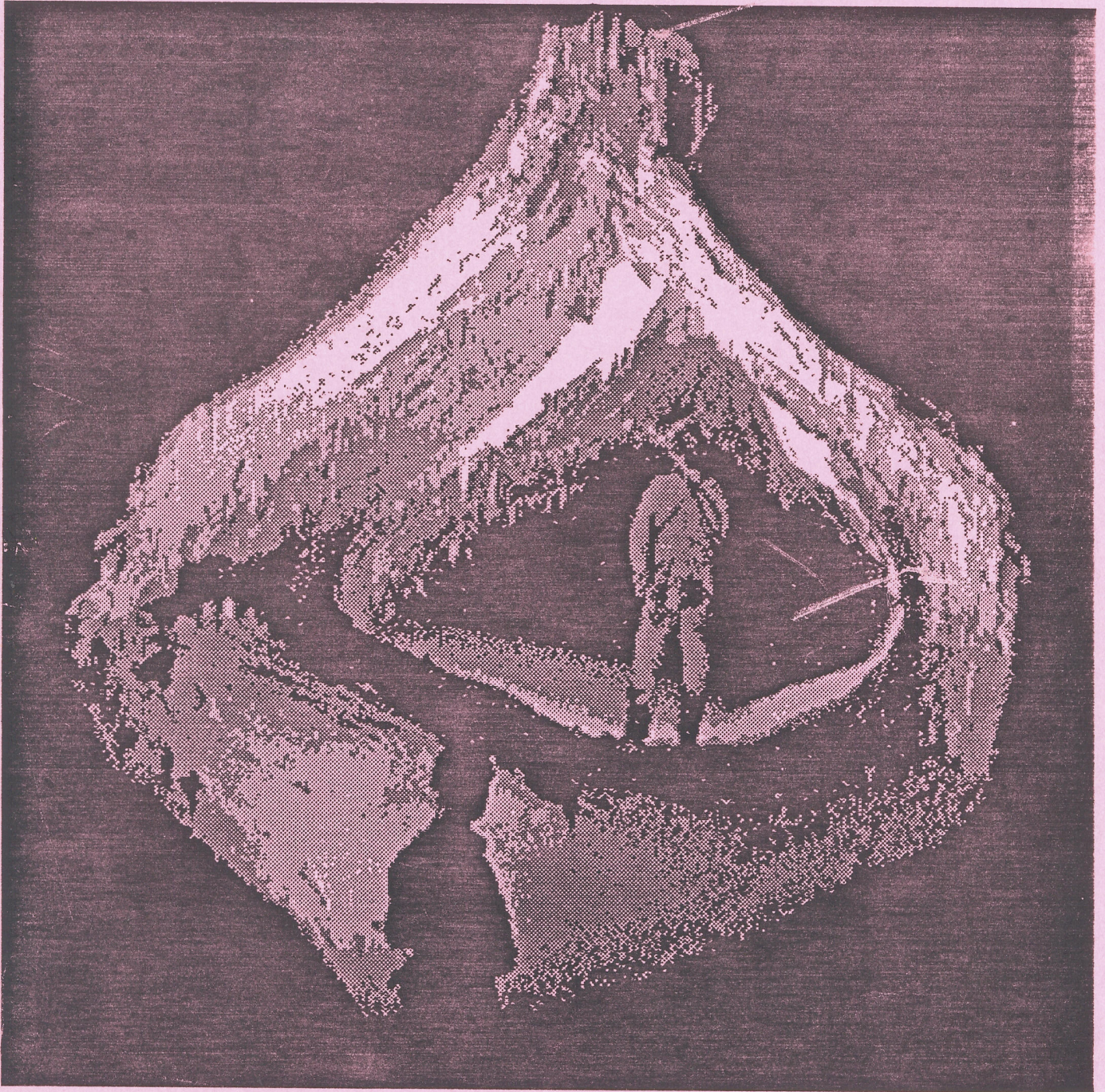


Imperial College Caving Club



Minarets Passage, Lancaster-Easegill System

Newsletter No. 10 - Winter 1988 Issue

IMPERIAL COLLEGE CAVING CLUB 1988-89

President : Dave Wilson
Vice President : Rob Chaddock
Secretary : Chris Shaw
Treasurer : Pete Hambly
Tackle Officers : Phil Hay
Paul Huggins

EDITORIAL

Welcome to another action-packed ICCC Newsletter. The club has been very active since the last issue of this hallowed tome, see Dave's bit for more details.

In June, Clive attended his first meeting of the little-known SECRO, of which we are a member club. Everyone should really be aware of this, in case a call-out occurs.

In addition to the more serious articles, there are some light-hearted bits, particularly the Viz comic strip - thanks Clive.

Due to the flying start to which the club has got off this year, every trip I have attended so far has been most enjoyable, and it looks like 1989 will be a great year.

To preserve college-based continuity of leadership and experience in the long term, however, it is necessary to remember that future leaders must have practice of route-finding and rigging, even though this tends to lead to slightly longer trips in the short term. There are sometimes extenuating circumstances for the 'I'd better do it to save time' approach, such as the relentless approach of 11pm, or a chilly party waiting for rigging to be done, but the only way of getting people rigging faster is to give them a chance.

Have a sporting tour, a great Christmas, a drunken New Year and I'll see you all next term.

Lots of love and kisses?

Chris.

Credits go to the following people, without whom this would have been a very slender edition.

Clive for writing most of the articles

Dave for his bit and the cover

Rich for his Spain bit (and British Coal for the photocopying)

and everyone else who kicked me into action.

President's Piece

Firstly, I'll give a brief resume of the club's activities since the last newsletter.

The Anniversary Dinner Meet, over the May bank holiday weekend, was well attended and very successful, with a good dinner, lots of silly games to be regretted the day after, and the chance for many old acquaintances to be renewed until the small hours.

The next major event was the Summer Tour to the Marguareis region of the Maritime Alps on the French-Italian border. Here the regular alpine speleo crew of Dave, Rich, Harry, Chris and Tim was supplemented by the combined talents of Hungry Herman, Pete 'awareness' Hambly, and Phil 'navigator' Hay. The journey down took 2 days, the first overnight stop being in the Vercors to enable a visit to Marbach's new place, where a 70 kilos of dirt cheap carbide was purchased. The second day took us briefly through Italy to arrive at Tende, the French town where we were to meet Chris, Harry and the Rover ('but think of the resale value, lads'). After a couple of desperate drives along the gravel road which leads from the head of the border pass to the caving area, we were established for a two-week camp with plenty of food and 20 gallons of fizzy Italian beer (no wonder the van complained). The caves were between 15 minutes and two hours walk from the road, the main target (Sistema Piaggia Bella) being about an hour away, with a caving refuge nearby for use after an exit in the small hours. Trips in this system were usually upwards of 10 hours, the longest being 17 on a dodgy abbing-through trip, of which 14 hours was the downward journey, and only 3 to get back out from another entrance. Despite being thrown in somewhat at the deep end, after just one Yorkshire weekend, Herman picked up most of les 'Techniques Speleo' without too many problems, and we all bottomed the main system, as well as bagging a few of its other entrances, and some smaller caves. Chris, Harry and Rich then went on for a further three weeks in the Picos with some NPC cavers and some others to assist in the diving exploration of Cabexa Muxa - see Rich's article elsewhere in this newsletter.

The rest of the Summer was relatively uneventful, a total of four weekends in Yorkshire taking place via a variety of means : coaches, trains, cars, vans, but the weather was generally pretty poor for serious trips.

The new year got off to a good start, with a large number of freshers on our introductory weekends, of whom a sizeable number are now paid-up members, rapidly acquiring all the relevant skills (making tea, derigging, etc) to ensure a strong club in the next few years. Their infectious enthusiasm, except on some Sunday mornings, has even made the repetition of oft-done training trips a fun time, although we are already progressing to some of the less strenuous classic trips such as Juniper and Lost John's. Rope training in Princes Gardens has also gone well, with no officious safety officer types interfering. This is certainly better than last year, when the Trog barn got a little too familiar.

