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Lumen in Tenebris

SUSS

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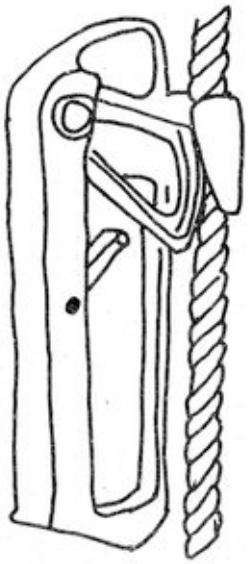
EDITORIAL

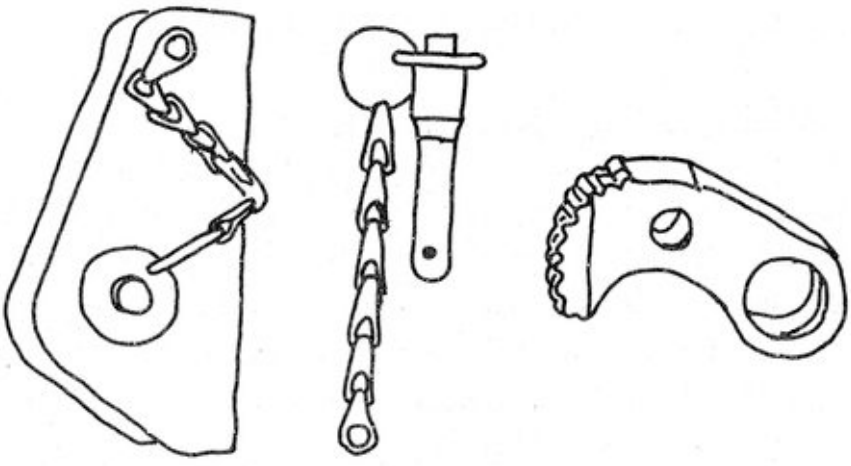
Well, another issue of the SUSS Bulletin rolls off the press, and of course I've used up all the articles that I have on hand. More articles please.

This issue contains another two of Peter Campbell's SRT articles. These are always interesting & I commend them to the reader - if you don't agree with some of the things in them please write to the Editor. Peter has included some of the feedback he has received from his previous articles in the beginning of the SRT VII article.

While on the subject of SRT, I must reccomend Neil Montgomery's book on SRT. AT $7-50 it is a good buy and must enhance any SRT'ers techniques, and would be invaluable for anyone thinking of taking up SRT. Copies available at the next SUSS Meeting, or available from Caving Equipment.



THE JUMAR



THE GIBBS (showing quick release pin & cam)

SRT VII SRT ASCENDING DEVICES I: THE ASCENDEURS. Peter Campbell.

Addenda To Previous Articles In This Series:

On Rope Protectors; Don Davison (1) advocates that rope protectors should be made of natural fibre materials, because then the rope will wear out the rope protector and not vice versa, and because the natural fibre protectors will not be subject to weld abrasion. The is to my knowlege no hard data on these factors nor is any anecdotal evidence provided; nevertheless cavers would be wise to bear this possibility in mind. Synthetic rope protectors have had an incident-free record to the best of my knowlege.

On Descending Devices; A recent U.S. incident involving brake bars should serve as a warning to those people who use this system. (2) A caver went out of control on a 165' abseil. The reason was that he had a rig with non-locking krabs. The gates flexed in the axis of the hinge pins and thus reduced the friction on the rope. It is conceiveble that the system could fail completely leaving the abseiler no longer attached to the rope. It is possible that the same can happen with the crossed krabs on crossed pitons. The important thing is to always use locking karabiners. Even some of these, (I know of no test of the strength of gates to the forces applied by these rigs) particularly those krabs with alloy screw sleeves may be suspect.

Super Racks; These have been produced over the last few years in the U.S. and are considered superior to the standard rappel racks.(3) The new innovations are the introduction of spacers for the first two bars to prevent them jamming, the use of much larger bars, and having the first bar bolted to the rack.

This results in a device that have improved heat sink characteristics, higher UTS (in the order of 9000lb plus), and a smaller tendancy to flex/twist on the long axis. They are available for A$18.00 plus postage from THE SPELEOSHOPPE P.O. Box 8044, Louisville, KY 40208, U.S.A.

PRUSSIKING DEVICES WHAT NOT TO USE.

There are many prussiking devices on the market. Only 2 are readily available on the Australian market and they are really the best 2 available.. These are Gibbs Ascenders, and Jumars. No other ascender has any amount of proof of its worthiness. The origional prussik knot is weak and unreliable in holding (4) failing at loads well below that of a Gibbs. Clog ascenders have had varied reports (5), (6), from damaging ropes at a load as low as 500 lb to a very good performance of failure at 3,938 lb. However in the same series of tests a clog had rope slip at 844lb. Petzl ascenders fail at around 800 lb (6). Clog ascenders are universally criticised for their jamming and slipping tendancies. Some lesser known devices include the mechanical Hiebler, and various "semi-mechanical" knots which involve the incorporation of karabiners into their construction. These are notable in their quite poor performance.

Jumars stand alone in reputation, having been the choice for all high altitude fixed rope work in the 70's (e.g. the successful Brittish S.W. face of Everest expedition.

