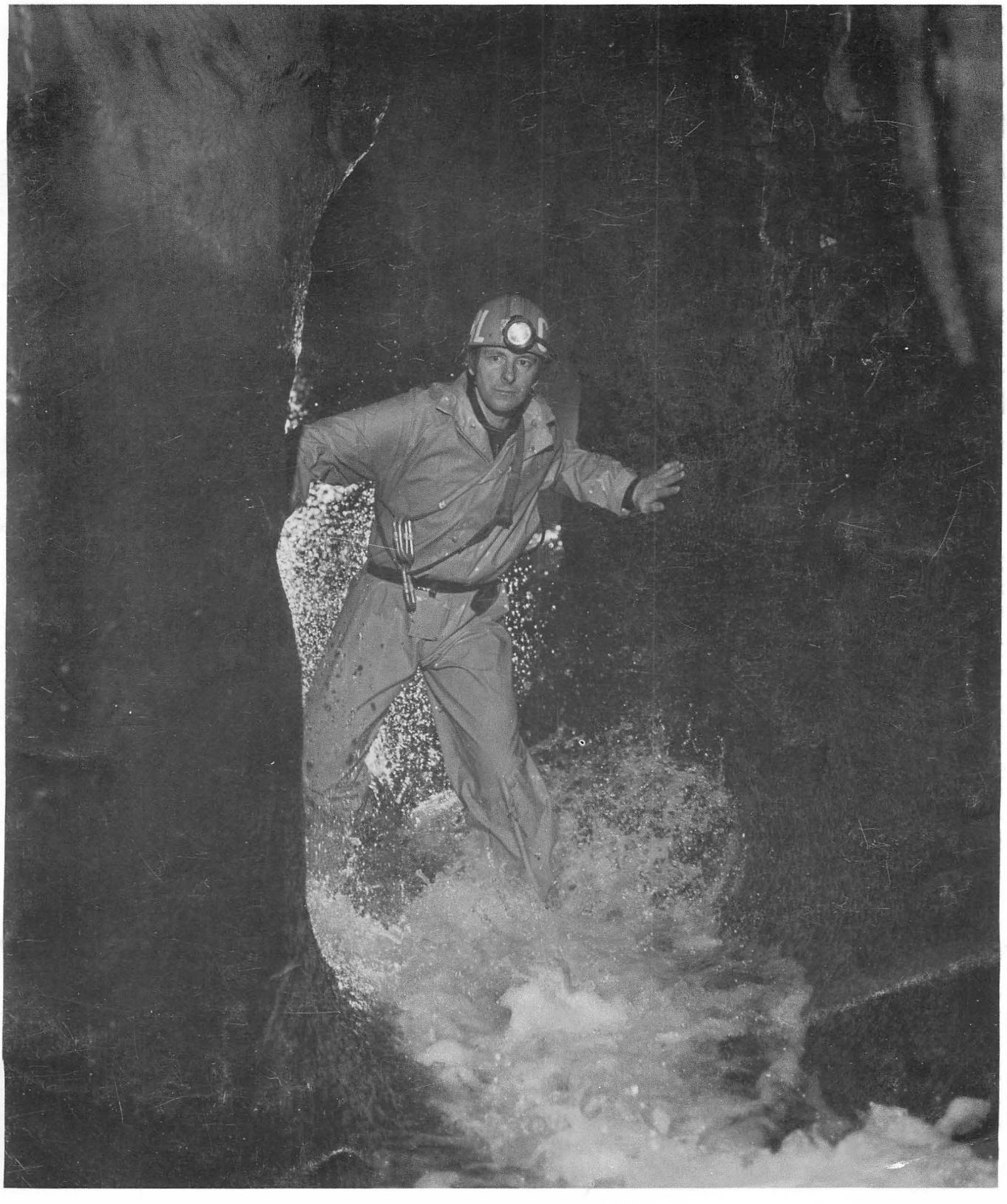
Caves & Caving

The Bulletin of the British Cave Research Association

BCRA

Number 16 May 1982 80p



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Articles, news stories, photos, reviews, surveys, expedition reports and equipment tests, etc., are all welcomed for publication.

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Major articles should be submitted by the following dates:

March
June
September
December

20th

Short news items can be accepted up to a week after these dates.

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Cover photograph: **Carl Ryan in Ogof Ffynnon Ddu Streamway J.J. Rowland ARPS.**

Robins Shaft Mine

Members of the Derbyshire Caving Club have recently excavated their way into Robins Shaft Mine, Ilam, Derbyshire, discovering some fine phreatic passages.

The Mine is situated between Alstonfield and Ilam, at the rear of Hill Tops Farm, Ilam Tops. The shaft head itself is now fenced and marked by obvious mining mounds (NGR, SK 13555276).

The shaft proper is probably unique in Derbyshire, measuring 8' x 6' and descending as a constant gradient of 45°, with an extended length of 400 ft. The shaft bears resemblence to mining techniques used in Cornwall, although at present we are unable to ascertain who was responsible for its excavation.

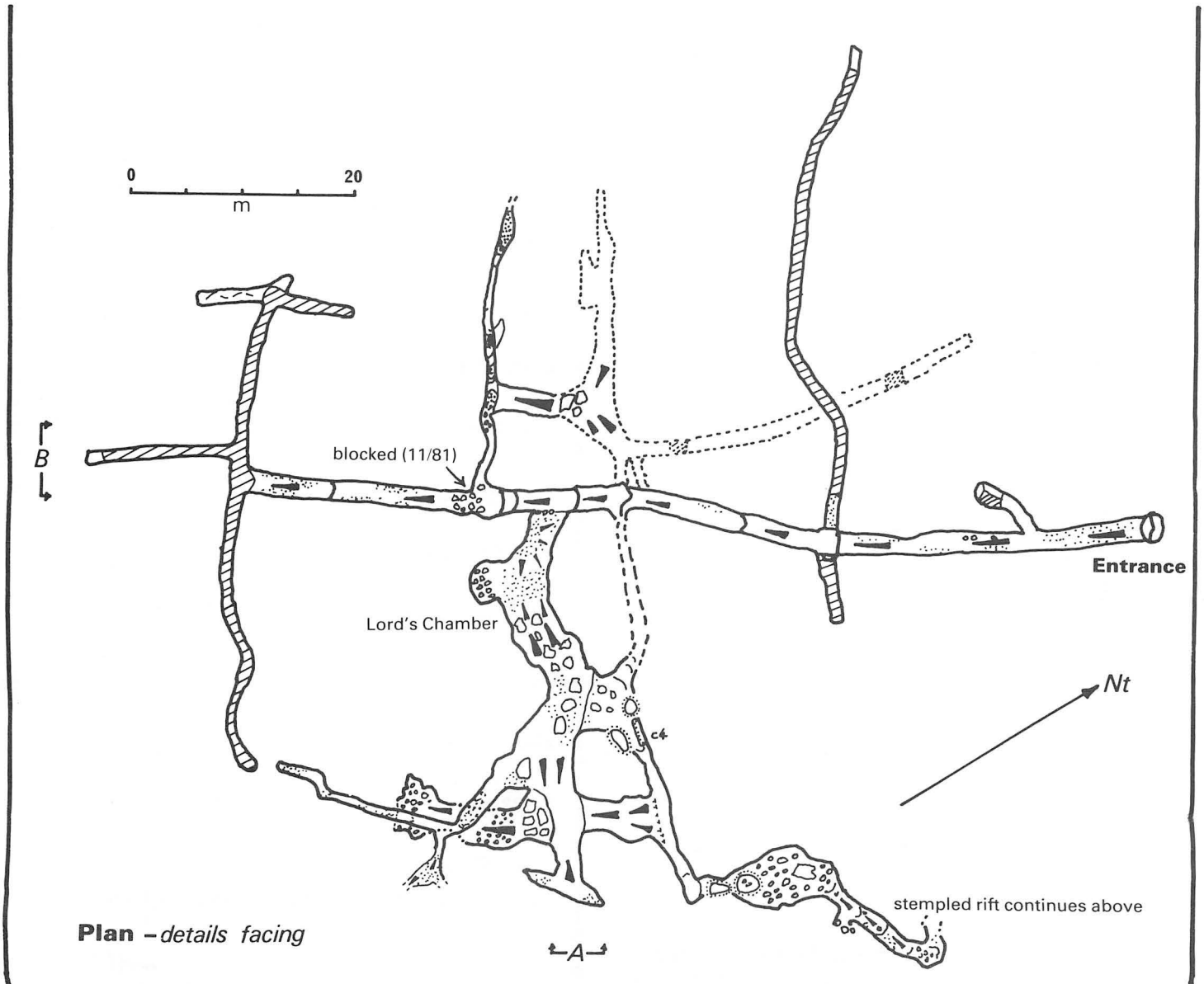
History

The shaft was sunk, possibly in the early 1840s by the Ilam Mining Company, at one point breaking into natural caverns. Whether the miners had gained access to the natural cave is uncertain, (no evidence supports this view at the present time) but either with luck or good management, the miners successfully sunk the shaft in the right place. Beyond the natural cave the main shaft continues until reaching its 400 ft. length and a depth of 300 ft., two levels were driven at right angles to the main shaft. This stage seems to have been reached round about 1846-47.

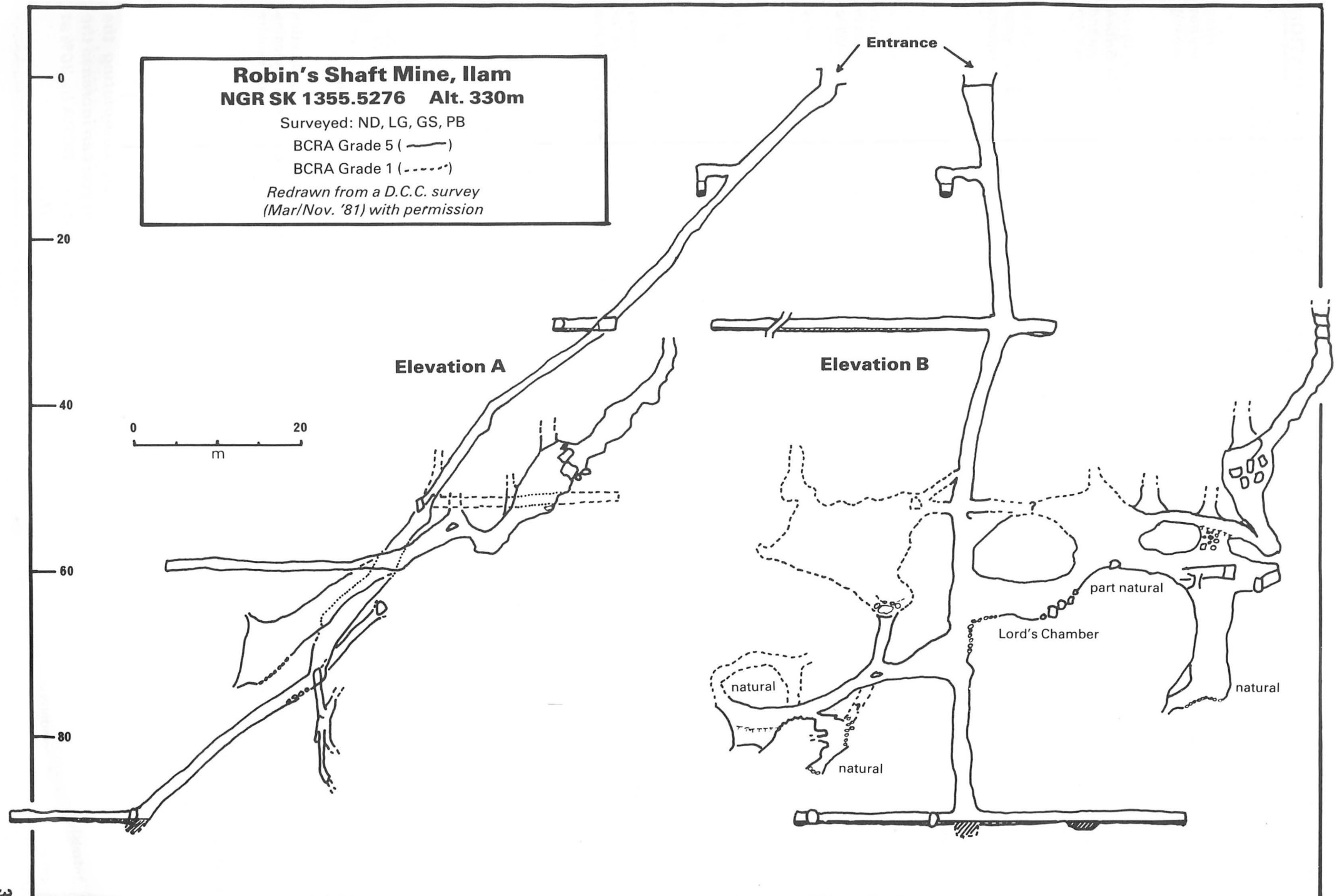
The miners, it should be said, were after copper, but galena was also found in reasonable quantities, even being found intermingled. The lodes in the earlier levels yield 25 to 30% copper ore but as the lower levels were driven, the lodes started to yield 30 to 35%. Production was increased by the middle of 1847 and considerable amounts of copper carbonate and galena was extracted as they worked the lower levels, hitting richer pockets all the time.Round about the same period, Browns shaft had been sunk, but these workings suffered excessive water seepage. So towards the end of 1847 plans were put into operation to drive a level or crosscut from Robins to Browns shaft in order to alleviate the problem. (In fact reports to the company at the time, stated that it would only be a matter of time, before the two would be connected).

As work progressed water seepage started to affect the lower levels of Robins mine, and was taken as an indication of how close they were to Browns shaft, but a report from Browns shaft indicated that there had been no improvement at all in the water level. By the end of 1847 another problem had arisen, that of bad air. Wooden ducting was installed down the main shaft and along the bottom levels, but this seems to have been insufficient, and by now the water problem was even greater. Whether it was these problems which closed the mine or lack of finance to solve them is uncertain, but by the middle of 1848 the mine had ceased operation and the mines removable assets were auctioned off.

Over successive years the tenants of the land proceded to use the shaft as their own personal corporation tip, dumping down it everything



Plan – *details facing*


Robin's Shaft Mine, Ilam
NGR SK 1355.5276 Alt. 330m
Surveyed: ND, LG, GS, PB
BCRA Grade 5 (——)
BCRA Grade 1 (- - - - -)
Redrawn from a D.C.C. survey
(Mar/Nov. '81) with permission
Entrance
Elevation A
Elevation B
0
20
40
60
80
0
20
m
part natural
Lord's Chamber
natural
natural
natural

from dead cows to cars, intermingled with assorted household rubbish.

Excavation

It was in this condition, that in August 1980, Colin Darroch started to dig out the shaft aided by Peter Lee, and within the space of five weekends had managed to dig a route over the top of the rubbish and gained entry to the mine. A brief flurry of exploration followed, aided by a number of club members.

Through 1981, clearing of the shaft head of all the rubbish was made the first priority, until by the Autumn of 1981 proper descents could now be undertaken in reasonable safety.

In 1982 extensions to the natural system would seem to be on the cards, although the shaft itself does need a proper clean, as much of the rubbish has slowly slid downwards in the form of gritty mud, filled with small bits of glass, pottery and rust particles. At the moment it makes for a pretty mucky trip and it doesn't help the ropes much either.

Description

There are three main levels at depths of 100 ft. 180 ft. and 300 ft. with one or two minor levels and the rest consisting of enlarged natural passages. The bottom level at a depth of 300 ft. is the most interesting. (At present this level is sealed off, due to debris which built up during the clearing of the entrance). The passage floor is flooded, with an average depth of 18 inches of smelly silt and water, but in two places it exceeds this depth by about 6 ft. and there could possibly be flooded levels going off at angles.

Miners tools have been found in the mine, and remnants of the wooden ducting can still be seen in the bottom levels. A wheelbarrow has also been found, although anyone who wishes to remove it would have to find a way to keep it intact, as it is thoroughly rotten.

From the cavers point of view, the natural cave is by far the most important aspect of the mine. The depth potential is approx. 600 ft. from surface to floor of the Manifold valley, the direction in which the system seems to trend.

The cave itself is old fossilized phreatic passage, (with no active stream anywhere) entered along its length by fine high avens, most have been scaled and reach to an average approximate height of 150 ft. This seems to correspond to the mined level half way down the main shaft. The Main passage itself must have been very active, as seen by the scalloped walls and large phreatic domes. The main stream responsible for the cave appears to have entered the system from the east down a now boulder-choked passage. The possibility of an natural entrance to the system is further enhanced by the existence of a cave on the surface. (This cave is situated in a quarry, approx. 200 yards to the southeast of the mine entrance, it descends 10 ft. and ends in a glacial choke). If the entrance could be gained it could give us a natural cave depth of 275 ft, by far the deepest in the area. Extending the cave further is also a possibility, however this may involve quite a bit of work as the miner used this as a dumping ground for all his waste material.

Thanks must go to Pete the farmer whose assistance has been most generous and whose interest has been keen throughout. Also to Colin and Pete for getting stuck into it and firing the enthusiasm of others, and to P. Mottram whose research I have gratefully used, and all the others who have given their time.

Warning

The main shaft is still unsafe with loose stones. Mud and rubbish can also clog up ropes and gear.

Access

Admittance is by farmer's permission with a charge of 30p per person to cover inconvenience.

Compiled by P. Boardman and first published in the D.C.C. Newsletter, No. 5, Feb/March '82.

TACKLE REQUIRED

1st pitch	70 ft. ladder or handline to head of second pitch.
2nd pitch	275 ft. - 300 ft. rope or ladder to the bottom or rigged to 200 ft. rope or ladder and traverse to metal spike for 70 ft. pitch.
3rd pitch	100 ft. handline useful for the extension of the main shaft.
4th pitch	50 ft. handline or ladder for loose natural shaft.

Northern News

Extensions in Pippikin

The Northern Cave Club have been busy in Pippikin Pot, Leck Fell, extending the cave in all three dimensions.

A bolt route of over 40m has been climbed in Hall of the Damned (the first chamber in the Gothic Series). The climb starts in the south east corner and after 27m meets a passage which quickly becomes too low. Carrying on around a buttress gains access to a large sloping ledge of unstable boulders and then to an 18m high aven. This was bolted for 12m, passing a small inlet, but climbing stopped when it became clear that no further passages existed. The roof was seen to consist of jammed gritstone cobbles held up by cobwebs. A radio location using Bob Mackin's Molephone located the aven under a shakehole not far from Smoky Hole. Less than 3m separate the roof of the aven and the floor of the shakehole - the latter has been fenced-off just in case!

Northern Caves Vol. 4 mentions a crawl above a complex pot in the floor opposite the Gothic Series. This is supposed to lead to a slot down to the Lower Streamway. This now appears rather confusing as the crawl of 30m does lead to a slot but it is quite impossible to get down. The fair-sized stream below at this point is definitely not the Lower Stream as it is over 20m above. A large chunk of rock has been removed from the slot and a 4m climb descended. A small chamber was followed by an abrupt bend which entered a narrow rift where the stream could be seen tumbling down a series of short cascades. A 0.5m section of narrow rift proved too tight to pass although the passage looked roomy enough further on.

In the bottom north-east corner of Cross Hall, a Hole first noticed by Colin Davis and excavated by members of the NCC led through a tight squeeze to a 7m pitch. This was descended to a slope of unstable boulders, a further 3m climb down, another slope of loose boulders and then a 4m pitch landing in a small chamber. A waterfall can be plainly heard at this point. A dangerous route down through loose blocks has been excavated from the chamber, dropping 8m. However, this trends away from the stream noise. The whole area is extremely unstable but the possibility of hitting a major streamway beyond any of the known lower level passages is clearly there. The depth of this extension below Cross Hall is 23m.

The solid choke at the end of Gour Hall is still under siege by the NCC. A 4.5m long, 1.2m square tunnel has been mined by working along a 0.15m crack. Another couple of metres should see us enter a chamber which is visible.

The Club is planning to resurvey Pippikin as certain areas are very confusing and a decent elevation is a must for future work in the system. Information about any extensions would be appreciated and should be sent to John Thorp, 54 Whingate, Armley, Leeds 12.

KINGPOT EXTENDED (but not by much)

Bolton Speleo Club have managed to get some useful caving done despite the fact that they are frantically looking for a new cottage

Early in the year they bolted up Telephone Aven, off Queensway in Kingpot, Kingsdale. Two short passages were explored. The first, about 25ft up, starts as a 5ft square passage but quickly closes down to become too tight after about 50ft although it is a possible dig. The second, at the top of the aven, is an active stream passage leading to an aven with an inlet rift 15ft up which immediately becomes too tight. A crawl at the bottom of this aven (flat out in water) gets too tight after about 50ft,

The surveyed length of King Pot is now 14,860 ft (4.53km), including sump lengths. Miracle Chamber area, as yet unsurveyed should add about 500 ft. to the total length.

Dale Barn Cave now has a surveyed length of over 1.5 miles (2415m) and, together with unsurveyed passage beyond sump 2, the total length will be in the order of 1.75 miles (2800m).

John Palmer B.S.C.
John Thorp

Major find in Garsdale

Over the past year the Dent House Speleo Group has been exploring a significant new cave in Garsdale, an area devoid of much enterable passage. Work in the cave has been slow due to its rather dangerous nature and the discoverers would like to keep the find to themselves until their task of documenting the cave is complete.

At present, over half a mile of cave has been surveyed and ten passages have been entered, few of which have been forced to a conclusion. Work in the cave (mainly by Roy Holmes and Andy Rushforth) has been hampered by loose boulders and a flood-prone tight entrance series – the width down to 8½ inches in places. The main stream passage, up to three feet wide by ten feet high, is well decorated but progress upstream has been halted for the moment at a boulder choke. Over ¾ mile separates this point from the supposed sink.

Full details are to appear in a future edition of Caves & Caving.

LOST POT – LOST JOHNS

Members of the Northern Pennine Club and the Red Rose Cave and Pothole Club have recently connected Lost Johns and Lost Pot. The extension was only open for a couple of weeks when it collapsed, seriously injuring one of the party attempting an exchange trip.

The link was made by digging in Lost Pot and connection was gained via a pitch lined down one wall with gritstone cobbles. While Jim Newton was on the ladder, the top 15 ft. of the boulders fell causing bad injuries to an arm and his head. It is thought that a small stream, which had been diverted for the dig, was responsible for loosening the rocks. On a stabilising trip a couple of weeks later the pitch moved again and so the entrance to Lost Pot has now been sealed to allow the area to settle naturally.

After a long stay in hospital, Jim is recovering at home.

CLIFF FORCE CAVE

Craven Pothole Club members have made a 1500 ft. extension to Cliff Force Cave, Buttertubs. This brings the total length of the cave to over a mile. An interesting feature of the high level extension is the large number of fossils that stick out from the wall.

Cavers thinking of searching for the extension are warned that equipment in the cave is in a poor state and that the entrance is loose and dangerous.

Full details of the extension along with a complete survey of the cave will appear in the next edition of the Craven Pothole Club Journal due out in the summer.

Braille Cave

Another NCC find. Situated in a shallow valley between Growling Hole and Broken Finger Pot on East Kingsdale side, a short entrance climb leads to a crawl heading north. This ends where a block bisects passage – to the right it becomes too narrow to follow although it probably joins with Growling Hole. Stones can be dropped down a hole in the floor under the entrance climb for at least 10m. Entrance altitude is 1255' (382m), length 70' (21m) and depth 10' (3m).

John Thorp

BSC Homeless

The Bolton Speleo Club have to get out of their club hut at Winskill on 30th June. This (in)famous hostel, which has been in BSC hands for the last 25 years, has been sold for £25,000 as a home.

During this quarter century of occupation the club has played host to many school groups and college mountaineers/ramblers as well as dozens of caving clubs from around the country. They are looking for other accommodation at the moment and all suggestions/ offers of a bed etc., would be welcome. John Stott, the Secretary of the BSC wishes to extend condolences to all BSC members, past and present, and thanks those guests and visiting clubs who helped to make Winskill what it was.

Crag Cave, County Kerry, Ireland

Some further details

In many respects Ireland is a cavers paradise – numerous holes, few trogs and a thick black liquid, generally known as stout. Being a rather anarchic nation there is virtually no underground bureaucracy and there are a fair number of individuals (e.g. the writer) who belong to no club, are happy to cave with almost anyone, and who have been known to wander underground on their own. Sadly all utopias have their faults and it is arguable that the main one in the Emerald Isle is that is can be difficult for visiting cavers to find out whether or not they have located a previously unexplored or unsurveyed system. This has lead to some confusion in the past (e.g. "Slieve Elva Pot" : *Descent* 44,p14-16 and 45,p31-32) and more recently to the case of "Crag Cave" in Co. Kerry *Caves and Caving* 15,1982,p2-4). This cave first came to my attention in June 1981 when I was asked to investigate the pollution of the Castleisland town water supply – a karst rising. The treatment plant supervisor, David Keane, recalled exploring the cave some 40 years ago – a quick check with the Cork Speleo Group and other underworld figures revealed that it was unknown to those outside the area. hence it was surveyed by myself, Brian Scanlon (local), and various bods from Cork University in July 1981. The survey and a description of the cave were sent to the Irish Naturalist Journal and have now been published (20[10],1982). News was disseminated by the speleo grapevine and Gareth Jones gave the cave a mention in Descent (50, Sept/Oct, 1981, p13). Hence, the news of an impending article in Caves & Caving (via Peter Ryder) and the subsequent appearance of said article came as rather a shock.

I would like to draw attention to 3 points:

1. **"Discoveries" in Ireland:** To avoid future confusion it would be useful if "finds" could be checked with Irish cavers prior to being sent for publication. Gareth Jones (5 Kennington Crescent, Dublin 12) has his ear close to (and below) the ground and could provide the required information.

2. **M.S.G. Article:** As our survey of Crag Cave has chronological precedence we would request adoption of the following names:

> Main Entrance to be called "Dimril Gate", Side Entrance to be called Moira Gate, the entrance chamber to be called "The Hall of Moira", the first sump to be called "The Balrog's Bathtub", the N-S passage alongside the Oratory Crawl to be called "Cirith Ungol Passage" and the second sump to be called "Shelob's Lair".

Our omission of "Oratory Crawl" (MSG) was deliberate. Like previous explorers we felt that it had little potential and that unnecessary damage would be caused by exploration. In this context it may be noted that MSG felt "guilty of sacrilage" when they "crunched" the crystal pools. All other parts of the cave had been previously explored – even before our survey – a tribute to the locals with their balls of string! In fact we cleaned out most of the cave, which was festooned with string and baling twine, in July. Thus, the lack of damage appears to be a further tribute to the locals who have made frequent trips into the cave. However, it should be also noted that the "Lower Cave" is emphatically a MSG discovery and it represents a major addition to the system. We suggest that it be called "J.K.'s (Lower Cave)".

