

Imperial College Caving Club



Newsletter No.19



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

Newsletter No. 19 New Year 1995

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Weekly meetings are held on Tuesday evenings at about 8:00 pm in Southside Upper Lounge. Messages can be left with the Students' Union (tel 071-589-5111).

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EDITORIAL:

It has been said that an editor is a person whose job is to separate the wheat from the chaff - and then ensure that the chaff is printed. (Un)fortunately, therefore, because of the usual dearth of submitted material, both wheat and chaff are contained in the following pages. It's also a bit overdue but even 'Caves & Caving' are not immune from this problem, and they also seem to be able to get the info completely wrong, eh Jim? Nevertheless, thanks to the sterling efforts of a few stalwart contributors we've managed to keep up more column inches than Warren Beatty. So, hello and welcome to the club newsletter, which I think you'll find, when it comes to quality, stops at nothing.

Mark's Missive

Welcome to the '94 IC³ Newsletter - and what a cracker it proves to be. Many thanks to all who have contributed. Welcome also (if a bit belatedly) to all new members - stick with us and you won't regret it!

1994 was a busy and fruitful year. the summer expedition to Slovenia was highly successful and has greatly increased the level of experience in the club. For quite a few of us this was our first real opportunity to try bolting, surveying and photography - sometimes all on the same caving trip! Jim presented the expedition talk and slides at the annual BCRA National Caving Conference in September, and we have given several talks around college. An article has been prepared for "Caves & Caving" and a '95 calender has been produced by the college marketing department which contains some of the expedition photos.

Recruitment went well again this year and we have several promising new people who are already taking an interest in running the club. Some have already started buying their own gear. Together with last year's sterling recruits the level of membership and enthusiasm should guarantee good caving for the foreseeable future.

During 1994 we've had some excellent trips: Otter Hole (mud, mud, glorious mud), Spectacle, Vespers, the Gill, Simpsons/Swinsto (water, water everywhere), Black Shiver, Ease Gill, Juniper Gulf, Diccan/Alum, Penyghent, Magnetometer, Washfold, New Rift, and many, many more. Now

Gear Amnesty

Our librarians and tackle officers are keen to make an up-to-date inventory of all the club's belongings. To get this as accurate as possible we are asking for anyone who has club gear in their possession to get in touch with us, either on a trip or by dropping me a line. We are especially concerned about rope and rigging gear as a vast quantity is missing from Stores. If this continues the club's whole annual budget will have to go on replacing these essential items rather than buying new equipment which is needed. Other missing items include a complete set of surveying gear which we had in the Dominican Republic but has never been seen since! As for books, if you have any which you are reading then just let us know so we can make a reasonable list. All club members have the right to use club gear but it's a shame to deny future budding cavers the same rights!

This year's membership is £18 for students and £20 for old lags.

We have organised a talk by Dick Willis (of Mulu and China fame) at the college for the 19th of January at 6pm in Mech Eng.220, all are welcome: we have also sent out invitations to all the other London caving clubs, so it should be an interesting evening!

Some plans for 1995:

Slovenia. A week's ski-mountaineering (and possibly a flight reconnaissance) in Kanin and Migovec areas, sometime in February.

Vercors. Easter break. Josselin is organising a trip to remember with the local caving club to this classic caving area.

Slovenia again. Naturally there will be a return to Slovenia in the summer but details are sketchy at present.

Also, Jim is interested in digging and is looking for a possible site and keen people - any ideas or comments would be welcomed.

Have a good year y'all,

Mark

ICCC Exec.

| | |
|--------------------|--|
| President | Mark Evans (Speccy Four-Eyed Git) |
| Treasurer | Tony Hayden (Mafioso) |
| Library | Gavin Haymen (Wingnut) |
| | Chris Roberts (The Lincolnshire sausage) |
| Tackle | Peter Eland (CV Pete) |
| | Jos Visconti (Grenouille) |
| Publicity/Training | Rob Lea (Blobby) |
| Permits | Andy Radcliffe (Rocket Man) |
| Tours | Richard Anderson (Mr E-Twat) |
| Exploration | James Evans (Jim Nice-but-Dim) |
| Social | Frank Cooke (Fwank) |
| | Anthony Woods (Pants) |

Meets List 1995

| Date | Venue | Permits |
|---------------------------------------|----------------------|--------------------------|
| Jan 21/22 ^{28/29} | South Wales (SWCC) | Agen Allwedd, OFD |
| Feb 4/5 | Yorkshire (NPC) | Little Hull Pot |
| Feb 18/19 | Derbyshire (Orpheus) | |
| Mar 4/5 | Yorkshire (NPC) | Notts Pot |
| Apr 22/23 | Yorkshire (NPC) | Birks Fell |
| May 6/7/8*** | Yorkshire (NPC) | Lancaster Hole & Cow Pot |
| | DINNER MEET & AGM | |
| May 27/28/29 | South Wales (SWCC) | Dan yr Ogof |
| Jun 3/4 | Yorkshire (NPC) | |

*** Dates of the Dinner Meet may be changed to May 27/28/29 because of exams.

Other trips will be organised for the Summer nearer the time.

IC³ Tours & Expeditions

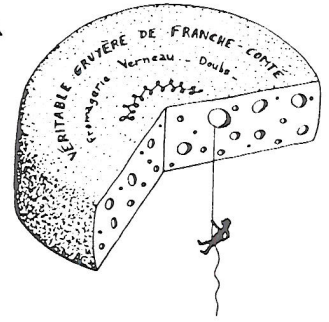
| Date | Area(s) | Main Cave(s) |
|--------------|--------------------------|--------------------------------------|
| Summer 1966 | Chartreuse, France | Resseau de la Dent de Crolles |
| Easter 1967 | Co. Clare, Ireland | Pollnagollum - Pollelva |
| Xmas 1967/68 | Vercors, France | Various |
| Summer 1968 | Chartreuse, France | Reseau de la Dent de Crolles |
| Summer 1971 | High Atlas, Morocco | Expedition |
| Summer 1972 | Junin, Peru | Expedition inc. Millpu de Kaukiran |
| Summer 1975 | Teverga, N Spain | Expedition |
| Easter 1976 | Tarmez, N Spain | Karst Reconnaissance |
| Summer 1976 | Tarmez, N Spain | Diving in Cueva Vegalonga |
| Summer 1979 | High Atlas, Morocco | Expedition |
| Xmas 1979/80 | Ardennes, Belgium | Various |
| Summer 1980 | Co. Clare, Ireland | Various |
| Summer 1982 | Astraka, Greece | Expedition inc. Epos Chasm |
| Summer 1983 | Vercors, France | Various inc. Gouffre de la Fromagere |
| Summer 1984 | Chartreuse, France | Various inc. R de la Dent de Crolles |
| Summer 1984 | Cajamarca, Peru | Expedition inc. Gruta de Uscopisco |
| Summer 1985 | Vercors & Chartreuse | Gouffre Berger & Gouffre Marco Polo |
| Summer 1986 | Rocky Mtns, Canada | Expedition |
| Summer 1987 | Apuane Alps, Italy | Figliera - Antro del Corchia |
| Summer 1988 | Marguareis, France/Italy | Complesso di Piaggia Bella |
| Spring 1989 | Haute Savoie, France | Reseau Jean Bernard |
| Summer 1989 | Vercors, France | Antre des Damnes |
| Xmas 1989/90 | Jura, France | Reseau du Verneau |
| Summer 1990 | Chartreuse, France | Reseau de la Dent de Crolles |
| Summer 1990 | Dominican Republic | Expedition |
| Xmas 1990/91 | Co. Fermanagh, Ireland | Various |
| Easter 1991 | Jura, France | Reseau Bel Espoir - Diau |
| Easter 1991 | Co. Fermanagh, Ireland | Various |
| Summer 1991 | Canin, Italy/Slovenia | Michele Gortani-Modonutti Savoia |
| Summer 1992 | Pyrenees, France/Spain | Pierre Saint-Martin |
| Summer 1992 | Ardennes, Belgium | Trou Bernard |
| Summer 1993 | Vercors, France | Antre des Damnes & Scialet Trisou |
| Easter 1993 | Ronda, S Spain | Karst Reconnaissance |
| Easter 1994 | Jura, France | Roche Paradis & Baume de la Faviere |
| Spring 1994 | Bovec/Tolmin, Slovenia | Karst Reconnaissance |
| Summer 1994 | Tolmin, Slovenia | Expedition inc. M16 |

Jurassic Lark

Cinq jours avec les rosbifs en Jura.

31 March - 5 April 1994

| | |
|---------|---------|
| Mark | Chard |
| Big Jim | Radders |
| Duard | Tone |

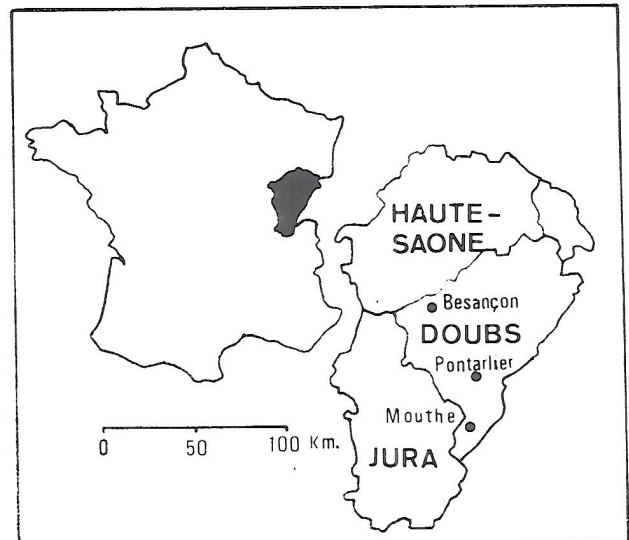


'T was a bright summer's morning...actually it was a cold and wet Easter when our six heroes packed the last of the bright, clean shining, and sweet-smelling caving gear into the cars. "Right lads! Let's get on the road", said Chard, eager to be off. "Just time, then, for a pint!!", suggested Andy, and thus set the atmosphere for the trip.

After a stormy crossing - and more beers - we arrived on French soil (well tarmac actually). Finally, by 3am, we had left the glowing chemical works of Calais behind and were hammering eastwards. Time began seriously to pass. All I remember of the next 10 hours is rain, rain, rain, and trying to overtake countless massive lorries without being able to see anything whatsoever:

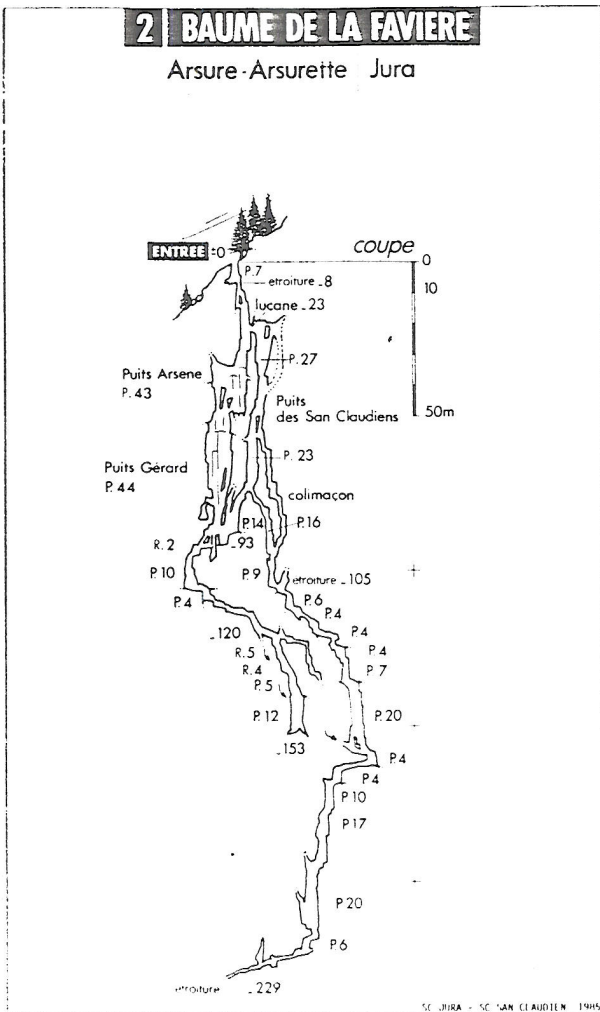
"Might as well have my eyes shut for all I can see", muttered Chard, and I must admit this was a very tempting proposition at this point. Thankfully we managed to keep awake as we hacked across northern France.

