SOUTH WALES CAVING CLUB

NEWSLETTER

Number 60

July 1968

C O N T E N T S

HON. SECRETARY ..... J.V. Osborne, 34, Haygate Rd., Wellington, Salop.

HON. TREASURER ..... E. Inson, 42 Torrens Drive, Lakeside, Cardiff.

HON. RECORDS OFFICER .. Clare Harvey, Upper Hareslade Farm, Caswell Bay Rd. Bishopston, Swansea.

HON. EDITOR .... P.M.O'Reilly, 1 Le Mayals, Owls Lodge Lane, Mayals, Swansea.

ANNUAL GENERAL MEETING 1968.

Election of Officers and Committee for 1968-69.

PRESIDENT	C.L. Railton
VICE PRESIDENTS:	Mr. A. Hill Mr. D.W. Jenkins Dr. D.A. Bassett Mr. L. Hawes Miss M. Hazelton.
CHAIRMAN	Mr. R. Smith
HON. MEMBERS:	Mr. and Mrs. J. Barrows, A.J.R. Hudson, G. Platten, C. Powell, Mrs. G. Price, Dr. North, C. Freeman, Mr. and Mrs. P. Harvey, Dr. A.C. Price, Z. Pepionic, Dr. E. Aslett.
HON. SECRETARY	John Osborne
HON. TREASURER	Eric Inson
HON. EDITOR	Paddy O'Reilly
HON. RECORDS OFFICER	Clare Harvey
HON. C.R.O.	Gordon Clissold
HON. TACKLE OFFICER	Frank Baguley
HON. COTTAGE WARDEN	Bruce Foster
HON. AUDITOR	J.M. Davies
COMMITTEE:	Bill Little, Alan Coase, D. Hume, John Aldridge (Co-opted)

Secretary's Report.

'Her case may I detect
be yours my dear and mine,
let us make our hay,
while the sun doth shine,
let us compromise
our hearts are not of leather
let us close our eyes,
and talk about the weather.'

Well the year started with a bang last April. Unfortunately this time it was two bangs in the Neath which naturally upset the local farmers. We were unable to determine who was responsible but the effects of the incident were noticed for some time. The Club assisted in local enquiries and it is mentioned here to stress the significance to the Club of any activity related to caving in South Wales. However we have been busy ourselves over the year as Members will know. The Committee considered issuing Membership cards but on balance they were still not thought to be desirable. Dan yr Ogof Guest Leaders on the other hand were thought essential and invited Clubs attended introductory trips into the cave to check on their suitability. All is now ready for the scheme to be put into operation and final agreement was reached yesterday with the management.

Whilst these discussions were proceeding the Club settled down to enjoy its Anniversary Year and the dinner provided the social highlight of the year. The Yugoslav Ambassador attended and many old friends and Members joined to make it a fitting occasion. Later in the year plans were finalised and the Anniversary Publication appeared, presenting the most ambitious publishing exercise yet carried out.

Within the Committee the work has been streamlined. Officers are now responsible for their post and will refer to the Committee for policy only. The time saved is remarkable! In May a policy was agreed regarding the increasing number of requests for assistance from non-caving bodies and the context has been offered to Members in the Newsletter.

The Newsheet is also a new venture for us and it is hoped that, being more topical, it can provide a useful service to those a little out of touch. Whilst on the subject of touching, the Hut Fees have changed at last, not for Members as yet but in the year Guest fees have been increased and the numbers reduced a little. Members can therefore enjoy more peace without paying for it, at least we hope so.

The most important development of the year was not in caving as it turned out but Foot and Mouth. In November the spread of the disease was causing widespread alarm and with some reluctance the Committee decided to close the HQ to Members. This decision was well received outside the Club and it was gratifying to see that Members also agreed. Although the Club was closed for two months Members in general still honoured the request to

stop caving whilst Foot and Mouth raged. There is no doubt that our actions were necessary in the Club's interests and once again a special thank you for your support is offered.

The last year has been difficult in many ways but we did at least catch the rat loose in the HQ in October; we even resisted the temptation to hold this AGM in the Hall in Ogof Ffynnon Ddu 2. Projects in hand or receiving attention include access to all the caves, National Councils, Guest Leaders, Cottage improvements, and finance.

The caving picture is as rosy as last year. In Dan yr Ogof Dave Judsen climbed up an aven near the Mostest and extended the Great North Road into what became known as the Far North. Radio tests in the cave were successful and the Cauldron Chamber was located on the surface and later on the start of the Long Crawl and the 100 ft. Cascade were both located on the surface. The depth in both cases being below 80 ft. of rock. Members, led by A. Coase are today launching the most determined attack on the cave. Cavers plan to camp underground in Bat Chamber for three days and use the time saved travelling to explore, survey, photograph and water test the far reaches. The organisation, over many weeks, appears to be favoured by good weather.

Digs have been rare this year, but one rare one is Engine House. The need for a dry way into OFD spurred Clive Jones to tackle what was initially a bed of breathing shattered boulders. As the year progressed it became a bed of breathing shuttered boulders with the shaft approaching thirty feet deep. Alas, recognition came too late as the divers found the dry way in via Cwm Dwr and explorers rapidly discovered the passages which Clive 'knew' existed. The dig was abandoned only when the top entrance was discovered and excavated within 300 yds. of the dig.

As you will know, most developments have been in Ogof Ffynnon Ddu. Just after the AGM divers managed to force a dry way into Cwm Dwr and they enjoyed a fine through trip. Their pleasure was matched in the following weeks by parties who discovered the cave for themselves via Cwm Dwr once the boulders had been stabilised. The era of the Mega Trip was with us with trips into OFD and DYO reaching 16 hours and more. Marble Showers series was found and in early June Clay Series was entered. Its exploration continued until August when the site of Snail Dig was located on the longest exploration trip to date. In September its location on the surface was achieved by means of the radio device and after the second test the dig was started. The most successful dig in recent years was completed in 3½ hours and the top way existed into the cave.

The series, now easily accessible, provided many parties with the thrill of discovery and many fine formations were described. In October one of the last secrets was bared when a party pushed the Shambles and rediscovered the main streamway which was then followed a further ½ mile. Lastly in February a party had the pleasure in managing the through trip, OFD 1 - Top entrance of OFD 2, without getting wet (relatively speaking). The route through Coronation Aven being opened especially for the occasion, and was kept open at least long enough for the party to get through!

The divers have been active again with dives in Hospital Cave on

two more occasions, producing a further 600 ft. of passage. Further afield divers have pushed Llethrid, Shakespeare and Agen Allwedd. These are in addition to the successful dives in Ogof Ffynnon Ddu.

Expeditions have been more modest last year but Members went to Yugoslavia, France and Sicily and whilst little hard caving was done, more information was gained which can be used later on. Two trips to Yugoslavia are planned for this year, both with old friends of the Club to work with over there.

Last year you, the Members, elected active Members to serve you on the Committee and I am sure they have done this to the best of their ability whilst at the same time Committee Members have been able to continue leading exploration. This has meant that in the Committee the active Membership has been well represented and that decisions have been taken with this in mind. The policy pursued is available for all to see, in the minutes, or in the Newsletter and Members are invited to state their views at any time. With the confidence of Members behind them the Committee can then carry on the fight with enthusiasm.

J.V. Osborne.

Hon. Sec.

Cave Rescue Organiser's Report.

The past year has been a major accident free one; there has however been a number of minor incidents and concern over parties overdue. My records of minor incidents are incomplete due to lack of written reports being forwarded; I repeat last year's request that those concerned in any incident please forward a report. This will enable us to have a complete picture of the accident situation in South Wales.

As for parties overdue, this can be rectified by removing one's destination card after completing one's trip, and putting a more realistic time of return. I'm sure a little more thought would cut down on the hours for concern.

Incidents.

25th March 67. A member of Crawley C.C. had slipped in High way DYO and sprained his ankle. A limited number of rescuers with rescue equipment proceeded to the cave. A control base was set up in Bridge Chamber and a recce party with sustainence set off at 20.00 hrs. A stretcher was not needed and the incident was concluded at 21.30 hrs.

1st July 67. A member of SWCC sprained his ankle in the Far reaches of OFD II but negotiated the return journey out with the help of his party and sustainence sent into the cave - the stretcher was not needed.

2nd July 67. A 4 cwt. boulder became detached at the bottom of the Cwm Dwr entrance, whilst a visitor to the Club was descending it. The visitor managed to support it while help and equipment was speedily sent from the HQ. Fortunately the caver managed to stabilise the situation and vacate the shaft. A further 4-5 hours were spent making conditions safer and warning notices were posted in and out of the cave as there were still four parties in the cave.

20th Aug. 67. Calf rescued from Gents Dig in reasonable condition, believed to have been trapped about 3 days.

Unwritten report of a party of Swansea University CC trapped by flood water in Tunnel Cave. Modifications to the dam were made and the party released.

Unwritten report of a SWCC member thrown into the stream passage OFD when a traverse wire parted, believed to be caused by electrolytic action. No major injuries caused and the CRO not called upon.

Rescue Practices.

Due to Foot and Mouth restrictions and flood conditions in DYO several practice rescues had to be cancelled.

6th May 67. A party gathered at the Byfre to look into the problems of swiftly diverting the stream. Constructional work was carried out on building a framework whereby a dam could easily be erected at the Byfre bridge site. Further work has yet to be done in selecting the channels along which to divert the waters into Nant Byfre.

