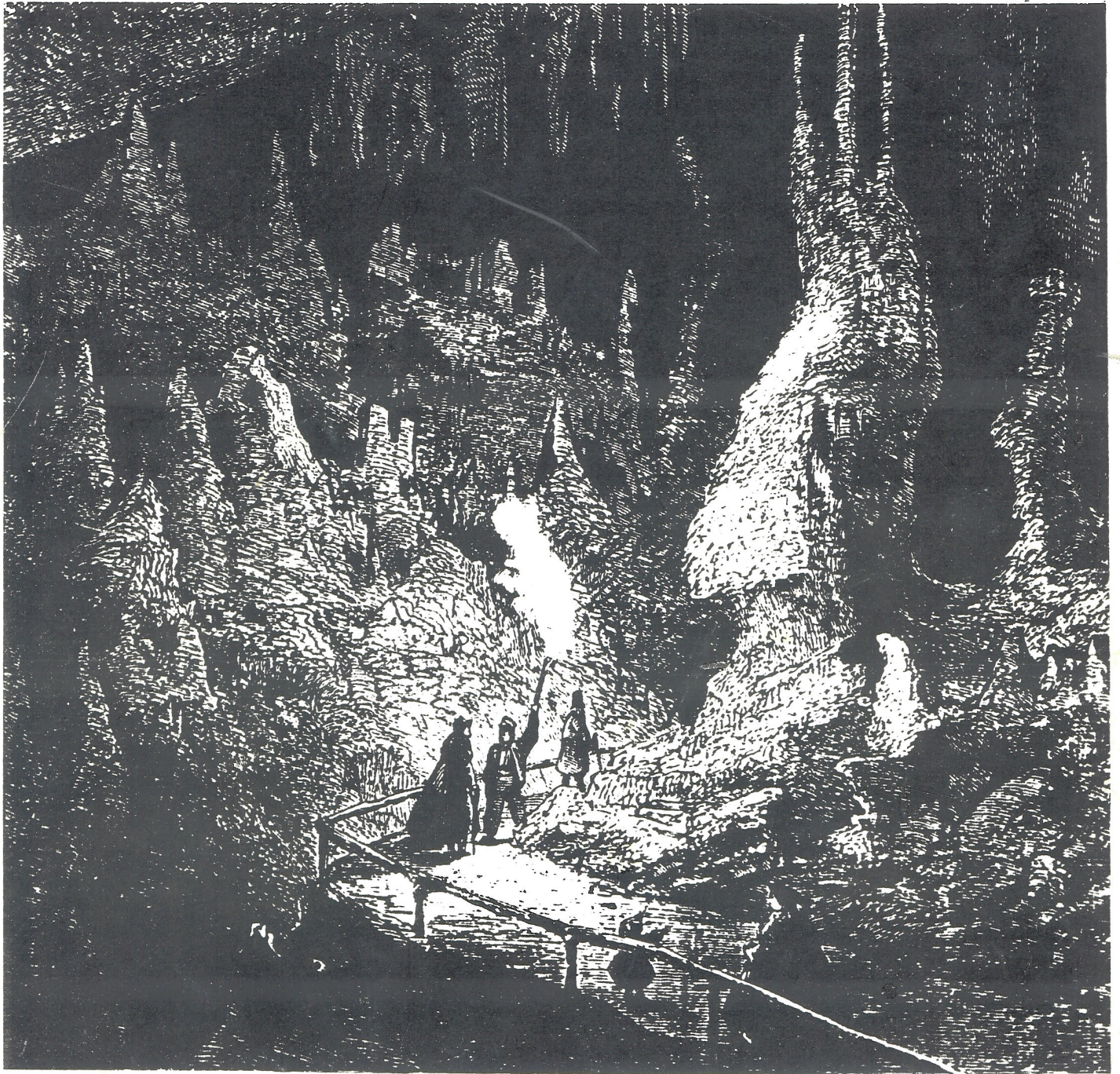
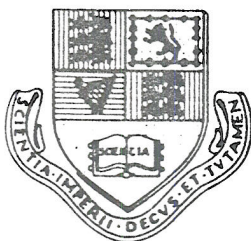


# Imperial College Caving Club



## Newsletter No.16





# IMPERIAL COLLEGE CAVING CLUB

IMPERIAL COLLEGE UNION  
PRINCE CONSORT ROAD  
LONDON SW7 2BB

NEWSLETTER No. 16 SPRING 1992

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## The Exec (1991/1992):

|                |                          |
|----------------|--------------------------|
| President      | Bronwen Ley              |
| Vice President | Alva Gossan              |
| Secretary      | Caroline Fletcher        |
| Treasurer      | Dave Vickers/Jo Phillips |
| Tackle Officer | Dominic Walker           |

Weekly meetings are held on Tuesday evenings at about 7:00 pm in Southside Upper Lounge. Messages can be left with the Students Union (tel 071-589-5111).

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## COVER:

Visitors to Postojna Jama in 1896.  
Lithograph "Höhlenkunde" by Fr. Kraus.  
See article page 8.



After asking advice on what to write in this section, I was told to include words such as 'from strength to strength', 'class caving', 'classic systems', 'deepest in the world', and 'freshers'.

Therefore to finish I'd just like to welcome all those new to the club, and express the hope that the caving weekends continue to be as much fun. As yet no one from Mary's has made it to a trip, however we do now have two members from George's hospital and one from LSE (I think..... is he coming back again?!!).

The Easter caving tour will be to Ireland (April 13th - 20th) ..... £50 non-refundable deposit made payable to Jo Phillips, preferably by the end of February so that I can see if there are enough people interested to make the trip viable. The compromise so far on the summer (an extremely good one too.... considering it was made under extreme duress!!) is two weeks in the Vercors followed by two weeks in the Pyrenees (last 2 weeks in July/first two weeks in August). However opinions on a postcard to.....

Finally it was good to see IC<sup>3</sup> mentioned in print 3 times this year so far; firstly in an article mentioning the discovery of our abandoned gear in Reyfads (!), secondly an excellent piece in 'Caves & Caving' by Harry on the Dominican Republic (no mention of ice cream?) and the third our summer tour to Monte Canin, also in C & C, as well as in this worthy volume.

Lastly, Thank You to everyone whose support has been a real help and No Thank You to those whose hasn't!!

See you all I hope sometime during the year,

Bron

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**GEAR REVIEW**  
**Premier "Malham" Carbide Generator**

I bought one of these a year ago and would not recommend them, despite their cheapness in comparison with the "Fisma" generator.

Problems:

- (1) The generator is made from very soft metal and it only needs a few knocks against a rock while clearing spent carbide to give it a very deformed shape.
- (2) The sling/harness attachment point is very weak and easily bent out of shape. On the Fisma this provides a strong fulcrum when using a karabiner to lever open the top of the generator when it's stiff.
- (3) The generator (mine at least) seems to get through ever such a lot of water, and it also escapes very easily if the generator is inverted (more easily than with the Fisma).
- (4) The threads which join base to top are prone to rusting and need to be scraped clean frequently to allow smooth closure.

The reason I am writing this review is because this item is one of the few pieces of caving equipment which I have been dissatisfied with: most are well designed. So be warned - pay more for the Fisma. To quote CSB:

"Buy cheap - buy twice!"

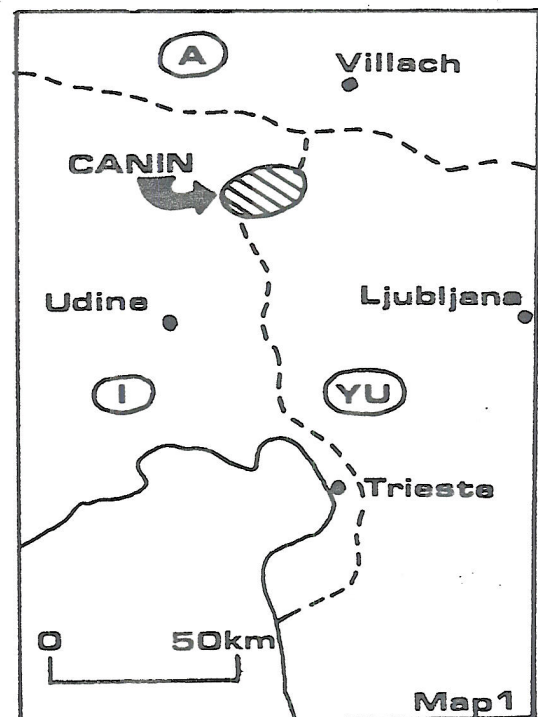


## CLASSIC CAVING ON MONTE CANIN

“This mighty massif sits astride the Italian and Yugoslavian border to the NE of Udine. The barren and inhospitable plateaux to be found at the 1700m - 2000m levels are considered to have some of the finest and most spectacular examples of lapies, dolines, shafts and fissures within Italy..... All the deep systems are characterised by long, narrow meanders punctuated by cold, well-watered shafts, and their exploration is therefore not easy.”

"The Underground Atlas"  
Middleton and Waltham

A group from Imperial College and North Wales CC visited the Monte Canin area (map 1) in August 1991 for a mixture of tourist caving and prospecting, helped by the CSIF caving group of Udine. This article is intended as an introduction to caving in the area, but does not attempt to deal with the intricacies of route finding, above or below ground. It's left to the visiting caver to enjoy this part! Or, alternatively, the Italian literature referred to at the end can be checked out.



### The Caves

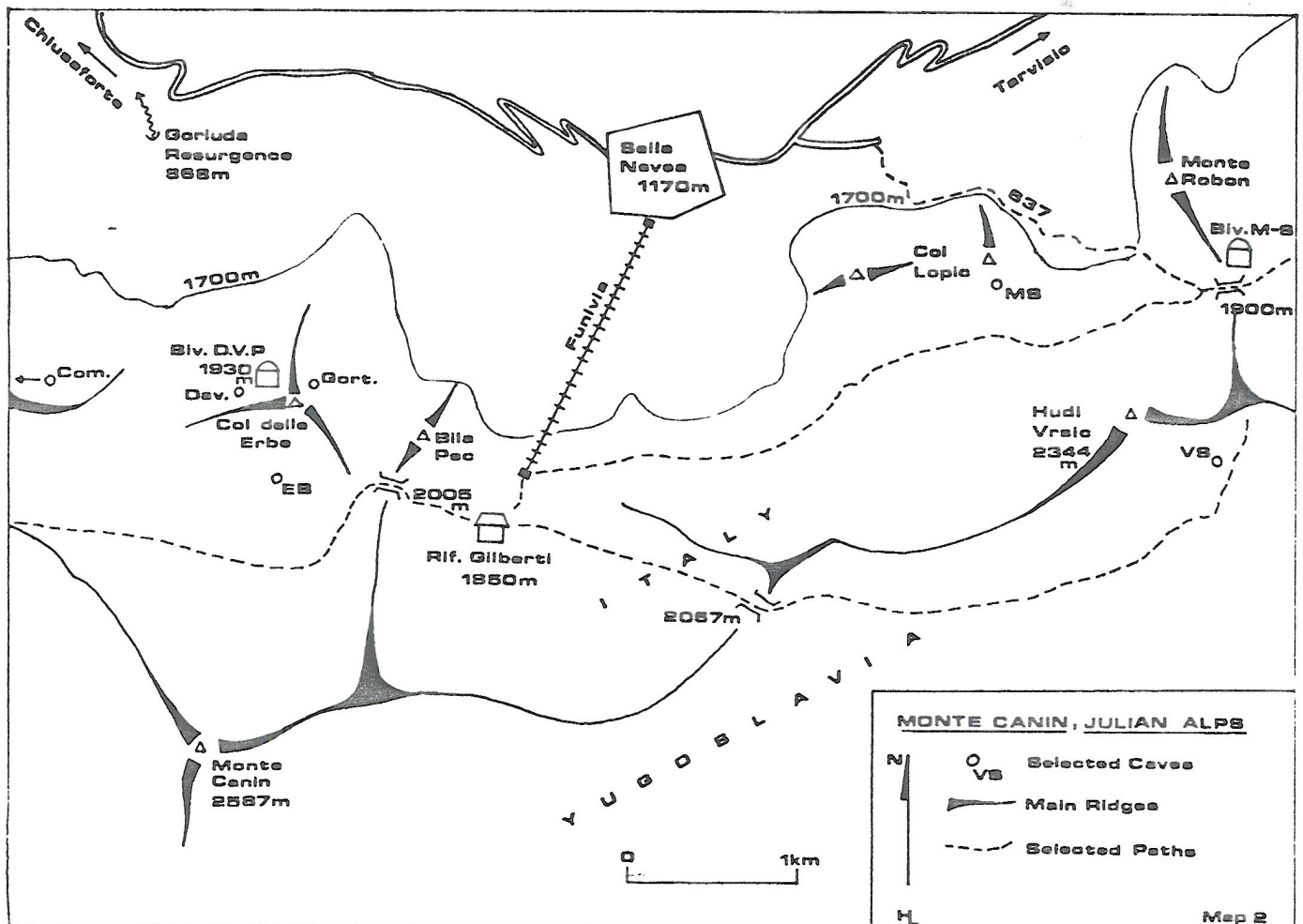
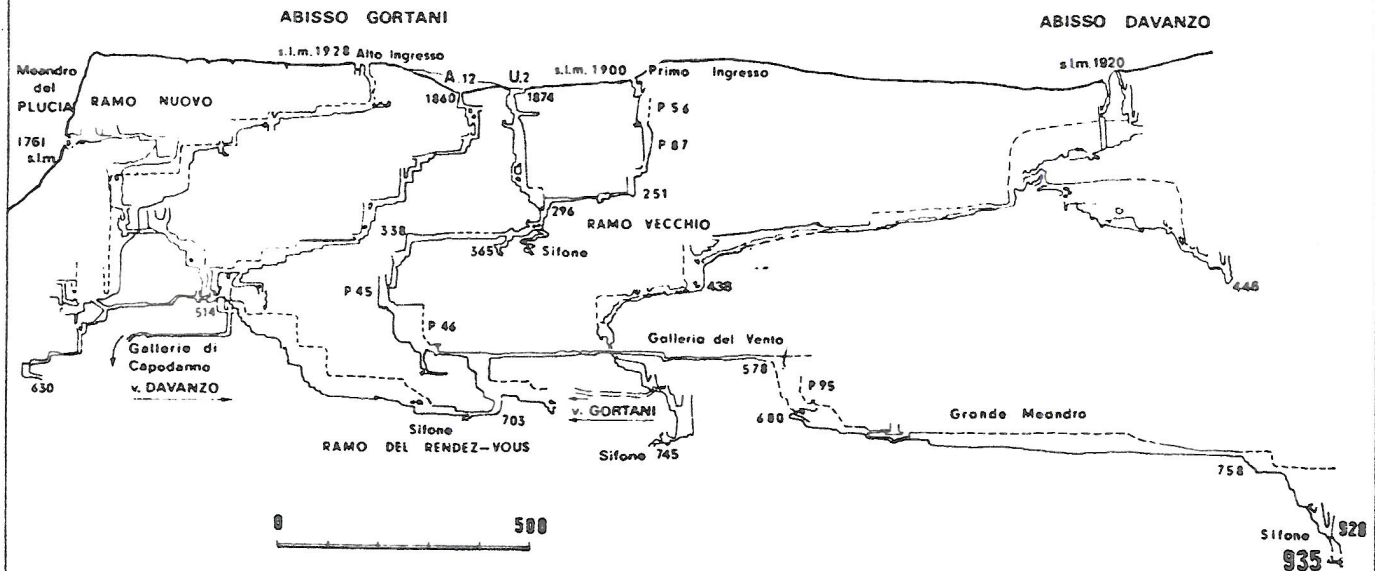
The caves are predominantly vertical, active shaft systems, fairly cold, with rock that is often sharp, so careful rebelaying is required. The lack of any formations might make some feel that the caves lack character, being more a test of rigging skills and prussiking muscles! These cavers are probably best despatched to the show caves of neighbouring Slovenia, where there is abundant stal, whilst "depth junkie" cavers get on with the sport!

Up until 1989 the deepest system on the plateau, and the only one with significant horizontal development, was the Complesso del Col delle Erbe (survey 1), at -935m. The Gortani system has a top entrance at 1928m, and the water resurges at the Fontana di Goriuda, 2km to the NW at 868m altitude. It is likely that the remaining 125m vertical potential is flooded. In Summer 1991, ropes were in place on the "via nuova" route, and we understood that they are replaced every four years.



# COMPLESSO DEL COL DELLE ERBE

MONTE CANIN - UDINE





The situation has now completely changed with the discovery of two caves on the Yugoslavian side of the ridge. Veliko Sbrege involves a 520m "entrance series" of pitches, followed by 5km of active river passage reaching -1198m. With the cave pre-rigged it currently takes 40 hours to travel to the end of the cave and back. Exploration time must be added on to that! Skalaria has been pushed to -995m, and both caves still have many leads in them. Not surprisingly, they have attracted cavers from far afield.

