

SOUTH WALES CAVING CLUB



NEWSLETTER No.87 1977

SOUTH WALES CAVING CLUB

NO. 87

NEWSLETTER

JUNE, 1977

	<u>Contents</u>	<u>Page</u>
1.	SOME THOUGHTS ON OGOF FFYNNON DDU (A. Coase)	1
2.	"DIM GLIM" OR THE LIGHTS I HAVE SEEN (N. Dilly)	8
3.	"IT WAS HELL OUT THERE" - THE ECUADOR TRIP (J. Harvey) ..	11
4.	TREASURERS REPORT 1976-1977	14
5.	TOWARDS THE CONSERVATION OF ARCHAEOLOGICAL CAVES IN WALES. (M. Davies).....	16
6.	"THE CALCITE SAGA STRIKES AGAIN!" CAVE RESEARCH IN 1984 - Part I. (Anon)	18
7.	OLD MINES POSE A PROBLEM (Derbyshire Times)..	21

Cover Photograph - 'Ogof Agen Allwedd, Main Stream Passage' by Clive Westlak

Editor's Address:
G.K. Jones,
37 Springfield,
Bradford on Avon,
Wiltshire.

1
2
3

4
5
6

SOUTH WALES CAVING CLUB

NO. 87

NEWSLETTER

JUNE, 1977

	<u>Contents</u>	<u>Page</u>
1.	SOME THOUGHTS ON OGOF FFYNNON DDU (A. Coase)	1
2.	"DIM GLIM" OR THE LIGHTS I HAVE SEEN (N. Dilly)	8
3.	"IT WAS HELL OUT THERE" - THE ECUADOR TRIP (J. Harvey) ..	11
4.	TREASURERS REPORT 1976-1977	14
5.	TOWARDS THE CONSERVATION OF ARCHAEOLOGICAL CAVES IN WALES. (M. Davies).....	16
6.	"THE CALCITE SAGA STRIKES AGAIN!" CAVE RESEARCH IN 1984 - Part I. (Anon)	18
7.	OLD MINES POSE A PROBLEM (Derbyshire Times)..	21

Cover Photograph - 'Ogof Agen Allwedd, Main Stream Passage' by Clive Westlak

Editor's Address:

G.K. Jones,
37 Springfield,
Bradford on Avon,
Wiltshire.

1
2
3

4
5
6

SOME THOUGHTS ON OGOF FFYNNON DDU.

Introduction

Contained in my Ph.D thesis on Dan-yr-Ogof but not included in the forthcoming B.C.R.A. Transactions on 'Dan-yr-Ogof and its Associated Caves', is a short section on Ogof Ffynnon Ddu. In the hope that it may contribute something towards the geomorphological study of the system, I am forwarding it as a separate paper for the Newsletter. Various cross references within it can be checked out via the copy of the thesis which I have given to the Club (or in another copy presented to the B.C.R.A. Library). Substantial alterations or additions can be made, especially as some aspects of the closer studies called for have been started by Noel Christopher and Bob Charity; however the paper has been left ('warts and all') as it was presented in 1975.

.....

A few comments relating to the adjacent cave system of Ogof Ffynnon Ddu are also relevant, especially as it too has been strongly influenced by the folding and jointing associated with the Cribarth Disturbance. These comments however are put forward hesitantly as they are not based on the extensive first hand knowledge of the system that the writer has of Dan-yr-Ogof, and that he regards as extremely desirable. Nevertheless small contributions (Coase and Iles 1966) have been made to the system and it is hoped that in future more personal investigations will be possible. The principal recent works on Ogof Ffynnon Ddu have been prepared by O'Reilly et al, notably in 1969, but also in 1974, and by Bray and O'Reilly 1974 (a) and (b). Earlier work on the part of the system now known as Ogof Ffynnon Ddu I was carried out by Glennie (1948 and 1950), in particular and subsequently by Railton (1953).

In general terms there appear to be a large number of similarities between the systems, not least of which is their potentially similar total size. As in Dan-yr-Ogof there are two main sets of passages both of which, at 000-020° and 080-090°, offer a fairly close mirror image to the former. The first group offer very similar characteristics also, for as well as being northerly in orientation they are also joint-aligned. However there is little evidence that they are influenced by faulting and they appear to offer a closer adjustment to bedding than in Dan-yr-Ogof. The other group of passages transgress the structure rather as in Dan-yr-Ogof, except that they form a far greater proportion of the passages than in the latter and they are much more closely joint-orientated. The marked difference in character between the main streamways or final conduits is partly at least explicable because of these and locational differences.

It is suggested that the relatively small and unincised phreatic passages in the Dan-yr-Ogof Syncline are as they are because their main feeders are much longer and have had time to cut extensively down into the S₂ limestones, arriving at the main 'drain' at or near the base of the zone. The complex series of inlet streams that entered the Ogof Ffynnon Ddu system from the north were much shorter, however, and while their aggressiveness and load contributed to sizeable passages they had little distance or time to cut deeply into their beds. The onset of successive lowerings of external base levels is seen to have had a marked effect on the inlet streams which rapidly abandoned their initial passages for subsequent ones at a lower level. The net result is the

major three-dimensional incised vadose stream canyon. The absence of any southerly migration of the course that the main stream has adopted has not been explained though from the Dan-yr-Ogof example the writer would expect to find lithological reasons had at least contributed. Certainly it is notable that the most easterly parts of the stream passage are located on or just below what appear to be dolomitised ledges similar to those in the Dan-yr-Ogof lakes. It is also possible that the marked southerly deflections in the main stream course are more attributable to faulting than has been realised for many of the faults which cause considerable deflections in the Dan-yr-Ogof Syncline are almost imperceptible in terms of vertical movement, associated breccias or tension gashes. Similar features may have been totally overlooked in a system where known faults have all these features in abundance.

Structural differences do of course exist, for the Ogof Ffynnon Ddu system lies on the eastern side of the Tawe Valley and on the southern side of the Disturbance, but the fact that faults seem to be negative influences here, whereas they are so important to the west, is hard to understand. More information will undoubtedly emerge as further intensive studies are carried out, and it is likely that folding may also prove to be more significant than it is presently recognised to be.

Hydrologically many of the observations made about the chemistry and organic and clastic contents of the input waters in Dan-yr-Ogof are true of this system also, however the capacity of the streamway, measured in terms of rate of flow at the resurgence, is considerably lower even in times of flood. While they have this point in common, a chronology which has been put forward for Ogof Ffynnon Ddu by O'Reilly (1969) is markedly different from that proposed for Dan-yr-Ogof in this study, and though it is possible to accept the view that initiation occurred at an earlier stage, perhaps late Pliocene, no real evidence exists for the very much earlier dates suggested (see table Fig.28). Although this point is referred to again below, it is probable that it will only be satisfactorily resolved when full surveys and sections of Ogof Ffynnon Ddu are available and when considerably more work has been done on local denudation chronology. Certainly if such studies incorporated analysis of the sediments in both caves, the information obtained could be of very great value to karst geomorphologists.

February, 1977

ALAN C. COASE.