3rd March 68. A practice was held by W. Clarke and Swansea University C.C. at Llethrid Swallet. The object was to explore the possibility of moving a stretcher from the foot of the mud pitches leading out of the Main chamber up to the Main Chamber and across to the commencement of the stream passage. Two routes were investigated, but found to be extremely arduous due to the glutinous nature of the mud. It offered no footholds and enormous friction on the ropes. The exercise took 4 hours and it was suggested that the use of pulleys might cut down on the time and effort.

A series of sump rescue practices have been held throughout the year, and many sump rescue problems ironed out. There are approx. 20 members known to have had diving experience in the Club, of which 10 have attended the practices. Sump rescue techniques have been developed and the procedure will shortly be circulated to those members concerned. Modifications have been carried out to the exposure bag and there are still several to be made.

Meetings Attended.

24th June 67. A Cave Rescue Council meeting was attended at Settle in which a representative body was formed for the following purposes:-

1) Obtaining national recognition for Cave Rescuers.
2) Allocating coverage for areas as yet without effective means of performing cave rescues.

3) Helping establish rescue facilities in those areas needing help.
4) Providing the liaison desirable to supply additional strength to areas or even countries in the event of major incidents where the areas or countries request it.

30th September 67. A Cave Rescue Council was attended at Bristol. Letters written to the Home Secretary resulted in their referring to J.A. Willison Esq., O.B.E., the Hon. Sec. of the Association of the Chief Police Officers of England and Wales, and assuring their support. A meeting with Mr. Willison led to the following recommended procedure:-

A) 1). The CRC to confirm base at Central Control Points of Police contact for each Area Rescue Organisation.
2). Agree allocated coverage of less frequented areas.
3). Establish inter area callout system for additional help. This would be through the Central Police Points.

B) The Association of Chief Police Officers to deal with the conveying of the information throughout the police service with the authority for its inclusion in the "Emergency Instructions" for the guidance of all police personnel.

30th September 67. A conference of Cave Rescue Organisers was attended at Bristol, the agenda being:-

Report of the Cave Rescue Council.
Carrying out one's own rescue operations abroad.
Foreign cave rescue organisations.
Food for emergencies.
Properties of artificial rope fibres.

CONCLUSION

Objects which it was hoped to achieve during the past year were as follows:-

1). To achieve a more mobile state of preparedness.
2). A more compact list of rescuers.
3). Acquiring the special equipment with which to deal with the new situation arisen due to the breakthrough into large cave systems.

1). Work has progressed well with the new cave rescue depot. The rescue trailer is now fully operational. Work on the rescue Land Rover has progressed, but due to the Foot and Mouth restrictions, was not finished this year. This in its turn has held up the final storage of the rescue equipment.

2). A card index system for cave rescue lists has been put into operation.

3). has been dealt with previously.

4). Sump rescue equipment has been assembled modified and a training program carried out.

This summary shows that the Organisation has gone a long way in achieving its objects, thanks to the hard work put in by the stalwart members to whom I extend my sincere gratitude.

Gordon Clissold.

Hon. Treasurer's Report.

SOUTH WALES CAVING CLUB.

Statement of Income and Expenditure for the Year Ended 29th. February 1968.

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EXPENDITURE	£	s	d				INCOME	£	s	d
HQ Expenses							HQ Fees	298.	5.	8.
Electricity	25.	0.	0.							
Coal	14.	0.	0.							
Gas	31.	12.	4.							
Cleaning & Materials	90.	4.	6.							
Rates & Water rates	38.	5.	2.							
Insurance Fire & Burg.	18.	8.	6.	£217.	10.	6.				
General Expenses.										
Club tackle & tools	86.	17.	11.				Annual Subs.	172.	17.	0.
C.R.O.	48.	6.	9.							
Purchase of garage	15.	0.	0.				General donations	64.	8.	6.
Records, Publications		10.	0.							
Telephone rental & chgs.	32.	13.	9.				Telephone	11.	0.	2.
N/L charges	40.	7.	6.							
N/L & general postage	38.	3.	2.							
21st, Dinner	164.	19.	3.				Dinner sales	107.	3.	0.
21st Publication	54.	1.	4.				Publication (on Feb.29)	107.	0.	0.
Mountain Rescue	10.	0.	0.							
Donation Mrs. Keane	20.	0.	0.							
Wreath Mr. Morgan	2.	0.	0.							
Stationery	7.	12.	2.				Interest on Deposit a/c	9.	4.	0.
Sundry Expenses	5.	2.	9.	£525.	14.	7.	Credit Roneo.	11.	15.	0.
				£743.	5.	1.				
Gross surplus for year				£ 38.	8.	3.				
				£781.	13.	4.		£781.	13.	4.

NETT REVENUE AND APPROPRIATION ACCOUNT

Annual HQ repair fund provision	100.	0.	0.	Gross surplus bt/down	38. 8.
	100.	0.	0.		38. 8.
				Nett Deficit.	61. 11.
				Balance 1st Mar.1967	454. 2.
Balance carried fwd.	392.	10.	6.		392. 10.

BALANCE SHEET AS ON FEB. 29th. 1968.

Liabilities and Credit Balances	£	s	d	Assets and Debits Balances	£	s	
Capital Balances	593.	12.	0.	1-10 Powell St.	200.	0.	0
HQ Repairs Fund	700.	0.	0.	Garage	15.	0.	0
Revenue Balances	392.	10.	6.	Roneo Duplicator w/d value	5.	18.	0
				Club tackle, Rescue & survey equipment w/d value	369.	14.	0
				Plant, loose tools &c. w/d value	3.	0.	0
				HQ fees outstanding	196.	6.	5
				Cash at Bank			
				Current a/c Lloyds Bank	387.	3.	0
				Deposit a/c at S.Wales T.S.B.	377.	19.	5
				Cash in hands of Hon. Treas.	131.	1.	8
	1686.	2.	6.		1686.	2.	6

T. D. C. MOON
(Hon. Treasurer)
1st. April 1968.

(Audited. Hon Auditor
J.M. Davies).

Report of the Equipment Officer.

1. INTRODUCTION. As there is apparently no statutory obligation to render this report, it can only be considered a provisional one. Family illnesses, H.Q. jobs, the Foot & Mouth epidemic, amongst other things have prevented me from fulfilling the job properly.

2. PURCHASES. There have been no major purchases this year, only for small expensive items such as drills. The committee have decided that no small tools, such as lump-hammers, be bought.

3. GIFTS ETC. of tools, materials etc. have been gratefully received and acknowledged from the usual members - I. Holmes, G. Saunders, D. Judson, N. Christopher, R. Stewart, R. Smith, W. Little, L. Galpin and others. A charging unit donated by A. Coase was made operational by R. Stewart and J. Osborne, at your own risk!

4. LOSSES & DAMAGE have been less this year, though they still occur. Ladders, tools, spades, the power-saw, the Kango-hammer, the generator and survey equipment have been damaged and most of them now repaired.

Tethers and lump-hammers (of which there are now only two each left), spades, carpenters hammers, all the charging clips have been lost, not returned or appropriated.

Six new ladders have now been made from my prepared kits, by J. Osborne and C. Freeman, but there are still many more to do.

5. ISSUE, RETURN AND CARE OF EQUIPMENT, TOOLS AND WORKSHOPS. Workshops are still being left untidy after use, and tools etc. are not being returned to their proper place. Ladders are not being washed IMMEDIATELY after use. In addition, other equipment and tools are being taken away for PRIVATE NON-CAVING projects on buildings and vehicles, without asking for permission; and are not being returned, with consequent loss of use and disturbance at the H.Q. It would be appreciated if a request were first made in these cases and, if it were not too much to ask, a small appropriate donation made to the kitty.

The open system has its inherent faults, and despite the recommendations to the contrary, the committee do not wish to change it. On one occasion, mid-week, ALL the ladder was taken for a long period without prior permission, with the result that an official visiting party was unable to go on a planned caving trip.

It is emphasised again that the Club lamps are only for use by official visiting parties, the charge being 1/-, the leaders being responsible for collecting fees, seeing that the lamps are returned clean, and charged to safe keeping.

6. CAVING PROJECTS. An emergency propane light (and heat) source, has been installed in D.Y.O. for use during flood-trapping. Special fixed ladders have been made and installed by D. Judson, who has also laid in the telephone system. Taping-off materials have been made and supplied for D.Y.O. and O.F.D. 2. Equipment has been made available for the O.F.D. 2 dig, and assistance rendered in the preparation and landscaping of the entrance. The gate

was prepared and fitted by R. Stewart and J. Osborne. Cwm Dwr shaft collapsed in the early summer and much work was involved in re-timbering the shaft, thanks to R. Smith, J. Bevan, D. Dilly, W. Little, and others. No gate has yet been fitted. Scaling equipment has been provided freely in the several caving projects, but the use of fixed aids has now been discontinued.

7. H.Q. PROJECTS. Advice, practical assistance, equipment and materials have been given for the new H.Q. developments in

A. Workshops and C.R.O. Nos. 1, 2 and 3.

B. Cottages 5, 6 and 7.

C. General repair and maintenance, not forgetting the entrance series and sumps of the septic tank, so ably undertaken by W. Little and N. Christopher and others.

8. OTHER PROJECTS. Assistance has been given to and offered upon request from Mr. Newman, the Head Warden of the Brecon Beacons National Park. The major one was the raising and removal of the one ton powder mortar at Nobel's Works, Pont-Nedd-Fechan. Such cooperative projects, and akin meetings with the Head Warden have helped to establish good relations with the Authority, which I would not like to see damaged in any way.