Summer Tour '89

As a way of stimulating some sort of discussion on what to do next Summer, I propose a three-week tour to the Vercors, at the start of July. The estimated cost of transport, camp fees, food, wine, etc. is about £250-00. We have not been caving seriously in this area since 1984, as no trips except the Berger were done there in 1985, and there are plenty of deep caves there to keep us more than occupied. Please let me know of your views on the timing of the trip, and also your opinions on this or any other possible area, as well as the likelihood of your attendance.

Ropewalking

A recent description in a Caving Supplies catalogue of a system for 'Ropewalking in Practice' caught my eye, and it struck me as a suitable subject for a quick paragraph or two. For the uninitiated, ropewalking is the name given to a method of prussiking up a rope using a separate jammer for each leg. This has three claimed advantages, the first one is to enable quicker progress over short distances; as with a conventional 'Frog Rig', the limit to maximum speed in the short term is the time it takes for the leg or legs being used to move up and down. The second advantage is the increase in efficiency due to the torso being continually in a state of upward motion or stasis, unlike a frog rig where a small loss of height occurs on the 'sit' part of the 'sit-stand' motion, depending mainly on tightness of chest harness, and how easily the rope runs through the chest jammer. The third advantage claimed is the reduction of arm fatigue, due to all the work being done by the legs. There are many different rigs for ropewalking, all claimed by their inventors to have various advantages over rival systems.

A common system utilises just two jammers, one attached directly to the left foot, and the other connected to the right foot by a short loop, so that with weight on it lies somewhere around the knee. This second jammer is kept upright by a length of shockcord- nylon covered elastic, the other end of which is attached to the torso at the waist or shoulder. To keep the body upright, the rope runs through a krab or a roller box at the waist or shoulder, or both. This rig is fairly efficient for non-technical work, and so, with minor variations is widely used in the USA. When technical manoeuvres such as rebelayes are taken into account, however, this top-heavy sort of system has serious drawbacks.

The suggested rig that prompted this spiel, however, was described thus : *'This is an SRT system that enjoys the advantages of both ropewalking and frog and is more adaptable than either. It has been in use for a number of years and has proved to be a superb caving rig'*.

The rig itself was a standard frog rig, with the following modifications :

a) A third jammer, which is fastened in some ill-described way to the inside of the left foot by a short buckled strap. It not made clear how quick or easy the attachment or removal of this device is, but it looks quite slow and fiddly.

b) The design of the footloop from the frog hand ascender is such that it can be shortened from normal length to about 0.3m. The right foot is then placed in this loop, held by a 'chicken loop' - a loop of shockcord around the ankle to prevent it slipping out. The hand ascender is then floated at around knee level by a length of shockcord which passes over the shoulder and is connected to the back of the sit harness. If you try this out, you will find that shockcord doesn't usually run too well over the relatively high friction of the shoulder; it is much more comfortable to terminate the shockcord at the shoulder, attaching it to the back of the harness with a short length of tape.

c) It is also recommended that a krab attached to the main maillon is clipped into the rope below the chest jammer to keep you upright *if the chest jammer should become accidentally disconnected* from the rope - I wonder how often this happens? If the chest jammer did become detached, and this krab was not fitted, you would peel backwards, put a large (>1) fall factor on the hand jammer safety cord, and end up hanging by your feet, somewhat surprised, assuming you didn't hit part of the cave on the way.

The most important point here is that the 'conversion' from frog to ropewalking deprives your arms of anything to do but hold directly onto the rope itself, which is not very comfortable. Whilst it is true that your legs are much more powerful than your arms, and a bad frog rig can quickly cause tiredness, surely one objective of caving is to improve strength and fitness, and you can hardly improve upper body strength by using only leg muscles for one of the more energetic parts of caving: namely climbing pitches. If you have an inefficient frog rig and *the height loss each cycle is several inches, and involves the entire body weight*, then the answer is to adjust your rig and make sure your chest harness is tightened fully, not buy an extra jammer. The diagrams in the catalogue show, among such modern gear as steel toecap boots, and rack descenders, an innovative high friction method of threading the chest harness through the lower hole of the chest jammer, rather than the main maillon. This one act alone no doubt contributes enormously to the height loss suffered by this poor caver whilst in frog mode.

You may by now have got the impression that I am against ropewalking. This is not the case, but every technique has its place, and the right place for yet another ropewalking scheme is probably not in the catalogue of someone who wishes to sell the equipment mentioned.

For average Yorkshire caving, there is not much room for major time savings. For example, if a 30m pitch could be ropewalked in about 3 mins, frogging would probably take about 1 min more for the same caver. For pitches of this order, it is hardly worth the bother if speed alone is the concern. Possible other reasons are

the small efficiency gain, and the opportunity for a quick burst in the case of a pitch with an unpleasantly wet section, where the great short-term speed advantage over a frog rig is very useful.

The peak speed is much higher than a frog rig, but the same mass, ie. you, has to be lifted the same distance, and ropewalking doesn't make you any lighter. In comparison with a well adjusted frog rig, the efficiency saving is small. Given that height gain is proportional to potential energy, your long term speed is proportional to your sustainable output power, which in turn is determined by the efficiency of the muscles, and their supply of food and oxygen. This latter limit depends on the condition of the heart and lungs. The efficiency of underexercised muscle is somewhere in the order of 20%, whereas after a few days of good exercise, it is roughly doubled, this effect being due to the process known as 'enzyme induction', the benefits of which last for about a week.

In practice, using the rig described below, I find a 30 or 40m free hang is about the smallest pitch worth putting the gear on for. On pitches of the order of 100m, a climb rate of about 10m/min is maintainable, depending on tiredness state and load carried. The time saved on a pitch of this depth is still only a few minutes, and free hangs much above this depth are not common. The main advantage on a pitch of this order is simply the variety, you can do a quick burst of 10m of ropewalking, then a bit of slow frogging to get your breath back, then a bit more ropewalking, etc., rather than repeating the same boring frog step 200 times over.

The rig I use is one which has been used by many IC³ members since about the time of the Greece expedition (1982), where big shafts were the order of the day. The rig is a bog-standard frog rig, with the addition of a standard jammer for the left foot. The foot rests in a short 15mm tape loop, tied into the lower hole of the jammer, which is floated at mid-calf level by a length of shockcord which terminates at a tape strap at the shoulder, as described earlier. The completely unmodified hand ascender is attached above the chest jammer as usual, with the footloop going to the right foot. A chicken loop is used around each ankle. The chest harness should be done up extremely tight for efficiency. Compared to the CS system, manoeuvres are made easier due to the high, stable position of the hand jammer, the third jammer can be removed from the rope in seconds, or indeed the foot, without fear of dropping it, and the arms can be exercised, or used to aid the ascent if you so wish. The only slight disadvantage is that the arms must be capable of lifting a hand jammer and footloop (300g) once each cycle, but if this is beyond you, then caving probably isn't your scene anyway.

To finish, it is probably worthwhile carrying a third jammer underground, especially abroad, if only in case of damage to or loss of a normal one, and for use in rescue or gear hauling situations. In this case, it is probably worth spending a little extra to help alleviate boredom in long continental shafts. However, the point at which you make this sort of non-necessary expenditure is usually after a couple of years of SRT experience, by which point you should be able to make your own mind up. For purely British caving, it's not worth it for speed alone, but may be for safety, a bit more cardiovascular fitness, and the inevitable pose value in Rowten or Juniper.

Well my memories are certainly happy ones of the summer of 88. The high points were graduating and going caving on the continent (not necessarily in that order). Since this is a caving newsletter I will refer only to the latter.

I had completed five good years of caving as an IC student and the icing on the cake was to be six weeks of caving on the continent as a self awarded reward for all my "hard" work whilst at IC. I had already been caving with ICC in France on three separate occasions before, and the lure was certainly there to return to the continent - deep systems, glorious weather, fabulous scenery, good company and relaxed atmosphere.

My time abroad was to be split between 3 weeks in Italy with ICC and 3 weeks in Spain, on an expedition with a mixed crew of cavers, including "uncle" Chris Birkhead and Harry Lock, both ICC cavers.

The decision to go to Spain was taken about six months prior to leaving, and was an invite from Dani of the NPC (Northern Pennine Club) to help explore a particularly deep system, with the main aim being the diving of the terminal sump. For me it was a perfect opportunity to go on an expedition, especially as I had foolishly past over an earlier opportunity to go on an expedition with ICC to the Canadian Rockies two summers before (and instead took a summer job to keep me out of debt, tut tut !!).