3. **Further work in the area:** A B.A. dissertation on the Castleisland karst is currently in progress and it is hoped to publish the results in the BCRA Transactions. The primary sources of the Crag Cave Stream are probably sinks 0-6 (see map) although to date only sink 2 has been definitively traced. An old stream sink in Crag Quarry may once have chanelled flow from the Glanshearoon River into Crag Cave but a concrete revetment now prevents the river from entering the sink. However, there may still be some seepage from the river bed into Crag Cave. Behind the old sink is Crag Quarry Cave (approx. 50m) which has been entered but not surveyed by both Pete Ryder and myself. There is also a short (6m) cave at sink 5 – digging is in progress. Below the "Lower Cave" there are 2 small caves on the same stream. Crag Cave 3 consists of 20m of rather unpleasant passage, sumped at both ends. Crag Cave 4 is entered through the roof just below a sump and consists of 40m of alternating hands and knees and flat-out crawl in the stream until the resurgence is reached. From here the stream flows on the surface for a further 40m and then enters a pool with no surface outlet. Pool 2, a few metres to the south, has no surface inlet or outlet but Pool 3 has an outlet, the Anglore Stream. With the addition of these small caves to the Crag and Lower Caves the total length of passage in the *area is close* to 1 kilometre and it seems likely that more will be found. There is also considerable potential for divers in the upstream sumps in Crag Cave.

John Gunn

Cave Diving News

Oliver Lloyd

After the through connection had been proved between Old Ing Cave and Red Moss Pot, it was only a question of time and opportunity before someone completed the through trip from Birkwith Cave to Red Moss Pot. This was achieved on 24.1.82 by Paul Atkinson and Geoff Crossley, who were greeted at the Red Moss Sump pool by "rapturous applause" from their team of sherpas.

Another through trip has been completed in Ingleborough Cave, where the left hand Upstream Passage Sump has been connected with the Gothic Arch Sump extension by John Cordingley. The round trip will involve sumps of 2, 16 and 65 metres. It seems that the Upstream Passages offer the best route for the way on. A useful lesson was learnt here of the importance of using good diving technique, for in low visibility the return proved very difficult and was only possible because the diver had noted the compass bearing on the way in.

There have been some near misses at making further underwater connections. The Abyss Sump in Ingleborough Cave was almost connected with Clapham Beck Head by Ron Bury on 24.1.82; while in Lancaster Hole the Upstream Waterfall passage, explored by Paul Seddon, failed to connect with Wilf Taylor's Passage because it entered a bedding far too low for anything except an "animated pancake".

The waterfall beyond Ink Sump in Peak Cavern has been climbed by Tim Nixon, but the stream passsage beyond is choked.

A little progress has been made in Russet Well, but this site is going deep, besides being tight and dangerous.

Various chronic obstructions have been reviewed by enterprising divers but have resisted penetration. Brants Gill Head show no way on, even in low water. Rob Palmer looked at Swildon's 12 but the slot at the bottom is still silted up. Dub Cote Three extensions are resisting further penetration and divers will be transferring their attention to Sump 5, where the main stream enters.

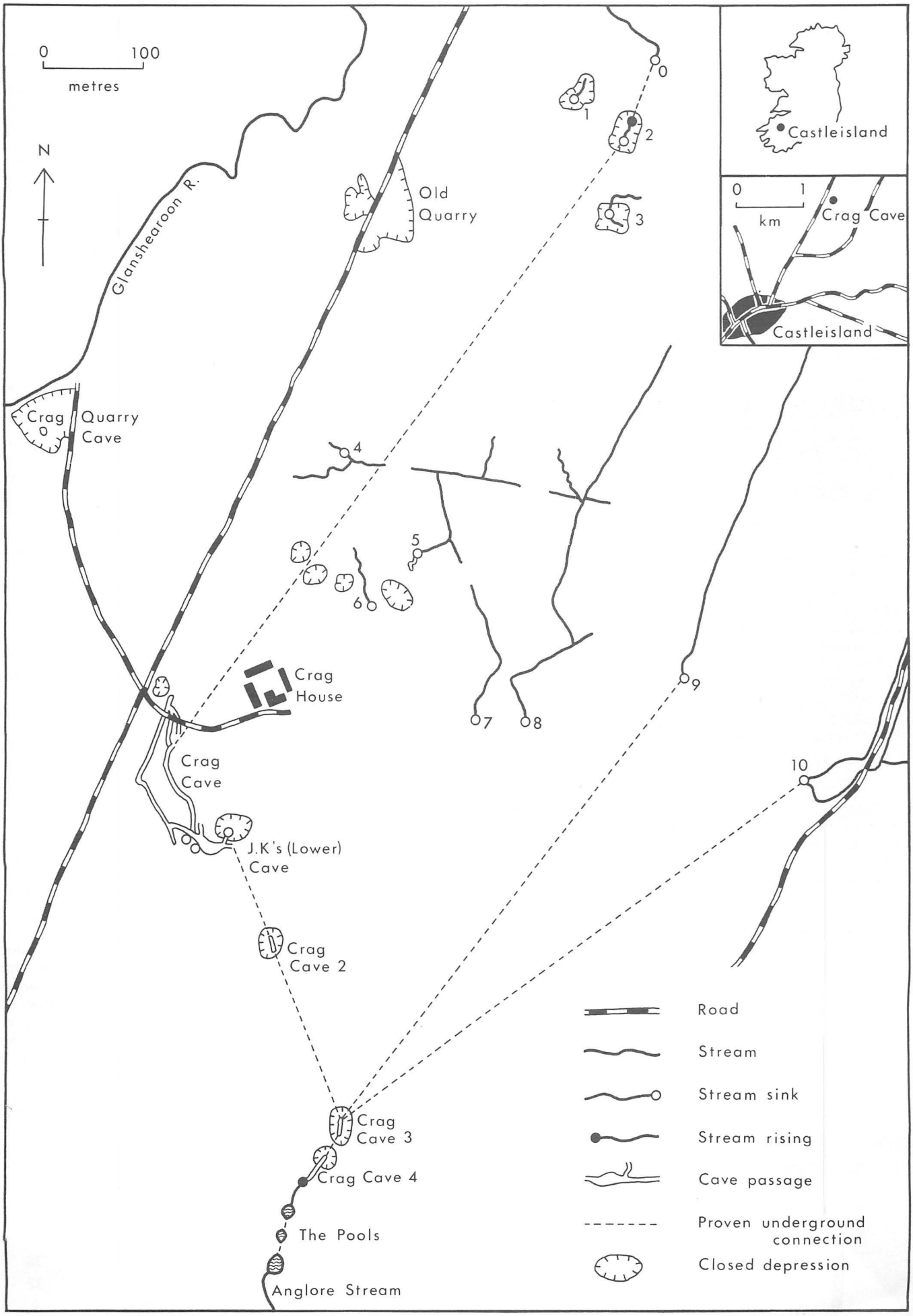
Progress is being made in the survey of Pridhamsleigh Lake by Peter Glanvill, who is laying a line round the bottom at –25m., in order to define the extent of the chamber.

A new piece of diver's slang is "merciless environment".

Recent C.D.G. Publicatons

Cave Diving Group newsletter No. 63, April 1982, price 60p.

Northern Sump Index, compiled by Julian Griffiths, 111 pages of A4 plus 15 cave maps, is now published at £3.50. These can be obtained from Oliver Lloyd, Withey House, Withey Close West, Bristol BS9 3SX. Cash with order please.



Location Map – Caves & Hydrology

Severn Tidal Power — *Pre-Feasibility study*

As a pre-feasibility study into the Severn Tidal Power Scheme some 106 reports have been commissioned by the Department of Energy over the past five years. These cover subjects ranging from the main design and performance specifications to in-depth studies of particular technical problems, availability and cost of materials, transportation costs, local geology, and the likely effects upon various aspects of the natural environment and on navigation and shipping. Almost 25% of these reports cover specific conservation subjects, and many more have implications for conservation. All these reports were made public in October 1981 and can be obtained from AERE Harwell, (if in print), or borrowed via a public library from the British Library, Boston Spa, Yorkshire.

Only two of the Nature Conservancy Council reports, *Severn Tidal Power - Potential Effects of Barrage Construction and Operation on Sites of Earth Science Interest,* and *Severn Tidal Power - Nature Conservation,* and two reports by Wallace Evans and Partners, *The Availability and Cost of Basic Materials for the Severn Barrage* and *Study of Sources of Construction Materials, Methods of Transportation & Costs* are on subjects which are the direct concern of cavers. I have obtained copies of these reports for BCRA and here attempt to bring out their salient points in so far as they may effect caves and/or limestone outcrops in the British Isles.

Although there will certainly be a direct effect on Otter Hole, (its present entrance will never be above barrage water level), this apart the main concern for cavers must be surrounding the consideration of where the hard rock is to be won. Three distinct schemes are under consideration and some insight into the scale of these can perhaps be gained by looking at the proposed "shopping list" for construction materials *(table 1).*

Line"2.5" runs from near Minehead in Devon to Breaksea Point, (West of Glamorgan, Rhoose Airport). Line "5.s" runs from Brean Down, in Somerset, to Lavernock Point, (between Penarth and Barry), in Glamorgan. The Second Basin line runs more or less east - west between Warren Point, Minehead and Brean Down, and would only be carried out in conjunction with one or other of the first two schemes.

The figures in the "shopping list" are in millions of cubic metres. Average weight for the type of rock in question is 1.7 tonnes per m^3. This is a large quantity of rock by any standard, even when spread over the 9½ to 14½ year construction periods envisaged for the various lines. At *worst* it would work out at approx. 3.5 million tonnes p.a. which should be set against a total U.K. production of approx. 100 million tonnes (1979).

Since considerable quantities of this rock is required in rather large sizes of up to 10 tonnes per block, *very little of it could be won locally* in either of the two limestone areas of South Wales or Somerset. This being the case, it is suggested

TABLE 1

MATERIALS: (in $m^3 \times 10^6$)	*OUTER LINE ("2.5")*	*INNER LINE ("5.s.")*	*SECOND BASIN (of staged scheme)*
Sand	*39*	*19*	*113*
Filter Material	*4*	*2*	*10*
ROCK AND RUBBLE	30	15	36
Minestone	7	4	32
Concrete	11	6	4
Topsoil	.1	.05	.07

that distant coastal sites would be most appropriate. Identified locations are: a new super-quarry on Harris in Scotland, quarries at Arklow in Eire, a quarry near Belfast in Northern Ireland and quarries near Malaga and Algeciras in Spain. If it is necessary to bring the large rocks from one or more of these distant locations it would also be more economical to bring most, and possibly all, of the smaller materials from the same sources, since it will be a by-product of the production of the larger rocks.

The above considerations appear to support the case made out in the NCC reports against hard-rock being won in either of the limestone areas of South Wales or Somerset, albeit for totally different reasons.

It is envisaged that all of the sand can be obtained from the Bristol Channel itself by means of increased dredging operations. For fill materials, the Cornish China Clay sand waste deposits and the large and numerous tips of colliery Minestone in South Wales are suggested, although further research into these materials and their transportation by rail/sea are required.

Limestone for the manufacture of cement may come from the local quarries via either the Aberthaw plant (Aberthaw & Bristol Channel Portland Cement Co. Ltd.), or the Westbury, Wiltshire plant of the Blue Circle Cement Co. Ltd. but would, it is suggested, be much more likely to be brought by sea from more distant plants of these two companies.

This is an exciting and imaginative project which may eventually provide a cheap source of energy for the U.K. and it appears at the moment, with the release of this new information to the public, to present little threat to cave conservation, (despite many earlier rumours to the contrary). However, this is a very large scale scheme and its planning and development will need to be closely monitored over the next few years. In the meantime it would be wise for cavers to develop realistic and practical ideas for a new access to Otter Hole, and demand its provision as a condition for the barrage scheme going ahead.

D.M. Judson

Wildlife and Countryside Act 1981

This is a comprehensive Act running to some 128 pages which makes a number of fundamental changes and many minor alterations to previous legislation. It consists of four distinct Parts: 1. Wildlife, dealing with protection of birds, animals and plants, and the export/import of animals; 2. Nature Conservation, the Countryside and National Parks; 3. Public Rights of Way; 4. Miscellaneous, dealing with minor amendments to various earlier legislation.

The Act was passed on 30 October 1981 and most of its provisions came into effect on 30 November 1981. It is mainly Parts 2 and 3 affecting Conservation and Access to the Countryside that will be the concern of cavers.

Conservation

Section 28 specifies that in notifying landowners and the local planning authority of an area of special (scientific) interest, the Nature Conservancy Council (NCC) must now state the specific reasons, or features of special interest, (e.g. cave sediments, speleogenesis, etc.), and also the specific "operations" appearing to it (the NCC) to be likely to damage these features, (e.g. quarrying, tipping of rubbish, etc.).

A completely new item (Section 34), establishes a system for the making of Limestone Pavement Orders. These will operate somewhat similarly to Tree Preservation Orders, and will "prohibit the removal or disturbing of limestone . . ." These orders will be made by the county planning authorities at the request of the NCC or the Countryside Commission. They may have immediate effect, but will only operate for nine months unless the Secretary of State has given his confirmation (or amendment) within that period.

Section 38 is of particular interest "The NCC may, . . . give financial assistance by way of grant or loan . . . to any person in respect of expenditure incurred or to be incurred by him in doing anything which, in their opinion, is conducive to nature conservation, or fostering the understanding of nature conservation." In furtherence of this a scheme has now been circulated by the NCC's Land Division (Feb 1982) which is aimed at assisting voluntary bodies "to purchase land of high scientific interest". This offers grants of 25% of the land purchase price, (up to the D.V's valuation limit). The initial batch of grants will be for purchases to be completed prior to 30 November 1982. Anyone with a serious interest is advised to consult either with me and/or Dr. G.P. Black (of the NCC) as an initial step.

In Section 48 there are amendments to the Water Act 1973, and the Drainage Act 1976, which now make it mandatory for the water authorities to consult with the NCC, but only where it appears to them that there is likely to be damage to geological features, etc.

National Parks, Public Rights of Way, etc.

Part 3 attempts to tighten up earlier legislation (principally the 1949 Act), in respect of rights of way and the preparation and keeping of definitive maps, and their updating.

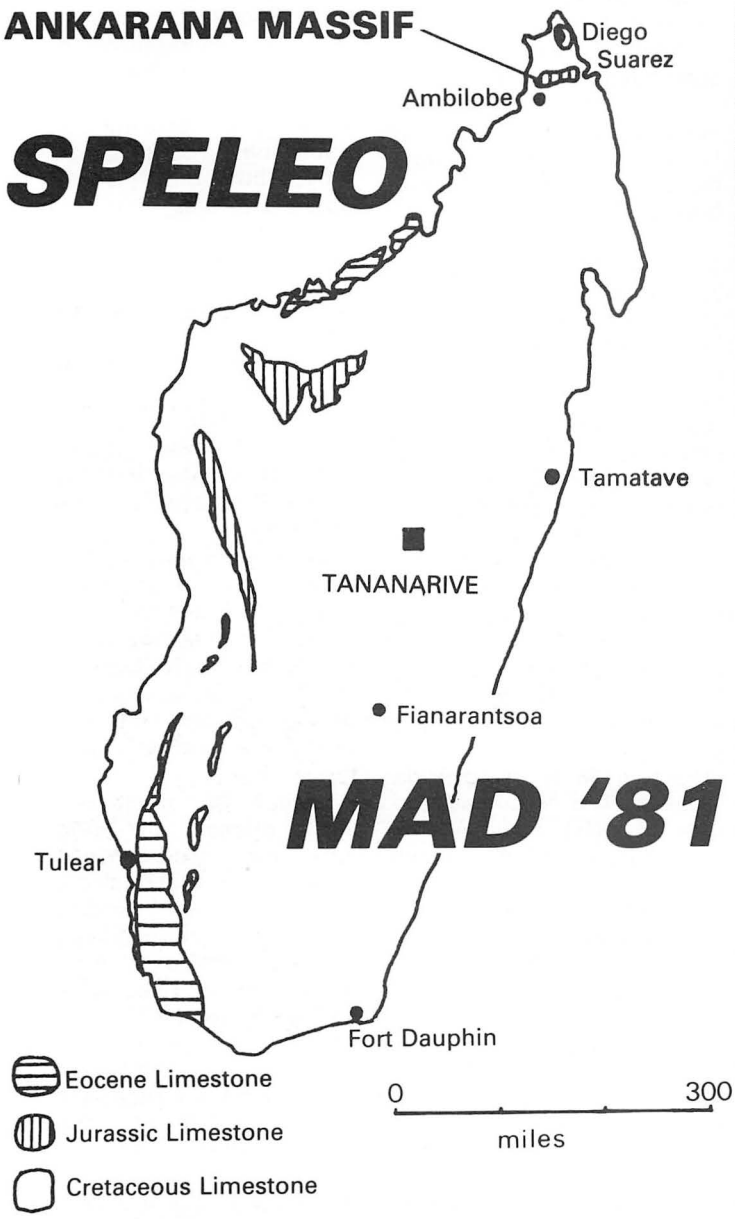
Section 59 makes it illegal for a bull to be kept in a field crossed by a right of way, (with an initial fine of up to £200). (It excludes bulls under ten months old and those "not of a recognised dairy bread" being in a field with cows or heifers!).

Section 45, in theory at least, appears to make it easier for amendments to be made to National Park boundaries. The Countryside Commission, (as well as the Secretary of State), now has the power to make such an amending order.

There are many other minor amendments, repeals of enactments. etc. . . affecting a wide range of earlier legislation. For further information the Act can be obtained from HMSO at £6.35.

D.M. Judson
Conservation Officer: BCRA.

Expeditions '81



The Ankarana Massif *M. Boase*

Mike Boase, Jane Wilson and Mary Wilson

Having spent well over half of our 63 day visa allowance in the arid, oppressive southern tip of the island (chasing lemurs), it was with eager anticipation that the caving contingent of Southampton University's Madegascar Expedition headed into the luxuriant vegetation of the north.

During a 10 day wait in Tananarive, we had been able to take a quick look at some granite 'caves' at Angavokely, 36km east of the capital. These were biologically interesting, but the longest was little over 50m long. (For a complete list of Madegascan caves, see ref. 1).

We had originally intended to look for caves in the Kelifely and Ankara area; the most massive and inaccessible limestone outcrop in the 1000 mile length of the island. Sadly, permits were not forthcoming to enter the regions; they said rather cryptically "because of bandits".

We decided therefore to concentrate on the rather accessible Ankarana Massif, an impressive outcrop of Middle Jurassic Limestone in the northern province of Diego Suarez (40km north of Ambilobe and 60km south of the town of Diego Suarez).

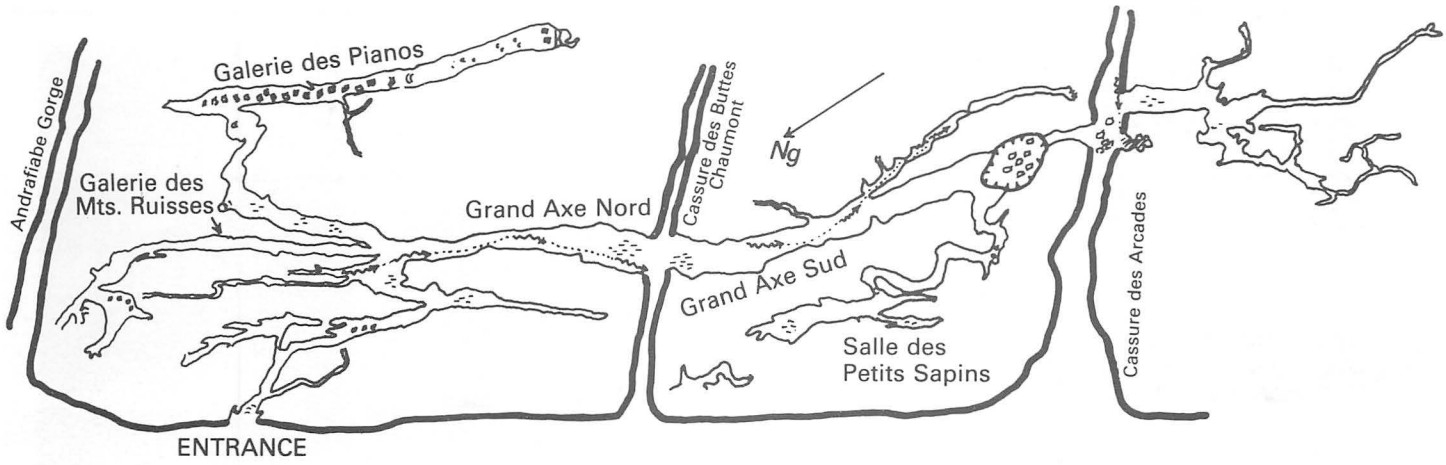
With the aid of an exiled British salvage operator and his Franco-Asian henchman, we were to eventually find ourselves at our caving destination with less than 10 days left. Our target was the Grotte d'Andrafiabé (there does not seem to be an exclusive Malagâche term for 'cave'), 4km from the village of the same name. Already the cave was known to have a horizontal development of over 11200m (Radafilao 1977).

The journey to Andrafiabé can only be achieved over the unmetalled roads during the dry season and was made no less hazardous by our drunken driver. Many of the Malagâche are still essentially ancestor worshippers, so we sought the permission of the local queen (before hiring a bullock cart to take us the remaining distance, cross country to the foot of the Massif) because members of the local royalty have been interred in the entrances to some of the neighbouring caves. Cavers climbing over piles of bones would doubtless disturb indignant spirits. Andrafiabé is fortunately not 'fadi' (taboo) to Europeans and our toothless guide seemed neither shocked nor surprised at our intention to visit the underground.

The large, obvious entrance to the cave is at the wooded base of the massif, about halfway along its length. We made camp under the overhang of the entrance beside a not-quite-stagnant pool, sharing the water with zebu (cattle), lemurs, tree frogs and an alarming variety of scorpions.

The overhanging portal of about 30m square quickly closes down to less than 5m in places, due to the large bulk of sand infilling. Where the deposits have been cut by subsequent fluvial action of water, a clearly defined banding of inwashed humus and burnt wood marks past flood events. The impressive scalloping on both walls and roof indicates the phreatic origin of this part of the cave. In places, large baulks of dead wood can be seen lying on the sandy surfaces, but as there is evidence of ancient human activity within the system (fire places, palm torches, living surfaces with pot shards etc.), it is difficult to be sure of the origin of some of these foot-diameter tree trunks. Moreover, M. Radofiloa (1981 personal communication) led us to believe that, unlike other systems within the Ankarana, Andrafiabé takes little water at present, even in the wet season.

After a short walk over boulders, a 1m step down enters the strongly draughting 'Galerie des Foyers' - mud floored with much standing water and with a series of



Grotte d'Andrafiabe

Ankarana, Madegascar

0 400 m

after Radofilao, 1981

BCRA grade 4

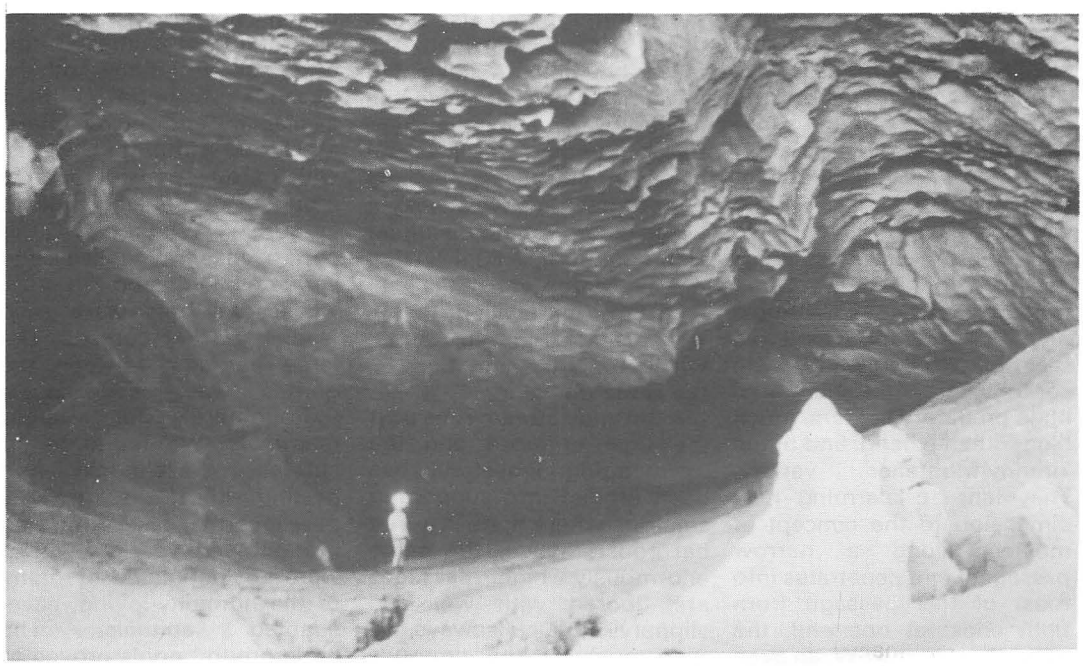
three stones arranged as stone fireplaces, along the northern wall. At the junction with the 'Grande Axe Nord' running NW-SE, the passage dimensions increase to a spectacular 50m diameter in places. The broad, level, sand-filled floor at this point has been shaped into the shallow meandering form of a river with dry cascades and deeper channels cut nearer the gorge. It seems doubtful that this takes much water today. The cave trends NW-SE parallel with the face of the massif, but is dissected at intervals with large gorges at right angles. From the main junction, further passages penetrate into the massif, and Andrafiabé exhibits many different passage types.

Not far from the entrance on the left hand wall are two 10m drops which are too sheer and slippery with mud and guano to be free climbed. Graffiti - dated 1961 (and fortunately found only in this small section) - invited us to 'visitez les concretions'. We had heard tales of fine formations and so investigated, only to discover that the decorated parts of the cave were kilometers away at the southern end. This section seemed the most smelly, slimy and unpleasant part of the system.