9. EXPEDITIONS. There were three small expeditions last year and three more contemplated for the coming year. I would remind anyone intending, that under the terms of the loan of equipment, it must be insured, returned or replaced in good state, together with a report of the expedition. Though it is not included in the terms of the loan, it would be appreciated if future expeditions would make a donation in cash or kind, if only to supplement the efforts of the original teams which built up this store.

10. FIXED AIDS. Despite regular attention, the Bolt Traverse handline gave way in February, and Noel Christopher was lucky to escape with a shaking and bruising, after falling into the stream. A fault had developed due to the use of a tinned copper binding rubbing wire. The rope has been passed on for an official report. All traverse wires are now being replaced and I am especially indebted to Noel and W. Little for their assistance.

A 'Knobbly dog' hand-climbing line has been fitted at Column passage to aid visiting parties (see para. 6).

11. ADMINISTRATION ETC. The Cottage Warden and myself visited the H.Q. during the 'F & M' period to check upon activities and dilapidations. Some repairs and jobs were carried out. I have maintained my quota of leadering, and attended all the committee meetings, and given the fullest support to all the officers of the Club, whether in their presence or absence. I have made a small contribution to the 21st Anniversary Publication, and made a major contribution to the chapter on 'Ladders' in the new C.R.G. book due out this year. Other Club members have also made major contributions to this.

After a request for authoritative assistance and appointment of two co-opted members, I resigned on April 29th because of the committee's decisions not to co-opt and on the subject of a 'duty officer'. Min.37 reads, "It was appreciated that if two members were co-opted, there was no obligation for them to stay at the club, and in fact, this could not reasonably be expected of a Committee Member" - except the Cottage Warden and Equipment Officer. Needless to say there has never been any difficulty in co-opting an Asst. Secretary, in fact this has now been made easier! After a personal appeal by the Chairman at my home, I agreed to carry out the duties meantime, somewhat unhappily.

12. APPEALS. Despite my belated appeal last year, no equipment has been returned, and no offers of help have come from appeals by the Editor and Chairman.

May I take this opportunity of asking Club members to respond, do a fair share of the work that needs doing, and give these officers a fair break. Finally I would like to thank those few whom I seem to be constantly mentioning by name, or whom I have inadvertantly omitted. I do appreciate their help and moral support.

P.S. On April 12th Eric Hensler brought a most useful collection of items which was gratefully acknowledged.

Frank Baguley.
Equipment Officer.

Hon. Records Officer's Report.

Mr. Chairman, Ladies and Gentlemen: The report of the Records Officer, unlike one the Tackle Officer often has to give, is not a list of the number of items lost during the past year, nor am I going to give a list of the items which we have acquired. One reason why no publications have been lost is because so few people borrow them in the first place. Why is this? Why don't people use the library more? Is it because they prefer caving to reading about caving? But then even our armchair cavers, of whom we have plenty, seem to be content with only our own Newsletter, excellent though it is, to keep them up to date. Out of a total membership of nearly 200, the number of people who have asked to borrow items from the records during my past year of office can be counted on my fingers. Perhaps the reason is poverty, after all stamps are expensive these days, but for those who come regularly to Penwyllt, personal delivery can easily be arrange.

The criticism made by some is that they have no idea what is in the library. An attempt has been made to remedy this by reporting new additions in the Newsletter but since this has been done not one of them has been requested.

When Derrick Webley took over the records he began the immense task of compiling an index of which a copy was kept here at the headquarters. The task of keeping any index up to date is almost a full time one and unless used, hardly seems worthwhile. However I hope eventually that there will be a subject index, as well as an author index, which can be kept in our new club laboratory or drawing office, when available.

It is of course totally impractical to house valuable journals etc. in the often damp and deserted club headquarters, but it may be possible to keep the non valuable ones or duplicates here. Perhaps the Cottage Warden could find a corner where a magazine rack could be installed from which they could be borrowed and <u>returned.</u>

During the past year the library has grown steadily. A few items have been bought and many journals acquired from other clubs for which we have exchanged our own Newsletter. The policy has been adopted that exchange of newsletters which are only of interest to the club which produces them, (i.e. those on a par with our own Newssheet which is not exchanged) has been cancelled. This has led to a few clubs electing to buy our Newsletter instead at the rate of 4/- per copy. We now exchange publications with 8 British clubs, in addition to C.R.G., one club each in Germany, France and Austria and the National Speleological Society of America.

The library then is expanding and I would like to end with the plea that members shouldn't be afraid to make the most of it. After all it is not a sacred collection guarded over by the records officer like the arc of the covenant. As members of the S.W.C.C. the library belongs to you.

Clare Harvey.

Hon. Editor's Report.

My report will be a brief one - and one mainly of praise. Firstly I would like to praise all those who have helped me have a very productive year as Editor. We have had our full quota of Newsletters despite the long break for Foot & Mouth, and I hope you have all noticed that they are bigger and better than previous years'. We have also used the Newssheet as a more regular "gossip column" to keep members up to date in news.

The big moment of the year came, of course, when the final staple was put in position on the 21st Anniversary Publication. I think the labour put into the magazine was well worth it, especially so as of the 350 copies printed there are only 70 or so left. I would like to thank everyone concerned with the magazine, especially Susan Bradshaw who helped me so much with the editing, and Mr. Jones of Cardigan who did the printing.

Listening to the discussions of some of you here today and considering that the Editor's work has increased so much of late, in common with the Tackle Officer, the Cottage Warden, the Treasurer and the Secretary, I am considering asking for another subcommittee to be formed .....

P.M. O'Reilly.

POSTSCRIPT TO BALINKA.

After treasuring some of our biological specimens for two years, the Cave Institute at Postogna has finally decided to give fame and reputation (scientific) to one of the members of the Expedition. A small pseudoscorpion collected from Balinka is to be named:

Neobiscum (Blothrus) stygium WEBLEYI subsp. nova.

This specimen, incidentally female, is on view in the records by appointment only.

(Clare Harvey.)

SOME NEW CAVES.

(a) OGOF RHYD SYCH BECOMES A MAJOR CAVE.

Ogof Rhyd Sych has now been extended by a total of 3,000 feet, mostly just before and during Easter this year.

No work had been done in the cave since June 1957 when a group of us under the BNS flag got into the second chamber. Divers then tackled the inner sump without success in September 1966 and later. A party from the newly-formed Cwmbran Caving Club including myself then widened the slot over the sump in 1967 and got into some 400 ft. of new passage, ending in another tight bedding plane. This emitted the main cave draught, and the stream could be seen between 2 sumps down-dip to the right. So much for history.

On 7th April this year 3 thin men from the Cwmbran C.C. forced the bedding plane while 2 of us stayed outside weather-watching. They did not emerge for 5 hours having entered some 2,000 ft. of new passage.

A large-scale attack was mounted over Easter and a boulder-choked end reached on 13th April. The new section is a long stream passage presumably containing the Glais stream in addition to other waters. It is narrow in parts and one stretch is very well decorated. This contains a "telegraph pole" column 7 ft. high, a cracked column 2½ ft.* in diameter, and many stalactites usually eccentric in shape. Beyond the streamway is a large chamber, over 200 yds. long, of a typical South Wales variety with the stream sometimes meandering over the floor. This ends in a massive choke which has been examined closely without revealing a way on. Below the choke 2 streams come in both of which go a short way and contain hopeful draughts. One has a boulder choke and the other a gravel obstruction. The surface is near in places as snails and vegetable debris have been seen.

Emergency rations have been left in the chamber as the stream sumps in at least 2 places after rain. At the moment the bedding plane filters out all but thin men.

(* A large colour photo of these formations is on display in the Pontsarn Hotel.)

(b) THE DISCOVERY OF OGOF ROBIN GOCH.

This cave lies at NGR SO/0392.1075 in the Glais Valley near Merthyr some 300 yds. north of Ogof-y-Ci, on the east bank of the river. The entrance is immediately below a double bend and is a slot leading downwards underneath an overhang of rock. The altitude is 1,025 ft. and it is probable that the water drains into Ogof-y-Ci.

The entrance was spotted on 7th April by Robin Baxter of Cwmbran

C.C. The name means robin redbreast cave which is in keeping with the other 2 animal cave names in this valley, and is also apt because Mr. Baxter sports a curly crop of red hair! He persuaded 2 of us to help him open out the entrance on 19th May, and I blasted out 3 boulders after seeking permission from the land owner. The cave was then wide open and ran to 350 ft. of passages.

Generally it consists of a small stream in a bedding-plane hardly 1 ft. high. Gravel had to be cleared occasionally to allow progress, and the present end is in a chamber terminating in a boulder choke which seems to tie up with a swallet on the surface. The water flows on, with a draught, around a boulder which we will have to blast out.

In places the stream has invaded an older passage which had been filled with boulder-clay cemented with stalagmite. This debris has been undercut and forms a stable roof 15 ft. high in the chamber. The cave must flood in wet weather and the lowest crawls may be impassable. The main Glais stream has not been reached, but it should not be far ahead, neither can Ogof-y-Ci be far away. Full reports and a Grade I survey will appear in Vol. III of the C.C.C. Journal.

Permission to explore is available from the owner of Blaen-y-Glais Farm.

(c) PWLL-Y-GOEDEN-GNAU GROWS.

This aptly-named pot (a hazel tree grows in it), is an open hole in a Forestry Commission Plantation at 22/911.125 on the west side of the Neath Valley. It was first explored by P.I.W. Harvey and others in 1952, and they were stopped by a boulder choke about 25 ft. down.