The Italian part of the summer was extremely enjoyable but I wont linger here as no doubt it will be the subject of another article. So anyway, after Italy, myself, Chris and Harry headed to Spain (the Picos d'Europa) to meet up with the rest of the team.

Our trip across from Italy was quite relaxing, doing a touch of tourist type activity before embarking on another spell of caving. We actually arrived at the Picos (Northern Spain) a few days before the official start of the expedition and pitched our first tent at "beautiful" Los Lagos (the Lake). Unfortunately Los Lagos was a tourist trap, its only redeeming feature being the presence of two bars. At Los Lagos we met the Oxford University Caving Club (OUCC), and diplomatically invited ourselves on one of their trips. The actual base of caving operations for the part of the Picos both Dani's and OUCC's expedition were in, was fortunately a good two hour hike from Los Lagos, so we could leave the tourisimos behind us.

Our trip with OUCC turned out to be quite a privilege since we were on the second trip down their cave after a major discovery, extending the cave's previous depth of 650m with the newly discovered way on eventually joining a very active streamway. The cave was fortunately not as tight as some rumours had made it out to be, and we had ourselves a very enjoyable trip (thanks OUCC, especially Lynn). The biggest problem on the trip proved to be negotiating our way back to our tent after exiting the cave, but eventually Harry "in-built compass" Lock guided us in to camp.

Next came the arrival en-masse of the rest of our expedition team. The first job of porting all the expedition kit from Los Lagos up into the mountains, to the caving base went very smoothly. At this point perhaps some more information on the expeditions aims could be of use.

The main aim was to try and link the cave Cabeza Muxa (already 900m deep) to the Carres Gorge river, which would mean discovering major passages beyond the existing terminal sump of Cabeza Muxa and extending the cave vertically to over 1 km in the process. Hence the real object of the expedition was to rig Cabeza Muxa for SRT and then support a diving team at a depth of over 900 m. Surveys of the cave showed in to be in two sections of different cave character, first a series of huge pitches dropping some 650 m, followed by an active streamway dropping a further 300 m in predominately horizontally developed passage with occassional boulder chokes, before arriving at the terminal sump. Needless to say it appeared a fairly daunting task especially as the existing rigging was considered appalling and the plan was to entirely rerig the system.

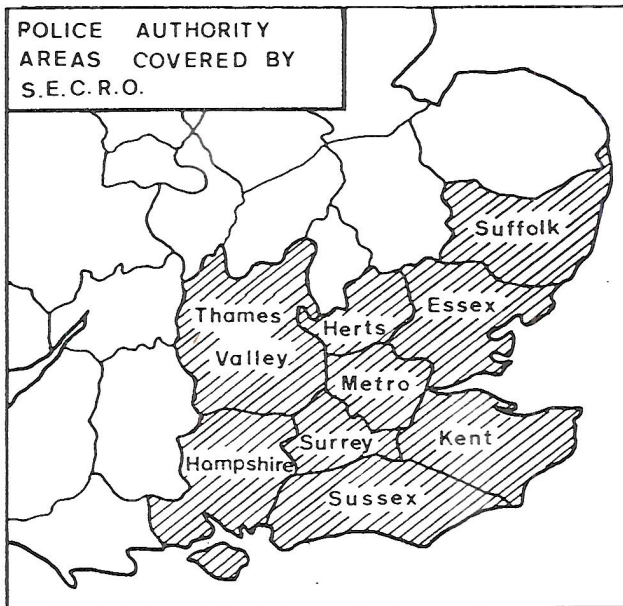
The first six trips into Cabeza Muxa were involved with rigging the cave. The ICC members present were very active in this, with at least one of the three of us being on every rigging trip. The most outstanding memories of these trips were, using a battery driven drill to place bolts and then subsequently the horror of watching them pop out whilst in use !!, following this came the tiring task of hand bolting placement of many anchors (loadsabolts). I can still remember the aura of terror which swept over Harry when descending a 250 m shaft and two of three bolts popped on him !, I was amazed he carried on down the pitch, before I descended I totally rerigged the point of failure, thourghly testing the remaining bolt before use. One beauty of the way the entrance series was rigged, was that there was effectively a continous rope all the way, which was a great plus for SRT safety (eat your heart out Elliot).

With the cave totally rigged the next step (after porting diving swag to the sump) was to hold a party before attempting a dive (which also let our main diver, Rick "gills" Stanton recover from a bug). All those who went had a great time, especially disco king Chris, who also introduced some obnoxious Spainards to the art of head-butting. After a delay caused by bad weather the dive took place and to cut a long story short no further progress could be made at the sump which simply dipped downwards steeply.

Derigging went extremely smoothly and ended with a heroic effort from Steve Foster, Dave Heatherington, and Harry, saving the rest of us slobbs the effort (cheers guys). After derigging came porting our kit back to Los Lagos, and consuming vast quantities of cider, beer and wine. Finally the three of us said our farewells and headed off to England. I think to sum p both Italy and Spain I will quote Harry "A bloody good summer's caving", thanks a lot to all those who organised it and made it possible.

On 19th. June I attended the first meeting of SECRO as representative/callout warden for ICCC. IC's involvement stems from 1986 when we were asked by Hertford Police to investigate "mines and caves" as part of a missing person hunt. Shortly after, the newly formed SECRO contacted us asking for our support, principally in the form of a couple of nominated wardens for contact in event of an incident. Until recently I had heard nothing more from SECRO.

So, what is SECRO. what does it aim to do, how does it function, and what is ICCC's involvement ?



The area covered by SECRO (the last bit of England to be covered by a fell/cave rescue organisation) comprises the police authorities as shown left.

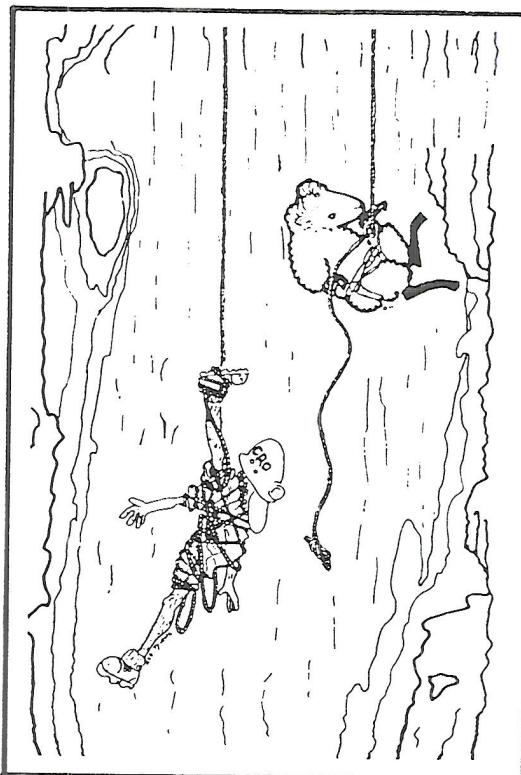
Firstly, apart from a few chalk caves a Beachy Head and St. Margarets Bay, there are no natural caverns within the area. There are however numerous quarries, mines, tunnels and other underground workings. These are sometimes very extensive (Merstham Mines have over 10 miles of passage extending linearly about a mile), are largely uncharted, frequently very old (perhaps over 1000 years old in places) and partly collapsed.

Thus the most likely incident to my mind would be inexperienced and ill-equipped people (especially children) simply getting lost. This is born out by the few most recent call-outs. There is a possibility of falls as some of the workings contain vertical shafts. There is also a very real chance of rock-fall accidents due to the relatively unstable nature of many of the sites, especially those in soft sandstone with ancient, well-rotted wooden roof supports. This risk is probably far higher than in any natural cave.

As additional duties SECRO could be called on to assist in cliff rescue, surface search or as support to other areas in event of, say, a major accident in Mendip. Call-out is solely through the police who will maintain overall control and responsibility. Proper members of participating clubs (ie. ICCC members) would be covered by police insurance/public liability whilst on rescue provided call-out was initiated by the police.

