in Zen and Japanese art where landscapes and pictures don't seem to intentionally frame particular objects, these are accidents and the focus is then on the contentless experience alone.

So to authentically talk of caving, we must be careful, for the experience is closely connected with the originating nature of experience. Words may help capture the experience but ultimately caves are an alien world devoid of connection to the conservative words of the surface. Like the point of tangent between the pole of a globe and a line to the infinity of the plane of its equator, the cold timeless world of caves is this arctic, at best a close inference in words. Surveys, pictures and dialogue are forces from the surface trying to invade this space, a space that we must conserve.

The phenomenon of Caving

The cave is all and none of these for its presence is a unique experience demanding a language of its own. Like no place on Earth except the bottom of the sea this place owes nothing to light - for countless millennia darkness is its element. This shy and retiring nature of the cave must remain hidden from us. But in our light a symbiosis is created: wherever I go it will reveal itself and where it will reveal itself I will go. I forget that I am the source of that warm glow, for at the same time, wherever I turn, the cave shows itself up. And the shadows that have bathed it for so long evaporate away. But the shadows are also friends striking deep relief across my vision and also, unnoticeably yet essentially, framing my vision. I am cradled in the warm nothingness that means that the glow never ends - this is my only world, there is no outside. And while the colours are white through golden brown to black I feel no need for more. The symbiosis lures me on deeper into the cave, it guides me over its many faces. Sometimes they are cascades of boulders in immense vistas; sometimes just pebbles that stretch for only an arms length. Undulations and waves carry space above and before; curves and ellipses catch diminishing light long into the distance; angular rocks break these broad alluring shapes; textures change; even but never regular waves of scalloping; enchanting corals grow from the walls each a world of minute minarets and rooms; suddenly harmless forests of spears hang in the air. Puddles, lakes and streams; these I know, but they are cousins many times removed: like liquid diamonds dancing around white stones so eager to head for the darkness or leap into the chasms of space where without pattern what seemed so solid a floor ends. On ropes descending through space carved through with shadow, huge bridges and rocks

inquisitively rise out of the eternal darkness below.

Everywhere I look a multitude of meaningless but fascinating features and personalities glide out of hiding and the harder I look the more intricate is this incomprehensible design. Indeed I am a brief guest here; I know no language to converse or do this justice and yet while a stranger I feel welcome and at home. Never will be the time when I can say I know, but only that I have seen.

A hermeneutics of Caving

Cave and man have a long history, our ancestors being, rightly or wrongly, closely associated. For them in the harsh winters of the ice ages this natural shelter formed by mysterious benevolent forces offered a home from the hostile forces of nature outside. When cave-man first appropriated caves for his home he began a relationship with a force which protected him from nature and yet like nature had a source outside himself and his time. The oldest problem had a symbol, that existence had favoured us in its creation yet our lives were uncertain, filled with contradiction and ill-fate. How could something that gave us Being also be so hostile? Caves offered man an insight 'into' that which was not him and that which birthed his situation, that is, an insight into his origins, and in so doing an insight into himself.

In religion, the original discussion of origins, caves occur in a multitude of guises. In some mythologies the cave is a source. In ancient Greece Zeus was born in a cave, New Guinea was populated by the earth giving birth through caves and Mohammed received his revelations in a cave. In Japanese mythology the emergence of Amaterasu the sun-goddess from a cave each day brought light, but each night she would return bringing darkness (and pre-empting the following discussion the Japanese effigy of Amaterasu is a house made of corn). And here we see our more fundamental schizophrenic relationship with caves and with nature itself. The very feature which offers us shelter also deprives us of the sun, light and warmth and at the mouth of the cave these opposing forces meet. In the depths of the cave we are no longer at home, no longer 'sheltered' and in so doing are going beyond our human situation (home) and ourselves. We are exploring that force which gave us home, gave us ourselves but which is neither, and which seeks to entomb us eternally, divorcing us from meaning and the surface where we live. The depths are hidden from sight and knowledge: the possibility of a place in the world hidden. That WE consider going 'beyond' a situation (not leaving and going without, but going further into the darkness and returning) brings this situation to light as noteworthy and essential. And that WE did it brings us into relief as well as show us that we belong there - something that the structure of science with its eyes forever turned into the light would have us forget. In these distant depths cave-man saw magic and evoking the fearful but benevolent spirit so the he might find favourable situations in his life in the sun, painted powerful pictures of his endeavours.