Four of us under the Cwmbran C.C. flag were directed to the site by the farmer at Dyffryn Nedd farm on 28th April. A rope was tied to the hazel tree and J. Parker, R. Pope and F. Probyn rushed down forcing me to stay on top as safety watchman. At the time we did not realize that this was Pwll-y-Goeden-Gnau as it is very difficult to detect footprints on the walls of a pothole, and we thought the pot was a virgin find. Perhaps this is why the boulder choke was attacked with such vigour. In less than 30 minutes the diggers were through and they disappeared with a shout of triumph. Nothing more was heard of them for 2 hours, and their return was heralded by steam coming up the shaft, well before they reached the bottom of it, a sure sign of a strong draught.

About 400 ft. of passages had been explored from the foot of the 60 ft. entrance shaft. They were not very large, but several avens were seen. One must have approached the surface because a tree root hung down from it. A small stream was noted but could not be followed far, and one stalagmite was 18" high.

Further exploration took place on 5th May and we added 200 ft. to the cave. I noted 2 horse skulls in a run-in of boulders and cobbles from

the surface. A boulder blocking one passage was demolished, but the continuation only opened out at the foot of a cone of boulders with no way on. Finally a hole in the floor led to a canal which appeared to sump within 100 ft., but the water was stagnant.

Hopes that the pot would connect with the underground Neath River systems were dashed, and it is possible that the violent, but variable, draughts encountered are circulating between several pothole entrances which connect with the avens. Most of the cave is on a North-South fault with a throw in excess of 10 ft. Bedded calcite is very obvious in the fault plane, and its unusual structure makes the cave worth preserving.

The entrance has been covered with a wooden gate, resting on steel tubes, which should be kept shut even when cavers are inside to protect sheep. Permission to explore is available from the Forestry * Commission. A report has appeared in Volume II of the Journal of the Cwmbran C.C., and a grade 2 survey will be printed in Volume III.

Melvyn Davies.
22nd May 1968.

Ref: SWCC N/L August (?) 1952 (?).

(* The Forester lives in Pont Nedd Fechan just above the school and should be seen or telephoned before a visit. For several visits get written permits from Forestry Commission office, Churchill Way, Cardiff. Access is via bridge near Blaen Nedd Isaf farm. There is no right of way past Dyffryn Nedd farm. All these farmers are now asking for access FEES! PLEASE REFUSE TO PAY.)

(M. Davies.)

DAN-YR-OGOF: THE EASTER ASSAULT.

Easter 1968, in South Wales, was perhaps most notable for dry weather. Somehow the G-d of the weather got his timetable wrong and failed to produce any rain at all over the Easter week-end! After the foot and mouth restrictions, the date for the long-planned camp in Dan-yr-Ogof gradually settled on Easter. Many of us doubted that the co-operation of the weather would be forthcoming, and this was certainly the big imponderable throughout the whole exercise.

The main object was that of consolidating our position, rather than attempting to discover any new passage, though this temptation was obviously ever present. Continuation of the Grade 6 survey from the Rising up the Great North Road and beyond was to be the major work. Alan

Coase had planned to combine his photographic survey work with the making of a number of magnetic location checks throughout the further reaches of the system. Unfortunately the equipment had packed up a few weeks beforehand and this work had to be abandoned.

Noel Christopher and a guest of the Club, George Bray, collaborated in water tracing and sampling, but it would seem that much more work will be needed here before we can pronounce any definite results.

Survey of the Great North Road turned out to be a painfully slow and frustrating process. We lost one assistant after the first day. Glyn Edwards developed tonsilitis after an evening in the Windy Way. With various efforts at surveying through boulders, and under boulders, we eventually decided that the best method was to go over the top, no matter what the height! Thus numerous rooftubes and avens came to our notice.

The most prolonged of these exploration halts came whilst we were in Pinnacle Cavern. Up at the far end of the Cavern Coase had broken his tripod. After the protracted grumbling which followed this event, there was a marked silence, - rather like when a small child has just perceived a new mischief. Coase was obviously up to something! Eric had a good idea what was afoot, and did an instant disappearing trip up a narrow vertical tube about 10 feet away from our station, (at the highest point of the floor of Pinnacle Cavern). Eric was quite right. Though via two different avens, they both appeared a few minutes later at a large window high in the East wall of the Cavern, about 30 feet above our heads.

Above these new passages two more parallel avens were scaled, to reach an even higher level of passages about 100-150 feet above the stream. The main passage ran North, closely following the fault planes observed in Pinnacle Cavern (though a little to the East due to the hade). A superb example of false floor was found, the small stream having washed out glacial fill leaving behind a thin crust of stal suspended across the passage. The stream was traced back to an aven on the West side of the passage, and beyond this were several low gravelly sections. Progress was finally halted by a complicated zone of avens and shafts. Alan looked down into a large boulder strewn passage, where he could hear a stream, but could not see it. It was not until the following day that it was realised that this was <u>not</u> the main stream passage!

With Glyn Edwards and David Hume, I had started the survey work on the Friday evening, after the last of the portering work had been completed. We continued on the Saturday and pushed off out for an evening in the Gwyn. The full party of nine set out on the Sunday evening after the A.G.M. We had taken two full days in the Great North Road and reached a point just before the Spout. On the Wednesday we set off to survey past the Spout and through the Mostest: we were carefully observing the roof for Coase's aven of the day before. When we had found no aven by the start of the Mostest our ideas were confirmed. Mick Day went ahead and climbed up to the Mostest. He proceeded to traverse round above the stream passage, towards the Spout, on a broad ledge. After only a few yards the ledge widened out and ran into a high passage about 15 feet wide.

By 9.00 p.m. we had established a firm station at the start of

Overpass Passage, and so decided to call it a day. On our return we were bound to have a look at Mick's discovery. Climbing over large boulders and mounds of sand, we entered a spacious chamber. A high passage ran off to the North, but we followed the larger passage running southwards. A stream entered from a small passage on the left, and disappeared into the boulders (presumably the Spout stream). The passage continued even larger than before, but we were soon halted by a 15' drop over boulders. The passage would seem to be running in the same N-S faulting system as Pinnacle Cavern, and seems likely to terminate in the huge sand choke above the North end of this Cavern.

Thursday was the day for out. We had not completed the survey as we had hoped, but at least we had done the major portion. The whole had been an interesting exercise. Whether the setting up and running of a camp in a cave of this length and nature is a worthwhile aid seems to me to be somewhat doubtful. Although this was by all standards a luxury camp, I still feel that a night's sleep outside is worth considerably more than one spent inside a cave.

Since Easter two more trips have taken the survey through to the final choke of the Left Hand Series. Once the levels have been reduced it will be interesting to know the vertical difference between the final choke and Waun Fignen Felin; - the horizontal difference is approximately 1000 yards.

I mentioned earlier that the camp at Bat Chamber was a luxurious one. Indeed, the surroundings were most hospitable, and the food was excellent! We owed all this to two factors: the enormous help given, (voluntarily or otherwise), in the preceding weeks by visiting parties, and by many members during the course of the camp, with the portering of supplies and equipment, and the manning of the telephone service, and secondly: the efficiency and ingenuity of the cook, Eileen Inson (her parsley sauce is fabulous).

D.M. Judson.

DAN-YR-OGOF HYDROLOGICAL STUDY: PRELIMINARY PHASE.

Following the C.R.G. symposium on cave hydrology and water tracing, held at Leicester on February 3rd, an informal study group was set up with the object of studying exhaustively the speleology of the Dan-yr-Ogof system. Part of the study was to involve a detailed programme of hydrological research in which it was intended to apply the techniques discussed at the symposium and to try out other techniques. (The proceedings of this symposium are to be published shortly in the Transactions of the Cave Research Group, Volume 10, Number 2.)

There are two main branches of cave hydrology which can basically be described as static and dynamic.

Static. This is better known as water testing and it involves the simultaneous sampling of surface sinks and underground inlets. Subsequent chemical analysis may reveal the destination of the sink water and can tell the observer something of the nature of the strata traversed by the inlet water.

Dynamic. This has two subdivisions (a) conventional water tracing with coloured dyes or by the more recent lycopodium spore technique, (b) the flood pulse technique. This is a new and very useful tool for studying Karst hydrology. It considers the cave system as a "black box" with an unknown number of inputs. By measuring various output characteristics and processing these data a complete picture can be obtained of the hydrology of the resurgence. The parameters usually measured at timed intervals include flow, hardness, pH, turbidity and temperature. Other parameters such as conductivity and $\frac{Ca}{Mg}$ ratio can be used to give supporting data.

Results.

a) Dye Tests. This programme, because of conflicting interests, became rather confused but some useful results were obtained. The following tests were carried out:

Friday, April 12th	15.50	100 g. Fluorescein placed in Pwll-y-Wydden
Friday, April 12th	18.00	250 g. Acid Scarlet placed in Highway Rising
Monday, April 15th	15.00	350 g. Fluorescein placed in Pwll Dwfn
Tuesday, April 16th	13.00	350 g. Rhodamine B placed in Waun Fignen Felin.

Rhodamine B detectors and activated charcoal detectors were placed in all likely places within the cave on Saturday, April 13th and were removed on Saturday, April 20th.

Fluorescein was seen in Dan-yr-Ogof resurgence at 10.00 on Thursday, April 17th and flow continued all day. Dan-yr-Ogof was in low flow all week (about 3.5" on the dam, i.e. about 850 c.f.m.)

