SOUTH WALES CAVING CLUB NEWSLETTER

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Cover photograph - "Water Stretcher in use in Streamway in Ogof Ffynnon Ddu I", by Glyn Genin

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THE CHEMICAL INVESTIGATION OF CAVE WATERS

A FURTHER REPORT

Cave chemistry, summer 1971.

This summer's work was an extension of the material reported in outline recently (Ref.1, Ref.2) and represented perhaps the most intensive study of cave water undertaken so far in the present investigation.

As the importance of organic matter had been shown to be greater than was at first thought, it was decided to try to follow the changes in the organic matter content of waters as they passed through cave systems. The method chosen for studying the organic content of the waters was the "permanganate value" test of the water engineer. This involves the treatment of the water with acid potassium permanganate for 4 hours at 27°C. The test is tedious and there is considerable argument as to what is being measured (Ref.3) but, until something better is devised, it does give a useful method of comparing the organic content of different waters. In this article the term "organic content" is taken to imply this estimate of the easily oxidised organic matter in water. Other estimations operated included total hardness, limestone-attacking power, alkalinity (or acidity), pH. electrical conductance, iron, sodium, potassium and sulphate: dissolved oxygen was estimated on samples specially taken for the purpose.

An interesting result was obtained when the limestone-attacking power of a water was plotted against the organic content of that water. The graph obtained was a straight line and this offers further evidence of the key role played in cave development by organic matter contained in water and assists the explanation of the chemical changes taking place in cave systems.

The Pant Mawr system offers a valuable opportunity for studying the changes taking place in water which has just entered a cave system. The water entering the cave above The Waterfall is chemically very similar to that which sank into the cave from the open moor. It has moderate limestone-attacking power, it is not very hard and it has quite a high organic content. Within only two hundred yards or so the water has changed completely. The limestone-attacking power is almost unchanged but the hardness has increased by a factor of 2, the organic content has dropped to about two-thirds of the original value and the dissolved oxygen has reached the saturation value. This provides a dramatic demonstration of just how quickly the chemical changes in a cave system take place. Attempts to reproduce in a laboratory this rapid change (using peaty water, AnalaR calcium carbonate and oxygen) have not met with success, and it seems possible that some biological agency might be at work.

There has been frequent mention of the possibility of flood pulse work in the area. Very heavy rain fell during the night of 9/10 August and the water levels at Pwll Byfre and Ffynnon Ddu were very high. As far as Pwll Byfre is concerned, the outstanding result was that the

hydrogen ion concentration in the flood water was almost 100 times that under more normal conditions (pH 4.8 in flood; 6.7 - 6.8 at low water). The organic content of the flood water, its limestone-attacking power and its sulphate content were almost unchanged from low water values - a remarkable result when one considers the tremendous additional volume of water flowing in flood. At the resurgence total hardness, sodium, potassium, alkalinity were all reduced to about 0.6 of their "normal" values, but the organic content was about five times the normal value. Again, the sulphate concentration was almost unchanged. These results are not easy to interpret in terms of the cave itself and they may reflect a change in the drainage pattern of the peat bog to the north of Pwll Byfre. Certainly the upset to the chemical balance of the water puts an obstacle in the way of any attempt to operate a flood pulse study in the conventional manner. An unconventional method is under discussion and this may have the very valuable merit of reducing the cost in terms of time, effort and money.

For the first time electrical conductance measurements were all made at a constant temperature (25°C). This avoids the use of a "cook's factor" to correct the results to a given temperature - a correction which can be up to 20% of the measured value. Again, this has given direct evidence of chemical change as the conductance fell during measurements made on waters containing much organic matter.

A feature of the results obtained for iron contents of the waters was the very low values being found. In the colorimetric method used only 1 or 2 parts per million of iron could be found, confirming earlier results produced by a different method.

One aspect of the work now becoming more important is the question of sampling. With chemical changes taking place in minutes under cave conditions it is only to be expected that some changes will take place while the water sample is in its bottle, no matter the material from which the bottle is made. Provided the experimental results are used only for comparison purposes the present procedure seems adequate. For more critical work it seems likely that more experimental work will have to be done "on site", in spite of all of the problems involved.

An outline of the possible path of organic matter in cave reactions.

This article has contained rather more than the usual ration of speculation allowed to a scientist. To add to the speculation the following outline is given in the hope that it will spark off discussion.

The water entering a cave at a sink will contain, in addition to dissolved carbon dioxide, some dissolved organic material including what have become known as humic acids - high molecular weight organic acids which furnish relatively little hydrogen ion into solution. The dissociation in water may be shown as an equilibrium:

$$\underset{\text{Humic acid}}{\text{H Humate}} = \text{H}^+ + \underset{\text{Humate anion}}{\text{Humate}^-}$$

In the presence of something which can react with hydrogen ions, e.g. calcium carbonate, the equilibrium can be disturbed

$$CaCO_3 + H^+ \rightarrow Ca^{2+} + HCO_3^- + \text{Humate}^-$$

so that the overall reaction might be shown

$$\text{H Humate} + CaCO_3 \rightarrow Ca^{2+} + HCO_3^- + \text{Humate}^-$$

It seems reasonable to suggest that this stage is an initial one and represents the state reached in a sample bottle during the limestone-attacking power test.

Under the influence of cave conditions (including possible chemical and biological catalyst action) it seems reasonable to consider that the high molecular weight humic acids and humate anions break down to give more molecules of lower molecular weight, some of which are acids. This results in an increased limestone-attacking power as there are more acid molecules to attack the limestone.

$$\underset{\text{Humic acid}}{\text{H Humate}} \rightarrow \underset{\substack{\text{n molecules of lower molecular} \\ \text{weight acids.}}}{\text{nHOrg}}$$

Finally the lower molecular weight organic acids themselves are broken down to give non-acid fragments and carbon dioxide and water:

$$\text{HOrg} \xrightarrow{\text{oxidation}} CO_2 + H_2O + \text{fragments.}$$

Once more additional limestone-attacking power is generated with the liberation of carbon dioxide into the water.

It is recognised that this suggestion is speculative: it does have the merit of explaining observed facts and has the further merit that it is not contradicted by experimental facts at present to hand. The problem of how to investigate such a series of reactions poses immense problems and it is likely that it could be done only at the expense of a great deal of time and money. When the problem has been solved there will be considerable interest from the water supply industry as the solution could point the way to removing organic pollution from the public water supplies.

As far as work in caves is concerned what has emerged is sufficient understanding to allow hope that cave waters can be made to give up some of the secrets of their history underground.

Acknowledgements.

This work was possible only with the very great co-operation of a number of people and a list would be doomed to be incomplete. I hope that no-one will be offended by the general acknowledgements.

I wish to thank the Committee and members of SWCC for their help and encouragement and for the use of the Club's facilities. A special mention must be made of the efforts of Frank Baguley and Laurie Galpin in the setting up of the excellent new laboratory in No.2 cottage.

I would like to thank the small army of samplers and analysts who performed the task so ably, often under very difficult weather conditions.

I thank the Headmaster of Acton County School for the use of the school's equipment, and The Royal Society for very valuable financial help given under the Scientific Research in Schools scheme. I wish to thank Dr J.A.W. Dalziel for his patience and understanding of the chemical problems involved.