(From Ph.D Thesis 'The Structural Geomorphology of the Dan-yr-Ogof Caves' University of Leicester, 1975).

.....

A PRELIMINARY INVESTIGATION OF THE WHITE DEPOSIT IN
SALUBRIOUS PASSAGE, OGOF FFYNNON DDU II.

Occurrence of deposit

Salubrious Passage is a high vadose trench floored by boulders, which now carries a small stream. This stream first appears in the cave from a high aven near Arête Chamber, and the whole of its course is lined with a thick, white deposit. When the cave was first explored the deposit was

very soft, and cavers have now eroded a deep trench in it.

This deposit was first thought to be a montmorillonite clay, but was later shown to be mainly calcium carbonate (O'Reilly, & Fairburn, 1969).

Present investigation

Samples of the deposit were removed from four sites within the cave:

1. 86941575 Disturbed deposit beyond stream.
2. 86511592 Bedded deposit in stream at head of Salubrious.
3. 86511592 Deposit in Arête Chamber.
4. 86511592 Deposit in stream in Arête Chamber.

Three water samples were also taken for which polythene bottles were used, full to the top. Samples were taken at the end of June 1976 during a hot dry spell when water levels were very low.

- A. 86511592 Water in pools at top of Arête Chamber.
- B. 86511592 Water trickling over deposit at end of Salubrious Passage.
- C. 8641576 Pool at downstream end of Salubrious.

A piece of broken stalactite from Arête Chamber, and a sample of crushed limestone from Hobb's tips, were used for comparisons.

Solid samples were analysed by atomic absorption spectroscopy for Mg and Sr, and by thioglycollate colourimetry for Fe TOT. Water samples were analysed by a variety of techniques detailed elsewhere. Analysis took place two days after collection, but a separate determination of alkalinity was made within two hours of collection.

An aggregate sample of the deposit was examined by X-ray diffraction to determine its mineralogy.

Specimens of the deposit were examined by scanning and transmission electron microscopy. Samples were freeze dried and carbon coated within 24 hours of collection.

Results

Mineralogy

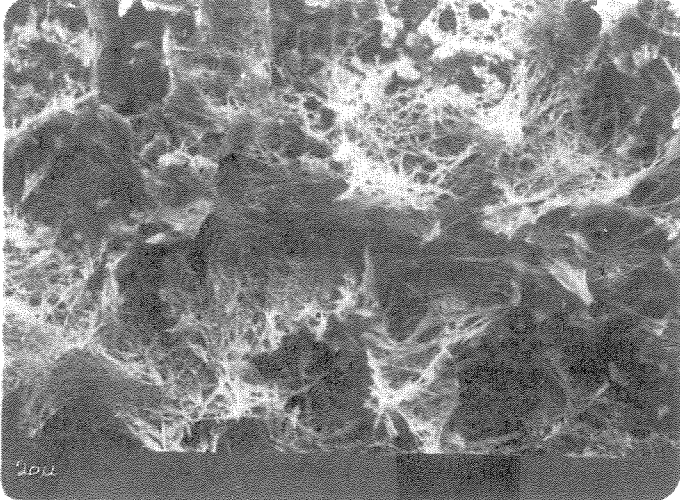
X-ray diffraction of an aggregate sample showed it to consist largely of calcite. A further sample was leached with acetic acid buffered at pH 4, and then the fraction <2 μ e.s.d. examined. This showed dominantly mica, with irregular mica-chlorite, and minor vermiculite and kaolinite. This is a typical detrital assemblage, likely to have been washed into the stream and trapped. It forms a very small proportion of the deposit.

Chemistry

The analyses of solids are presented in Table 1, and of waters in Table 2. The high proportion of Mg CO₃ in the limestone analysis implies around 15% dolomite, though this would depend on the horizon sampled. The iron was present as sulphides. The magnesium contents of the stalactite and the white deposit are low enough to be contained as solid solution in calcite. The iron is present as 'Fe (OH)₃'. Strontium can also be contained in solid solution in calcite.

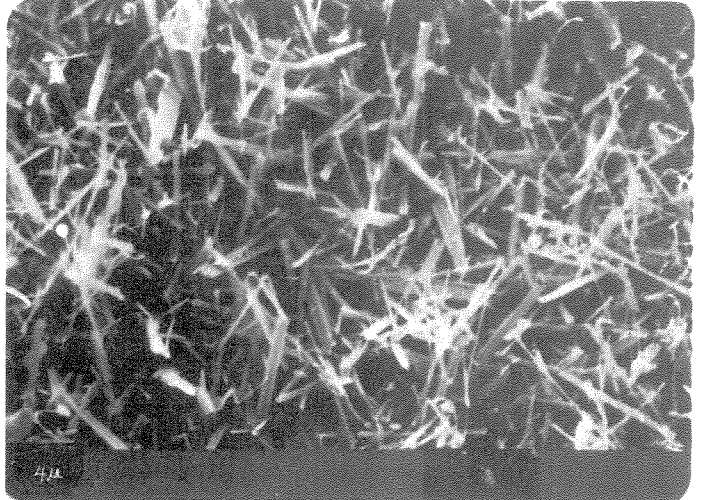
The water samples all show the relatively high calcium contents of percolation water. A notable feature of the analyses is the large error

Fig 1.



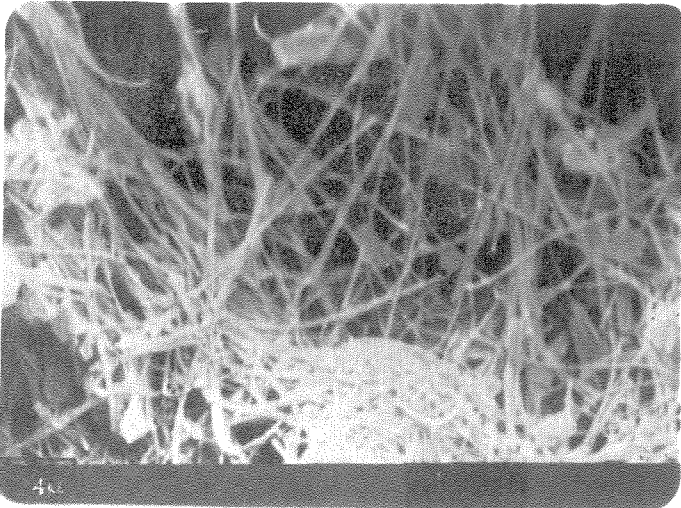
Long fine fibres densely matted Sample 1

Fig 2.