The detectors were processed in the usual manner and Rhodamine B positives were obtained at the Washing Machine and Highway Rising, together with a doubtful positive at the top of the Great North Road. All inlets in the Great North Road were negative. A strong positive was obtained with Fluorescein at the Washing Machine: all other detectors gave negative results.

The Acid Scarlet was not seen again and it does not affect Rhodamine B detectors.

b) Chemical results. A large volume of data was collected at the time, and subsequently, but the authors do not wish at the present time to discuss fully the implications of some of the results. An outline of the results is given in Table 1.

Qualitatively the results may be summarised as follows:

i) all sampled sinks are very low in calcium;

ii) all sampled cave inlets are relatively high in calcium, possibly

indicating that none of the cave inlets has direct access to surface water;

iii) the appearance of the water, dye tests, temperature and hardness values suggest that the Washing Machine is part of the main Giedd system and the only place in the new cave where it is seen;

iv) the generally low hardness values of the resurgence when compared with resurgences in other cave areas indicates that the phreas is relatively unconstricted, of large volume and of substantial throughput;

v) a detailed mathematical analysis of the results has shown a close correlation between alkalinity and total hardness and another close correlation between total hardness and conductivity (after correction of the latter to an arbitrary fixed temperature).

Table 1

Site	Appearance	Temperature °C	pH	Total Hardness ppm $CaCO_3$	Mg/Ca
Sink-y-Giedd	-	4.0	6.8	12	0.2
Waun Fignen Felyn	Clear brown	4.8	4.2	3	0.5
Pwll-y-Wydden	Clear brown	3.8	4.1	5	0.33
Dan-yr-Ogof resurgence	Turbid	-	7.9	92	0.18
Lake 3	Turbid	7.9	7.8	96	0.20
Washine Machine	Turbid	7.9	7.7	90	0.03
100' Waterfall	Clear	8.9	7.8	83	0.02
Highway Rising	Clear	8.5	8.5	105	0.15
Main Inlet Great North Rd.	Clear	8.7	8.1	99	0.07
Top of Great North Road	Clear	8.4	7.8	107	0.12

Future Plans.

As the title of the article implies this was only a preliminary study to evaluate the parameters and to test techniques. Lycopodium spores were not available. Because of the settled weather it was not possible even to attempt a flood pulse measurement. The hydrological study will continue for at least another year or for as long as is felt necessary. There will be further studies during the period July 27th to August 24th when it is likely that there will be more rain. Any offers of help or of equipment will be gratefully considered. The donation of polythene bottles (any shape, any size) will be especially welcome.

Acknowledgements.

The authors would like to thank the following for their active support, without which this work would not have been possible.

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B. McLeod

We would like to thank also L. Galpin and P.M. O'Reilly for their considerable help in various ways.

N.S.J. Christopher.
L.G. Bray.

POSSIBILITIES IN DAN-YR-OGOF ... Part II.

Having, in Part I of this article (Newsletter 59), examined the general aims being pursued in the further exploration of Dan-yr-Ogof, it now remains to describe the major possibilities in more detail. To this end DYO II is divided into three sections:-

i). Upper Series-A) Platten Hall to Hangar Series, and Avalanche Corner and Dali's Delight.

ii). Upper Series-B) Trench Way to the Rising.

iii). Lower Series.

1. The Upper Series - A).

The common factor in defining the passages of this series is their roughly SW-NE trend although it is not suggested that they all form a morphological whole. Within them is contained a great deal of potential both for surface links and for progress via a dry route into extensions which may lead into the Giedd Series.

To deal with alternative surface links first, it is apparent from Judson's survey coupled with surface work and radio location fixes that this series is both nearer to the surface and more to the east than was first thought. The significance of the dry valley running down into the Nant y Gwared from NGR 83201540 increases greatly when the radio fixes for the Long Crawl (NGR 83351562) and for the 100 foot cascade (NGR 83161535) are plotted. The implication is that the choke at the end of Platten Hall may not be a barrier to DYO I, but instead to the surface. Significantly, after a comparatively gentle gradient the dry valley drops abruptly below NGR 83451552 and assumes a gorge like form with scree slopes.

Similarly the mud and boulder choke at the end of the large but as yet unnamed passage which is the easterly continuation of Monk Hall and the massive boulder choke lying to the side of the 100 foot cascade must both be near the surface although this could be higher here than in the vicinity of the dry valley. Before any major work is started on these we had hoped to have the confirmation of further radio tests which were planned for the Easter camp, but this was unfortunately impossible. Although attempts were made with walkie talkies they were as unsuccessful as had been predicted.

The 100 ft. cascade is itself of great interest, for a comparatively large stream flows from a large slit some 15 feet from the highest accessible point. Its source is as yet untraced despite the introduction of dye into the larger of the two obvious surface sinks within 500 yds (i.e. Pwll y Wydden). The influence of the light oolite beds (mentioned later) may be of considerable importance here. The recent discovery of a high level passage above the Canal may also afford some potential as well as the fine "pretties" observed. A small aven can be reached via a greatly silted passage behind Cloud Chamber and here too, there is evidence of the

light oolite beds and some indication of passages at the top. Radio tests are again called for in view of the large number of deep dolines in the appropriate area (near Saith Maen).

Across the Canal, both the huge choke at Avalanche Corner, and the suspended choke (partly oolitic) at the furthest and highest point in Dali's Delight offer considerable food for thought but the prospects of attempting to dig there from below are even more intimidating than to contemplate an attack on Pwll y Wyddwm from above.

As far as the search for an extension is concerned, the quite extensive series beyond the Hangar choke seems to offer the most potential. While this remains unsurveyed and the overall trend is confused by a meandering form, two large passages-cum-chambers exist, one ending abruptly in a boulder choke and the other in a sand and clay fill. In the latter a small misfit stream emerges from the fill and a small airspace continues for a few feet ahead of the trial dig I have started. The flow markings are quite large and indicate a flow towards the known passages. While initial progress was good it seems that this dig in a passage often over 20 feet high and 30 feet wide may well take time and rather more planning but it is open for all and I hope that help will be forthcoming.

The chokes in both Hangar Passage and the first chamber beyond have clearly entered the passages from avens or chimneys or pots above and so progress both through and upwards could at least in theory be possible. (N.B. A supplementary provisional survey of this area will be published as soon as possible.)

2. <u>The Upper Series</u> - B).

In this part of the cave very different characteristics exist with an alternation of large tubes and high rift passages while sand boulder or mud deposits alternate with well-washed rock floors often containing deep trenches. In the roof, particularly in the High Way are a number of high level tubes not all of which have yet been reached. However, in this part of the cave the grit overlay must be very considerable although it seems quite possible that the Rottenstone Avens may lie at or near the line of the grit escarpment. The prospect of entering the system via one of these avens brings a glow to the more perverse part of me that insists on taking photographs underground, but the prospect of getting there from below is unlikely to be directly possible even when we do finally get maypoles into the cave.

A number of side passages have not been entirely pushed and one of these, Tunnel Two, (so named because of its similarity to the Tunnel cave rifts) is among the most interesting. It is intersected by a number of avens and the furthest of these, although choked, contains a number of gritstone boulders, a fair flow of water and some semblance of a draught. The rift continues below and past this although it reduces to proportions unsuited to my sylph-like figure. Near the entrance, which is reached from the beginning of the shallow canal lying between the Rottenstone Avens and the Bat Chamber access can be made to a complex and unpushed series of tubes reached also from the Aven.

Of interest too are the series of flood sinks in the floor between the main sink in the High Way and the pot at the foot of Rottenstone Aven. The stream has been known to flow at least as far as Streptomyces Passages (which then became a sump) and probably into Trenchway and the Abyss since Easter 1966. It would be of great interest and perhaps value to enter some of these sinks especially if they lead to a further epi-phreatic level. Unfortunately the main sink can only be traced a short distance into a peat-floored rift where it emerges hydrant-like from a slot in the wall to sump again within a few feet. Upstream, or rather up-passage, a phreatic maze is reached which has not been thoroughly examined.

3. The Lower Series.

In Mazeways, the divers have now made significant progress as a result of Terry Moon's persistence, and would appear to have tasted (literally in Colin Fairbairn's case) DYO IV. Other possibilities in this series do seem comparatively limited, for while large and extensive passages exist above the phreatic levels as far as Mazeways from that point on the dip undergoes an apparent change and as is probable, if such passages do exist, they are less likely to be continuous. Significantly, the sump passage in which the divers have now progressed for over 350 feet changes direction quite rapidly to adopt the more northerly trend typical of the passages of the Upper Series B and of DYO III.

Questions still arise in connection with the sources of the various streams that enter this Lower series. Despite the extensive series of tests at Easter no firm new facts have yet emerged although it seems likely that the Pwll Dwfn water may enter the system for the first time at the "Washing Machine". If this is so, it implies that the Pwll Dwfn to DYO water connection may mirror that of DYO II to III, rather than enter the Great North Road as has been suggested. This would add weight to the tentative hypothesis outlined in the BSA Conference Proceedings 1967 of a series of roughly parallel down-dip passages running in an approximately N-S trend into a master cave along a path that is oriented partially by the strike and partially by the Cribarth Disturbance.

Alan Cease.
16 June 1968.

N.B. It is hoped to coordinate work again in Dan-yr-Ogof and on the surface during the summer months. In particular the first two or three weeks in August are proposed and any members interested in assisting would be very welcome.

A Note on Light Oolite or Honeycomb Sandstone.