So really the choice is whether you buy Gibbs or Jumars.

TABLE OF COMPARISON OF THE CHARACTERISTICS OF GIBBS ASCENDERS &JUMARS.

	GIBBS ASCENDERS.	JUMARS.
Where to buy	Southern Cross Gibbs Products Co. 854 Padley St Salt Lake City Utah 84108 U.S.A.	Paddy Pallin, Southern Cross, Mountain Equipment.
How much	Quick release $15 ea. in Aust. " " $20 pair incl. post from US.	$29-32 a pair regardless of where-depends on shipment.
weight ea.	220gm (quick release)	210gm
Quality control	Each tested to 454kg	Each tested to 300 kg(?).
UTS	Depends on rope; up to 1020kg on Bluewater II. (32% of rope UTS)	? rope failure at 450kg ? frame failure 690kg ? cam failure 420kg.
Shock Loads	Leader falls on Gibbs reported with no failure. No record of accident due to failure of Gibbs.	Several accidents due to cast frame "exploding"
Rope size	0-14mm diameter	7-14mm may jam on 12mm rope.
Locking action	Needs tight slings ant the knack of the down and out action.	cam spring-loaded immediate locking action.
Holding ability	No history of slippage unless cam put in reverse. Does not slip at all on icy or muddy rope	Bad reputation and history of slipping on iced and muddy ropes.
Performance on cut sheath	No test performed but due to lever action would be reasonable to expect it to hold on damaged rope	History of slipping badly on cut sheath.
Drag on rope	none; the cam moves away when the device is moved upwards,	cam stays in contact with the rope when moving the ascender up the rope.
Maintenance	The whole device can be dismant- led to expose the cam axis for ins- pection and lubrication.	only superficial inspection and maintenance can be carr- ied out and the cam axis can only be indirectly checked for wear.
Life of the device and spare parts.	Unknown parts available	Unknown. parts available.
systems that can be used.	Rope walker, floating cam	Frog system, several rope walking systems, and others.

	GIBBS ASCENDERS	JUMARS
Rigging	Two handed operation requires practice to master. (contrary to popular belief a Gibbs cannot be lost down the pitch, and the QR pin cannot "pop out" Response of pin to large lateral forces unknown.	one handed operation requires practice to master. Has a saftey guard of unknown strength on old models thin ropes can pop out.
Effect on rope	Has rounded teeth which produce no effect after 1000 person loaded closures on a 2" section of rope.	Cam held by spring against rope known to cause abrasion, rope fails at lower loads than Gibbs
Cam wear	Can occur on very muddy ropes unless considerable does not affect performance (a hardened cam is available)	Teeth wear even in normal use and can affect performance on muddy ropes.
Belay	Ideal for ladder belays, rescue has been used for leader belay but not nec recommended	Can be used with care on ladder
Speed	World prussiking record; 100 ft in 32 sec	
Worst feature	Locking and rigging	Holding and strength.

REFERENCES.

(1) Davison Don NSS News 35(2):38-39 February 1977.
(2) Davison Don NSS News 35(1):19-20 January 1977.
(3) Isenhart Kyle Georgia Underground 10(1) from NSS News 35(2):43.
(4) Gibbs Products Co Pamphlet "laboratory Tests".
(5) Humphrey Neal H. Jr. Pamphlet from Gibbs Products Co "How Strong is a Gibbs Ascender?"
(6) Eavis A.J. B.C.R.A. Transactions 1(4):193. December 1974.

Information for the Gibbs/Jumar Comparison is from the pamphlets supplied by Gibbs Products Co. and the Jumar Pamphlet Jumar CH-3713 Reichenbach Switzerland. The next article will consider several good prussiking systems and the pitfalls (pun) to avoid in rigging a safe system.

* * * * *

SRT VIII SRT ASCENDING DEVICES II: THE SYSTEMS. Peter Campbell.

General Points.

There are many systems available for use in caves using 2 or 3 ascenders. Which system is best for each person varies according to his or her needs. For example

Conditions on the Pitch	System which is best (my opinion)
Long Free-hanging Drops	Gibbs Floating Cam System
Many Short Drops with Ledges	Jumar Frog system.
Pitch against rock face	Jumar rope walking system (or Gibbs)
Pitch With mud or ice	A system incorporating a gibbs as a safety.
Handline pitch or self belay on ladder.	A Jumar (on chest) or Gibbs on sit harness.

Slings

One of the largest group of fatal and serious SRT accidents are due to inadequate slings. There are 3 important things to consider in setting up the slings for a prussiking system.

1. Choose only good quality climbing rope or tape e.g.1" tubular or "tiger" tape use only 7mm or larger nylon kernmantel. In the U.S.A. one person lost his life by relying on thin polypropylene ski cord for slings.

2. Make sure that your system allows for the complete failure of 1 ascender and still leaves you attached through your sit harness to the rope. It may seem obvious but ignoring this fact has cost several lives. What it means is that you have a safety sling from the ascender attached to your feet. A number of systems are unsuitable in this regard because failure of one ascender leaves one in mid air hanging upside down by one's feet; a rather embarrasing situation.