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L.G. Bray
30 December 1971.

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Please would all members holding material borrowed from the Club Library return it to me, either by leaving it at the Club in a sealed envelope, or by posting it to me at the Club address, within the next two weeks.

J.J. Rowland
Records Officer.

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THE ARCHAEOLOGICAL CAVE DIVERS

I suppose everyone at the Club knows about the gold buried under Craig y Dinas, and the Roman threepenny bits that Glyn and the gang found down the valley, but how about digging up coins by the handful, as well as jewellery and armour?? I spent some of the summer watching (and going green with envy) as some Belgian 'speleos' did just that.

The village of Han sur Lesse is halfway between Namur and Luxembourg, and slap in the middle of the Belgian Ardennes - very nice country and with wine at 5p a pint who wants beer - though there are other incentives for a visit. The cave there is almost literally a goldmine for archaeologists.

Since shortly before the Romans came west into Gaul the area about the cave of Han was inhabited by a people closely akin (I'm told) to the Welsh. A small community used the cave as a shelter periodically. It is possible, if one crosses the deep resurgence pool, to go by boat far into the cave, well beyond daylight. At this pre-Roman time this was the only method of entering. In other words, at the slightest sign of danger anyone living near the cave could quite easily take all his possessions and family where an invader would be unable to find them - out of harm's way, underground.

Some way upstream, under a small aven is a sand-bar where it seems the villagers lit their fires and waited for the enemy to go away. Generation after generation used this place as a sanctuary, leaving behind broken pots, tools, together with beads, coins and other trinkets, which if dropped in the poor light fell into the mud. It is these small objects which have been dug up and enable the site to be dated - but these simple things do not make the dig so interesting to the layman - there is an eery part to the story.

At some uncertain period the cave was used as a refuge once too often and became instead a trap. The people were followed in, overpowered, and in the darkness roughly decapitated. The bodies were left where they fell to be washed by the river, during flood, into the pool below the sand-bar.

Archaeological work is difficult in a wet cave, and under 20 feet of water with silt to contend with, almost impossible. A team headed by Albert Henin, the curator of the local museum, tried various methods of raising artifacts from the bottom of the pool. They continually found that clouds of silt raised by the diver made detailed work in situ out of the question, but the things found even in unfavourable conditions indicated a find of major importance.

Then came a breakthrough - an underwater vacuum cleaner! Using compressed air, mud could be raised to the surface, sieved and anything of value taken out and examined. With this machine sections of riverbed could be quickly and easily searched. Finds were of exceptionally good quality in profusion, and through the finds the history of the cave's inhabitants was built up.

Han is now wellknown as an exceptionally interesting cave - and no-one could fail to be impressed by the sheer enormity of the find. As a 'caving' area also Han has much to offer - but perhaps I'll write about that at a later date. Anyone want to buy some Roman coins - cheap?

A HISTORY OF THE EXPLORATION OF CERTAIN CAVES IN SOUTH WALES

Melvyn Davies.

As large new systems become scarcer in South Wales, cave explorers are turning their attentions to the smaller, well-known cavesin the hope that digging and blasting will enable them to make extensions. Evidence of success can be seen in Ogof Fach where digging was used, and Bridge Cave, where diving methods opened up the vast Ogof Nedd Fechan. The new generation of speleologists is often curious about the history of a particular cave, and more and more old systems are attracting the attention of the cave conservationist. It is thus important that old hands at the game should examine their diaries and publish what has now become interesting historical material for the new generation.

I am fortunate in having access to material going back 17 years, my own diaries which start even earlier, and much information left to me by cavers who have retired or left the district. In this series of articles I am describing large systems like Eglwys Faen which are brimming with history, and the smaller caves at Pwlldu, Blaen Crawnon, Blackrock Quarry, Claisfer, and Trefil. Since I was at the centre of explorations in all these systems, I am probably the only one who has kept a complete record, and I am an inveterate diarist anyway.

EGLWYS FAEN

A Cave on the Craig-y-Ciliau National Nature Reserve.

The Llangattog Caves in Breconshire have long been known, and the name Eglwys Faen, meaning Stone Church, originally referred to the large Entrance Chamber. Nowadays the name is applied to all the passages starting at NGR SO/192.156. Theophilus Jones mentions the cave in 1805 in his "History of the County of Brecknock", and it is obviously the cave referred to by Nicholson in 1813 in the "Cumbrian Traveller's Guide". I can find no further reference to it for over a century (1), until Colonel Glennie (now Brigadier Glennie) visited the Eastern Series in 1938 and reported some observations he made in a caving journal (2).

After the war, serious exploration by potholers started as in many other caves, and B.D. Price, a local teacher and member of the South Wales Caving Club, published a survey and description in 1946 (3). He made a small extension in 1953 by climbing an aven in the Entrance Chamber, but failed to get further because of a constriction. If he but knew it the way was open to bigger things, and in later years cavers were to descend 'Price's Aven' from inner reaches of the cave. Meanwhile a new club was formed in the district, which took a keen interest in Eglwys Faen, and they published an account, with photographs, of their explorations in 1955 (4). This club was then called the British Nylon Spinners Speleology Section (it is now ICI Fibres), and its members started a dig late in the winter of 1955. In February 1956, after 6 weekends of excavation at the back of Entrance Chamber, they emerged in an Inner Chamber, and this led to several hundred feet of high-level passage. The work was published in their works magazine, and later in "The British

Caver" (5), together with a survey and photographs. The post-war sequence is admirably described by the Chelsea Speleological Society in their Records for 1958 (6). Their interest was aroused and it was their members who made the next 2 discoveries, but these were not to be for another 6 years. Meanwhile BNS members were still active in the cave as shown by a humorous article issued by them in September 1959 (7).

The Chelsea cavers set about extending the cave very seriously indeed, and started a dig in the glutinous mud at the southern end of the lower Eastern Series. They were rewarded on 17/18 March 1962 by a breakthrough into what was inevitably called St Patrick's Passage. A report and survey followed in April (8) and May (9) respectively. Foiled by the prospect of massive digging to extend St Patrick's further, the Chelsea cavers then tackled the other end of the cave, and started constructing a dam across the small streamway in the Western Series. A wall of concrete kept the water back long enough for digging to proceed and eventually a series of ducks and squeezes was opened. However, the large passage still eluded them, and Chelsea had to give up (10). The question now arose: where did the Eglwys Faen water go to anyway? A dye test with Rhodamine B proved that it re-appeared in neighbouring Agen Allwedd (11), the amount of dye used in the final confirmation being so much that it dyed the explorer's clothing red.