But where there is protection there is also weakness and caves also represent this. Our greatest weakness is mortality and so what offered us life and hope must also offer us death and despair. For this reason caves are also burial places - adopted by churches in their crypts. Here we have shelter in its destructive mode consuming life but also offering respect, eternally protecting death from the inhumanity of nature. Like Lady Usher our emergence from the cave is an escape from the lulling clutches of eternity and a reassertion of life and the bilateral relationships forming home. This resolution of the conflict between shelter and the world of the sun (cf. Amaterasu) is mirrored by the passage from the depths of the cave to the afterlife often associated with the sky and the sun. The symbiosis between carbide and cave is this conflict and the alluring darkness that we obliquely negotiate with is Charon.

In Greek mythology the dead pass deep into the cave before finally crossing a river of no return. The underworld awaits. An insignificant financial offering facilitates this crossing of fluid. Like water that refuses a form, the river represents the dissolution of all connection with the world. The money a symbol for the cheapness of death and ironically the cheapness of life - we are not bound to this world in the sense of money or things but rather play the key role in letting it be. What gave us protection finally takes us away. The Egyptian burial was different. Huge towering caves built in pyramids reaching to the sun housed the dead and all around were their riches. However the Egyptians believed that

death was a simple transition to another world in which nothing dramatically changed, there was no dissolution and their death was a continuation of life.

In Christianity the presence of dissolution in a fiery hell for the damned is an added twist. Dante presumably drawing upon the nature of volcanic activity viewed the depths of the cave to resolve in the destruction of flames - also like water refusing form. Dante may also be drawing upon the nature of egoism from which evil issues. The ego is a false home for it fights for supremacy over all things, cutting itself off from the world and burning all that it touches to feed itself. In this way it is fire but a fire with feeling, the possibility of redemption, which tortures itself. Such a caver would be forever napalming a cave entrance from the inside to stop others entering so as the prove that he was caving! Likewise in Revelations the wicked use the cave as a hiding place from the final judgement. Rather than leave their situation by trying to get back into the garden of Eden (outside the cave) to become at one with god and undo the damnation of being a self (the apple), instead they live inside the cave thinking that they chose to eat the apple and not remembering that their situation involved a source outside. Similarly during the developing egoism of the British Empire where man triumphed in his domination of nature he also rejected his personal relationship with nature, cut connection with home and his situation. Primary experience became cold science, and emotion and passion were the Evil (corrupted) from the Void.

Cellars, catacombs and caves became for the Victorians' fearful places where the unconscious is unrepressed (q.v. conservative Freudianism) and devilish, bacchic activities are freed. We need only see the cruelty of Victorian family life and the work place to see how the 'home' in connection with this had become a repressive dogma. As cavers we reject this. And as an antidote to egoism: Caves are also like drains and sewers which, for the city dwellers, cleanse the cities of nature, removing what is most natural about us from sight and discretely returning it to nature so that they never have to address it. Caves are thus also like the arse that mysterious rejected part of our anatomy. Arses and dirt are seen as humiliating but it is exactly that humility found in the gutters and shit that we need to escape the framework of socialisation that alienates us from our source, nature. Being face down in mud as any caver will attest to is a cleansing experience, for there, in the clarity of our humility, we find life, nature and ourselves once again. And, in connection with this, the cave and the sewer are like the ear, and by going into this noteworthy silence that demands humility, like in a church, we have an antidote to Dante's heat of in-authenticity and with our silenced egos we can hear once again that call of our true situation and become ourselves.

Today, still within this framework, God and Evil has been rejected and we do not rely upon caves but instead buy them ready made, and, coincidentally we believe that we can now freely shop for our 'situation' through work and money and pay science to tell us who we are. But in this world where houses are no longer built with cellars have we really lost that eternal darkness. In one corrupted inside-out sense no - the endless subterranial corridors of power and nuclear bunkers where the world's politics is covertly planned (q.v. X-files) and also in the eternal money vaults of banks where that most benevolent, but also uncontrollable source of home, also seeks to overwhelm us. But surely also, if we are not hypnotised by science, our own place in the world, still, and always will, carries that poignancy that found cave-men sheltering in caves.