3. Your system should incorporate a design that allows you to rest completely That means not having to hang on with your hands to maintain balance, not having the weight of your body taken by your legs or your breathing impaired by a chest harness that is taking all your body weight. This is vital for adequate, safe performance on long pitches.

Flag Clips: These are used for convenience so that foot stirrups can be quickly detached from the foot loops (see figures 1,2,3,) it is important to keep in mind that flag clips (obtainable from ships chandlers) are of unknown UTS and used with caution. The stainless steel ones are probably stronger than the alloy ones.

Chest Harnesses: There are two good designs (figures 4,5,). Bluewater make a chest box which is supposed to keep slings in tight to the chest, but they have (not necessarily the Bluewater model) an evil reputation of wearing out slings to the point of failure on a single pitch on more than one occasion and have caused one fatality.

Foot Loops: There are only two safe designs (figures 1,2,) In addition to the section that goes around the sole of the foot there must be a tight heel strap. This must not be of elastic for the same reason that no sane caver uses an elastic

chin strap for a caving helmet. The heel strap must be able to take the weight of a person if the need arises. If you are going to wear the footloops as you move between pitches, some sort of covering (e.g. 1" tubular tape) is necessary.

Sit Harnesses: Of these the Whillans is the best although at around $18.00 it is a costly item. It can be purchased from Paddy Pallin, Southern Cross Equipment, and Mountain Equipment, or Troll Products Spring Mill Uppermill, Oldham, OL3 6AA, England. Gibbs Products also produce a harness as do several individuals in Sydney. Quite satisfactory harnesses can be made by knotting 2" terylene tape (figures 2 & 3). Whatever harness you decide to use it must not be possible to fall out if you turn upside down, and the harness must be comfortable to wear on long pitches. Another desirable feature is being able to wear the harness whilst moving through the cave, the Whillans Harness being excellent in this respect.

I recommend using a Whillans Harness if you can afford one since it is very strong, comfortable, has handy features like gear carrying loops, and has an unbeatable reputation, being used on most mejor mountaineering expeditions today It is a good idea to wear harnesses under overalls with the attaching krab sticking out in a very obscene fashion. The Whillans or any other harness can be cleaned by putting it in the washing machine with your ropes.

Gear Carrying: On abseils this can be carried on your back provided that you use a whaletail and attach a chest sling to the top hole. This also has the advantage of allowing an extra free hand during the descent. When prussiking a good method is to hang your pack from your thigh straps. This has the disadvantage of getting in the way of ones feet when in the squatting position especially with the frog system. A better method is to have one member of the party at the top of the pitch and another at the lip rigged to the rope. In this manner the whole group gear can be hoisted up in one or two go's, and the top members can rest if necessary whilst the others prussik out.

Prussiking Technique: This is only learned by experience and is not possible to describe. Ther are a couple of points however. When crossing ledges the trick is to use one leg to push the person and rope out from the edge so that the ascenders can be moved past the lip. A short burst of effort to do this is much easier than a marathon trying to squirm past a rope jammed firmly against the edge. Regardless of the system, prussiking is much easier when the body is kept as vertical as possible, since this transferrs more of the work onto the legs which are much better designed than the arms for such heavy work.

Prussiking in Tandem: This is a rarely used technique said to produce an amazing bond between the two climbers. Needless to say the ropes must be properly protected and in top condition. The two climbers do not prussik together but each rests in turn whilst the other climbs a given distance. On long pitches this can save a lot of time. Use with great caution and remember "We'll all go together when we go.'"

Tension on the rope: All ascenders require a certain downward force on the rope to pull it through when moving the device upwards. Jumars require more force than Gibbs, and this seems to be also a function of rope diameter and the system being used, the chest jumar being notoriously bad. There are several alternatives. A person below can risk rocks etc. and hold the rope, but this is no help to the last person. A pack or the coiled rope can supply the tension, but some people feel that they need the tension removed when theyreach a ledge. With the frog system the rope can slide in a "V" formed by the heels of both boots. When you wish to apply tension, by jamming the feet together the rope can be locked. With the gibbs floating cam system, the rope can be hooked under on boot and held in one hand (figure 6). If the worst comes to the worst, the tiring method of using one hand to pull the rope through the lowest ascender.

Ascenders slipping: This has been considered in an earlier article. A toothbrush to clean the teeth of Jumars is a worthwhile thought.

SRT Rescue: This is a very new development and only a few instances are reported. From some preliminary experiments, this seems to be an excellent form of vertical rescue, both for partially disabled victims (using the frog system a person with an injured arm or leg, but not 2, canprussik albeit very slowly) A person on SRT can have both arms free to manouvre a stretcher.