We arrived at Mouthe, a few kilometres from Pontarlier, at around 2pm. It was still raining! The idea of setting up tents did not overly appeal to anyone (except maybe Chard). After a coffee and some local slop (a bit pricey) we went in search of some "alternative accommodation". We found a caravan park in Pontarlier which was open, and rented one for the week. From this point on our fortunes definitely took a turn for the good.



After a pleasant night in the caravan we awoke to find that it had finally stopped raining: it had been snowing instead! A good eight inches had fallen overnight so predictably there was an immediate snowball fight. Finally we went off for breakfast - the usual cheesy smegma with large dong-shaped loaves of bread.

We decided to do two caves, splitting into two groups of three, rigging on Saturday and swopping over and derigging on Sunday. We chose to do Baume de la Faviere (-229m) and Gouffre de Roche-Paradis (-125m). Both are predominantly vertical and conveniently close to Mouthe. Surveys and descriptions can be found in "Speleologie en Franche-Cote".



Baume de la Faviere.

A cracking rigging trip! The entrance is set into a bank on the hillside above Grotte de la Malatiere. We took the main route down to -20m where there's a swing in through a window (lucane) with loads of bolts: the French equivalent of Sell Gill. At this point Tony took over the rigging. Taking the main shaft down lands, after P27 and P23, at a Y-junction with pitches continuing on either side. This point resembles a pair of upside-down nostrils. Taking the left nostril (or was it the right?) leads to another short pitch (P16+P9). From this point the cave begins to close down. We went through the squeeze, an e-twat (etroit), at -105m and climbed down a bit more before deciding that this was enough! The derigging trip on Sunday passed the next series of pitches (P6, P4, P4, P4, P7) and ran out of rope on the P20 at -150m. An absolutely storming trip.

Gouffre de Roche Paradis.

It's quite a walk from the road down a forestry path/cross-country ski track to the cave. The entrance is a small depression which is roped off to stop unsuspecting skiers. A very straight-forward trip (straight-downward trip actually) although quite loose and completely devoid of bolts: they probably have all just fallen out of the wall!! Tight pitches become tighter and eventually became too tight (for us especially lardy Chard) at the head of the last pitch at -100m. Another most excellent caving trip!

On Sunday night after both caves were derigged - sans 'Duard who claimed an ear



Tony abseiling into Roche Paradis.



Andy on forestry path to Roche Paradis.

caves were derigged - sans 'Duard who claimed an ear infection: slacker - we went to the local in Pontarlier and proceeded to get well seshed up. The locals were very friendly, even after Radders told one, and I quote:

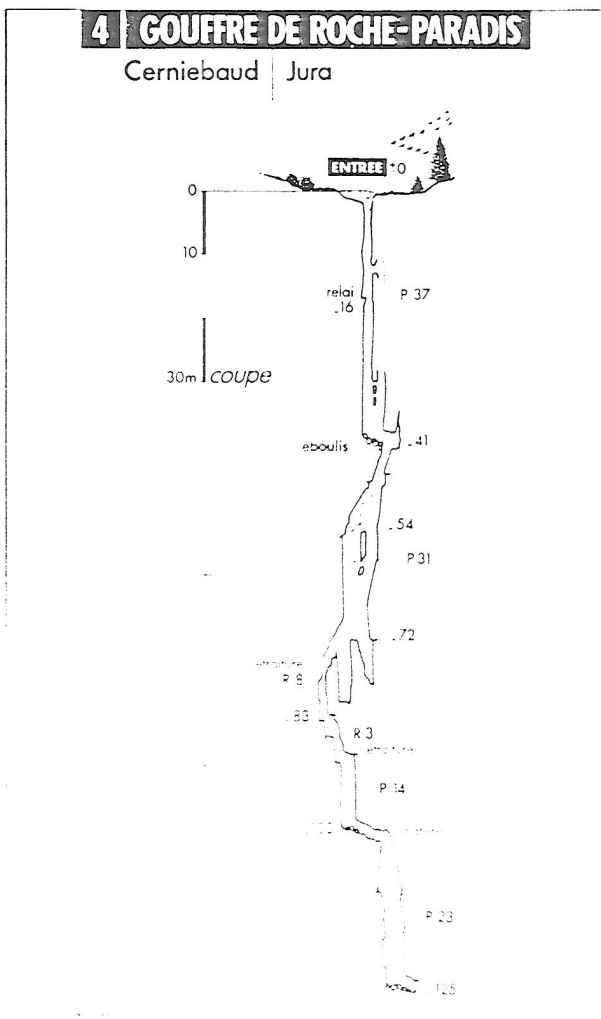
"You can take that fucking pool cue and shove it up you arse!" and then promptly threw up on the floor. While we all steeled ourselves for a brawl the Frenchman just smiled - luckily he hadn't understood a word!

We returned on Monday night and were back in London by dawn - poorer but happy.

Mark Evans



Chard trying to get solid frozen rope into bag.



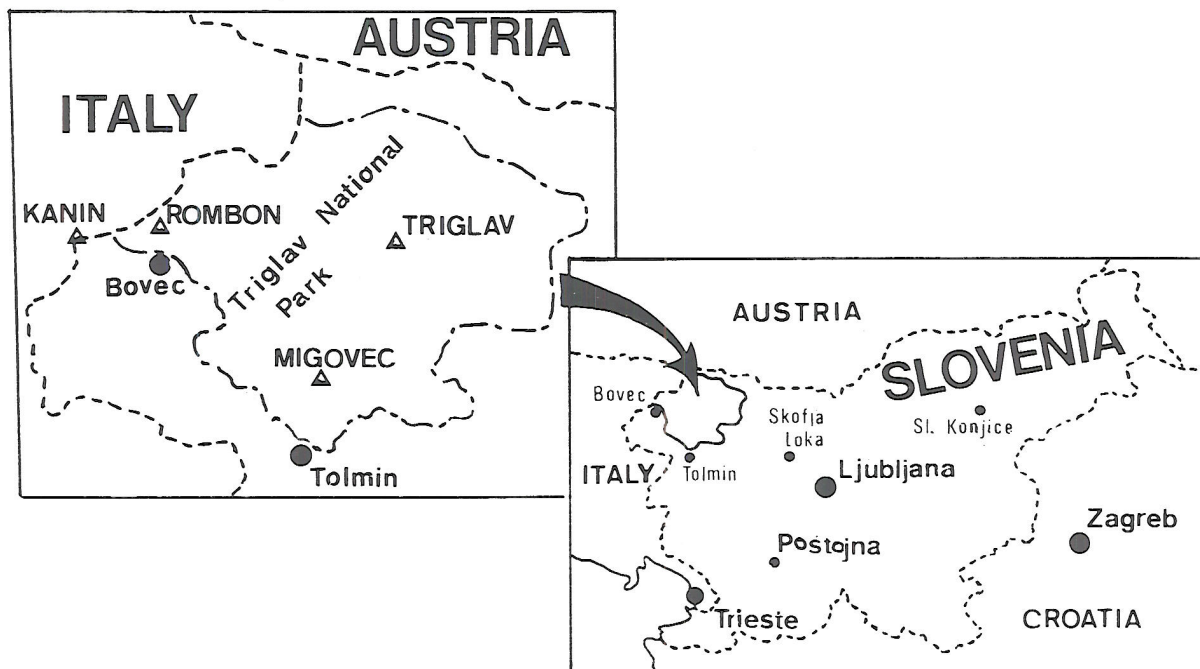
Surveys from:
Topoguide 1: Speleologie en Franche-Comte, by Y Aucant, JC Frachon, C Schmitt.
Publ. SHAG-SCJ (1990).

Slovenian Reccy

It was Harry who first suggested the idea of a Reccy, and, as we were not clear what the situation was politically with the Slovene cavers we decided to go ahead at the end of May '94. Harry, Andy and myself went, and the following is my diary of events:

Saturday

Met Harry and Andy in stores, went for a curry in Queensgate and then took the tube to Heathrow (nearly being fined on the way for getting a child's fare). Plane to Ljubljana (about two hours) and picked up keys for the hire car (VW Golf). Phoned up Ben (a Slovenian ex-IC student who'd been on my course in '91). Drove to Ben's home in the North of Slovenia in a town called Slovinski Konjice (so-called because there's another Konjice in Croatia). Met Ben's parents and had a couple of Slivovic's (home-made and extremely strong brandy). And so to bed.



Sunday

Spent the morning climbing a mountain in the village with Ben. The area is low rolling hills, sparsely populated and unfortunately not limestone. In the afternoon we were taken to Ben's parents nearby country home which his family had built themselves in a very beautiful area. His Mum cooked us an excellent meal. We had great difficulty in breaking away from the hospitality but eventually managed to leave at about 6pm, as we had arranged a meeting with Gregor Pintar for that night. We drove to Skofja Loka and there met Gregor and his wife at their house in order to discuss possibilities for our summer trip. Gregor Pintar is about 35-40, married with two children and he runs a climbing/caving gear import business. He is president of the Ljubljana Caving Club, DZRJ, which is actively exploring the Kanin/Rombon area, and he is also the Slovenian Caving Association's foreign secretary.

The meeting with Gregor Pintar: After receiving two letters I wasn't quite sure what to expect - in the first he'd written:

"It is hard to explain the present situation and especially the spirit among Slovene cavers after some big and important discoveries of Italians on the Slovene part of Kanin mountains. So nobody has a real interest for further explorations where the authors are foreigners. You chose the only possible access to Kanin - to join a Slovene club."

and then subsequently, when I wrote requesting to meet him on the recy, he'd replied:

"Your reconnaissance trip at the end of May is a good idea and also of great help to me. I look forward to meeting you in Slovenija. Together with a pint of lager on the table we will find out all the details you require, including some more you are even not aware of now."

When we met him, he led us up to his dining room on the top floor of a three storey building, gave us a bottle of beer and a generous portion of slivovic. Things began to look promising. But unfortunately, what followed was rather disappointing.

Gregor explained some of the things that were going on in the Kanin/Rombon area:

Italian cavers, mainly from CGEB (Trieste) had had been exploring near Rombon and he had now allocated them a small area to work in. They seemed to be the most active group, going up most weekends and maintaining a prolonged camp in the summer. It didn't sound like there was any friction between the groups and in fact it appeared to be quite friendly. Gregor mentioned the name Roberto Antonnini, and it sounded like he was the main leader of the group. Gregor said that they had a good relationship with most of the Italians and that if they hadn't, the Italians wouldn't have been working on the Slovene side of the border. Personally I don't see how he could have stopped them working in the area since it is actually easier to approach from the Italian side, and particularly in view of the fact that there are so few Slovene alpine cavers. I think Gregor had allocated them an area to try and 'limit the damage' so to speak, and preserve the rest of the area for themselves.

His own club, DZRJ, was also exploring on Rombon and had discovered Vandima and extended it to -1040m over the previous summer's camp. Their work sounded like it was on a much smaller scale than that of the Italians: they have a summer camp for the first two weeks in August each year but only a couple of members are active outside this time. Vandima was still going but the trip is very arduous and only two of their group could get to the bottom and push it further: they were hoping that it was going to finish soon (!). It is almost all vertical and there is only one place in the whole cave where it is possible to bivvy. Furthermore the cave should only be entered during blue skies as it's deathsville with the slightest hint of wet weather. He also

said that the group was not always active whilst on their summer camp: last year they spent most of the time drinking and celebrating because they had got beyond -1000m.

Gregor spent quite a long time giving us these details with no mention of us or of how we could fit into these plans. We therefore had to ask and be patient before we could extract the information we wanted. He seemed to be quite cagey, but as far as I remember this is the essence of what was said:

Q - What caves can we do as sporting trips?

A - Ceki 2 and Veliko Sbrego.

Q - We understand that the official policy for foreign exploration is that it must be with a local club: can we explore with your club this summer?

A - I don't know, you will have to ask the cavers up in the bivvy.

Q - You will not be at the bivvy this summer?

A - Not sure yet.