Prior to SECRO, all rescue was the responsibility of the fire brigade. They, perhaps understandably, now feel that some of their business is being taken away by amateurs, and so have started training in underground rescue themselves. For their part SECRO seem to consider the fire brigade as incapable of underground rescue. So, at present a group of kids lost in a mine in Surrey or Sussex could well find themselves being fought over by rival teams, both claiming to be the official rescue ! I can see both sides of the argument. Since the

ultimate aims of both fire brigade and SECRO are the same, co-operation would be highly desirable and will no doubt eventually be achieved.



The SECRO wardens who turned up in June were from Border Caving Group, Kent Underground Research Group and Unit 2 Caving Club. These are all principally concerned not with caving per se, but with mine exploration and underground industrial archaeology etc. They would probably all vehemently disagree, but I felt as though I was the only person there with any "real" caving experience (one guy admitted without shame that he'd never been to Yorkshire - blinkered or what !!!). However SECRO also includes Croydon CC and Chelsea CC although they weren't represented at the meeting.

In the event of an incident, the police will contact the wardens who in turn contact and muster their club members to make up a team. A typical rescue is seen to require at least 15-20 people. IC with its very variable and constantly moving membership could

probably only muster about 5 - 6 people with gear (lights charged!) and transport, hence its rôle would tend to be in support of local groups who in any case have better knowledge of the systems.

Personally I think call-outs will be very rare. In the last two years there have been two incidents to which SECRO responded (I wasn't contacted, Unit 2 raced the fire brigade to the scene both times). Nevertheless, I see no harm in ICCB being tacitly involved so long as a few reasonably permanent wardens can be found, normally resident within the area. Your average gecko in the street (particularly in the SE where they have little experience of caving other than from the TV) considers cavers to be irresponsible fools who rely on other people risking their necks to get 'em out. Our support of SECRO would, I think, do our, and caving's image some good since by definition SECRO is not "other people" risking their necks, but fellow cavers, who in many cases will probably be hauling out the average gecko's kids! However, although supporting SECRO we should maintain the bulk of our financial support for the Dales' CRO, since that is where we cave and where the money is most needed.

Comments anyone ?

.oo00oo.

Support the CRO, or else (?)...

The Daily Mail
2nd April 1984

POTHLER DIES AFTER STRIKE BY RESCUE

PARIS : A potholer died 200ft below ground yesterday after rescue workers went on strike.

Christian Peres, 35, died of exhaustion and cold only minutes after he was finally brought out from caves in the French Pyrenees.

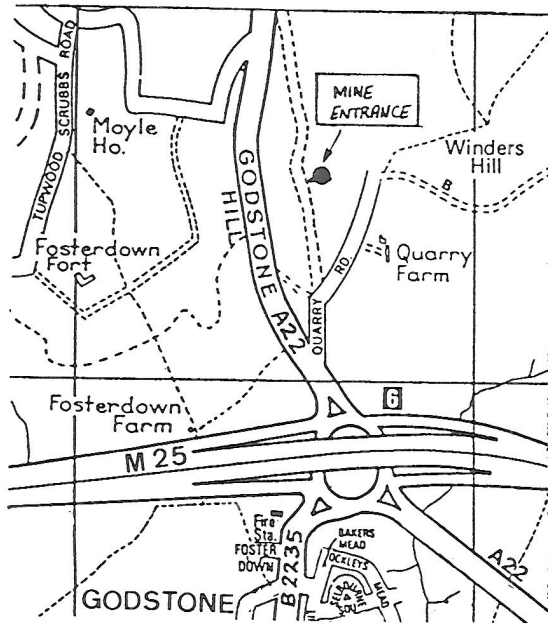
Another potholer had raised the alarm but

volunteers delayed the rescue with a one-hour protest over expenses and insurance.

They said that teams in 43 other districts in France had cash agreements with the authorities.

The dead potholer had spent six hours trapped in a flooded cavern. Four others escaped unhurt.

After the SECRO meeting their was a short trip down Godstone Mines:



These workings were for a pale calcareous fine-grained sandstone known locally as firestone or hearthstone. The stone is easily worked and shaped but tends to be rather prone to weathering. Consequently its use as a building stone declined due to competition from other quarrying areas, and was only briefly revived by the Victorian fashion for whitening hearths and floors by rubbing with white sandstones. These mines were principally worked from the 17th to 19th centuries but were probably started much earlier. Those at Godstone were last used in the early 1960's as a mushroom farm - the piles of brown "mud" are actually cowsh but they don't smell anymore!

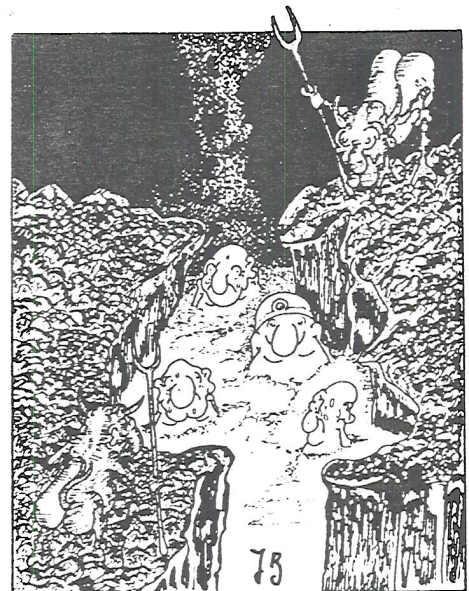
The network of passages are all on the same level and follow the bedding down the gentle northward dip to the water table. Most of the passages are about 1.7 m. high and wide and the going is very easy. The system is a network of intersecting passages with areas of room and pillar, but is now complicated by several extensive (and still very active) collapses. The passages are all so boringly similar that its easy to see how people can get lost.

For cavers there's not much of interest - just a quick yomp down to the water level. For the mine enthusiast there are several sections of wagon plateway. At nearby Mersthan, the lower passage height necessitated the use of oxen to haul the wagons (they are shorter than ponies) and it is probable that they were also used at Godstone - some corners seem to show scuffs and gouges caused by the oxes' wooden yokes. The system has two entrances, one in the roadway of the A22 is kept permanently locked, thus the usual way in is the original entrance located as shown on the map for which a key is required obtainable from Unit 2 Caving Club.

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A cautionary 'tail.

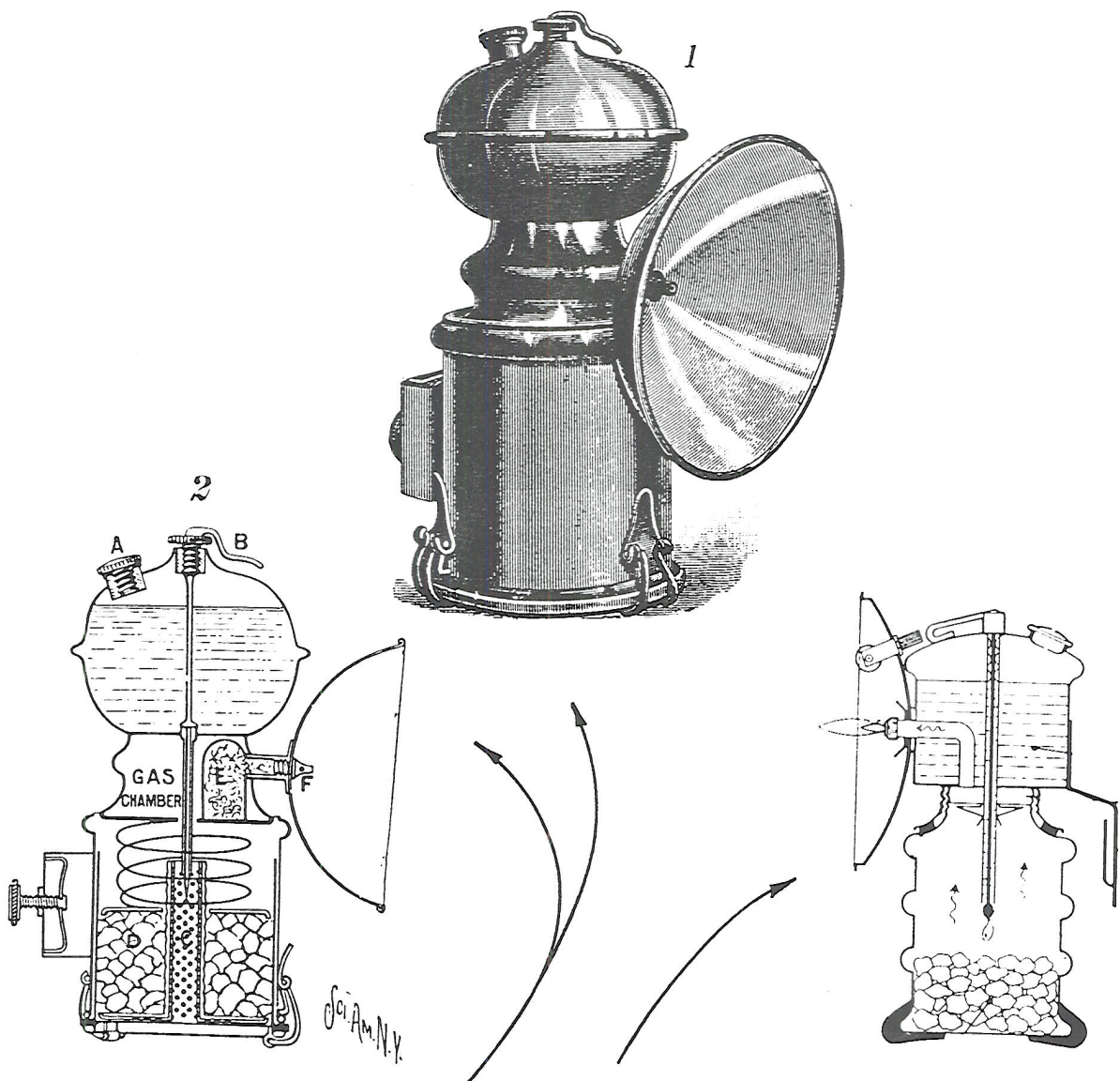
This is the tale of Sammy Soap
 Who never replaced his cowstails rope,
 Not knowing that inside they'd frayed,
 And so poor Sammy was dismayed.
 Expensive new rope he thought a joke,
 Until he slipped and his cowstail broke.
 He fell far flying round and round
 Down a deep pitch underground.
 In that dark pot is Sammy's grave,
 The cost of burial was all he'd saved.