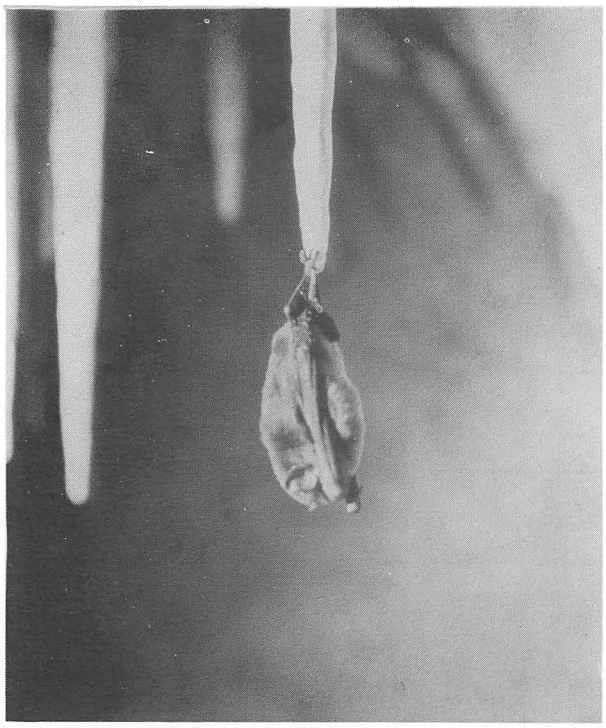
Deeper in, the cave changes from dry, sand-filled passage to more spacious dimensions lined with sticky mud, often thick with worm casts. In some places the mud is built up into narrow, slippery causeways (up to 10m high) which thread through shallow, mud-lined lakes. Distracted by a bat colony on the roof, JW slipped down one of these slopes into the water - but fortunately the camera, flashgun and biological paraphenalia survived the immersion. Perhaps the most enigmatic feature in the whole cave is what M. Radofilao has called the Russian Mountains. A tall, rectangular continuation NE-SW passage, 30m accross, has been blocked to a height of 30m by 2 enormous, steep sand/mud banks, within 100m of each other and enclosing a dry, flat-bottomed basin between. It is hard to comprehend the forces involved in importing such a large amount of material (and from where) and depositing it as neatly as if a giant earth mover had been used.

Continuing SW down the major axial passage, a 200m high, boulder-floored gorge

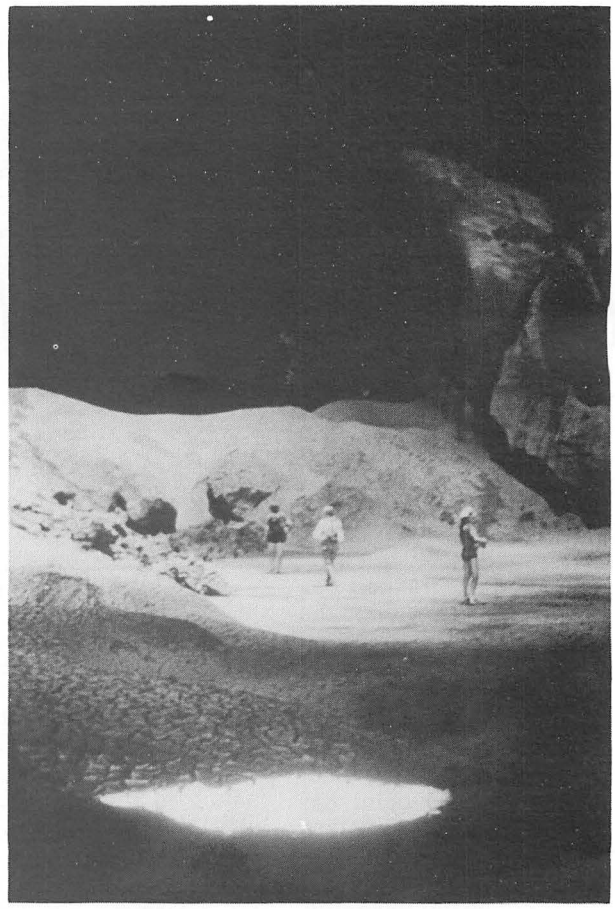
Russian Mountains
M. Boase



Entrance to second passage from gorge *Mike Boase*



Vespertilionid bat in Andrafiabé *Jane Wilson*



Foot of large aven near the isolated forest
Mike Boase

cuts the system at right angles and provides natural illumination for some distance. Today the gorge takes a small stream (the remnants perhaps of the subterranean river shaped in the sand), which issues and sinks in less than 50m. It is sufficient to support a great diversity of vegetation which has been grazed and destroyed on the surrounding plain. There are oranges, lemons, grapefruits etc. growing around a living surface where pot fragments have been found.

On the other side of the gorge the cave continues into passage with a quite different character and the odour of ammonia. Large guano deposits of up to 12m tall have built up from vast bat colonies in the roof and a strong through draught keeps much of the material dry. This whole section was crawling with cockroaches, crickets and huge predatory spiders, much bigger than a hand, and of the 'granny-frightener' variety. They lent an alarming new dimension to the concept of moving along a narrow passage! Light penetrates into most of this passage from both ends: at one end, the gorge, and to the SW, an aven open to the surface at an estimated 150m, opening out on a dehydrated circular mud basin. This doubtless fills during the rainy season. A further 50m on, over mud banks, heavily encrusted with worm casts, a closed depression holds a densely vegated, isolated forest with its lemur population and opportunist ecology.

The way on to the next section of the cave is very heavy going, as the thick vegetation is both difficult to move through and also hides deep chasms between the fallen boulders. A fall could have neatly bacon-sliced the unwary on needle-sharp rocks. Stinging insects and steep terrain further slowed our progress and we averaged a speed of something under 200m per hour. A 50m section of cave, large yet difficult to find, links this walled garden with a second gorge, beyond which the cave continues in the same direction.

A 2m wide stream runs past the final entrance and the overhanging limestone has been eroded into supporting columns where there is a fruit bat roost. Inside, the same enormously high passages are floored with wet and slippery mud causeways, so that much of the time we made best progress along the passage wall perhaps some 15m above the floor. This far recess had remarkably been visited by bare-footed locals, who apparently enter the cave in search of bats to eat. Stranger still, M. Radafilao told us that when he first visited the cave he found a single set of naked footprints and named this section Fitsangansanganan Ilay Olona Tokana - The Gallery of the Lone Barefoot Stranger.

Andrafiabé was also very biologically rich. The distribution of animals in this cave, as in many others, depends upon food availability and microclimate. Most food is imported by bats, which are responsible for the mounds of stinking guano. Large numbers of cockroaches, woodlice and springtails thrive on this stuff, whilst grey rats were seen feeding on bat corpses. The large passage between the gorges was used as a thoroughfare for larger mammals. We found lemur sub-fossil skeletons and nesting sites for swifts. Any passages that take a through draught were very dry and so were not populated by many of the humidity-loving, cave-adapted animals. The underground pools proved to be populated by an interesting variety of animals but collecting them sometimes involved wading through thigh-deep liquid mud!

Andrafiabé is a typical of the known caves within the Ankarana as, whilst of great horizontal development, it remains largely dry. Our ex-patriot French contact, M. Radofilao, assured us that his explorations of the other caves in the massif had been by inflatable boat. A brief trip to the north end of the massif, into a cave called Ansatrabonko, proved this. A muddy boulder choke, difficult to locate at the foot of the massif where a dry river bed meets the ascending rock face, opens into an impressive river passage. It is about 10m wide, deep and swiftly flowing. As water was a precious commodity on the surface, this became a regular and luxurious bathing spot. Ansatrabonko also yielded some interesting (hitherto unidentified) blind white shrimps and a tantalising glimpse of an all-too-elusive, de-pigmented crab.

Related Work

We took parasites and sterile blood (by cardiac puncture) from representatives of each type of bat in the cave. Taking

samples in the dark zone of a strongly draughting guano cave tested our asceptic technical skills considerably. We hope the work will provide some interesting information on trypanosomiasis, the malarias and rabies. MW brought guano samples home which, with the skin tests of expedition members, will help to establish whether histoplasmosis is a hazard to those entering the cave in the future and indeed, whether *Histoplasma capsulatum* exists at all in Madegascar.

Conclusions and Thanks

We are indebted to M. Radofilao, the last remaining active member of La Section Speleologique de l'Association Sportive de l'Univerité de Madegascar. It is a copy of his survey that we have included as it is of a much higher degree of accuracy than we could achieve without neglecting our biological collections. He has been exploring in the Ankarana for nearly 20 years, has a fanatical obsession for caving in Madegascar and proved to be a wealth of information. Without him we would not have been able to obtain enough carbide for the short time we spent underground.

Geographically and biologically, Madegascar is a magnificent island and the people hospitable, if mildly amused by European antics. Political bureaucracy is oppressive but not too restrictive once all the forms have been filled in. Overland transport is expensive and time consuming, especially by the insufficient public means. We 'wasted' over a third of our time in Madegascar arranging, waiting for or travelling by local buses and bush taxies. It is well worth paying the extra and using the well developed internal air network 'Air Mad', though of course, this introduces weight limit problems.

The speleological potental of the island is enormous. We can only hope that, as English students, we have made no enemies, that the political situation will remain stable and that it will remain possible to get the return flight to Tananarive for £350 (via Aeroflot). It should receive a lot more attention from (French speaking) British cavers.

Our full report will be appearing during 1982 and we are hoping to produce a scientific paper for BCRA Transactions.

Acknowledgments

Thanks to the other members of the expedition: Andre Adamson, Catherine Howarth, and Elizabeth Sparke for lots of help and support.

We are grateful to the Winston Churchill Memorial Trust for their generous grant to MEW and also for the financial support of the University of Southampton, Sports Council (via N.C.A.), Ghar Parau Foundation, British Ecological Society, Philip Reckitt Charitable Trust, Westcroft Trust, Royal Geographical Society, the Twenty Seven Foundation, the Mammal Society, William A. Cadbury Charitable Trust and our friends who supported our fund-raising fasts and parties.

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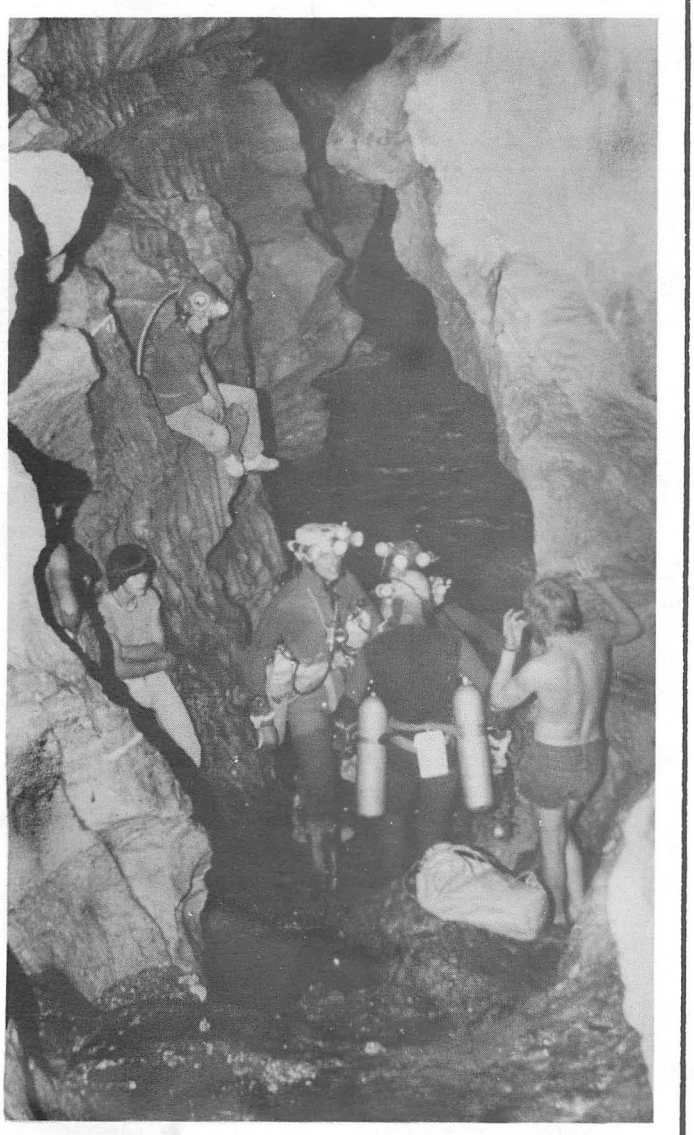
SARDINIA 1981

The Sorgente de Su Cologone is a large sumped resurgence for choked sinks up to 10 km distant and over 1000m higher. In summer, the Grotta di Su Bentu is inactive and terminates in a huge chamber with a 60m long sump pool. In winter, the flood-waters cannot pass the restrictions in Su Cologone and appear from the Su Bentu sump in a torrent some 15m deep. This sump is therefore the most obvious possibility for access to the unexplored active system. Several other nearby caves have deep water sumps, some of which also produce a part of the Su Cologone floodwaters (e.g. Su Guanu) and some produce water from unknown sources. This article describes the work carried out by the British 1981 expedition in this area.

After the successful 1980 expedition (1) it was realized that the vast potential of the area could best be attacked by diving. On the '81 visit a couple of sumps had been investigated with very little equipment (2) but their large cross section and clear water promised some excellent diving, plus the chance to explore the main drainage route from Corrasi to the Su Cologone risings. The main aims of the 1981 expedition were therefore direct explorations of the terminal sump of Su Bentu and of Su Cologne. Also the other sumps noted were to be visited and a climb attempted in a large, choked chamber in Su Bentu. Finally an attempt was to be made to photograph the big chamber at the end of the cave with an estimated volume of 1.25 million cubic metres. Technical details of all the dives are given in Ref. 3.



Italian cavers helping on a dive in Sa Oche *John Cordingley*

Su Bentu Terminal Sump

After several trips to tackle Su Bentu, seven cavers carried one diver's equipment to the sump, known as "Lake Doolin". The final pitches were very loose – a feature which could deter future exploration for some time. The sump pool is in the form of a large, 60m long lake and the short dive of the previous year (2) showed a considerable depth. Diving straight on at the end revealed no continuation so the diver went down. A rocky floor loomed up at –27m and this was followed to the N.N.W. At –33m depth the lip of a small cliff was reached and a vast passage led off at the bottom at about the –40m mark. This was not explored as the facilities for safe decompression were not available at this remote site. It was reluctantly left for the "next generation". The roof at this point was quite high and the sump would be well worth further effort. The carry for this dive took 13 hours which was much less than expected. A bigger team would however be needed to get enough air to this site for further exploration.

★

Sorgente de Su Cologone

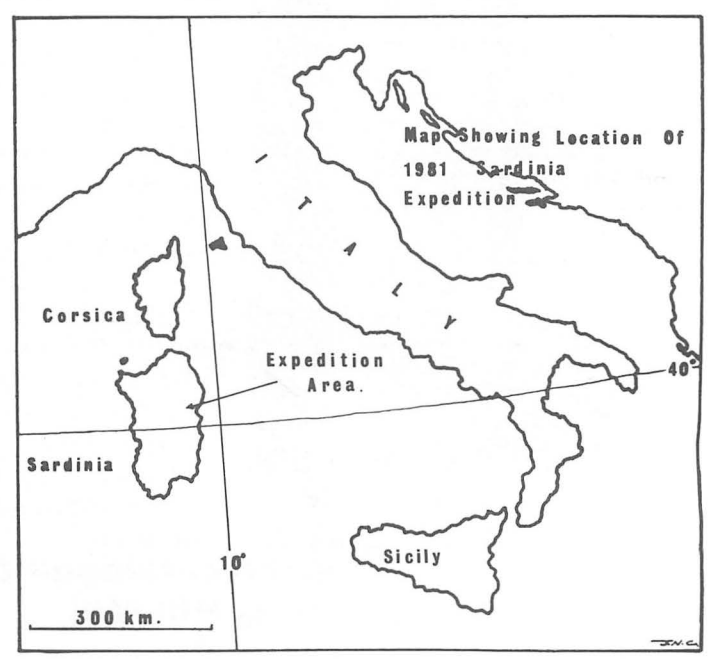
Su Cologone is probably one of the most pleasant diving sites in the world. The large pool lies within a circle of cliffs forming a natural sun trap and it is possible to drive nearly all the way up to it. The water is clear and fairly warm (12.5°C) and the Su Cologone bar is just round the corner for a relaxing après dive "birra grande".

Just as in Su Bentu, the main way on is downwards. At the back of the resurgence pool a smaller passage leads to an airspace chamber with daylight filtering down and a continuing choked sump some 15m deep. However, in the centre of the sump pool is a shaft 25m deep. At the base of this a boulder slope leads down to a choke at –35m. On the last dive at this site another route to the NW led onwards in a slowly descending passage. This again was left for the future at a final depth of –42m because of a rather serious occurrence of nitrogen narcosis. On all but the first dive at this site, decompression was necessary, and made more complex by altitude corrections as the site is 112m above sea level. On the final dive the altitude correction was not used and no decompression sickness effects were observed.

★

Other sumps

Associated with Su Bentu is the Grotta di Sa Oche. A short but massive passage terminates in a sump known to be connected with Su Bentu. No through trip was attempted but one diver was to experiment with some underwater photographic apparatus. The submerged passage is immense and swimming in the roof, one is occasionally over a void of at



least 30m – a somewhat unnerving experience if no emergency bouyancy is available.

The other sump in this cave was discovered the previous year (2), named "Pot Sump", and partially explored. At 10m depth in a small shaft, a sudden enlargement was entered. To one side 20m of passage led to an ascent to airspace in a small aven. This could not be climbed but a voice connection back to Sa Oche was established. Back in the sump, two shafts were explored. The first, directly below the sump entrance, was followed to a depth of 36m. Beyond, the shaft descended into blackness and decompression was necessary. The other shaft was descended for 20m until it became obvious that it was going to connect with the first at depth.

Later on, more significant exploration took place in the Grotta di Su Guanu, a flood rising cave for Su Cologone. A 5m sump was passed here to enter 25m of rift passage leading to a second sump. This descended a pleasant shaft to –28m. After 60m of forward progress the base of another shaft was reached, which presumably led up to airspace. Unfortunately, at this point the line reel fell to bits spilling over 100m of line. As this was the last diving day, no follow up dive was made.

★

Climbing in Su Bentu

Running concurrently with the diving, a number of caving projects were organised. On a camping trip, one wall of "Conical Chamber" was climbed for some 25m but only a stal covered ledge was found. Another climb into a 5m diameter passage in the lakes Gallery also only gave a short extension. Several quite long photographic trips were had, specifically to record the huge Salone di Grande Frana at the end of the cave, and the many fine formations there.

★

Conclusions

There is still plenty left to discover underwater in this area but any future visitors must take a reliable diving compressor and expect to decompress regularly. Su Guanu is probably the best way into the main drain at the moment. The way on in Su Cologone is wide open, especially for a depth-acclimatized diver.

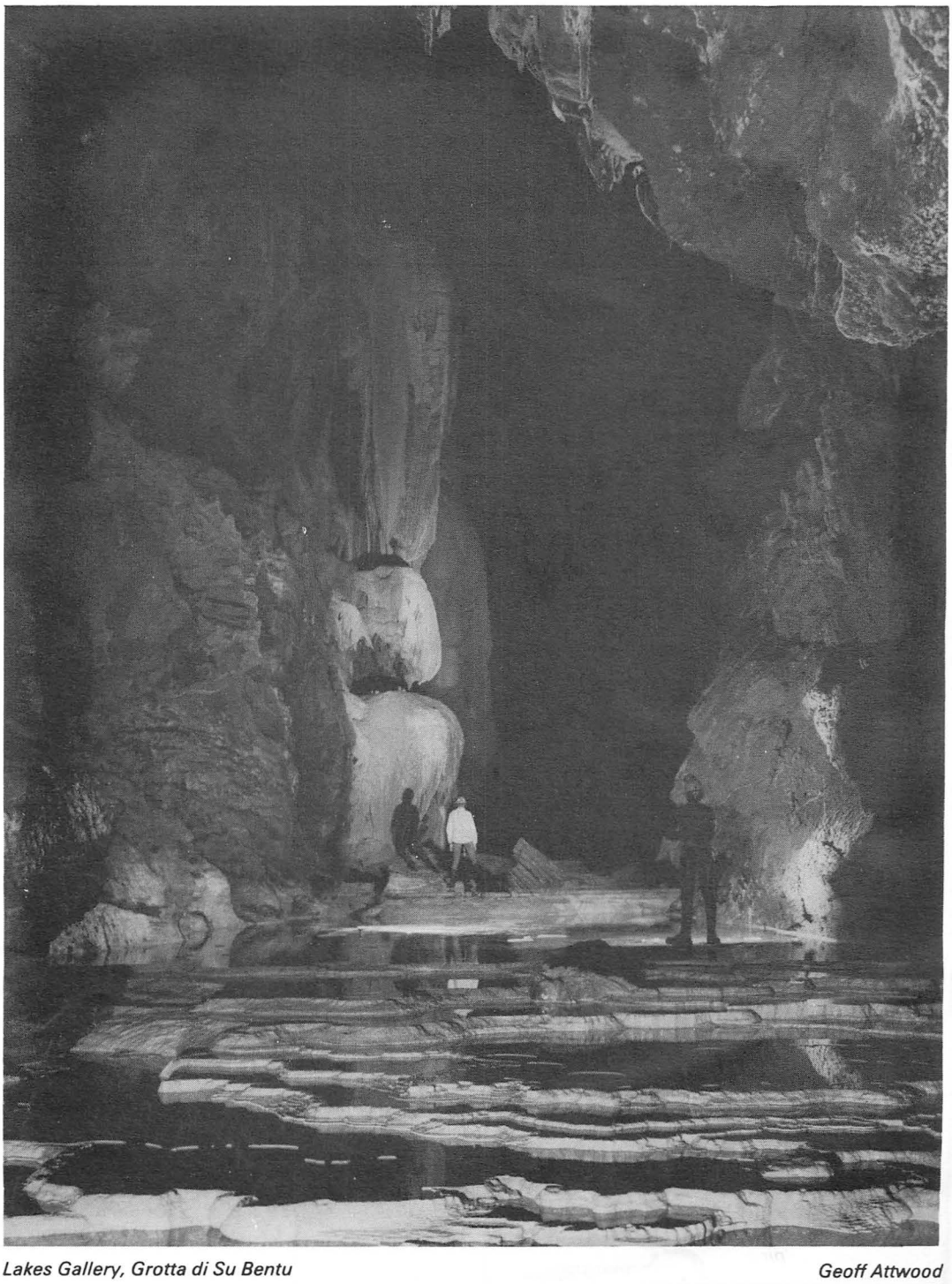
John Cordingley

Expedition Members:
G. Attwood, J. Cordingley, B. Hague, J. Hargreaves, S. Latham, T. Nixon, P. Smyth, P. Spence, S. Tucker, I. Wright.

References:
1. C.P.C. Journal, Vol. 6, No. 2, pp79-107
2. C.D.G. N/L 57, p40.
3. C.D.G. N/L 62, pp39-42.

An account of the 1980 expedition is also to be found in *Caves & Caving, No. 12* pp16-17.

Geoff Attwood sherpa his own kit in Sa Oche *John Cordingley*



Lakes Gallery, Grotta di Su Bentu *Geoff Attwood*

MOROCCO 81

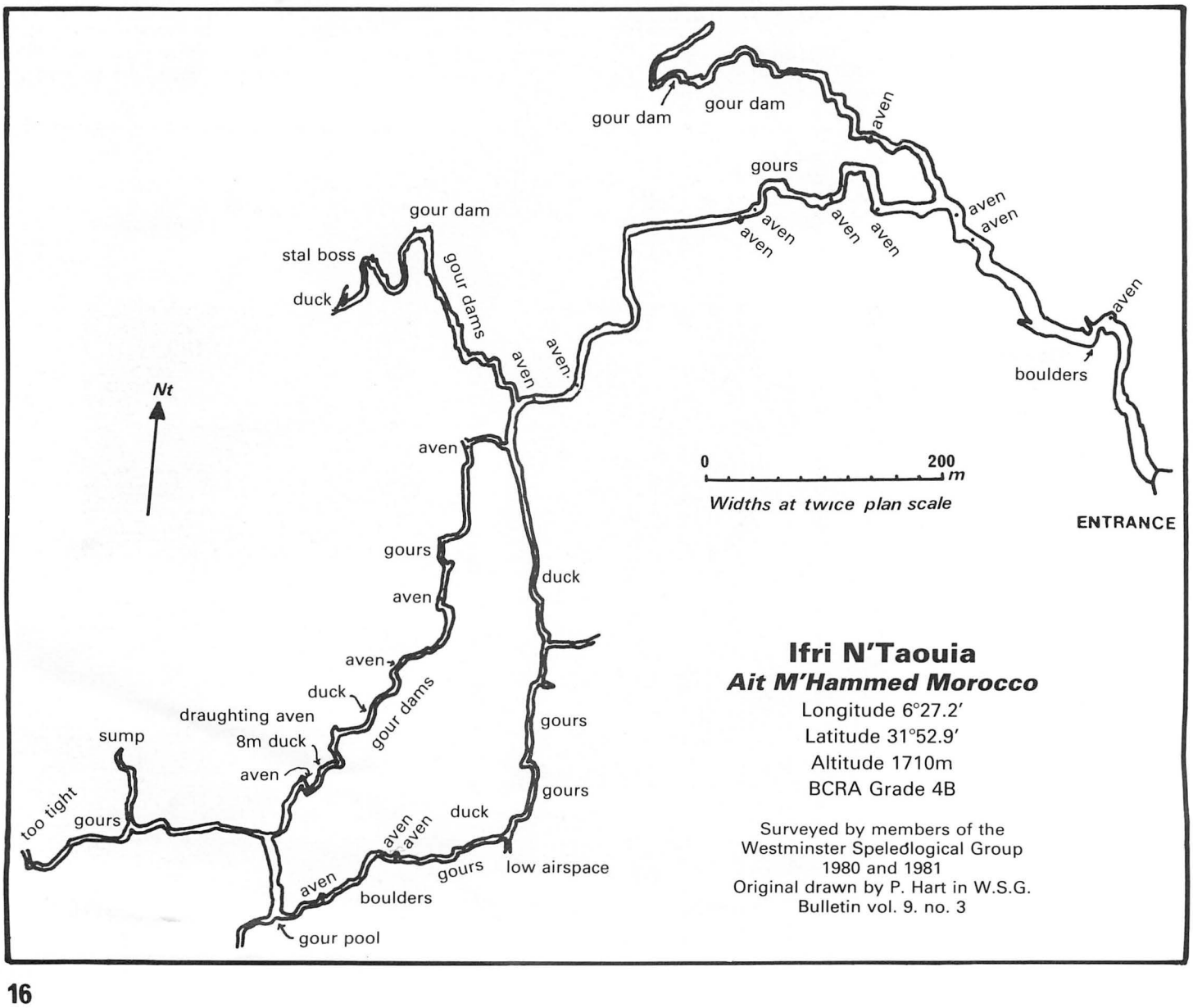
The Westminster Speleological Group Expedition to the Middle and High Atlas Mountains

The first W.S.G. expedition to the Atlas Mountains of Morocco took place during the summer of 1980. A number of known caves were visited and 2.8 km of cave passage surveyed. Some significant extensions were made and much further work identified to warrant a return trip. In addition, a large area of upland karst further to the north containing a number of deep shafts was left unvisited. Hence a return expedition was planned for 1981 with certain specific tasks.

The Middle and High Atlas Mountains contain large areas of limestone. The areas visited by both the 1980 and 1981 expeditions is located about 400 km due south of Tangier near the village of Ait M'Hammed. This is on the slopes of the High Atlas Mountains at an elevation of 1700 metres about 100 km by road south of the provincial centre of Beni Mellal. This is an area of horizontal resurgence caves and "going" leads were left by the 1980 expedition in Ifri n'Taouia and Ighi Bou Ilaghmane. Rising immediately to the south and east of Beni Mellal is a high plateau region containing some known deep shafts. The second of our objectives was to investigate the Yar Channa and Jbel Amaffane regions about 10-15 km east of Beni Mellal.