So as cavers we are like Orpheus entering the underworld to rescue beauty. We leave our homes by entering the fearful darkness and unknown from where came a situation and home at all. Unlike the outdoor enthusiast or the scientist who escapes from any semblance of home and rejects that he has a place in the world; we explore this and risk losing everything. We risk leaving life behind and succumbing to the cheap call of Charon in which we forget. But we have faith in our will to live and then like Lady Usher, or Orpheus with Persephone, we return to the surface. In the spring so created we may air our houses and allow nature back into our homes. This freshness and reinvigoration that we feel is the ritual recreation of our home and our situation, our realisation that it could not be were we not mysteriously protected by nature from itself in the shelter of the cave.

Alva R.S. Gosson

Any comments anyone? See overleaf.....

Comments:

Alva's article raises some interesting philosophical issues. I would be interested to see what people think.

When I came to read this treatise the words of Dante did indeed come to mind: *"Abandon hope all who enter here"*. Confronted with Alva's tortuous prose my Word 97 Grammar Checker gave up but I carried on. My following comments are intended as a dialogue: not, by any means, as a critique. I look forward to many a discussions this summer.

Alva, In your introduction you claim that caving is almost unique in being a "whole body" experience and illustrate this by contrasting the photography of caves with "landscapes". You state that a landscape captures what can be seen as well as the context but that this is not so for caves. In this respect I don't think caves are different from any other environment. When I look at the famous photograph of Tensing on the summit of Everest I see the image, I have some vague idea of the physical and mental exertions it took to get there, but I can never know the whole context, and the photo certainly doesn't tell me. The same can be said all photos, be they of caves, mountains or just a walk in the park. They illustrate but don't tell the story.

Certainly caving does focus the mind on the little things and we are brought to an awareness of individual features that may not necessarily be seen when confronted by an expanse of space. But again I feel this is true of many other environments – a climber can often see only a few metres of rock in any direction, a Londoner knows his own locale in detail but probably has a very hazy notion of what London as a whole looks like. As to whether caving can claim any uniqueness in being a whole body experience, just try telling that to a diver. Moreover, compared to some environments, caves tend to be rather poorly characterised in terms of taste, smell and sometimes even sound.

But we are primarily visual creatures and I wonder perhaps if the reason why caves are seen as unique, is that, as you say, they owe nothing to light. To many people the implication is almost: that which is lit is visible and is therefore known to exist, whereas that which is unlit, is invisible, unknown and non-existing. Yet of course a cave still exists even when our light moves on or has never been there.

This aspect of caves being an interface between the known physical world and an unknown, invisible, but by no means less real one, seems to recall much in Celtic mythology where another, spirit world is accessible, for the (un)lucky few, via real geographic interfaces in this one. Rivers, pools, bogs, were mostly associated with these interfaces. They exhibit a physical reality in that one can sail over them, but one can also slip through the surface. Caves must have been seen in a similar way as portals to the other world. Curiously though, while nearly all the major rivers of England retain Celtic names, few obvious big cave entrances do. Wookey is Celtic but the names Gaping Gill, Alum, Rowten, Yordas all derive from the Norse. The Celtic tribes must have known of them, there's a Brigantean fort on the top of Ingelborogh.

One cultural icon I must take exception to is your use of cave-man – it's anachronistic (assuming you are not referring to the cave-man of popular myth – dragging Rachel Welch along by her hair to protect her from the dinosaurs). I take your cave-man to mean those people who produced cave paintings such as at Lascaux and Chauvet. Even then we're not really dealing with a single group: the paintings at Lascaux where done about 17,000 years ago; those at Chauvet about 30,000 years ago. Moreover while the production of cave art was most prolific in Europe, it was a worldwide phenomenon. While all these people were the same species as ourselves they inhabited a vastly different world (they were in the last ice age) and accordingly I think it's a bold step indeed, firstly to suggest an understanding of their psyche, and secondly to relate this with our own experience.