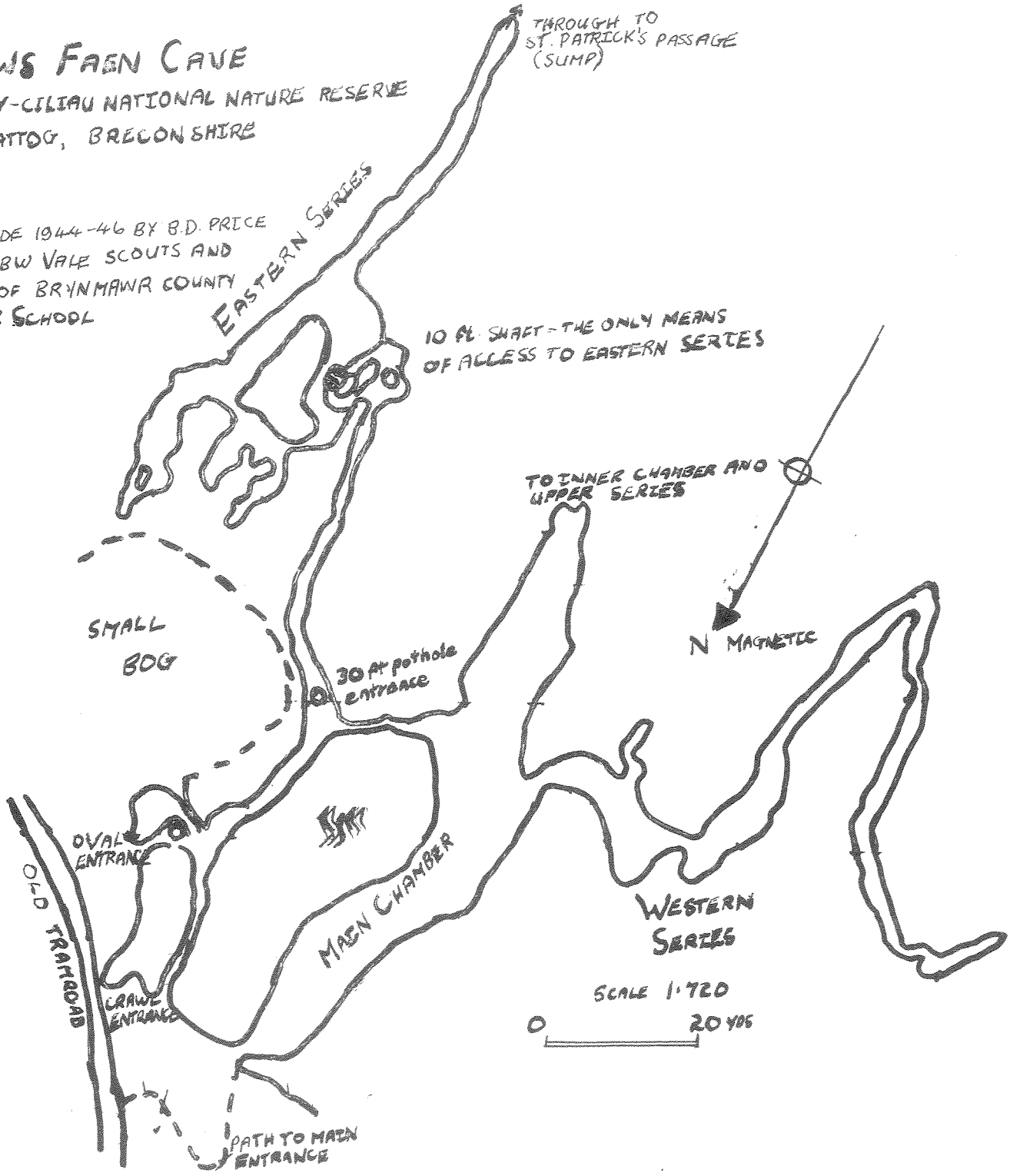
Again the cave had a rest, this time for 3 years until 1969, when I had a permit to use explosives in an attempted extension at the back of Inner Chamber. It was 14 years to the month since my Club had first started digging in the cave, so it was appropriate that we should have some success. In 2 weekends we managed to get south of the terminal boulder choke, but only in the Upper Series, and after 100 ft of new passage we were stopped by an impassable constriction. Digging continued until February 1970, and almost 5 lbs of gelignite used in 6 visits. But the main choke defeated us and we had to give it up. The supply of boulders at high level which replenish those blasted out seems inexhaustible.

It is time now to consider the origin and nature of the cave. The backbone of the cave is the Entrance Chamber and Inner Chamber. At first sight the Western and Eastern Series seem to be passages which originally fed the chambers with water, but a careful determination of their relative depths will show that this cannot be so. At the moment, all water entering the Eastern Series, except that at the very low level of St Patrick's drains into the Entrance Chamber and proceeds westwards into the Western Series. It there joins roof drips from that Series and disappears into Agen Allwedd. In times of heavy rain the roof of Entrance Chamber leaks like a sieve, and this water also drains into Western Series. At the back of Inner Chamber there is a separate flow from the boulder-choked aven which disappears southwards, perhaps to be joined by the trickle in St Patrick's. These directions of flow bear no similarity to those pertaining when the cave system was formed. The 2 great chambers are purely phreatic in origin, that is they were formed below, at at, the water table. Thus they must predate the Usk Valley as it is today. In early Tertiary times when the Llangattog escarpment was joined to what is now the Pen Cerrig Calch outlier, the Eglwys Faen area probably lay under a considerable thickness of Coal Measures as well as Millstone Grit, and the present chambers were no more than a series of connecting tubes. Cave development was initiated when the downcutting river Usk, flowing at what is now the 2,300 ft contour, reached the carboniferous limestone, although preliminary solution would be taking place while the river was still on Grit.

EGLWS FAEN CAVE

CRAIG-Y-CILIAU NATIONAL NATURE RESERVE
LLANGATTOG, BRECONSHIRE

PLAN MADE 1944-46 BY B.D. PRICE
6th. EBBW VALE SCOUTS AND
PUPILS OF BRYNMAWR COUNTY
GRAMMAR SCHOOL



The Usk may well have slipped underground for a while as it skirted the ancestral limestone escarpment. The downcutting of the River Clydach, which lies to the south-east, complicates the theory, and it is not known at which stage the Usk fell below the level of the cave entrance, and the cave drainage turned towards the Clydach. The present south-easterly drainage of Eglwys Faen and Agen Allwedd is certainly evidence of underground river capture by the River Clydach. For a complete picture Eglwys Faen drainage patterns should be considered in conjunction with the Main Chamber area of Agen Allwedd. At the moment no great volume of water enters the cave, and no parts of it flood to danger levels after heavy rain. Cavern breakdown is proceeding steadily in the roof of the Entrance Chamber, but the effects are not seen beyond 120 ft from the entrance. This limit may coincide with the present limit of frost penetration. In the Upper Series there are 5 blockages due to collapsing roofs and these are all in one plane running NW to SE. It is not known whether this is coincidence or due to a fault. The cave is formed in the Oolite group, but the collapse in Inner Chamber runs upwards into Grey-green shales. This situation is paralleled in Agen Allwedd, but that cave's selenite crystals and massive limonite pockets are not seen in Eglwys Faen.

With at least 6 entrances the cave is a haven for wild life. Bats are plentiful in winter and some of the Upper Series chambers will hold 20 or 30 Lesser Horseshoe bats in hibernation. The entrance passages contain moths the year round, and the cave spider, Meta Menardi, will be seen in crivices not far from daylight. Archaeologically the cave seems to be sterile. A search for Pleistocene remains in the main and smaller entrance chambers has proved fruitless. There are legends but no evidence of Chartist occupation.