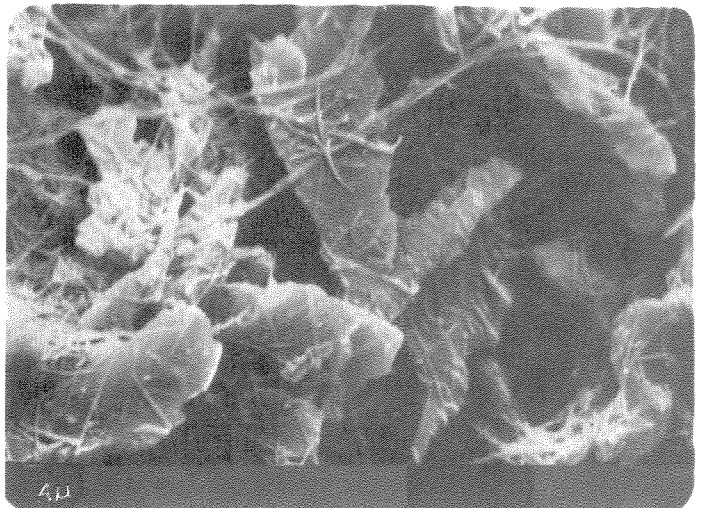
Mainly Lublinite needles with scarce curved fibres. Sample 4.

Fig 3.



Fine curved fibres showing thickening, with clay flakes. Sample 1.

Fig 4.



Large secondary crystals, with fine Lublinite needles and fibres. Sample 1.

in charge balance, outside the range of experimental error. Also alkalinity decreased on standing. Admittedly the bottles were no longer full, but this requires further investigation. The decrease in alkalinity is such as to greatly reduce the analytical error.

Electron microscopy

Two features stand out on the scanning electron micrographs; needles, and fibres. The needles are $5 \rightarrow 12 \mu$ long, approx 0.5μ across. Some of the needles show the diagonal stepped morphology of the variety of calcite 'lublinite'. All the needles show this structure using transmission electron microscopy. In this unusual variety of calcite, the axis of the crystal, and the true crystallographic axis do not coincide (Stoops 1976). This variety of calcite is unique to moonmilk, so the deposits in Salubrious Passage can be described as such.

The fibres range in diameter from $0.08 \mu \rightarrow 0.2 \mu$, most being around the latter. Lengths range up to 30μ . TEM shows the fibres to be featureless, but indicates that they are highly crystalline.

Other features in the photographs are small irregular plates about 1μ across, probably detrital clays, and some large crystals of secondary calcite.

No systematic vertical variation was noted in the samples.

Conclusions

The presence of lublinite characteristic of moonmilk, has been shown. Elsewhere, in O.F.D. I, moonmilk has been shown to be the product of a bacterial assemblage dominated by *Macromonas bipunctata* (Mason-Williams 1961). This bacterium metabolizes complex organic acids, and calcite deposition probably takes place as a side effect of this, rather than as a result of direct precipitation by the bacteria. The large error in the water analyses suggests that other ionic species are present, such as organic acids and bases. On disturbing the environment by removing a sample from the cave, these may decompose. More work is needed before a definite conclusion can be drawn.

The work carried out may identify a mechanism for lublinite formation:-

The limestone sample analysed has a molar Mg/Ca ratio of 0.08. The corresponding value for the water is 0.04, a not unreasonable value considering that dolomite is less soluble than calcite. This value compares well with the values obtained by Fernan (1974) for Darnbrook Fell, Yorks. The low values for the stalactite and moonmilk reflect the reluctance of Mg to go in the calcite structure. The two values are fairly similar, suggesting little organic interference with calcium/magnesium fractionation. Unfortunately most of the geological literature on this topic deals with the marine environment, and is not really applicable to caves. Sr/Ca ratios can be treated similarly. The value for the limestone is normal for such rock, and the ratio is such that Sr would be below the detection limit in the cave water. The low values for the stalactite and moonmilk reflect the fact that Sr^{2+} ions are too big to readily enter the calcite structure. The difference between the stalactite and moonmilk is significant. Organic activity could cause this kind of fractionation. (Kinsman 1969).

The photographs seem to show that the fibres are a key factor in the formation of lublinite. The initial fibres, (see Fig 1), become coated with a cylindrical overgrowth of calcite, whose crystal orientation would

be controlled by the structure of the fibres, (Fig.3). As the crystal grows, the typical diagonal stepped surface of lublinitite becomes apparent (see Fig. 4), so presumably the first cylinder had this orientation. Further growth highlights the structure (Fig.2). The very large crystals in Fig.4 are likely to be an early diagenetic phenomenon. The peculiar shape of lublinitite crystals is such that they will be unstable with respect to more equant crystals, so recrystallization is probable.

Further work

Much of this article has been somewhat speculative. More water analyses, with tighter control, are necessary to investigate the variation in alkalinity with time. Further experiments could determine to what extent the activities of moonmilk affect the chemistry of the water.

Some work to specifically identify the organisms in the deposit would be useful, as would comparison with other sites. Heol Eira may be a valuable source of undisturbed material.

A crucial point is the identification of the fibres. This study has failed to determine conclusively whether they are organic or inorganic, though the former is favoured.

Organic filaments have been noted by others, especially Moore, but have not been ascribed to any particular organism.

Acknowledgments

I wish to acknowledge the help received from the staff at Cambridge University, especially, D. Newlin, M.T. Evans, Dr. A.H.F. Robertson, Dr. R.M.S. Perrin, Dr. C.V. Jeans and Dr. J.C.D. Hickson.

References

- Kinsman, D.J.J. 1969. Interpretation of Sr^{2+} in carbonate minerals and rocks. *J. Sed. Pet.* 39 pp 486-508.
- Mason-Williams, M.A. 1961. Biological aspects of calcite deposition *Mem. del. Rassegna.Spel.Ital.* V pp 1-4.
- O'Reilly, P.M. & S.E. & Fairburn, C.M. 1969. Ogof Ffynnon Ddu. Swansea.
- Stoops, G.J. 1976. On the nature of lublinitite from Hollanta, Turkey. *An. Mia.* 61 p 172.
- Fernan, J.L. 1974. Some chemical and physical characteristics of five resurgences on Darnbrook Fell in Limestones and caves of North-West England ed. A.C. Waltham. Newton-Abbot.

TABLE I - Solid Analyses

	Stalactite	Limestone	White deposit
wt% fe as $fe_2 O_3$	tr	0.107	0.117
mole % $Mg CO_3$	0.059	8.40	0.101
$^{2+}$ ppm	nd	405	34.0
$\frac{Mg}{Ca}$	0.0006	0.08	0.0010
$\frac{Sr}{Ca}$	$<8 \times 10^{-8}$	4.5×10^{-6}	3.8×10^{-7}

tr = trace nd = not detected.