Finally I think your choice of "hermenuetics" is the wrong word. Hermeneutics is the interpretation of scripture or ancient texts. Part of the hermeneutic process is understanding the context of why? when? by whom? to whom? for what reason? it was written. In your article you explore the symbolism of caves and caving in a rather Jungian fashion making reference to various classic texts. Accordingly I would have thought a better title would be: "An interpretation of Caves and Caving as a Symbol in the Human Psyche".

Clive Orrock

Facts & Phalluses.....

A Psyschologists view

Normally when non-psychologists go on about the deep psychological reasons for caving they drag up Freud and bang on about it being the need to return to the safety of the womb. They are trying to imply that cavers are so immature that they have regressed beyond the Oral stage of Freud's psychosexual theory of development. However since Freud never proposed a prenatal stage it's rather ridiculous to suggest that is what we want. Another a flaw in this view is that the cave somehow represents the womb: well I admit they are both dark but that is where the similarity ends. I mean caves are hostile environments where you could die, so much for the safety of the womb argument.

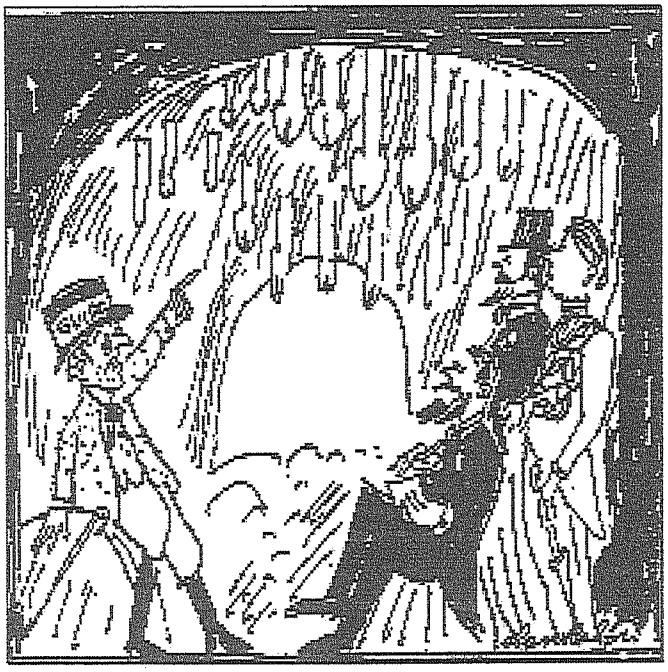
If you must use psychoanalytic theory to explain people's behaviour then let's for a start assume that most people (even cavers) are normal. Most people, according to Freud, reach the genital stage of development when we become fully aware of our sexual nature. Of course it is not socially acceptable to carry out all our sexual wishes, otherwise we'd be bonking left right and centre. So to fulfil the demand of our Id we use socially acceptable activities as a substitute. This is where caving comes in. So here's a quick analysis of caving.

In Britain caving is a male dominated sport, but this hardly surprising when we realise that cave subconsciously represent the vagina. Many cavers seek out virginal passage and it is highly prized. Each year the BCRA have a conference to inform us of who has found, or extended caves. At this conference we all compare how big, deep, long, and hard our caving expedition was. There even an SRT (sore raw testicles) competition. All this points towards the hidden sexual nature of caving.

Martin Macgowan

And now for an analysis of horse riding .....no please!

....Nobs & Nobility



To Wilhelm Fliess
April 14, 1898:

In the morning we went to Rudolf's cave 15 minutes from the station. The cave is filled with all manner of strange stalactitic formations shaped like pyramid cakes, tusks seen from below, corn cobs, heavy folds of tents, hams hanging from above.

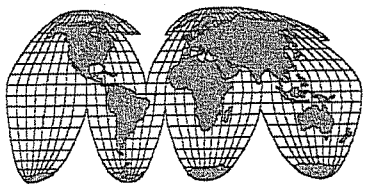
Strangest of all was our guide, pretty pickled but quite safe on his legs, gay and humorous. He was the discoverer of the cave and evidently a decayed genius; he kept talking about his death, his conflict with the clergy and his conquests in this subterranean world.