Thunderstorms can occur frequently. Whilst exiting from the Gortani, one group were delayed for 8 hours at -550m until water levels on the pitches had subsided.

## Exploration

Some of the caves might first have been visited during World War I, when the ridge formed the border between Italy and Austria-Hungary, and was the scene of fierce fighting in which 2000 soldiers lost their lives. The area today has many look-out posts, rock trenches and tunnels with rusty shells and grenades scattered about.

Serious cave exploration started in the 1960's, based mainly on the A. Michele Gortani. The plateau is being chiefly worked on by cavers from Udine and Trieste. The Trieste groups (CGEB and SAG) have been responsible for the finds on the western part of the plateau, from the Cuel Sclaf to Monte Poriz. The Udine group (CSIF) have been working on Col Lopic and Monte Robon, with unprospected limestone further to the east. Members of British clubs (MUSS, BCC, ?BPC) visited the area in the 1970's to assist in the exploration of the Comici.

The area (8km x 2km) is not intensively caved. During four weeks in Summer 1991 we only met other groups on three occasions. The future potential is enormous.

The remoteness of the caves makes rescue a very serious proposition. During the exploration of Veliko Sbrege, an accident drew cavers from all over NE Italy (Caves & Caving, 48) on a major operation that lasted several days. Our closest call was during a four-man trip to the bottom of the Gortani. One of the group missed the turn-off to the terminal siphon, and ended up falling 20m into it from a slippery ledge above, hitting the rock walls on the way down. He escaped with damaged forearm ligaments and a gashed face, and managed to struggle out from -892m with one good arm, mild hypothermia and recurring double-vision, albeit in a total trip time of 28 hours!

## Practical Considerations

Sella Nevea, at 1170m (map 2) is the most suitable place from which to base exploration of the area. The ski resort is rather small, with a lack of caving essentials (cheap accommodation, bar/restaurants and food shops). At the western end is a field allocated for camping, but, since it has no facilities, discrete roadside camping, to the east and outside



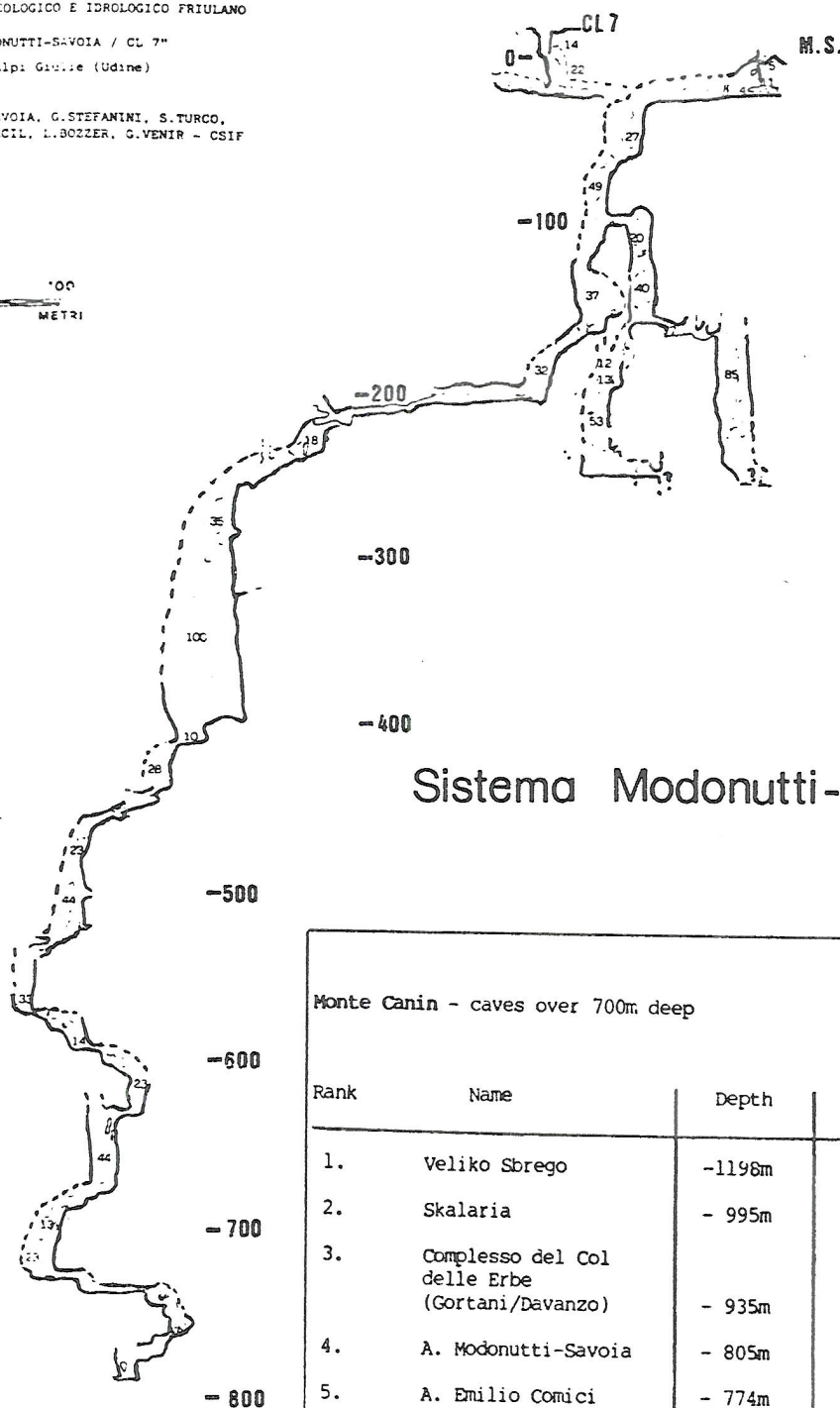
CIRCOLO SPELEOLOGICO E IDROLOGICO FRIULANO

Sistema "MODONUTTI-SAVOIA / CL 7"

Col Lopic - Alpi Giulie (Udine)

Rilievo: F.SAVOIA, G.STEFANINI, S.TURCO,  
M.VECIL, L.BOZZER, G.VENIR - CSIF

0 100  
METRI



## Sistema Modonutti-Savoia

Monte Canin - caves over 700m deep

| Rank | Name   | Depth  | Length  | Altitude |
|------|--|--------|---------|----------|
| 1.   | Veliko Sbrego                                  | -1198m | > 5000m | 2080m    |
| 2.   | Skalaria                                       | - 995m | no data | no data  |
| 3.   | Complesso del Col delle Erbe (Gortani/Davanzo) | - 935m | 13000m  | 1928m    |
| 4.   | A. Modonutti-Savoia                            | - 805m | 1000m   | 1800m    |
| 5.   | A. Emilio Comici                               | - 774m | 1500m   | 1993m    |
| 6.   | A. Presso la Quota                             | - 760m | 560m    | 1942m    |
| 7.   | A. ET5   | - 726m | 1056m   | 1918m    |
| 8.   | A. II del Monte Poviz                          | - 720m | 656m    | 1888m    |
| 9.   | A. Paolo Fonda                                 | - 705m | 734m    | 1850m    |

A. Eugenio Boegan - 624m 663m 1850m  
Not particularly deep, but a well-established vertical classic with two pitches of 150m and 128m.  
Unfortunately only clear of snow about one year in five.  
Closed in 1991. (Caves and Caving, 51).



of the village, is just as good. The CAI Rifugio Julia is another possibility, if your budget will stretch. The nearest supermarket is the small one in Tarvisio, 30 minutes drive to the NE. There does not even seem to be a 'superstore' in Udine, so it might be worth buying cheaply in bulk before arriving in the area.

Access to the plateau is by cable car ("funivia"), with a return charge of about £5 to climb 700m in a few minutes. Well worth it! During the descent, two or three days later, with the cable car filled with dirty, tanned, hungry, stinking cavers and countless muddy tackle sacs, it was always fun to watch the disbelief on the faces of the tourists.

The cable car offers rapid access to the plateau in winter, from where local cavers have skied to reach caves, often kept clear of snow by the draught from within. Winter brings extra risks though. The Bivacco Davanzo-Vianello-Picciola is named in memory of the first three cavers to reach the bottom of the Gortani, but who were swept away by an avalanche on return from the same trip, as they descended in the dark towards the lights of the Rifugio Gilberti.

For Col Lopic and Monte Robon, on the eastern end of the plateau, it makes better sense to use Sentieri 637, despite the one and a half hour ascent. All the paths marked on the map are well marked on the ground, but there are no others, the rest of the terrain being hard-going over scree or pavement.

Camping is not really feasible on the plateau, mainly because of the lack of soil, the frequent storms, and the existence of perfectly good bivouac huts. The Bivacco DVP at 1930m is used as the base for exploring the Gortani, while the Bivacco Modonutti-Savoia at 1900m is used for the cave of the same name (survey 2). They both provide bunk beds for 12 and a cooking stove (bring your own gas). Water is collected from nearby snow patches and rivulets, but is not plentiful.

Unfortunately, being partly funded by the CAI, the bivouacs are not locked, and are open to all, which means regular visits during the day by walkers. Our group had 500m of rope and 50 hangers stolen from a hiding place near the Biv.M.S. Be warned! The Rifugio Gilberti at 1850m is busy during the day, but in the evening, after the last cable car has descended, it provides a great place to seek warm shelter and gaze out over the limestone bathed in crimson light, whilst sampling the well-stocked bar.....

## Bibliography

Harry Lock

The Underground Atlas, J Middleton & A Waltham (1986).  
Atlas des Grandes Cavites Mondiales, Courbon & Chabert.  
Caves and Caving 48 & 51, International News section.  
1976 British Expedition to the Abisso Emilio Comici,  
MUSJ Journal (a good read).  
Mondo Sottoteraneo, Journal of the CSIF.  
Progressione, and Attie Memorie, both produced by CGEB.  
Speleologia, the Italian version of Caves and Caving.

## SLOVENIA 1991

It was Simon and Dewi who first returned with stories of a land to the east of the Julian Alps. A land where the women were dark and mysterious, the liquor strong, the food delicious and diverse, and above all the, the exchange rate favourable. With such a description, Slovenia seemed a paradise compared with a rather bleak NE Italy, dominated by the terrible scars of ski routes. Before long, more and more of our time was spent sampling the touristy areas of this recently war-torn land. By the third week of the tour it was a foregone conclusion that we would spend our last week there.

Our first stop was at the show cave of Skocjanske Jama. The guided tour turned out to be a spectacular experience, the lack of any sporting caving being easily made up for with superb formations. We were led through chamber after chamber of the largest stal' and curtains I had ever expected to see - even the more worldly-wise members of the group were impressed. Finally the route taken led into a massive stream passage with a walkway traversing round many metres up the walls. Well worth a visit!

During the tour the guide had soon deduced that we were cavers and after the tour he located us in the bar (cavers evidently think alike all around the world) and offered to take us to a closed show cave. We accepted, rather through good manners than-will and were taken first to the local caving centre to pick up the keys and then to the cave. It had little to offer compared to the grandeur of Skocjan, but the hospitality was appreciated.

Having finally parted company we went in search of a speleo-camping, briefly visiting in passing the Karst Research Institute near Postojna to pick up some info on the region. We finally found the speleo-camping hidden away amongst the local farming communities. The place was well equipped, with a shack for cooking; toilet and washing facilities; and a large sleeping area in the loft. From the log book it seemed we were by no means the first western-european group to have stayed there - clearly it has been advertised and if in the area it is certainly the best place to stay cheaply.

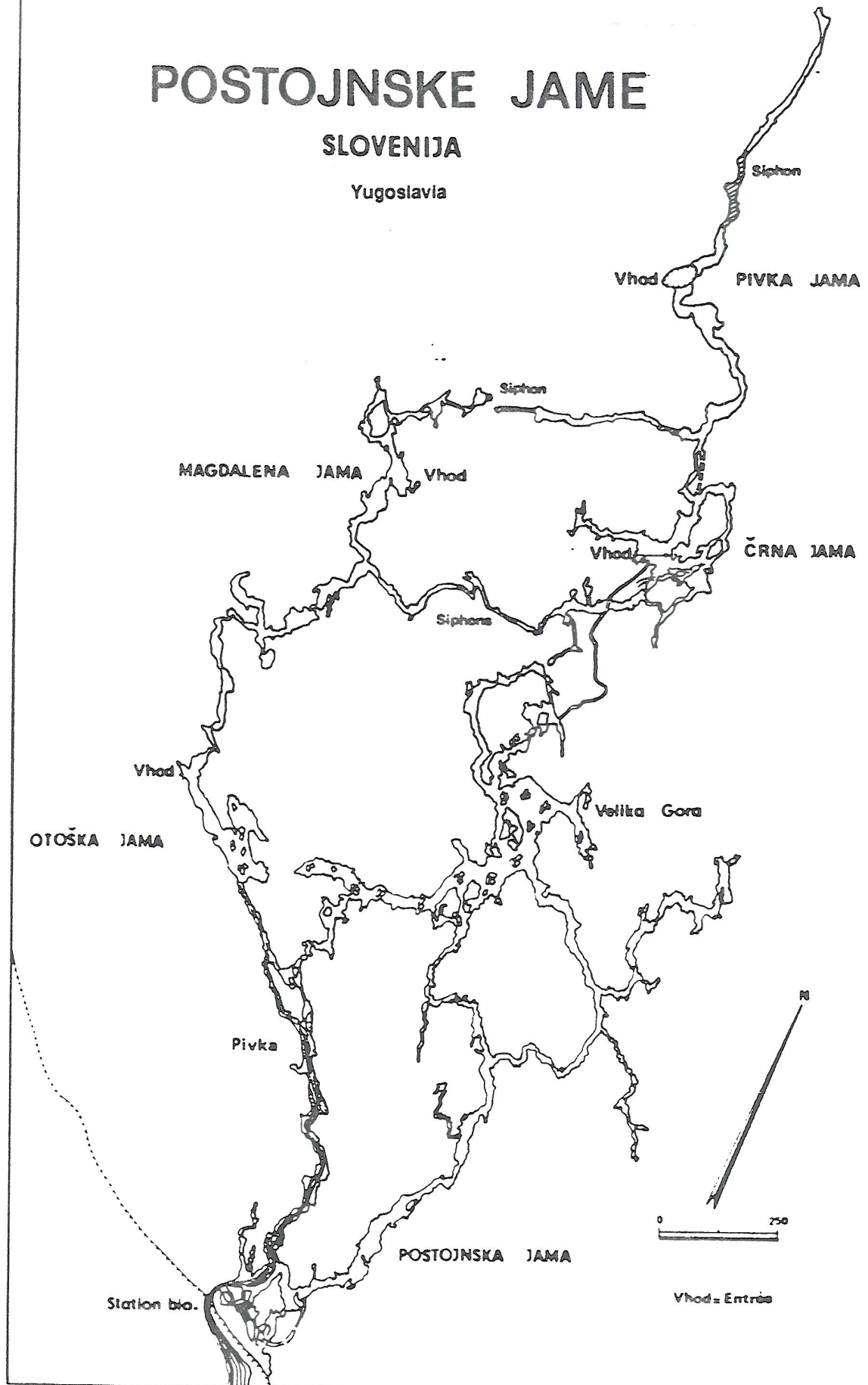
A number of muddy caves are very close to the camp site, however we chose first to visit the famous show cave of Postojnske Jama. Inevitably the degree of tourism is fairly horrific, although because of the recent fighting there were actually hardly any foreign tourists. Nevertheless, the large fossil caverns, entered by a  $\frac{1}{2}$ km open-top train ride, is certainly awe inspiring. We learnt from the very laid-back and humorous guide that formations here grow at ten times the rate of those in Britain, at the astonishing 1cm every ten years (if you believe the guides!). All the guides appear to have been schooled by the same tutor, since they all take untold pleasure from tapping the columns to produce varying tones. In Skocjanske Jama this was entertaining but by Postojna it was getting tedious. However, even after Skocjan, the immense size and the total domination of the cave by formations makes Postojna a fantastic place. Rather detracting from the magic of the place, though, was the tourist shop and



# POSTOJNSKE JAME

SLOVENIJA

Yugoslavia



bar at the end of the show cave - a sight for sore eyes for some perhaps, an eye-sore for others. Of particular interest for me was the pool (in the concrete forecourt of the bar) containing cave salamanders, a species unique to the area. Another train ride returned us to the surface and a sad goodbye to a cave I shall never forget.

Feeling in need of more sporting caving, we kitted up the next day for a nearby cave, the location of which we had previously been shown by the owner of the speleo-camping. A small entrance leading to a 6m pitch put us in the horizontal part of the cave. The cave was short, roomy and very muddy, much like caves in Fermanagh, N Ireland. (Note: the region's caving community is close-knit and obey strict self-imposed rules about cave discipline which they obviously expect visitors to follow. Even though the cave had no formations we were careful to follow the regular routes through the mud). The cave, I admit, was a bit of a disappointment sport-wise, but in a pool off the streamway was a large colony of cave salamanders: a surprise and to me the highlight of the trip.