MUCH ADO ABOUT NOTHING

As a supplement to the "History of Underground Lighting", in issue no.7—
(November 1986).....

It was a Frenchman, Henri Moissan of Paris, who discovered calcium carbide, by accident whilst trying to make artificial diamonds using the newly invented electric arc furnace. Knowing that high temperatures turned diamond into graphite, he was attempting to reverse the process to get cheap diamonds. In 1895, after putting almost every chemical he could think of into the furnace he tried a mixture of lime and carbon at 2000°C. He got, not diamonds, but calcium carbide which he thought very uninteresting until he spilt water on it and so stumbled on an easy way of making acetylene gas. Acetylene as a domestic light source however was soon killed off by cheap electricity and the invention of the gas mantle (1905) thus the use of acetylene for lighting has only persisted in portable lamps.....



Carbide bicycle lamp of 1900

Premier Carbide caving lamp of 1988
as produced by Caving ("at the fore-
front of equipment technology")
Supplies, of Buxton.

".....these antique curiosities are probably best left on the mantel shelf
where they at least serve as a reminder of past adventures."
(Alan Steele, Inglesport).

.....Whilst on the subject of carbide caving lamps; an oft quoted advantage claimed for their use is the detection of bad air (principally high CO₂ with low O₂).As Pierre Chevalier wrote over 40 years ago (in "Subterranean Climbers"):

"A question which the uninitiated frequently put to cave explorers, and a fear which often assails the beginner, has to do with the problem of breathing under the earth. No doubt the rare but much publicised grottoes which contain pockets of carbonic acid gas have given rise to such fears. There is no denying that any risk of asphyxia would be a serious matter but it is avoidable, for it would suffice to lower an ordinary acetylene lamp into a suspect area, and the flame would be extinguished in an atmosphere incapable of supporting life."

.....But is this true ?

Increasing the CO₂ content of air (in normal air its 0.03% CO₂) produces the following symptoms:

CO₂ 1 - 2% : Slight distress begins, some shortage of breath.
3 - 5% : Breathing becomes noticeably laboured.
6 - 8% : Breathlessness, dizziness, headaches, faintness.
8 - 10% : Narcotic effect, possible convulsions and tremors.
10-15% : Unconsciousness leading to death.

Note It is the excess CO₂ in the blood which becomes intolerable even if the oxygen content in the air being breathed is maintained artificially high. Thus unconsciousness will still occur with a 20% CO₂, 80% O₂ mix. When Neil Moss was trapped in a small, blind fissure in Peak Cavern, the vast quantities of pure oxygen that were pumped down to him did little to help, but if the build up of carbon dioxide had been tackled instead, he might have survived.

Unfortunately, whereas a candle flame or oil lamp is extinguished at about 17% O₂ (4% CO₂), an acetylene lamp burns to much lower oxygen levels. As the Mining Engineers' Handbook warns:

"An acetylene flame is not a good guide to a condition of local atmosphere dangerous to life as it will still burn when only 10 - 12% oxygen (9-11% CO₂) is present."

Hence the traditional use of acetylene lamps to detect bad air is apocryphal and not valid. Moreover as the O₂ content of the air is decreased, an acetylene flame tends to produce increasingly large quantities of carbon monoxide in amounts becoming hazardous at oxygen levels still well in excess of the flame extinction point. Similarly it will not detect hazardous gases resulting from banging if sufficient oxygen is present.

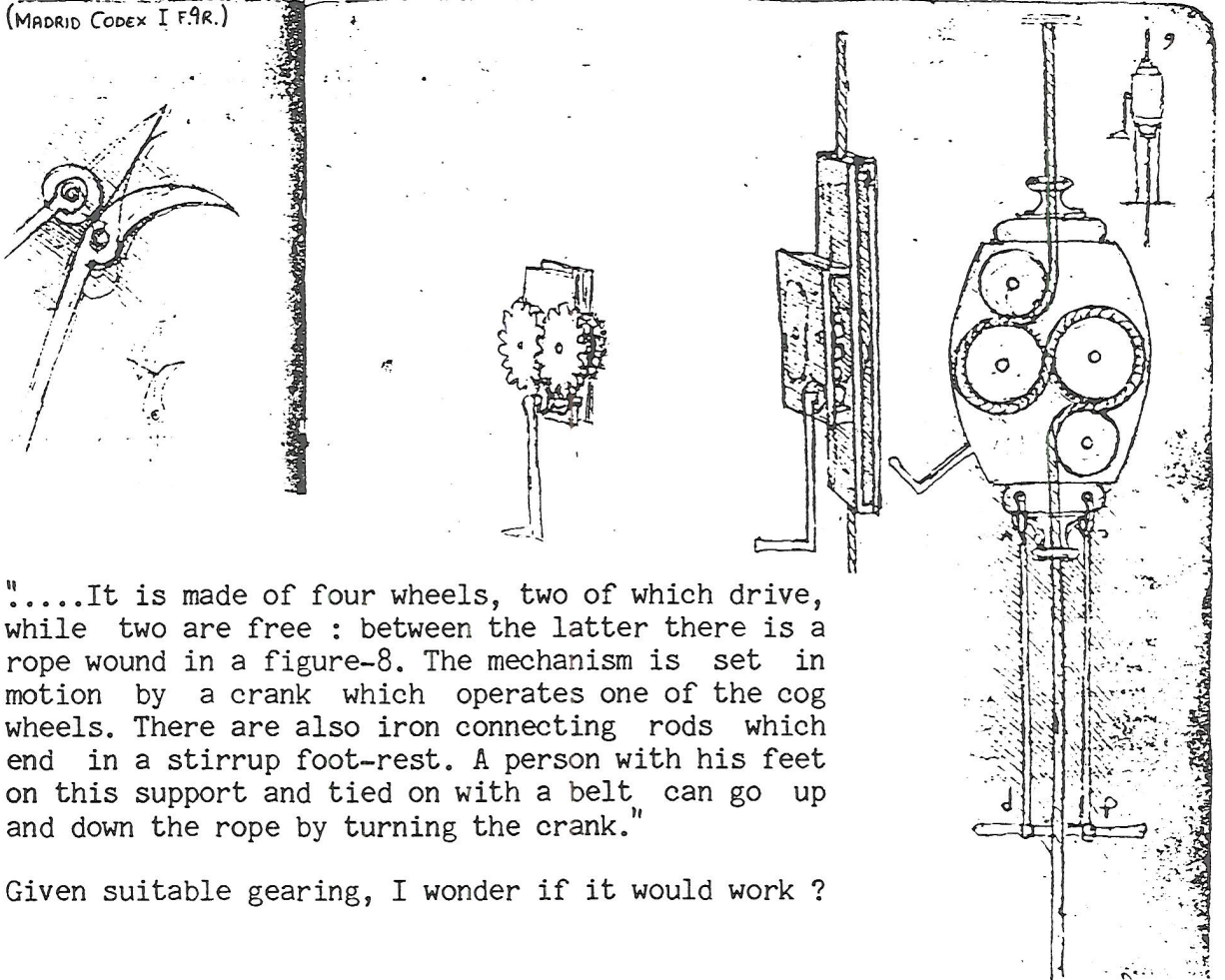
MORAL: If you suspect bad air - ignore the uncertain flickerings of carbide flames - they can survive where you can't !