TABLE 2 - Water analyses

Ion	Method	A	B	C	ppm
Cl^-	1	11.5	11.5	10.5	
SO_4^{2-}	2	tr	tr	tr	
HCO_3^-	1*	144.6 (126.9)	125.7 (115.9)	147.6 (130.5)	at collection 48 hours later
CO_3^{2-}	1*	0.234	0.322	0.151	
HPO_4^{2-}	2	1.0	7.1	1.0	
NO_3^-	3	0.6	0.3	0.2	
Na^+	4	3.0	3.0	2.85	
K^+	4	0.26	0.26	0.26	
Mg^{2+}	5	0.85	0.85	1.15	
Ca^{2+}	5	44.25	42.25	38.5	
SiO_2	3	1.5	1.5	1.86	
pH		7.6% @ $16^\circ C$	7.8 @ $16^\circ C$	7.4 @ $16^\circ C$	

1. Titration 1* Calculated from alkalinity to pH 4.5
 2. Gravimetry
 3. Colourimetry Fe & Sr not detected.
 4. Flame photometry
 5. Atomic absorption spectrophotometry

"DIM GLIM" or THE LIGHTS I HAVE SEEN

I began caving in 'days of old when cavers got cold and wet suits had not been invented' as a fourteen year old school boy, using that most hazardous of lighting systems, a torch in the hands of my friends. You either go in front of the torch bearer, and find all the hazards hidden by your own shadow, or you blunder over all the obstructions from behind in his shadow. This leads to the exciting situation, you have to fall over before your hurtling shadow is removed from the all revealing beam of light showing what it is that you have fallen over. The other major disadvantage of this lighting system is that your torch bearer, not being a good and faithful servant, is very surely going to move the light away to examine some minor item of interest just as you are about to make a crucial step. You find yourself balancing like a ninny with one leg poised in mid stride, or hanging on like mad to some quartz crystal, with a ledge yards wide unseen some six inches away in the blackness.

Not surprisingly, it only took one trip before I abandoned this method of lighting, and I adopted then the next most hazardous means of lighting - the candle. Balch may have been able to claim "I can handle a candle", but I never graduated to that class and my adventures with candles were confined to a few trips, memorable only for the complications of splashing hot wax, rapidly disappearing candles, and the use of an infinite number of boxes of matches. Indeed, caving with candles is really caving with a box of matches with temporary interludes of spluttering candle light. The hazards of this system included getting as much light in your eyes as on the route, also the disadvantage that the spares in your pocket rapidly get reduced to powder. Still, if you survive this stage of induction into the sport, you learn a lot and become adept at holding candles between your teeth. A useful skill for living in power cut 1977.

A torch of my own was the next breakthrough. The problem of what size and sort should have lead to much discussion, but on a school boy budget, it was easily resolved, the cheapest. It turned out to be a two celled job from Woolworths. It really did look a poor specimen alongside the yard long monster that swallowed boxes of U2's that was my fellow explorer Eric Inson's pride. Nevertheless, it worked well for a short while anyway. It was just incredible the number of things that went wrong with that torch. Before I had even got it anywhere near a cave I had pulled the fastener off its back end, and on its first trip to a cave it suffered mortal injury inside my rucksack before it had even reached the entrance. The thin tin of the body became so buckled that I was unable to remove the second battery. Amazingly, we carried spares, but I must admit that for our first three trips to the Lesser Garth Cave, we left them safely and neatly packed away in our rucksacks stowed just inside the entrance, a habit that I am amused to note is once again becoming popular amongst some cavers now that the trips have become longer and more hazardous. My major memory of hand torches was that you needed to occupy one hand holding the damned thing and it was always that hand that you needed to use to stabilize yourself.

Then one day browsing around an Army Surplus store, I found a lapel clip type inspection lamp, that cried out that it could be used as a cap lamp. I used it as such with a bell battery in my pocket and the lamp clipped to the upturned peak of my school cap. It was not very

good but I was proud to think that perhaps I looked a bit more like a caver, and it did have the advantage that it left both my hands free. It suffered most of the imaginable breakdowns. The battery broke, the cable caught up on spikes and the terminals pulled out. It was condemned to final retirement the day that I met Glyn Thomas in the Lesser Garth Iron Ore Mine, and he commented that it was a jolly good light for illuminating my face. Glyn with characteristic generosity after mocking our gear took Eric and I in hand and loaned us two home-made accumulator cap lamps, made from ships emergency lights, and provided us with hard hats made from Air Raid Wardens' tin hats that had had their rims cut off. The few weeks that we had this form of lighting were really halcyon days. We re-explored all the caves that we knew and this time really were able to see something of them.

Soon after this I began my acquaintance with the carbide cap lamp. What an exciting and mixed blessing it turned out to be. My previous experiences with carbide had been in the manufacture of silver acetylide, and in other explosive devices, usually involving bottles half full of water. So it was with some trepidation that I began to wear such a potential bomb upon my head. I never mastered the carbide lamp until some traumatic tuition from Bill Little, but more of that in due course. One day during this time I was given a miners' safety lamp and I wasted a lot of effort cycling from Cardiff to the Dinas Rock before I learnt that they were only useful for testing gas and no use at all as a source of illumination.

During one of our early trips, Eric and I were confronted by a seemingly bottomless pit in the Lesser Garth Cave. We tried the Casteret Trick of throwing lighted newspaper over the edge, but apparently without success. On the next trip we were wondering what to do when we came across a quarry compressor and a length of 2½" rope. Well, you have guessed, we lowered the rope into the fuel tank and carried the inflammable cord to the top of the shaft. We lit it and hurled the cloud of flame and smoke into the blackness. It lodged some 30 or so feet down. We could not believe that this was the full extent of the shaft, and for a long time suspected that it had lodged upon a ledge.

About this time we discovered Magnesium ribbon. Its light was wonderful except that we soon learnt that in a confined space its combustion products rapidly produced a dense fog, although not quite as dense as the home-made flashless smoke powder with which I attempted my early cave photography but nearly as effective as a London pea souper.

When I had survived, more by good luck than anything else, to the age of sixteen, I joined the S.W.C.C. Bill Little took my lighting system in hand soon after I had joined the club, and I went back to the carbide lamp. Bill was a great source of spares and had spares to rectify most of my disasters. Spare jets, spare washers, even spare carbide were produced from his bag at various times. Then one day the ultimate disaster struck, I ran out of water in a dry part of the cave. I was forced back on that ultimate water reserve, and learned to recognise the pungent odour of urine generated acetylene. Bill, I am sure, would have obliged in filling my lamp, but I preferred my own trickling down my neck.

A final cure from carbide lighting arrived when on a Carreg Cennan caving club trip to Dan-yr-Ogof. In the company of two now elderly eminent members of the Club, I was crossing the lakes in a rubber dinghy,

and teasing those hardy types who swam, nude in those days, with their clothes held above their heads, when the dinghy suddenly sank. As we fell into the water the lid came off my nearly full tin of carbide. Acetylene bubbled in clouds out of the water and we had to douse our lights for fear of an explosion. We swam blundering around in the dark for some time before Les found a sand bank and managed to get his electric torch working. It was on this trip that I learnt another lesson. We were soaked but I had my matches in a waterproof tin. There was a striker inside the lid, but my inexperience had let me put the matches in head uppermost, so they became damp as soon as my wet fingers touched them, trying to get them out of the tin.

Climbing ladders with a carbide cap lamp could be quite hazardous. On several occasions I was aware of an interesting smell and in the few seconds that it took to identify the source, the damage was usually done. It was inevitably the smell of burping hair and skin - mine. Once, sitting on a ledge well belayed with a new nylon rope to a high attachment point, I was wondering where the next fill of water would come from, when I noticed a steady drip. The trouble was it turned out to be molten nylon and I possessed a 30 foot and a 70 foot nylon rope.