That afternoon we accepted an offer to visit another show cave, (?Pivka Jama). The streamway which dominated this cave is the same that flows in Postojna. As with all show caves, casual clothing sufficed. The cave consisted simply of large concrete paths running parallel to the river, although, so large was the passage, that it absorbed the lights and made the visit far from memorable.

Our final sample of the area's caving was a guided tour of a younger cave by the name of Krizna Jama. The dry entrance passages had once been the home of cave bears, of which fossil remains were plentiful. The rest of the cave was of a fairly deep stream passage which was traversed with the aid of inflatable boats. The river is part of the same system as Postojna. The immaculately preserved cave (helped by regular, large changes in water level) and the spare but spectacular formations made it a unique experience. Learning boating techniques in a restricted space also proved entertaining. In particular the gour pools and an enormous glacier-like section of flowstone were a source of much frustration. The route ended with a small dry chamber filled with a profusion of calcite formations. We exited by the same route and the boating proved as entertaining on the way out. Throughout the cave our muddle-headed guide was, well ..... interesting, which if anything added to the character and enjoyment of the trip. In typically hospitable manner he then suggested that we go to his home, sample his grappa, and enter suitable comments in the cave's log book.

Sadly we then had to leave for England, after a memorable and unexpected visit to newly-independent Slovenia.

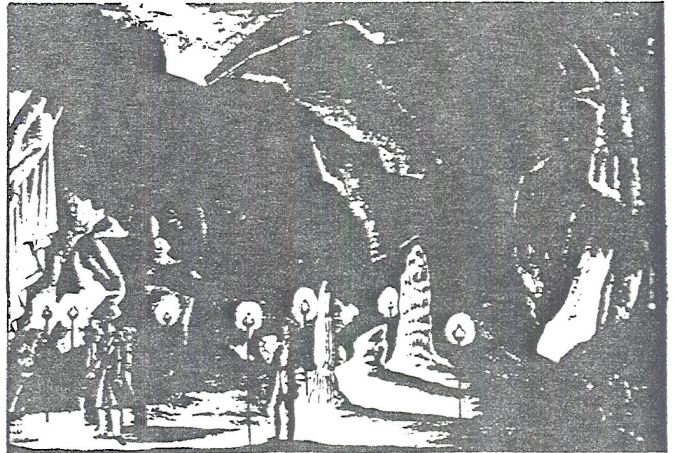
Alva Gossan



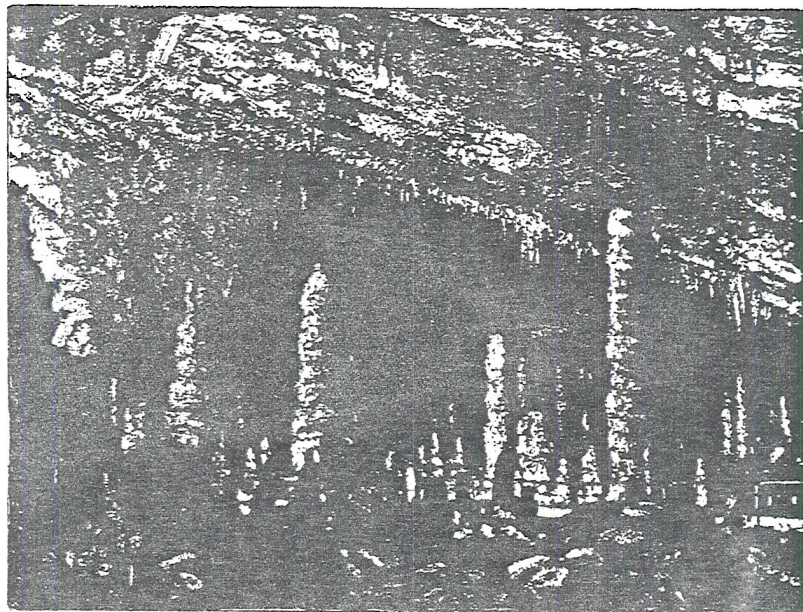
### Postojna - 170 Years of Tourism

"In the presence of this splendid freak of nature it is somewhat disenchanting to find that the whole thing has been reduced to a system, and that you are confronted by a neat little wooded bureau, where a courteous old gentleman meets you with an inquiry as to 'which kind of illumination you wish to order'. Meanwhile your landlord, with a steadfast eye to business, essays to tempt you by sowing the tablecloth with photographs of the cave and its surroundings."

New York Times, 1881



▲ 1856



◀ 1899

1925 ▼



"The Postojna Caves, a 27km long system of underground galleries, ranking among the mosy beautiful and easiest accessible caves in Europe, invite you too to join the imposing figure of their 23 million guests who have visited this jewel in the past 169 years."

Slovenian Tourist Board, 1987



## UNDER DURRES

### A Reconnaissance of Albania

Surrounded by areas full of summer tourists, all that can be seen of Albania by holiday-makers in Yugoslavia or Greece are the gaunt and forbidding mountains which line its landward borders. In 1982 I'd stood on the Astraka Massif in northern Greece and looked across the impenetrable border (Greece and Albania were then still formally at war). The limestone mountains carried on and on into the distance as far as the eye could see; huge tracts of mountain karst, all of it unexplored. To quote the Underground Atlas (1986):

"The small Balkan republic of Albania, situated within the great Dinaric mountains and bordered by the eastern Adriatic Sea, contains some of the least known and wildest country in Europe. Some two-thirds of the land rises above 800m. Limestone predominates..... Caves are known but specific details are at present unobtainable. Access is severely restricted and there are no organisations specialising in any aspect of karst study."

Albania has remained remote, sinister and apart - as well as oppressed and poor - since the Second World War. From 1944 until his death in 1985 comrade Enver Hoxha ran the state as his personal Stalinist fiefdom.

An early ally was Yugoslavia, but relations turned sour when Tito broke with Stalin in 1948. Thereafter a close alliance with the Soviet Union allowed Hoxha to consolidate his hold and create the ultimate communist, atheist police state. However this increasingly tenuous relationship with the Soviets ended in 1961 when Krushchev denounced Albanian Stalinism, and Hoxha's plans for massive industrialisation had to be postponed in favour of collectivised agriculture. The Chinese briefly courted the country and they built the light-manufacturing and steel works which finally allowed Hoxha to realise his dream of a totally independent, self-sufficient country. Then Mao died and his successors were dubbed "revisionist" and so, since 1978, Albania has stood sternly alone. Only last year has change occurred, with the first democratic elections, the removal (in part) of the old communist order, and an increased openness to the west - in anticipation of financial aid. Sadly though, as the iron grip of central control has been loosened, social and economic systems have largely broken down and the country is now (Dec 1991) slipping toward famine and chaos.

### Getting There

Formerly the only way to enter Albania was as a tourist in one of the limited and tightly controlled groups. Strictly it is no longer forbidden to travel independently. It is now theoretically possible to arrange in advance via the State Tourist Board, Albturist, to enter the country by road, sea or air and travel where you like. However in practice arranging anything with the Albanian authorities in advance would be extremely difficult and you would still have to travel between tourist hotels via a pre-arranged itinerary. Pre-arranging is not an Albanian strong point, even once you're in the country - our official Albturist group had to change route at a days notice due to "problems". Furthermore obtaining food would be difficult, even with hard currency, and fuel virtually impossible since petrol stations as such do not exist. Nevertheless I did see a few western registered cars.



In June/July 1991 I went in a group of twenty, arranged by Jules Verne Travel. Apparently this was the last UK tour to go. Since then, the deterioration of conditions within Albania have forced all tour operators to suspend visits. Britain does not yet have diplomatic relations and the Foreign Office is currently advising strongly against travel. These are, then, my impressions after a brief visit in the summer of 1991, during a period of very rapid change. Who can say how things will develop in 1992 and beyond?

.00.

From Titograd in Montenegro the southward road was narrow, steep and badly maintained. Clearly little traffic makes its way to the border. Here on the edge of a vast reedy lake was the border post marking an international frontier in the old Cold War mode and one of only half a dozen or so land crossings into Albania.

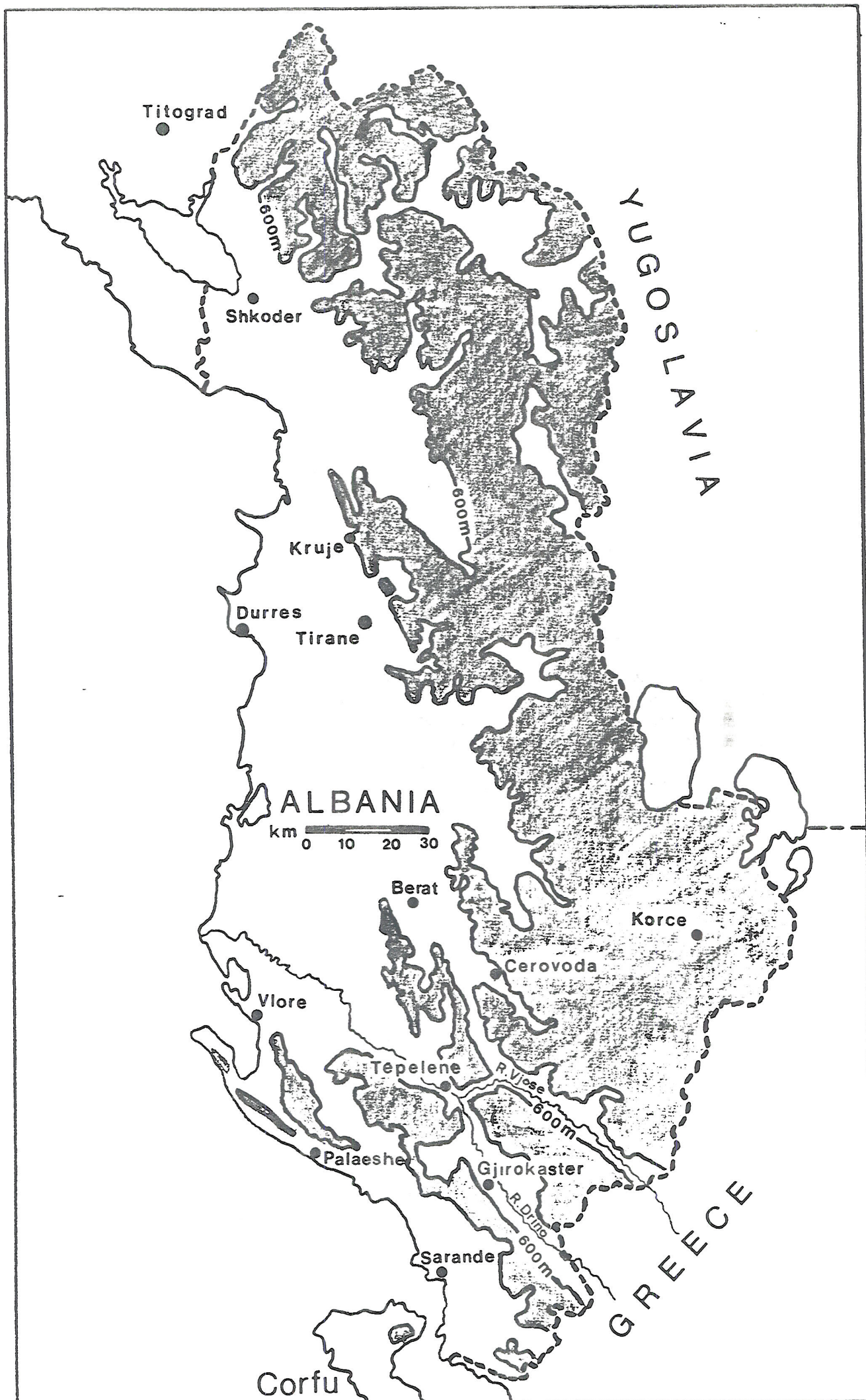
Leaving the Yugoslav side we walked the hundred metres of no-man's land under the gaze of watch-towers, search lights and armed guards. Customs formalities were thorough but courteous. All luggage was searched for arms, drugs, pornography and anti-albanian propaganda. The lingerie adverts in the Yugoslav Airlines inflight magazine were studied with inordinate interest and finally confiscated (ostensibly because they were Yugoslavian: therefore anti-albanian). Beards, Bibles, mini-skirts, condoms, journalists and Americans are however no longer forbidden. Neither do you still have to walk through the bath of disinfectant.

Formalities completed we trooped aboard the coach - a modern Mercedes 30-seater as comfortable as any on the market. And then it was off through a pitch black night for the northern city of Shkoder. We arrived in the small hours of the morning at the city's only hotel: a modern tower block built on a vast, silent, central square and dwarfing every other building around. I finally got to sleep to the howl of wild dog packs prowling the deserted streets and, more worryingly, to a couple of bursts of machine gun fire!

### The North-West

Shkoder, like all Albanian towns, rustles awake. No car horns shatter the quiet; no traffic jams block its boulevards. There is the pitter-patter of sandalled feet, the creak of bicycles (not many of those either) and only occasionally the growl of a lorry. Until 1991 private cars were forbidden and they remain unobtainable. Even in Tirane, the capital, which we reached that evening, there is virtually no traffic. A haphazard collection of Chinese- or Soviet-built buses, trucks and vans provide public transport, and in the absence of anything else the police blow their whistles at pedestrians. Tirane is a small city with open countryside just 20 minutes walk from the city centre.

In Tirane I looked hard to find any shops or bars, but the only signs of commercial activity were a desolate open-air market and a bakery, with long queues but no bread. As hard currency tourists we were always supplied with hearty, if unexciting, meals. Sadly for a country based on staple agriculture the break up of central control, and distribution problems, have now taken many regions to the brink of famine. However, last summer, there were only a few signs of the later food shortages. There was however a severe shortage of beer since the brewery was on strike (along with the docks, railways and much of the industry). But the hotel had managed to produce an unusual "home brew" which was considerably





cheaper than imported lager. There was also plenty of wine: reds which were potent and very good, and whites which at best were sweet and fairly uninspiring.

The main tourist sights of Tirane are the Museum of Archaeology and Culture (closed for "reappraisal" ie. for history to be rewritten) and the Monument to the Martyrs. From this memorial on a hill above the city you can look north and east towards the mountains. Massive sheer cliffs and behind them great blocky massifs gleamed in the sunlight. All of it looked like prime karst but was really just too far away to see clearly. However, the fortress town of Kruje was on the tourist route and this allowed a much closer look. The town is built by a spring, halfway up an impressive escarpment which forms the western edge of the Malesia Krujes plateau. From the town up to the cliff top (about 500m at a guess) is all massively-bedded limestone with a slight dip to the east. What is on the top and behind this scarp I unfortunately have no idea. However near the village of Fush Kruje (some 500m below the town) is reported to be a resurgence cave with a large walk-in entrance and consisting of an upper series connecting via several pits to a streamway (Jack Baer, 1977). Depth and length are unrecorded. This suggests that the limestone continues under the forested slopes below the sheer cliffs, almost to the level of the coastal plain ie. a depth potential of at least 1000m. Sadly my Albturist leash was kept short and I can say nothing more.

After a day and night spent at Durres, Albania's main port, notable for its huge Roman amphitheatre, and for the thousands of would-be refugees waiting in the side streets to rush the lines of troops, for passage to Italy (more gun-fire at night) we moved southward. We sped across the flat, fertile and well-irrigated coastal plain on well-made asphalt roads. Mile after mile the road was planted with lines of poplar and eucalyptus which stood out in sharp contrast to the huge treeless fields. In the dark shadow of these avenues the workers from the fields took refuge from the scorching noon-time heat. Most of them were women wearing head-scarves, black skirts and thick brown stockings. And they all looked knackered, nothing like the heroic uniformed women - advancing out of the dawn waving rifles and announcing the imminent demise of Imperialism - on the roadside poster hoardings. They were harvesting maize, wheat, tobacco and sunflowers, and they all looked eighty though they might easily have been eighteen. Their menfolk were driving the tractors, leading the oxen or just sitting, smoking in the shade. The schools were shut for the summer holidays so the children were there too: herding goats, walking the cow on a lead, throwing stones at independent-minded pigs or splashing in the irrigation ditches with the livestock. (I saw few dogs and fewer cats - a legacy of the Chinese perhaps?). In sharp contrast to these sun-burnt kids was the orderly troop of school-girls marching off to summer camp - with rifles and fixed bayonets - just like mummy in the poster.