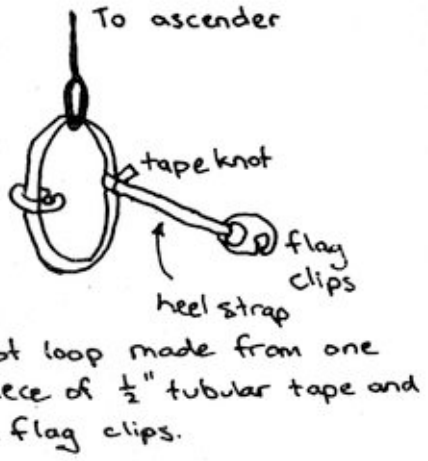


FIGURE 1

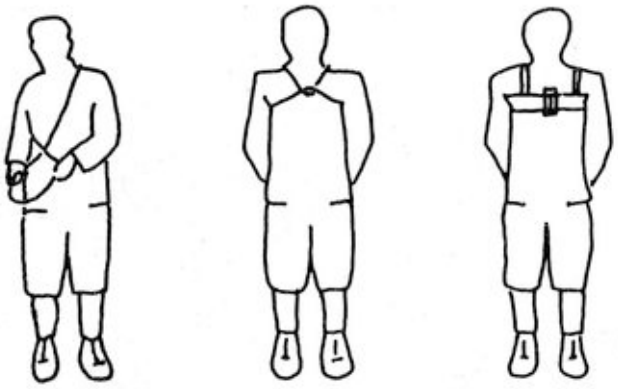


FIGURE 4 FIGURE 5

Chest Harnesses

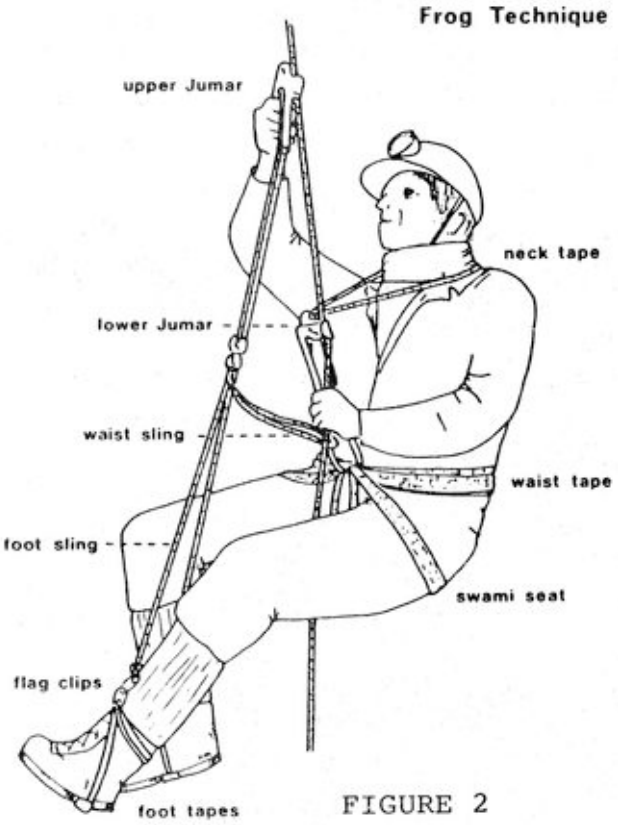


FIGURE 2

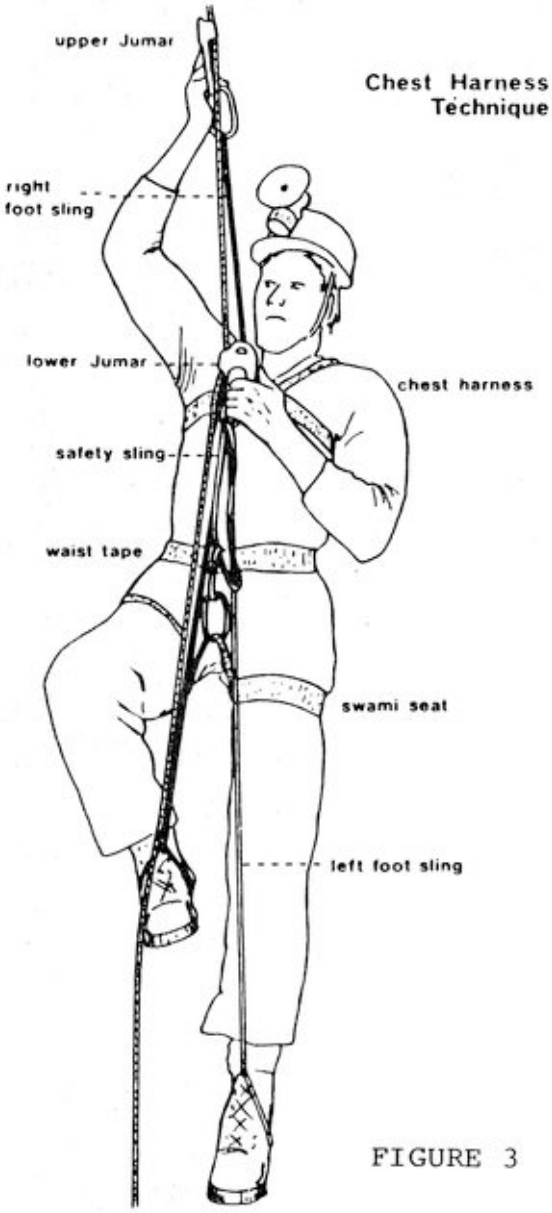


FIGURE 3

FIGURE 6

Figures 2 & 3 reprinted from NSRE 1973
Figure 6 reprinted from Climbing Magazine USA

TRIP REPORT - NORTHERN SPAIN, AUGUST 1977

Guy Cox (SUSS), Graeme Smith (SUSS), Nigel Hancock (OUCC).