THE PWLLDU CAVE SYSTEM

The Pwlldu caves consist of 2 entrances in a wood a quarter of a mile north of Pwlldu village at NGR. 50/248.119 in Monmouthshire. The lower entrance is a resurgence, first noticed by John Dyer (Secretary of the British Nylon Spinners Speleology Section, hereafter referred to as BNS), and he organised a visit to it on 25 April 1959. The entrance to the suspected stream passage was found to be blocked with fallen slabs and attention was diverted to the phreatic arch situated about 30 ft higher up the slope. This led to almost 100 ft of passages on 2 levels which had previously been explored by local boys. Digging revealed a tiny new chamber with a second chamber visible beyond a loose boulder choke, and a fluctuating draught. The proper tools were not available so Dyer, B. Smith, D. Jenkins and I called it a day.

On 10 September 1960 I returned to the site with B. Loaring, and by digging in the slabs just above the resurgence succeeded in clearing a route to the stream passage. This ran for about 100 ft with a height of 2 to 3 ft to a small collapse, which soon yielded to hammering. Above lay a chamber 15 ft long, 6 ft high, and 6 ft wide, but with no outlet. The streamway route was blocked with more boulders, and these were left until 15 October when all but one were removed by R. Furber (BNS Chairman), R. Jenkins and me. Jenkins and I finally succeeded in breaking the last one up on 12 February 1961, only to find that the passage became too narrow for progress within a further 8 ft. A loud

noise of falling water can be heard at this point but solid rock will have to be blastedto reach it.

Digging had also been continued in the upper cave on 15 October, but the roof kept flaking off as the floor was cleared. After one particularly heavy fall the dig was abandoned and the cave has now been left to the Greater Horseshoe bat which appears to live in it, at least during winter months. It has been suggested that the entrance, being large and dry, might contain archaeological deposits, but no digging has yet taken place.

OGOF BLAEN CRAWNON

This resurgence, lying at the head of the Crawnon valley (NGR.50/095) in Brecknockshire, was first noted in the early 1950's by B.D. Price of Agen Allwedd fame. It was found independently by me in 1959, and I started a dig at the mouth on 8 November of that year. On 20 February 1960 I completed the opening process and entered the new cave. A large boulder was found to block the passage completely at the 80 ft mark. On 14 May I returned with companions, namely B. Smith, S.C.L. Phillips and L. Jenkins. The boulder was demolished and the party reached a waist-deep pool 250 ft from daylight which lay directly under a constriction in the passage. Only Phillips was able to get through and after exploring alone for a short distance he reported that the route had no further obstructions.

The awkwardly-placed pool deterred other explorers until 28 May of the following year when N. Tuck and I went in, clad in immersion suits. Beyond the pool we discovered a low passage containing chest-deep water in places, and the streamway finally ended in a sump. Tuck probed the sump but could detect no airspace, and there was no draught. Members of Cave Diving Group have since entered the cave, but failed to carry their equipment over the arduous route right to the sump. It is likely that only miserable passages will be found beyond the sump, but there is always a chance in the north-eastern outcrop of crawling up from a streamway into a well-decorated chamber.

OGOF CIL SANWS

The entrance to this cave was first spotted by me on 22 November 1959, but it was not entered until Boxing Day, when I was encouraged up the 40 ft climb on the crumbling, quarry face by S.C.L. Phillips. The quarry is called Dan-y-Darren and it is situated north of Cefn Coed-y-Cymmer on the Brecon road (NGR.50/025.089). Two weeks later the end of the cave was reached, a 30 ft aven being climbed to reach the Upper Passage. On February 7 digging opened a way into another aven terminating in an isolated chamber, and a wet dig in the lower passage revealed a continuation which, unfortunately, quickly ended in a massive boulder choke. A moderate draught exists here, but there is no room for manoeuvre during a choke-type dig.

This cave survived many years of quarry operations, but in 1970 the entrance passage was broken into and the face now starts somewhere in the region of the 'isolated' chamber. Access to the terminal choke may be rendered easier and digging could continue in pursuit of the draught.

BLACKROCK QUARRY CAVE

This cave has had a very chequered history since its discovery on the 30 April 1961, by R. Jenkins, A. Lewis and myself. It lies in Blackrock Quarry, 2 miles from Brynmawr (NGR. 50/212.125), and has many times been lost by quarrying only to be rescued again by vigorous digging on the part of BNS members. The end was first reached on 14 May and, although this was barely 300 ft from daylight, the entrance was reopened after blast-induced collapse on the 25 November and 9 December 1962. For a time the cave was unique in that it contained the easternmost stalactites in the South Wales limestone outcrop, and it is well-known how calcite formations become rarer from west to east in our area. It can easily be proved that Pembrokeshire has the most massive stalactites, and the few we had in Blackrock Quarry were worth rescuing. Unfortunately by today blasting has destroyed the chamber where the stalactites grew. The passage leading on into the mountain is blocked by a huge fallen slab, and the cave entrance is generally covered with a scree slope of spoil. The end of the cave was merely a constriction and it must lead to bigger things for it contains a strong, thermal air-current.

A thin, black stratified deposit was discovered in the cave floor, embedded in clay on 15 October 1961. It was sampled by Mr D.E. Evans, Assistant Keeper of Geology at the National Museum of Wales, who reported that it consisted of powdered coal, probably originating in outcrops further up the Clydach valley, and washed in at some remote period.

WATERFALL CAVE

Waterfall Cave was discovered by R. Sullivan and myself on 1 October 1961, during a routine check in Blackrock Quarry (NGR 50/212.125). At a level about 30 ft below the top cave (see previous item), some black spaces were noticed between fallen slabs. A cold draught emerged, later measured at 270 ft / minute with a vane anemometer, and when sufficient debris had been removed to admit a head, running water could be heard inside. After more work a crawl of 10 ft down to a stream passage was revealed, and the passage was explored to a constricting slab at 95 ft. The passage was small in cross-section, only 3 to 5 ft high, and 2 to 4 ft wide, with wider places on bends. A week later the slab was demolished with a hammer and 4 speleos arrived at the lip of a waterfall 135 ft from daylight. The fall is 10 ft high and is formed by the stream debouching into a chamber which has a band of friable shale in its walls overlain by massive limestone. The chamber is 30 ft wide in the middle and the far, or southern, end is shattered and littered with fallen blocks. The survey shows that it lies directly under the "Heads of the Valleys Road". The stream is lost under the boulders and it is not seen again until its resurgence in the side of the Clydach Valley, a few yards above the actual river at a spot marked on the 25" map as a well.

Perusal of the survey suggested that the upstream continuation of the cave could be reached by digging in a certain spot in the quarry floor. Within minutes of rubble-clearing a hole was revealed and on 22 October 150 ft more passage was explored. The first 50 ft was 6 ft high, followed by a crawl starting at the top of a second waterfall. This fall was only 5 ft high and could be climbed easily, but it led to a series of obstructions in the crawl which delayed exploration for a number of years. A small curtain had to be demolished on a bend and further in pebbles had to be cleared out of the stream bed to provide sufficient headroom to proceed. At the very end another constriction was followed by yet

another waterfall, and it proved too tight even for "thin-man" R. Sullivan. A strong draught is always apparent here, depending upon the outside temperature. For example on 26 November the outside temperature was 39 degrees Fahrenheit and the cave air temperature was 47·8, with a strong inward draught going upstream, and an equally strong draught coming out of the downstream passage.