A word here about photography: strictly it is forbidden to photograph anything of a military nature - including bridges, factories and railways. In practice the Albturist guide turned a blind eye to our photography, which was just as well since it is virtually impossible to take any "scenic" photo without some military installation getting in the way. From North to South, on either side of the road what looked like countless thousands of concrete mushrooms sprang from the ground. Every part of the plain, every valley, had line after line of them drawn across it. Every village, every town and city had concentrations of these blockhouses in and around them. And back on the hill sides there were bigger fortifications and casemates for tanks and heavy guns. The whole country exudes an air of siege. And none of this was a relic of some long past emergency. Though some now looked a little overgrown, many were recently

repaired and some, especially the bigger ones, still mounted guns and were manned. More than once the promising holes in a limestone cliff, on closer look turned out to be man-made, each with a field gun or tank inside.

### Southwards into the Mountains

Eventually we left the plains for more hilly country stopping first at Berat. This ancient citadel allowed another tantalising glimpse towards huge gleaming mountains. However as we moved nearer this whiteness resolved mostly as snow - a bit of a surprise to see large alpine snow fields, not just snowy peaks, so close to the coast and in mid-summer too. Nevertheless some of these mountains must still be karstic as there are caves. At the village of Korite, 4km from the town of Cerovoda, at the top end of Berat's valley is a resurgence cave. Reported to be 3 km long it was first explored by a naturalist from Tirane and never visited by foreigners. There are also reports of caves being broken into by limestone quarries. From Berat our route led through oilfields. Albania is self-sufficient in oil having its own refinery, however technology looked dated (like 1920s Texas) and pollution control was non-existent. It is also well endowed with minerals (it is a major source of chromium) and is self-sufficient in hydro-electricity.

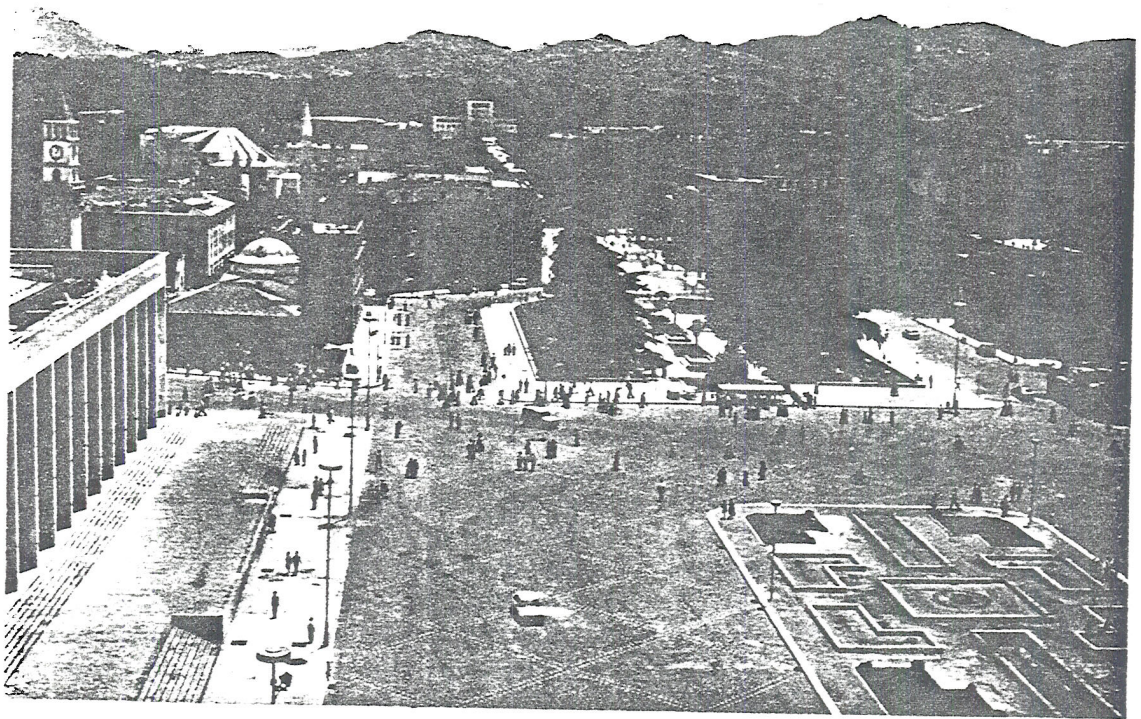
It is not always easy to identify good karst from a coach but the environs of Tepelene (an ancient feudal stronghold, now a coal-mining town) were definitely karstic with some spectacular escarpments and gorges. Tepelene sits at the confluence of the Vjose and Drino Rivers, and about 10km up the Vjose, in the river bank, is Mezghoranit Cave. This was visited by Jack Baer and he describes it as having a 5x7m entrance leading to many interconnecting chambers containing spectacular formations. The total length is reported by Baer from albanian sources to be about 8km (although he only explored 2km). The Vjose River comes from Greece where it is the Vikos, which drains the caves of Astraka, and the mountains here are the Zagor Pogan which are the continuation of the Zagoria Range from Greece. These are the ones that had tempted me in 1982, and yes, they seem to be limestone all the way from Greece.

25km south of Tepelene along the Drino River is Gjirokaster, a delightful town whose dry-stone buildings are built in exactly the same style as the Greek villages around Astraka. In more recent times Gjirokaster is remembered as the birth place of Enver Hoxha (Hoxha museum closed for "reappraisal") and for one of the largest statues of Hoxha to still be standing - it was pulled down about a month later. A small town of cobbled streets and friendly children, I liked Gjirokaster, but I fear it may all too soon become a foul tourist centre when Albania starts to realise the power of the tourist pound, dollar and mark.

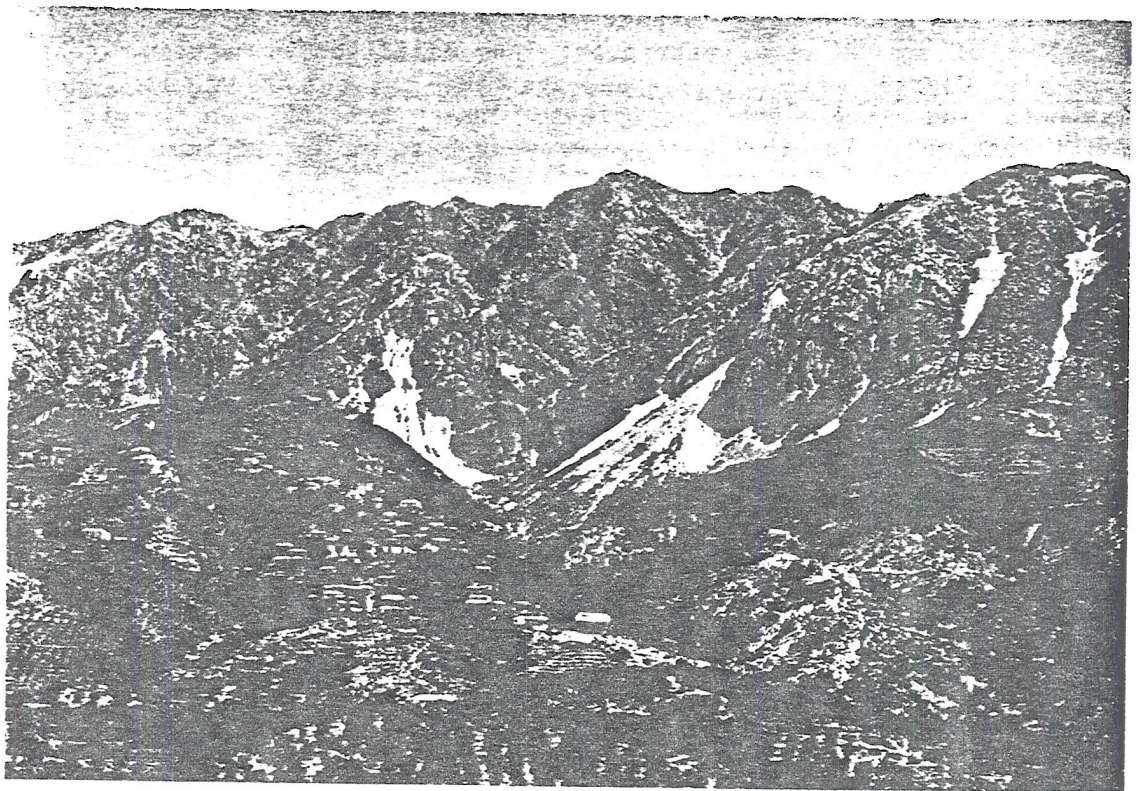
Further down the valley towards Greece there are a series of villages built along a prominent spring line. Here at the village of Vanista, about 10km from Gjirokaster, is another cave visited by Baer. In his words: "This is a severe stream cave which the Albanians have only explored for the first 250m. Lacking a wet suit, I did not even get this far, but I am confident that it could turn out to be a lengthy system."

The road continues, suitably fortified, to the border about 10km away, but we moved westward over the Muzina Pass, and in doing so got a closer look at the limestone above the resurgences. Along the west side of the Drino it dips at about 40° to the east. As in Astraka it tends to be quite thinly bedded, although it appears more massive in the higher ranges in the distance which are the true continuation of the Greek ranges. The vegetation was only poor grass and scrub and so the overall solid geology





Rush hour in central Tirane.



Typical limestone mountains north of Sarande.



was easily traced for miles. As we drove over the pass I could see no obvious sinks or closed depressions but there was a small resurgence cave lower down the other side where the road follows a narrow gorge. We finally arrived at Sarande on the coast with the bulk of Corfu lying just 6km offshore - so near yet so far. The straits were still patrolled by gunboats and there was even a soviet-built submarine running on the surface (pointed out by a trainee naval officer who avidly described the armament, number of crew etc and described the life of an conscript sailor on an Albanian submarine - grim! . Such a conversation would be unthinkable a year ago and is still probably treasonable!). The country around Sarande and southwards to the Greek border is of low rolling hills, all limestone but very thinly bedded and interspersed with marls. There are probably some caves, but nothing very big.

Northwards from Sarande the road soon left the coast and climbed into mountains again. There was some very spectacular scenery - not all of it karstic though. In particular north of Palaeshe the road crossed several deep gorges taking run-off from high rocky mountains. It then switch-backed its way up the side of Mt. Cikes (2045m) which looked like one enormous lump of limestone rising straight from the sea - but I'm not certain. Over the ridge the scenery was like the Vercors: exciting cliffs and ridges but heavily forested. Here a motorcyclist had gone under a bus on a hairpin-bend. The body and wreckage were lying across the road and no-one would move anything until the authorities arrived. A nearby naval radar post had contacted Vlore (30km away) and the police and an ambulance arrived about 1 hour later - not bad going, but cave rescue might be a bit different.

During the delay we chatted to the bus passengers. Few ordinary people spoke much more than a few words, although a foreign language is compulsory at school where it will be as likely French or Italian, as English. For so long any contact with foreigners was suspect and personal freedoms of speech very restricted. The constitution states that the People's Courts will "..... educate the masses of working people to respect and implement socialist law, relying on their active participation". In other words, everyone must be an informer.

As a consequence, now that it was permitted, they all wanted to talk about politics, religion, Kosovo (an ethnically albanian region of Yugoslavia annexed by Serbia), my job, my life, their future, how the US was going to give them millions of dollars in aid, and why it would be a good idea to turn the beautiful, unspoilt coast into an Albanian Benidorm. Three lads, carrying all their worldly goods in cheap sports bags said they were going to Greece. They had relations in Ioannina and so were intending to get jobs there. They had no passports or documents and so were going to walk across the mountains to avoid the border guards (of both sides) - I wished them luck.

After stops again at Durres and Tirane, where US Secretary of State James Baker was addressing the crowds outside my hotel window (heavy on platitudes, very light on promises) we trundled back across the border into Montenegro. The contrast was immediately apparent: we were back with tidy houses, flower gardens, modern cars, shops, restaurants, bars, night clubs and neon lights. From Titograd we flew out via Belgrade and Zagreb. It was three days after Slovenia and Croatia had declared independence, and troops with armoured vehicles were already stationed outside the airports - and I'd thought Yugoslavia looked so civilised!



## In Conclusion

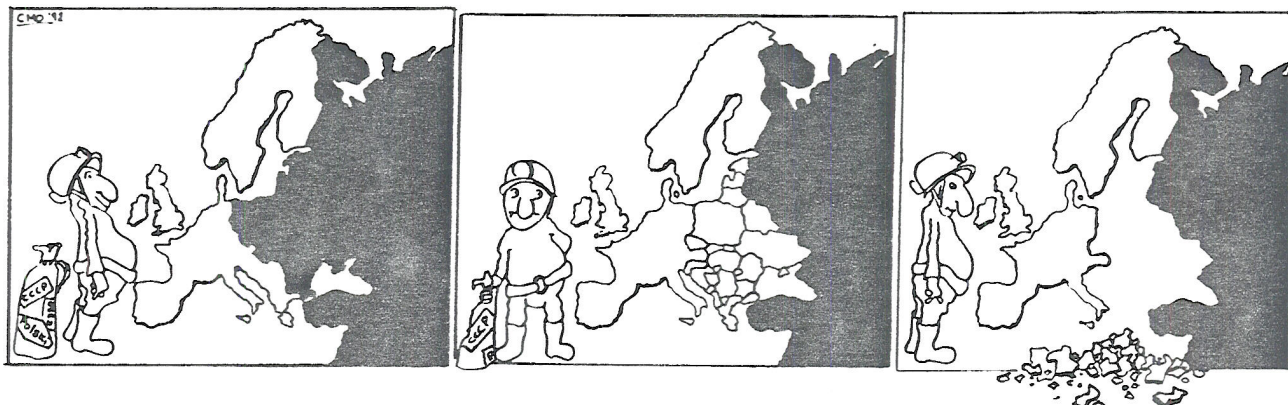
There is clearly a vast amount of good karst in Albania and a lot of it is certainly cavernous. I got a reasonable look at a good chunk of the south-western mountains as well as glimpses of other areas. The best regions for big, deep systems however probably lie further east closer to Yugoslavia. There are few reports of any caves from these areas although there have been archaeological finds from numerous caves near Korce. In contrast to the areas I saw, the eastern regions are much wilder and more inaccessible, with fewer roads and towns. Many overland journeys here still have to be made by pack mule or horse.

Exactly what the near future holds, few can say, but I would expect Albania to open up again soon, and ultimately to extend a warmer welcome to visitors than formerly. Doubtless some French cavers are already showing interest in the country. Unlike the UK, France has maintained its diplomatic and cultural links, although I have heard that Britain is soon to open an embassy. I have sent an open letter, translated into Albanian, to someone at the University of Tirane inviting anyone interested in Albanian caves to contact either myself or ICCG, though I suspect the students have other things to worry about at the present. I intend to go back soon and get into those wild, unspoilt eastern mountain ranges - hopefully with independent transport, and with any luck, in the company of a local caver. Despite (or perhaps because of) fifty years of isolation and oppression, it is still an intriguing and beautiful country.

## References

- Jack Baer, "Caving in Albania", *British Caver* 67 (1977) pp 12-14.  
John Middleton & Tony Waltham, "The Underground Atlas", (1986) pp 25.

Clive Orrock



## DEEP THROAT

A Chinese man, 19-year-old Zhang Chuangming, fell into a 100 foot deep cave last year, while collecting wood in Shangzhi county. After living on water from underground pools for 33 days, he was finally rescued when his cries for help were heard by a passer-by.



## CLASSIC CAVING

An extract from "Operation -1000" by Jean Cadoux, the 1955 account of the exploration of the Gouffre Berger. Read it, and give copies to anyone who says, "why do you go down those holes?"!

The water ran down my sleeves, poured over head and shoulders, and must have gone out through my trousers. I put on all speed, but I was soaked to the skin when I reached the basin in which the shaft ended. I shook some of the water off, I freed the rope and went after Garby, who had disappeared into a small gallery littered with loose rocks. Gradually the noise of the waterfall behind us grew fainter as we crawled along among the boulders; I said nothing, but I greatly feared this was to be the end. The gallery narrowed; intrusions of calcite blocked it. Was it all over, our splendid dream? Was it to end like this, in such a futile way, in a lot of muddy rocks? No, not yet; a cat-run appeared and drew us through into a small chamber, where, to our surprise, we heard the sound of water. Was this another cascade? I stopped a moment to listen. That rumbling noise, like one brought by an echo, could it possibly be...?

I gave Garby a tap and he led off again. Elbowing ourselves a few metres farther on we were through the boulders. Garby had suddenly stopped at a sort of porthole in front. What was it he saw? I was just going to ask, when I was rewarded with something that sent a glow all through me; a wonderful smile, the smile with which the climber welcomes the summit, or the treasure hunter the object of his quest. I knew what it must be... yes, it was... it really was the River!

I took Garby's place at the window in the rocks and was lost in admiration of what I saw.