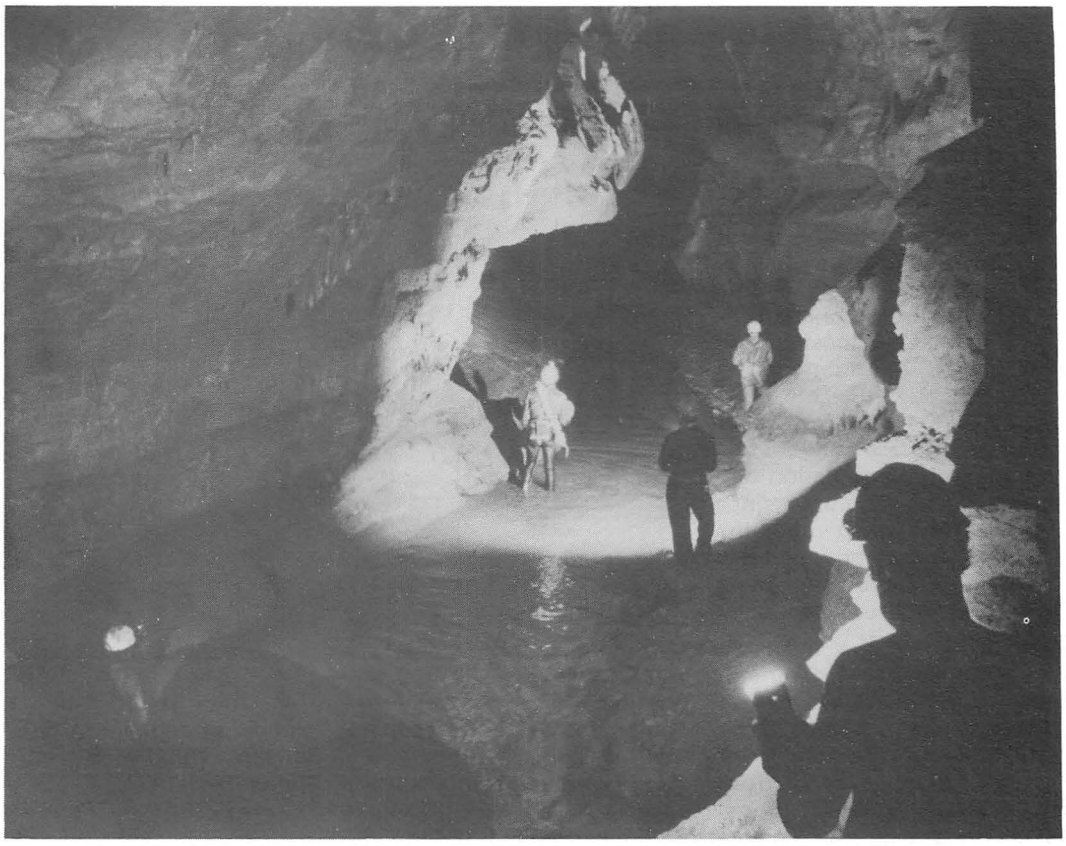
On Friday, August 14th, the eleven members of the expedition departed in a hired minibus and commenced the long drive down through France and Spain. Three days later we were in Morocco and headed for our first objective, the Yar Channa Plateau. Here we set up camp at the village of Fariata at the northern base of the plateau and over the following two days, humped a considerable amount of tackle onto the plateau. A shaft labelled no. 4 was descended to a depth of 70 metres with a further estimated 30+ metres to the bottom. At this point of the expedition, problems were mounting; several members had fallen sick, the intense heat during the day, the decision to work from a base camp involving a 400 metre ascent onto the plateau, evening dust and sand storms getting into all the tents and food and potential security problems. Taken together, these caused us to change our plans and switch to our second major objective – the resurgence caves of Ait M'Hammed.

As in 1980, we were invited to establish camp within the walls of the Caid's compound. The sickness rapidly disappeared and morale was restored with the less oppressive temperatures. On our first full day at Ait M'Hammed, an estimated 700 metres of new cave passage was discovered. This was in Ifri n'Taouia, located 2 km east of Ait M'Hammed, and was found by pushing the terminal duck/sump at the limit of exploration in 1980. The water level was lower in 1981 and there was about 5 cm of airspace for a distance of 70 cm followed by 15 cm of airspace for the next 2 metres before emerging into open passage in Ifri n'Taouia II. This cave continued to occupy our attentions over the remainder of the expedition. Gour dams in the second and third side passages were breached, draining pools and sumps, to yield further extensions and several of the major avens were climbed. A nasty 8 metre long duck with 5 cm of airspace was passed in the



third side passage to link with a side passage in Ifri n'Taouia II and completed a 1.3 km round trip. The entrance passage was resurveyed as this section of the 1980 survey had been based on the original French 1953 survey of unknown accuracy. All in all, a further 1.5 km of passage was discovered taking the total length to a little over 3.6 km.

Although there is a considerable amount of water in the cave, including the 500 metre canal, the water is static during the summer. The cave is formed on a single level little more than 20 metres below the Tanmast Plateau and a number of ascending avens were positively identified with boulder choked sink holes on the surface. Fine gour dams abound in this cave, particularly in Ifri n'Taouia II and the second and third passages. As is always the way, the day before our departure, the second side passage was further extended and surveyed and a continuation passage over a low gour dam left unexplored.



The main streamway in Ighi Bou Ilaghmane *Chris Sowe*

Ighi Bou Ilaghmane, located 2 km NW of Ait M'Hammed, consists of a 40 metre entrance shaft giving access to a stream passage of large dimensions. This passage ends after 175 metres in an unstable boulder choke. The 1980 expedition failed to scale the choke although a way on over the top looked possible. During the intervening year, memories of the unstable nature of this choke had faded. A return party in 1981 failed to find any sign of a

possible way through; large, hanging, muddy boulders, the size of double deck buses, with scrape marks from obvious recent movement were evident and the party left very quietly. Visits to this cave should be made after dusk as the soft mud floor to the streamway causes the water to run muddy for several hours and local inhabitants draw water from the shafts.

Grotte du Caid, located 5 km SW of Ait M'Hammed and surveyed by W.S.G. in 1980 was visited briefly. No further discoveries were made in this cave. The bat population had increased considerably since the previous visit and the resulting mess and smell has turned it into a most unpleasant place.

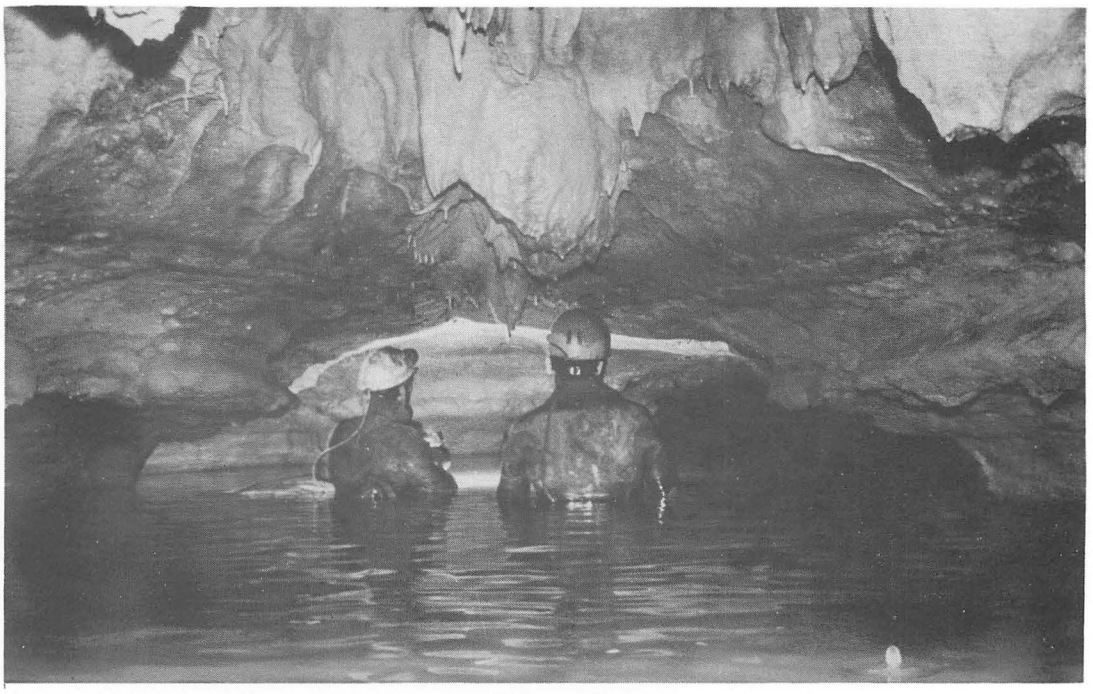
Ifri N'taguelmoust, located 5 km south of Ait M'Hammed, was visited on one occasion accompanied by hoards of the local children. The network of entrance passages leads from the typical railway tunnel shaped entrance to the active streamway. Here we left the children. The streamway was pushed to a region of deep water and low airspace where, after several hundred feet, the passage sumped. Surveying this cave was, however, not possible as the survey equipment was fully occupied in Ifri n'Taouia.

Further fauna samples were collected in Ifri n'Taouia. Preliminary results of the 1980 collection has revealed several possible new species.

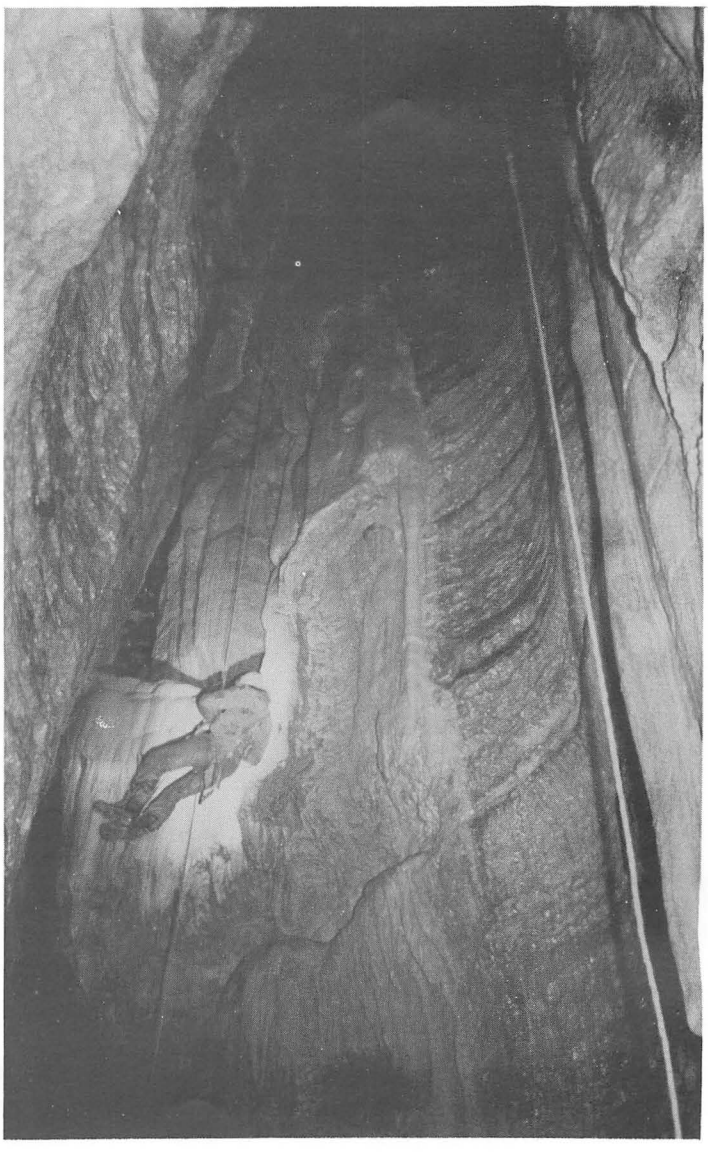
Thanks are due to all who helped with the expedition particularly the Ghar Parau Foundation and the Sports Council for financial support.

A full report of the expedition appears in W.S.G. Bulletin volume 9 no. 3, Winter 1981/1982.

Peter Hart



The 500m long canal in Ifri N'Taouia *Chris Sowe*



Entrance shaft, Ighi Bou Ilaghmane *Chris Sowe*

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SPECIALIST WEEKS — Classic systems of the Dales £90 – New Year caving meet £66 –

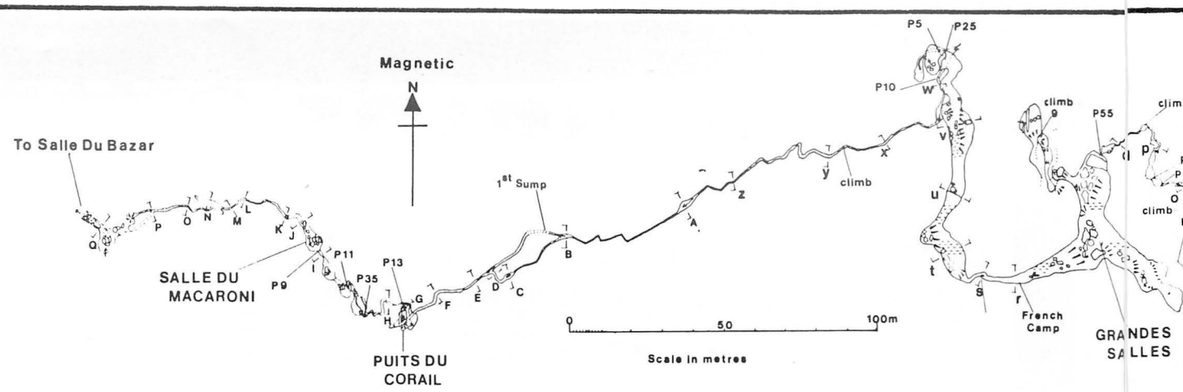
OVERSEAS MEETS — Cave Rescue Seminar £90 (ask your rescue team to sponsor you?) *Ireland – June; Continent – Aug. Details later.*

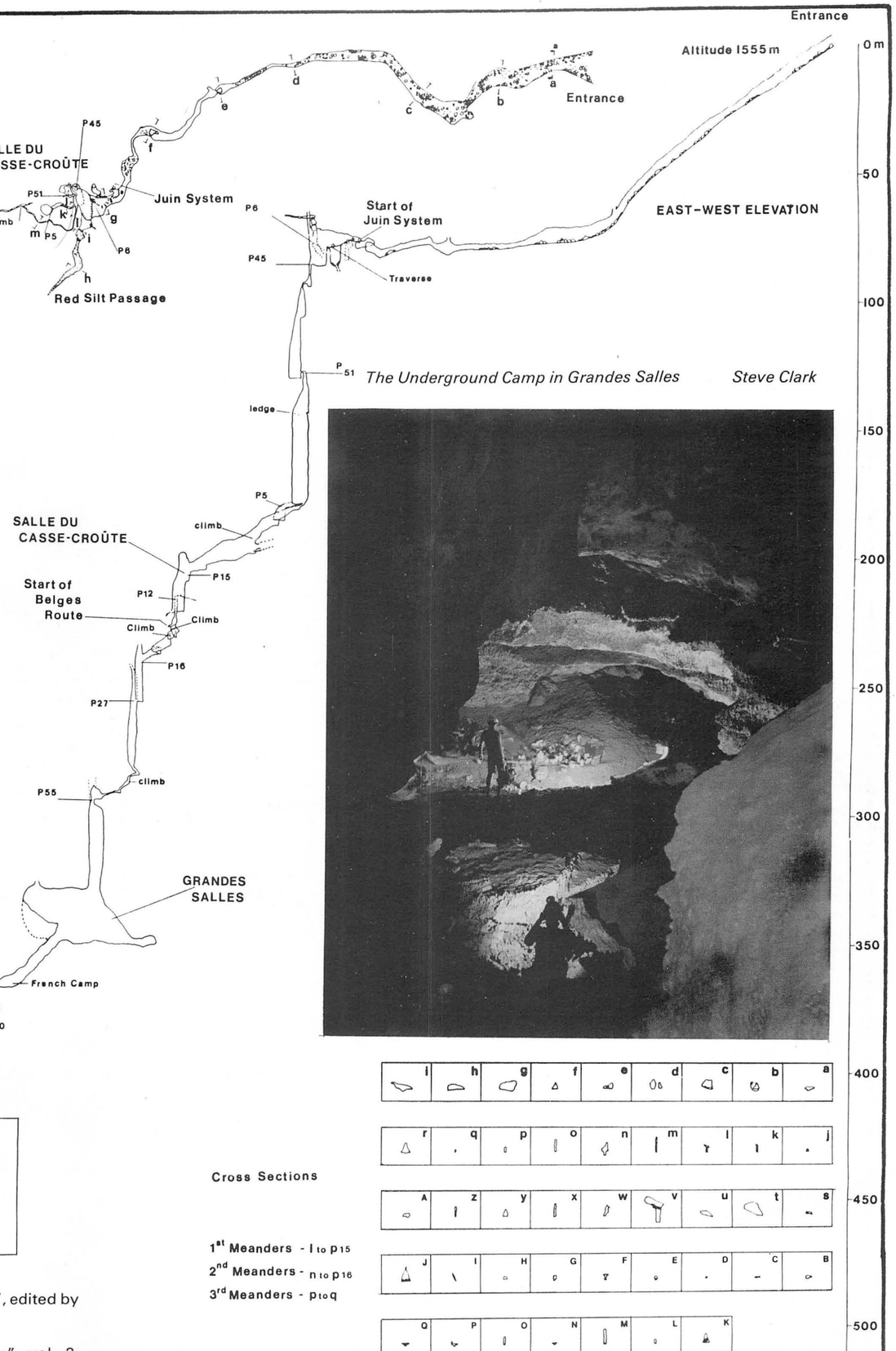
*	***Pitch Rigging and Self Rescue***	The next step beyond basic techniques.
*	**Expedition Caving – Weekend Seminar**	How to organise your own expeditions abroad – open to non-residents (£10).
*	**Self Catering SRT or Caving & Potholing Weekends**	For your club/group – can be arranged at reduced prices based in the Statham Hut.
*	**Continental Meet – August**	For competent cavers who want to visit some of the classic caves of Europe – details available later.

☆ TACKLE HIRE ☆ LIBRARY ☆ CAVING SHOP ☆ WEATHER FORECAST
☆ EQUIPMENT TRY OUT SERVICE – Try any piece of gear before you buy
☆ ACCOMMODATION IN THE MANOR B & B £5 – 24 hours/3 meals £8·80
☆ SELF CATERING HUTS Statham hut sleeps 12 £18 per night
– bunkhouse sleeps 8-10 £16 w/end

1982 COURSE DATES

May	*14-16*	Pitch rigging and self rescue
June	*19-3*	Irish Caving.
July	*24-31*	Cave leader training.
Aug.	*1-7*	Novice caving and potholing.
	7-14	Classic systems of the Dales.
	15-21	Cave rescue seminar Continental trip – details later.
	21-29	Mining course.
Sept.	*3-5*	Weekend caving and potholing.
	17-19	SRT
Oct.	*1-3*	Cave surveying.
	1-3	Weekend caving and potholing.
	10-16	Novice caving and potholing.
	16-23	Cave leader training.
	29-31	Cave photography for professional photographers.
Nov.	*5-7*	Weekend caving and potholing.
	11-14	Pitch rigging and self rescue.
	27-4	Cave leader assessment.





Scialet de la Combe de Fer

The University of Hull Speleological Society Expedition, 1981

Scialet de la Combe de Fer is situated on the south-east side of the Moucherolle Mountains which form part of the Western flank of the Vercors massif in S.E. France. It is reported to be the third deepest cave in Vercors with a depth of -582m [1].

The first descent of the cave by HUSS was made in early September, 1980 when over four days including a 21hr. trip, a party of six reached the start of the active streamway at -380m using a system of travelling ladders [2]. A large number of problems with route-finding were encountered and neither the survey nor description of the "Principal Route" in the guide by Lismonde seemed in accord with the cave itself [3]. Two major discrepancies were the apparent disappearance of 200m of meanders and a 45m pitch and this raised doubts concerning the reported depth of the system.

In view of these anomalies, as well as certain other questions posed by our first visit, it was decided to return in August 1981 to resurvey the Principal Route to BCRA grade 5b as far as the terminal sump at -582m. This time SRT was to be employed throughout the cave and a camp established at -350m in the "Grandes Salles" area.

The upper Series was well known to us from the previous year. The active streamway below Grandes Salles is reached via the 30m pitch known as Puits de la Boue. Route finding in the streamway proved to be straightforward and three pitches and a tube by-passing the first sump lead to two further wet pitches of 15m and 20m. These latter may now be avoided by a single, dry descent of 35m opened up by our group. This new pitch lands on a ledge about 12m from the base of the shaft previously reached from the 20m pitch by a wide pendulum. The water follows an unknown route from here and is thought to reappear in the "Salle du Bazaar", a chamber with some fine formations some 50m deeper. This is reached conventionally along about 150m of dry, decorated passages which include three pitches and a climb not marked on the original survey nor mentioned in the text of Lismonde's book. The last of these pitches into the Salle du Bazaar is reached via a climb down through boulders at floor level and was not found until the detackling trip when neither rope nor surveying gear was to hand. Thus our new survey stops here.

A comparison of this with the original suggests this point to be about 250m in distance and 50m in depth from the terminal sump. The inconsistencies found in 1980 appear to be primarily in the description by Lismonde and annotations on the survey rather than the survey itself, although the latter is seriously lacking in detail. The previous estimate of 580m for the depth of the terminal sump below the entrance is probably reasonable.

A more detailed description of the Principal Route of the Cave is to appear elsewhere and a larger scale survey will shortly be available from The Secretary, Hull University Speleological Society, c/o Athletic Union, The University, Cottingham Rd., Hull, N. Humberside.

We would like to thank all of our sponsors and other individuals for their generous support and advice.

Tony Bennett

The Underground Camp in Grandes Salles *Steve Clark*

SCIALET DE LA COMBE DE FER
Vercors Massif
Surveyed by H.U.S.S.
B.C.R.A. GRADE 5b
Drawn by N.J. Thompson
August 1981

Cross Sections

1st Meanders - I to p15
2nd Meanders - n to p16
3rd Meanders - p to q

References

1. B. Lismonde, "Paysages du Vercors Souterrain", edited by CDS/Isère (1981).
2. A. Weight, CPC Journal, vol. 6, no. 2 (1980).
3. B. Lismonde, "Grottes et Scalets du Vercors", vol. 2, edited by CDS/Isère (1979).

CAVE LIFE

PART 3: SMALL AQUATIC ANIMALS

by Phil Chapman

Europe is noted for its large number of specialised aquatic cave animals. Britain too boasts its modest share, though most live in the southern half of England and South Wales. While most cavers are familiar with the increasingly common cave diver, they may miss other less conspicuous inhabitants of pools and streams, so that our knowledge of these animals is very sketchy. This article suggests a few areas where the caver can help to fill in the gaps.

Underground waters in Britain are rich in life quite apart from the fish discussed by Graham Proudlove in the last *Caves & Caving.* Much of this is microscopic and so of little interest to the caver. Larger creatures include crustaceans (the group which contains shrimps, crabs and lobsters), flatworms, worms, snails, a few beetles and many insects larvae. The worms and beetles include some interesting species, but these are either so rare, or so difficult to tell from common "accidentals" (ordinary surface animals swept into the cave by a sinking stream) that I shall ignore them here. Most insect larvae are also "accidentals", though a few caddis flies may complete their whole life-cycle in our caves. This leaves the two most common, and happily, most easily recognised groups – the crustaceans and the flatworms.

We have no less than eight different species of genuine subterranean crustaceans in Britain. But it may surprise you that some of these are hardly ever found in caves! This is because underground waters only enter man-sized caves where there happens to be limestone, and even then only a tiny proportion of the underground watercourse can be seen by the caver. What about the cave diver, you may ask? Divers do report weird sightings – the huge shoals of cave shrimps at "Niphargus Niche" in OFD, white trout in Yorkshire, and even white crayfish and wall-encrusting sponges in Ireland (where else!). But divers seem strangely unwilling to add just one small screwtop plastic collecting bottle to their vast heaps of hardware.

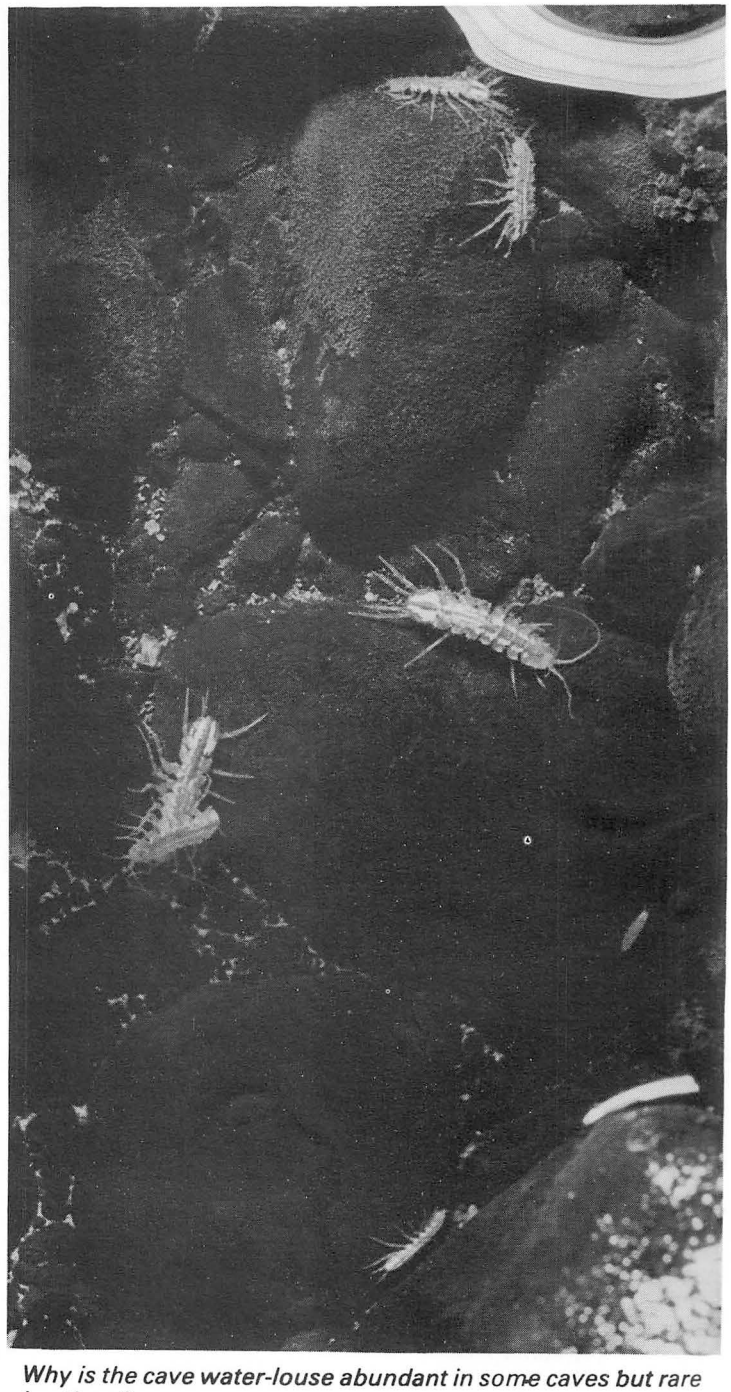
Our larger cave crustaceans fall into two groups: Isopods – skinny woodlouse-like beasts which run along the bottom on all x legs, and Amphipods which are flattened, flea-shaped creatures which swim upright, but rest on the bottom on one side in a foetal position. Our single genuine "cave" isopod (remember "cave" here is a euphemism for underground waters in general) is *Proasellus cavaticus* – the cave water-louse. The Mendip race reaches a mere 4mm long, while the mighty South Wales race reaches 8 or 9mm. Otter Hole specimens are quite clearly Welsh, which will no doubt gladden the heart of any Plaid Cymru readers.