And then the ultimate luxury, the miners cap lamp. First of all the Nife type and later the lead acid variety. The sheer pleasure that it brought could only be experienced by those who had served the long apprenticeship of inferior lighting systems. The only real hazards were its weight and its contents, although I remember an amusing episode when we tried to burgle a sealed lamp unit at the far end of Dan-yr-Ogof, only to be defeated from removing the defunct bulb by a massive circlip. The owner had just never bothered to modify his lamp so that he could change the bulb. The weight of the lamps could be quite destructive on belts with amusing consequences if the belt was also supporting trousers. And of course the corrosive contents; they could and did leak. I remember one very shapely chest etc. of a volunteer victim on a cave rescue; after all she was pretty, lightweight and shapely, and had the attention of lots of hairy cavers, but then its not everyone who can truthfully say 'take off all your clothes, I'm a doctor', and have the stimulus from a caving lamp to make it work.

NOEL DILLY

* * * * *

For stamp collecting enthusiasts Barbados have issued a set of stamps depicting natural beauties of Barbados in May. The 50c stamp depicts underwater caves, and the 1\$ stamp shows a caver in front of a stalagmite in Harrison's Cave.

"IT WAS HELL OUT THERE" - THE ECUADOR TRIP

There I was - cuddling a pint of warm, Welsh bitter beer when Dave Judson 'phoned and asked if I'd like to go to Ecuador. Two months on a caving expedition organised by the British army! 'Course I would, it's a place I've always wanted to visit' (thinks 'Where is Ecuador anyway - Africa, Asia?').

So in May 1976 a caving team comprising Dave Judson (leader), Peter Cardy, five others and myself joined the British Ecuador expedition at full six weeks notice!

The trip was intended for the Santiago region which, for those people who don't know, lies in the jungle at the headwaters of the Amazon. The cave system there has been the subject of two previous expeditions and a book by Van Danniken, the well known fraud (now jailed in Germany). In his book Herr Van Danniken claimed that the caves were excavated by extra-terrestrial beings with the help of lasers etc. and the British and Ecuadorian governments forked out over £100,000 to find out if the yarn was true!

So, at the end of June, 63 Brits. (40 Army, 15 scientists and 8 cavers) flew to Quito with 20,000 lbs of luggage. We'd hired a rope walking winch from S.G.B. Ltd. for £170 and they kindly did not insist on the usual £1,000 deposit (providing I was prepared to foot the bill for loss or damage!!). No one was worried, as the Army had insured the winch with everything else - or so they said (as it turned out they 'forgot' about that insurance!).

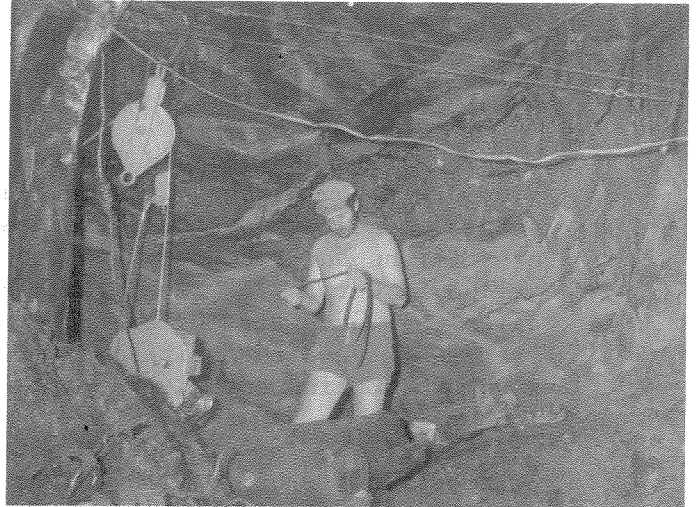
From Quito an advance party of cavers and Army flew to a jungle airstrip with the luggage and set up base camp. This was about 5 days after leaving Heathrow and we were feeling proud of ourselves. We then tried to approach the cave site some 20 miles away by inflatable boat whilst waiting for helicopter support which was due mañana. So, 3 boats, nine people and gear sallied forth on the ½ mile wide, fast flowing bit of the Amazon. It was then that I became aware of the disease that was to affect the rest of the expedition - it was called 'Army Planning and Organisation' and was to strike frequently and without warning throughout our two month stay.

The engines on two of the boats failed and we were swept downstream towards where we came from, over some rapids and deposited on a sand-bank in the middle of the river. The entire boat tool kit comprised a plug spanner, spare plug and screwdriver that rattled in an ammo box half full of water. We were rescued by native dugout and the engines refused to work at all after that.

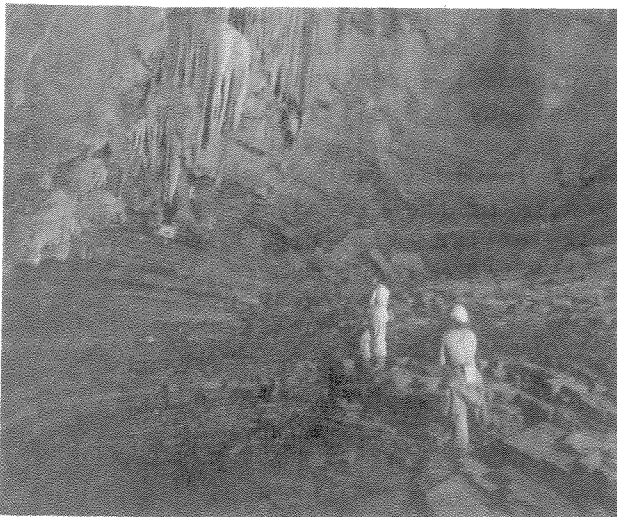
A day or two later we arrived at the cave site by helicopter, and set up camp. The disease struck again! The Army had sent tunnel entry, high altitude tents for use in a climate that had had 1,000 inches of steamy rain already that year - the mud was ankle deep. We lived in a tent of our own construction needless to say. For the record the expedition also 'forgot' half the first aid kit (one could have an appendix cut out but there was no cure for the quick shits). They 'forgot' engine oil (we had to use cooking oil); boots, tools, (someone got sent over 200 miles to get a shifting spanner). They 'forgot' electric



The alternative to Army tentage
'The Basher'.



John at winch head examining broken
belt.



The Amphitheatre, Cuevas de Los Tayos.



John, contemplating Army organisation
and planning.

cable and used household cable to wire up the generator. However they did remember to send about 10 pairs of wellies - I had two of them (single boots!), one size 7 and the other size 9 (I take size 8 but I wasn't grumbling). I shared these with another bloke as the only other available footwear was knee length suede mosquito boots with slippery plain soles - useless in ankle deep mud.

Anyway, over the next six days the cavers installed a platform over the 160 feet deep entrance shaft, and a winch to haul the non-cavers up and down. The ride took 9 minutes 15 seconds each way carrying two people each time - one in the chair and one clipped on via a sit harness. All cavers abseiled the shaft on Blue Water supplied by the Hon. President of the Expedition - ex-astronaut Neil Armstrong.

Well, the cave was explored, surveyed, filmed and tripped through by all those courageous enough to visit the winch. The system was about 200 m. deep, 5 Km. long with two entrances, making it the deepest through trip in South America - with about 360' of ladder needed.