What a sight it was! What an ample reward! The full assurance of victory at last! A river, a really magnificent river, the sort of river every cave-explorer dreams of, was actually flowing just below us. There it was, a lovely, powerful creature, leaping over stones and frisking in the hollows in its rocky bed. A glorious sight! I glanced to right, to left, then up into the roof; the spaciousness of night everywhere. The river flows in a vast gallery, big enough to match our happiness, worthy of this great collection of caves. Our hearts warmed towards those others of our team, shivering above us in their sopping clothes, bending over the edge of the chasm and trying to read the message of the black pit which had swallowed us. The thought of these loyal friends sounded a discordant note in our moment of supreme enjoyment. I felt ashamed that only two should share what was due to all. I wished I could have had them beside me, that all together could have gazed upon this entrancing scene; to look on it alone was more than we deserved. I know the thought of them was in our minds as we prepared—too moved to speak a word—to set foot upon this virgin bit of earth.

Like tiny glow-worms, astray in this dark impressive scene, we pushed on, now going along the banks, now jumping from stone to stone; not walking, but running, such was our urge to feel the intoxicating effect of all that our eyes could not take in.

The gallery grew lovelier and grander every minute; we felt as if night itself were beside us as we went. We skirted pools, where the mud introduced a less cheerful note. Then came a stretch where the dominating effect was whiteness; a calcite floor polished by running water. Four hundred metres was traversed at racing speed with sudden interruptions to stop and gaze and exclaim in admiration. Then came a lake, a superb lake, to check our wild career. We tried to get round it on a cornice, but this curled over. No help for it; that was the end for the day. Not that we had anything to regret, we could go back and renew the

pleasure of discovery by describing it to the whole party. For 'the more happiness is shared, the surer it becomes'. So we left the lake and the two cascades that made such charming music as they spread their rippled patterns across it.

I wrote on a page of my diary: 'The best Fourteenth of July ever.' July 14, 1953—1 a.m., and below the names of all who had contributed to the happiness we were enjoying.

But let us return to the shivering crew above without staying a moment longer, and spare them a needlessly long wait. On the way back I took various compass bearings and counted my steps, I spotted the window in the rocks, and after a last look through, entered the narrow passage that led back to the well-watered shaft, henceforward to be called Aldo's shaft in gratitude to the man who had helped us to descend it.

'Hullo! up there?'

'We've found the river! It flows along a vast gallery at least thirty to forty metres high!'

The noise of the waterfall drowned our voices and I had to repeat the words several times before Aldo could make out what I was saying. A loud hurrah showed he had understood, and from one level to another the good news went up till it reached Gontard 80 metres above, who was feeling ill, but stuck to his post. All I need say of our climb back to the surface is that it was arduous, in fact very arduous, but cheerful. We rolled up the ladders, we coiled up the ropes, and we described over and over again all we had seen, and every time it brought a longing look into the listener's eyes; they gazed into ours as if they could draw out the vision stamped upon them.

When we came to the shaft above the Boudoir, Garby's shaft, each man, as he waited his turn to go up, sank down and fell into a restless sleep, broken by sudden awakenings, horribly unpleasant owing to the bitter cold. And when his turn came he was glad to get some warmth back in his body by climbing the ladder.

The return through the winding cleft was a gruelling business. Our numbed fingers had lost the sense of touch and could not feel the holds, and the wretched sacks, heavier than ever with the soaking they had had, kept catching and tearing on sharp bits of rock (aided by much wear!) and were a frightful nuisance where we had to get along by backing. Every time we moved forward we had to wedge them with elbows or knees, or we should have dropped them in our struggles. That actually happened to one of us in the narrowest part. Not that it fell so very far! But to get it up the fifty feet it had descended so easily meant a good half-hour of cursing and of violent exertion!

One by one the familiar landmarks came in sight, Cairn Hall, the waterfall shaft, the cat-run, and at 4 p.m. after 27 hours in the chasm, it released us into the sunshine, seven waifs, seven starving men covered with mud, wet through, chilled to the bone but inwardly exultant, uplifted by the joy that rewards successful achievement.

We snatched a moment's sleep on the sun-warmed slabs of the *lapiaz*, before the chill of approaching night bade us seek warmer quarters. Last of all came the drive back, a drive like many others, and dangerous because the driver keeps only one eye open while the other shuts upon a good conscience. That night my dreams were of the river.



The real  
"A team!"



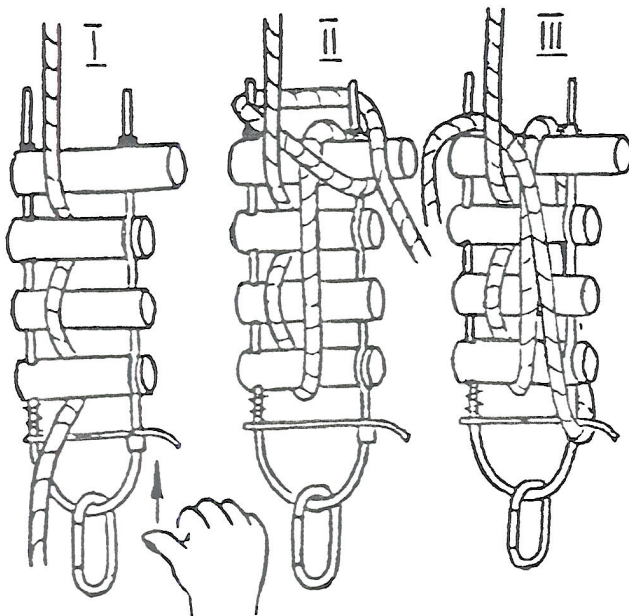
## ★ SOVIET DESCENDER DESIGNS

With the Soviet Union having been isolated from Western Europe until very recently, it is not surprising that some very different and distinctive designs of descender have evolved there alongside more familiar forms. The following is simply a catalogue of descender designs manufactured in the USSR (with a couple from Bulgaria and Czechoslovakia) up to 1991. The drawings are all the information I have: I don't know what they're made of nor have I any meaningful data on their performance and use. How long, I wonder, before some of these find their way into British caving shops?

Details are from: "An Analysis of SRT Descenders", by Konstantin B Serafimov of the National Association of Soviet Speleologists, publ. in Nylon Highway 32, June 1991.

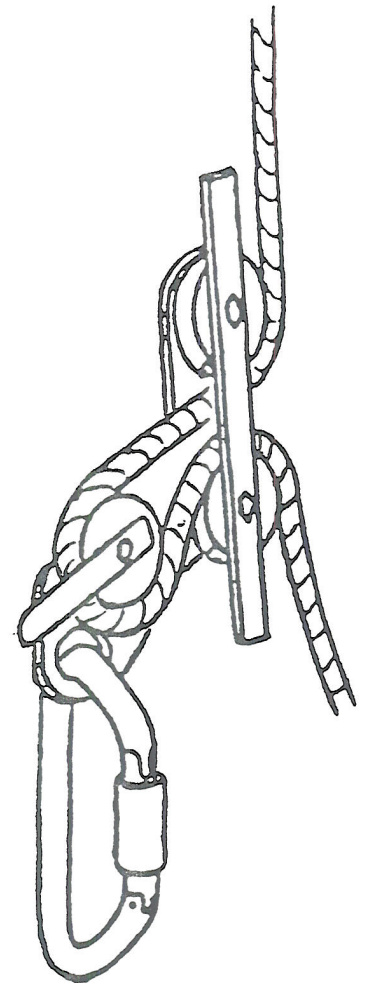
CMO

### СПОСОБЫ ФИКСАЦИИ ВЕРЕВКИ

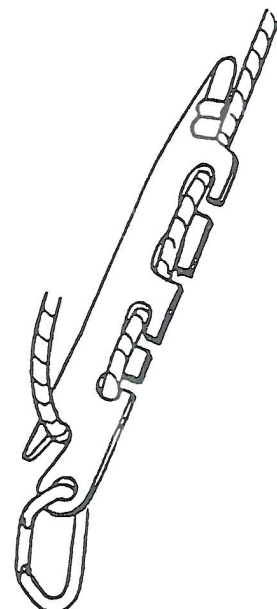


RS Rack Descender by Serafimov -  
Methods of locking

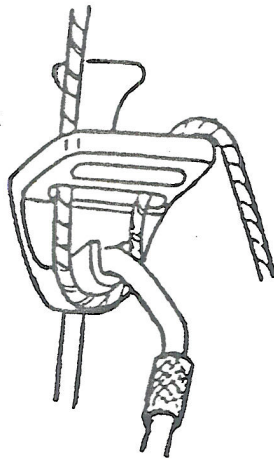
Whaletail-type brake  
by Maznitsa



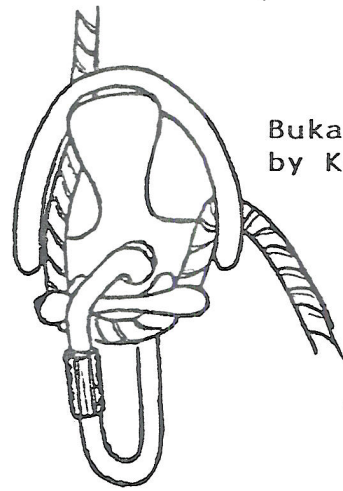
Triangle by  
Kosorukov



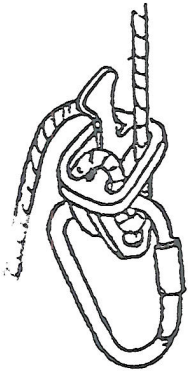
Bukashka  
by Kashevnik



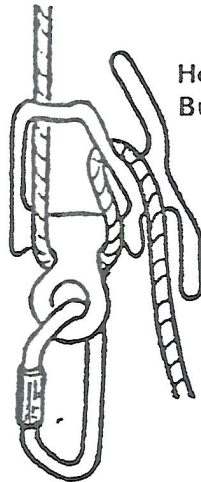
Bukashka-2  
by Kashevnik



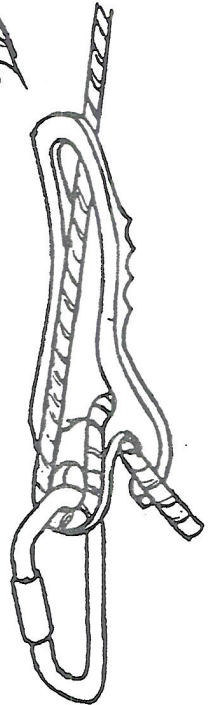
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by Kashevnik



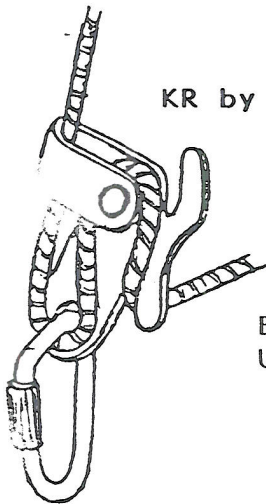
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Bulgaria



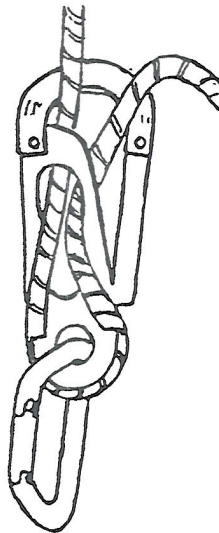
Petal  
USSR



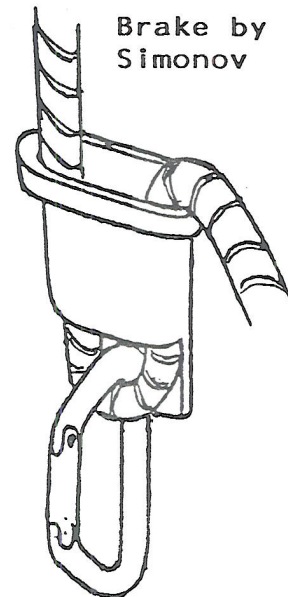
KR by Duisekin



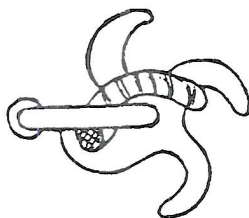
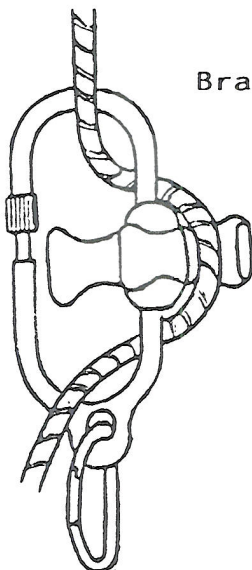
BSU Descender  
USSR



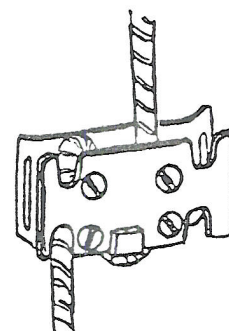
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Simonov



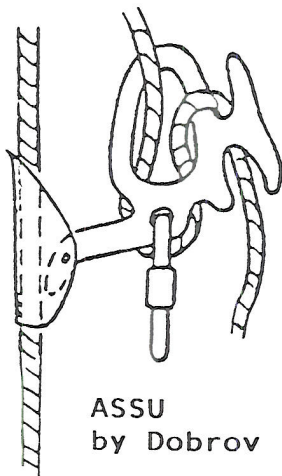
Brake by Kovtun



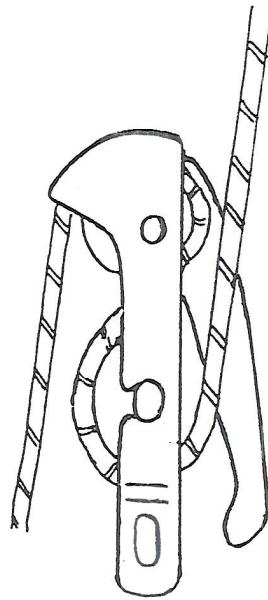
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by Kiev



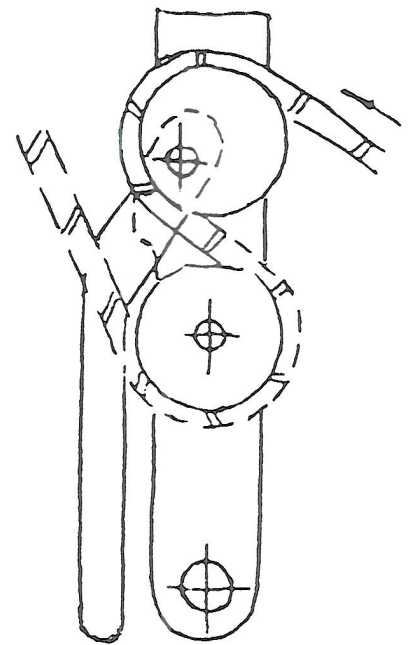




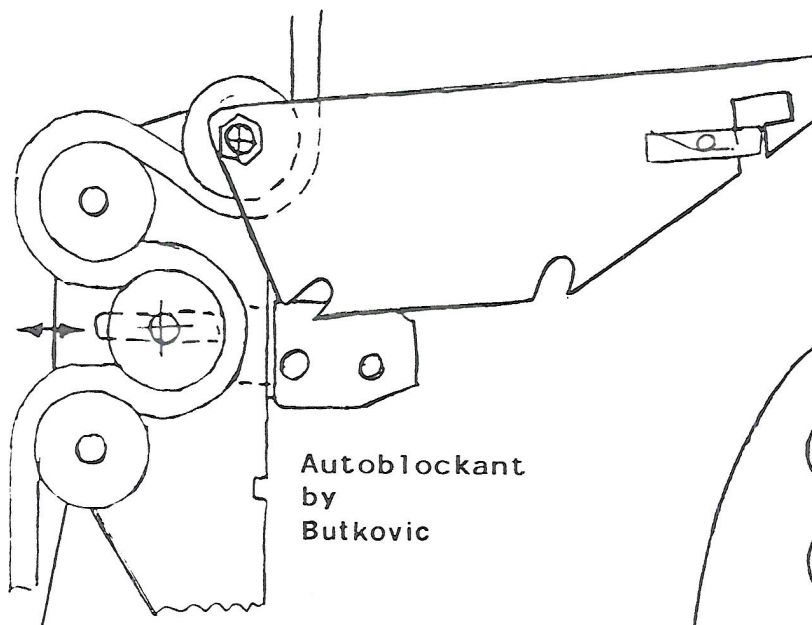
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by Dobrov



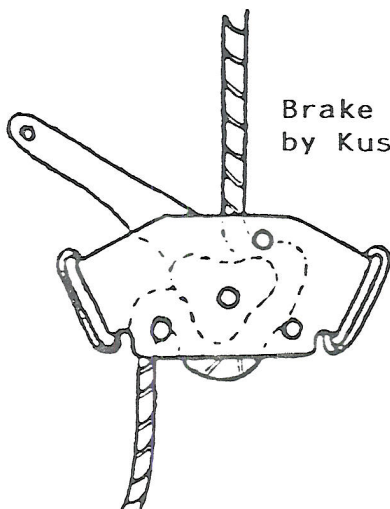
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Golubev