We also mentioned to him that we would be visiting Andrei Fratnik in Tolmin and he indicated that Andrei would not tell us anything more. This was all rather unclear and not really enough to organise an expedition from, however in general we got on reasonably well with Gregor, cracking jokes etc and crashing on his floor that night.

Monday

Drove from Skofia Loka to Bovec campsite. We originally wanted to walk up to the Skalaria hut on this day but instead decided to look at possible places to stay (other than at the campsite) and to meet Andrei Fratnik in the evening. We looked at a few holiday chalets in Bovec, but they all looked very plush and not that cheap (I think it was about 150 Tolars/person/night). We had a discussion about some people being in them while the remainder stayed in the campsite but in retrospect I don't think this would have worked. We also looked at something quite promising in nearby Log Pod Mangarton. The guy from the local pub showed us this fairly run-down but quite spacious house, which was owned by an old man as his holiday home. We suggested that we could offer the old guy a lump sum (approx £1500) to have his house for six weeks and the chap from the pub thought this would be fine but he would have to OK it with the owner. Unfortunately he never managed to contact the old man while we were there and subsequently as our plans changed to Migovec the location became unsuitable anyway.

We met Andrei, Simon and another member of JSPDT (Tolmin) that evening at Andrei's house and later in the pub. We weren't sure what to expect as we had simply received a postcard from Andrei saying "You are welcome" in reply to our request to visit him.

In fact we had a very constructive meeting. He did not add anything to what Gregor had said about Kanin/Rombon, as his club were not actually working there. He told us about their main project, Malu Boka, by the resurgence waterfall of Slap Boka, which was unfortunately only open during the winter being flooded in the summer). He mentioned the Migovec area and as soon as we

expressed interest Simon agreed to take us up there on Friday. The rest of the evening consisted of jokes about techniques in "Cliffhanger", while Harry Schwarzenegger and Andy almost caused a fight with a couple of German tourists who they'd locked in the bog!! Finally we returned to the Bovec campsite.

Tuesday

Walked up to the Skalaria hut: three hours in hot weather. The hut is shut at this time of year. We set up our bivi bags and then went for a walk up to the ridge passing a large obvious hole on the way there. There seems to be a lot of holes in this area.

Wednesday

Walked across the steep slopes, passed the cable car and into the Rombon area. It looks like a very promising caving area (even better than Kanin), a bit like a lunar landscape. We spent about an hour trying to find Ceki 2 but although we located a few possibilities I don't think we found it. Harry found Veliko Sbrego and we then headed down the steep slopes to the car. I got a bit lost on the way down but eventually found the road. Got quite dehydrated in the hot sun having run out of water and there was nothing except snow. When we finally got back to the car all we had to drink was a warm Pivo! My blisters were also quite bad by now. Triglav tomorrow? Maybe not!

Thursday

Decided to walk up Mangart as there is a drivable road almost to the top. Stopped off to look at the resurgence marked on the map: not particularly impressive, just a small stream coming out of the pebbles. As we got higher up the road there seemed to be quite a lot of evidence of surface drainage. There were lots of very long tunnels on the way up which must have taken a lot of effort to build and were made during the First World War. On the way up to the top we saw no really good caving features, just a few small holes not big enough to get into.

Friday

We got up early and walked up Migovec with Simon. By this time my blisters were quite bad and I was lagging behind on the way up. We went passed the Razor hut on the way and on the top Simon showed us M16 and M1. I wish I'd taken rather more notice when he showed us M16 as it took us four days to find it again in the summer. We all got a bit dehydrated again as all we had to drink this time was a can of Zlaterog. Back down in Tolmin Simon gave us some 1:10000 maps of the area. Went to the pub and stayed the night at the campsite near Tolmin.

Saturday

For some reason we left ourselves only two hours to get to the airport and then decided to take a 'shortcut' across country which rapidly deteriorated into a rocky track. Arrived at the airport just 15 minutes before the plane took off and rushed aboard. Two hours later we were back in London.

The verdict: Though hard work the reccy was a very valuable exercise which subsequently proved to be the key to the whole summer's expedition.

Jim Evans

Speleo-Statistics 1994

The World's Deepest Caves

| | | |
|---|--------------|-----------|
| 1. Réseau Jean-Bernard | France | -1602 m |
| 2. Gouffre Mirollda-Lucien Bouclier | France | -1520 m |
| 3. Vjacheslav Panjukhina | Georgia | -1508 m |
| 4. Lamprechtstofen | Austria | -1483 m ② |
| 5. Sistema del Trave | Spain | -1441 m |
| 6. Boj-Bulok | Uzbekistan | -1415 m |
| 7. BU56 (Ilaminko Ateeneko Leizea) | Spain | -1408 m |
| 8. Ceki 2 (La Vendetta) | Slovenia | -1393 m |
| 9. Sistema Cheve (Cuicateco) | Mexico | -1386 m |
| 10. Sniezhnaja-Mezhonogo | Georgia | -1370 m |
| 11. Lukina Jama | Croatia | -1355 m |
| 12. Sistema Huautla | Mexico | -1353 m |
| 13. Réseau de la Pierre Saint-Martin | France/Spain | -1342 m |
| 14. Siebenhengste | Switzerland | -1284 m |
| 15. Gouffre Berger-Fromagère | France | -1278 m |
| 16. Cosa Nostra Loch | Austria | -1265 m |
| 17. Torca de los Rebecos | Spain | -1255 m |
| 18. Abisso Paolo Roversi | Italy | -1249 m ★ |
| 19. Systeme Vladimir Iljukhina | Georgia | -1240 m |
| 20. Akemati | Mexico | -1226 m |
| 21. Abisso Olivifer | Italy | -1220 m |
| 22. Schwersystem-Batman Höhle | Austria | -1219 m |
| 23. Veliko Sbrago (Crnelso Brezno) | Slovenia | -1198 m |
| 24. Çukurpinar Dudeni | Turkey | -1195 m |
| 25. Complesso Fighiera-Antro de Corchia | Italy | -1190 m |
| 26. Sistema Arañonera | Spain | -1180 m |
| 27. Dachstein-Mammuthöhle | Austria | -1180 m |
| 28. Jubiläumschacht | Austria | -1173 m |
| 29. Anou Ifflis | Algeria | -1170 m |
| 30. Sima 56 de Andara | Spain | -1169 m |
| 31. Kijaha Xontjoa | Mexico | -1160 m |
| 32. Gouffre BT6 | France | -1157 m |
| 33. Abisso W le Donne | Italy | -1155 m |
| 34. B15 (Sistema Badalona) | Spain | -1150 m |
| 35. Sistema del Xitu | Spain | -1148 m |
| 36. Arabiskaja | Georgia | -1110 m |
| 37. Schneeloch | Austria | -1101 m |
| 38. Sima GESM | Spain | -1098 m |
| 39. Jägerbrunntrög | Austria | -1078 m |
| 40. Sotano Ocotempa | Mexico | -1070 m |
| 41. Muttseehöhle | Austria | -1060 m ★ |
| 42. Pozzo della Neve | Italy | -1050 m |
| 43. Vandima | Slovenia | -1042 m ① |
| 44. Sotano de Olbastl (Akema Bis) | Mexico | -1040 m |
| 45. Meanderhöhle-Herbsthöhle | Austria | -1028 m |
| 46. Torca Urriello | Spain | -1022 m |
| 47. Coumo d'Hyouernedo | France | -1018 m |
| 48. Kievskaja | Uzbekistan | - 990 m |
| 49. Hirlatzhöhle | Austria | - 988 m |
| 50. Réseau des Aiguilles | France | - 980 m |

① The depth of Vandima is reported to have been increased to about 1100 m this summer but the exact figure has not been confirmed.

② A link between Lamprechtstofen and Vogelschacht was reported in "International Caver" No.5 (1992) which would increase the depth to -1550m but I've never found any other report of this.

The World's Longest Caves

| | | |
|---|---------------|----------|
| 1. Mammoth Cave System | USA | 560000 m |
| 2. Optimisticheskaja | Ukraine | 183000 m |
| 3. Holloch | Switzerland | 156000 m |
| 4. Jewel Cave | USA | 144800 m |
| 5. Siebenhengste-Höhlensystem | Switzerland | 126000 m |
| 6. Wind Cave | USA | 113300 m |
| 7. Ozermaja | Ukraine | 111000 m |
| 8. Lechuguilla Cave | USA | 106000 m |
| 9. Fisher Ridge Cave | USA | 104000 m |
| 10. Gua Air Jernih | Malaysia | 101500 m |
| 11. Ojo Guarena | Spain | 97400 m |
| 12. Coume d'Hyouernedo | France | 94800 m |
| 13. Zolushka | Moldavia | 85500 m |
| 14. Sistema Purificacion | Mexico | 79100 m |
| 15. Ease Gill Cave System | Great Britain | 70500 m |
| 16. Raucherkarhohle | Austria | 70000 m |
| 17. Hirlatzhohle | Austria | 70000 m |
| 18. Friar's Hole | USA | 69230 m |
| 19. Organ Cave | USA | 60510 m |
| 20. Réseau de l'Alpe | France | 60200 m |
| 21. Red del Silencio | Spain | 60000 m |
| 22. Kap-Kutan-Promezhutochnaja | Turkistan | 55000 m |
| 23. Réseau de la Dent de Crolles | France | 55000 m |
| 24. Mam Kananda | Papua N G | 54800 m |
| 25. Sistema Huautla | Mexico | 52650 m |
| 26. Réseau de la Pierre Saint-Martin | France/Spain | 51200 m |
| 27. Ogof Ffynnon Ddu | Great Britain | 50000 m |
| 28. Complesso Fighiera-Antro de Corchia | Italy | 49800 m |
| 29. Toca da Boa Vista | Brazil | 49000 m |
| 30. Crevice Cave | USA | 45390 m |
| 31. Gran Caverna Santo Tomas | Cuba | 44615 m |
| 32. Cumberland Caverns | USA | 44440 m |
| 33. Pestera Vintului | Romania | 42170 m |
| 34. Bolshaja Oreshnaja | Russia | 42000 m |
| 35. Eisreisenwelt | Austria | 42000 m |
| 36. Kolkblaser-Monsterhohle | Austria | 41800 m |
| 37. Sistema de los Cuatro Valles | Spain | 40490 m |
| 38. Dachstein-Mammuthöhle | Austria | 40350 m |
| 39. Teng Long Dong | China | 40000 m |
| 40. Sima del Hayal de Ponata | Spain | 40000 m |
| 41. Sloans Valley Cave | USA | 39640 m |
| 42. Carlsbad Cavern | USA | 38800 m |
| 43. Xanadu Cave | USA | 38620 m |
| 44. The Hole | USA | 36840 m |
| 45. Whigpistle Cave | USA | 36210 m |
| 46. Bulmer Cavern | New Zealand | 35600 m |
| 47. Blue Spring Cave | USA | 35410 m |
| 48. Trou Qui Souffle | France | 35230 m |
| 49. Atea Kananda | Papua N G | 34500 m |
| 50. Complesso di Piaggia Bella | Italy | 34000 m |

★ New caves to listings.

Listings as at December 1994 based on reports in "International Caver" Nos. 8, 9, 10, 11 and "Spelunca" Nos. 52, 53, 54, 55.

'The Cave was Surveyed...'