In November 1961, blasting encroached on the wide, upstream section of the passage, and this part of the cave developed an entrance 6 ft wide and 4 ft high. At the time of writing the face is up to the second waterfall in the upstream section, and is continuing northwards. It is possible that the third waterfall may be passed, and quarrying would then open up reaches so far unexplored. Meanwhile the downstream section is kept open because all the quarry water flows into it, and down to the Clydach. Flooding would occur in the quarry if it were blocked.

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A QUESTION OF IMPORTANCE

I was deep in conversation one night, with a pint of beer in my hand, and the ex-Vice President to whom I was talking said, "Of course, the Cave Research is important". Later on I remembered this statement and started to wonder about this word 'important'. Was the C.R.G. important? Was the Club important? Were the Caves important?

I started wondering about our own Club. The membership of any Club is made up of three vaguely defined groups; (a) the ex-cavers who still keep in touch; (b) the status and kudos seekers who are interested in caving, but only in as much as they gain from the sport; (c) the active cavers who are only interested in the sport as a spare-time relaxation, interest or hobby. I know some members will recoil in horror at my sub-division of members, but it would be interesting to note that these people would probably all come from Group (b), i.e. the status and kudos seekers. The ex-cavers would not worry, and the active cavers would only be amused.

How important is the Club to the ex-cavers? - not very, because they don't use it anyway. I don't suppose the active cavers would worry very much; if the Club was wound up they would carry on caving and probably form a new one, but to the status and kudos seekers the Club is important, without it there would be no status to achieve or kudos to extract. From all this, it is obvious that the Club itself is not very important, but it is the active cavers who are important to both the Club and the kudos and status seekers, for without them there can be no Club.

The fact that we have proved that the active cavers are important to the Club must not delude anybody into thinking that these people are individually important. No member of a Club has any particular importance; this is easily proved by trying to visualise anybody so important that if they left the sport of caving and took up golf, the Club would collapse. This simply could not happen; the Club would find someone to fill the vacated place and carry on and so members who are busy trying to surround themselves with an aura of importance, are only deluding themselves, and entering the ranks of status and kudos seekers. This urge to become 'important' seems on the average to take place later in life at a time when a member becomes least important to the Club. Most Clubs have a few 'has beens' or 'never-have-beens' clinging to positions of authority when they should gracefully give place to the younger elements in the Club. Nowhere is this more evident than in Rescue organisations which seem to become cluttered with Status and Kudos seekers. They are safe enough I suppose because in an emergency some active caver will take over. I believe that Caving Clubs should be run by cavers and not by those who have given it up or never taken it up at all.

This concept has been complicated in recent years by the advent of various Regional and National bodies. Whilst I agree that a number of people are trying to get these off the ground with very sincere reasons and do a lot of hard work in this direction, this kind of organisation inevitably attracts numbers of those we have designated 'kudos and status seekers' and, of course, amongst the ordinary cavers there exists a considerable body of doubt as to what benefit or otherwise may be expected from these bodies and, I may say, a certain amount of mistrust. This mistrust could stem from the fact that the large Clubs have no more voting

power than the small ones and, therefore, a status and kudos seeker who is a member of several small clubs can out-vote a large Club for nothing more than personal reasons if he so wishes.

The answer lies in the hands of the active cavers. The status and kudos seekers should be allowed, to a certain extent, to hold high office in the Clubs and help to run them, but if their grip on affairs becomes too tight the spirit of the Clubs can be stifled, the young and active cavers disallusioned and their enthusiasm dampened; a state of affairs which is inevitably reflected on the intake of new active young members. Therefore, it is essential that all the active members of the Club attend the Annual General Meeting to vote and make themselves available for some post on the Committee and help to run the Club, and not vote for someone merely because they have been holding down an office for a number of years - this is the worst reason for voting for anyone. There is no need to get bitter and twisted about other members in the Club and how it is being run - go to the A.G.M. and make sure that our Club is well-run.

PETER HARVEY

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H E R E F O R D _ C A V I N G _ C L U B

PWLL SWND EXTENSION

During the past two months members of the Hereford Caving Club have extended Pwll Swnd in the Carmarthenshire Black Mountains by 2000-3000ft. The extension so far consists of a complex system of rifts, blocked shafts and tight inter-connecting passages, with a final depth of approximately 200 feet.

As a temporary measure the extension is at present gated due to the fact that exploration is still progressing which entails permanent laddering of pitches and caching of other equipment.

The initial break-through was only achieved after over two years of concentrated effort in the area on the part of Hereford Caving Club.

As exploration and scientific work obviously has to take priority over all other caving activities, the Club requests all caving clubs to co-operate with them by not seeking access facilities to the extension until this specialised work has been largely completed.

A detailed description of the extension will appear in the Club Newsletter as soon as possible.

5 November 1971.

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LOOKING AFTER THE INNER TROG

Twittering Towers
TUNBRIDGE WELLS.

Thursday 1972

To: The Editor, SWCC Newsletter

Respected Sir,

My pen has been silent in your marble columns for some years now, perhaps due to some fault in the hydro-acoustic intensifier. But Sir, since I last wrote in MCMLXVI the excellent Dr Poll has been thrown from his horse whilst galluping and therefore I have been thinking about compiling a personal interrogation myself. And so it was that yesterday I enquired of some of my friends what refreshment or sustenance they took with them when they descended into the evil darkness of the caverns.

Out of the fifty stout fellows questionned, forty-nine were revealed as mere acquaintances, but

5 per cent said carrots
4 per cent said pink vodka
3 per cent said rich Dundee fruitcake
2 per cent said Boston military twostep
1 per cent said crocodile repellant

90 per cent said do not know, made a vulgar noise, leapt into their horseless carriages and drove off at breakneck speed towards a hostelry known as the Gwyn Arms. The extra five per cent is accounted for by the rude fellow who persistently rejoined the queue of persons waiting to give their replies.

Whilst still reeling from this somewhat unpleasant experience, I formed the impression that our precious caving calories should be chosen much more carefully. With the needs of the 'prentice caver especially in mind I append these notes on personal sustenance and expedimentia. They are here set out in a magazine formatte in order that they shall become the easier to digest. Yes, for all that I know, when sorely pressed, you may even wish to use them as fuel or emergency rations.

However, first things should be first; so I must dwell upon the matter of the explorer's personal outfit, and boots are his first essential. But one pair of these ambulatory garments should be worn and then only on the feet with the toes pointing distinctly forward. Next comes the personal clothing. Perhaps if you are young and impecunious you may not be able to afford a submersible suit, even after so many excellent and instructive articles on the subject have appeared. Take heart my friends, for I have another plan!!!

Wait until a moonless night, then be sure to cloak yourself carefully. With the aid of a dark lantern you must slip silently out via the servants' quarters or the conservatory and then secretly pry into all the refuse bins throughout your neighbourhood. Ransack them, (also your own attic) for what they may contain in the way of gaiters, riding boots, waistcoats, parasols, woollen underwear and oily stained overalls of the type worn by artisans. Shake off any ashes, decaying food, dry rot etcetera which may be adhering to them and make haste furtively to the nearest public steam florin-in-the-slot laundry establishment, taking care to have a warm silver coin clutched tightly in the hand.