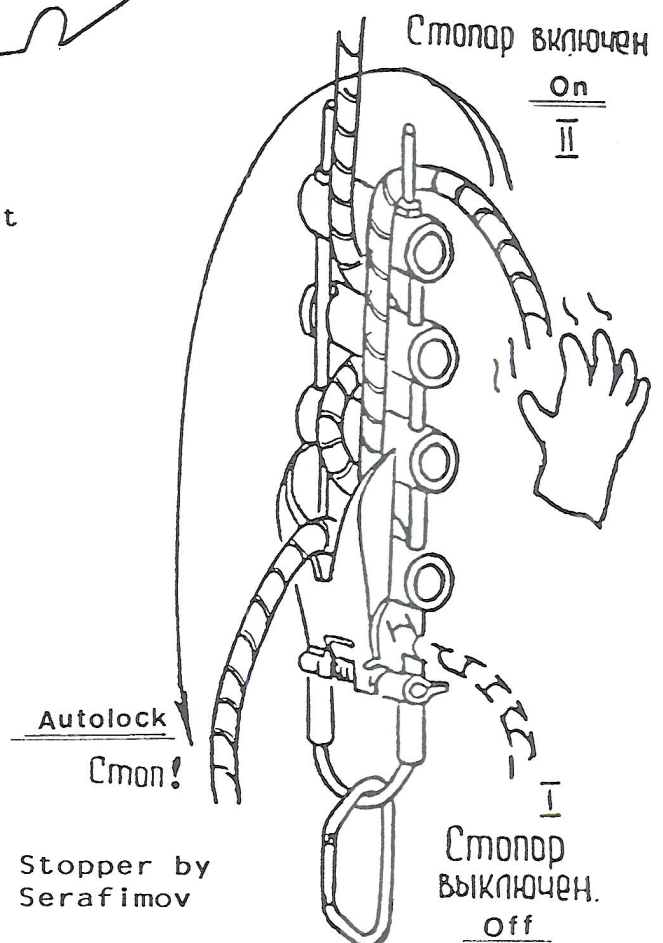
Autoblockant  
by Shtibrany  
CSSR



Autoblockant  
by  
Butkovic



Brake Petal  
by Kushner



Stopper by  
Serafimov

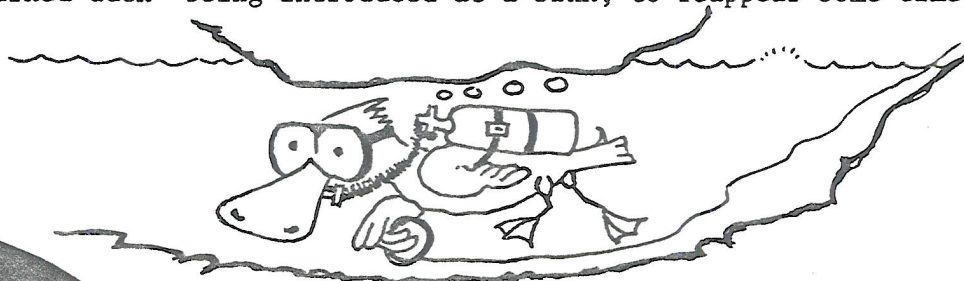
CCC Tours and Expeditions to 1991

| Date              | Area(s)                                  | Main Cave(s)  | Main Account  |
|-------------------|--|---|---|
| Summer 1966       | Chartreuse, France                       | Reseau de la Dent de Crolles<br>inc. diving in Fontaine Noire | J.LUCC <u>1</u> (1966)                                      |
| Easter 1967       | Co. Clare, Ireland                       | Pollnagollum - Pollelva                                       | J.LUCC <u>3</u> (1967)                                      |
| Christmas 1967/68 | Vercors, France                          | Various   | J.LUCC <u>6</u> (1968)                                      |
| Summer 1968       | Chartreuse and<br>Vercors, France        | Various inc.<br>Reseau de la Dent de Crolles                  | J.LUCC <u>9</u> (1969)                                      |
| Autumn 1970       | Himalayas, Nepal/India<br>(ICCC & UCLSS) | Expedition<br>inc. Harpan River Cave                          | British Karst Research Exped.<br>to Himalayas Report (1970) |
| Summer 1971       | High & Middle Atlas,<br>Morocco          | Expedition  | IC Exploration Board<br>Reviews 1970-1974                   |
| Summer 1971       | Vercors, France                          | Gouffre Berger (with ULSA & MUSS)                             | J.LUCC <u>12</u> (1971)                                     |
| Summer 1972       | Junin & Tingo Maria,<br>Peru             | Expedition inc. Cueva de Guagapo<br>& Millpu de Kaukiran      | "Cave Science" J.BSA <u>52</u><br>(1973)                    |
| Summer 1975       | Teverga, Cantabria<br>Spain              | Expedition<br>inc. Cueva de Wueva                             | IC Exploration Board<br>Reviews 1975-1981                   |
| Easter 1976       | Tarmeza, Cantabria<br>Spain              | Karst reconnaissance  | _____   |
| Summer 1976       | Tarmeza, Cantabria<br>Spain              | Expedition inc. diving in<br>Cueva Vegalonga                  | IC Exploration Board<br>Reviews 1975-1981                   |
| Summer 1979       | High Atlas, Morocco                      | Expedition  | IC Exploration Board<br>Reviews 1975-1981                   |
| Christmas 1979/80 | Ardennes, Belgium                        | Various   | _____   |
| Summer 1980       | Co. Clare, Ireland                       | Various   | _____   |



|                   |                                |   |                                   |
|-------------------|--------------------------------|---|-----------------------------------|
| Summer 1982       | Astraka, Greece                | Expedition  | "Caves & Caving" <u>20</u> (1983) |
| Summer 1983       | Vercors, France                | Various inc. Gouffre de la Fromagère                | ICCC Newsletter <u>1</u> (1983)   |
| Summer 1984       | Cajamarca, Peru                | Expedition inc. Gruta de Uscopisco                  | "Caves & Caving" <u>27</u> (1985) |
| Summer 1984       | Chartreuse, France             | Various inc. Réseau de la Dent de Crolles           | _____                             |
| Summer 1985       | Vercors & Chartreuse           | Gouffre Berger & Gouffre Marco Polo                 | _____                             |
| Summer 1986       | Rocky Mtns, Canada             | Expedition  | "Caves & Caving" <u>37</u> (1987) |
| Summer 1987       | Apuane Alps, Italy             | Complesso Fighiera - Antro del Corchia              | "Caves & Caving" <u>40</u> (1988) |
| Summer 1988       | Marguareis, France/Italy       | Complesso di Piaggia Bella                          | "Caves & Caving" <u>43</u> (1989) |
| Summer 1988       | Picos de Europa, Spain         | Cabexa Muxa   | "Caves & Caving" <u>44</u> (1989) |
| Spring 1989       | Haute Savoie, France           | Réseau Jean Bernard                                 | ICCC Newsletter <u>12</u> (1989)  |
| Summer 1989       | Vercors, France                | Antre des Damnés                                    | ICCC Newsletter <u>13</u> (1990)  |
| Christmas 1989/90 | Jura, France                   | Réseau du Verneau                                   | ICCC Newsletter <u>13</u> (1990)  |
| Summer 1990       | Chartreuse, France             | Réseau de la Dent de Crolles                        | ICCC Newsletter <u>14</u> (1990)  |
| Summer 1990       | Dominican Republic             | Expedition  | ICCC Newsletter <u>14</u> (1990)  |
|                   |                                |   | "Caves & Caving" <u>54</u> (1991) |
| Christmas 1990/91 | Co. Fermanagh, Ireland         | Various   | ICCC Newsletter <u>15</u> (1991)  |
| Easter 1991       | Jura, France                   | Réseau Bel Espoir - Diau                            | ICCC Newsletter <u>15</u> (1991)  |
| Easter 1991       | Co. Fermanagh, Ireland         | Various   | _____                             |
| Summer 1991       | Julian Alps,<br>Italy/Slovenia | Abisso Michele Gortani -<br>Abisso Modonutti Savoia | ICCC Newsletter <u>16</u> (1992)  |
|                   |                                |   | "Caves & Caving" <u>55</u> (1992) |

So far as can be judged from local legend, primitive water tracing has been done both deliberately and unwittingly throughout the centuries. Stories abound of grain, chaff, leaves, mud, dog-biscuits (just the right bouyancy) and even "a well-marked duck" being introduced at a sink, to reappear some time later at a spring.



"...a well-marked duck"

Chaff etc. may be enough for Britain's modest caves, but from Burma comes the tale of teak logs being used to prove the connection between a huge sink and a resurgence some fifty miles away! Another popular theme worldwide is that of animals, murder victims, jilted lovers etc. who were thrown down potholes, and whose gruesome remains re-emerge from a nearby spring singed and blackened having literally gone through Hell to get back to the surface. (How the infernal fires and the water table could be superimposed seems always to have been ignored).



In Britain more sophisticated techniques seem to have been in vogue. Pipers, buglers and drummer-boys were stuffed down holes and their underground meanderings followed on the surface by listening to the frantic drumming and piping, until the poor musician finally expired.

Such primitive die-, err... dye-testing isn't very scientific and it generally been found to be more socially acceptable to use other methods.

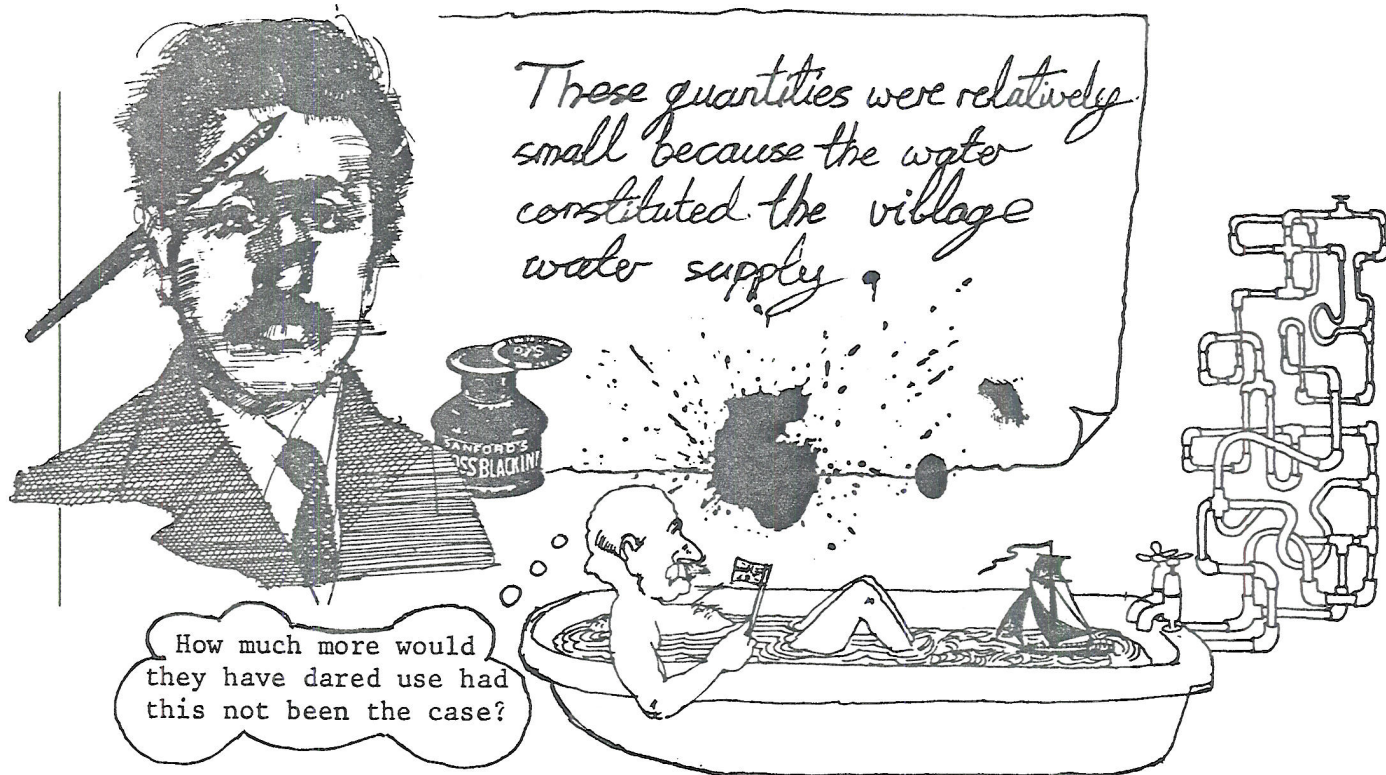


Simple chemical methods have been used with some success. In 1900 the Yorkshire Geological Society dumped a fifth of a ton of ammonium sulphate into Fell Beck at it flowed into Gaping Gill. Five days later a considerable amount of ammonia was detected at Beck Head by Ingleborough Cave. How much of this, though, was due to the stench of rotting, poisoned fish!?

Encouraged by these results the test was repeated a month later using fully a ton of salt....

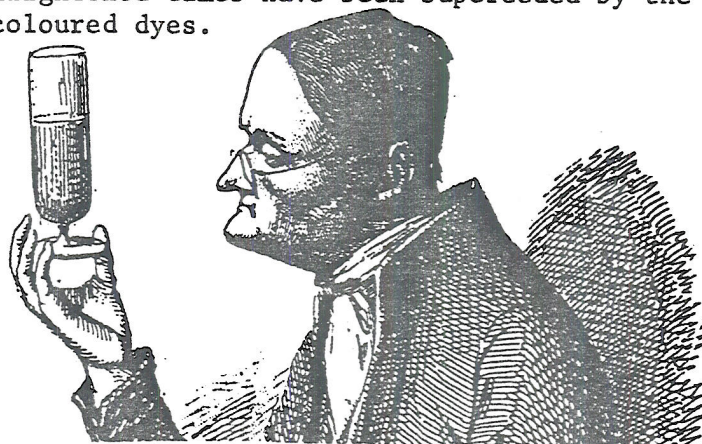


..... In their report it was commented that:



Effective as these crude tests undoubtedly were, they tended to be a bit damaging on the environment, and in these enlightened times have been superseded by the use of fluorescein and other brightly coloured dyes.

Fluorescein itself is visible to the naked eye when diluted to as low as one part in 40 million, and in very clear water one part in 100 million has been detected by eye. More recently the use of fluorometers and other clever gadgets has made dye detection even more accurate and much easier at low concentrations.



The first well-known dye test experiment using fluorescein was conducted in 1877 and caused a great public sensation.



A few kilometers from its source, the Danube partially seeps away into fissures in its bed near the town of Immendingen. A certain Monsieur Albert Knop put

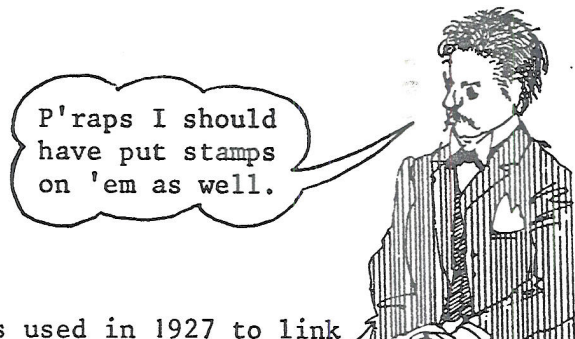
40 litres of fluorescein in here and it reappeared three days later in the large River Aach resurgence twelve kilometers away.



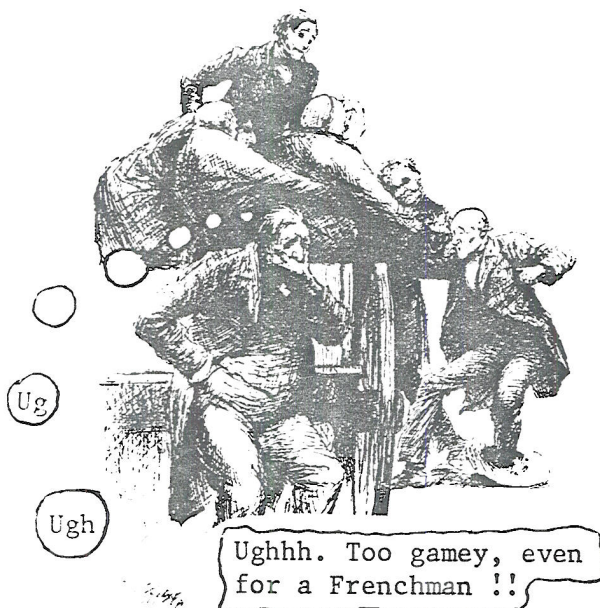
It is typical of cave waters that they pay no heed at all to surface topology such as the continental divide.