♪ NOW DON'T LET GO! ♪



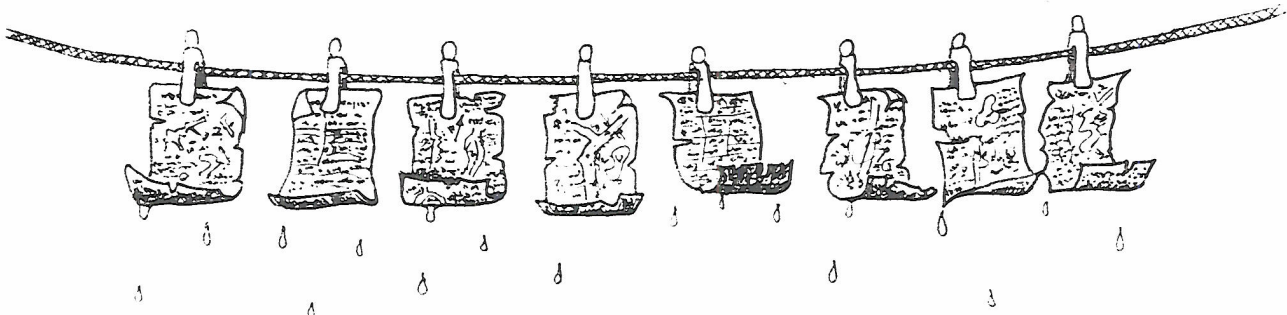
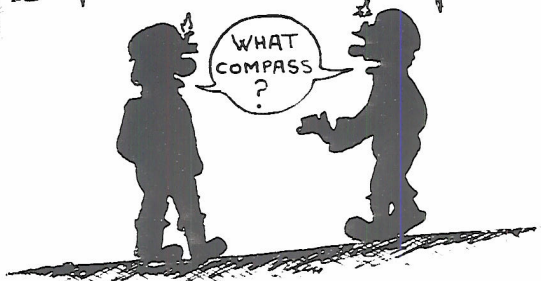
..... 340 DEGREES, NO '20,
320 DEGREES, NO ITS 340
..... ERRR AND A BIT.
341 AND A HALF... ISH!
No.... 340. UMMM....
ACTUALLY ITS NEARER
345 I THINK....
WELL, 345 AND A
HALF NO, TELL A LIE,
IT'S ERRRR

'ANG ON A BIT,
MY CARBIDE'S
GONE OUT



..... EXACTLY 76.3 METRES!

WHAT
COMPASS
?



Dear Diary,

An expedition log compiled from the personal diaries of Jim, Mark, Tony, Rob, Stu, Dave, Chris & Clive.



16 July

"Day 1 - left London....."

18 July

"Got to Tolmin. Met Andrei Fratnik in Tolmin and then drove up to Tolminske Ravne along a single track road with hairpin bends for approx half hour. Finally got to house."

"The owners (an elderly couple didn't speak any English or German and so we were unable to communicate. We eventually got round the table with them and Andrei and found that they were not prepared to settle for the £1500 for 6 weeks we'd thought had been agreed over the phone - they wanted 100 Tol (£5) per person per night. However they would allow us to camp for nothing so we have decided to stay for a week and assess the situation then."

"Starting from the house at 925m the track winds up through forest up the West face of Migovec to some huts at 1450m. It then cuts across the face and turns upwards following a dry valley to the bivvy at 1800m. The trip takes 2-3 hours up, 2 hours down."

"A thunder storm started as we reached the bottom of the mountain. We ran a little way, then stopped as the rumbling was prolonged and distant. Then, less than 100 yards away lightening struck a tree. We removed our metal-framed rucksacks and pegged it across the flat grass meadow."

"The hailstones were as big as peas."

"..... big as a gobstopper."

"..... hail the size of golf balls!"

20 July

"Dropped a couple of shafts close to the bivvy, had a bit of a dodge rope fray. One of the caves was M4 the other had no number - 2 pitches with a snow plug. Harry and Rob prospecting in another area found lots of plugged holes. At the end of the day we finally found M16."

21 July

"Rob, Harry and Chris went to start rigging M16 followed later by Jim and Mark - rigged another 3 pitches: B Strahov and 2 others to a big chamber. Left 1 full bag and came out. Appeared to be some leads in large chamber."

Cave is: "Quite loose. Sharp. Not wet, a few drips only."

22 July

"We spent the morning collecting snow from a large shakehole. Me and Tone rig up a funnel made from one of the old tarps and this system works well. We fill an water bag in 20 mins. Fratnik's barrel system is a piece of shite."

23 July

"Andrei arrived and we pushed M16 and got to within 25m of bottom of Galactica."

"Fratnik doesn't believe in clipping in - peers over massive pitches with no cowstails - he only has one anyway. He prusiks 1 step per second and free climbed as much of the pitch as possible before ascending on the rope - 'Why you always use all rope? Climbing is faster!'"

24 July

"We need to re-rig Galactica as the rope is a few metres too short. Go caving at high noon. Pretty wonderful trip down. The lower sections are much colder and wetter. Harry and Fratnik had rigged 4 pitches below chamber where we got lost. Ta Moka is a long wet pitch with several rebelay. At the bottom the cave divides. The Galactica pitch sounds huge. (Rob throws too many boulders over but doesn't like to be told this). Jimovitch rigs after some persuasion. 50-60m with one rebelay drops into a large shaft 50m x 50m ! Galactica is over a 15m high wall so it has to be entered by swinging."

"Mark really had an epic in the cave when his light went out half way up a pitch [B Strahov] and he couldn't shout loud enough for me to hear. Luckily he managed to get his spare going in the dark."

25 July

"Prospecting! Frank turns up early so the whole team is on the hill. We split up to cover a larger area."

Jackie, Chris and Mark: "... go north across Migovec plateau and cut east below Tol. Kuk. This area looks promising. Found a large chamber with a snow plug and a 20m deep shaft. Unfortunately this was blocked."

Frank and Jim: "... prospect area west of ridge beyond Kuk. Very few holes - though two worth a revisit."

26 July

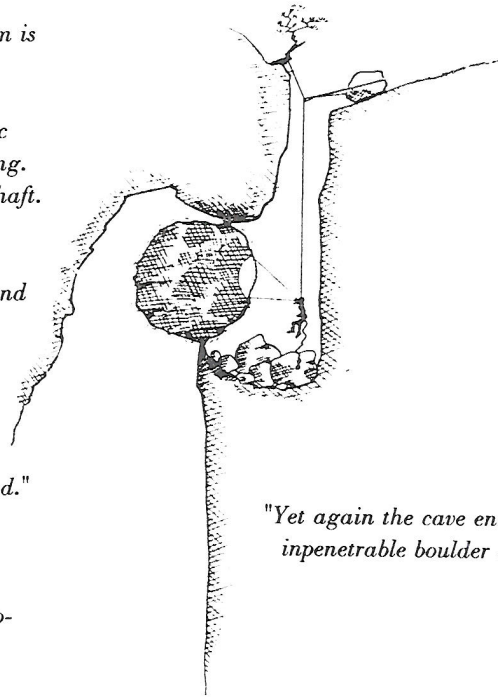
"Got up to find we were totally out of water."

"All went down to Tolminske Ravne. Simon had arrived."

27 July

"Slept in tent. Getting paranoid about ticks!"

"Pete caught some fish in the stream near the hydro-electric station. Fish eaten almost raw - problem with petrol stove not sorted."



"Yet again the cave ended in an impenetrable boulder choke."

Back up on top Mark & Simon went down M16: "I'm not really sure what we are looking for but Simon seems keen. At the bottom of B Strahov we take the alternate route. After some dodgy climb downs and rigging we reach the end of the explored cave. Simon manages to squeeze through and continues to a 10m pitch. The draught is emerging and we plan to check it out tomorrow."

28 July

Back down M16 to Simon's extension: "The rigging is still dodgy. The bolt Simon put in is too dangerous to use so its still rigged Slovenian style with one belay point! The squeeze was slightly more eventful than before but we finally got through with the tackle bag. We rigged the next pitch (10m) Slovene style and dropped into a fair-sized chamber. Meanders lead off in 2 directions. Simon followed one for 200m while I put in a bolt on the pitch (my first ever). We returned to a cold Jackie and prussiked out. The whole team are up at the bivvy again and things are pretty lively. Some rockfalls caused a bit of a crisis and dislodged the tarpaulin shelter."

29 July

Down M16 again: "We went through to the new section and followed a lofty meander (15-20m high). Many climb downs and loose boulders. A small stream runs in the bottom but is lost between boulders. At the end it becomes dangerously loose and we decided to turn back. There was a way on down through the choke but its very loose. Simon is keen but I'm not sure this is really going anywhere."

Meanwhile, Harry, Rob, Jackie and Chris prospecting over the other side of the ridge found "... a massive hole dropping to a snowplug. Then an ice pitch through snow. Got to end of rope. Slot going off with bend to left."

31 July

The second van arrived at Tominske Ravne.

"We could see that the OLD GIT was not too happy. After a while he came up to the barn shouting 'Marche, Marche!'. We then had a negotiating sesh involving the fisherman and his wife as translators."

"This and subsequent encounters revealed 3 things:

- (1) English people don't like to barter
- (2) Slovenians do
- (3) We would be paying a lot more to stay here than we thought!"

1 August

"Finally at 6:30 headed up hill with Frank, Stu, Clive. Frank leading on boldly until he took a wrong turn at the first opportunity - approx 50 metres from the start!"

Meanwhile, down M16: "When we [Jim & Rob] got to the chamber Malcolm, Harry and Chris had gone down the extension. We found them at the head of the pitch with M about to go down. He found it was right on top of Ta Moka pitch! Went back exploring on the way This extension is all one big rift."

2 August

"Iain and Andy finally arrived at the bivvy. They had got halfway across the face of Migovec when it got too dark to see, so they spent a very uncomfortable night huddled in a bush afraid of falling down the cliff."

In M16: "The weather looks unsettled so we stick to the higher sections. Found a rift draughting but tight, a lot of potential for climbing up but all fairly dodgy. Others came back we news of a goer over the ridge."
"Over ridge in the shaft dropped 40m by Rob, Harry got down to about -80m and still going."

3 August

"Two holes on far side of ridge continuing hence efforts concentrated here. Carried rope over contouring round along the ridge."

In the big shaft Rob and Iain: "... went down the snow slope 'Cones Hotline' and 'Sands-of-Time' pitch into an hourglass cavern about 60m across. Massive icicle the size of a tree trunk crashed onto the floor. Huge icicles, very very loose. Climbed down dodgy way on. Iain worried. All rock covered in clear ice. Difficult to get back up."

4 August

"Bingo! Rich, me (Stu) Gavin and Tony went prospecting and found a series of deep holes on the plateau near the bivvy.....Plan for alpine start the next day. We were especially happy because this new find did not involve the 'old lags' who tend to dominate the scene whenever they can. This was virgin territory and it was ours!"

5 August

"Early start for leads NNW of bivvy. Descended Stu's lead. Around back of ice plug descended a short pitch over a nodule of ice. Emerged into a large chamber with an ice slope (15m) into it. The bottom of the chamber covered with thick glacial ice. Found a draughting ice shaft in chamber so we went to get more rope."

6 August

"The fact that it was Chard's birthday meant that all the components were in place for a truly classic evening (Oh and so it was!) listening to Slovenian reggae watching Jim smear watermelon all over himself in front of a horrified Slovenian audience trying to build a 6-man human tower and finally throwing Gavin in the river. Andy ushered in the evening with a hearty Eurochunder, after that the animal noises began. The Club Bugatti was closed so we hit the Club Amazonka. Within 5 minutes I found myself dancing with a gaggle of cute 18 year old prostitutes. Of course I didn't realise this at first and was just very psyched at my amazing pulling power. My illusions were shattered when the den mother interrupted my twisting to commence a financial negotiation..... The van ride back was nauseating. Chard and Rob took the opportunity to climb on the roof and ride the rest of the way singing "Surfing USA" - an IC³ classic!"

7 August

"We went to a small hole that Jim had gone down a few days previous. Spent half hour or so exploring rift after a slightly dodgy climb over a 8m pot to find a tight spot with passage beyond before turning back with light failure"

"By chance we met Rob, Iain and Jim at the entrance having just come up the hill and intending to go down the same hole. They came out shortly after saying they had dropped a pitch 20m to a chamber, then to a further pitch between loose boulders. With just five of us it was another quiet night, Far from the Madding Crowd."

8 August

"Returned to yesterday's site with more rope and a survey kit. Descended to the point reached by the others yesterday, placing a few spits on the way. Descended a 7m pitch and passed into a rift chamber. No obvious way on, so while Jim and Rob pushed the narrow high rift, Clive and myself [Dave] started to survey our way out. 30m or so into the job we were interrupted from above saying that there was a massive storm raging outside, accompanied by the dramatic sound of water coming down the main pitch. Iain went back to see if there was any sign of Jim and Rob. An hour or so after the initial worry they reappeared dry as a bone having stayed high in the rift. We all exited.... and returned to the bivvy. Totally pissed off to find a flattened tent with wet gear inside. Spent the evening trying to dry out some clothes."

Tony and Gavin had: "... gone down Stu's lead. Put a bolt in the ice pitch and went to end of a 40m rope. Found

a possible lead but too cold to investigate. Fell through the snow several times on the way out. Lightening storm on top. Ran for shelter. Waited at least an hour under a ledge. Got a shock from the rock into elbow and wrist. When Gav came out we ran for the bivvy. Everything I had was soaked."