Towards the end of our stay a cache of pottery and ceramic jewellery was discovered together with a 7 foot boa constrictor, various poisonous snakes, big spiders, bats, bugs, fish and crabs.

Just as the Expedition was winding up Armstrong turned up and some of the cavers volunteered to take him to the cave for a few days. The wiser members of the party (Judson, Cardy and Harvey) cleared off back to Quito to hire a truck for a week's visit to the Pacific Coast. We eventually returned to Quito, and were poured into a 707 quite early one morning, aimed at Heathrow.

We arrived back smashed and swearing to return to Ecuador shortly, but definitely not in the company of the British Army.

JOHN HARVEY.

← PHOTOGRAPHS - PETE CARDY

* * * * *

TREASURERS REPORT 1976-1977

EXPENDITURE 1.2.76 TO 31.1.77

INCOME 1.2.76 TO 31.1.77

H.Q. Expenses

Cottages	332.87	332.87
Oil	502.41	
Electricity	79.66	
Gas	62.88	
Warden	45.12	
Rates/Ins.*	12.10	702.17

H.Q. Fees	1049.83	
Showers Box	166.78	1216.61

Club Expenses

Secretary	35.63	
Equipment	11.85	
Telephone	104.69	
Editor	322.11	474.28

Subscriptions	743.75	
Donations	31.95	
Telephone	51.60	827.30

Misc. Expenses

Purchase of D.Y.O. Surveys-BCRA**	399.00	
Posters	35.00	
Dinner	300.25	
Misc.	12.65	746.90
Conservation	61.65	61.65
Cave Rescue	92.88	92.88

Interest	155.92	
Surveys	180.75	
Posters	28.50	
Dinner	291.00	
Misc.	56.25	
Conservation Don.	80.85	
Cave Rescue Don.	109.94	903.21

TOTAL 2410.75

TOTAL 2947.12

* Main Insurance premium yet to be paid due to review (£250?)

TOTAL EXPENDITURE 2410.75

** To be sold in 1977/78.

EXCESS OF INC. OVER
EXP. 536.37

ACCOUNT BALANCES AND ASSETS AT 31.1.77

MONETARY ASSETS AT 1.2.76.

Midland Bank Current	1253.87
Midland Bank Deposit	1018.27
Woolwich Building Soc.	949.42
Cash in hand	299.42
Debtors	38.90
Less Cheques unpaid	60.13-

Total at 1.2.76 3499.75

COMPOSITION

Cave Rescue Fund	296.80
Conservation Fund	582.17
H.Q. Repairs Fund	450.00
E. Aslett	1018.27
Balance	1152.51

Total at 1.2.76 3499.75

MONETARY ASSETS AT 31.1.77

Midland Bank Current	146.57
Midland Bank Deposit	2615.58
Woolwich Build.Soc.	1008.03
Cash in Hand	273.17
Debtors	67.25
Less Cheques Unpaid	74.48-

Total at 31.1.77 4036.12

COMPOSITION

Cave Rescue Fund	313.97
Conservation Fund	601.37
H.Q. Repairs Fund	600.00
E.Aslett+Dep.Intst.	1115.58
Balance	1405.20

Total at 31.1.77 4036.12

INCOME/EXP. BALANCE

Assets at 1.2.76	3499.75
Excess of Inc/Exp.	536.37

Assets at 31.1.77 4036.12

PREMISES AND EQUIPMENT

Cottages (Cost)	200.00
Garage (Cost)	15.00
LandRover (Cost)	80.00
Duplicators (1974)	51.36
Equipmnt (1974)+Purchs	3638.82
Purchases 1976-77	11.85

3997.03

WOOLWICH BUILDING SOCIETY

Balance at 1.2.76	949.42
Interest	58.61

Balance at 31.1.77 1008.03

MIDLAND BANK DEPOSIT A/C

Balance at 1.2.76	1018.27
Transfer	1500.00
Interest	97.31

Balance at 31.1.77 2615.58

CAVE RESCUE FUND

Balance at 1.2.76	296.91
Donations	109.94
Expenditure	92.88-

Balance at 31.1.77 313.97

CONSERVATION FUND

Balance at 1.2.76	582.17
Donations	80.85
Expenditure	61.65-

Balance at 31.1.77 601.37

H.Q. REPAIRS FUND

Balance at 1.2.76	450.00
Annual Provision	150.00

Balance at 31.1.77 600.00

TOWARDS THE CONSERVATION OF ARCHAEOLOGICAL CAVES IN WALES

The history of the destruction and despoilation of archaeological caves in Wales goes back many years. One of the earliest known examples was at Pant-y-Llyn Caves or Ogof Craig Derwyddon, where a cave was opened and then destroyed by quarrying in 1813. The main cave contained 12 human skeletons lying in groups of 7, 3 and 2. It is probable that they were prehistoric. At Upper Kendrick's Cave on the Great Orme near Llandudno archaeological material must have been cleared out when the cave was converted into a dwelling in the last century. Stone walls were erected inside the cave and disturbance extended to the rear wall 10m from daylight. However, a test excavation at the foot of this wall in 1974 revealed undisturbed cave earth containing hacked bones - the meal remains of prehistoric man. At Ifton Quarries near Chepstow 9 or 10 human skulls and other bones were found in 1908 during quarrying operations. No trace of this cave now remains.

A major loss to Welsh archaeology was the quarrying of Coygan Cave in 1971, when it was still incompletely excavated. The cave had yielded the remains of a 'glacial' fauna and possible remains of Mousterian occupation. A cave near Minera, Wrexham (SJ/250518) was briefly examined in 1963 by potholers following a tunnel, and the finds included small, coarse potsherds of Bronze Age or Iron Age "A" appearance. It was thoroughly examined in 1972 and obviously contained 4 ft. of bone-bearing deposits, but there was little chance of permission being given for excavation. Within months the cave had been covered over with debris cast out from a nearby quarry.

Unfortunately it is now necessary to record damage caused to archaeological caves by the activities of potholers, geologists and students. At Ogof-yr-Esgyrn (Bone Cave) in the Dan-yr-Ogof Show Cave system, valuable items were brought out in 1971 after illicit digging consisting of a Romano-British button loop fastener, a juvenile human mandible fragment and some pottery fragments including Samian ware. From Minchin Hole, Gower, in the same year a hoard of 5 Constantinian coins from Gaulish mints was removed. Following excellently-conducted excavations in 1975, retaining walls in Minchin Hole have collapsed and exposures damaged both through natural causes and due to unauthorised sampling. Potholers digging at the back of a cave near Pendine (22/233078) came across a bear's tooth. Fortunately they stopped digging and sought expert advice in 1972. The cave holds promise of being a sizeable system, but further digging should be under the control of an experienced cave archaeologist.

In June 1975 I described our Welsh cave archaeological heritage in the Journal of the Cambrian Caving Council (No. 2, 1975), and there listed 9 caves requiring immediate protection as follows:

South Wales: Ogof Morfran, Ogof Gofan, Longbury Bank Cave, Minchin Hole and Bacon Hole.