In another classic series of tests, Emile Beloc made three attempts at using dye in the Trou du Toro (Pyrenees) in 1896, 1897, 1900. He also had the patriotic idea of putting into the sink little cork floats, each tactfully painted in the colours of both France and Spain since he wasn't too sure on which side of the border they would emerge.

Inside each float was a rolled-up postcard addressed to the experimenter. Unfortunately, although the dye got through (to France) not one of the hundreds of painstakingly made floats ever found its way back to him.



Another original and successful procedure was used in 1927 to link the Recca River with the Timavo Resurgence (near Trieste). Several hundred eels, all with the dorsal fin marked in a characteristic way, were loosed in the Recca where it sinks. Fifteen of them were eventually recaptured in the Timavo river many months later and about 34 Km away.



The great Martel, to his cost, was involved in another faunal demonstration, not with eels but with a calf !! Passing the Graudene resurgence in 1891 after a hard days caving, he drank from the clear spring not realising that it might be connected with the Gouffre de la Berrie that he had explored a few hours earlier, and where he had seen the decayed carcass of a calf.

He developed ptomaine poisoning and was very ill for several months. This drinking of his "veal soup" as he called it encouraged him to fight against the universal pollution of cave waters.

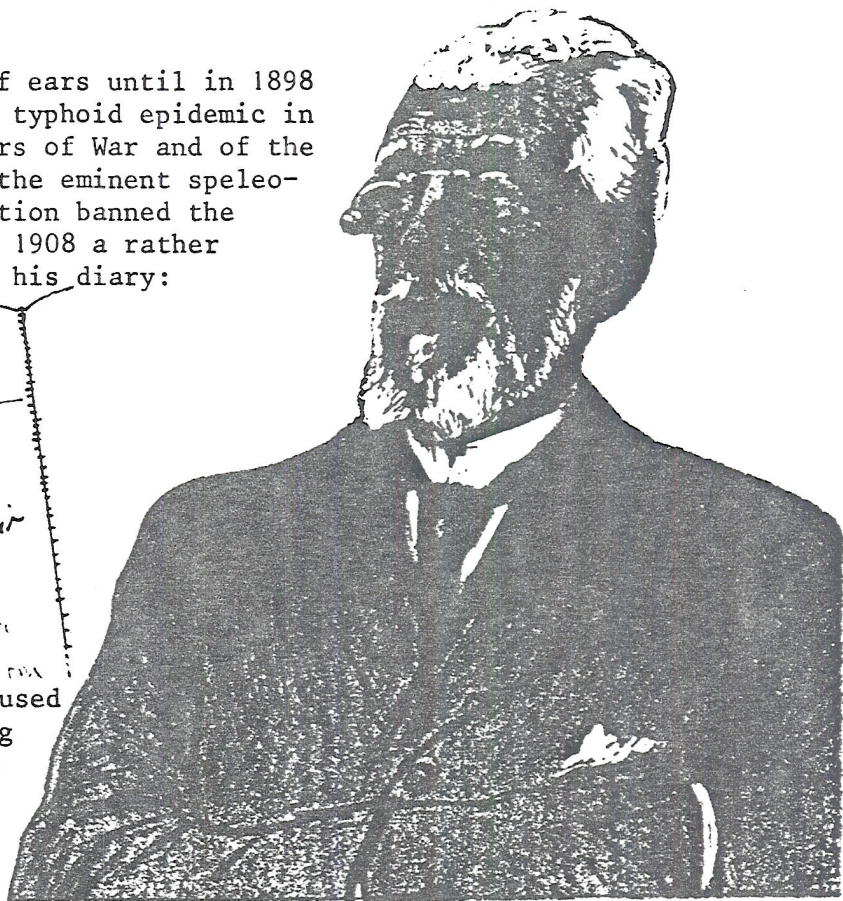


For years his warnings fell on deaf ears until in 1898 contaminated spring water caused a typhoid epidemic in a large army garrison. The Ministers of War and of the Interior now find time to consult the eminent speleologist and finally in 1902 legislation banned the dumping of refuse in potholes. By 1908 a rather smug Martel was pleased to note in his diary:

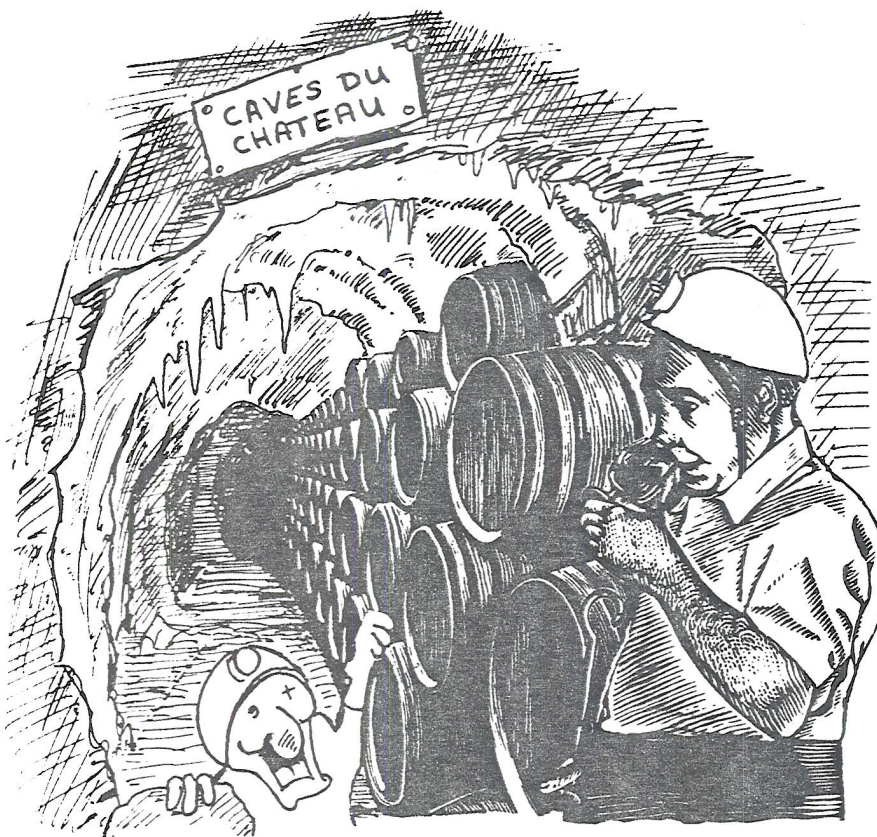
MONDAY

*Annual deaths from typhoid have dropped to a third of their pre-1902 level!*

Non pathogenic bacteria have been used for successful tracing, but putting 30 trillion bacteria into a stream that feeds, say Bristol or Leeds, does not court good press. Hence their use has been rather limited.



Another experiment concerning the drinking quality of spring waters unintentionally proved the existence of a subterranean communication between the Doubs and the Loue Rivers in France. A fire at the Pernod factory at Pontarlier in 1901 caused large quantities of the flavouring absinthe to pour into the Doubs. The next day a passer-by was attracted by a strong smell of Pernod coming from the Loue resurgence, thus proving that some of the water of the Doubs must seep underground to the resurgence of the River Loue 10 km away.



Such cave pollution might be considered God-sent by cavers today, but these were the days of that other French speleologist Robert de Joly who had very strong views against mixing cavers and alcohol, and would probably have shot any caver smelling of Pernod after a dip in the resurging cocktail. (De Joly considered a loaded revolver to be an essential piece of caving equipment..... and used it on several occasions as well !!!).

Whilst on the subject of mineral waters, drink etc, de Joly seems to be unique amongst French speleologists. Martel always took a flask of rum on his caving trips and although his telephone was ostensibly for safety, he, with true gallic concern for the inner man, often used it to order another celebratory bottle of wine to be lowered down the shaft.



Even in the austerity of Nazi occupied France, Petzl's and Chevalier's explorations in the Dent de Crolles were continually enlivened by "passing round the grog", or the "genial fragrance of Chartreuse".

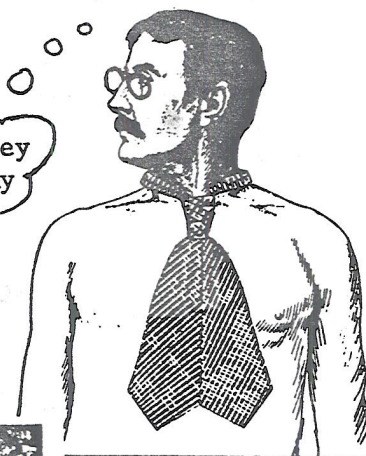
But I digress.....

Along the lines of the Pernod accident, other deliberately introduced aromatic substances have been used: dipenten smells strongly of lemons and isobornyl-acetate gives a spruce aroma. Rather than turning the resurgence into a bubbling mass of scented foam, these can be used quite subtly in small amounts and apart from the usual visual methods can be detected by calorimetry. Optical brighteners, those invisible, colourless dyes that "wash whiter than white", by fluorescing in UV, are excellent for illicit testing. However along with detergents and Radox aromas, these can cause confusion when used near human habitation, especially on wash day. Nowadays even fluorescein is put into "lemon" washing-up liquid.

All these visual (and nasal) detections are all well and good if you are prepared to wait about at the resurgence(s), but clearly the best methods of using tracing dyes involve placing detectors at all the possible resurgences. Unbleached cotton wool or activated charcoal can be tied down (tampons even have a convenient string already attached) in the stream, to be collected and examined at leisure for fluorescence. (Unfortunately other organic matter such as peat or dead leaves etc. might have got to the dye first to diminish the trace). Without such detectors, tracing is time consuming and since too little colouration means a failure it is only human to err on the high side. Thus the most spectacular tests using dyes have been obtained by over enthusiastic experimenters.

One of the most dramatic dye tests was that carried out by Norbert Casteret in the Trou du Toro using a huge 55 kg of fluorescein. This enormous quantity of dye reappeared unexpectedly in less than 24 hours and promptly coloured the River Garonne bright green for over 60 km downstream. With hands and clothes still stained by the dye Casteret had to spend many hours avoiding irate fishermen.

I wonder if they found any of my floats ?



Oh go on, mon cheri, just one more wafer-thin tub of fluorescein

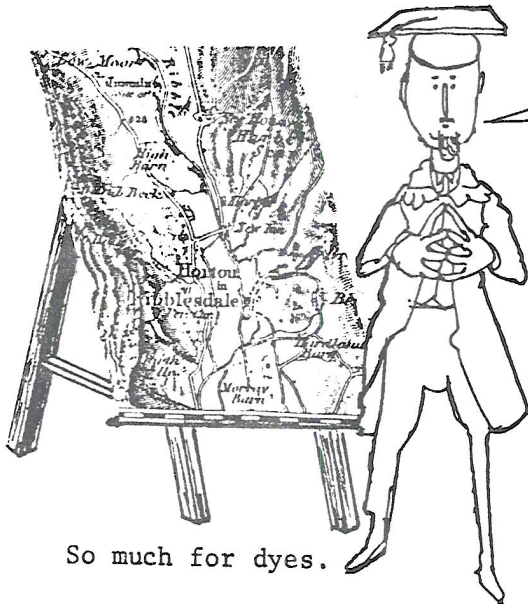


19 July 1931 : Norbert & fellow conspirators (Mademoiselles de Sède et Casse, and Norb's mum) plus 60 kg of dye, enough to colour about 1,000,000,000 litres of water!



Such order of magnitude errors can of course be prevented by the use of detectors and in Britain (especially now that rainwater is privately owned by share holders) a must. Becoming even more sophisticated the use of fluorometers can detect traces as low as one part in 1,000,000,000,000 as well as distinguishing between different dyes.

Properly used dyes are very effective:



The longest recorded time for a dye test  
was in 1952 when 20 kg of fluorescein was  
put into the Sumène River in France to  
emerge nearby fully 18 months later.

The longest karstic underground connection  
yet proved by dye tests is that of the water  
sinking from Beysehir Lake in southern  
Turkey. This next comes to daylight nearly  
110 km away at the mouth of the Dudensuyn  
Cave near the Mediterranean coast.

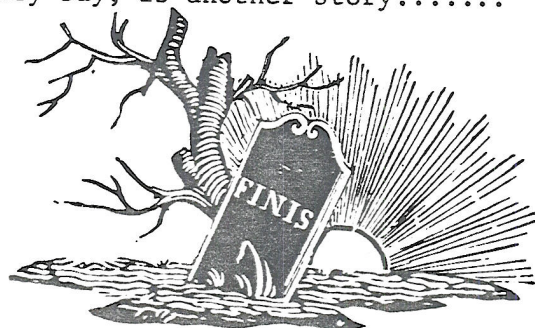
So much for dyes.

Of the various physical additives (dog biscuits, ducks etc) the best is lycopodium spores which are of virtually the same density as water and are very small - just ten times the size of typhoid bacteria. Although tedious to prepare they can be dyed different colours and so used to test a number of streams simultaneously. They are also suitable for very heavily contaminated water. Additionally they have also proved to give an accurate assessment of water flow rate. (Dyes apparently travel at only 80% of the water flowrate, whilst spores travel at almost the same speed as the water - why?) Still more sophisticated is the use of radioactive isotopes, but these, like bacteria, suffer from poor press even if the technique is perfectly safe.



However, although all these methods give the place(s) of discharge, relative volume of flow and throughput times they still do not give any details of the actual route taken. Perhaps with modern advances in miniaturisation we might one day have the mini transmitter whose solo underground route from sink to resurgence can be followed by surface-bound mortals using a molephone. Better still would be a device capable of sensing and quantifying horizontal and vertical movement (such as are used in cruise missile guidance systems - only smaller) which when recovered from the resurgence and plugged into a computer proceeds to draw a complete survey - surely the ultimate for the armchair cave diver/surveyor.

But for the present we still pour dyes, detergents, radioactive and carcinogenic chemicals down sink holes in the name of science and exploration. Still I suppose this is just part of mankind's long tradition of the use and abuse of caves, but that, as they say, is another story.....



Story time.....

## GOODBYE CRUEL WORLD

The foot of the pitch was lashed with spray. A thousand and one conflicting draughts pushed and shoved as he hurriedly pulled slack through his descender, unclipped from the rope, and waded out of the plunge pool. He looked back up the thundering cascade: maybe it was free-climbable after all, but it was too late to re-rig it now. Still, this was further than he'd ever got before.

Downstream the torrent entered a winding rift which lead the way on down. It was a beautiful passage. Fantastically contorted walls curved, bulged, twisted and soared. The whole passage, swept clear of any boulders, seemed to be carved through a solid mass of rock with neither bedding nor joints. It was, rather, marbled with swirls of brown, cream and ochre, and mottled with shades of the deepest red. And through it raced the silver stream. It tumbled through eye-holes, surged around majestic pillars and sluiced down tight corkscrew bends. Then suddenly it spewed out into black emptiness.

Standing on the lip of the drop he looked down. The water jetted out in a thick quicksilver stream and then, reluctantly, broke up into heavy molten drops as it curved away into the deep velvety black. The air reverberated with a pulsing thunder, the roar coming not so much from below, down the pitch, but from the very air itself. All around, outside the small halo of his light, was a blackness like the space between the stars. This was no ordinary pitch: it was more an eyehole into the side of nothing. He felt as though he was standing in a tiny keyhole set in the middle of a vast, flat, featureless door. To either side and overhead the flat plane of the walls receded into the distance. Downwards the view was blocked by the suicidal leap of the stream plunging down into the abyss.

Cautiously he leaned out further into the void. There. On the left a small ledge traced its way across the sheer face, shrinking to almost nothing as it reached out to his isolated foothold. That must be the way on: but what a route. If only the rope hadn't been used on the last pitch! The first few steps would be the worst, beyond that the ledge widened appreciably. Just a few careful moves, that's all it needed.

Facing the wall he reached round with his right foot. Right hand followed and he slid along the wall, fingers questing for a hold. Latching onto a slight rounded bump he slowly eased his body out, muscles taut, heart racing. Pressed to the wall's stoney embrace he inched his way along the start of the ledge. The seemingly flat wall bulged slightly outwards against his ribs. As he moved along, he found he was being forced backwards over the abyss. His nerves jangled. Just another three moves: nearly there! But then, as he shifted a fraction further, he felt, with a sickening chill of fear, his body just over-tip gravity. So slight, so slow, but he knew in that instant he was falling.



He peeled slowly off the rock. Crashing straight through the stream he briefly saw in stark detail the wet rock directly below the lip before, gathering speed, he plummeted headlong into the pit. There was a jarring crunch as he bounced once and then all was black.

His eyes were open, but all was dark. He felt sick. Everything ached and a pulsing roar still echoed in his ears.

Slowly he removed the virtual-reality helmet. The two halves of the Sensor-mat cell were already open, their surfaces now slack and unresponsive like dead flesh. He was curled up on the floor between their wide jaws. Somehow he managed to disconnect the life-support umbilical and crawled towards the door. Then the world again dissolved in a flood of pain, nausea and blackness.