The party assembled at Oxford on the 17th August, a day later than had originally been planned (Guy's fault), and Nigel's 10-year-old Morris was loaded to the gunwales. Equipment had been a bit of a problem since airline weight limits are stringent, but Westminster Speleo Group had loaned 100ft of ladder and hawser-laid nylon rope, and 40ft of staple-spun polyprop. GC had another 75ft of ancient ladder hidden away in his parents' attic, and 30m of Super Braidline terylene SRT rope was bought for the trip. Other equipment somehow completely filled the remaining space in the station wagon. The first leg, oxford to the ferry at Southampton, was uneventful, and after surprisingly few drinks at the bar we had a peaceful overnight crossing, sleeping on deck. (It didn't rain much !)

As we belted through France it became apparent that the volume of exhaust noise was increasing, and after about 30 km a stop for fencing wire was deemed necessary. Having prevented the pipe falling off, the next consideration was where to repair it - the consideration here being a suitable place for the crew to pass the time while the pipe cooled down. The cobbled market square of Sées, perhaps the most beautiful mediaeval small town in Normandy, seemed eminently suitable. The nearby cafe provided coffee before, and handwashing facilities and beer afterwards; the nearby quincaillerie (ironmonger) sold us jubilee clips, gave us baling wire and lent us tinsnips, and with an old oil-can and some patent goo we contrived an excellent repair ! In fact, it remained completely silent for around 2000 km, and was still in place (but no longer silent) when we got back to England.

With our only breakdown of the trip behind us, we had to get down to covering the miles, and we hammered on all day stopping only for a picnic lunch of superb French bread, cheese and paté. Evening saw us in the Landes, a region of interminable pine forests, and rather late for dinner in the little country restaurants, which shut early. However we eventually scored an expensive, but good, steak in a hotel which was just closing, and then motored on. Graeme spent noticeably less of his time in prayer after dark - presumably he could no longer see what was happening. We could have made Spain that night, but Nigel insisted that he had reason to be in France the next morning, so we pitched camp in a delightful rural site, which even had fresh, warm croissants for breakfast next morning. Nigel then revealed that an uncle of his was married to a frenchwoman, who kept a hotel in Guethary, a few miles before the Spanish border, so we duly sought them out, and were treated to a most magnificent lunch in the town's best restaurant, and the most entertaining conversation on every topic under the sun. It was quite late in the day when we finally managed the last few kilometres into Spain.

This was the tenth anniversary of my first trip to the Cantabrians. In 1967 the main road westward along the Spanish coast was simply atrocious, but here and there we could see massive works underway as a major expressway was carved out of the mountains. Now, for the first time, we were able to drive along the entire length of the new road, a most spectacular piece of engineering, avoiding both a bad, winding mountain road and the major traffic bottlenecks of San Sebastian and Bilbao. The expressway ends just beyond Bilbao, only 30km or so from our first destination, Castro Urdiales. At Castro, an old fishing port and present day holiday resort, we stocked up on food (every night is late shopping in Spain), took one look at the town camp site, and headed into the hills. As dusk fell, we trekked down a steep valley side from the car to a classic camping spot, on the river flat just in front of the Cueva de Penilla, a huge influent cave entrance.

Nigel's 2-man tent was really a bit small for sitting in in the rain, so once we had had a meal and(of course) some wine (35c a bottle) the logical thing to do seemed to be to go caving. Penilla is not a vast cave (900m long according to the Oxford survey) but the entrance series is vast and impressive, and the final stream series is wet and impressive, so we were quite impressed. We also followed a very wet and sporting (but not impressive) series near the entrance which had been missed by the Oxford expeditions. The cave entrance was the dormitory for a splendid herd of goats, who had been startled enough when we went into the cave, but seemed positively amazed when we emerged out of the darkness an hour or so later. We seemed to sleep well enough after the trip not to worry about the impossibility of keeping entirely dry in the rather overcrowded tent.

Next day a visit to Sangazo cave, the resurgence of Penilla, seemed appropriate. Sangazo is simply a large river passage, with no particular hazards except a dam near the entrance (water supply) and some lowish sections, ending after a kilometre or so in a sump complex only a few metres away from the end of Penilla. The ample size of the passage and the formations make this very much a 'gentleman's cave'. There is also an extensive high-level series, which includes some gigantic, dead chambers whose dimensions would be measured in hundreds of metres. In fact, we found an additional giant chamber not included on the Oxford survey, so there is probably still more to be found even in a cave as accessible as Sangazo. In a half-hearted attempt to justify our existence we looked at flora and fauna on our way out - but we didn't really feel much need for such justification - it was good just to have seen such caves, even if the rain did start again.

Castro Urdiales for dinner seemed the logical next step, since the rain was getting even heavier. Next morning we felt less contented, since Nigel & Graeme awoke to find themselves awash. The ground had become saturated, and puddles were forming. Looking outside, we saw that the river was rising - and we were on the wrong side. A move to a better camp site seemed to be called for, and after a trip to the Penilla entrance to collect specimens and take photos we struck camp. Another tent, a few hundred metres away on the same flat, still showed no sign of activity - we had seen no sign at all of the occupants while we were there. Nor had we seen any bodies in the caves, so we decided against any detective work.