When he mentioned that he had already entered 36 holes in the Carso, I recognised him as a neurotic and his exploits of a conquistador as an erotic substitute,

Sigmund Freud

[The letters of Sigmund Freud, Hogarth Press, 1970]

Speleo-Statistics 1998



The World's Deepest Caves

1.	(#1)	Gouffre Mirolda-Lucien Bouclier	France	1610 m *Spelunca 69 (1998)*
2.		Réseau Jean-Bernard	France	1602 m
3.	(#2)	Lamprechtstofen	Austria	1532 m *Int. Caver 16 (1996)*
4.		Vjacheslav Pantjukhina	Georgia	1508 m
5.		Sistema Huautla	Mexico	1475 m
6.		Sistema del Trave	Spain	1444 m
7.		Boj-Bulok	Uzbekistan	1415 m
8.		BU56 (Ilaminko Ateeneko Leiza)	Spain	1408 m
9.	(#3)	Torca del Cerro	Spain	1400 m *Spelunca 69 (1998)*
10.		Lukina Jama	Croatia	1392 m
11.		Sistema Cheve (Cuicateco)	Mexico	1386 m
12.		Evren Gunay dudeni	Turkey	1377 m *Int. Caver 21 (1997)*
13.		Ceki 2 (La Vendetta)	Slovenia	1370 m
14.		Sniezhnaja-Mezhonnogo	Georgia	1370 m
15.		Réseau de la Pierre Saint-Martin	France/Spain	1342 m
16.		Siebenhengste-Höhlensystem	Switzerland	1340 m *Stalactite 1 (1996)*
17.		Cosa Nostra Loch	Austria	1291 m *Int. caver 19 (1997)*
18.		Gouffre Berger-Fromagère	France	1278 m
19.		Torca de los Rebecos	Spain	1255 m
20.		Pozo del Madejuno	Spain	1255 m *C & C 71 (1996)*
21.		Abisso Paolo Roversi	Italy	1250 m
22.		Systeme Vladimir Iljukhina	Georgia	1240 m
23.		Schwersystem-Batman Höhle	Austria	1219 m
24.		Abisso Olivifer	Italy	1215 m *Spelunca 61 (1996)*
25.		Kijahe Xontjoa	Mexico	1209 m *Int. Caver 16 (1996)*
26.		Sotano Akemati	Mexico	1200 m
27.		Veliko Sbrego (Crnelsko Brezno)	Slovenia	1198 m
28.		Çukurpinar Düdeni	Turkey	1195 m
29.		Complesso Fighiera-Antro de Corchia)	Italy	1190 m
30.		Vandima	Slovenia	1182 m *Int. Caver 17 (1996)*
31.		Dachstein-Mammuthöhle	Austria	1180 m
32.		Sistema Arañonera	Spain	1180 m
33.		Jubilaumschacht	Austria	1173 m
34.		Anou Ifflis	Algeria	1170 m
35.		Réseau de Soudet (Gouffre BT6)	France	1170 m *ARSIP Info 50 (1996)*
36.		Abisso W le Donne	Italy	1170 m *Spelunca 69 (1998)*
37.		Sima 56 (Torca Cueto de los Seneros)	Spain	1169 m
38.		B15 (Sistema Badalona)	Spain	1150 m
39.		Tanne des Pra d'Zeures	France	1143 m
40.		Gouffre Muruk	Papua N.G.	1141 m
41.		Sistema del Xitu	Spain	1135 m
42.		Sistem Molicka Pec	Slovenia	1130 m *Int. Caver 16 (1996)*
43.		Arabikskaja	Georgia	1110 m
44.	(#4)	Kazumura Cave	Hawaii	1102 m *NSS News, Apr (1997)*
45.		Schneeloch	Austria	1101 m
46.		Sima GESM	Spain	1100 m
47.		Jägerbrunntrogsystem	Austria	1078 m
48.		Abisso Saragato	Italy	1075 m
49.		Sotano Ocotempa	Mexico	1070 m
50.		Muttseehöhle	Austria	1070 m