.oOo.

Leonardo da Vinci : Inventor of the multi-scender ?

As well as describing flexible ladders, scaling poles, the use of etriers and pitons, and even a friction descender (for rapid escape over castle walls), Leonardo da Vinci's notebooks contain the following combined ascender/descender which operates rather like a powered Bobbin:-

(MADRID CODEx I F.9R.)



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

Given suitable gearing, I wonder if it would work ?

SO THAT'S THE REASON WHY YOU GO CAVING !!?

To Wilhelm Fliess
April 14, 1898

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

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

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

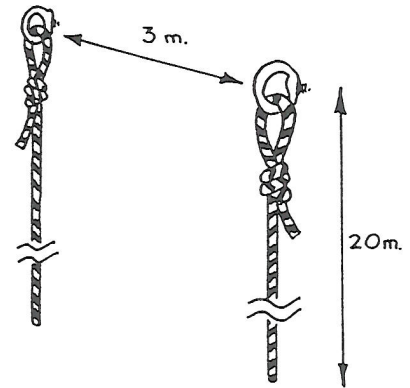
Sigmund Freud

(From the letters of Sigmund Freud; Hogarth Press, 1970)



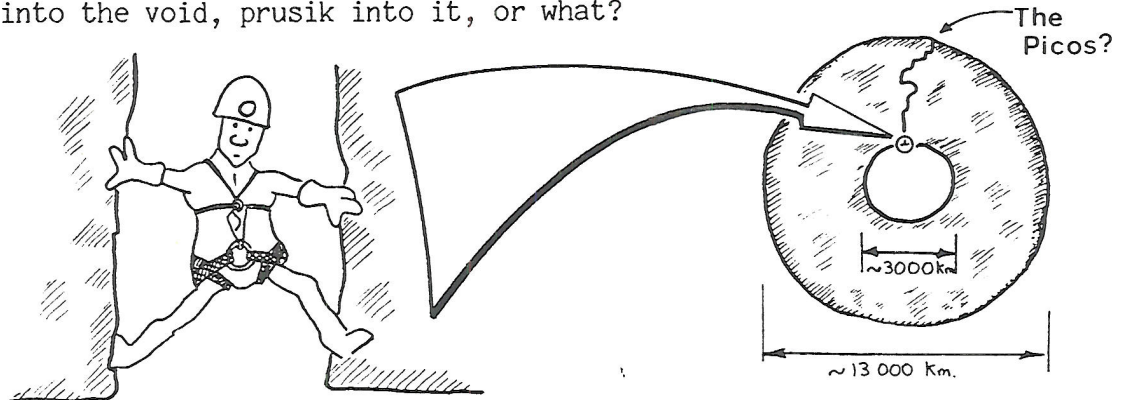
Problems ?!?

a. A tackle thief comes across two brand new fixed ropes hanging from an aven. The ropes are both 20m in length, and are tied directly into ring hangers about three metres apart in the, otherwise unclimbable, walls. Armed with only a normal SRT kit, how does the thief manage to steal both ropes, without a dreadful fall?



Ha, Ha, Ha, AGHHHHHH.....!

b. Darren Keeleye, the intrepid speleologist, is in a VERY DEEP pothole, thrutching downwards in a chimney at a depth of about 5000 km below the surface (!!!). Contrary to what all science expects, he finds that the centre of the earth is in fact hollow, being occupied by a vast spherical chamber many, many kilometers in diameter. But, how will gravity act within the chamber? Does Darren need to abseil into the void, prusik into it, or what?



(Assume the spherical void is perfectly central in a perfect, non-rotating sphere with a shell of constant thickness.)

c. Now, $Y = \text{---}$ relax with a rebus? You don't know what a rebus is? Well UR never 2 old or YY 2 learn something new. A rebus, if you still havn't realised, is an enigmatic representation of a name, or a word, or a phrase, by pictures, letters or numbers, or other words.

\therefore $2 \cup$ -therefore to c-on-t-in-u(e) the following 15 rebuses are all Dales'caves.....

1 CHURN CHURN	2 HER POT	3 POT
4 	5 GK	6 L G K E
7 GG	8 POT POT POT POT POT POT....	9 N S o 100 cm.
10 G $4 \overline{) 20}$ fl.oz.	11 	12 M GO
13 GREAT "	14 i Prrrrrr!	15 1p \$

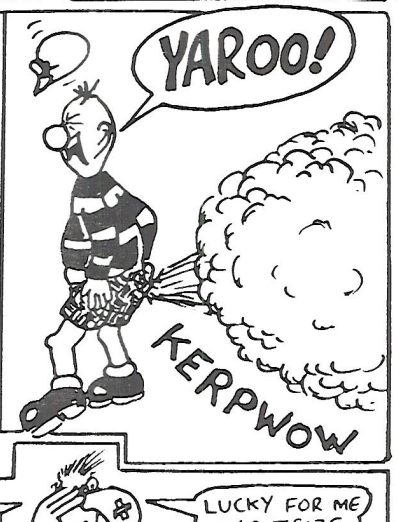
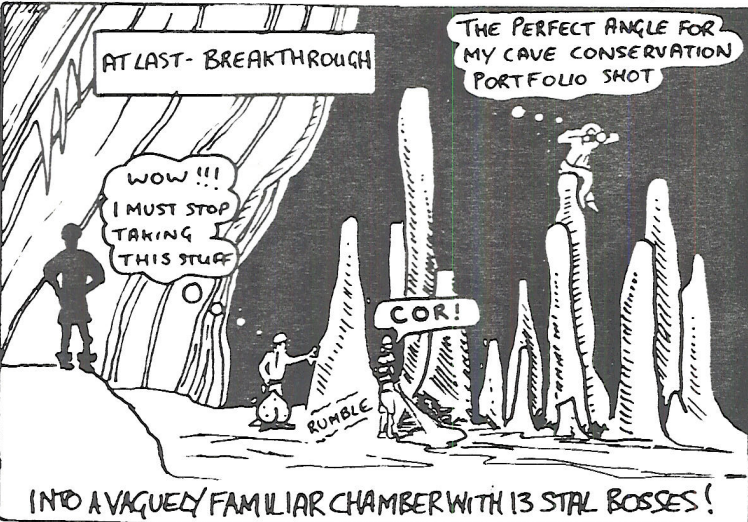
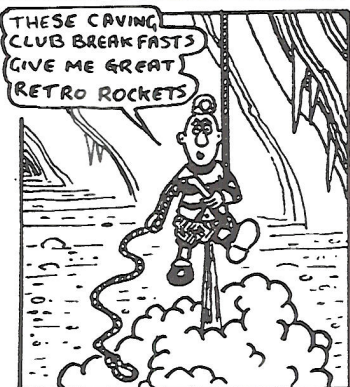
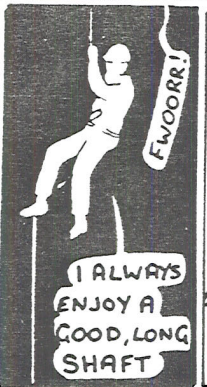
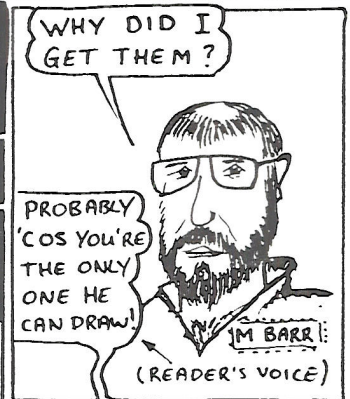
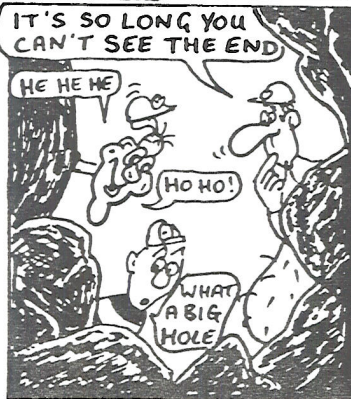
THE GREAT CAVING ADVENTURE