This light grey coloured oolitic limestone which can be readily distinguished by its colour, its high content of Productus fossils and by its very honeycombed appearance is proving to be of considerable significance to speleogenesis in the South Wales limestone. In many cases its presence seems to inhibit cave development entirely and the result is sometimes undercutting followed by roof collapse. At other places, however, as in the further reaches of OFD III streamway, the rock seems to have supported cave development. Thus quite apart from acting as an invaluable marker bed, this layer which may be up to about 70 feet thick in places is of considerable interest geomorphologically, and I would much appreciate information about its occurrence in both the caves of the Swansea Valley and in other parts of the area.

A.C.

(Part III of this article will follow in the next Newsletter. It will deal with Dan-yr-Ogof III and Waun Fignen Felin.)

A Technique for Lifting Loads or Victims in Confined Spaces.

We all know the problem, the hauling rope down the shaft turns at an angle on the edge of the shaft, and nearly all the effort of pulling is used up in overcoming this friction.

The Crowther Lift.

Named after its inventor, Willy Crowther, an American caver.

It depends on that exciting knot, the prussik hitch. You all know how to tie it, of course. (Fig. 1).

The Method (See Fig. 2).

1. From the anchor rope suspend two karabiners, and two pulleys.
2. Run the rope coming up from the victim through the top pulley.
3. Set up a prussik ratchet. This is a useful technique widely applicable in other rescue situations.

To make it, take short sling and tie a prussik knot close to the pulley on the lead side of the pulley, and clip it into one of the karabiners (A).

The length of this sling is very important. The knot must be completely slack when the knot is against the pulley in order for the ratchet to work; however extra length beyond that point will just waste effort.

The prussik ratchet works as follows:- when the rope is pulled the knot in(A)comes up against the pulley and is loosened, thus letting the rope slide through it. When the rope is released the prussik knot grabs and holds the weight.

4. Low on the victim's side of the main rope attach the long sling with a prussik knot, (B) and pass the bight of the rope through the lower of the two pulleys.

Working.

The lifter clips into the anchor for his protection. Then he stands in the foot loop with all his weight, and if more force is required he can pull on the rope going to the victim. Then after the lift has moved up, he takes his weight out of the foot sling, resets the foot loop prussik knot (B) down towards the victim, and repeats the cycle.

It works, and is obviously easily adapted for several lifters etc.

Noel Dilly.

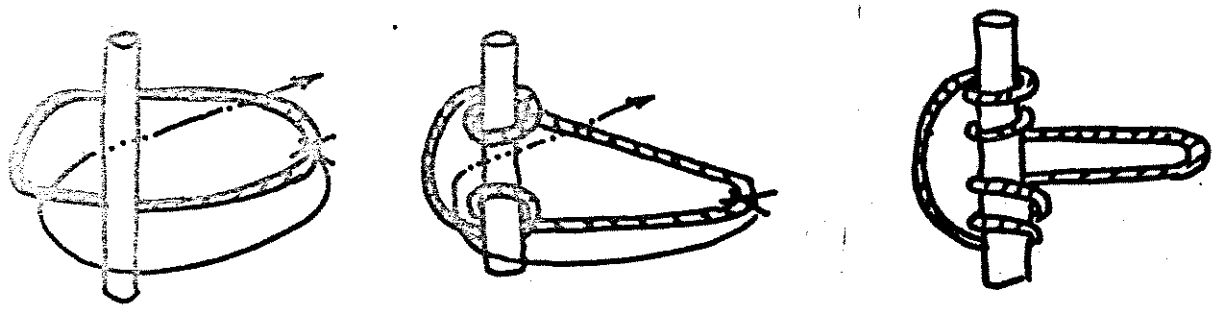


Fig 1 – Prussik Loop

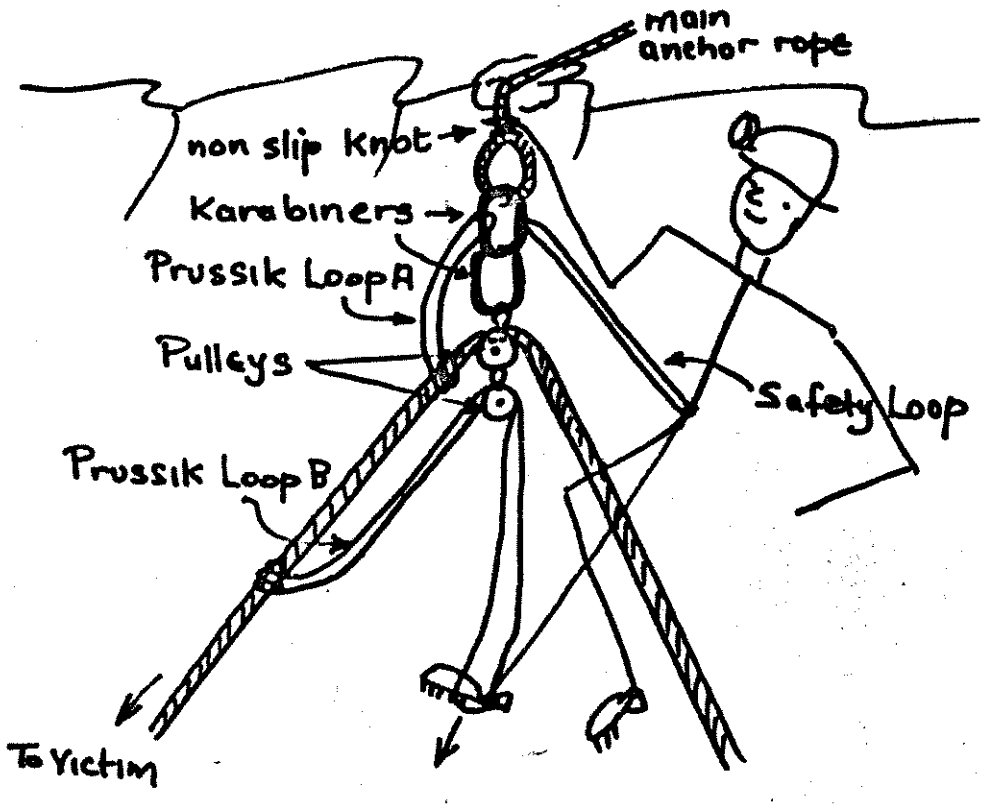


Fig 2. – the Crowther Lift.

PWLL DERW REDISCOVERED.

Rumour had it that when Bill Clarke entered a shakehole near Pwll Derw in the early 1950's he spotted a pitch but when he returned later on with ladder the whole place had collapsed in. Clive Jones filled us with enthusiasm for digging out the draughty shakehole near the huge crater-like depression on Gwaun Cefn y Garreg, and so when the Easter crowds descended on Penwyllt, Susan Bradshaw accompanied Colin Fairbairn and I on a dedicated attempt to find out if there really was a pitch there.

A taciturn sheep farmer allowed us to camp on his land and although it froze overnight, our dig in the shake hole was a regular suntrap. Progress was excellent, and the draught was quite fantastic. When Colin prised open a hole in the floor the wind came rushing out and we were prepared for a big discovery. When the hole had been sufficiently enlarged to allow someone to enter, I dropped down and found myself in a fairly large chamber. The others followed me and we explored our find. It consisted of that single chamber, split into two levels by a huge block of gritstone that had fallen from the roof. The top of the block formed the upper balcony of the chamber and below there was the lower section, its floor littered with loose gritstone blocks and its walls pock-marked and cavitied where the grit met the limestone and the water trickled down over the brown impermeable grit to eat away the black yielding limestone. There were no formations of any sort save weird rock flutings in a small blocked pothole, and the only feature meriting the title "stream passage" was a tiny trickle in the bottom of a small winding rift all of six feet long.

Our efforts were directed to locating the draught for it seemed to be non-existent now. We chased an elusive wind-flutter through a loose and unstable mass of gritstone boulders but it came from a small crack that defied us. It's not much fun digging in grit - it's different to limestone and does not "give" as much.

So our efforts were successful enough. We found Bill's "pitch" - the drop over the side of the big block but we concluded that there is probably no big cave to be entered via this shakehole.

There remained the question about the water sinking in Pwll Derw itself - where does it go?

We examined the whole ridge for any other likely sites and ended up with quite a crop of holes, but little hopes - for all the holes were replicas of the big chamber at Pwll Derw; a hole in a shakehole led to a gritstone chamber with a floor of loose grit blocks and no obvious way on. The entrance of the REAL Pulpit Hole (not the one described in "Caves of Wales") is by far the most impressive of these gritstone collapses. Inside there is a traverse leading to a small chamber with excellent peat formations; stalactites over 9" long and soft squidgy curtains and gours. It appears as if no one has visited it for a very long time. To my mind all the holes are formed where the limestone beneath is completely dissolved away and leaves the grit beds without sufficient support. This would account for the absence of limestone blocks in the floor, and the heavy ornate wall flutings would add weight to the solution suggestion.

The future prospects at Pwll Derw must surely be in digging in the big shakehole itself. It would be a big undertaking, and it might also help if we knew where the water emerges. Does anyone know?

P.M. O'Reilly.
Easter '68.

MELTWATER FLOOD DANGER.

Daily flooding of caves at a time soon after midday, by water derived from melting ice is a phenomenon one reads about in Casteret's books referring to the Pyrenees. It is not generally encountered, and it has apparently not been reported previously, in South Wales.

OBSERVATIONS.