The World's Longest Caves

1.	Mammoth Cave System	USA	563 500 m	
2.	Optimisticheskaja	Ukraine	191 500 m	*Spelunca 67 (1997)*
3.	Jewel Cave	USA	170 370 m	*Int. Caver 19 (1997)*
4.	Hölloch	Switzerland	170 370 m	*Stalactite 1 (1996)*
5.	Lechuguilla Cave	USA	143 853 m	*Int. Caver 19 (1997)*
6.	Siebenhengste-Höhlensystem	Switzerland	135 000 m	
7.	Wind Cave	USA	125 885 m	
8.	Fisher Ridge Cave	USA	125 580 m	
9.	Ozernaja	Ukraine	111 000 m	
10.	Gua Air Jernih (Clearwater)	Malaysia	109 000 m	
11.	Ojo Guareña	Spain	97 400 m	
12.	Coume d'Hyouernede	France	94 843 m	
13.	Sistema Purification	Mexico	87 000 m	*Int. Caver 19 (1997)*
14.	Zolushka	Moldavia	85 500 m	*Spelunca 67 (1997)*
15.	Hirlatzhöhle	Austria	84 992 m	
16.	Torca da Boa Vista	Brazil	71 000 m	*Int. Caver 21 (1997)*
17.	Ease Gill Cave System	Great Britain	70 500 m	
18.	Friar's Hole Cave	USA	70 025 m	
19.	Nohoch Nah Chich	Mexico	64 000 m	*Int. Caver 16 (1996)*
20.	Organ Cave	USA	63 569 m	
21. (#4)	Kazumura Cave	Hawaii	61 437 m	*NSS News Apr (1997)*
22.	Raucherkarhöhle	Austria	61 012 m	
23.	Réseau de l'Alpe	France	60 195 m	
24.	Red del Silencio	Spain	58 600 m	
25.	Ogof Draenen	Great Britain	57 000 m	*C & C 76, 77 (1997)*
26.	Sistema Dos Ojos	Mexico	57 000 m	
27.	Sistema Huautla	Mexico	55 953 m	
28.	Réseau de la Dent de Crolles	France	55 250 m	
29.	Kap-Kutan-Promezhutochnaja	Turkistan	55 000 m	
30.	Mamo Kananda	Papua N.G.	54 800 m	
31.	Réseau de Pierre Saint-Martin	France/Spain	54 000 m	*ARSIP Info 50 (1996)*
32.	Complesso Fighiera-Corchia	Italy	52 300 m	
33.	Blue Spring Cave	USA	51 359 m	*Int. Caver 19 (1997)*
34.	Dachstein-Mammuthöhle	Austria	51 325 m	*Int. Caver 19 (1997)*
35.	Ogof Ffynnon Ddu	Great Britain	50 000 m	
36.	Carlsbad Caverns	USA	49 700 m	
37.	Crevice Cave	USA	45 564 m	*Int. Caver 19 (1997)*
38.	Gran Caverna Santo Tómas	Cuba	44 615 m	
39.	Kolkbläser-Monsterhöhle	Austria	43 800 m	
40.	Pestera Vintului	Romania	42 165 m	
41.	Bolshaja Oreshnaja	Russia	42 000 m	
42.	Eisreisenwelt	Austria	42 000 m	
43.	Sistema de los Cuatro Valles	Spain	41 079 m	
44.	Trou Qui Souffle	France	41 000 m	
45.	Teng Long Dong	China	40 000 m	
46.	Sima del Hayal de Ponata	Spain	40 000 m	
47.	Sloans Valley Cave	USA	39 654 m	
48.	Bulmer Cavern	New Zealand	39 500 m	
49.	Scott Hollow Cave	USA	38 640 m	*Int. Caver 19 (1997)*
50.	Xanadu Cave	USA	38 316 m	

All changes since the list in ICCC Newsletter No.20 are referenced. Notes:

#1 In January 1998 the Gouffre Mirolda was extended to a new depth record of 1610m, just 8m deeper then the Gouffre Jean Bernard.