Washing instructions for these garments are similar to those for artificial silk stockings or canvas mailbags. If the garments do not thereupon disintegrate or cause an untimely seizure of the machines, then dash home with all speed and press them carefully with a warm flat-iron before the dawn breaks. They could well last two caving trips at least.

In the caverns one should wear as many clothes as possible, so that the negative or non-existant areas of one layer are, as far as is possible, covered by the more positive portions of the next outermost garment. As for the overalls, the legs should be rolled up when wading with the ankles tucked well under the chin. It is best to proceed through the water by a forward rolling motion. Nowhere is a very useful hint! Always breathe deeply when caving - air is well known as a good insulator. This brings us, good Sir, on to heads and headgear. While the former are an accident of nature, the latter must be chosen with great deliberation. Whatever else you may do, you must avoid the older type of polished brass bowler, as supplied to our gallant fire fighting men; otherwise your cranium will ring like a bell each and every time you clout it upon some downward projection. Whatever kind of helmet is finally chosen it should be a fairly loose fit to allow sufficient room for quick thinking in times of trouble or emergency.

The topic of illumination must now detain us for a while. Arc lamps, gas mantles, Verey Lights, bedside globes, incandescent electric tubes, red hot pokers and all forms of congealed lighting are highly unsuited to our sport. Bicycle lamps with a burning wick dipping into a reservoir of kerosine or marsh gas are unsatisfactory for beginners, although some experts use them. During long expeditions the cycle itself must always be left on the surface. During the early part of this century candles were held (between the teeth) to be the most dependable illuminant.

More recently cave explorers have preferred lamps powered by carbide of calcium, possibly because they are partial to the odour of acetylene gas, a portion of which inevitably escapes from these devices without suffering the process of combustion. Particular care must be exercised with naked lights especially when lying in the prone position in confined spaces. It is essential to keep your distance from the man in front, otherwise if he happens to be wearing long celluloid underwear he may suddenly BURST INTO FLAME. The resulting smoke will make further progress extremely difficult and unpleasant.

For route finding, demolition, and difficult photographic conditions the chemically powered PF1000 "flash bang" bulb is recommended. Readers who have used one (and survived) may not wish to know that they are constructed from a coil of this magnesium wire 29 yards long suspended inside a woven bamboo gasbag or envelope which contains an oxyhydrogen mixture. The magnesium is ignited by an electrically detonated ha'penny stamp bolted to the outside of the envelope. Whilst on the subject of communications I would personally commend to you a set of alpine cow bells for relaying messages and distress signals back to surface headquarters. Heliographs and semaphore flags should never be taken into caves.

I shall return now to my initial theme which is the subject of quickly prepared meals for speleologists. No doubt you, Sir, are all aware of the aptly named "Gluttopaks" which are so strongly recommended by our friends Johnny and Auntie Doffers, and surprisingly enough also purveyed by them. These are eminently suited to our purpose and contain all that a hungry explorer might wish for, such as a roast ox neatly wrapped in american oil-cloth and tied with piano wire. In the same bundle you will find ample portions of Eagle's Nest Soup, Calcite Crunchy and a superb Flowstone

Gateau. This excellent firm also sells tubes of cave mud. The contents of these may be eaten above or below ground and the surplus used as a cosmetic preparation for the skin.

If, due to some miscalculation, supplies of other breakfast foods are running low, then one can always fall back on a plate of Kellogg's new protein enriched cereal. If you are seriously contemplating this, be sure, first of all, to hire suitable acoustic recording apparatus from your local dealer because the sound effect is very good and well worth keeping.

Aquasubmarine cave explorers must seek special provisions which will withstand the immense pressures encountered under a head of water. Such things as precooked crumpets, which contain a multiplicity of holes ready-drilled for pressure equalisation purposes, are a very convenient species of invertebrate food. When in difficulty Mediterranean divers have been known to chop up their breathing hoses with a sharp knife and to boil the pieces like a kind of Macaroni substitute. Either of these two dishes may be served hot with green indian marmalade or tomato ketchup (albeit involuntarily).

Most good periodicals have a section for readers' letters and so therefore it is my painful duty, Sir, to report to you that last week my sole correspondent wrote to me as follows:

"I am completely in the dark as to what I should do next. What is more I am writing this dispatch upside down on the back of the last half sandwich which remains to me. The only source of illumination which I have had was due to my left elbow which was inflamed. However, this has now subsided having been quenched by a rising torrent of water. My left ankle is inextricably entwined in a rope ladder while the right foot is trapped in a narrow cleft above my head. I am floating this message downstream by placing it in my upturned helmet because the lifeline seems to have caught round my neck. The upper end of this cord has by some mischance been thrown into the river and is steadily pulling me down. Please sir, answer my question quickly - should I join a caving club?"

There may indeed be a plethora of answers to this query but I cannot send my friend any rejoinder whatsoever: there seems to be no one at hand willing to deliver an express letter or telegram to this unfortunate gentleman whose difficult choice must be preying on his mind.

I remain Sir,
Your obedient servant,
BLUEBELL

JDA(8/67 revised 7/71)

REPORT ON HUMAN SKELETON DISCOVERED ON 4 AUGUST, 1946

IN OGOF FFYNNON DDU AT RHONGYR UCHAF, SWANSEA VALLEY.

Long. 3°40′.20″ W., Lat. 51°.49′22″. N.

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For some years, members of the South Wales Caving Club were aware from surface indications on the E. side of the Tawe Valley in the neighbourhood of Rhongyr Uchaf, that an underground cave system existed in that region. Various attempts had been made during the war years to break into the system by sinking shafts from the surface at likely spots.

On the 3 August, 1946, the excavation party was successful in striking the system at a point not far from the place where the Ffynnon Ddu, the underground stream responsible for the formation of the cave, emerges (from a submerged arch).

After descending the shaft thus made, the party crawled under a natural arch, 18 feet from the surface, to find themselves in a fair-sized natural passage. This arch and the nearby pool, waist deep at one point, proved to be the most serious obstacles during the transport to the surface of the skeletal remains that were found subsequently.

Beyond the pool the passage ascends in a north-easterly direction, an outstanding feature being the white calcite floor. At a point approximately 120 yards from the entrance shaft, the main system bears right, leading to the major labyrinth of the cave system. Straight ahead a low muddy passage ascends due north to a small pool. Near the end of this passage, and at a point approximately 160 yards from the entrance shaft, there are two adjacent holes in the floor. These holes lead straight down into another passage 8 feet high, running SW. to NW. and having an area of approximately 130 square yards.

This passage was entered on the 4th August, 1946, and was found to be blocked at the NE. end by a fall of rock from the roof, and was silted up at the lower or SW. end. During the exploration of this passage, a skeleton was discovered. The fact was reported to the Archaeological Section of the Club and examination and removal were carried out on the following day.

The skeleton was in a recumbent position on its right side on a small platform of rock at the foot of the rock fall. Both legs were bent at the hip joint, the right being much bent at the knee and the left slightly extended. This position suggests that the person had fallen asleep from exhaustion and had died there. Owing to the very damp conditions the bones were in an exceedingly poor state of preservation, and those of the right side being in contact with the earth made removal of the skeleton very difficult. There were very few skull fragments.