IMPERIAL COLLEGE CAVING CLUB
ARE IN THE DALES ON A TYPICAL FRESHERS' TRIP... BUT THIS YEAR IT'S A VERY MOTLEY CREW

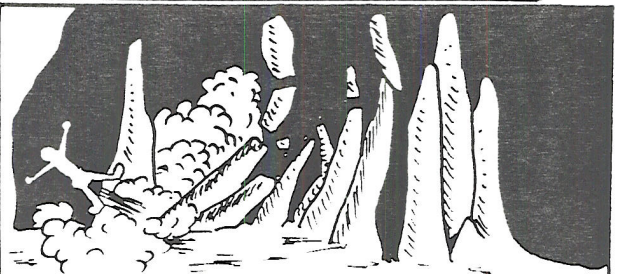


FOR THOSE WHO DON'T READ VIZ COMIC THE FRESHERS ARE -

- FINBARR SAUNDERS OF THE DOUBLE ENTENDRES
- BUSTER GONAD AND HIS UNFEASIBLY LARGE TESTICLES AND
- JOHNNY FARTPANTS - A QUACK, A SMILE AND A WHIFFY SMELL



CRASH



THAT WAS QUITE A BANG!
- I THINK WE'D BETTER
GO BEFORE ANYTHING
ELSE
HAPPENS

YUF!
YUF!

BUT AT THE PITCH

JOHNNY'S MONSTER
GUFF HAS BROUGHT
THE ROPE DOWN!

OH DEAR

WILL WE BE ABLE
TO GET IT UP
AGAIN?

YOF!
YOF!

IF JOHNNY
PUTS MY OVERSUIT
ON - AND WE DO
ALL THE SEALS UP.....

AND HE DOES
A REALY HIGH
OCTANE
FART, THEN...

?

HE SHOULD
FLOAT UP!

I'VE GOT MY FINGER
IN THE CRACK

CAN YOU GET HOLD
OF THE BIG KNOB

I'M SCREWING
IT IN NOW

FWOORR!
FWOORR!

SMURR!
SMURR!

HO HO EH?

AND SO FINALLY,
IN THE ENTRANCE
SQUEEZE

VRRRP!

OOWWARRR!
MY MASSIVE
GONADS ARE
STUCK

AND BEHIND BUSTER.....

PHQGSQFFF!

OH NO JOHNNYS BLOWN
ALL THE LIGHTS OUT!

WAIT I'VE GOT A
MATCH

No!
REMEMBER ITS
METHANE

A MATCH BRIEFLY
FLICKERS, ... THEN

BOOM

WOOWAAR!

GOSH I'VE BROKEN
INTO A BRAND NEW
SYSTEM

WELL DONE BUSTER

THAT EVENING IN THE MARTON ARMS.

DO YOU
WANT TO
KEEP IT
UP?

YES MALC'S
ALREADY GOT
ME IN THE CLUB

FWUR!

AAARF!
AAARF!

EK?

AAARF
AAARF

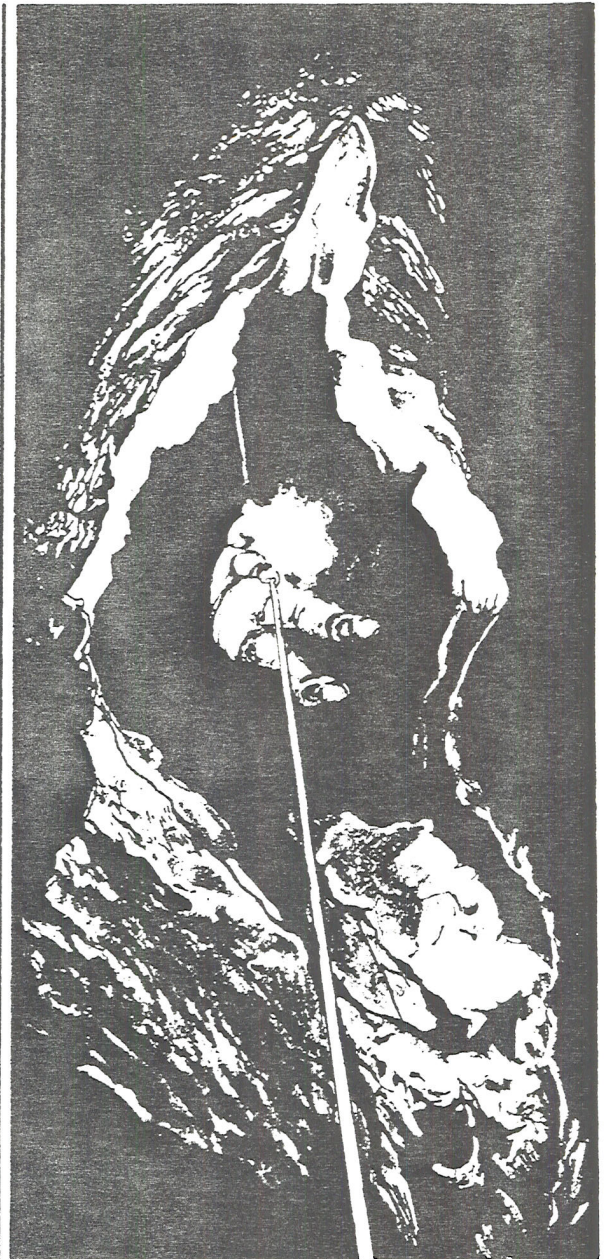
NIKE

DON'T KNOW
NUFFIN - I'M
PRESTON POLY

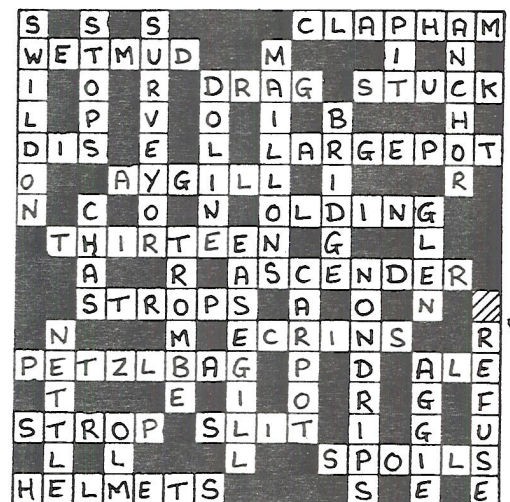
THERE'S A BIG
HOLE IN MY FIELD
SO SOMEONE'S
GOING TO GET A
GOOD WACKING!

ANSWERS TO CAVERNS, CHASMS, HOLLOWES
AND HOLES (in issue No. 9).

1. Bilbo Baggins in "The Hobbit" by JRR Tolkein.
2. The "Swiss Family Robinson" by Johann Wyss.
3. "Kubla Khan" by ST Coleridge.
Is it significant that the two lines of prose most quoted (and misquoted) by cavers were dreamt up under the influence of opium? Having slept off his last trip, STC awoke to find that he'd composed an entire 300 line poem in his dreams. Possessed with creative fervour he started to write "Kubla Khan" in a continuous outpouring. He got about 50 lines after "Down to a sunless sea" when the doorbell rang. It was a trader from nearby Porlock who kept him over a small matter of business for about an hour and when he got back to his pen, he found he'd completely forgotten the rest, and the poem was never finished.
4. Mole in "Wind in the Willows" by Kenneth Grahame.
5. Alice in "Alice in Wonderland" by Lewis Carroll.
Actually the original title was even more troglodytic being "Alice's Adventures Underground". However John Tenniel who had agreed to do the illustrations said this was "too like a lesson in mines", so it was changed.
6. Bilbo Baggins and Dwarves in "The Hobbit" by JRR Tolkein.
7. Titus Groan in "Titus Alone" by Mervyn Peake.
8. "Robinson Crusoe" by Daniel Defoe.
9. Hazel in "Watership Down" by Richard Adams.
10. Professor and Axel Lindenbrock and Hans in "Journey to the Center of the Earth" by Jules Verne.
11. Odessus (Ulysses) in Homer's Odyssey. (Oops !) I thought the poem was Tennyson's "Ulysses" but its not. I don't know what its about or who wrote it - does anyone recognise it ?
12. Medusa, with the two other Gorgons (until Perseus came along) - Myth.
13. Zeus (although other legends have him born elsewhere) - Myth.
14. Pooh in "Winnie the Pooh" by AA Milne.
15. Ayesha leading Leo Vincey in "She" by H Rider Haggard.