Our plan was to move west some 150 km to the region around Llanes, in the foothills of the Picos de Europa, the highest point of the Cantabrian chain. Weknew of some cave s there; furthermore, we knew a village where we could camp in a level field, accessible by car. So that evening found us pitching camp just outside the village of Rales. For the first time we were able to erect our "portable palace", a three roomed frame tent borrowed from my parents, as well as Nigel's small tent. On a level, well-drained site, with the village bar within walking distance, we could camp in comfort regardless of the weather. A little limestone peak - not much more than a knoll - rose steeply above the village, and we knew that it contained a 2.5 km cave system. What more could one want ?

The only real snag was still the weather. The water level in the Rales system was high all through our stay there. The cave is enterable upstream via the Pozo del Molino, a shakehole with an abandoned watermill at the bottom, or the Cueva de Samoreli, a series of old dry entrances. Both of these lead to the stream, and a reasonably extensive upstream series, but the way downstream is a tight duck, which remained obstinately sumped. The lower entrance (Cueva de Juentica or Fuentica), also leads

to the streamway, but eventually progress upstream is barred by a pitch which needs a maypole if it is to be climbed from below. So the central part of the river passage remained inaccessible to us.

High in the mountains, but an easy drive (up an apalling road) from Rales is the little village of El Mazuco, scene of countless Oxford expeditions. To me, it is <u>the</u> classic piece of cave scenery; a huge blind valley, with all its drainage funnelling into a spectacular cave entrance, and other sinks and resurgences everywhere you look. The hills above are bare limestone pavement, dotted with 100 metre shafts. Add to this natives who are both friendly and interested, and no previous speleological investigation prior to the Oxford expeditions, and you will begin to understand the appeal of the area. To understand it fully you will have to go there.

The longest and deepest cave in the area is La Boriza, a resurgence cave carrying one of the valley's three major streams - Lower River in Mammoth would be a fair comparison for volume of water. Since it wasn't actually raining, Graeme & I decided that Boriza was worth a try, even though water levels were fairly high. Nigel decided that one Boriza trip (in 1972) was enough for a lifetime, and went for a walk instead. The problem with resurgence caves is that you start at the bottom of all the pitches, and in Boriza this is quite a problem. After a couple of easy cascades and some refreshing pools, we were faced with pitch 1 - a 10m waterfall, which can be climbed by a traverse at one side, which is (relatively) dry until the last desperate move over the lip. This took us some time, and in the end was more of a feat of engineering than climbing, relying on well-placed pitons (both ours and previous explorers'). The second pitch is only 5m, and follws soon after. This yielded to combined tactics - Graeme on my shoulders, from which point the passage is narrow enoug h to chimney. This pitch is rather strangely placed, for immediately behind it is a deep lake (at least as deep as the pitch is high), ending in a sump. On this occasion there were 2 sumps, since what is normally a low duck was also sumped. Both sumps are short, and the water is clear, so we had no problems. There follows a long canal of deep water, with a low roof, and then a more spacious series of lakes. Swimming is the normal mode of progress in this section - a cpmpletely phreatic passage, in dramatic contrast to the classic vadose canyon of the first part. After the lakes the canyon - now around 15m high - continues again, but we first climbed up above the stream for a look at the high-level continuation of the clearly much older phreatic passage. This is old, vast and dead, and the living streamway seemed a more attractive prospect. We therefore subjected ourselves to an unending series of vadose potholes and small cascades - a really splendid sporting passage. After 5 - 600 m of this we reached pitch 3 - only 5m or so, but distinctly difficult. After several abortive attempts we gave up, knowing that the terminal sump was only about 150 m beyond. Next time we shall take a bolting kit ! Roping down the pitches on the way out was easy, and exhilirating. To make things easier and less costly, we used cheap local polyethylene rope as disposable slings for the descent. We emerged very cold and very satisfied .

Nigel was by that time on top of a nearby mountain, but came down when he saw us breaking into his car. We returned to the village where one of our many friends there insisted on sharing a bottle of muscat with us. Tales were told of our doings in the four years since I had been there, and of the changes in the village. There had indeed been changes. Several people now had cars in the village, where before a motor-assisted bicycle had been a man's highest aspiration, and most were content with horses or donkeys. Little two-stroke mini-tractors had also appeared. There were television aerials on many houses. Worst of all (and doubtless a result of the two other changes) the village shop cum bar was no more. Such is progress.

Our next visit to El Mazuco was the morning after the big storm which finally destroyed our hopes of getting through the squeeze into the Rales streamway. We looked at the main resurgence for the valley, near Cortines village, which was in copious flood. We found to our relief that the shop/bar in Cortines at least was still extant, which was comforting. Duly comforted, we proceeded up the valley to the flood resurgence at the tiny village of Caldueñin. This is a large entrance, which is normally dry though the river is met a short distance inside. We found that we were too late - it had evidently been flowing earlier that morning, but now the entrance was dry again. The river inside was in flood, but sinking rapidly and visibly. We sat for quite a while watching the level fall, and were just wandering off when we heard a clap of thunder. It was followed by a rool of drums, all emanating from the far side of the lake in the cave. The sump was breaking ! For at least five minutes the booming continued, and we listened in amazement. When all was quiet again we made our way up to El Mazuco.