The phenomenon was observed on Sunday 25th February after 11 days of mostly dry weather, in the Mellte valley by a party from the Cwmbran Caving Club including myself. We were digging at a site 70 yds upstream of the Tradesman's Entrance to Porth-yr-Ogof, where there is a tight tube below the level of the river bed. This tube runs for 30 ft. to a collapse chamber, and we are excavating a trench 15 ft. above river level in order to be able to reach this chamber in all weathers. A way on to Porth-yr-Ogof II is suspected.

The morning was sunny but very cold, with several degrees of frost, and no water was flowing in the Mellte surface bed. However, the bed was covered with sheets of ice up to 1 inch in thickness. Some of the sheets had collapsed 2 or 3 inches under their own weight, showing that water level had dropped since freezing began. Our tube was quite dry and easily accessible, but work was, nevertheless, continued in the trench higher up.

At about 12 noon we noticed that the ice was suddenly beginning to break up in places, with slight cracking noises. Closer examination revealed that this was because floating ice was being forced upwards by a rise in water level. Within minutes running water could be seen coming round the bend 300 yds upstream forming little waterfalls where none existed before, and water was beginning to flow on top of the ice where the ice remained attached to the river bed. This flow of water was rushing downriver at the rate of some 4 m.p.h. Very rapidly the water level rose by 1½ ft, filling rock basins and pebbly hollows to the full width of the river bed. Our tube began to take water, but fortunately a dam we had erected in previous weeks was holding, and it was not possible for anyone to be trapped inside.

The initial rise in water level was rapid - about 1 ft. in 20 minutes - but it continued to rise for perhaps an hour. Then it began to fall. By 5 p.m. the river surface was beginning to re-freeze, and the water level was still falling. When darkness fell at about 6.45 there was virtually no water flowing on the survace bed.

MECHANISM.

As it was a clear and sunny day there is no question of rain or snow on the Beacons adding to the river flow. There was snow to be seen only in hollows on Fan Gihirych to Fan Fawr above about 2,000 ft. Towards the end of February the sun is becoming quite high in the sky, and the Mellte faces south for 1½ miles to Porth-yr-Ogof, while its tributaries Afon Llia and Afon Dringarth add about 8 miles of similarly orientated river bed to the system. Obviously this midday heat was melting ice all

along the river bed, and by the time Porth-yr-Ogof was reached the meltwater bed accumulated sufficiently to give a rise of 1½ ft.

No real danger would result from such small-scale flooding inside Porth-yr-Ogof itself, and this was confirmed by Cwmbran cavers at the time. Low level digs in the Mellte, however, like ours, in the Hepste, and in the Nedd Fechan would be affected, and there might be some danger in the Ogof Nedd Fechan, and in the Taf Fawr Caves. No ill effects would be expected elsewhere in South Wales because meltwater flooding only becomes apparent in times of comparatively low water, and our caves under these conditions are sufficiently roomy to absorb excess without danger.

APPLICATIONS.

The phenomenon might be of some use in the "flood or pulse wave" technique of tracing cave water, and it might well be possible to detect this pulse in Dan-yr-Ogof, for example, at the appropriate time of year because it is fed by the Giedd, a river that faces south and has a sufficiently wide and long bed before its sinking point to absorb the required quantity of the sun's radiant heat. Other examples that spring to mind are the Ogof Nedd Fechan, the Hepste system, and Ogof Fawr in Pant Sychbant once the rising becomes known.

Melvyn Davies.
27-2-68.

(Note: This dig has now been closed and the trench levelled off.)

From the Logbook.

OGOF FFYNNON DDU.

1). The Great Oxbow Series. This series was discovered by Colin Fairbairn and John Oz and is fully reported in the last Newsletter. The week after the last reported trip a party descended one of the pots. A lovely pitch of 60 feet led into a sizeable streamway running in a direction parallel to Salubrious Passage. The stream had been entered before, presumably by the U.B.S.S. party that reported a similar passage on April 29th. On going downstream the party did in fact emerge in the Marble Showers Series, so that it is now possible to journey from the Top Entrance almost to the Smithy in dry passages. There only remains the job of making the connection between Mick Day's River Chamber Series and the Smithy.

2). Not satisfied with this dry route Terry Moon and Mike Coburn traversed all the way from the end of Midnight Passage in a downstream direction. They managed to reach the Confluence, having descended to stream level only once or twice, and followed it for the last few hundred yards even though it was in high flood.

3). John Osborne and party spent a day looking for a possible connection between the Smithy and the First River Chamber at the beginning of May but besides some hairy climbs and loose boulder chokes near the Big Shacks there was little success. It looks as if there will be some delay before the complete overland route will be established.

4). Peter Harvey, aided by Clive Jones, Jem Rowlands and Keith Ball maypoled all the holes in the roof of Gnome Passage in April. All lead to collapse features under a bedding plane filled with Productid shells. They also investigated a climb near Chasm pitch and after an interesting pitch traverse ended up in a passage that had lots of foot prints - presumably one of the ones discovered by Mel Davies on the day that the top entrance was opened.

5). A party from the Royal Forest of Dean Caving Club had an unnerving experience when they were in the passages near the Confluence. They heard a deep booming sound that seemed as if Smith was beating a huge gong. The sound came from a small side passage that had a trickle of water and a sump, but when they went to investigate the noise stopped completely and they failed to locate the cause of the strange vibrations.

6). A party was doing the trip from OFD I to II via Coronation Aven in the last week in April when the boulders began to move and one of the party prudently returned to Y Grithig while the others carried on out to the Top Entrance. The following week Terry Moon and John Osborne climbed up into Dip Sump series and put a charge under the big block that was holding the Coronation dig in place. There was a lot of rumbling and running in and when examined on the OFD I side a fortnight later it was found to be well and truly blocked. On the same trip they found about 3500 feet of largish interconnecting passages off the Dip Sump series, but because they removed the only route for dry cavers (a fixed rope for prussiking on) we will have to use the divers to get back there again. There are several boulder chokes that may conceal possible ways on.

7). Also at the beginning of May P. Allen (S.V.C.C.) followed passages at Bhowani Junction for a further 400 feet. It ends in an aven and ascends about 100 feet in all.

8). John Aldridge and party poked around the passages in the area called the Maze and produced a sketch of this complicated series. It will be some time before the survey reaches this place.

9). In actual fact there are two surveys of the cave in progress at the moment. There are some members of U.C.C.C.C.C. who are going a very high grade survey. They are still in the upper series of the cave but no doubt they will soon have a high grade line drawn through to the Cwmdwr entrance. Meanwhile Paddy O'Reilly and Colin Fairbairn are continuing with their Grade 4 survey and they have now done some 36 furlongs. There still remains a lot of work to be done, however, and with new discoveries being added all the time it will be a fair while before it is finished.

10). In OFD III the main object has been to see if there is any connection to unknown cave beyond Smith's Armoury. Fairbairn and O'Reilly have been busy maypoling in the upper reaches of the stream but gained little except

for some high levels that more or less follow the course of the present stream, and join up with more high levels found by various people including Judson (Oct. 1967) and P. Allen (May 1968). The only passage heading off towards the Byfre is also at a high level and in the same region as Smith's Armoury and ends in a grit choke. There are two more obvious places for pushing here - one is the inlet that enters near the tunnel near the end. It comes into a hanging boulder choke with some of the white slippery clay on the boulders and it is noteworthy that this is the only place in III that this clay has been seen. By climbing up into the boulders a stream could be clearly heard flowing behind them. The other place is also an inlet, but much farther back near the entrance to III. It is a very high inlet on the southern wall of the passage and will require a very long maypole.

11). Two local youths (K. Christopher and D. Duck), entered OFD I in mid-April and caused a considerable amount of damage notably in the Coral Pool area. That beautiful little Candlestick was completely smashed. We hope, however, to be able to repair it. The entrance is now gated and John Barrows holds the key.

DAN YR OGOF.

1). The main work that has been done here of course is tied in with the long weekend at Easter described elsewhere in this Newsletter.

2). Judson, Day and Hume found an interesting series of passages above the Green Canal at the end of March. One was an inlet passage running west from where the Canal bends right and the other an outlet passage running approx. south. It is interesting in view of its location reasonably near to the surface.

3). On 1st June Terry Moon and Colin Fairbairn dived in the sump in Mazeways. The sump had been dived before by Terry, and he had merely found it doubling back, but this time the right hand wall was followed around and under a flake about 100 feet in they found an inlet that must be the main inlet for the water to Mazeways sumps. A very large underwater passage was followed at a depth of about 25-30 feet for about 250 feet. Although there was a large black space in front, both divers thought it prudent to return at that point as the air reserves were beginning to get doubtful. Terry says, "Must be the way on!"

4). Also on that day Alan Coase started digging in the Hangar passage extensions in the chokes at the end of both chambers. They let off a bang in the boulders but did not wait to see what effect it had. Digging in the sand in one chamber, they made good progress but time prevented them finishing off even though it looked as if the roof was rising.

Other sites.

1). Terry Moon and Colin Fairbairn dived in Llygad Llwchwr on 11 May with pretty much the same results as in Newsletter 57. Colin's comment, "A nasty place".

2). At the beginning of June the U.B.S.S. did some radio location in the Little Neath River Cave. They were using Harold Lord's equipment

which consists of an ammo box weighing 15 lbs. containing the batteries and transceiver; a microphone which weighs only a few ounces and a coil of about 200 ft. of double flex plastic coated copper wire weighing about 15 lbs. Twe way voice communication is used to establish voice contact and then bleeps to fix the points on the surface. They fixed the Sand Chamber and upstream of sump II and also downstream of IV and upstream of VI.