There are two puzzling features of the discovery. The first concerns the circumstances in which this person met his death in this hitherto apparently unknown cave. A likely theory is that an individual exploring the cave with insufficient light, fell through one of the holes in the floor and was unable to get back again. There are no footholds beneath these apertures, and it is not possible, except for a tall man, to get up again, without the aid of a rope. It is almost certain that the person entered

the passage from the main cave, as the boulder fall, which completely blocks the continuation of the passage, must have taken place before this time, since he seems to have chosen the most suitable place for rest on top of part of this fall. Had the fall occurred at this time or subsequently, it is obvious that the skeleton would have been covered with the huge blocks of rock. No bones were found between the boulders. There was no known entrance to the cave until August, 1946, when the South Wales Caving Club sank a shaft and broke into the cave system. There must, therefore, have existed a natural entrance, which is now blocked and of which we know nothing.

The other puzzling feature is that, although the earth around the bones and beneath the holes was carefully searched, no objects were found. One would have expected to have found buttons, some fragments of clothing, or at any rate the holder or remains of a light. This absence of associated objects makes it impossible to date the skeleton, and since there are no reports of anyone being missing in the district within living memory, it may be assumed that the bones are more than 100 years old.

One reference, however, has recently been discovered by Mrs John Barrows in 'Hanes Plwyf Defynog' (A History of the Parish of Devynock) by D. Craionog Lewis, published by H.W. Southey, Merthyr Tydfil, in 1911. This reads as follows:-

> 'There is an old story among the people of the place about an old castrator who used to travel through the Valley, blowing his horn to notify his coming and to offer his services. He went into the cave where the Ffynnon Ddu springs from, to find out its course, and the people heard the sound of his horn from far up inside, and the old castrator was never seen any more.'

Such tales seem to attach themselves to most caves, however, and the reference is only given for what interest it may have.

Cave explorers, including operators in self-contained diving suits, have tried to enter the cave at the spot where the castrator is reported to have disappeared, but without success.

Edmund J. Mason.

The bones were submitted to Professor West, Professor of Anatomy at the University College, Cardiff, whose report is as follows:-

The following bones were received: Fragments of skull, a few vertebrae and ribs, portions of most of the bones of upper and lower limb. Examination of the bones leads to the belief that they belonged to a male of between 20 and 25 years of age, and about 5 feet 5 inches in height. There is evidence that the owner habitually adopted a squatting attitude. There were some teeth of both upper and lower jaw and they show very considerable wear, some of them a good deal more than might be expected in a youth of 20-25 years.

A detailed account of the bones is recorded in the Anatomical Department of University College, Cardiff.

C.M. West.

We are grateful to the Editor, Cardiff Naturalists' Society for permission to print the above from CNS Reports and Transactions, Vol.LXXIX,pp.55-62, 1945-1948.

OBITUARY

COUTENAYE LEWIS RAILTON, C.Eng. M.I.R.R. F.Weld.I. 1907-1971.

All members will have greatly regretted hearing the news of the death of our President, Lewis Railton, on 25th August, 1971. Unfortunately, during the past few years, due to illness, he was unable to take an active part in our sport, but his interest never waned and, although not in good health, he continued to keep in touch with all Caving activities.

Lewis began caving before the last war and was very active mainly in Yorkshire, where he was involved in a number of first descents. After the war he returned to his chosen sport and in 1946, with a number of friends, founded the Cave Research Group, an organisation whose objects were scientific rather than sporting. It was in the same year that Lewis turned his attention to the Caves of South Wales and his long association with this area started with his joining the newly-formed South Wales Caving Club.

His many caving interests included Photography, Survey and development of Caving Equipment. Many members will remember seeing his excellent slides in stereo. He was one of the pioneers in Lightweight Ladder design, but the work by which he will be most remembered is Cave Survey. His high grade survey of Ogof Ffynnon Ddu I (which, with the help of many members of the Club, took years to complete), is still regarded as a classic achievement. It was during one expedition on this survey that he was trapped with his assistant Bill Little for nearly sixty hours, when the river rose because of an unexpected storm, gaining them probably their largest spread of publicity, although this was no doubt something of an embarrassment.

During his caving career Lewis travelled extensively, visiting caves in many countries, including Yugoslavia, France, Belgium, Austria, Norway and U.S.A. It was during these expeditions that he developed his wide circle of friends abroad, thus making him eminently suitable for the position of Foreign Secretary to the Cave Research Group, which he carried out for many years. All his efforts were directed at furthering knowledge of Caves and Caving.

Our Club will be the poorer for losing a good friend and true speleologist and we will always respect his memory.

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OBITUARY

BRIAN de GRAAF, 1927-1971.

Brian de Graaf, who died in September aged 44, has left a record of achievement in life that must mean a lot to people in many walks of life. Although members will best remember him as an editor of the magazine, an arduous job that he and his wife carried out with great regularity and literary skill for many years: he was in fact a caver who showed courage and resource coupled with caution. This latter most necessary attribute stood him in great stead when cave diving. As an early diver he battled with not only the usual risks of caving, but also with primitive and doubtful breathing equipment. Diving then necessitated greater preparation than today, it was Brian's patient approach and mechanical aptitude that contributed to his success.

This painstaking striving for perfection led him always to fresh challenges. With considerable artistic talent he fitted naturally into the career of Deputy Planning Officer. He was well suited for the continuous battle to protect and perfect the county he lived in: a job he carried out conscientiously and with skill, as testified to by the warm appreciation of his colleagues.

Most are content with success in a few pursuits, this was never true of Brian, who was always achieving great satisfaction from new interests. His house and garden display an astonishingly successful blend of planner, artist, and craftsman. A garden created with love and feeling from a field, and a comfortable house from a ruin, all the work being done without outside assistance. As a musician he mastered that most difficult solo instrument the French horn, being in frequent demand for concerts.

It is difficult to list all the activities which he attempted and which enriched his life and those who knew him: as a scramble rider, beekeeper, or potter, he was never content with the usual or accepted standard of success. Shortly before his illness he was attempting new glazes and designs that made his pottery appealingly different from the rest. He died leaving a wife and many friends with a great sense of loss.

C.O.G.

21.11.71.

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INSURANCE ON CAVE RESCUES.

No doubt as a result of the long term lobbying by the CAVE RESCUE COUNCIL and the Mountain Rescue Committee an insurance scheme is to be introduced. The following notes are reproduced from the 'Daily Mail'.

"Daily Mail, Tuesday, August 17, 1971.

Help for pot-hole heroes

The Government is to pay for insurance of civilian volunteers who join mountain and pothole rescue tems.

The scheme has been devised by the Home Secretary, Mr Maudling.

In a letter to chief constables he says 'a good deal of help is willingly given' by civilian volunteers, but the absence of insurance cover is 'liable to be a deterrent.'

Mr Maudling recommends all police authorities to arrange free cover providing: £10,000 for death or permanent disablement; £5,000 for loss of an eye or limb; £30 a week for temporary total disablement, and £12 a week for partial disablement, for a period of up to two years; replacement of damaged clothing or other personal belongings.