Cave amphopods fall into three groups, or genera, called *Niphargus, Niphargellus,* and *Crangonyx. Niphargellus* is represented by the single small species *glenniei,* found only in Devon. *Niphargus* shrimps include three species of which *fontanus* (the cave shrimp) is the only one found commonly in caves. The others turn up in ground waters: wells, springs, and gravel beds of rivers, which is also the home of *Crangonyx.*

The cavelife buffs among you will by now be crying "what about *Gammarus pulex?".* What indeed! This is a very common surface stream amphipod which gets washed into cave streams in large numbers, and is therefore quite obviously an "accidental". But is it? If you examine the photo on page 23 you will see what appears to be a cave-adapted "common stream shrimp". It has lost its colouration and the eyes have become chalky-white. What is more, it came from a population of around one hundred identical-looking shrimps in a large, drip-fed pool in a high-level oxbow which never floods, – a habitat which it shares with the specialised cave water-louse. This suggests that the shrimps are living like true cave animals rather than as ordinary stream inhabitants which just happen to have a limestone roof over their heads. How do we classify such populations? Second generation immigrant shrimps which were born in the cave are obviously neither "accidentals" nor true cave specialists. They are in fact "troglophiles" – that is they belong to a species which can live and breed either on the surface or underground. There is very little hard evidence that the common stream shrimp can complete its life-cycle underground, but I have little doubt that it can. Keep your eyes open for populations of white shrimps and let me know about them. If they are in Yorkshire or Derbyshire, they will be stream shrimps as the cave shrimp doesn't reach that far north – of which, more anon.

●

Now for something completely different. Flatworms are, as you will have guessed, pretty flat, but

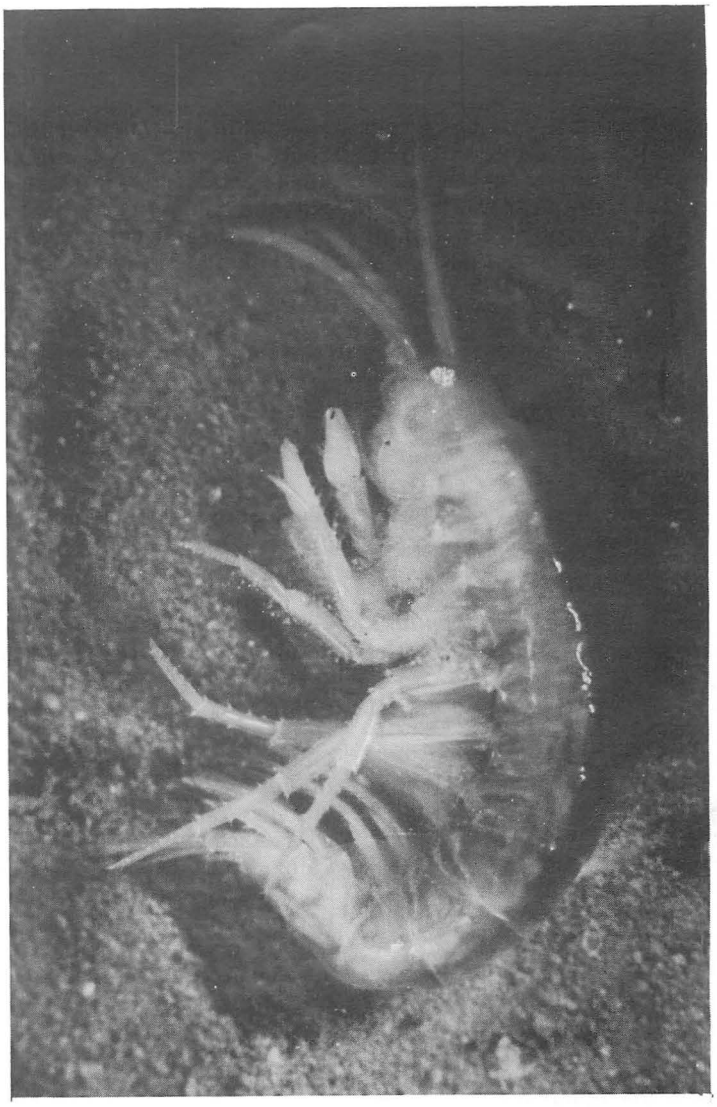


Why is the cave water-louse abundant in some caves but rare in others?

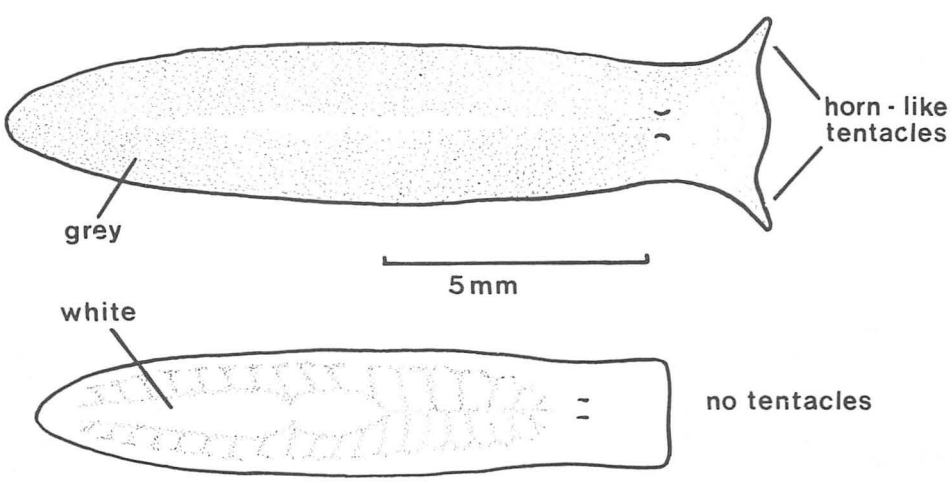
not worms. They are not divided up into segments and move by the action of many thousands of microscopic "legs", called cilia, spread over the underside of the body. Being flat, they can glide effortless between stones or along the underside of the surface film of pools. Cave flatworms have a distinct preference for surface films – perhaps because this is where food often lands. Can they pull prey through this film, or cross it themselves? I doubt it, but you may have seen them at it! Although they will eat pretty near anything (as will the crustaceans discussed above), cave flatworms seem to particularly relish the cave water-louse. The hungry flatworm lays a carpet of sticky slime along a suitable rock, then glides back to devour any careless louse who has put his foot in it. Of our two troglophile flatworms, one is pale grey with horn-like tentacles *(Crenobia alpina)* and the other is white and without tentacles *(Phagocata vitta).* Both frequent caves probably because they dislike the warm water of surface streams in summer. I have only seen them in four caves in South Wales and the Mendips, so if you find a healthy population somewhere, please let me know.

One seldom-visited cave in Wales has a stream which contains bits of grass and inwashed accidental species, plus a gigantic population of the cave water-louse and many cave shrimps and horned cave flatworms. Why should this be? More to the point, are there any other sites of this sort? I do not wish to publicise the cave for obvious conservation reasons, but if you know of such a site, please let me know. I will protect the information, and may include your site in a study of food sources and water quality which would aim to discover what makes a healthy cave stream habitat. Only with such knowledge can we start to manage the underground environment elsewhere for the benefit of the cave-life.

We can learn much about prehistoric conditions in Britain from the distributions of small water animals in our caves. Because cave-adapted shrimps and the cave water-louse cannot survive in surface waters, they are not easily moved about the country via canals, aquarium shop escapes, or attached to migrating water birds. Their only means of dispersal is by a slow, creeping spread of populations below the water table, for in the vadose zone they cannot cross from one catchment area to another. Both the cave water-louse and the cave shrimp ar found in European caves, where they probably originated. They would spread from the continent across an ancient land bridge probably more than 7 million years ago during a period when sea-levels were lower than today. But were there other colonizers who didn't get as far as the South-West and Wales? If so, maybe they still linger on the chalk caves of Beachy Head or the caves of Portland Bill? The Welsh and Mendip populations probably arrived separately from further east a long time ago, which is why they differ so much. But then what are their cousins like on islands such as Steepholm in the middle of the Severn Estuary? Has anyone ever looked? By studying the protein structure of our cave animals we might be able to trace tiny changes from place to place which would mark the invasion routes taken by their distant ancestors. Such a study would provide a fascinating glimpse of past hydrological links and barriers, and so make a little more sense of the



A colourless, white eyed stream shrimp (Gammarus pulex). *Compare it with the cave shrimp shown in part 1 of this series (Caves & Caving, No. 14).*



Our two cave-associated flatworms can be told apart by their different colours and head-shapes.

geomorphological history of our countryside. During Pleistocene times we had a number of glacial events which smothered large parts of Britain in ice. The ice had no vegetation cover, so that no food energy to speak of found its way into the buried caves below, and gradually the cave animals in them died of starvation – or so runs one theory. As each major set of glaciers retreated the aquatic cave animals followed them back northwards. In around 15,000 years since the last ice age, the galloping cave water-louse has made it almost as far as Pontypool. The invasion is on!

I shall now sit back and wait for one of you to produce a cave water-louse from North Yorkshire and so explode this neat little theory of glacial extinction and creeping recolonization.

Acknowledgements: Inevitably, I have drawn heavily on other peoples ideas and observations in this article – the reader who wants to follow up these ideas is referred to Jeff Jefferson's excellent chapter in Science of Speleology.

*

Next issue: Spiders and Flies.

INTERNATIONAL NEWS

News from foreign journals

John Middleton

Members may refer to, or borrow the publications mentioned by contacting the B.C.R.A. library direct.

SPELEO FLASH No.127 carries a report on a recent Groupe Speleo Alpin Belge expedition to the Zentrumshöhle (Hagengebirge, Austria) where its depth was extended by 120m to -557m.

SPELEO FLASH No.128 emphasises recent world discoveries, and amongst the more interesting items mentioned which may have been missed by the more Internationally inclined cavers are the following: Snieznaja, in the Russian Caucasus, which was recently extended to a depth of -1280m, terminates in a chamber measuring 200m by 70m by 25m; the Raucherkarhöhle situated in the Austrian Totes Gebirge now has 16 entrances with a total length of 30km; also in Austria, a new upper entrance to the Dachstein - Mammutthöhle gives a new depth of -1174m and a length in excess of 30km. A list is given of the 15 deepest world through trips over 550m in depth (the deepest being the Sistema Badolena, Spain, at -1105m).

BOLLETINO DEL GRUPPO SPELEOLOGICA IMPERIESE No. 16. This group again confirms its statistic finding ability with a detailed list of the worlds 173 systems over 10km in length. The U.S.A. were the easiest winners with 64, followed by France with 25 and Spain with 19.

GROTTE Vol.24, No.75. The recent discovery of the Abisso Pentathol and its exploration to -500m in the Italian Marguaries is fully described.

THE N.S.S. BULLETIN Vol.43, No.4. This issue is wholly devoted to Saltpetre Caves. The nitrous earth of many caves of the U.S.A. was mined in the early 1800s in order to obtain saltpetre for gunpowder. The Bulletin described its possible origin , its mining history, chemical aspects and the historical geography.

HELICTITE Vol.19, No.1. Brian Finlayson discusses several unique (?) underground streams found in acid igneous rocks accessible to cavers. Pain and Ollier describe Damaweave Cave, Alotau, Papua New Guinea and Ollier reports on a 30m long cave situated in pyroclastic deposits on Fergusson Island.

JOURNAL OF THE SYDNEY SPELEOLOGICAL SOCIETY Vol.25, No.1. The Singnapan Basin, Palawan, Philippines is a region where a local tribe has chosen to live in almost total isolation. This isolation is respected by the Government and access is almost impossible. However, a recent expedition did visit the region and found the caving potential considerable. One cave, "Ugpay Cave", was visited to an unfinished 631m with a further potential of 2km. Another, "Singnapan Cave", was explored for an unspecified long distance and included a chamber 150m by 100m by 40m.

JOURNAL OF THE SYDNEY SPELEOLOGICAL SOCIETY Vol.25, No.2. This editions main feature is the extension of Big Tree Pot, Ida Bay, Tasmania down a 100m free hanging pitch to a choked bottom at -200m.

SCIALET No.9. A brief article by F. Poggia describes the first complete solo Pierre Saint Martin trip from SC3 to the bottom (-1332m) and back. The trip took 51 hours and included one bivouac of 8 hours. 8mm hyperstatic rope was used and the total initial gear weight was 40kg.

N.S.S. NEWS Vol.39, No.10. Yet another remarkable discovery in the Mammoth Cave region is described, this time Fisher Ridge Cave System. It is already 8km long with the majority of passageways 7-10 m in diameter and with many leads to follow. This edition also contains comments and reports on the recent International Congress.

ACTA CARSOLOGICA 1X 1980. English summaries in considerable detail prove the speleological value of this publication. Contents include Characteristics of Slovonian Cave Karst, Karst Development in Ribniska Mala Gara with excellent drawing and surveys and a study of the Vertical Water Percolation in the Postojna Planina Cave.

BULLETIN OF THE AKIYOSHI - DAI MUSEUM No.15 (Japan). Excavations in Tanuki-ana Cave, Bryozoan fauna of the Akiyoshi limestone, Photokinetic Response of Eyeless Cave Amphipods and the Homing Ability of Juvenile Bats are the principle articles in this very well produced Bulletin.

A 53 PAGE BULLETIN from the Institute of Geology in Kiev has recently been recieved dated Kiev 1981. Unfortunately there are no resumés in any other language than Russian, but from diagrams and surveys it would seem to cover the caves and karst of the Pamirs.

International Film Festival

The International Speleological Film Festival is now established as an annual event. As usual it will be held in 1982 at La Chapelle en Vercors, France, from 1st to 5th September. 16 and 35mm films on any aspect of caving with a sound track are eligible for entry. If you have such a film, or know of anyone who might be interested in entering a film, please contact Ben Lyon at Whernside Cave & Fell Centre for full details and an entry form.

There is an opportunity to show Super 8 caving films before the main festival.

M. K. Lyon

Top class cavers wanted

The Ecole Francais de Speleologie has finally obtained permanent premises, at St. Martin en Vercors. There will be courses throughout the year, as well as accommodation for the "do-it-yourself" caver. Further details soon

One major event this summer will be an international techniques and equipment course. Each country has been invited to send up to three delegates, together with gear and information on how it is used. During the week descents will be made of a number of the local systems, including the Gouffre Berger, Pot 2, Scialet de la Combe de Fer etc. It is vital that all participants are able to communicate in French, and that any cavers representing Britain are of the highest technical competence. The National Caving Association is looking at the possibility of grant-aiding three British cavers to attend this course. It is from 22-28th August. The cost will be 1200 francs (about £110) plus transport. If *you* are interested in attending, please write *immediately* to the Chairman, National Caving Association, (for address see page 32) Give your name, address, caving background, and stating whether you are interested in attending only if grant aid is forthcoming, or if you would like to represent British Caving *and* pay the full cost. (Applications must be received by 1st June).

M. K. Lyon

NORWEGIAN CAVING NEWS

Further explorations were made in Råggejavre-raige by Ulv Holbye and BOBTOG last October. The top of Litlstupet aven was found to have developed in a narrow joint with no apparent continuation of the Gallery out towards the hillside. However, a clay-floored phreatic level was found 20m above the Gallery between the big pitches.

The same weekend, Arne Grønlie and the Harstad cavers made extensions in Trollkirkgrotta, Evenesmarka. This cave with an active impressive streamway and labyrinth of dry tubes is estimated to be about 1500m long. Other important caves recently explored in N. Nordland-S. Troms include Lille Balakgrotta - 500m of mostly low active bedding plane passage with a 6m waterfall ending in a sump, and Gamhola. Solvanggrotta, a partly active streamway with low wide chambers floored with fallen slabs, previously estimated by climbers as over 1000m long is probably not more than 500m long and 50m deep.

In November a joint BOBTOG/RANA meet was held at Krokstrand. One party visited Tordenhølet and the other Jordbekkgrotta. Due to low water conditions the resurgence of the latter (dived for 90m in 1980) was explored for about 70m. The unpublished Orpheus C.C. 1967 survey shows a length of about 1000m. This was extended to about 1450m. Four parallel streamways originating at the southern sink have been located, one a 10m x 5m tunnel sloping up for over 90m. Further survey work is expected to extend the length to 2000m and the depth to 100m.

Membership of the Bodø based blub, BOBTOG, now exceeds 50. Last Autumn extensions were made to Scarthamargrotta and Kvithola, Vatnan. As a result of last summers meeting between northern and southern clubs Norsk Grotteklub has been reconstituted as the Norsk Grotteforbund (Norwegian Speleological Society). Norsk Grotteblad No.8, December 1981 includes articles on Meløygrotta, a large fossil sea-cave in granite, caves of Beiarn, watertracing at Skrimfjell, the extensions to Kvithola, and a bat and ice in Svarthamargrotta (67° 12'N).

Recent papers by Stein-Erik Lauritzen include "A study of karst waters in Norway. Spatial variations in solute concentrations and equilibrium parameters in limestone dissolution" (Norsk geogr. Tiddskr., Vol.35: 1-19), and "Statistical symmetry analysis of scallops" (NSS Bull., 43: 52-55), which describes the construction and use of a simple drafting apparatus for drawing scallop profiles to scale, in order to measure the inflection-point slope angles, and details the results and analyses from some Norwegian caves.

David & Shirley St. Pierre

NEW WORLD RECORD DEPTH

The Gouffre Jean Bernard (Samoens-Haute Savoie) has been pushed to a depth of –1494m. The Groupe Speleo Vulcain took five days in February to dive through the 1981 (–1455m) endpoint. They reached a 4th sump at the new record depth which they reckon is undivable.

Equipment Column

Dave Elliot

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Sedbergh,
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Tel: 05875 213

Home: 1 Millthrop
Sedbergh
Cumbria
Tel: Sedbergh 20878

Carbide Lamps

About this time of the year many British cavers are digging out carbide generator-headset units in preparation for the summers foreign trips. A few tips:

1. Carry reserve carbide in a tough, watertight pouch made from a section of car inner-tube, folded over at each end and tightly sealed with a couple of rubber bands cut from the same inner-tube. This type of container is light, completely waterproof, and virtually indestructable under normal conditions. Also carry in this pouch, sealed in a polythene bag, a set of lamp spares, spare battery/bulbs and some form of emergency lighting. Use a second pouch, marked with paint, to carry spent carbide out of the cave.

2. In order to save a few grams it is tempting to carry the generator clipped to the belt with an alloy krab. Hówever, the steel carrying loop will very quickly wear deep grooves into the alloy. It is better to use either a steel krab or a small maillon, but failing this make absolutely sure that this particular alloy krab is never used for any other purpose.

3. A small, flat bag of fairly stiff polythene, is extremely useful for filling the water-chamber. This allows you to fill the lamp without unclipping it from your belt, more importantly, the bag is invaluable for collecting trickles of water from crevices or scooping up shallow pools where the generator just won't fit. It weighs very little and is carried easily in a pocket or tucked behind the helmet cradle.

4. To avoid either wasting or having to tediously pick out unused lumps of carbide after each trip, try packing the carbide into net bags. Women's stockings are o.k. for this (the black ones with seams up the back are best . . .). Tie a knot – put in the right amount of carbide (200g?) – tie another knot. These "refills" make re-loading the lamp very easy, and you can carry two or three depending on the length of the trip. Afterwards simply remove the bag from the lamp and tap it against a rock, the spent carbide will fall through the mesh and the unused lumps remain inside ready for re-use.

Warning:
Polyester rope/tape

A few months ago at Whernside we lashed up a simple drop-test rig (see *Caves & Caving, 14* for details) in order to periodically test our stock of SRT ropes. Such a test is about the only practical means of determining whether or not a used rope is safe to use. In point of fact all our SRT ropes proved to be o.k. which was no great surprise as they are well maintained, carefully stored and regularly replaced – nevertheless this is reassuring all the same. However, certain other bits and pieces we tested didn't fare quite so well.

Take these two examples: Some little used (not worn) 10mm diameter, 16 plait matt polyester rope broke on the first impact in a factor-1 fall – anybody still using this stuff would be well advised to immediately stick it in the nearest bin, it isn't even a good tow-rope; similarly, a length of *unused* 25mm dia. polyester

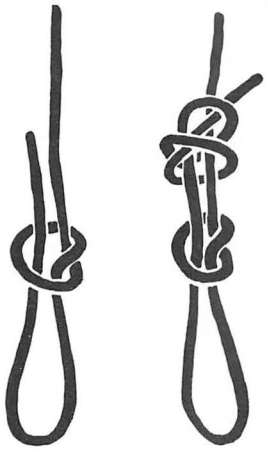
tape, knotted at either end, broke under a single fall. Bearing in mind that even lightly used tape (neither worn nor damaged) may be significantly weakened by use underground, anyone using such tape as cows-tails for instance (and I've seen a few) is just asking for trouble.

At present the NCA Equipment Committee are looking into different types of material for cows-tails. Troll Safety Equipment are currently investigating strength loss in used tapes. At Whernisde, Paul Ramsden is keeping a log of drop tests on used rope as a pilot for a more systematic test program. Contact any of these people for suitable advice. In the meantime if in any doubt about the strength or suitability of a bit of gear, then get up to Whernside and *test it* . . . either look out for me, Paul Ramsden, or any of the other instructors if you need any help or advice.

Swami Knot

Little known amongst cavers, the Swami knot is a combination of Overhand knot and half a Double-fisherman's knot, arranged to form a secure loop in the end of a rope which will not work loose even in very resilient sheathed ropes. An Overhand knot is tied first, with the end of the rope then threaded back through the centre of the knot to form a noose. The loop is adjusted for size and then secured by tying half of a Double-fisherman's knot around the standing rope. The Swami knot is prone to jamming under load and may have to be cut from the end of the rope after very severe loading, say following a fall.

Use: Climber's tie-on to harness/krab; ladder climber's tie-on.



Leicestershire Speleological Association
35 Logan Street, Market Harborough,
Leicester, LE16 9AW
Telephone: 0858-62961

We urgently require any item of caving equipment, e.g. ladders (or part of), ropes, lamps, helmets, krabs and SRT hardware that is totally unfit for use due to faulty manufacture, mishandling and abuse or excessive wear and tear.

The above items will form the nucleus of a travelling exhibition – "A Caving Chamber of Horrors" – which will be on display at Conventions, Symposia and Congresses during the next few years. Any items donated will be fully labelled as to the source or donor and it is hoped that perhaps we may be instrumental in saving life.

Please reply (postage refunded) to Ron "Spud" Murphy at the above address.

Oldbury Rock Shelters

Natural caves in sandstone at Ightham, Kent

The rock shelters are small natural caves and rock overhangs which occur in the sandstone outcrops along the east edge of Oldbury Hill, west of Ightham. This area was first investigated in 1890 by Benjamin Harrison, whose excavations produced a large collection of distinctive stone implements which were recognised as "cave dwelling types" similar to those found in Le Moustier in France. As a result of these discoveries the area has often been quoted as a paleolithic cave occupation site. Unfortunately there is considerable confusion as to the exact location of Harrisons finds, and it also seems likely that some of the original features, including a cave which was said to extend for 15 yards, have been destroyed by quarrying of the outcrops.

A more recent investigation by Desmond and Ann Collins (1965) failed to provide any evidence of occupation in the immediate vicinity of the well known rock shelters on the east side of the hill; but in the valley floor some 200 yards to the east, near the foot of a spur jutting out from the hillside, another assemblage of Mousterian type implements was found. The Collins's concluded that while there was no definite evidence of occupation of any of the shelters in their present day form, it was possible that the artifacts were associated with a rock shelter, now destroyed by quarrying or erosion, that may have existed in Pleistocene times at the end of the spur.

However there are a number of interesting features which seem to have been overlooked. These include a very conspicuous overhung recess on the south side of the spur, which looks ideal for an occupation site and it even ties in with one interpretation of the vague location given for Harrison's dig. There is also evidence of the above mentioned "15 yard cave", in the form of a scar on the hilltop, at the edge of an old quarry, south of the spur.

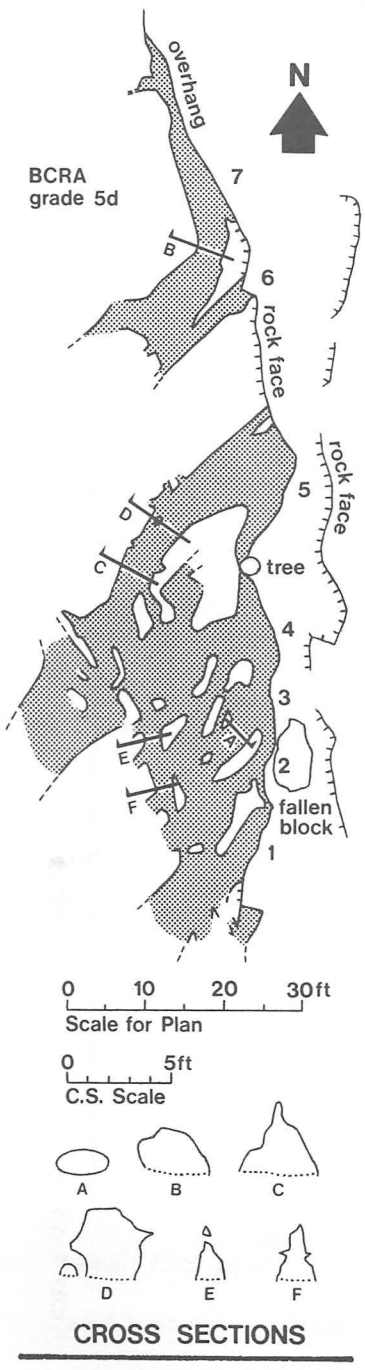
Another group of caves, consisting of seven low openings beneath overhanging rocks, on the hillside north of the areas investigated in 1965 were, until quite recently, sealed off behind stone walls. These walls have since been broken down by persons unknown, revealing a network of joint controlled passages resembling a phreatic type maze. Due to accumulations of sediment on the cave floor, not all the passages shown on the survey are actually accessible. The entrances numbered 4 and 5 give access to about 120 ft. of enterable cave from which visual connections can be made with entrances 1, 2 and 3; entrances 7 and 8 form a separate system about 40 ft. long. In several places the passages can be seen continuing into the hillside, though filled with sediment to within a few inches of the roof.