9 August

"Warm morning. Lay in sun drying out 'til "Brew! Brew! Breooooow!" Odd weather - really bizarre. Bivvy is in sun but cannot see more than a few hundred metres in any direction before hit walls of thick grey cloud. Finally set off to complete survey of 'Torn T-Shirt Cave'. Surveying OK but a complete pain. Dave, having climbed to within half a metre of the bolt at top of the pitch, dropped the tape and had to abseil down and then climb all the way back up again - Did we laugh!?! Instruments very difficult to read - need a good light from the side. In the rift tried to get my carbide shining onto compass but only succeeded in setting hair alight. Last few bit with station lengths of only 1 or 2 metres was very tedious. Out about 8:30. No rain but thick swirling mist - visibility only about 10m at most. The pink string to M16 was very useful to find way back."

"At bivvy life is getting very squalid - time for another trip to civilisation - especially if you get a whiff of my pit!"

10 August

"Late start all round. Eventually went down Torn T-Shirt to continue surveying down rift at bottom. Managed a few stations down rift until, Oh dear, I got stuck in the squeeze, so passed survey gear through to Mark to continue. Actually I could've got through but surveying in a winding rift with Jackie was becoming Hell so squeeze provided excellent excuse to get out of it."

"Back at bivvy that evening 2 bottles of wine were opened but between 8 it really only tempts and doesn't satisfy."

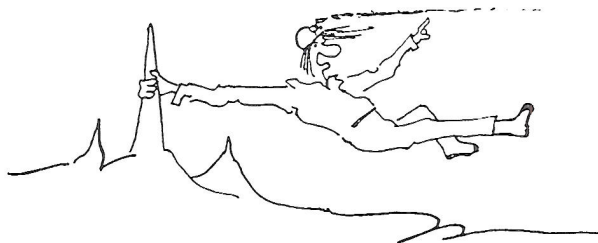
11 August

"I [Stu], Gavin and Peter went to push the drafting lead that Tony and Chard had found in the massive rift."

"The draught was so strong it blew my carbide out!"

"Bullshit!"

"Down Bullshit Pot we pushed down 2 more pitches and found a third. Lots of tight bits."



"Jim, malc and Rob went down M16 with bolting platform. Finally got out about 2:00 am, cold wet and tired having bolted up wall in large chamber. But lead didn't go. Jim had burned his hand quite badly on his carbide but OK."

Meanwhile, in Tolmin: "Midday breakfast of - surprise, surprise - pizza and beer, followed by another oggling session down on the bank of the Soca. More pizza and beers at the refugee camp followed by a quick shopping trip and then back to the house for an evening of revelations. I have to say at this point that the stuff about the cat was total fantasy and only mentioned to try and prise out of Chard more details of his sordid and perverse past. I can only assume Andy's hamster and Iain's toothpaste confessions were made likewise. Despite loads of alcohol and a lot of prompting we still know not that much about Tony - I think he probably has dark and guilty secrets - even worse than Chard's - to hide. Alpine start tomorrow? You must be joking!"

12 August

"Pennine start saw Tony and myself heading up hill about midday....."

At bivvy: "Gav, Pete and I [Stu] went back down the new lead (in Bullshit Pot) to drop the pitch the 15m pitch ended in a small boulder chamber with no unobstructed way on."

Dave and Tony arrived: "... and cooked dinner for 8, then discovered that most people were heading down anyway. The remaining four of us had just polished off the lot when the monstrous form of Chard appeared on the edge of the bivvy, having been lost on the last part of the ascent for an hour or so in decreasing light conditions. He was more than a little relieved to have finally found that little depression on Migovec that we now call home."

13 August

"Time to get some work done! Entered Bullshit Pot with Harry to look for that elusive way on which produces the awesome draught in the place. None found and the draught's not that strong - but certainly there."

"Came to the conclusion that we'd come to the conclusion!"

"The bivvy is nice and quiet opened a couple of bottles of wine and actually got some effect rather than merely a teasing taster. Still not enough to mask the effects of the cold damp weather - possibly the worst night so far in that respect. The constant sunshine of the first week certainly had me fooled that this was going to be a sun-baked alpine experience."

14 August

"What a fucking horrible night! Very cold, loads of rain and heavy close thunder and lightening. Very cold right through the morning. Although I feel bad now about not having been caving, even at 4pm when the weather has finally picked up, the thought and feel of yesterday's cold wet kit defeated all parties on the hill from getting changed

"Iain brought a park ranger to the bivvy around midday. He left the ranger satisfied that we were only 6 in number, there were no tents, and that we were friends of Fratnik, on which note he gave Iain some schnapps and left."

15 August

"Went into T-shirt with Chard and Tony to de-rig and photograph. Five hour trip - quite cold. Back at bivvy everyone else has arrived throughout the day. Plans to get an early start and go to Galactica tomorrow - we'll see."

16 August

"Glorious morning - bright sun with white clouds cascading over the surrounding ring of mountains. Very pleasant lying in the sun but eventually hunger forced me to venture down into the Pit of Pandemonium which is the bivvy this morning."

"Eventually after much faffing we get away. With Chris, Harry, Mark and Stu over the ridge to Rob's/Harry's Ice Cave. Cave is spectacular, final chamber 60m across with huge icicles and pristine snow slope. Cave surveyed, photographed and derigged in 5 hours - good work."

[Dave] "Down M16 to Galactica with Tony and Chard. Despite its awesome size still quite an un-interesting trip from a pure caving point of view, due to the almost totally vertical nature. Did linger in Galactica for an hour or probably 2 messing about with the bolting platform, though no progress, due to lack of bolts. Met Andy and Iain on the way out who did push the lead but to no avail."

17 August

"Remembered some talk about going to Postojna Jama [show caves] today so left bivvy early and hacked down the hill..... Two hour drive to Postojna via Tolmin for breakfast. Laughing all the way through the tour from the hair-raising roller-coaster style train ride (do not jump or stick your arms out signs totally unnecessary) through the incredible and imaginatively named formations (The Parrot, The Chicken The Huge Penis!) to the attempted knob shots, to the actual knob shot in the final chamber! Home via Nova Goriza through some beautiful Slovenian countryside, then up the Soca valley past numerous dams and hydro plants and an immense cement works, then into Tolmin. More pizza and pivo at the refugee centre."

"Pete staggered into the barn in the small hours of the morning having walked all the way from Tolmin after his latest liason-dangereuse. I say walked - he says he ran most of the way convinced he was being followed by wild boar, ghosts and moving rocks! - what's he been on?!?"

18 August

"Up to the bivvy for a sherpering trip and then straight back down. Tremendous views from the top - could clearly see the coast and the ragged finger of the Istrian peninsular - whether you could see across the Adriatic to peninsular Italy was however a much debated point."

19 August

"M16 derigged to -200m. Nobody staying at bivvy - so nor did I."

20 August

"First van left early in the morning. Some problems with the "Old Geezer" - thinks that we're doing a runner!"

21 August

"At bivvy located and marked M7, M8, M9. Final derig of M16 and photos."

4 August

"Cleared out bivvy. Packed van."

25 August

"Left for England."

A flapjack too far!

Harry's Hole/Rob's Revenge - The Exploration of White Shiver Pot

Another blissfully sunny, Slovenian summer's day and a group comprising Harry, Chris, Jackie and myself set off for a days prospecting along the high ridge opposite the Migovec plateau. We'd packed a couple of sets of caving gear plus a few ropes to "drop a some 'oles", and, after consuming several delicious flapjacks and applying several gallons of sun-block, we set off.

By early afternoon and after a few hours exploration of numerous blocked shafts, we split up somewhat. Jacki spotted several openings high on the ridge near the peak Skribino (1910m) and set off alone. After what seemed a long time, the distant, ominous sound of crashing rocks caused Harry and myself to call out to her. No reply. I headed off up the ridge towards the rumblings, becoming increasingly anxious. What was going on? I reached a big hole, called again and was relieved to hear a reply and see her grinning up at me from the foot of a scree slope which was blocking the cave. Finally Harry arrived on the scene (not the young man he once was! Joke honest!) and we all took lunch near the ridge top and amused ourselves by throwing stones at Chris still on the valley floor and (un)fortunately half a mile out of range! Our tins of finest Slovenian sardines were washed down with mouthfuls of a warm infusion of peat, twigs and the inside of Frank's tackle bag.

Jacki rejoined Chris down the hill leaving Harry and myself to head to the very top of the ridge to assess the potential of the valley on the opposite side. At the ridge a spectacular panorama of the higher Julian Alps greeted us in the distance. In the immediate foreground a dry valley in almost permanent shade sheltered several enticing holes. We made our way down a trekkers path to examine a few shafts including one quite big, open hole.

The pothole had a entrance shaft about 15m across and appeared to drop 25m or so onto a snow plug. A safe take-off point was established giving a good free hang to avoid dislodging any of the abundant loose rock. Harry busied himself with rigging the rope while I kitted up (SRT kit and helmet over shorts and T-shirt - with hind sight not entirely adequate). I felt quite frightened wondering what lay below. Pulling myself together I threaded the Stop and descended. Two thirds of the way down the shaft, the temperature suddenly dropped. Finally I dropped onto the snow plug which thankfully took my weight.

To date all the snow plugs we had looked at had completely blocked the shafts and I did not feel confident that this one would be any different. However in one corner, underneath an overhang, I spotted a shaft leading down through the snow. On closer inspection it appeared that the surface run off of water had melted the snow and effectively drilled through the plug.

The walls of this sub-shaft were made of solid but very dirty ice. Beneath this overhang the rope was now at about 60 degrees to the horizontal with several rub points against the ice, although it seemed safe to make a slow cautious descent. Pressed

against one grubby wall I lowered myself down the narrowing shaft which appeared to be blocked 3m beneath me. To my horror, as the end of the rope approached I saw that there wasn't a knot in the end: hurriedly I tied a figure-8. At the very end of the rope I came across a small slot in the shaft and climbed in. This appeared to be going somewhere, sloping down to the left. Was it an air pocket in the ice or the start of something bigger? With the rope taut I could see little more than that it seemed to continue on. I turned around and headed back up to tell the others what I'd seen. We packed up the gear and headed back off into the sunset towards the bivvy.

The following day Harry and others returned and pushed the cave to -75m and returned with the news that it was still going. There was much ribbing for me in allegedly writing the cave off and friendly jibes about naming it "Harry's Hole" from Malcolm. All this aside, Iain and myself somehow managed to elect ourselves as the following day's exploration party, to enact "Rob's Revenge" according to Malcolm again: seriously, though, a very unselfish act that we are thankful for.

So the following morning a large party of prospectors and gear carriers set off over the ridge back to the pot. Quite a number were there to see us off providing the obligatory comments about the state of the rope and our technique. I went first and paused at the first rebelay for a massed photography session to capture that look of fear, and then continued to the snow plug to wait for Iain. We descended through the ice shaft which opened out onto a further snow slope enclosed by rock walls and roof. This twisted down another 15-20m to a flat wall where Harry's footprints ended.

Iain proceeded to hammer the first spit in and after 15 minutes he was ready to finally insert the cone. "Bollocks! where are they!?!". The next 15 minutes were spent scrabbling around in the snow hunting for the small metal cones wrapped up in white tape, a colour scheme which didn't aid their recovery. From then on this pitch had to be called "Cones Hotline" also in recognition of that equally frustrating bit of government legislation.



Rob & Iain descending White Shiver Pot.

To our left was a high-roofed side chamber 10m further down the slope. I tentatively descended the newly furnished rope which had become quite iced up and slipped rapidly through my Stop. This chamber was about 10m across and ended in a mass of boulders against the rear wall. A huge 3m long icicle, poised above my head threatened instant impalation. I could see two possible leads and climbed onto the boulders for a better view. Without warning they suddenly collapsed and they all dropped about a foot. If my heart wasn't pounding already it was now in danger of arrest!