#2 The connection of Vögelschact to Lamprechtstofen was made in Summer 1995 by Polish cavers but it was only in1997 that another Polish group returned to confirm the link.

#3 Torca del Cerro extended to about –1400 (exact depth still to be measured) in Sept 1997.

#4 Kazamura being formed in lava is the only non-limestone cave in the top 50 lists.

Caving? Oh No !

"Oops. Sorry. 'Scuse me. So-rrry. Thanks" I'm queuing in the jostle to enter the Tube station with a laden rucksack. The person next to me eyes my pack, and, winking conspiratorially asks: "Going camping then?".

I'm always perplexed why a rucksack should equate to camping: a tent, maybe yes, but a rucksack just means I'm carrying a load. I don't continually ask people wearing trainers which sportscentre they're going to! Normally my rucksack would be full of college notes, Sainsbury's groceries or dirty washing for the laundrette, but not today. I hesitate, but before I can stop it, the awful truth spills out: "Actually, I'm going caving". The effect is as if I'd just done a John Hurt-with-Alien trick, said I was a child molester, or admitted to a part time job culling baby seals.

"Caving ?!? Oh!..... Oh No!"

Damn. There I've done it now. Why didn't I just nod non-committally? Or just said yes? Or said I was going canoeing, or climbing? People understand climbing. But caving, oh no.

"Caving !?! Oh I could never do that!", he says with such a look of horror that you'd think I was about to lift the nearest drain cover and forcibly drag him underground. "Caving! You must be mad. But I could go climbing", continues the 18-stone couch potato who probably has to stop and catch his breath while stepping onto a bus. Climbing always seems more comprehensible to Joe Public.

"Did you see that film about that amazing French woman climbing hundreds of feet, using just her fingernails, no ropes, nuffin. Marvellous views, great body!!! Yup, I could do climbing, but caving..... oh no, too claustrophobic". And with that he waddles off into the seething mass of rush-hour commuters falling over each other as they surge down the static escalator (broken again) and into the depths of the Piccadilly Line.

His response might equally have been.....
"Caving !?! Oh no. Bloody irresponsible idiots! Keep getting themselves stuck underground needing the fire brigade to pull 'em out. The emergency services should be helping sensible people like drivers trapped in motorway pile-ups. Cavers ought to be charged for their rescue, or fined more like! They're all just wasting the NHS' money. By the way did you see the news about that yachtsman chappie who'd capsized on that race. Bloody brave chap, brilliant, a real hero. Jolly good job the entire Australian Navy and Airforce were able to mobilise and find him. What a hero! Makes you proud to be British!".

"Caving ?!? Oh no. You don't! Really? But isn't it awfully dark? I mean it's underground isn't it? Ugh all those snakes and things. Do you breathe air down there? Really? But doesn't the weight of all that rock .... I mean ... Oh no!".

"Caving ?!? Oh no. We did it once didn't we Wupert. You remember, that cave in Wales: Doggy-Oggy or something. It was really dangerous you know. The concrete path was so wet and slippery - you'd think they'd do something about that - and the lighting was so bad I had to take my designer shades off. And it was cold - the heating must've failed - but they still had the cheek to charge full price! No, the caves we did in America were much better. Mickey's Grotto had beautiful formations, every colour of the rainbow, and the Seven Dwarves really moved, like they were alive. But then its always much more real in Disneyland than any of these amateur caves in England".

"Caving ?!? Oh no. Used to do it when I was in the scouts. But I've done 'em all you see. We done one really difficult cave, Goatchurch it's called, it's the longest in England. It was so dark down there you couldn't see yer 'and in front of your face. And those stally things, you would never guess how old they are: it takes a thousand million years to grow 1mm, incredible innit? Yup, I done all the caves in England. Seen 'em, done 'em! I'm going off to do bungey jumping now. Going white water rafting in Norfolk next weekend. And gonna do Everest in the Summer hols ....."

Caving ?!? What is it about caving? Why does it elicit such strong responses? I dunno. But take my advice, the next time someone asks, be sure to deny it: the response is just too predictable. Lie, admit to anything, but don't tell 'em you go caving. In short, my love of the underground has been driven, well, underground.

Anon