The caves are normally quite dry, except following heavy rainfall when water has been observed flowing from some of the entrances. This suggests that the caves were formed along a spring line which may have been more active in the past. The rock in which the caves are formed is a soft sandstone sandwiched between hard, greenish chert, which forms the roof of some of the passages, and harder sandstones beneath. These rocks form part of the Folkstone Beds of the Lower Greensand.

Although the Oldbury Caves are of no significance in terms of size, they are very interesting from a geomorphological point of view in that they are formed in sandstone.

Terry Reeve
Chelsea Speleological Society

OLDBURY CAVES
IGHTHAM



CAVE RESCUE ORGANISATION

Incident Report for the year 1st January 1981 - 31 December 1981

Since 1977, the number of cave rescues carried out by the Cave Rescue Organisation has halved. Chief Controller, Jack Pickup, stated at the recent Annual Meeting of the C.R.O. that the causes could be "possibly the high cost of travel and hence fewer cavers, or better equipment, training and guidebooks". Of the 13 cave incidents in 1981 one was to Gingling Pot where a seriously injured caver was rescued from exactly the same place as one 46 years before - the incident that led to the formation of the C.R.O. The first rescue took almost 30 hours whilst the 1981 victim was removed in 7 hours.

Brian Boardman has prepared the following 1981 Incident Report, showing that the decline in cave rescues has been accompanied by an increase in other incidents. Total number of incidents has increased by two over 1980.

1. ***River Ribble.*** *Sun. Jan. 10th. 1025 hours.*
   Elderly female found drowned.
2. ***Whernside.*** *Sun. Jan. 18th. 1700 hours*
   Search for two schoolboys missing on map reading exercise. Came off near Dent viaduct.
3. ***Lost John's Cave.*** *Thur. Feb. 12th. 2052 hours.*
   17 year old novice caver abseiled 40 ft. the 110 ft. Monastery pitch (very wet) on a 60 ft. x 9mm rope. He climbed 15 ft. using prussic knots and loops (7mm rope) before he became "hung up". He was very cold and wet.
4. ***Malham Moor (Darnbrook - Street Gate).***
   Sun. Feb. 15th. 1945 hours.
   Six young scouts (ages 11, 11, 12, 12, 13, and 14 years) and their adult leader lost and benighted. Found sheltering behind a wall at Highfolds. All O.K.
5. ***Ingleborough.*** *Sun. Feb. 22nd. 2230 hours.*
   15 year old hiker slipped, hit a 52 year old hiker, and both slid over a 20 ft. drop at 17-10 hours. Reported overdue by relatives. Found on ledge at 3.0 a.m. near summit. Bitterly cold wind, snow, ice, mist. Man - fractured kneecap and rib. Hypothermia. Helicopter used.
6. ***Gayle Beck, above Far Gearstones.***
   Tues. Mar. 10th. 1720 hours.
   32 year old hiker on Dalesway walk unable to cross river in flood.
7. ***Notts Pot.*** *Sat. Mar. 14th. 1725 hours.*
   13 year old caver fell 20 ft. while climbing entrance pitch. Head injuries, fractured skull and elbow.
8. ***Abbeyfield, Bentham.*** *Sat. Mar. 21st. 1825 hours.*
   Supply Fire Brigade with ejector pump to remove water from cellar at Old People's Home.
9. ***Swinsto Hole - Kingsdale Master Cave.***
   Sat. Mar. 21st. 2005 hours.
   8 cavers trapped by floods. Found beyond Master Junction. Escorted out. Stream 15 ft. deep at pitch.
10. ***Rough Hill area.*** *Sun. Mar. 22nd. 1530 hours.*
    Search for missing dog - not in disused coal drift mine - but evidence was found that it had been.
11. ***Kingsdale Master Cave.*** *Mon. Mar. 23rd. 1935 hours.*
    9 cavers trapped by floods. Escorted out. Stream 15 ft. deep at pitch.
12. ***Malham Cove.*** *Sun. Mar. 29th. 1315 hours.*
    2 climbers fell about 40 ft. when belay came away.
    1. Fractured foot and cuts. – 2. Back injuries and cuts.
13. ***Swilla Glen.*** *Sun. Apr. 5th. 1430 hours.*
    23 year old male walker slipped on rock and fell into stream. Arm and leg injuries.
14. ***Ling Gill.*** *Fri. Apr. 17th. 1545 hours.*
    14 year old scout slipped 10 ft. on rocks and fell into stream. Fractured ankle.
15. ***Catrigg Force.*** *Fri. Apr. 17th. 1603 hours.*
    53 year old male hiker slipped on moss, fell and rolled 35 ft. to stream. Pneumothorax, fractured ribs, severe lacerations to head.
16. ***Gatekirk Cave.*** *Mon. Apr. 20th. 0810 hours.*
    Lamb rescue. Day old lamb found dead in water.
17. ***Pikedaw Calamine Caverns.*** *Mon. Apr. 20th. 1515 hours.*
    40 year old caver fell/slid 30 ft. down rope on 60 ft shaft. Friction burns to hands, injured back.
18. ***Great Stone (Bentham-Slaidburn)***
    Fri. Apr. 24th. 1550 hours.
    Assist Ambulance Service - road accident. Deep snow, blizzard.
19. ***Malham - Settle.*** *Fri. Apr 24th. 1735 hours.*
    Preliminary search for two female teenage hikers. Deep snow, blizzard. Traced to Manchester.
20. ***Newby Head - Beezley.*** *Fri. Apr. 24th. 1830 hours.*
    5 hikers missing. Deep snow, blizzard. Later found to have been given a lift and gone to Bolton.
21. ***Malham-Stainforth.*** *Fri. Apr. 24th. 1948 hours.*
    2 hikers overdue. deep snow, blizzard. Turned up O.K. during initial search.
22. ***Near Newby Head.*** *Fri. Apr. 24th. 2010 hours.*
    Stranded motorist rescued. Deep snow, blizzard.
23. ***Langcliffe Scar.*** *Sat. Apr. 25th. 1130 hours.*
    20 sheep and 6 lambs dug out of snow. (C.R.O. and Gigg. School).
24. ***Ingleborough.*** *Sat. Apr. 25th. 1930 hours.*
    Fell runner reported overdue. Turned up at Hill Inn.
25. ***Ivescar, Whernside.*** *Sun. Apr. 26th. 0910 hours.*
    6 sheep and 1 lamb dug out of snow. (C.R.O. and Gigg. School).
26. ***Malham Cove.*** *Mon. May 4th. 1352 hours.*
    32 year old female walker fell at stile. Fractured ankle. Flat shoes.
27. ***Malham Cove.*** *Fri. May 8th. 0952 hours.*
    67 year old man found dead after 220 ft. fall. Severe multiple injuries.
28. ***Ireby Fell Cavern.*** *Sun. May 17th. 1450 hours.*
    22 year old novice caver fell from ladder on 3rd pitch. Lowered on lifeline. Head laceration, bruises.
29. ***Ingleborough.*** *Sun. May 24th. 1950 hours.*
    Two 12 year old boys missing. Turned up an hour after search started.
30. ***Ingleborough.*** *Mon. May 25th. 1715 hours.*
    52 year old male hiker collapsed near Gaping Ghyll. Heart attack.
31. ***Tatham Wife Hole.*** *Sun. May 31st. 2330 hours.*
    11 cavers overdue. Found on Moor. They had been held up by floods. (Original call was to Meregill!).
32. ***Malham Cove.*** *Sat. June 13th. 1535 hours.*
    40 year old female slipped on grass slope. Back injuries.
33. ***Top Sink.*** *Sun. June 14th. 0255 hours.*
    5 cavers trapped by floods. Found near "Rock of Ages". Escorted out.

34. ***Malham Cove.*** *Sun. June 14th. 1455 hours.*
Male hiker collapsed. Internal bleeding. Perforated ulcer.

35. ***Gingling Hole. Fountains Fell.***
Sat. July 11th. 1810 hours.
26 year old caver very seriously injured in 25 ft. fall from ladder on 4th pitch. No lifeline. Fractures of skull, ribs, pelvis.

36. ***Stake Pot, Lancaster Hole.***
Fri. July 17th. 1725 hours.
19 year old caver fell 15 ft. and rolled 20 ft. whilst climbing rock. Bruises to back and ribs.

37. ***Malham Cove.*** *Sun. July 19th. 1830 hours.*
Climber reported to be in difficulty. Made his own way to safety.

38. ***Swilla Glen.*** *Mon. July 27th. 1630 hours.*
Elderly female collapsed. Exhasution.

39. ***Ingleborough.*** *Sun. Aug. 2nd. 2030 hours.*
38 year old female hiker missing after separating from party. Turned up at Newby.

40. ***Side of Leck Beck, Leck Fell.***
Sun. Aug. 9th. 1735 hours.
57 year old female well equipped hiker slipped on a sloping "greasy" rock. Fractured leg.

41. ***Pecca Falls.*** *Fri. Aug. 21st. 1552 hours.*
38 year old male walker slipped 20 ft. down rocks into pool and disappeared while taking a photograph. Found drowned by C.R.O. divers. (He also had a serious head injury).

42. ***Scales Moor - Ingleton Waterfalls area.***
Tue./Wed. Aug. 25th/26th. 1940 hours.
23 year old male hiker left family group to ascend Scar End - and disappeared. Turned up at Bridge Farm in Dentdale at dusk on 26th Aug. he said that he had been lost - but had he been avoiding the searchers? Divers searched the Waterfalls. C.R.O., S.A.R.D.A, Helicopter.

43. ***Gragareth.*** *Sat. Aug. 29th. 1940 hours.*
Two female hikers missing after party separated. Soon found at Leck Fell House.

44. ***Kingsdale Master Cave.***
Wed. Sept. 16th. 2130 hours.
Three cavers lost way after abseiling through Swinsto Hole. Found beyond Master Junction. Escorted out.

45. ***Whernside.*** *Sat. Sept. 19th. 1515 hours.*
28 year old hiker on Three Peaks Walk developed a "stiff knee". Damaged ligaments and fluid.

46. ***Ingleborough.*** *Sat. Sept. 26th. 2315 hours.*
Two 17 year old Venture Scouts lost and then benighted while trying to leave summit, after acting as checkers for a Scouts' Three Peaks Walk. Torrential rain and low cloud during day.

47. ***Ingleborough and Whernside.***
Thur. Oct. 8th. 2307 hours.
Search for 2 male hikers missing on a Three Peaks Walk. Found cold and wet near Gaping Ghyll. They had been lost and benighted. (C.R.O. and S.A.R.D.A.).

48. ***Ingleborough.*** *Sun. Oct. 11th. 1330 hours.*
Fell runner in Three peaks Race badly sprained ankle (C.R.O. and B.P.M.R.T.).

49. ***Ingleborough.*** *Sun. Oct. 11th. 1455 hours.*
55 year old female hiker slipped on muddy path. Fractured leg. (C.R.O. and Gigg. School).

50. ***Whernside.*** *Tues. Oct. 20th. 1905 hours.*
Two elderly hikers benighted and lost. Reported overdue. Soon found by a wall above Bruntscar.

51. ***Ireby Fell Cavern.*** *Sun. Oct. 25th. 1515 hours.*
28 year old novice caver exhausted and unable to climb up 3rd pitch.

52. ***Ingleborough.*** *Fri. Oct. 30th. 2145 hours.*
Search for 7 scouts (ages 11-14 years) and their adult leader, lost and benighted on Three Peaks Walk. Found cold and wet above Gaping Ghyll. One scout had a fractured wrist. Thick mist, wind, heavy rain. (C.R.O. and S.A.R.D.A.).

53. ***Sell Gill Hole.*** *Sat. Nov. 28th. 1415 hours.*
28 year old caver fell 10 ft. from ladder on 3rd pitch. No lifeline. Dislocated hip, fractured shoulder blade and rib, 5 minor spinal fractures, cuts and bruises.

54. ***Lower Long Churn Cave.***
Sat. Dec. 5th. 1555 hours.
23 year old scout leader dislocated shoulder while descending 8 ft. rock face. (He did not fall).

55. ***Clapham - Bentham Road.***
Sun. Dec. 13th. 2141 hours.
One woman and two children rescued from car stuck in deep snow drifts. Blizzard conditions.

56. ***Ingleton - Bentham.***
Sun. Dec. 13th. 2142 hours.
Transport diabetic person home (to his medical supplies). Deep snow, blizzard conditions.

57. ***Austwick - Eldroth.***
Sun. Dec. 13th. 2330 hours.
Search road for missing motor cyclist. Soon turned up. Deep snow. Blizzard conditions.

SUMMARY – Year 1981

Total Incidents	57
Cave	13
Disused Mine	1
Fell	29
Climbing	2
Open water diving	1
Animal	4
Other incidents	7
North Yorkshire	48
Lancashire	6
Cumbria	2
Greater Manchester	1

Main Causes

Cave Incidents

Falls	5
Floods	4
Lost	1
Exhaustion	1
Unable to climb out after abseiling	1
Pulled shoulder dislocation	1
Persons assisted	112

Disused Mine

Lost control while abseiling	1

Open Water Diving

Fall into pool	1
(1 fatality)	

Fell Incidents

Falls/Slips	11
(1 fatality)	
Lost/Benighted	6
Overdue	8
Exhaustion	1
Unable to cross river in flood	1
Heart Attack	1
Medical Emergency	1

Other Incidents

'Road' incidents in deep snow/blizzard conditions	5
Drowning in river	1
(1 fatality)	
Providing equip.	1

Climbing Incidents

Fall, (belay came away)	1
Reported in difficulty	1

Animals:
26 sheep – 8 lambs – 1 dog

C.R.O. Incidents since its formation in 1935

●

Total Incidents	739
Cave	295
Cave inc. Cave Diving	9
Disused Mines	10
Fell	248
Climbing	30
Open Water Diving	11
Animal	119
Other incidents	17

During	1935 – 1949	15 incidents
	1950 – 1959	30 incidents
	1960 – 1969	162 incidents
	1970 – 1979	420 incidents
	1980, 1981	112 incidents

During the last five years, the C.R.O. has attended 284 incidents. This averages 1 call every 6.43 days.
The total incidents attended has involved the C.R.O. going to the assistance of 1,284 men, women and children (the oldest aged 84 years and the youngest aged 3 years), 72 sheep, 63 lambs, 24 dogs, 9 ducks, 6 calves, 5 cows and 1 bullock, and the recovery of a wide variety of "objects".

GHAR PARAU FOUNDATION AND SPORTS COUNCIL GRANTS TO EXPEDITIONS 1982

In the case of the GPF these are the actual grants which will be made. In the case of the Sports Council these are recommendations from the GPF Awards Committee and are subject to approval by the Sports Council in due course.
As a general note it should be said that both in number and in standard the applications were extremely high this year. Since the total sum available, as advised by the Sports Council, has only increased by a mere 6% over last year, the amount of each award was considerably less than what the Awards Committee would have wished.

Expedition	*Club/Leaders*	*GPF*	*Sports Council*
Vercors, France	ULSA	nil	£50
Mt. Kaijende, New Guinea	International	£100	£400
Hawaii Volcanoes	Wood/Chapman	£400	£600
Glomdal, Norway	SWETC/WSG/ WCC/CDG	£50	£200
Fiplingsvatn, Norway	Faulkner	£50	£100
Ocena, N. Spain	KCG	n.a.	£150
Chiapas, Mexico	(North/South)	£150	£2,000
Bahamas Blue Hole	Palmer/Farr	£150	£700
Totesgebirge, Austria	CUCC/UBSS	nil	£250
El Joon, N. Spain	OUCC	£100	£250
Peloponnesos, Greece	CDG	n.a.	£200
White Mts., Crete	SUSS	n.a.	£230
Tresviso, N.Spain	LUSS	n.a.	£350
Matienzo, N. Spain	MUSS	n.a.	£350

Further details of each expedition are given below.

D. M. Judson, Sec. GPF

University of Leeds Speleological Expedition to the Vercors Plateau

ULSA are travelling to the Purgatoire area of the Hauts Plateau Sud, Vercors in order to compile a full register of the caves after surface surveying. They also intend to undertake underground exploration and survey and have a full scientific programme with geological, biological and hydrological aspects. Twenty members will be in the field from 15th July for 6 weeks led by David Gibson.

Mount Kaijende Expedition

A multi-national expedition drawing its 25 members from America, Canada, Great Britain, Switzerland, New Zealand and Papua New Guinea. Half the expeditionaries are American with four members from Britain. The main objective is to discover and explore the cave systems underlying the limestone massif of Mount Kaijende (3798m). From a virtually unexplored "alpine" plateau with an area of about 40 sq. km. and general elevation of 3-3500m the local drainage is through the mountain to large risings in the valleys approximately 1000m lower.

Many of the expedition members are cavers instrumental in the development of caving equipment and technique including Paul Seddon from Troll and Dave Elliot (Whernside) and the expedition will offer a unique opportunity for the study and evaluation of differing equipment and techniques under extreme conditions.

The expedition (led by Neil Montgomery [Australia], Donna Mroczkowski [USA] and Neil Ryan [PNG]) will last from 28th June-30th August.

2nd UK Speleological Expedition to the Hawaiian Volcanoes

Jointly led by Chris Wood and Phil Chapman, the expedition will continue the work started by the successful 1979 expedition. The 10 member team intend to explore and map caves in the long tube-fed lava flows of Kilauea's north-east flank and Mauna Loa – some of the tube lines (identified from aerial photos and geological mapping) are more than twice as long as that which contains Kasumura cave, the world's longest known lava tube, and mapped by the previous UK expedition. The depth potential of the area is also outstanding. The tube-fed flows on Mauna Loa have a vertical range of 3000m, twice the depth of the present deepest limestone caves. The expedition also has a heavy scientific commitment with Phil Chapman continuing his work on a model of evolution in tropical cave faunas,as well as studies on the morpholgy and operation of lava tubes. The expedition dates are 17th July – 30th August.

Cave Diving and Surveying Expedition to Glomdal, Svartisen, Norway.

A 10 man expedition will be in Norway from late July for about 5 weeks in order to continue exploration and studies of the caves and glacio-karst features in the Glomdal area. In particular, the major aims are to survey Trudehullet (extended to 4000m in 1981) and to explore submerged passages to produce the longest Norwegian cave of more than 15km. Much scientific work is being undertaken and this is being co-ordinated by Stein-Erik Lauritzen.

Joint leaders are Andrew Ive and David St. Pierre.

Expedition to Nedre Fiplingsvatn, Norway

Another expedition to Norway, this one led by Trevor Faulkner with up to 8 members in the field from 24th July-16th August. They plan to explore a new caving area near Nedre Fiplingsvatn, Grane, investigate a number of other sites and assist Norwegian cavers with exploration and survey of new caves in the Pikhaug area south of the Svartisen glacier.

Kingswood Caving Group Expedition to Northern Spain

The immediate aim of the expedition is to explore the area of the Mildon Valley and the high ground to the west of its upper reaches. Aerial photographs have shown a large number of depressions visable on ground that has never been properly covered before. The group considers that this area has at least as much potential as the adjacent Oceno area where they have worked in the past. Should exploration fail here, they intend to move on to Sierra de Cuera.

The expedition is led by Dave Stoddard and will be in the area from mid September to early October.

The British Speleological Expedition to Mexico

Twenty three British cavers are spending 12 weeks from mid November in the Highland Region of the Chipias Province around San Cristobel de las Casas. The area has great potential for both long and deep caves and the expedition intends to thoroughly search the area and use local knowledge to locate sites of interest which will then be explored and surveyed. The very experienced team of cavers

includes Sid Perou who will be making a film of the expedition. Biological and hydrological studies are also to be carried out.

Blue Holes '82 – British Cave Diving Expedition

This years expedition continues the work of last years Blue Holes visit. The dozen members intend to further explore the oceanic and inland submarine caves; make biological studies of the fauna therein; study the hydrology and to collect stalagmites from oceanic holes to continue investigations into Pleistocene sea-level changes.

The expedition will spend six weeks in the field from early July, led by Rob Palmer and Martyn Farr.

Cambridge University Caving Club - University of Bristol Speleological Society Expedition to the Totes Gebirge.

Continuing the exploration of last years wide-open find, the 18 man team intends to extend the Totes Gebirge (55 km SE of Salzburg, Austria) downstream beyond the –680m point. Other exploration, photography and survey work will be carried out in the cave and some hydrological and geological studies will be done. The team is in the area from the end of July for 4 weeks under the leadership of Pete Lancaster.

Oxford University Cave Club Expedition to El Joon, Asturias, N. Spain

The OUCC are now moving on from Pozu del Xitu. Xitu has proved that the Ario area contains deep caves, and since the resurgences are much bigger than the streamway in Xitu, there are probably many other such systems even larger. The first part of the expedition will be looking at holes in the Ario area, known from last year but not fully explored, while setting up camp at El Joon for the second part of the expedition. The depth potential here is about 1700m. A stream-carrying cave entrance has already been found.

The team of 21 is led by Graham Naylor and they will be in Spain from 11th July-22nd August.

CDG Expedition to Greece

Julian Griffiths is leading a 5 man Cave Diving Group team to a number of areas in Greece for 2 weeks from 6th August. Diving sites are in the cave of Selinitsa, a major rising at Kephalari and in Agia Trias. The areas were reconnoitred in 1981 by two of the team.

Sheffield University Speleological Society White Mountains Expedition to Crete

For 4½ weeks from 3rd August SUSS are visiting Crete. They intend to return to Drako Laki and continue exploration and survey of the upstream and downstream extensions; continue sump exploration in Drako Laki and the sea resurgences at Chora Sphakion; continue the systematic exploration of the caves on Levka Ori and carry out a recce in the surrounding area. Twenty eight members are led by Paul Hatherley.

Tresviso '82

This years trip to northern Spain is working in conjunction with the Seccion de Espeleologia Ingenieros Industriales of Madrid. Under the leadership of Ken Daykin they will join the SEII in exploration of Cembavieya (already explored to a depth of –550m by the latter group and still open). The expedition will also investigate the "56" depression for surface shafts.

The 30 members are in the field from 12th July-8th September.

Matienzo '82

This years expedition will continue the exploration of the wide-open Torca de Coteron as well as trying to find the elusive Four Valleys link, shaft-dropping around the depression and the reconnaissance of a couple of nearby areas. The leader is Juan Corrin and expedition dates are 15th July-28th August.

JSC

GHAR PARAU FOUNDATION YEAR 1981

INCOME & EXPENDITURE ACCOUNT

Income		£	£
Interest on Investments			727
Donations:	Venezuala 73 Expedition	180	
	Three Counties Survey	50	
	Hawaii 78 Expedition	152	
	Mulu 78 Speleo Team	220	
	Mulu 80 Expedition	600	
	International Speleo Congress	190	1392
Returned expedition grant			350
			2469
Expenditure			
Grants	Madagascar Expedition	100	
	Morocco Expedition	50	
	Picos de Cornion (Xitu) Expedit.	100	
	Greenland Expedition	350	
	Blue Holes 81	100	700
Tratman Award			25
Purchase of Birmingham Bonds			1000
			1725
Surplus of Income over Expenditure			744

BALANCE SHEET

Assets	
Borough of Bury Bonds	3500
City of Birmingham Bonds	1000
Cash at Bank	2281
	6781

A. C. Waltham, Hon. Treasurer
20th January, 1982

1981 TRATMAN AWARD

The Tratman Award for the best contribution to caving literature in the U.K., published during the year 1981 has been given to the book, *Caves of County Clare* written and compiled by members of the UBSS. It was felt to be the finest example of a caving area guide book so far produced.

Caves of Mulu 80, report of the 1980-81 British Expedition, was highly commended for setting an extremely high standard in the publication of an expedition report, (compiled by A. Eavis).

D. M. Judson. Secretary: GPF

Payment by VISAcard

As a further service to its members, the Association has now made arrangements to accept payments by deduction from a VISAcard account. This facility can be used either for payment of subscriptions or for the purchase of publications. It should particularly assist those living abroad as it will save the problem of obtaining English currency. Those wishing to use this method of payment should send their VISA (Barclaycard, Trustcard, etc.) number together with the cards expiry date. It should be noted that at the present time this facility is available with VISAcards only.

BCRA

conference 1982

University Union Building, Queen's Road, Bristol
Sept. 11-12

Entrance:

BCRA members £2, non-members £3. No price-rise for 3 years, what a bargain! Tickets can be booked using the enclosed form.

Programme includes:

Bahamas Blue Holes	Rob Palmer
Lamprechstofen	Steve Foster
Madagascar Expedition	Jane Wilson
Conservation of Bats	Bob Stebbings
Cave Photography	Clive Westlake
The BCRA/Ghar Parau Equipment Pool	Dave Checkley
Pridhamsleigh Cavern	Pete Glanville
Austrian Expedition	UBSS/CUCC
Life of Eli Simpson	Eric Hensler
Vercours Expedition	ULSA
Hawaiian Lava Caves	Chris Wood
Cave Diving in Greece	Julian Griffiths
Radiometric Dating of Pleistocene faunas	Tom Lord
Mt. Kaijende New Guinea Expedition	Dave Elliott

Films by Sid Perou.

Public Debate on Caving Ethics.

BCRA workshops on Equipment Testing and on Cave Ecology and Climate.

SRT race – fastest wins a rope.

Saturday Night Disco

Photographic Competition:

There are seven categories, with prizes to be announced.

1. Premier Trophy for the best portfolio of 5 prints, min. 10" x 8".
2. Best black and white print, min. whole plate (8½" x 6½")
3. Best colour print, min. whole plate (8½" x 6½").
4. Best colour transparency, 35mm or 2¼".
5. Marlow trophy for best SRT shot, any medium.
6. Best fun shot, 35mm or 2¼" transparencies.
7. Cave Life Award, 35mm or 2¼" transparencies.

A maximum of three entries may be submitted for any one category (except for the portfolio – maximum of one entry). Competitors are reminded that if they wish to submit the same photograph into more than one category they must supply one copy for each category. Entries to be submitted no later than 2.00 p.m. on Saturday, 11th Sept. All prints to be mounted and all entries to bear entrant's name.

Accommodation

Details to be arranged, but bed and breakfast will be available for a limited number.

Stands

Space is available for commercial and club stands. It costs your club *nothing* to advertise yourselves with your very own stand and you can win a prize for "best club stand". Apply on enclosed form.

Refreshments

Set lunches will be available on Saturday and Sunday, and the bar will be open. Hot drinks and snacks will be on sale throughout the conference.

Conference Secretary:
Dick Willis, Basement Flat, 6 Worcester Terrace, Bristol BS8 3JW.