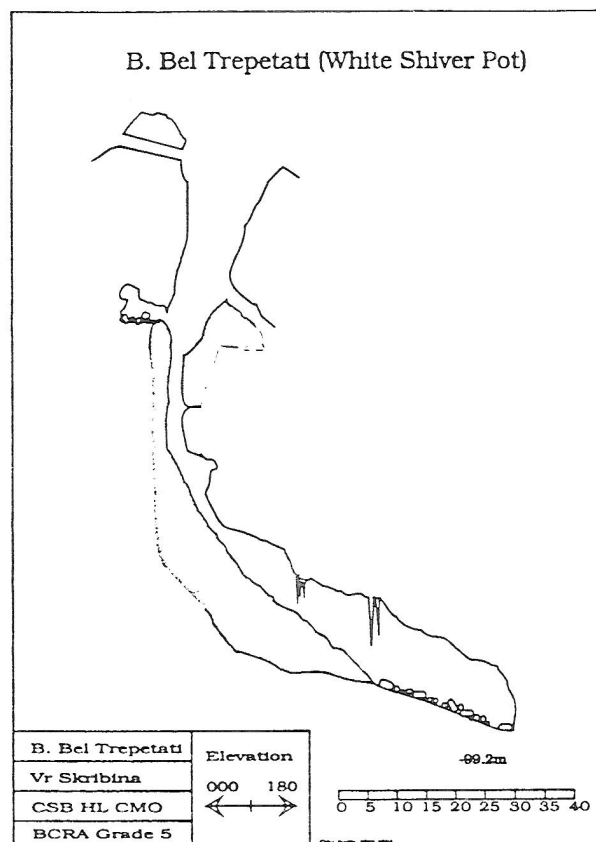
About turn. I prusiked back up to Iain to report the leads. We decided to explore the more promising way on, to the right of the flat wall where the roof almost met the snow slope. I descended to an obvious take off point and installed another bolt. Beneath me the gap opened out into an inky black abyss.... going where? A job for Mr Maniac.

Iain descended on his back sliding down the snow slope, passing under a huge inverted candelabra of 3m long icicles, and then out of sight. "Rope free! It's bloody HUGE!!" I copied Iain's technique and slid down into a 60m wide chamber on "Sands of Time" pitch - a naff name for sure, but the hour-glass imagery is quite apt. Huge icicles decorated the roof and one as thick as a tree trunk had fallen to the ground. To one side an ice waterfall clung to one wall in a frozen embrace. Every surface was enveloped in a thin layer of clear ice which glistened when caught by our lamp beams, and tiny ice crystals, sent aloft by our movements, created a sparkling mist to cap it all. But danger lurked everywhere in this crystal grotto, from the incredibly frost shattered walls and the precarious icicles which tapered towards their point of attachment.

In the ensuing couple of hours we searched exhaustively every inch of wall for leads. To one side, a massive boulder had cleaved away from the wall leaving a gap behind. This dropped for a couple of metres onto rock and ice but didn't go any further. We descended down the sides of the snow slope which had partially melted way from the walls but again to no avail. Another flapjack down the hatch and we set off up and out, bumping into Malcolm on the entrance pitch concerned by the looming dusk.

In conclusion all other leads were found to be blind and the cave was surveyed at -99.2m deep although a tad over -100m if one counts the drop behind the cleaved rock.

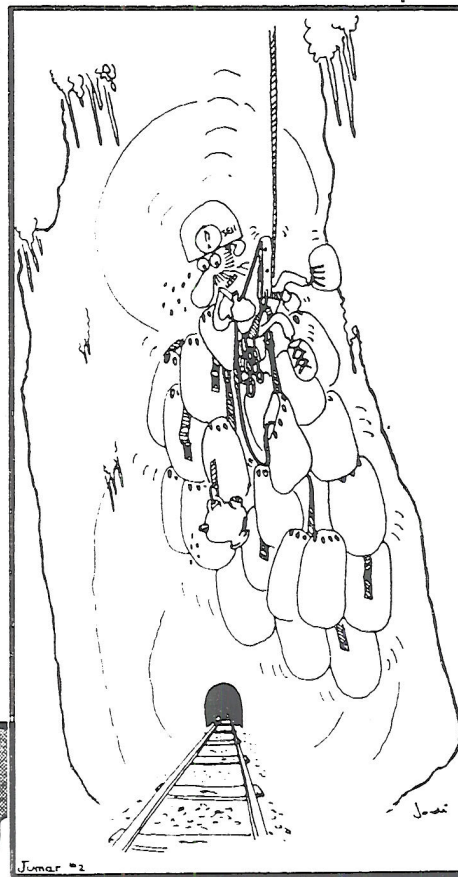
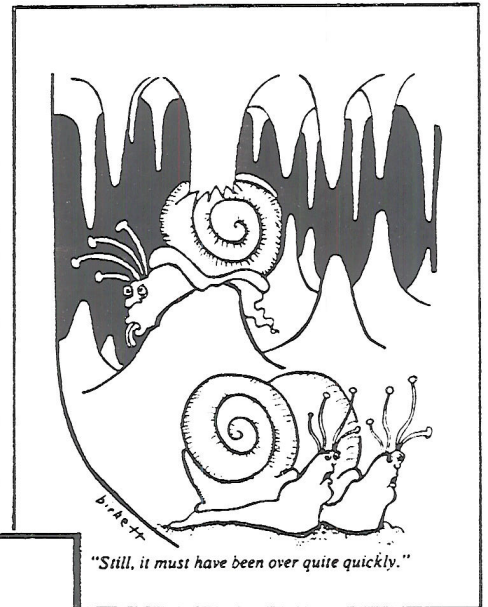
Rob Lea



Answers to Issue 18's:

"Chasms, Caverns, Hollows & Holes"

1. "The Hobbit" by JRR Tolkien.
2. Secret agent 007, James Bond, in "From Russia with Love" after a story by Ian Flemming.
3. Arthur Dent, Zaphod, Trillian, Ford Prefect and Marvin on the planet of Magrathea; "The Hitchhiker's Guide to the Galaxy" by Douglas Adams.
4. Mole, Ratty and Badger in "The Wind in the Willows" by Kenneth Grahame.
5. The "Swiss Family Robinson" by Johann Wyss.
6. "The Old Man of Lochnagar" by HRH The Prince of Wales.
7. Sylvester Stallone as Gabriel Walker in the film "Cliffhanger" after a novel by Jeff Rovin.
8. Merlin in "The Crystal Cave" by Mary Stewart.
9. Colin and Susan; "The Weirdstone of Brisingamen" by Allan Garner
10. Allan Quatermain, Sir Henry Curtis and Capt. John Good in "King Solomon's Mines" by H Rider Haggard.
11. Clive James' autobiography "Unreliable Memoirs".
12. The Great War cartoon character "Old Bill" in a 1915 newspaper cartoon depicting two tommies up to their waists in mud, in a shellhole on the Somme by Bruce Bairnsfather.



Brain Drain

The "father of speleology" the great Martel himself had some pretty eccentric ideas when it came to basic hydrology, warning that the earth's surface was drying up:

"The deepening of caves by water erosion causes water to descend deeper into the bowels of the earth. Many centuries will not elapse before men will die of thirst and the earth itself will perish of dryness."

To avert this peril he recommended the damming of rivers, both on the surface and underground, to diminish the flow of water into the earth.



"You have a small capacity for reason, some basic tool-making skills, and the use of a few simple words.' ... Yep. That's you."

More Bullshit (or just hot air?)

Wind Cave (S Dakota, USA) is a 100km+ long cave. Part of the system is a show cave open to the public and run by the National Parks Service. In April 1987 it had to be closed for the day because of excessive winds in the entrance series. When an anemometer with a maximum scale of 70 mph was brought in, the needle was plastered against the end stop. Wind speeds were estimated at more than 100mph (160 kph).

Reported in J. YSS 3 (1994) p62.

Blind but not Bland

At the end of the tour in the Postojna show cave, you are shown a concrete pool containing a few listless olms: little, blind, pink salamanders which are unique to these caves. The olms just lie there doing nothing except slowly dying in the bright lights, noise and pollution, while a few yards away a shop does a lively trade in olm jewellery, olm sports bags, and cutesy, cuddly soft toy olms.

There must be more to olms than this.....

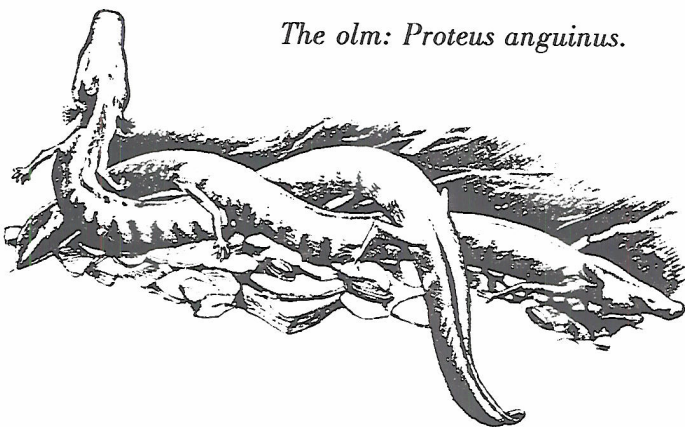
Although rare, olms seem to have been well-known to local people for centuries since occasional specimens appeared after floods in the rivers and streams around Postojna and Vrhnika. With their long, pink, rather reptilian bodies they were taken, not unreasonably to the mediaeval mind, to be dragon fry - the offspring of the fearsome monsters who lived in the caverns and who were responsible for the roaring sounds echoing from within.

However in the 1680's, Baron Janez Valvasor, a well-travelled Slovene scientist and caver, ruined years of colourful legend by exposing these baby dragons as perfectly natural blind cave salamanders.

But the olm's mythical alter ego lives on. I suspect that the dragons in the city of Ljubljana's coat of arms, as well as those crawling over the Zmajski Most bridge in the town centre, are really just olms in disguise.

It would make sense. You see, the scientific name of the olm is *Proteus anguinus* - and *Proteus* in Greek legend, was of course the cave-dwelling prophet, famous for his powers of being able to change his shape and appearance. Which is ironic really, because, unlike its relatives outside caves, the little olm does not metamorphose from a larva to an adult but remains in its juvenile form throughout its life.

And olms are long lived - about 25 years which, for an amphibian is a long time - although admittedly it's hardly a racey existence. They have an extremely efficient metabolism and consequently are very tolerant of starvation. One specimen was kept in



The olm: Proteus anguinus.

Britain, being just a bit too cold, has no cave-dwelling amphibians, however.....

For a time during the 1930's, a number of Slovenian olms were kept in a tank in the Zoology Dept. at Bristol University. Eventually, in 1940, it was decided that they had outlived their welcome, and two students were despatched to the Mendip Hills with instructions to release them into a suitable cave. They chose Reads Cavern on the northern slope of Blackdown, close to Burrington Coombe. The stream which enters Read's can only be followed for a short distance underground, but it has been dye-traced to both Rickford and Langford risings, which also receive the waters from East and West Twin Swallets and from Ellick Farm Sink. It is clear from the pattern of flow that between all these sinks and risings lies a lot of undiscovered cave passages. The question is whether the olms survived, and survive still, somewhere beneath the Mendip Hills.

From: "Caves & Cave Life"
Phil Chapman, 1993.

captivity for 14 years, and for the last eight of these received no food though it's not clear whether it finally died of starvation or just old age.

Certainly olms can live without much food, but recently it has been noted that captive olms regularly slough and then eat the mucus layer which, like an extra skin, covers and protects the whole body. Mucus is sticky and in captive animals becomes encrusted with bacteria and algae. So, the amazing "non-feeding olm" may all the time have been sneaking clandestine meals of diatoms-in-slime, not the tastiest of fare, but enough to keep it ticking over.

And sex?!? Despite assertions by the adenoidal Postojna Cave guide that they "breed through their gills" they actually do it more normally. It was once thought that they gave birth to live young but in fact they lay eggs under large submerged rocks. The newly hatched young are dark grey but change to pigment-less white coloured only by blood vessels. At birth they have rudimentary, though sightless, eyes which they lose as they mature until not even the sockets are visible. Their sense of touch and smell are very keen, and despite their blindness do appear to be sensitive to light. They possess both functional lungs and a set of feathery red gills on either side of the neck.

Olms may not be the loveliest of creatures but they're surely worthy of more respect than they seem to be getting.

Gaping Gill

The really sporting way

At a winch meet in 1970 a certain caver made an uneventful trip down the shaft. At the bottom he stepped out of the winch chair, blew the signal whistle and stepped back to watch the empty chair start its lllm upwards journey.