North Wales: Ogof Pant-y-Wennol, Ogof Rhiwledyn, Ogof Tan-y-Bryn, and Bontnewydd Cave.

The Conservation and Access Group of the National Caving Association were asked to investigate the protection of certain caves as Ancient Monuments in October, 1975, and they went on to consider the full implications at their February, 1976 meeting. I pointed out that scheduling of caves as Ancient Monuments was not sufficient for the complete protection of caves; in certain cases the taking of the cave sites into guardianship should be considered. The Department of the Environment was then approached

at its London office but only Ancient Monument status was considered at this stage, and the net was cast only over sites in England. An invitation from the Department of the Environment to discuss the protection of caves is still under consideration.

The cave losses over the years catalogued above, warrants action being taken now by the archaeological authorities. Scheduling a cave as an Ancient Monument is not sufficient protection as most caves are situated in out-of-the-way places far from public gaze. The result is unauthorised digging by unqualified persons, often with the aid of metal detectors. A proportion of the more important sites will have to be purchased by the Department of the Environment, or an agreement guaranteeing their protection reached with the owners. The time has probably come for demonstrating sections to be laid open for public inspection, and for students of archaeology, with a small charge for access if necessary. The money spent on some rescue excavations seems out of all proportion while caves are being lost which contain not just evidence of brief periods of occupation, but full sequences of deposits covering the Ipswichian Interglacial, the Devensian Glaciation, and the present Flandrian, a time span of over 70,000 years.

The remains of Neanderthal man could well be found in a Welsh cave, provided that cave has not been destroyed by his presumably more intelligent successor.

25th November, 1976.

MELVYN DAVIES.

.....

"THE CALCITE SAGA STRIKES AGAIN!"

CAVE RESEARCH IN 1984 - Part I

Last year, whilst rotting quietly on Venacula with a case of elderly dejected haggi, I grew tired of watching the only surviving Wunce Bittern (a very bald birdie) or following the Tatty Araldites when they stalked the island's small flock of Harassed Tweed (a mere 45 inches high). So after a wee while, I stuffed my sporran full of hot porage and made off towards the haunting lodge at Invercreepie under the shadow of Bheinn Groanin.

On the way, I was splashing through the Soggie Burn, when suddenly, partly hidden by piles of derelict Drambuie bottles, I came upon the new International Cave Science Research Centre. It looked trewlie splendid, suddenly illuminated by a flash of lightning, which caused a glow through each of the tartan stained glass windows.

I was taken by surprise, since I had last visited them at their old cramped premises in Bond Street, London, W.1., next door to a fishmeal and glue factory. Even then, of course, it was staffed almost entirely by Highlanders* from Kent, Surrey and Sussex.

Shortly after flinging myself through the front door @, I was introduced to the Director, none other than the Hon. Michael 'Fungus' Smirchingham-Kindly¹ the well-known tea drinking infusiast, sometime explorer, famous twitt and wearer of no fixed trousers (possibly a kilt²). He immediately showered me with presents such as a 7-pint beer token, a 25-gallon soup token, and a pint glass of malt whisky (one scottish gallon = 311¹/₃ wee draaams).

In one gigantic leap I drank the lot. I just had time to remember that scotch eggs don't normally have tentacles (or guyropes⁷?) when I was overcome by a nasty moses and felt dishtinkly shrub-conshus. I hadda shensayshun of being washed down along cuddly-dore honour twoddley⁵. Allthish tyam the Director wazz skalking incandeshantly, wenn thuddenly meyer cleered and ia-woak with the sownd of boggpypes burning in my nostrils.

I noticed that I was being exposed in alphabetical order, I mean exposed to some of the activities of this remarkable research group. I can only quote from their current** broacher by Verba Tym and list the varicose departments on a dedimentary doormat.

* defined as all those dwelling above LWMOT

@ an old Highland custom

** includes bozzberries, reasons, gropes and dried feet.

Archaeology

This laboratory is engaged in electron microscope examination and radiocaroline dating of male and female bootlice*. Also similar studies with other rare cave deposits such as vintage spent carbide, petrified overalls and rotting horce-air matrices.

Biospeology

Investigation of a variety of problems such as:

- 1) physical and chemical examination of striped guano from caves frequented by the one-legged Canadian Dingbat.
- 2) causes of a mysterious and so far un-named disease which only affects cavers, elderly belly dancers and ceramic frogs. The principal symptoms are:
 - a) greenfly under the armpits
 - b) pronounced drooping of the earlids
 - c) severe rotation of the elbows
 - d) spreading of the spatulas
 - e) profuse sweating of the kneecaps
 - f) elongation of the lozenges
 - g) pounding of the pestles
 - h) ruinations of the reflexes
 - j) black mildew up the bedsocks
 - k) nasty nightmares.

Cave Surveying

The latest project is a series of fully detailed Grade 9a Surveys of famous caving club common rooms, published in three primary colours (black, brown and cream).

Expedition Equipment

As expeditions penetrate deeper into caves and deeper into harsh terrain such as desert, jungle, mountains and swamp in order to reach new caving areas, it is only right that continuing research should ensure that these expeditions have access to the very latest techniques and equipment.

Probably the most important set of equipment recently developed by the Centre is the underground camp picnic set for cave dinner parties, including glass topped folding table, metal stools, plastic decanter, wineglasses, flower vase, imitation budgerigar and portable freezer cabinet to match. Other spinoffs from the main line of research are:

- 1) pre-gummed mudproof wallpaper to brighten up dull caves
- 2) green neoprene bow ties
- 3) rucksack casters
- 4) stainless steel spats which don't need cleaning
- 5) exposure meters for sunbathers

* ancient plural form of lace.

Gas Analysis

Detection of dangerous accumulations of inflammable and noxious gases in mines and caves is very important. By far the highest concentrations found so far, have been associated with certain individual cavers rather than with particular locations.

Gating of Caves

Research into electronic sorting machines has been underway for some

time and scientists from the Centre have visited the Post Office and various metros around the world.

The ultimate objective is to instal automatic gates at all passage junctions in British caves so as to direct cavers along routes consistent with their I.Q., psychological state and caving ability. A caver approaching such a gate will have to plug in a magnetised licence card or season ticket which will record that he has paid his club subscription and will register his correct grading. The latter will be determined by a series of tests devised by the mysterious 'cave fathers', a name designed to strike terror into those subjected to the tests. To apply for a 'provisional' caving licence, the perspiring caver will have to fill in an application form designed to sort the genuine trogs from the mere pseudognomes. Stocks of the form have already been printed by the Research Centre.