Lecture Secretary:
Graham Proudlove, 17 Ash Grove, Heaton Chapel, Stockport

Bookings Manager:
Dr. R. G. Picknett, 28 Potter's Way, Laverstock, Salisbury, Wilts SP1 1PX,

National Caving Association

The following officers have been elected to serve for 1982:
Chairman: M. C. Day, 118 Whitmore Road, Harrow HA1 4AQ.
Secretary: F. S. Baguley, 15 Elm Grove, Gadlys, Aberdare, Mid Glamorgan CF44 8DN.
Treasurer: A. T. Rogers, 3 Heol Gethin, Hengoed, Mid Glamorgan.

Items from the NCA AGM

Cave Conservation Fund

Readers will remember the Draft Constitution for a British Cave Conservation Fund published in the last issue of Caves & Caving. There has been some disagreement between BCRA and the NCA over this fund and it has now been agreed that a new joint working party should be formed to draw up a draft constitution acceptable to both sides. It was agreed at the meeting that M. C. Day (NCA Chairman) should be the working party's chairman and that A. T. Rogers should be the NCA representative. The BCRA representative has yet to be decided. The draft constitution is to be put to the first possible AGMs of both organisations.

Ghar Parau Fund

Despite the sweeping proposals made for change by CSCC and CCC, and after considerable debate, it was agreed that no changes should be made to the present arrangements. (Certain changes to the membership of the interview panel have already been made – see page 36).

Training

The Cave Leadership Certificate is to be retitled the "Cave Instructors Certificate" in order to reflect more closely the high level of attainment required.

Legal and Insurance

Keith Plumb is to set up a working party to investigate and eventually propose a scheme for insurance to suit all requirements of British cavers.

DMJ/JSC

Hydrological Study Week

For some time now several people have felt that BCRA should be more directly involved with cave research. This feeling was further endorsed by the Cave Science Workshops at the 1981 Conference. As a result, myself and others are in the process of organising a hydrological study session.

The intention is to stay at Whernside Cave & Fell Centre for a week during September with the possibility of covering the following areas of study:

1. *Chemistry and field operation of dye tracing.*
2. *The hydrology of one of the systems in the Dales, including the use of flood pulse techniques.*
3. *Building a hydrological model of a cave.*
4. *Use of computers in cave hydrology.*

Anyone interested in more details should get in contact with Keith Plumb, 55 Firwood Avenue, Urmston, Manchester. (Tel: 061-865 6726).

BRITISH CAVE RESEARCH ASSOCIATION
GENERAL INCOME AND EXPENDITURE ACCOUNT
for the Year ended 31 December 1981

	£	£	£
INCOME			
Subscriptions			6,649
Royalties on Sale of Books			302
Sale of Books and Publications		3,575	
Opening Stock of Books for Resale	485		
Publication Sales Expenditure	391		
	876		
less Closing Stock of Books for Resale	652		
Cost of Sales		224	
Surplus on Sale of Publications			3,351
Donations			35
Bank Interest			1,208
Miscellaneous Income			1,024
TOTAL INCOME IN YEAR			12,569
EXPENDITURE			
Publication Expenses Transactions		5,323	
Publication Expenses Caves & Caving	4,724		
less Advertising Revenue	1,410	3,314	
Distribution Costs		1,739	
Subscriptions and Donations		10	
Administration Expenses		628	
Depreciation of Equipment		92	
TOTAL EXPENDITURE IN YEAR			11,106
Surplus of Income over Expenditure			£1,463
Appropriated as follows:			
Publications Reserve			1,000
General Reserves			463
			1,463

BALANCE SHEET
as at 31 December 1981

	£	£
ASSETS		
Equipment at Cost		545
less Depreciation		268
Written Down Value		277
Sundry Debtors		779
Stock of books for Resale		652
Cash at Bank		10,499
Cash in Hand		310
		£12,487
less Sundry Creditors		30
		£12,487
GENERAL RESERVE		
Balance Brought forward		4,827
Transfer from Income and Expenditure Account		463
Balance Carried Forward		5,290
PUBLICATIONS RESERVE		
Balance Brought forward	5,046	
Transfer from General Reserve	1,000	
Transfer from Meetings Reserve	750	
Balance Carried Forward		6,796
MEETINGS RESERVE		
Balance Brought Forward	380	
Income in Year	771	
	1,151	
Transfer to General Reserve	750	
		401
		£12,487

I have audited the financial statements on this page. In my opinion they give a true and fair view of the state of the Association's affairs at 31 December 1981, and of the income and expenditure for the year ended on that date.

T J Day
Chartered Accountant
Sheffield

3 April 1982

Science in Archaeology

Modern archaeology is not the dry-as-dust antiquarian study beloved of Victorian gentlemen. It is rather a bridge subject, linking the two cultures of Arts and Sciences. Archaeology can be defined as the study of man through his material remains and traces. It is thus a study of things left behind by man: not just manufactured items (artefacts), but also 'mentefacts', i.e. ideas, techniques, mathematics and science, and 'sociofacts', including social behaviour, language, religion, politics, living conditions, even attitudes to sex! So defined, archaeology can be said to include every activity of man. Historians may consider archaeology to be the handmaiden of history; but an equally valid attitude is that history is just that subset of archaeology which deals with the written record. Archaeology is just as much about ideas as it is about things. It might be considered that the distinction of man from the apes is the ability to make tools, but it is just as much the ability to plan for the future.

Modern archaeologists have brought most sciences into their service. Resistivity meters and magnetic field detectors (proton gradiometers) are used to detect archaeological remains below ground; systematic excavation, recording and drawing techniques are used at the excavation; conservation techniques are used to preserve the finds; biology, physics and chemistry to study the finds in minute detail to derive the ancient techniques of manufacture, the origins of raw materials, trade routes, and the ancient environment; radio-carbon to date finds; and the computer to record, retrieve, compare, draw and publish the items. The modern archaeologist needs to be something of a polymath.

□

What has all this to do with caves? Caves were the first shelters used by man, and in them he buried his dead and left remains of his industry. Cave mouths are the most interesting areas, with their remains of fires, bones from food animals, and small tools such as flint implements, bone needles and spindle whorls. In France, Spain and North Africa cave paintings are found, though unfortunately not in Britain. Even if man is not present, animals trapped or living in caves left their bones, and some of these are very exotic, such as hippopotamus, forming a fruitful study for palaeontologists. Cavers should clearly be very careful in their digs not to disturb archeological or palaeontological sediments, particularly near the cave mouth.

□

Is 'Cave Archaeology' a valid study? Most archaeologists would say no. Rather it is the practice to divide the approximately three million years that man has been around into periods, many of which have been given long Latin names. The 'Stone Age', when stone was used to make tools, is divided into the Palaeolithic ('Old Stone Age'), the Mesolithic ('Middle Stone Age', when there were many fishing and shore-dwelling cultures) and the Neolithic ('New Stone Age', when agriculture, domestication of animals, the wheel, pottery, textiles and transport were developed). Next it was discovered how to smelt a mixture of copper and tin ores, to make the metallic tools and weapons of the Bronze Age. Finally iron was discovered to make much more durable tools, leading to the Iron Age, the Industrial Revolution, the discovery of electricity and the atomic/space age. All these are valid parts of archaeology: the time scale is from the first tool maker right up to the present, for the rubbish that you put in the dustbin yesterday will be someone else's very prolific source of artefacts!

A typical cave deposit might have stone tools of the earliest Palaeolothic hunters; microliths, bone spears and bone needles of the Mesolithic fishers; pottery, cereal grains and spindle whorls of the Neolithic farmers; beakers and bronze tools of the Bronze Age; perhaps even Roman coins, brooches and Samian Ware from Romano-British refugees. These would probably receive description as specialist artefacts from various periods, and the cave origin may be regarded as less important.

This is not to say that no archaeologist has turned his attention to caves: Dean Buckland, Boyd Dawkins and William Pengelly are obvious historic figures of note, and more recently Susan Palmer, Mike Bishop, John Campbell, Don Bramwell, and our own Wilfred Jackson, Tratty, Mel Davies, Tom Lord, Ted Mason, Alan King and Tony Sutcliffe spring to mind. Industrial archaeology is also studied in those caves which have been mined for lead, by the various mining research societies.

BCRA is a member of the Council for British Archaeology, the co-ordinating body for all archaeological societies in Britain. BCRA has also compiled and recorded archaeological cave finds where these have been published. However, here is met one of the problems of research: all archaeologists are individualists, and some regard information as power, the source of their authority. Any suggestion that these records might be made available for computerised information retrieval falls on stony ground. However, it is intended to persevere with records of cave finds, and much has been obtained from past publications as a foundation.

□

Archaeologists working in British caves are urged to release their information when possible, and to bring it to the notice of the BCRA Hon Archaeological Recorder, John Wilcock, at 22 Kingsley Close, Stafford, ST17 9BT (Telephone: 0785-58979).
J.D. Wilcock.

BCRA Summer Meeting

BRITISH CAVING TECHNIQUES

Saturday & Sunday, 12th/13th June
at Whernside Manor, Dent, Cumbria

A full range of lectures, trips and demonstrations has been organised.
These will cover aspects of laddering, lining, SRT, bolting, climbing, belaying, rigging, etc.

FULL DETAILS ON THE ENCLOSED LEAFLET

BCRA Members wishing to attend the AGM only will have free admission.

BCRA AGM

The 10th Annual General Meeting of the British Cave Research Association is to be held at Whernside Cave and Fell Centre, Dent, Cumbria on Saturday, 12th June 1982 and will commence at 3 p.m.

AGENDA

1. Apologies for absence.
2. Read and confirm minutes of the 9th AGM (published in Caves & Caving No.13, August 1981).
3. Matters arising.
4. Council Report (published in Caves & Caving No.15, February 1982).
5. Income and expenditure account and balance sheet (published in this issue).
6. Auditors for the year ending 31st December 1982.
7. Amendments to the Constitution:
   (i) Council proposes that clause 5(c) be deleted and be replaced by:
   "c. Election to Membership
   All applications for membership shall be submitted in writing to the Hon. Secretary, or his Assistant, stating the qualifications of the applicant. The remittance of the annual subscription shall normally secure election, subject to ratification by the Council at a subsequent meeting. A majority of two-thirds of the Council present shall normally secure election."
   (ii) Council proposes that to clause 6(d) be added:
   "The President shall be a member of Council ex-officio"
8. Any other business.

Ian G. Penny
Hon Sec BCRA

BCRA COUNCIL MEMBERS FOR 1982

President:	Dr. G. T. Jefferson, Zoology Dept., University College, P.O. Box 78, Cardiff. CF1 1XL
Chairman:	J. J. Rowland, Llywn yr Eos, Capel, Bangor, Aberystwyth, Dyfed. SY23 3LR
Deputy Chairman:	J. R. Wooldridge, 129a Park Hill Road, Harborne, Birmingham. B17 9HH
Secretary:	Ian G. Penny, 9 Grandview Road, Thundersley, Essex. SS7 3JZ
Membership Secretary:	David R. Stoddard, 23 Claremont Ave., Bishopston, Bristol. BS7 8JD
Treasurer:	Joseph W. Dey, 2 Wyatt Avenue, Sheffield. S11 9FN
Editor:	Dr. T. D. Ford, Geology Dept., The University, Leicester. LE1 7RH
Bulletin Editor:	Juan S. Corrin, 55 Osborne Terrace, Bacup, Lancs. OL13 8JY
Librarian:	Roy Poulson, 26 Ashley Road, Keyworth, Nottingham
Foreign Secretary:	J. R. Middleton, 2 Broad Elms Close, Sheffield. S11 9ST
Conservation Officer:	D. M. Judson, Rowlands House, Summerseat, Bury, Lancs. BL9 5NF
Sales Officer:	B. M. Ellis, 30 Main Road, Weston-zoyland, Bridgwater, Somerset
Biological Recorder	M. C. Day, 118 Whitmore Road, Harrow, HA1 4AQ
Mining Recorder:	P.B. Smith, 21 Lees Hall Road, Sheffield. S8 9JH
Archaeological Recorder:	Dr. J. D. Wilcock, 22 Kingsley Close, Stafford. ST17 9BT
Bookings Manager:	Dr. R. G. Picknett, 28 Potters Way, Laverstock, Salisbury, Wilts. SP1 1PX
Distribution Manager:	P. R. Cousins, 8 Giffords Croft, Lichfield, Staffs.
Insurance Manager:	Geoff Wells, 39 Linden Road, Redland, Bristol, BS6
Advertising Manager:	Keith Plumb, 55 Firwood Avenue, Urmston, Manchester
Club Representatives:	Dr. Chris Wood, (Shepton Mallet C.C.), 11 Millstream Close, Axbridge, Somerset Peter Robertson (IBMCC), 36 Tadfield Road, Romsey, Hants. SO5 8AJ Pat Devine, (Manchester Univ. S.S.), 47 Furness Grove, Heaton Norris, Stockport, Cheshire Dave Pedley, Students Union, Liverpool University Potholing Club, Students Union, Bedford Street, N. Liverpool, L7 7BD

INSURANCE MATTERS

Enquiries about insurance should be addressed to the BCRA Insurance Officer, Geoff Wells, 34 Linden Road, Bristol BS6 7RN. (Telephone: 0272 48734).

Full and Joint members of BCRA, who normally reside within the United Kingdon may take out this Policy for general travel abroad, and for use with caving expeditions. Members of Member Clubs of BCRA may also take out this Policy, provided that their club has already joined the Public Liability Scheme or carries its own Public Liability Insurance.

SECTION 1 : RESCUE, MEDICAL & OTHER EXPENSES

Medical expenses in connection with sickness or injury abroad:

Rescue costs to a maximum	£4,000
Medical + other to a maximum	£5,000

Premium Payable (Anywhere in the world – excluding war zones):

Up to 8 days	£5.75
9 – 17 days	£7.50
18 – 24 days	£8.60
25 – 31 days	£10.30
Every extra 7 days (or part thereof)	£1.60

SECTION 2 : BAGGAGE, PERSONAL EFFECTS including caving equipment and gear:

Maximum claim of £400, with £20 excess, and £100 maximum on any one item.

If you require extra cover under this Section you should consider taking out BCRA All Risk cover, as a full year's cover can be obtained at a small extra cost – details on request.

SECTION 3 : CANCELLATION

Maximum claim of £250, with £20 excess.

SECTION 4 : PERSONAL MONEY, TRAVELLERS CHEQUES, PETROL COUPONS, etc.

Cash and various other items to a maximum value of £200, with £20 excess.

SECTION 5 : PERSONAL LIABILITY

To indemnify the insured person against any legal liability to a Third Party up to the limit of £250,000. There is no excess on this Section.

NOTES:

A policy showing the benefits and exclusions will automatically be sent to all persons taking out this Insurance. You are strongly advised to study the Policy before departure.

All persons travelling to Europe are advised to obtain DHSS leaflet SA30 and apply for form E111 if going to or travelling through an EEC country.

A proposal form is enclosed in this Bulletin. Extra copies can be obtained from BCRA Insurance Officer.

GHAR PARAU FOUNDATION

Additional capital has continued to come in over the past three years – from successful expeditions, sale of cave surveys, etc., so that this year the Foundation was for the first time able to make awards totalling more than £1000 – details above.

The largest single source of extra finance has been the two Borneo expeditions of 1978 and 1980-81. With this increase in funds and the slow but steady increase in Sports Council grant-aid, last year it was agreed that efforts should be made to increase the membership of the Awards Committee and also to give it a more formal structure.

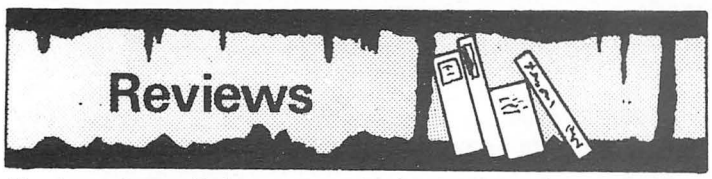
The necessary amendments to the GPF Constitution have now been approved by BCRA and their effects are as follows:

1. the two "ordinary" members of the Awards Committee have been increased to four;
2. each ordinary member will serve four years instead of the previous three years;
3. one ordinary member will retire each year. (This gives scope for new blood *every* year and also maintains reasonable continuity).

Accordingly, nominations are now sought for the two new Awards Committee posts. A nominee must be either a member of BCRA or a member of a Member Club; his consent must be gained, and the nomination sent to the Secretary BCRA, (Mr. I. G. Penney, 9 Grandview Road, Thundersley, Essex SS7 3JZ), to reach him not later than Friday, 24th September, 1982.

Expedition leaders are reminded that a condition of an award (either Sports Council or Ghar Parau) is that an expedition report of about 1,000 words, with photographs and surveys, must be submitted within 4 months of their return.

D. M. Judson, Secretary: GPF
16th March, 1982



Northern Caves Volumes 2 and 3 (2nd Editions).
By A. & D. Brook, G.M. Davies and M.H. Long. Dalesman Publishing Company Ltd., Clapham via Lancaster, North Yorkshire.

These are up-dated versions of two important volumes of the successful and definitive Northern Caves Series. Some general comments can be applied to both volumes.

The binding and paper quality has been much improved and the colour coding made more prominent by use of a thick border and coloured spine. Cave titles and particularly grid references stand out better than in the last volumes, making caves easier to find both in the text and on the maps. Most of the cave descriptions are repeats of earlier ones except for corrections of obvious mistakes and the addition of extensions. Perhaps a few new jokes would bring out the atmosphere of some caves better.

The authors do seem to have trouble dragging themselves into the eighties. The only real recognition of SRT is that the warning about abseiling under "Hazards" has been removed. Little is said about the many new bolts which have been placed in the last five years. The writers also seem to be unsure whether cave diving is an integral part of caving or not. Certainly the grading system assumes it is not - grades only being given for those parts accessible to non-divers. This leads to some anomalies: Dub Cote, for example, is given Grade 1 on the basis that only 90ft of the 6000ft is all that is accessible to non-divers. It would also make sense to update the Caving Code in the light of advances in both these areas. After all, how many people use whistle codes when climbing a pitch using SRT?

Volume Two - Penyghent and Malham
£2.95 128pp

This guide now includes Ribblehead to allow space in the Whernside and Gragareth Volume for new discoveries. There are 16 new entries in the volume and 14 caves have been extended. Also included are three new surveys, all of them in the Ribblehead section, reflecting the progress in this area.

Volume Three - Ingleborough
£3.25 144pp

This volume covers the same area as the first edition but contains 17 new entries and 18 caves that have been extended - some of the extended caves being considerably longer than the originals. It is a pity that some of the surveys have not been improved. A more detailed survey of Bar Pot would help cavers appreciate the true nature of the fairly complex cave, instead of blindly following the trade routes. Conversely, the survey of Washfold Pot adds little to the description which is easy to follow.

In conclusion, the accurate and definitive nature of the cave descriptions along with the surveys and large scale location maps makes this series of guide books undoubtably the best caving guides available in Britain. They still represent good value for money and are a must for sporting "tigers" and diggers alike. Let us hope that by the time the third editions are published SRT will be respectable enough to be included.

K.C. Plumb

Proceedings of U.B.S.S. vol. 16, no. 1
University of Bristol, November, 1981, 72 pages, £3.

The annual U.B.S.S. Proceedings stands as one of Britain's senior caving publications, and this issue continues the high standards of material and presentation. There are six main articles, two of which concern caves in Austria. One is a very competent report on the 1980 expedition to the Totes Gebirge, but is rather devalued by the report of the 1981 expedition which significantly extended the caves and has already appeared in Caves & Caving; a review of editorial schedules should be able to avoid this over 12 month delay in report publication. The second article is a review of Austrian karst, but is only a disappointing and not very perceptive review of out-of-date literature.

Science provides more articles, on biological results of the Venezuala (1973) expedition, a thorough report on the archeological contents of Sun Hole in Cheddar, and also a reassuring assessment of radiolocation techniques correlated to the high grade survey of GB Cave. But the article with the widest significance to cavers, and others, must be that by Willie Stanton and Pete Smart describing repeated dye tests at different stages of flood. They correlate stage and flowthrough rate as inversely proportional with a gradient of unity in the mainly phreatic Mendip drainage routes and identify a useful contrast with stage/flow relationships in vadose systems. In addition they explain dye loss and the need for larger dye inputs at times of low stage. It is a classic paper on dye tracing and it warrants widespread attention.

Tony Waltham

Introduccion a las Tecnicas de Espeleo-Socorro
114pp, 14 photos, 80 figs. Nestor Tallada Perez and Miguel Ferdanez Tabera. Published in Madrid 1981 by the Federacion Castellana de Espeleologia for the Comision de Socorro en Cavidades (C.S.C.) - the Spanish equivalent of the Cave Rescue Council.

This publication is described as a basic study manual with some theoretical views of the problems encountered in cave rescue. Considerable space is devoted to methods of self-rescue using the gear normally available on a caving trip, including SRT rescue techniques. In a large country with relatively few cavers, self-help can often be the only help available. It would be interesting to see how many caving "lemmings" would continue to throw themselves down our caves and pots if there were no Cave Rescue Organisations about.

The technical chapters cover everything from helicopter procedures to the innermost bits of portable demolition hammers and winches. There are the usual diagrams of stretchers and pulley systems reminiscent of Jim Eyre cartoons. The First Aid chapter is mainly about shock and

breakages with relatively little about hypothermia - but with good coverage of resuscitation techniques.

The final chapter contains accounts of several actual rescues. The most striking thing about these is the long times involved, which illustrates the remoteness of many of the cave systems and the difficulties in assembling rescue teams. There is also a tendency to use explosives as a matter of course in order to facilitate evacuation. One wonders how much of our caves would be left if we adopted this approach!

On the whole a well-illustrated account of rescue problems and suggested solutions though a bit over elaborate on the technical side. It doesn't set out to give all the answers but is a useful starting point.

Now for the snag - it's all in Spanish. The wealth of diagrams are, however, mostly self-explanatory.

F. Addis

(A copy is available from the BCRA library - Ed)

Northern Sump Index

Cave Diving Group, dated 1981 but off the press in 1982. 111 pages + 15 surveys. From Oliver Lloyd, Withey House, Withey Close West, Bristol BS9 3SX, £3.50.

Compiled by Julian Griffiths, this publication represents a monumental piece of work which is a credit to both the compiler and also the many northern club divers. It is a alphabetical list of all Dales caves with sumps – known, dived, prospected, or just seen, giving descriptions of the sumps but not the passages leading to them. It is an obvious companion, almost literally an extension, to the Northern Cave guidebooks. A publication such as this always risks rapid outdating, but there is a last page addendum which covers events to December 1981.

There are a number of surveys, particularly welcome to the dry caver. In the main it is unpublished surveys which have been included, though the old faithfuls Boreham and West Kingsdale reappear. More survey and compilation maps would have been welcome and would also have made the volume a more attractive purchase. A Manchester-Goyden-New Goyden survey would have been an obvious addition, but it would be churlish for a non-diving caver to ask for more! Of the 15 maps that do appear, the reviewer particularly liked the compilation surveys of Penyghent Pot, Little Hull, the underwater caves of Chapel Beck, the Clapham Beck Head area, and Nidd Heads (though without the latest breaktrough).

Altogether an excellent volume, which no serious Dales caver should really be without, because it will save him endless fingerwork through past reports.

Tony Waltham

Karst Geomorphology

edited by M.M. Sweeting.

Benchmark Papers in Geology Vol.59. Pub. Hutchinson Ross, Stroudsberg, Pennsylvania, (via Academic Press). 428pp. Price £37.

The Benchmark Series are collected groups of classic papers in the development of a branch of science, directly reprinted and bound together with comments from the editor. Such collected papers are a very useful way of finding one's way about a subject without having to spend hours in libraries hunting in obscure journals. In this volume Marjorie Sweeting has brought together 26 classic papers. They are grouped according to topics: classical ideas, solution, geomorphology of caves, karst springs and hydrology, karst deposits, types of karst, and recent developments.In each of these there are some four or five papers, with two or three pages of comments from Marjorie Sweeting. It is obviously not practical to review all these individual papers, some of them 50 years or more old, and doubtless another editor would have omitted some of these and added others. Particularly valuable however, are translations into English of a number of "classics" such as those by Cvijic on dolines, Grund on the Karst Cycle, Bögli on solution and karren formation, and on mixed-water corrosion, Lehmann on the karst of Java. Unfortunately a few others have been left in their original French. Whilst there is an international flavour throughout it is notable how many of the more recent advances in the subject have been by British speleologists.

The book obviously ought to be on the shelves of every karst morphologist and serious-minded speleologist, but who can afford it at the ridiculous price of £37? I fear it is "libraries only" and precious few of those too! There is a copy in BCRA library.

T.D. Ford

Lyre No.5

Journal of the Orpheus Caving Club, 71pp, 12 surveys, maps, diagrams, cartoons. Obtainable from K.W. Drakeley, 9 Bowbridge Avenue, Littleover, Derby DE6 7QU. Price £1.60 including postage.

This fine journal is valuable mainly to Derbyshire cavers for its information on the Manifold Valley. Tantalising though this area is, it has never been easy to understand partly because the limited research is widely scattered in various publications. The thirty pages on the Manifold in this Lyre record the present state of knowledge in a lucid and effective manner. Thus Ladyside Pot and Waterways Swallet are thoroughly described and sensible comments added about geology, morphology and hydrology. Such basic information as a description of the various risings at Ilam with an accompanying map is especially welcome. An account of the dye testing which established the basic drainage pattern of the area is very readable. Though this project was very much less sophisticated than some of today's more ambitious hydrological excursions, the results are unequivocal and significantly advance understanding of the area. It might have been useful to have included a simple topographic area map showing all the speleological features mentioned in the various articles. Together they ensure that this journal is the cavers' standard reference to the Manifold Valley.

Several short articles deal with other work in Derbyshire - Churn Holes, the Dowel area and a description of Dido's Cave which is much more satisfactory than the one in the Cave Diving Group's Derbyshire Sump Index. Technical articles deal with divining and resistivity, underwater slave flash units and calculating cave surveys, the latter being notably straightforward and understandable. A couple of humourous articles and some cartoons complete a well-above-average club journal.

Apart from its valuable contents, this publication is notable for the unusual clarity of so much of the writing; either the Orpheus are naturally literate or the editor, Kev Drakely, has worked overtime.

C.D. Westlake

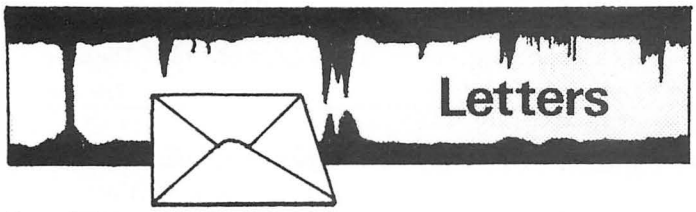
Spelunca Series 5, Number 4

December 1981, Federation Francaise de Speleologie, 130 rue St. Maur, 75011 Paris. 48 pages, 35 francs to England.