But, at that moment he realised the chair wasn't going by itself his lamp cable was securely caught in the seat! In desperation he grabbed the chair as it went past, and disappeared up the huge shaft hanging from the chair by his hands.

When the chair reached the surface, the caver was actually sitting in it, to the bafflement of his friends who couldn't understand why he had come straight back up again. He told them, but the innermost thoughts of that caver in his lonely struggle as the chair jerked its way up Gaping Gill shaft can never be fully known!



Forest of Dean Cavers' Fair 1994

Held in June in a small village on the outskirts of Ross on Wye, this event was conceived to raise the profile of the Forest of Dean as "Britain's fastest growing caving area". If you remember the article I wrote on Slaughter Stream Cave in the last newsletter you will know that I have a bit of a soft spot for this area, so I was pleased to see a lot of interest in this weekend.

I drove down on the Friday night with Bron, arriving in time to find the bar of the English Bicknor Working Men's Club packed with people and in no hurry to shut - always a good sign. The down side to this however, was that I was too late getting up the following morning to get signed on for a trip down Otter Hole. The format for the weekend was based around talks and slide shows held in the mornings and evenings, with caving and surface trips to look at local speleological points of interest being run in the afternoon. The guy who'd organised the event had really gone to town, with sheets and sheets of paper printed up telling us all exactly what was going on, where and at what time, and with strict limits on the number of people going on each trip - no blagging your way on to the end of a fully subscribed list with this man, not even with the bribe of a fully laden car of fluorescent light fittings for his local C.R.O. hut. Having said all that however, his enthusiasm ensured that the whole thing was very smoothly run. and having attended the B.C.R.A. conference recently and thus having something to compare it to, I must say that he did a fine job - just a little overzealously.

So, with no chance of going down Otter Hole, we opted for a trip down Slaughter Stream instead. This is the second time that I have been in this cave and I would strongly urge people to take a trip to the forest and visit this cave sometime.

Saturday evening was spent watching a couple of superb audio/visual presentations of Otter Hole and Dan-yr-Ogof, featuring some of the best cave photography I have ever seen. And drinking.

Despite being "Britain's fastest growing blah, blah blah...." Otter and Slaughter Stream are the only caves in the area which most Imperial members would be interested in as the rest are generally fairly squalid and tight, and not particularly long either. With this in mind we opted for a walk in the woods with a local character named 'Sparkey' on the Sunday afternoon, visiting the various sinks and resurgences in the forest, plus a few large surface depressions which all receive the sporadic attention of local diggers.

One dig site at Red House Lane Swallet has the sort of equipment on the surface that you might expect to see on a typical building site, with lengths of scaffolding and electric lighting surrounding the newly concreted in drain pipe entrance. There is a cave system underneath all this, but it sounds like the surface structure might well be more impressive than what lies below ground at present, although a positive dye test to Slaughter Rising indicates that another part of the Slaughter Stream system lies waiting to be found here.

On completing the walk we were met by the ever efficient organiser going spare in the minibus because, in his enthusiasm, Sparkey had managed to turn a three hour walk into five. Our driver's only consolation was that he did get to use his walky-talky at last, even if he did have to drive a mile in the wrong direction so that he could get a signal back to base to say that the lost party would be home in five minutes. What a prick!

A ticket for the weekend cost £15, which included camping and three full meals. Speakers were of varying quality but were all active and enthusiastic local cavers, many talking about their own particular dig sites and discoveries, but also covering subjects such as dye testing, hydrology, geology etc. And, I even made up for the disappointment of not caving in Otter Hole by travelling back to the Wye valley in September for a memorable trip with Jim, Mark, Rich and Clive.

Otter Hole.....

.....is an excellent cave! There is so much contrast between the squalid muddy entrance series with its unique tidal sump, and the incredibly well decorated high level passages above the streamway, that I won't even attempt to describe the place. What I would advise is that if you haven't been there already, you should write for permission at the earliest opportunity and get a trip organised.

Had we not had the compulsory guide with us, some of the cave's beauty could have been lost for ever, when Rich's curry from the night before finally got the better of Jim. It was the sort of occasion where in any other cave you would find yourself a discreet corner, where a little turdette could slowly decompose in peace, without fear of being disturbed, or disturbing anyone else for that matter. But in Otter Hole? No chance.

So the simple solution? Well this was a question of survival (the look on Jim's face said that he wasn't going to last another three hours without sustaining some terrible internal injuries), so it was out with the survival bag, off with the kit, and one of the biggest sighs of relief ever heard to echo around the cave walls.

The relief was only short lived however, when Jim realised what was to come: more than an hour's crawling whilst pushing a bag of shit in front of his face!

If you write for an Otter Hole permit be sure to mention ICC. They should remember us!

Dave Mountain

Otter Hole bookings secretary is: John Hutchings, 4 Redwood Close, Chepstow, Gwent. NP6 5R1.
Slaughter Stream access is care of: Andy Sparrow, Sunshade Cottage, Lower Redbrook, Gwent. NP5 4LZ.

Carbide Connections

Many hundreds of cavers fill their lamps with carbide every weekend, but its a safe bet that not many give a second thought to the stuff they tip into their lamps.

Carbide is of course calcium carbide, yet it might come as a surprise to learn that pure calcium carbide is a soft, transparent, colourless, crystalline or amorphous solid. Commercial carbide on the other hand is a mixture of calcium carbide (CaC_2) and calcium oxide (CaO) and, depending on where you get it, small to not-so-small amounts of impurities.

Calcium carbide was first made, by accident, in 1895. A French chemist, Henri Moissan, was trying to make artificial diamonds using the newly invented electric arc furnace in which very high temperatures could be produced. Knowing that high temperature would turn diamond into graphite he was attempting to reverse the reaction and get cheap diamonds.

After a long series of tests which involved putting almost every chemical he could think of into the furnace, Moissan tried a mixture of lime (CaO) and carbon at 2000°C . The result was lumps of a grey substance which gave fairly uninteresting results until he added water when it gave off a gas which burned with a brilliant white light.

Moissan, living in a world lit only by flickering yellow gas-light or a few very expensive and unreliable electric lights, came to the sensible conclusion that he had stumbled across the illuminant of the future. Nobody could tell what the future of gas or electricity might be and so there was every reason to back a competitive source of lighting. Acetylene lighting therefore attracted a lot of investment and by the end of the century there were hundreds of acetylene plants all over Europe and America wherever there was cheap hydro-electric power for the furnaces. Acetylene cost half as much as domestic electric light, gave more illumination than coal-gas, and when burnt with oxygen produced a very hot flame ideal for welding. Its future looked assured.

Then disaster struck, in two forms. The first was the invention, by Auer von Welsbach, of the gas mantle which greatly increased the luminosity of coal-gas. The second was improvements in electricity generation and supply which led to lower prices for domestic electricity. By 1905 the bottom had dropped out of the acetylene market. Prices fell by 70% and soon there were huge stocks of calcium carbide lying unused all over Europe and America.

The White Heat of Industry

Calcium carbide is still made industrially by essentially the same method used by Moissan. Limestone or lime (CaO - burnt limestone) and coke are heated together to about 2200°C in an electric arc furnace. Pure CaC_2 melts at $2,350^\circ\text{C}$ but impurities lower this to about 2000°C . Consequently the calcium carbide formed can be tapped off as a liquid, to be solidified in moulds, then crushed and graded. Commercial carbide is rarely more than 85% pure. The main impurities are oxides of silicon, magnesium, aluminium, and iron, with some iron sulphide and phosphates.

To make 1 tonne of calcium carbide takes:

1700 - 1900 kg limestone
500 - 600 kg coke
2800 - 3000 KWH electricity

The largest furnaces produce about 200 - 400 tonnes of calcium carbide per day.

With a Bang or a Whimper

Acetylene will react with the metal salts of several metals, including copper to form metal carbides. However copper carbide is explosive being highly sensitive to both heat and mechanical shock - the cause of some nasty accidents!

Acetylene with about 50% oxygen acts as a narcotic and has been used as an anesthetic. Its highly explosive nature is not the only problem. Acetylene from commercial calcium carbide usually contains traces of impurities in particular hydrogen sulphide, and highly toxic phosphine.

The material Klatte had thrown away was vinyl chloride and in the 1930s, when it was too late for Klatte to do anything about it, interest in the substance revived. Workers at ICI succeeded in polymerising the stuff to produce one of the first synthetic thermoplastics - poly vinyl chloride: known to the world as PVC and best known to cavers as the material of oversuits.

Meanwhile ICI's rival DuPont were spurred on to develop their own polymers. Nylon (New York-LONDON) was developed by W Carothers in 1937: it was nearly called DUPROH (Dupont Pulls Rabbit Out of Hat). Nylon was launched commercially in 1940 with the unveiling of a 50 ft tall pair of stockings, although by a year later when America entered the Second World War, parachutes and harnesses had taken precedence. Today's cavers have Carothers and his colleagues to thank for their harnesses and ropes: and Klatte for their oversuits, Caro & Frank for cheap carbide (most carbide today goes to the fertilizer or polymer industries) and of course Henri Moissan for accidentally starting this chain reaction. Without Moissan's search for artificial diamonds, would we have carbide for our lamps, PVC oversuits and nylon ropes? I wonder.

The acetylene industry was saved in the nick of time by an unlikely source. The German dye-makers BASF were searching for new colour bases. At one point BASF chemists Caro and Frank passed nitrogen over calcium carbide at red heat. The result was a crumbly cake of calcium cyanamide. It proved to be useless as a dye but its discoverers, noting that it was rich in nitrogen realised they had stumbled upon the answer to Europe's food crisis: a cheap source of fertilizer; and use for the piles of unwanted calcium carbide. Then in 1912 another German chemist, Fritz Klatte, started experimenting with acetylene while trying to develop a substance which would dope aircraft wings with a weather-proof coating. One mixture he tried was acetylene, hydrogen chloride and mercury. When this was allowed to stand in sunlight a milky sludge formed and solidified. Klatte made a note of the ingredients and filed a patent but it was "not useful" at the time and further work on the substance was dropped. The patent lapsed in 1925.

Ashes to Ashes

Commercial calcium carbide on addition of water yields about 280 litres of acetylene per kg of carbide. During the reaction the spent ash produced expands to about twice the volume of the original carbide. The ash is caustic, being calcium hydroxide:



If this hydroxide ash is dumped in a cave stream it will eventually react with dissolved CO_2 to form calcium bicarbonate in solution and maybe one day get redeposited as flowstone. Unfortunately spent carbide is not very soluble: at 0°C 1 litre of water will dissolve only 1.8g of $\text{Ca}(\text{OH})_2$ and while there might be abundant water in a cave stream, it's very slow to dissolve and so hangs around polluting the cave for a long time. Better to take it home.

Caverns, Chasms, Hollows & Holes

Once again, can you identify the following fictional troglodytic characters? In which books, films etc. do they appear, and who are the authors?

1. Who? Employed as a burglar by a group of dwarves this little chap soon proved to be the most resourceful, even courageous, of the group - even when trapped underground: "Come, come!", he said, "While there's life there's hope, as my father used to say, and third time pays for all! I am going down the tunnel once again. I have been that way twice, when I knew there was a dragon at the other end, so I will risk a third visit when I am no longer sure. Anyway, the only way out is down!". And besides it led to a glittering hoard of treasure (Right).

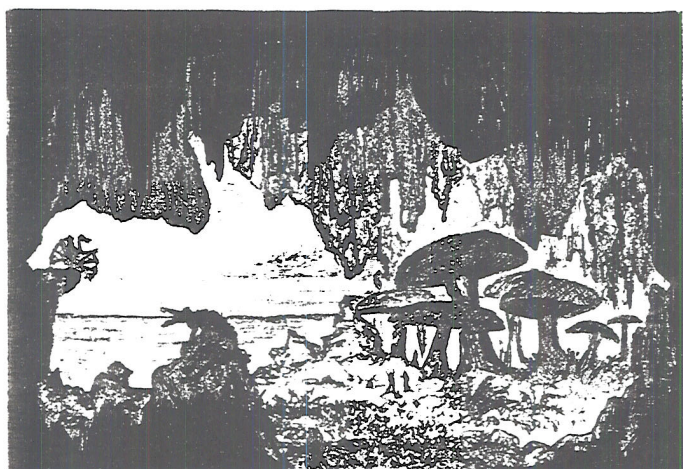


2. It is Europe in the Ice Age. A human child is orphaned during an earthquake and found by a troop of neanderthals. Although clearly different from them, they adopt her and she gradually learns their ancient and mysterious knowledge as she grows up in the shelter of their cave: a cave she had originally found for them.