<p><u>APPLICATION FOR A PROVISIONAL CAVING LICENCE</u></p> <p>1) Name or Nodule</p> <p>2) Hate of Gerth</p> <p>3) Flange sizecentisquoaks</p> <p>4) Taste in talcum powder</p> <p>5) Do you ever tremble? You must answer YES <input type="checkbox"/> or NO <input type="checkbox"/> in BLOCK CAPITALS</p> <p>6) Do you ever suffer from attacks of giddiness, fainting or upholstery? YES <input type="checkbox"/> or NO <input type="checkbox"/></p> <p>Do not answer this question if you are loving or dogeared!</p> <p>7) If you walk with a lymph then sign here in bludd</p> <p>8) In accordance with order VIC. CAP. 001/23, 1899, spare aluminium teeth should <u>not</u> be sent to The British Lughole Corporation.</p>	<p>Issued by <u>ICSRC</u></p> <p>DO NOT WRITE in this space because it is reserved for people writing to you about not writing in this SPACE. So there !!!</p>
---	---

Hydrology

The major activity in this field involves training a large pack of blonde female mathematical models for the relentless pursuit of hydrogen peroxide ions and heavy man-ions. Recently, it has been found that in some cave waters, the pH is very concentrated, especially immediately after dye tests using Moronium Cretinate adsorbed on activated dog biscuits. This department also undertakes some work on the recycling of scrap ions.

Caving Library

The Research Centre Library has a vast collection of records and priceless documents⁴. Some old records, which are no longer in the charts, are glued together in batches of five and sold off as bargain albums.

The main preoccupation of the library is scrutinising speleoscience papers for truth content. All the results are expressed quantitatively in Degrees Twaddell. I also saw the latest addition to the celluloid archives, a 125 c.c. silent film about the Bone Caves of Upper Yengistan (Cert. X) which screamed for me by ultraviolet light. One of the ancient rituals of this wild hilly land was the ringing of baby pterodactyls with small silver bells.

Suggestions for further breathing:

BUBBLYOGRAPHY for PART 1

- | | |
|--------------------------------|--|
| 1) D. Trytus: | Old Gloom's Book of Nonentities |
| 2) K. Smothers-Phlewdust: | Rainproof Heraldry for Amorous Knights. |
| 3) Lord Pnaler Thyng: | Encyclopaedia of Trading Stamps and International Bingo Tickets. |
| 4) Dr. Cynthia Lurch: | The Spring-Loaded Astronauts' Method of Expanding Universes. |
| 5) Protrate and Grovel: | Karst Iron - A Manual of Artificial Caving Techniques. |
| 6) Hardly A. Foan (Editor) | Basil's Bumper Book of Black Balls for Snow Golfers. |
| 7) Q. Flinge: | 1001 Bad Things TO DO AT COLLEGE - A Ph.D. Thesis (unfinished). |
| 8) Harbottle Brimstone: | 'Borehole' - An Epic Day in the Life of a Tungsten Carbide Worm. |
| 9) Prof. Klauts Ruhbarb-Tries: | Step-by-Step Introduction to the Bavarian Tango. |

(Reference 9 has been translated by Brown, White, Green, Splurge and Digberry from the German original published in Zeitschrift fur Kernwissenschaftsforschung und Mismutlichesschlagsahne -- 21. Nr. 3, Seite 118-120, 1903).

TO BE CONTINUED IN OUR NECKS.

.....

OLD MINES POSE A PROBLEM

Since a fatality in the disused Royal Hopping Mine, Matlock Bath, in August, County Council officers have pinpointed a number of similar mine entrances.

Planning Department staff have found 30 adits (horizontal entrances) on the Matlock Bath hillside. Seventeen of them are open and the remainder are blocked, but suspect.

The problem with the adits is that anybody can enter them, even without permission, because most entrances are in relatively obscure places. Landowners are willing to co-operate in a scheme which will prevent further accidents. There is no intention to stop access by authorised and experienced cavers and mining historians.

/.....

Planning officers are to meet Derbyshire Caving Association to decide which adits are the most dangerous and to organise the installation of a number of prototype barriers and to discuss possible policy for future action.

DERBYSHIRE TIMES, JAN 7TH '77.

.....

S T O P P R E S S

During final preparation of this issue of the Newsletter, news reached us of Martyn Farr's successful dive in Wookey (see article Newsletter No. 86 - March). Well done Martyn and team and we hope to have a full account in the next Newsletter!

.....

Club News

The past few months have seen a large boost in cottage work by various members. Since the A.G.M. and the introduction of S.A.M. as cottage Warden, married quarters downstairs (front) has had a major facelift, thanks mainly to Mick Day, Laurie Galpin and Chas Jay. Upstairs has seen the introduction of the Jones multibed, providing more bedspace and relieving some of the frequent overcrowding.

Married quarters has, on several occasions lately, spilled through the overflow room and occupied the front end of ladies' quarters. Also the whole Club bedspace has, on at least two weekends recently, been full to capacity with people sleeping on the floor in the long common room. Evidently the Club is being used to the full, and much consideration must be given soon to building a second bog in mens' quarters. All males using mens' quarters should give a hand renovating the washroom area - maybe they could do so while queueing to use the solitary bog!

Congratulations to Ken Maddox, Alan Jackson and crew on the flooring done in No. 10 and to Laurie who gets a special prize for his unique 'sticky' floor.

The Inson-Harvey Coming of Age party was a delightful success. The sumptuous meal went down very well with the free beer - many thanks to the two generous blokes involved.

The Dan-yr-Ogof Co. has extended its lighting over lake 1 and it now seems that an extra 20 yards + will be added to the tourist trip. Difficulty with flooding will, it is assumed, preclude any further extensions, which could only be effected by vandalising the fine example

of D.Y.O. river passage and lakes.

Plans are afoot to have a major dig on Pant Mawr this summer - probably a major mining engineering project. Contact John Lister or Clive Jones for details and to see which shift you are on.

At the Club over Jubilee weekend foul weather turned the sponsored walk into a miniature retreat from Moscow - everyone can be congratulated for not needing a rescue, all, that is, except Jem Rowland and Bob Radcliffe who took a detour to inspect Brynamman! Thanks to Haydn Rees, Brian Joplin and others who went out looking for them.

The Penwyllt Jubilee street party was a nice event - Jelly (the edible variety) was much in evidence. It was also nice to know that the Club still has a good choir. The singing over Jubilee weekend was better than usual.

Alan Jackson has printed a limited number of indexes to the Newsletter compiled by Peter Francis - available soon.

Best wishes to all those members who are off on expeditions this summer, notably Turkey and Iran - and to Martyn Farr who has just got back from a B.B.C. sponsored diving trip also in Iran.

Everyone was delighted to hear that Gareth 'Golondrinas' Davies has returned home from the U.S.A., to hang his rack at Penwyllt once again. It is untrue that he was deported from the U.S.

Important Note

The 1977 International Speleological Congress Camp will be held at Penwyllt on September 5th to 9th inclusive. As a Club which has often sought the hospitality of foreign clubs, most of us are looking forward to showing our guests some Welsh caves - and 'real' caving!

About 30 foreign delegates will be staying at the Club and guides will be needed to show them the caves in the area. If you can help at all please contact Gary Jones (The Hon. Editor) as soon as possible, giving dates on which you might be available. Free food and accommodation is provided for those people acting as guides - as well as a chance to arrange future holidays!

On Friday 9th September there will be a party at Penwyllt for the International Group to meet the Club. If you can't make it up during the week, arrive early on Friday evening for beer, food, dancing and, hopefully, a singsong.

Even if you can't help at the Camp, how about contributing by helping to tart up the H.Q.?

Hon. Editor