In such weather conditions there was only one cave to do - Pozo de Fresno, almost dry (by El Mazuco standards), large and well decorated. The entrance is a steep doline forming a 30m pitch, thoug h only the last 3m is vertical. A short passage leads into a big chamber, which forms the main part of the cave. Formations are on a suitably grand scale, with columnar stalagmites up to 10m tall, and 6m stalactite flags hanging from the roof . The chamber floor is on several levels, but there is only one pitch, a beautiful 15m vertical against a stal flow. There is also a deep series, pitch after pitch following the small stream downward, but we were short of tackle, Graeme had a sprained ankle - and we contented ourselves with shooting off photos in the main chamber.

And so into Llanes, where there was a minor fiesta in progress, and we felt that an evening of celebration was in order. One of the traditional delights of such occasions is the cider tent, for Asturias is noted for its cider. This is an opaque brownish colour, and must be poured into the glass from a great height (to remove nasty-tasting volatiles). One sip was enough for Graeme, and I don't think he swallowed that. Nigel and I seemed to have no trouble polishing off the rest of the bottle - the first gulp is always the worst. All the restaurants were, naturally enough, crowded, which gave us ample excuse for quite a few leisurely drinks before dining - especially since an old friend from Mazuco appeared on his battered motorbike to join us.

Fine days were all too scarce on the trip, but we did manage one day at the beach, one day - only one - when the cloud was high enough to permit us to get into the high Picos, to search for the deepest cave in the world. Our destination was a chain of three closed depressions, the biggest over a kilometre in diameter. The bottoms of these 'jous' were above the 2000 metre contour, and the water sinking in them could drain only to either the nearby Cares gorge, at about 200m, or its tributary the Bulnes gorge, at about 300m. Plenty of potential ! We drove to Poncebos, a hydro-electric station on the Cares, and the highest point accessible by car. Nigel was seized with a stomach malady, and spent the day oscillating between the two bars at Poncebos as he blocked the bog in each in turn. Graeme and I set off for the high country. With only about half a day available, it was clearly impossible to get to the Jous and back, but we hoped at least to get close enough to decide if the region had potential.

The first few kilometres of the walk consist of the track to Bulnes village; a foot or donkey track along the Cares gorge, across a mediaeval stone arch bridge, and along the steep wall of the Bulnes gorge. It is a sobering thought that the villagers have no means of access by any sort of wheeled vehicle. We arrived at Bulnes feeling at the very least that we'd had a good walk. We had gained about 300m in altitude; the way on was a couloir, the Canal to Amuesa - to reach the col at the head would be a further 800 m. However, after some lunch the prospect didn't seem so daunting - and our packs were lighter. There was quite a reasonable path up the couloir, first climbing relatively gently through a grassy valley, then rising more steeply up the scree-gulley itself. Here Graeme tried an alternative route which had absolutely nothing to recommend it, but survived - both routes linked up as the couloir narrowed at its head, and we strolled out on to the grassy col. We were less shattered than we had expected to be, but nevertheless our remaining food was very welcome. The col has a summer hutment ("majada") where a few villagers spend several months of the summer pasturing their animals on the upland slopes. It has also a small climbing refuge, and we chatted for a while with some Spanish climbers. They were heading on to the Jou de los Cabrones, our intended target, but we decided that we had got as far as we could if we were to return that day. We did have a good view of the Jous, however - a lunar landscape of Karst craters some 3 km away as the crow flies, and still a kilometre above us. Between us and them was the black mouth if a cave entrance, which we estimated as at least 50m square. We will get there some day . . . . .

Nigel was still alive when we got back, so we drove into Cangas de Onis, the nearest town, found a little restaurant which looked as if it didn't mind scruffy cavers, and had a superb dinner of trout from the Sella. Even Nigel was tempted to eat a little.

And that, my children, was what we did in Spain. The journey back was uneventful - we took a scenic detour around the Matienzo - Asón - Ramales region where all the Cantabrians' deepest caves, and some of the longest - are to be found, but missed various English cavers who had left a week or so before. We also attempted to visit Altamira, but its days quota of visitors had already been filled. Finally we made the ferry with minutes to spare, and so missed on the last good meal in France we had promised ourselves. A good meal on the boat went some way to make up, and after a dry and comfortable night on deck we woke up to find ourselves in Southampton, but unable to disembark for another hour because the dockers were having a go-slow. We were back in England . . . .

G.C.C

JENOLAN 15th-16th October. Guy Cox

Present : Guy Cox (TL), Bruce Welch, Paula Gard, Paul Greenfield.

First trip back in Australia ! Before I left we had pushed a little way through a loose boulder pile in Central River, upstream from Central Lake. After some touristry in Northern parts of the cave we returned to finish the job. I went in first, shifted a few boulders until I could see into a river passage beyond. Feeling psyched out by shifting boulders all around me, I handed over to Bruce. One quick shove and the way was clear. " Great - deep water ..... oh..... a sump !" I followed through. About 6 or 7 metres of beaut river passage and a deep sump. Bruce says it's 3m deep but I don't know how he measured it - stood on his own head underwater? As we left the boulders shifted and settled all around us. Be warned, it is extremely unstable.