Spelunca has gone through various editorial upheavals in the last few years, but it now seems back on course as an excellent publication. It is the French equivalent to Caves & Caving, though rather more exciting and glamorous in proportion to the amount of caving in France; but it sells to Britain at a hideous price (double that to French FFS members). It's worth reading because as a news magazine it is nothing less than impressive.

Major articles cover a new entrance system into the Lonne-Peyret, a massive pumping and exploration scheme at a Causse resurgence, climatology in chalk caves, cave survey and a 1000m dive in the Source du Lison. But it is the news items which are probably the best reading, if only to give an indication of the level of activity underground in France. The foreign news is a little sparse and really does not match the service in Caving International, but the French home news is impressive. There are 8 pages of short items including such as: Source du Bestouan dived to 1440m, Resurgence de Port-Miou dived to 2095m, another entrance to the Diau system and another to the Jean Bernard, upstream explorations in the Gournier Cave to a point 605m above the only entrance, Puits Francis extended to 6km and 723m deep, Gouffres des Myriades, 505m deep in the Granier massif, the Biolet system extended to over 23km and the Fountaine de Vaucluse dived to a depth of 153m. With news like that Spelunca can hardly fail to impress, but it does also do justice with good presentation.

Tony Waltham



Dear Editor,

I would like to take issue with several points raised by Tony Waltham in his review of my *Cave Formation in Northern England* in *Caves and Caving* 15. I fully realise that when one publishes a book, one is laying oneself open to criticism, but I expect rather more than a nit-picking review, most of whose criticisms are themselves open to argument, from the pen of Dr. Waltham. Certainly he makes a few helpful and constructive points, but there are about *twenty* points in the review which call for comment; I will restrict myself to eight of the most important ones.

1. The diversion of Nick Pot water to Crummack is not "dubious"; "the surface of the older rocks on which the limestone rests . . . consists of a *series* of ridges with intervening valleys having a general NW to SE trend". (Dwerryhouse, 1905).
2. Meregill *is* the deepest cave as far as 99.9% of cavers are concerned; if you want to argue that we should use depths to the deepest *dived* point, then we might as well give the depth from sink to resurgence, as a much more meaningful geomorphological measure which does not depend solely on the extent of exploration. This might make P2 the deepest system at 248m!
3. Phreatic tubes *are* often partly filled by what can be called glacial rubble - obviously the ice did not penetrate far underground, but rubble from glacial erosion was certainly washed in by streams or by solifluction; it's still glacial rubble, however it got there. Waltham himself has written: "A further glaciation resulted in the phase of deposition which has partly filled and blocked Leck Fell Lane and its associated interglacial passages" (1972)
4. Waltham twice mentions a confusion of dates which I cannot agree with; and the 45,000 year old interglacial (or interstadial, if you want to be nit-picking) certainly exists. With present lack of knowledge of glacial chronology, I defy anyone to define any *real* difference between so-called interglacials and interstadials. As far as we are concerned they were all warm periods when water was flowing.
5. More generally, though, I am sed of treating the Ice Age "as a single event". A quick read of the relevant section (pages 17-19) shows three sentences saying just the opposite, concluding with "it is more likely that there were a dozen or more incursions by the ice".
6. "Abrasion and collapse are given scant mention" - this is intentional as in a karst landscape they are so much less important than solution. "The importance of collapse in cave formation has frequently been overestimated" (Waltham, 1974). You can't have it both ways!
7. The "Plateau and Dales Stages" argument was included on purpose to show how interpretations can change over the years, and this is a good example to use (particularly as it is Waltham's own view which is now accepted).
8. The final diagrams *do* have both captions and individual titles, Figs. 21 c/d *do* show phreatic development below resurgence level, and the lake shown is not specified to be in Kingsdale; the text says that "such a cave system exists nowhere".

At least I did not write:

"The water in the main conduits accounts, of course, for practically all the flow in cave-bearing limestones" (Waltham, 1974)

or

". . . climate . . . appears almost unable to exercise any control over patterns of cave development" (Waltham, 1971).

With so many shortcomings and errors in the review, and the obvious differences of emphasis between writers, it seems unfair of Waltham to give his unfavourable verdict, and I hope, in the light of the points which I have raised, that he will revise his opinion of the work as a whole.

One is left with the final thought of exactly what Dr. Waltham expected in a *short* (8,000 word) book on this topic. Of course, at this length, one cannot go into *detail* and present all the arguments for everything; it would distract the reader's attention from the main line of argument if one did so.The book "is an attempt to present, in a *concise* form, a description of how the caves of northern England have been formed" (page 5). To my mind, Dr. Waltham has not shown that it has "too many significant errors" or is "weak in sequence" or "muddled in parts".

Paul Hindle
Salford

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A.C. Waltham, Limestones and Caves of North West England, (1974), 81, 95

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A.C. Waltham, "Controlling Factors in the Development of Caves", Trans. Cave Res. Group 13/2 (1971) 73

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Dr. Waltham's reply:

Let me first make it clear that I stand by my comments in the original review and do not retract any of them. In one or two cases where there is room for debate I may have been a little harsh, but the principles I do still adhere to. My basic impression was that the book "Cave Formation in Northern England" had been thrown together without adequate thought and refereeing, and showed lack of adequate standards in its preparation.

To confine this letter to Hindle's points raised in his letter above:

1. The existence of basement ridges beneath the limestones of the Nick Pot area is unproven, hypothetical and therefore dubious. There is no proof, though the theory is attractive, and for Hindle to quote Dwerryhouse (1905) as evidence shows academic naivety.
2. The deepest cave is the deepest cave known to exist and defined as a hole in the ground big enough to get a man down. Sumps are therefore irrelevent and Gaping Gill is deeper than Meregill. P2 may be deeper, if it can be proven that the link to Moses Well is large enough to explore and not just a series of "sub-cave" size features.
3. "Glacial rubble" is a vague term that should not be used by anyone unless it is defined. It normally means boulder clay and this does not occur in most caves. Some people will know what Hindle means by glacial rubble and can accept the usage of the term, but this book was intended for beginners in karst science and they will be too easily led to believe the rubble is ice-deposited. Hindle's quote from my 1972 article is irrelevent to the argument; I never said it was glacial rubble, I only referred to the hydrological changes induced by glaciation.
4. Re the confusion of dates on page 28, paragraph 3. Hindle says "Gavel Pot has been drained . . . whilst . . . the Leck Fell Master Cave has been drained . . . In particular . . . the phreatic tube which still forms a long wet duck". The draining of Gavel Pot (in his context of the Old Roof Traverse route) pre-dates draining of the Master Cave (in the main) by at least 100,000 years, and the draining of the duck section by probably another 50,000 years. He got his dates confused. The last interglacial was the Ipswichian and the 45,000 year old climatic amelioration was an interstadial within the Devensian. True, the effect on the caves, of interglacials and interstadials, is similar, but they are as different as cows and horses – just 'cos they've both

got four legs does not mean that a cow is a horse.

5. After page 17-19, Hindle repeatedly refers to the Ice Age in the singular – I still suggest that the plural term Ice Ages would have required very little more thought or ink and would give a clearer picture to the non-geologist. And clumping three consecutive events on Leck Fell (see above, no. 4) in the "Ice Age" (Hindle, page 28) does not lead to a clear understanding.

6. Abrasion is less important than solution, true, but still deserves to be placed in its true context. And collapse is so commonly over-estimated in importance (exactly as I said in 1974) that it does need adequate mention to place it in its true role. To avoid mention of it is not enough.

7. I fully accept that Hindle only introduced the Dales and Plateau stages to show how theories change, but my review criticism stands in view of the fact that he has used a whole diagram (fig. 9) to show the non-accepted theory, without comparable or contrasting presentation of the theory now generally accepted. So the reader gets more of the wrong idea – surely not desirable. And if he wants to really show theory-evolution, why not add that today there is evidence for aspects of both theories and that a "compromise" situation is nearer the truth?

8. My apologies for describing fig. 21 as captionless. I should have said "minimal captions of negligible value". Figure 21c shows only phreatic development immediately below the water table, which is grossly misleading. And figure 21d shows only a tiny phreatic loop which does no justice to the enormous amount of phreatic cave in the Dales. He says himself on page 32, line 3 that figure 21 is clearly based on the caves on Gragareth, and it's obvious enough that it's not Leck Fell. And why put a major lake in the valley in fig. 21c, if it's meant to be a typical valley, when Kingsdale was the only one (yet known) with a deep lake and major caves? Of course it is Kingsdale, and Hindle got the date of the lake wrong. Who is kidding who?!?

My quote of 1974 I will defend anytime. And my quote of 1971 I will similarly defend unless we get into the special case of some tropical karsts where I will admit to having slightly changed my opinion in the light of experience.

In conclusion, I can see one error in my review – the word "captionless". Consequently I regard it as adequate and do not revise my opinion of the work in the slightest. I do not mind how long a book on the caves is going to be; but I do not expect it to be riddled with errors, and I will not accept the same.

Tony Waltham

Dear Sir,

I have read in your columns for about 12 months of the problems with LUSS ladders of Caving Supplies manufacture. Mr. Elliot and the Equipment Committee have had a lot to say about the matter but have still not been able to resolve the issue. It appears to me that Mr. Elliot has had to result to a tone verging on libel which reduces his credibility.

Before I go any further may I also say that I have examined a section of the ladder in question, and in my opinion, based on 17 years caving it would appear to be that both wire and rungs are heavily eroded. This indicated to me long and heavy usage giving the impression that the ladder is several years old.

May I now suggest that the advice received by LUSS from Mr. Elliot and the NCA Equipment Committee has been incorrect and is not in their best interests. Firstly it is *most important* that complaints regarding defective products are notified to the retailer concerned so that he is given first opportunity to consider the matter and suggest a settlement should he agree with the complaint. We are of course considering the merchantable quality and/or fitness for purpose under the "Sale of Goods Act 1979"

The retailer is entitled to dispute the validity of the complaint. By mutual agreement he could agree with the customer upon an independent laboratory to carry out tests on a loser pays basis. Should a satisfactory settlement not be reached then the matter can be dealt with in the County Court. This is a standard civil law remedy available to any citizen, club, business, etc.

However, I note that Mr. Elliot suggests that the various claims and descriptions applied to the ladder is misleading and/or false. If the customer considers this to be the case in the light of the defects found, then he is quite at liberty to complain to his local Trading Standards Department alleging an offence under the "Trade Descriptions Act 1968" (as amended). This department I am sure will investigate the complaint as they see fit and should a justified case present itself they could prosecute the trader. This is a criminal law action for which fines and/or imprisonment can be imposed. There is also provision should a case be successful for a compensation order to the complainant.

In both actions I have described it is most important to act immediately the problem arises. I apologise if I have stated the obvious in the foregoing, but none of these points have been said before. Cavers in general I feel would be ill advised to follow Mr. Elliot's advice regarding the procedure to follow. The comments by Mr. Elliot regarding use of the NCA in such matters may have some benefits. At the present time it appears to me that the NCA needs to improve greatly its credibility before it can act as a respected arbitrator.

Tim Large
Wells

Dear Editor,

I found, and I imagine many others found, that Graham Proudlove's article on cave fish (Caves and Caving, No. 15) was most interesting and eminently readable. However, I was most intrigued with the suggestion that, while maybe not completely white or blind, British cave fish can at least fly, and vertically upwards at that! Purely in the interests of public debate readers may be interested in an alternative interpretation.

To be totally irrelevant for a moment, a definition of paranoia is to follow a series of impeccably logical arguments based on a totally erroneous assumption, and without casting any aspersions whatsoever on the author, this is precisely what Graham appears to have done.

The stated assumption is that fish can only enter caves by swimming downstream. The assumption is then used to suggest that if a 340 foot shaft lies in the way, then so be it. The fish must obviously be able to survive such a drop. Ignoring for the moment the plight of a somewhat knackered trout flapping around the pebbles under the main shaft of G.G., the implicit assumption in all this is that on the higher flanks of Ingleborough is a well established self-sustaining population of trout. And how do the fish get on top of Ingleborough in the first place? There is actually now a record of a terrapin prussiking a 60 foot shaft, (CSS Morocco Report 1982) but to my knowledge there is no record of this being equalled or bettered by any species of fish.

To be helpful rather than merely sarcastic, if the higher flanks of Ingleborough were able to sustain populations of fish (which as far as I am aware, they do not) mechanisms probably exist to explain how they might have arrived there in the first place. However for the moment, it is much more plausible to regard fish as being able to move up or downstream and into or out of any intervening cave systems, more or less without difficulty.

The main routes of fish dispersion are then likely to be predominently upstream from points where tributaries join. The fish in Ingleborough Cave would presumably be no exception, and this would be the only method for eels of course, as Graham pointed out.

It is also often forgotten that the accessibility of caves to all forms of cave life is entirely different to that of man, and for many animals caves are relatively comfortable and readily available refuges when things on the surface become uncomfortable. In this way I imagine that the best (if albeit only safe) time to see trout in, say Little Neath River Cave is during the dry summer months, when the surface stream has disappeared. A similar situation exists in more extreme climates such as Morocco and may provide the mechanism whereby cave life is given the opportunity to evolve away from its more numerous surface forms. But that's another story.

Derrick R. Guy
Leighton Buzzard

"Cave Hunting"

A special exhibition on the life and work of Sir William Boyd Dawkins and Dr. J. Wilfred Jackson.

Sir William Boyd Dawkins (1837-1929) and Dr. J. Wilfred Jackson (1880-1978) were both attached to Manchester University in the University Museum and both devoted their lives to the study of animal remains from caves and other archaeological sites. During the course of these two men's lives, and very much as a result of their work, the study of archaeological remains from caves became established as a specialist science.

Buxton Museum possesses the libraries, correspondence and scientific manuscripts of both Sir William Boyd Dawkins and Dr. J. Wilfred Jackson, which include letters from a wide range of leading geologists and archaeologists of the day such as Lyell, Darwin, Breuil, Evans, Petrie etc. The extensive archive collections will feature in an exhibition devoted to the geological and archaeological achievements of Dawkins and Jackson, and additionally the "Boyd Dawkins Room" will be on view, a period style room recreating Dawkins' study at the turn of the century and featuring many items from his own home.

The special "Cave Hunting" exhibition runs from May 22nd until the end of the year, while the "Boyd Dawkins Room" will become a permanent establishment of the Museum which can be seen during normal Museum opening hours (Tues. - Friday 9.30-5.30, Saturdays 9.30-5.00).

As a part of the special opening of the exhibition, there will be a public evening lecture, given on May 21st by Dr. D.A. Roe, entitled "Studying the Old Stone Age: from Boyd Dawkins to the present day". The Museum exhibition will remain open until 7 p.m. on that evening.

Losehill Hall Courses

The Peak National Park Centre have released their 1982 brochure and there are a number of courses which may be of interest to aspiring speleologists. These include "Caves of the Peak District" (19th-21st November, 1982) which includes lectures by Drs. Ford and Waltham and "Minerals, Rocks and Fossils" restricted to those of the limestones, sandstones and shales found in the Peak District.

Further details of these and other events can be obtained from The Principal, Peak National Park Study Centre, Losehill Hall, Castleton, Derbyshire S30 2WB.
Tel: 0433 20373.

Rescue from Dido's Cave

Dido Cave, Matlock Bath was the scene for a rescue that finished just in time. Four adults and 13 scouts entered the mine workings one early evening and a couple of hours later only 16 of the party emerged from the entrance. The missing boy had swam under a bridge crossed during the entry and passed through a flooded continuation into an air bell. A diver found him about 7 hours later with most of the air used up.

GG Winch

The first of this years winch meets is organised by Bradford Pothole Club for 29th May-4th June. The Spring Bank weekend (29th-31st May) is a free-for-all where it's a case of first come, first down and the remaining days can be booked by schools, groups, etc. Cost is £2.00 and more information can be obtained from Brian J. Smith, 15 North Street, Idle, Bradford, West Yorks. BD 10 0RP.

Irish Meet

Whernside's annual jaunt to Ireland takes place this year from 18th June-July 1st. This is purely a caving meet and not a training session (although you're bound to learn something!). The meet is based in Co. Fermanagh (with Reyfad, Marble Arch, etc.) and a few days during the fortnight are spent in County Clare. Details from The Warden, Whernside Cave & Fell Centre, Dent, Sedbergh, Cumbria. (Tel: 05875-213).

Take your own

The fixed ladder in Jackpot (P8), Derbyshire will be permanently removed from the cave on 1st July, 1982. Visitors to the cave will then need two ladders to reach the bottom of the system.

SUSS

Cyalume Lightsticks - a warning.

The 1981 Madegascar Expedition (see page 10) took with them Cyalume Lightsticks for use underground in case of light failure. During an overdue incident, one of the lightsticks was bent as per instructions but it gave out no light whatsoever. Fortunately we had other lights available, but it was still extremely disconcerting to discover that the backup light was useless.

The particular lightstick was a couple of years old but, again according to manufacturers instructions, had been kept in its outer wrapping. As there is no expiry date on the packet it was (wrongly) assumed that as long as the foil was unpunctured the light would work. It seems that this is not so.

A letter written to the manufacturers in October has not produced a reply.

Jane Wilson

Cyalume lightsticks should be treated as a dry cell, i.e. they have a shelf life. For lightsticks this is variously quoted at 2 or 4 years (both figures from the manufacturer!) although new ones have been known not to work. They should not be relied on as a dependable emergency light source, although of course two or three are fine for saving primary light during extended underground stops. One tip is to use half of the wrapper as a reflector.
(Thanks to Dave Elliot and Phil Brown for these points – Ed.).

LAST PAGE

Agen Allwedd Access As you were

Unfortunately the attempt to ease access by not requiring advance booking has failed because of expense. The system was only in operation for about 6 months. On one occasion a key warden travelled over 100 miles to hand out keys and no-one turned up! The procedure for entering the cave is: a letter to Alun Nutt, 12 The Crescent, Cwmbran, Gwent, NP44 7JG, giving a list of the people going down, 2 SAEs, and a deposit of £3. Three weeks notice should be given.

The Nature Conservancy Council has agreed that clubs who visit regularly (4 times a year or more) can have their own key if they pay for it. The contact for this service is again Alun Nutt.

Those clubs who have paid for permits under the Key Warden system should have already received a full refund.
Source: Derbyshire Caving Association Newsletter
January '82.

New Welsh Club

A new North Wales club, the Grosvenor Caving Club, celebrated their formation by breaking into extensive workings in Cathole Mine near Mold on their first dig. Not to be outdone, the other local group, (the North Wales Caving Club) have started a rival dig at the opposite end of the same mine.

Details of the find and of the Grosvenor Caving Club can be obtained from D.C. Ebbs, Tyn-y-Glyn, Llanarmon Road, Llanferres, Mold, Clwyd.

D.C. Ebbs

A well known speleo-archeologist, while working in Stump Cross Caverns, came across a number of bones. In order to clean up these articles, he put them in a pan at home and left them gently simmering. His mother, on finding this ancient stock, peeled some veg and added it!

Source: Geoff Yeadon

An Evenings Caving . . .

including

Dr. John Frankland

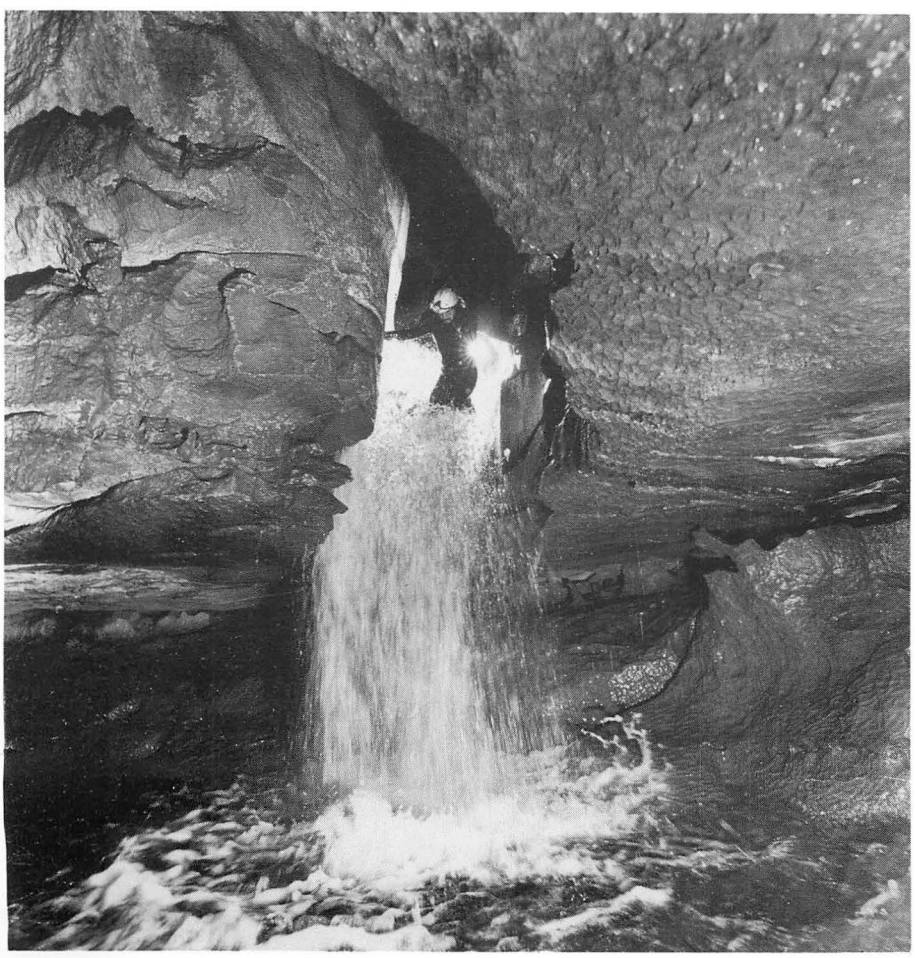
Cavemen, Spacemen and Von Daniken's Gold

Saturday, June 19th at 8.00 p.m.
Ingleton Community Centre
Tickets £2.00 incl. supper. Bar applied for.
Proceeds in aid of Mexico '82

DIARY

May 29th-June 4th	BPC Gaping Ghyll Winch meet.
June 12/13th	**BCRA Summer Meeting and AGM.** **"British Caving Techniques".** **Whernside Cave & Fell Centre, Dent.** **Organiser: Dave Elliot** *Details: See Association News.*
June 19th	An Evening Entertainment from well known cavers. Food, Bar. 8.00 p.m. Ingleton Community Centre.
June 19th	NCA meeting (Hosts: CNCC)
Sept. 11/12th	**BCRA National Caving Conference** **University of Bristol** **Organiser: Chris Wood** **Conference Sec: Dick Willis.** **Lecture Sec: Graham Proudlove.** *Details: See Association News.*
Oct. 17th	NCA Meeting (Hosts: DCA).
Nov. 27th	**BCRA Winter Meeting.** **"Derbyshire Hydrology".** **The Crown, Matlock.** **Organiser: Jenny Potts.**
23rd Jan. '83	NCA Meeting (Hosts: CCC).
26th March	NCA AGM (Mendip).

Secretaries of caving clubs and organisations are invited to send in details of their forthcoming events. This will assist in preventing clashes of meetings. Please send this information to me. — Ed.



Dr. Bannister's Handbasin Upper Long Churn Cave J. Wooldridge

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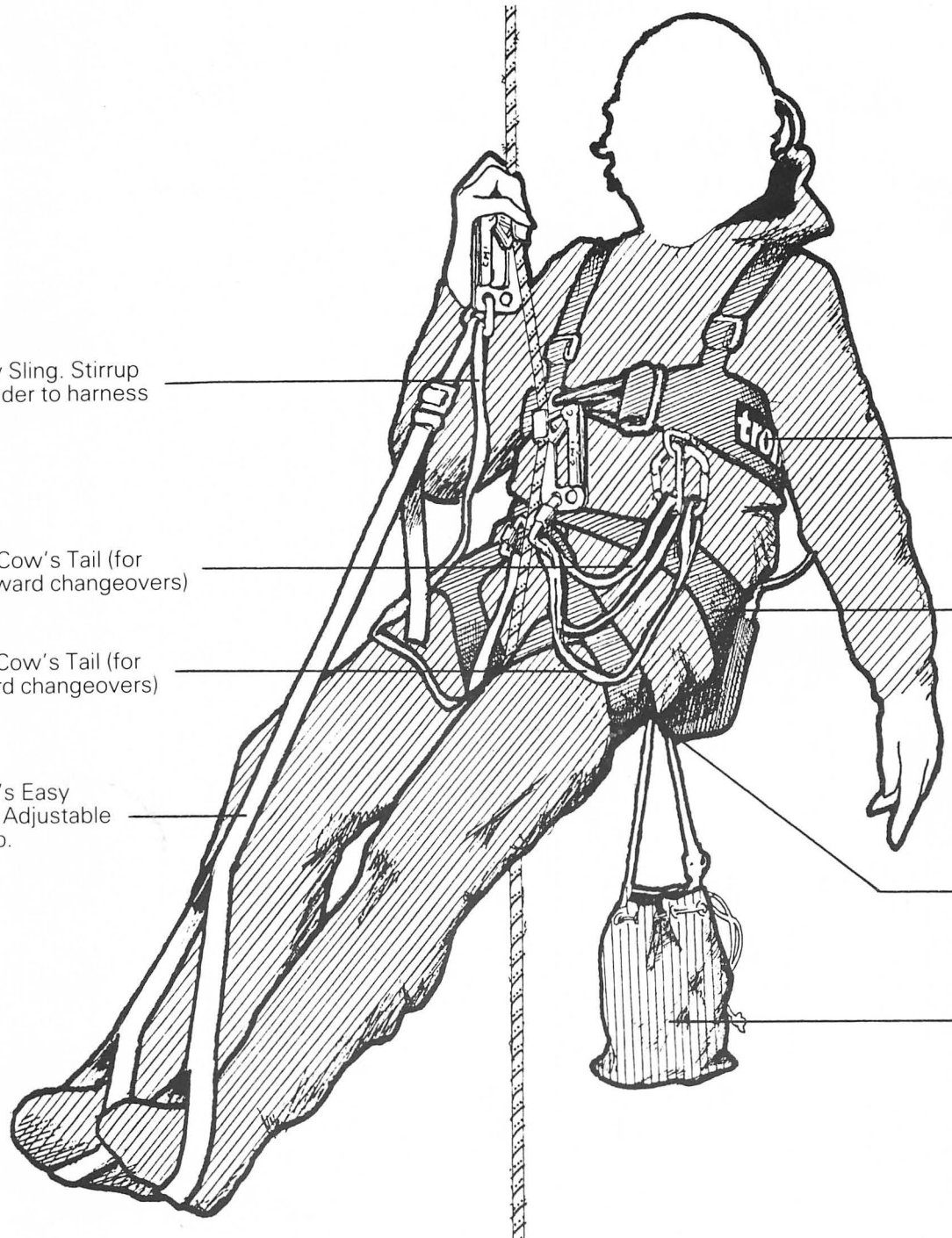

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