3. Two geologists prospecting the Dalmatian karst around Subrano in Yugoslavia discover a cave containing prehistoric paintings and the remains of an unusually advanced type of neanderthal. A major international expedition is mounted to excavate the cave. Then, there's an earthquake and the cavern collapses. Sealed in, they set off down, following the underground river, deeper and deeper in search of a resurgence exit from what rapidly degenerates into a highly unbelievable cave system.

4. The film of the book starts underground down an amber mine in the Dominican Republic. The book itself ends in the underground lair of a group of **very** dangerous animals.

5. This ancient Greek hero dragged the fearsome three-headed dog, Cerberus, from the infernal region of Hades up to the surface through the Cavern of Acherusia. Who was he?



6. Who discovered a **very** deep cave system leading down, eventually, to a vast underground sea where live huge fungi and prehistoric animals. (Left)

7. A creature, in perpetual fear for its safety from foes (real or imagined?), digs itself a defence system of underground tunnels and secret hiding places so complex and so perfect that it becomes the whole meaning of existence, and eventually engulfs its creator.

8. Trapped as the barricades are overrun during the 1848 uprising in Paris, this chap escapes carrying his wounded and unconscious comrade into the reeking, cavernous labyrinth of tunnels that were the ancient Paris sewers:

"The change was unbelievable. In the very heart of the town, he had left the town: in a matter of moments, the time to lift a lid and let it fall, he had passed from daylight into total darkness, from midday to midnight, from tumult to silence and the stillness of the tomb."

9. Who ate too much underground?

"So he started to climb out of the hole. He pulled with his front paws and pushed with his back paws and in a little while his nose was out in the open again ... and then his front paws ... and then his shoulders ... and then:

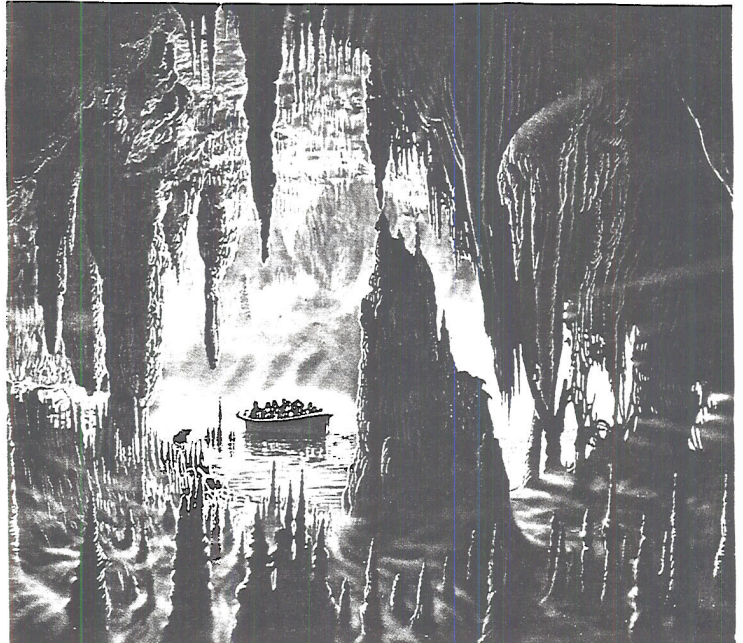
'Oh help', he said. 'I'd better go back'.

'Oh bother', he said. 'I shall have to go on'.

'I can't do either!' he said. 'Oh help and bother!'.

10. Enchanted by her voice, he lured a young soprano, Christine Daae, into his lair in the labyrinth of caverns, crypts and catacombs beneath the Paris Opera where he lived to hide his disfigurement. Who was he?

11. Mordock's Cave is one of the wonders of the world: a place where thousands of sightseers every year take an awe-inspiring boat trip on a lake deep beneath the earth's 'surface and marvel at Nature's handiwork(Right). But darkness is also the home of things Nature never intended - things violent, bestial and obscenely evil. And when a sudden power failure traps a group of tourists underground, the unnatural creatures who dwell there emerge from the depths. Pulp horror fiction from a master of the genre.



12. His mission to assassinate Hitler fails. Back in London there's a quiet murder on the Underground and then the nerve-twisting hunt is on. Nazi agent Quive-Smith is on his tail. Acting like one of the big game he once hunted, he goes to earth - literally for he constructs an intricate hide-out underground in a wood in Dorset. Here he lays up hidden under the ground for days. But even so Quive-Smith manages at last to track him down and corner him like a fox in its earth.
13. And by the same author. A retired mining engineer looking for a Mendip pub to buy stumbles across a fanatical religious sect which holds its meetings in a secret cave whose walls are covered with palaeolithic paintings like those of Lascaux. Fearing that he might disclose and commercialise their cave they lure him underground and leave him to starve. Needless to say our hero escapes after a fortnight's captivity, only to be tricked into being trapped in the cave again.
14. Who, by saying the magic words "Open Sesame!" was able to gain entry to the cavern of the forty thieves and all their stolen treasure?

Over Exposed ?!?

The Tony Haydon Guide to Cave Photography.

1. Never take a camera yourself! You may be tempted to use it and while squinting through the viewfinder miss an opportunity to get into someone else's photo.
2. Make sure you go on every photographic trip. This unfortunately may mean you have to carry heavy photographic equipment but its the only way to ensure you're always in the right place. The use of so-called slave units (other sherpas) might spread the load but there's always the risk they'll get into the photo instead of you.
3. Never bother to go on a photographic trip with Jim - he always puts his thumb over the lens.
4. Wear the brightest most fluorescent oversuit you can buy: if you look like a radiation accident you'll never get missed. This is called Flash Photography.
5. In the unfortunate event that someone else is the model and you find yourself just holding a flash, make sure you botch it but always say that it fired perfectly - that way photos of rival models will never come out.
6. A blow-up^b dummy of yourself left permanently at the camp or bivvy site will ensure your face is in every bivvy shot even when you're posing someplace else.
7. Around camp fires you must learn to sit very still with your best profile to the fire light - you never know who's skulking around in the dark taking arty long exposures.
8. Back lit shots are arty but one silhouette looks much like another - avoid photographers who use this technique.
9. For quality stick with people like Mark or Chard who use SLRs and have all the gear. However remember that Dave M can take shoot off ten rolls of film with his simple system in the time it takes Chard to get his tripod out. In the end what you're after is pictures of yourself by the hundred, the more the better.
10. Finally, if all else fails and you're being beaten to the premier posing position by someone else - try sabotage!

Boozey Bats

Residents of the toddy-tapping areas of Sri Lanka are finding their sleep disturbed by raucous all night raves attended by bats.

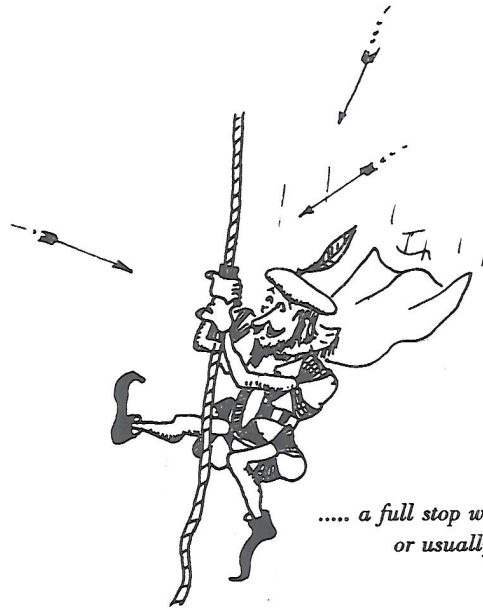
Toddy is a palm wine made by fermenting the nectar secreted by coconut flowers. Pots are hung under the flowers to collect the

nectar and are left in place for 10 days while they ferment.

Unfortunately the sweet smell attracts the local bats during the night and, according to the Sri Lankan 'Daily News', "They drink themselves silly and do a lot of damage up-setting the toddy pots and make an awesome din at dead of night after the free booze-up."

Renaissance Rope Techniques

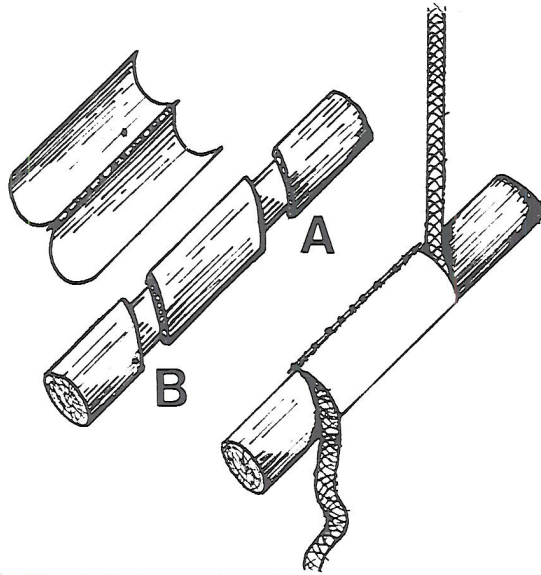
When did Single Rope Techniques start? A lot earlier than you'd probably think. Surprisingly as early as 1638 Galileo was writing about it. After the style of the time his book takes the form of a conversational discussion between two guys. They are trying to work out why a rope made up of fibres fails, in tension, by the fibres snapping rather than sliding past each other.....



..... a full stop wasn't possible, or usually desirable!

SAGREDO:

".....What you say clears up one fact that has to do with a simple but clever device, invented by a kinsman of mine, for the purpose of descending from a window by means of a rope without lacerating the palms of his hands, as had happened to him shortly before, and greatly to his discomfort.



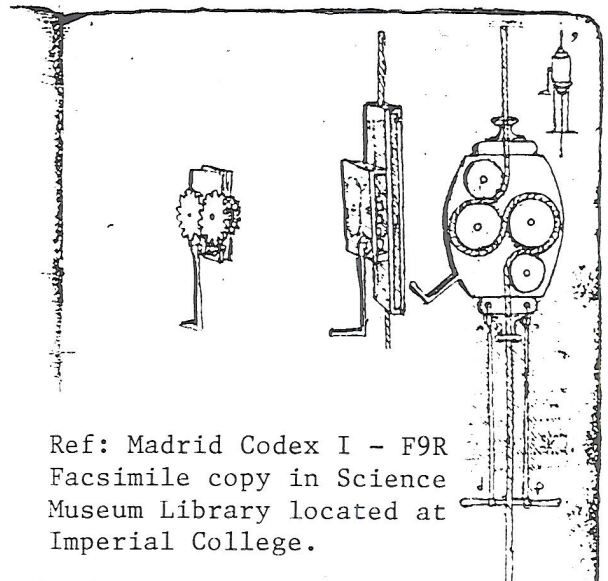
He took a wooden cylinder, AB, about as thick as a walking stick and about one span long. On this he cut a spiral channel of about one turn and a half, and large enough to just receive the rope. Having introduced the rope at the end A, and let it out again at the end B, he enclosed both the cylinder and the rope in a case of wood or tin, hinged along the side so that it could be easily opened and closed. After he had fastened the rope to a firm support above, he could, by grasping and squeezing the case with both hands, hang by his arms. The pressure on the rope, lying between the case and the cylinder, was such that he could, at will either grasp the case more tightly and hold himself from slipping or slacken his hold and descend as slowly as he wished."

SALVIATI:

"A Truly ingenious device!"

And, nearly a hundred years earlier, that prolific inventor Leonardo da Vinci had described a type of multiscender which looks something like a powered Petzl Bobbin:

".....It is made of four wheels, two of which drive, while two are free. Between the latter there is a rope wound in a figure-8. The mechanism is set in motion by a crank which operates one of the cog wheels. There are also iron connecting rods which end in a stirrup foot-rest. A person with his feet on this support and tied on with a belt can go up and down the rope by turning the crank."



Ref: Madrid Codex I - F9R
Facsimile copy in Science
Museum Library located at
Imperial College.