On Sunday we did not survey in Wiburds Lake Cave.

* * *

Bungonia 17-18 September

Present: Many SSS, Al Warild (UNSWSS), M. Handel, K. Handel, G. Francis, A. Osborne, J. Jennings (heavy), & other geologists.

Cavers and tourists swarmed over the reserve all weekend. John Bonwick led a team of SSS members in lowering the water level at the Efflux. Julia James organized others into collecting water samples in several caves.

On Saturday, Mal and Al attempted to climb the gorge and ascended 300 ft before evening. In the morning a large group entered Drum Cave to study its geology and/or play prusiking. Mud traps were laid at the bottom for unwary geologists.

After lunch, Joe and Geoff followed a line of limestone on the surface. Some of us walked down the gorge to heckle the climbers but we reached a pool of water before seeing them and decided that they were not worth wetting our feet for, so we walked straight back up again. By this time, Efflux work had halted because the siphon had clogged up with mud, and no-one was willing to dive 10 ft to free it. Peter Styx later volunteered.

John Bonwick's new abseiling device was tested on Hogan's Bluff on Sunday with amusing results at first : "A loop of rope just came off." "Impossible.It can't." "I know, but it did.". At this point, an enterprising rescuer threw down a second rope, but the damsel in distress (Julia) coped with the problem herself. Psycho thought that everyone but himself used it back-to-front.

In the afternoon some of us took a water sample from the bottom of Argyle. I assume other people were taking samples too. The water level did not drop in the caves during the weekend, but a week later the level had dropped 2.2 m at the Efflux and 2.1 m in B24, enabling 30 ft of passage to be revealed at the upstream sump of B24.

K. Handel

Wyanbene 15 - 16 October

Present: S. Bunton, K. Handel, J. James & other SSS, A. Warild & other UNSWSS.

On Saturday, Al continued climbing the Gunbarrel Aven with Steve Bunton seconding - ie. sitting on a belay ledge all day. Al scaled 40 ft in 10 hours and has now climbed about 210 ft without finding the expected cross-passage, although he has reached the balloon. Mud was regularly dropped exceedingly close to the support party waiting below with hot soup. Most of the party, shivering from the water crawl, decided to fill in time by trogging to the end of the cave with one rope - a minimum of two is definitely recommended, and ladders are even better in the muddy conditions. One person, whose light had failed, was left at the top of a short pitch so that the rope could be thrown up to him to rig the slippery slope. We returned to the aven to wait a further 6 hours while Al pelted us with mud and Steve mumbled jokes at us from 50 ft above.

Keen cavers descended the Big Hole on Sunday. Others piked. Steve and Rob (SSS) so obviously enjoyed tandem prusiking that I have censored my photos (but I do wish that I had a telephoto lens to have a better excuse for censorship). Steve says that he wants to return as soon as possible to try it again.

K. Handel

"Well, lads, what are we going to do wi' rest of Australia Council grant?"

"Can't see why it's called the Devil's Coach House."

FUTURE EVENTS

DEC 10-11	JENOLAN - Trip Leader Guy Cox 692-3176 (w)
JAN23	SUSS Committee Meeting - 180 Short St, Balmain 7.30
JAN 28-30	ASF Committee Meeting - Mt Kiera
FEBRUARY	TASMANIA - ? perhaps - Bruce 692-3491 (w)
FEB 2	SUSS Meeting - Electron Microscope Unit - 7.30pm
FEB 20	SUSS Committee Meeting
MAR 1-3	ORIENTATION WEEK - keep this spare to help with the SUSS stall etc.
MAR 2	SUSS Meeting - Special Freshers Meeting
MAR5	Field Day - Northern Beaches - Sunday
MAR 11-12	3rd Annual Cave Rescue Practice - Bungonia
MAR 18-19	FRESHERS TRIP - venue not yet organised but we hope to be able to make this years more constructive.

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Lumen in Tenebris

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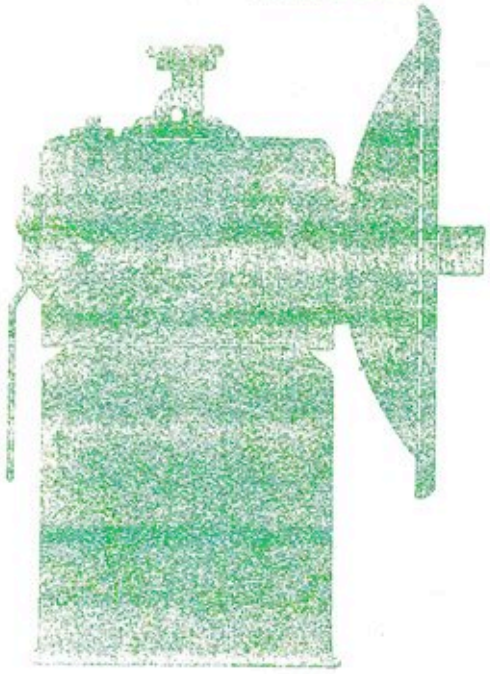

SUSS

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