When he again came to, he found himself lying in his own bed, in his own home. At his side was an official hospital form with his details. Evidently he'd been received unconscious at the hospital, kept there, slipping in and out of reality, for two days, until he'd finally regained his senses. Then, they'd quickly delivered him back home, alone, heavily sedated, to sleep off the last effects. In a grossly overpopulated and under-resourced world, life, particularly one like his, was cheap. The health service's meagre budgets couldn't be squandered on the likes of him with his self-inflicted injuries.

Injuries? He had a dressing on his shoulder where he'd fallen against the door frame but otherwise he was physically whole. Mentally he was a wreck. He read the printed notes at the bottom of his medical card: "Patient admitted unconscious, on recovery remained in deep shock with severe mental trauma. There is a possibility of long lasting psychological damage. NB. Very high adrenelin level in blood and irregular heart beat". And hand written on the bottom: "Do that again and you could kill yourself!".

He thought back to the incident at the VR Adventure Centre, but his mind shied away from recalling details of the "accident". But deep down he knew he had to remember, he was sure there was something important. He'd got to that awful pit, which even now brought on a shudder of agrophobia. The ledge: he'd tried to get along the ledge. He'd fallen. In his mind his graceless tumble flicked past in slow motion. He had peeled off the wall, crashed through the stream, and glimpsed the wall as it flashed past. There. That was it. He remembered a broad ledge directly below the spout and therefore invisible from above. And at the back of the ledge a round, dry tunnel sloping down. That was the way on! The side ledge was a blind. You had to jump blindly through the spray to a ledge two metres below!

In his mind's eye, the camera of memory continued unstoppable to the end, with the sickening fall into the void. Bile rose in his throat and he retched dryly. Yes, it had been very bad this time. He had "died" in games many time before, but since becoming engrossed in the caves game he'd got more cautious, always careful to get back to a game-save station, so that next time he could penetrate still further into the unknown caverns. And they probably really were unknown. The

last time he'd died in the caves was over five months ago, hence the extreme shock this time. Since then he'd carefully pushed deeper and deeper: probably he'd now got further into the game than anyone else. He was really exploring the unknown. Memories of the fall started to creep back: quickly he tried to think of something, anything else. But what? What else was there to amuse or divert his thoughts? Reality was such a poor shadow of the exciting, technicolour games-world. An unstoppable tide of self-pity and depression washed over him.

He was twenty-two. He'd left school, like most kids, at twelve, and like most people his age had never had a job. Nor was he ever likely to get one. The state provided a basic housing unit and enough dole to feed and clothe. He rarely met other people since, like him, most others on the estates lived isolated lives in the confines of their own homes, passively linked to the great mass of humanity only by their holovision sets. Occasionally he'd spend a night getting amiably drunk or stoned with his few friends but even they were fairly unexciting events. They all lived such similar, dull, grey lives.

If he bothered to look out of the one, small, rarely used window, he saw outside rows of windows identical to his own, staring blankly back from the concrete wall on the other side of the light-well. Outside of his block the estate stretched in grey unbroken ranks for a kilometre in all directions. Outside was a place he rarely went to except to go to the VR Adventure Centre or to pick up supplies. Each block had a state-owned subsistence shop selling basics of food, cigarettes, alcohol, drugs, and video hire, but that was all. Only in the more affluent areas of the city - areas where the Employed lived - were there real shops, stocked with items he couldn't afford. What a depressing life. And to think that he might look forward, as they say, to another fifty or so years of it. A life of mindless boredom broken only by blissful nights of time-wasting sleep, and by various forms of popular, home-based entertainment.

He flicked through the holovision channels. There was the usual procession of banal chat- and game-shows, occasional old wildlife footage of now extinct animals, and a choice of violent or pornographic movies. There really was nothing here to stimulate thought or emotions, since he'd seen the genre so often before. Such entertainment was little more than a soporific drug continually washing over a passive, sedated populace. There was an interactive games channel - space invaders, fighter pilot, sub killer - that sort of thing, all in 3D, and as a kid he'd played them a lot. But they had no appeal now. They weren't in the same league as virtual reality.

VR had been working, in a rather simple form, as long ago as the early 1990s. Since then great advances in computer design had permitted the creation of ever more complex and realistic scenarios. Then came Sensor-mat: the all-embracing cushion, containing a magnetic gel, controlled by an induction field. Cushioned within two great mattresses of the stuff, in a body-hugging embrace, it could sense your movements, as well as react to them by pushing back as appropriate.



Connected up to the computer, with a VR helmet on to create the illusion for eyes and ears, the mat allowed full body movement within the computer generated world. Around you the gel's surface continually mapped your body shape to place you in the computer world. Physically contacted all around you felt solid "ground" underfoot as you "walked", while in reality you were just miming the action in a cocoon of gel. Movement in free space was unhindered, but lean against a "wall" in the games world and the gel hardened to resist you. Wade into a "pool" and the gel around your legs became viscous; stand in a fast flowing "river" and it would push against you. The illusion was complete. Now you could really enter the artificial worlds - not just as a disembodied head and hand, as in the early systems - but as yourself, your whole self.

The games worlds were so real and extensive that you became totally absorbed in them. He had used to play in them for hours, even a whole day, at a time, but eventually hunger always forced him to abandon a game. That was a real downer. Then someone had had a brilliant idea. It was a simple matter to connect up a life support system - the same as those used on the months-long Mars shuttles. It fed you intravenously and took away waste. While on a Mars trip you just slept, in an adventure game you could now play for several days non-stop if you wanted to.

VR centres had been expensive gimmicks at first, now they were heavily subsidised. The state reckoned to keep people, especially the Unemployed, harmlessly amused by home holovision entertainment. VR was just an extension of this policy. A people totally absorbed in computer games and holovision did not cause trouble : bread and circuses, but without the risks of crowded stadiums and after game riots!

But he wasn't going back to VR - not for a while anyway. In short his last venture had been a terrible shock and he was still badly scared by what had happened.

Just seven days later he went back. Vowing not to go to the VR centre had been one thing, finding something else to do had been quite another. It had been a dull, lonely, depressing week. He just wanted to kill a few hours: he'd play a simple sports game perhaps, nothing too serious. He entered the building, unsupervised as usual, and found an un-occupied cubicle. Inside he emptied his pockets and hung his jacket on the back of the door. His bank account card he pushed into the wall-slot: his credit rating flashed up; 9857 - his meagre life's savings. Behind him the door locked for security.

The arms of the Sensor-mat stood open, welcoming him back. He stepped between them, the floor bouncy underfoot. The life-support umbilical he strapped into place wincing as its automatic pins located veins and organs and then stabbed in, linking him up. Lifting the helmet, he glanced briefly around

the bare, grey room, then clamped it down into place, muffling out the world. Slickly he tightened the straps and pressed the activate button on the collar.

The Sensor-mat came alive. It swelled up around his body, pressing close and holding him gently in a voluptuous hug. It rippled seductively as it mapped out his body contours. Underfoot it firmed to form a reassuringly solid floor. In front of his eyes, as though projected on a wall a few metres away, were the preliminary instructions and game selections. Without thinking he selected his game. "How many credits worth of play?", asked an electronic voice in the earphones, while simultaneously the same question flashed before his eyes. "Two credits give one hour". Before his eyes the image of his hand paused over the floating array of numbers. Then he dialled 9857 and quickly pressed "confirm".

The screen cleared.

He was standing in a green, flower-spangled meadow. All around tall mountain peaks glinted icily in the sunlight, while in the valleys between them thick blankets of forest lay partly in shadow. The sparkle of a mighty waterfall glittered through the trees and the air was full of birdsong. So much to see, so much to explore.

Straight ahead, at the foot of a cliff, was a yawning cave mouth. Glancing down at his wrist dial he checked his light supply: only ten hours but he knew where the first nine supply dumps were located. No rope yet of course, he'd need to pick that up at the fifth. Setting his back to the pink sunrise he set off. Down by easy stages to where he'd got to before, then a bold jump through the cascade, and so on to whatever lay beyond.

Clive Orrock  
January 1992

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## Puzzled ?

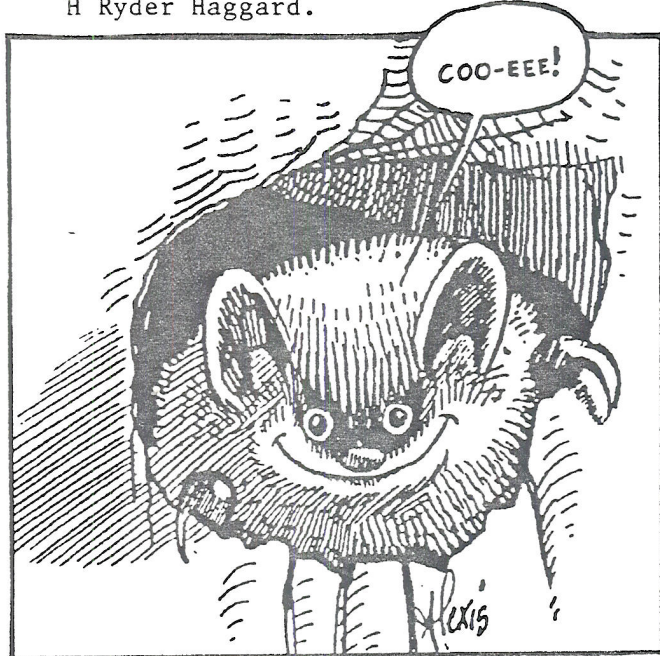
The following puzzle takes the form of an ACROSTIC. The verses provide (fairly cryptic) clues for a number of caving related words. Solve the clues correctly and the first and last letters of each word spell out two further 8-letter words for which final clues are given in the last four lines. Easy!

My first is a pothole, in Wensleydale it's found.  
My second's a butterfly seen sometimes underground.  
My third is a link, by post to half the City.  
My fourth's a roaring hole - that the goblin's gone's a pity.  
My fifth, in Britain, is the pitch of greatest size.  
My sixth's a daylight shaft that will surely hyptnotise.  
My seventh's an Easegill Grotto on a spring bank holiday.  
My eighth has ropes retied by a confused rebel, say.

From these heads my whole was a lost sheep,  
Refound I'm empty where the mines were deep.  
Now to confirm your guess just cut off the tails,  
And you'll find a master cave deep in the Dales.



1. Rincewind, Twoflower and Hrun the Barbarian in "The Colour of Magic" by Terry Pratchett.
2. Alibaba and the Forty Thieves, from the "Tales from 1001 Nights", Traditional.
3. Smaug's door in "The Hobbit" by JRR Tolkien.
4. Virgil & Dante, Dante's "Inferno".
5. Susan & the dragon in "Greensmoke" by Rosemary Hughes.
6. Ralph Rover in "Coral Island" by RM Ballantyne.
7. "The Phantom of the Opera" by Gaston Leroux.
8. "The Pied Piper of Hammelin". Traditional tale recounted by the Brothers Grimm.
9. Gimli and Legolas in "The Lord of the Rings" by JRR Tolkien.
10. Henry in "The Three Railway Engines" by Rev W Audry.
11. The Hardy Boys in "Danger on Vampire Trail" by J Dixon.
12. Henri Charriere in "Papillon".
13. James Bond, 007 in "Live and Let Die" by Ian Flemming.
14. Allain Quartermain and Sir Henry Curtis in "King Solomon's Mines" by H Ryder Haggard.



Stop Press

## Berger & Fromagère Joined

In Autumn 1991 the Gouffre Berger and the Scialet de la Fromagere were finally joined when a 205m long/12m deep sump at -842m was dived by F Poggia through from the Berger. This makes the Berger 1271 m deep and 25,975m long.

## MAKE YOUR OWN STALACTITES AND STALAGMITES

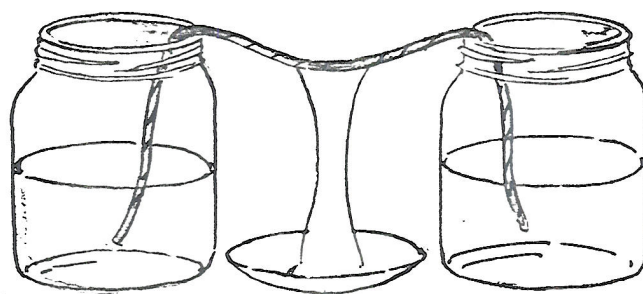
### You will need:

- two jam jars
- a piece of thick wool
- washing soda (sodium carbonate)
- a saucer

1 Fill the jam jars with warm water. Dissolve as much washing soda as you can in each, a little at a time. Arrange the jars side by side, with the saucer in between.



2 Arrange the wool so that each end is in one of the jam jars and the middle is hanging over the saucer.



3 Put one crystal of washing soda on the saucer and leave the jars for several days. The water and washing soda solution in the jars will drip on to the crystal in the saucer, forming a column.

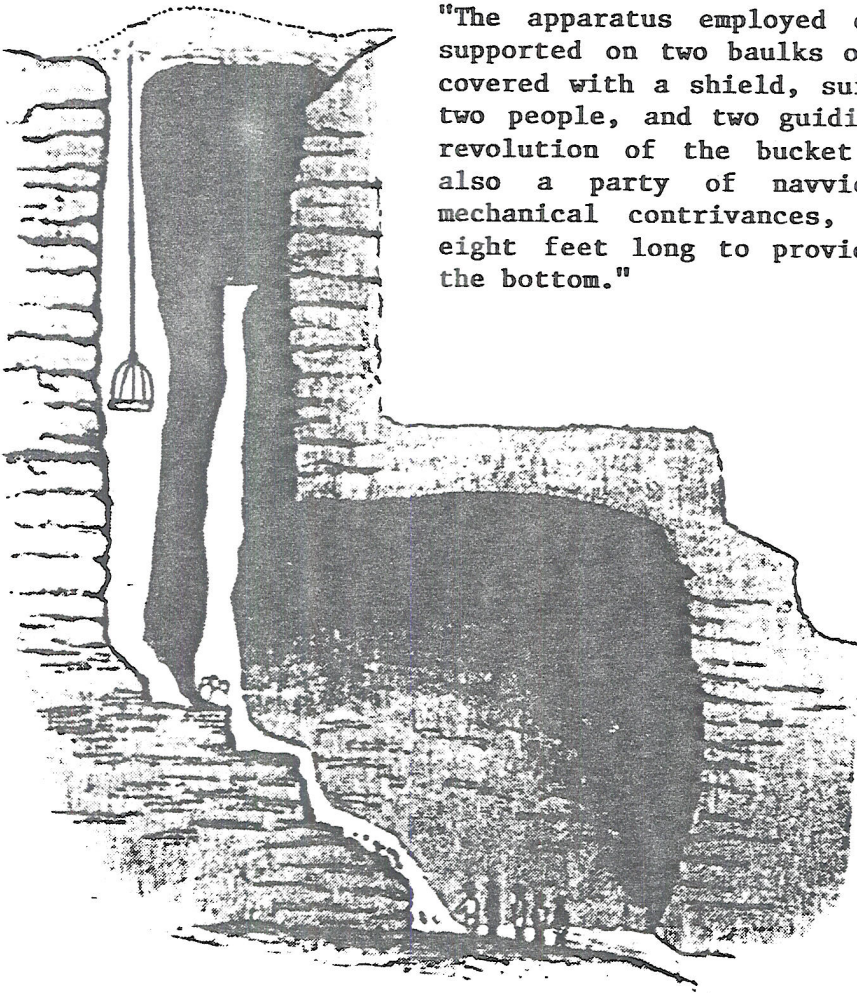
▲ FROM THE "JUMP" NATURE BOOK: "CAVES",  
OBTAINABLE FROM THE NATURAL HISTORY MUSEUM.

# Now & Then

In 1870 Birkbeck and twelve others "including three ladies" made the first direct descent of Alum Pot via the shaft:

"The apparatus employed consisted of a windlass supported on two baulks of timber, and a bucket, covered with a shield, sufficiently large to hold two people, and two guiding ropes to prevent the revolution of the bucket in mid-air. There was also a party of navvies to look after the mechanical contrivances, and two ladders about eight feet long to provide for contingencies at the bottom."

Prof. Boyd Dawkins,  
"Cave Hunting" (1874)



"Rarely can caving be described as a spectator sport. Alum Pot, however, is one of a select few places in the Dales where each week-end herds of feckless 'cavers' festooning the Main Shaft blithely present a demonstration of bumbling incompetence to the innocent by-stander. Here, all too often, austere grandeur forms the backdrop to a deadly, dangerous pantomime in which over-eager inexperience vies with fundamental ignorance of the basic skills necessary to venture into such places. Needlessly so; a competent approach to rigging and descending this awesome hole depends on little more than a short period of training and a bit of practice somewhere less daunting."

Dave Elliot,  
"SRT Rigging Guide" (1987)