He suggests that the insurance should cover volunteers engaged in rescue operations from mountains, caves, pot-holes and marshes.

Premiums will be paid for out of official police grants."

These rates may be on the low side for members enjoying high salaries but would seem pretty fair to me; at least they remove any question of the possibility of real hardship arising from an injury incurred on a rescue.

An important point is that cover appears to extend to Volunteers aiding the police. It will therefore be vital to ensure that callouts are routed through the Police and not just done amongst ourselves as has often happened in South Wales. A privately arranged operation set in action through S.W.C.C., or any other club would not be covered.

W.H. Little.

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Some time during last May or June, the telephone line was removed and destroyed from Agen Allwedd. The persons responsible or the exact time have not yet been discovered. Would anyone who visited the cave about this time, please contact the Secretary and let her know whether or not the line was intact at the time of your visit.

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Rescue from Ogof Ffynnon Ddu

The skill and resources of South Wales Cave Rescue Organisation were put to test on January 29, when Bill Little fell in a series of passages off the Dip Sump series in Ffynnon Ddu II.

The fall resulted in a compound fracture of Bill's right leg, just above the ankle.

Rob Williams set Bill's leg in plaster underground which fortunately allowed Bill to assist himself through the difficult passages as far as Boulder Chamber, where the floating stretcher (illustrated on the cover photograph) could be employed. The stretcher basically consists of a neoprene exposure bag surrounded by two lilos and additional inflatable padding, held together by an external canvas sheet. This allows the rescuers to let the water do the work. The "carry" down the stream passage in Ffynnon Ddu I takes less than twenty minutes.

Our very sincere thanks are due to all who were called out or stood by on this night. We wish Bill a speedy recovery.

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The idea of including photographs inside the newsletter has proved to be relatively easy, inexpensive,and very successful. We can only continue to include photographs, however, if material is sent in. Have you contrasty black and white prints of caves or associated club activities? If so, please send them in.

The photographs opposite were taken in Dan-yr-Ogof by Frank Honey.

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FROM THE LOGBOOK

Ogof Ffynnon Ddu

Due to extensive wearing of the chains, the poles on Pole 1 and 4 of OFD 1 have now been removed; one Maypole has also been removed from the Maypole inlet and has been replaced by a fixed ladder. It has been noticed that a large amount of spent carbide is being left in one cave. This unfortunately, apart from damaging the cave, could possibly pollute the water supply to Y Criting, it also upsets the chemical examination of the waters being made at this time. It is not possible for divers at Shower Aven to raise their own ladder at the present time as the courline line which was left for this purpose has been used to climb an aven near Showers Aven and left there.

There have been several minor discoveries in Ogof Ffynnon Ddu including about 500 ft off the Big Shacks. A small amount of very well decorated passage has been found by traversing halfway down the 70 ft pitch at the Crevasse. There are two digs in progress near Dip Sump series. One of these, near Coronation Aven, has been blasted and was found to lead back into the new connection. The other is near the Divers Pitch, it is progressing slowly through loose boulders and looks very promising. The site is at present in a dangerous condition, so care should be taken when exploring passages in the area. We have also heard of a discovery in the Piccadilly area - large chambers have been found (by club members) but no details have yet been reported. Exploration is in progress.

Dan-yr-Ogof

There has been much work done in Dan-yr-Ogof in the last few months. Most of this has been diving , but some dry finds have been made. The most significant of these is the 2000 ft of passage which has been found off Mazeways. This was found by a short dig and the majority of the passage was about five feet in diameter. There has also been about 200 feet of passage found in Dali's Delight. The same amount near the end of Dan-yr-Ogof III was found but this has since been extended by a further 300 ft. An underwater connection has been found from Mazeways Entrance Pool to Lake 10. A line has been laid but should not be free dived. The downstream sump in Dali's Delight has been dived for about 130 ft through fairly large passage , the upstream sump was found to be too tight. The Rising has also been dived for about 90 ft, where an airbell was found, but there was no apparent way on.

Other sites

Tunnel Cave: Sumps I and II were dived, a line being left in Sump II. A small amount of dry passage was explored after Sump II. On returning this passage was extended for about 500 feet to a boulder choke, which should be easily passable.

Agen Allwedd: On a sixteen hour trip the new extension off Turkey sump was explored as far as Sumps four and five. About 150 feet of small passage was found and several possible passages were left unentered.

Whiskers Cave: A large party took in Diving gear but were disappointed to find that the sump could only be followed for about 15 feet when the passage became too small.

C L U B N E W S

1. We welcome the following new members:

   Ginny Brooks, 188 Gower Road, Swansea.
   Vivien Coburn, 56 Chestnut Road, Cimla, Neath, Glamorganshire.
   J.G.L. Clements, 3 Watling Knowle, Radlet, Herts.
   David B. Edwards, 109 Elgin Avenue, Harrow, Middlesex, HA3 8QN.
   R. Egon, 10 Blakewell Gardens, Tweedmouth, Berwick-on-Tweed, Northumberland.
   Hilary Genin, 6 Bankton Road, Brixton, London, SW2.
   John E. Gillett, 16 The Chase, Oaklands, Welwyn, Herts.
   David McGill, 43 Lon Coed Bran, Cwmgwyn, Swansea.
   Jeremy L. Murr, 16 Sydney Road, Muswell Hill, London, N.10.
   Nicholas Murr, 16 Sydney Road, Muswell Hill, London, N.10.
   Derek J. Watson, 32 Tees Court, Hanway Road, Hanwell, London, W7 3RW.
   David Williams, Nythfa, Cwmllynfell, Swansea.

2. Congratulations to:

   Noel and Pat Christopher, and
   Clive and Addie Perrett,

   on their recent marriages.

3. John Williams has been elected onto the Ogof Ffynnon Ddu I leaders list.

4. Club rules: a new rule has been added. 'Pets may be brought into the headquarters only if they are kept strictly under control and provided that no person present objects to them being brought in.'

5. Several offers of help with the next duty officer rota have been received since the recent circular went out. More offers will be welcomed.

6. Seaton and Marion Phillips and family are looking for another family to accompany them on an overland expedition to East Africa next autumn, or for anyone who would be prepared to travel with three children under nine. They would also welcome information from anyone who may have made such a trip in the past.

7. It was with great regret that we learned of the death of Arthur Hill. An obituary is being prepared.

8. Address changes:

   Hywel Ball, 116 Dawlish Road, Selly Oak, Birmingham.
   Richard J. Barr, Trinity Cottage, Perton, Nr Wolverhampton, Staffs.
   Noel Christopher, 30a Beechfield, Kings Langley, Herts.
   Roger and Liz Flaherty, "Ty Ann Arthur", Talley, Nr Llandeilo, Carms.
   Chas. and Elizabeth Jay, 49 Clifton Road, Newbury Park, Ilford, Essex.
   Peter Linforth, Wychwood House, Towcester Road, Milton Malsor, Northants.
   Kenneth Maddocks, 368 Fernhill, Mountain Ash, Glamorgan.
   Clive Perrett, Great Moreton Hall, Moreton, Congleton, Cheshire.
   Paddy and Sue O'Reilly, Flat 1, 2 Eaton Square, Markstown, County Dublin, Eire.