BIG MOTHER, Q5 CAVE, CANADA — LINDA HESLOP '85



Solution to crossword in issue No. 9.

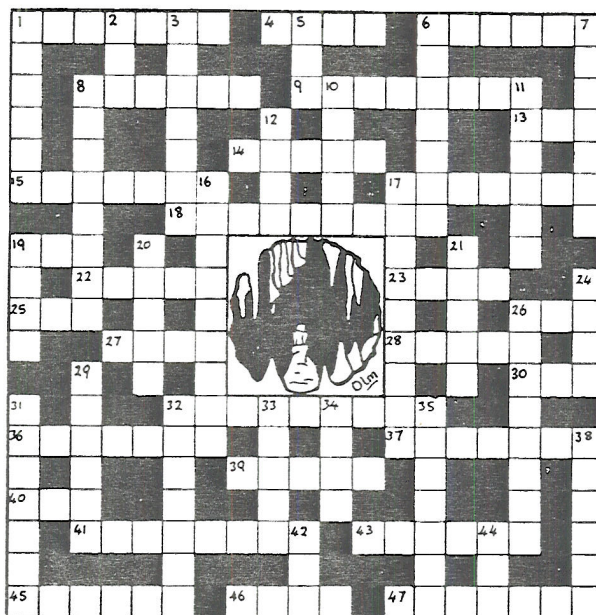
Sorry about the mistake here.

CAVING CROSSWORD

This caving crossword should test your troglodytic general knowledge! As usual, to maintain symmetry some clues (about 5) are a bit contrived.

Across:

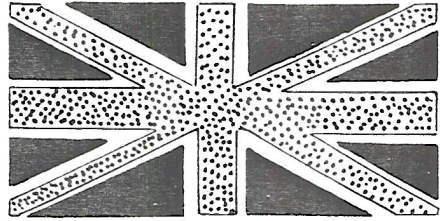
1. Minority (?) caving area. (7)
4. Marbachs'. (4)
6. Flue gas desulphurisation turns limestone to this. (6)
8. OFD entrance. (6)
9. Unamused queen sized cave above Settle. (8)
13. Yearning for Japanese currency. (3)
14. Make of carbide generator. (5)
15. Applaud bacon at foot of Ingleborough. (7)
18. Ecclesiastical pitch in Lost Johns. (9)
19. Small, pissing-wet bit in OFD - sounds like us! (3)
22. Pachiderm pot in Mendip. (5)
23. This team were rock-steady in Daren Cilau. (4)
25. Colourful test for water. (3)
26. A little something to protect ropes, elbows, knees etc. (3)
27. Any cave in Wales ? (4)
28. Cave biologists dish for growing his moulds. (5)
30. I come out of the pit and leave nothing. (3)
32. Grade V sepia mound in East Kingsdale. (5,4)
36. Crooked bacon down road from 15 across. (7)
37. Greasy S. American cave-dwelling bird. (7)
39. Ridge in limestone pavement. (5)
40. Beer! (3)
41. French caving region to SE of Vercors. (8)
43. Sump or the tube to drain it.(6)
45. Gallic inventor of the electron ladder. (2,4)
46. Carbide burners, grouped in West Side Story. (4)
47. Beams across passage in Trat's Temple. (7)



Down:

1. Imperial rope lengths are measured in a different way.(6)
2. With Providence you'll get here in the end. (3)
3. Strange cap raid down French show cave. (7)
5. Abbreviated gold coin, or 9 across for example. (3)
6. Norwegian cave diving area. (7)
7. Wandering passage. (7)
8. Pyrenean cave under Leck Fell (8)
10. A slip on clay might land you here. (2,3)
11. Caverns near Lancaster? (6)
12. Not the type of helmet for caving even in the tropics. (4)
16. Switch ram for man to get a smelly Mendip cave. (5,4)
17. Venetian explorer finds a cave in Savoie. (5,4)
19. Despite the name, his is a dry way into GG. (4)
20. Carbide burn from French monkey. (5)
21. Little river cave in S. Wales. (5)
24. Include it as mine passage. (4)
26. Tight pot links to 8 down. (8)
29. Repaired? Sounds like deceased males. (6)
31. Well worn yarn provides a confusing bad read. (7)
32. Pitch in Lost Johns climbed by Romeo perhaps. (7)
33. A familiar boot. (5)
34. Search for a pot on the slopes of Penyghent. (4)
35. In Casterton Fell ink pot is found part of the system. (4,3)
38. Karstic hollow, ditto line enclosed. (6)
42. Shortened way to climb ropes. (3)
44. The omnipresent cave salamander. (3)

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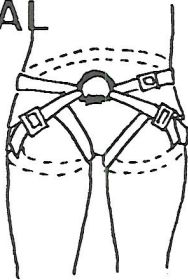


NEW

CS UNIVERSAL HARNESS

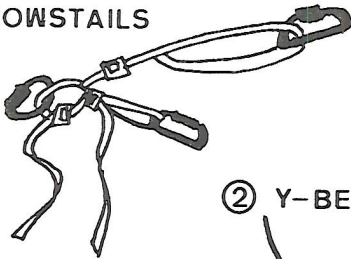
Fully Adjustable

MULTI USE:

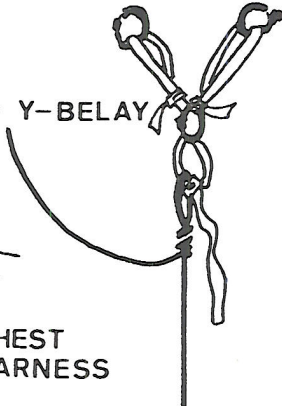


£ 29-95

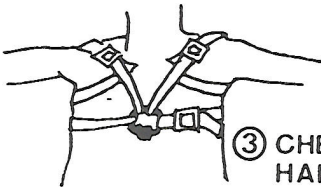
① COWSTAILS



② Y-BELAY



③ CHEST HARNESS



④ JOIN SEVERAL TO MAKE A LADDER

2-PIECE OVERSUIT IN PVC

- ★ No awkward front flap
 - ★ Inside pocket
 - ★ Velco waist join
- (specify pink, paisley or tartan)



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CS CAVING WELLY

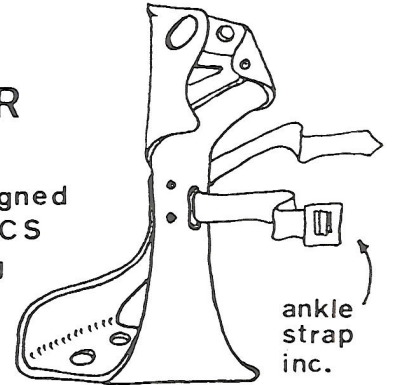


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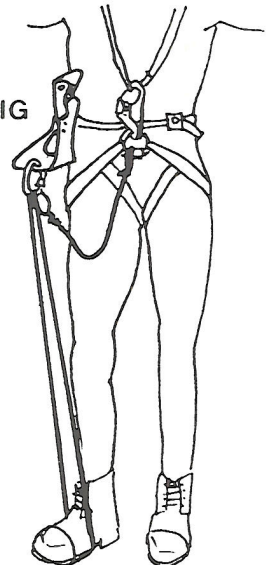
Reference books:-

- Ladybird book of knots.
- Modern SRT (Rde Joly).
- Noddy's Caving Accident (E. Blyton)



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