Reviews:

Institute of Geological Sciences. Annual Report for 1966. HMSO (£1).

Not a great deal to interest cavers apart for one report (p.59) on the Cribarth area. Officers of the Institute are currently revising the Merthyr Tydfil (231) sheet and this includes a considerable area underlain by carboniferous limestone. The Cribarth area was mapped in detail and some interesting information gathered. The so-called Honey combed sandstone of the carboniferous limestone and the underlying 60 feet of the grey granular limestones are missing. The overlying light Oolite rests directly on the main mass of nearly black splintery limestones. At the southern end of the Cribarth anticline the basal millstone grit oversteps the highest beds of the carboniferous limestone and rests directly on the light oolite. This possibly indicates the emergence of the anticlinal axis in late carboniferous times.

Otherwise not worth the £1.

K. Ball.

The Great Forest of Brecknock.

(William Rees, obtainable from Brecknock Museum, Glamorgan St., Brecon. 5/- or 7/- (Hard Cover) postage extra. 1966. Published by"Brecon & Radnor Express.")

This thirty-two page booklet gives, in a very readable form the story of the Great Forest. Not many people realise that the wide expanse of mountain and moorland extending throughout South West Breconshire was, one time, good hunting country where herds of deer roamed the hillside. In fact the Forest was created to cater just for the sport of hunting and in the 50 or so square miles that comprised the Forest, very stringent laws were in operation for the protection of game.

The author unfolds the story of the Forest in relation to the lords of Brecon and later to the Crown - how its privileged position conflicted with the interests of local inhabitants in the matter of common pasturage and how the issue was rather arbitrarily and unsatisfactorily resolved by the Acts of Enclosure of 1815-18.

This fascinating historical booklet is a must for everyone who wants to know a bit more about the countryside that we now cave in.

P.M. O'Reilly.

AN AMATEUR GEOLOGIST'S VIEW.

The following letter has been forwarded to me by Alan Coase who got it from the Editor of the 'Observer'. It shows how "interesting" conclusions can sometimes be arrived at merely from looking at colour photos.

34, Parliament Hill,
Hampstead,
London, N.W. 3.

2nd May, 1968.

To the Editor,
'Observer' Weekly Magazine.

Dear Sir,

SECRETS OF THE WELSH CAVES.

I wish to refer your attention to the July 17, 1966 edition of the 'Observer' weekly colour supplement.

Picking this up by chance recently, it occurred to me that these young people might have unwittingly, but boldly, pioneered the exploration of an extremely rich mineral locale.

With reference to Sheet 1 * (See below) enclosed, the arrows at 'A' are given to indicate a possible 'lead'. Although, this may be an aberration of some kind caused by reflected light, it appears possible that this area shows the breakout of iron pyrites, copper glance or even gold. At first sight, I was inclined to believe that it was the latter, but colour pictures can be misleading, even extremely so.

Also, gold is rare in South Wales; against this, however, it is apparently found that the iron ore in the general area is extremely low in sulphur and phosphorous.

Nevertheless, examining these exciting pictures strictly as an amateur geologist, I cannot help feeling that it is not a coincidence that this pothole area should have been discovered.

It is possible that there is also uranium and tungsten-bearing rock in the vicinity. Certainly the picture, part of which is shown in Sheet 2 herewith, shows rock formations deserving of expert investigation.

In the national interest, and in the interests of the 'Observer' as a responsible leading weekly newspaper, could not a team of experts, sponsored by yourselves, investigate these caves, taking samples, and, using Geiger counters and scintillation meters, determine whether this is so? I am told that the whole Black Mountain area has never been explored by geologists as thoroughly as it deserves.

Yours faithfully,

D.G. Hinton.

---

* Sheet 1 is the photo of Bruce and Bryn with the yellow dinghy in the Cascades between lakes III and IV. Point 'A' is a yellow streak on the cave roof. Sheet 2 is the photo of Eileen crawling through the narrow tube.

"A little knowledge is a dangerous thing ... "

(Editor)

CLUB NEWS

1.) Blacks of Greenock find that they cannot continue to provide the Newsheet service for us any more. This is disappointing for it did give us a means for getting news out more rapidly than the Newsletter does. It has been suggested that perhaps we duplicate our own newsheet, but the cost of postage would be prohibitive -- an alternative would be to duplicate a small number of sheets and to leave them at the HQ for the active members -- these less active could of course pay for their delivery; what it really means, I suppose, is that we fall back on the Newsletter for the news.

2.) Anniversary Publication. There are now only 30 copies or so available for general sale so if you haven't already bought yours now is the time to do so.

3.) For Sale. (a) Several offprints of articles from the Publication at 2/- each post free.

(b) Large Scale (36" x 26") versions of Dan-yr-Ogof preliminary survey at 5/6 each post free.

(c) Copies of OFD I Survey by Railton (CRG 6); the price has not been decided yet but will probably be about 5/- post free (If required rolled, send roll) (Size 42" x 24"). All the above are available from the Editor.

4.) NEWSLETTER: Articles are needed for the next Newsletter so take up your pens and write!

5.) CONGRATULATIONS.

As there is no one else to do it I must wish myself and Susan Bradshaw good luck on our forthcoming marriage on July 13th. She's a lucky girl!

Also Noel Dilly has been chosen to go on an expedition to Greenland. We wish him good luck. He departed on June 25th.

6.) Duty Officer.

The proposal at the AGM that a Duty Officer be appointed has been discussed at length by the Committee. The Duties were agreed to be:-

(i) To supervise the use of the HQ, particularly the collection of fees and reception.
(ii) Maintenance of Rules.
(iii) Administer the access arrangements and keys.
(iv) Check tackle and see that floating stock is booked out.
(v) To check and act on the 'where and when' board.

Each weekend's Duty Officer will be nominated on the board. So far there have only been half a dozen or so volunteers for helping on this system, so would those eager persons (30 or so) who voted the proposal in, please come forward so that the system can get going?

7.) The top entrance to Tunnel is now locked. The key is available at the HQ.

8.) The entrance to OFD 2 has a new lock, keys for which are available at the Club from the duty officer. There are 10 keys, and members should have no difficulty in obtaining one. Visiting Clubs must write to the Secretary in advance to book a key, and produce the replying letter at the Club.

9.) Two recent ladder failures emphasise the need for lifelines on all pitches however short. We also need more ladder making sessions - any volunteers?

10.) Ted Mason has been asked to check that there is nothing left in Ogof-yr-Esyrn bone cave and to excavate another shelter. He asks if there are any interested members.

11.) CAVE RESCUE PRACTICE.

As you all probably know the idea of having Rescue Practice teams has not worked out too well; so in an attempt to get a regular practice system, another scheme is being tried.

A number of Rescue Practices will be held lasting a full day and comprising demonstrations, talks and projects. We can cater for all who turn up on these days, but we must know in advance who is coming.

The first will be held on AUGUST BANK HOLIDAY SUNDAY and will start at 10.00. If you can take part please drop a line to me, c/o TYMAWR, PENWYLLT, SWANSEA VALLEY. I cannot reply to queries regarding the practice, but I will appreciate it if you could let me know how experienced you are in rescue technique so that you can be fitted into a group where you can either learn a bit more or perhaps pass on your knowledge. All new members should make a special effort to attend.

(J.C. Jones.)

12.) THE COTTAGE.

THIS IS URGENT! - IT REALLY IS. THE COTTAGES ARE LITERALLY FALLING DOWN. Unless the dead wood members pull their weight soon, the valiant few who weekly fight a losing battle against damp and dry rot will have to admit defeat. Very few people realise how desperate things are and last weekend saw ten people painting the chimneys. Of these 10 there were 9 Committee Members and this is JUST NOT GOOD ENOUGH. Please can we have some volunteers? There are far too many people sitting down on their backsides and not giving a twopenny damn .....

13.) Membership Fees. For 1968/69 must be paid by the end of June 1968. If you have not paid you will not get any more Newsletters....

14.) Ashford Price has asked me to enquire whether any members have geological samples they would donate or loan for a museum to be set up at Dan-yr-Ogof. Anyone interested please contact him.

14.) The campsite at Bat Chamber, DYO II, is well equipped with various items of food plus Gaz and primus stoves. It is hoped that these will prove of value to exploring parties who are welcome to use the facilities BUT on several occasions lately these have been misused. Food has been left exposed, cups and plates left dirty and the Gaz stove has suffered very considerable rusting as result of being left with a quantity of water/soup? floating on and in it. More recently, presumably at the week-end of 8th June, the Gaz bottle was left on and is now empty. Please use the gear but leave it clean and tidy and replace any major items of food on a subsequent trip.

A.C.

15.) AMENDMENTS TO LIST OF ADDRESSES IN N/L 59.

The following is a list of members who are to be added to the list in the last Newsletter, or addresses to be amended.

B.

BRYANT, C. Glynceed, Victoria Rd., Maes-y-Cwmmer, Hengoed, Glam.

C.

CONS, D. Mr. & Mrs., 53 Crestview Drive, Petts Wood, Kent.
COASE, A. Mr. & Mrs., 53 Broughton Road, Croft, Leics.
COOMBES, D. April Cottages, Primrose Row, Uplands, Swansea.

D.

DAVIES, G. Address unknown.
DOLPHIN, P. The Landfall Club, 164 Ta'xbiex Coast Rd., Geira, Malta.

E.

EVANS, G.C. 25 Wren Rd., Sidcup, Kent.

F.

FLAHERTY, R. "Y Lle Llawen", 23 Chaddesley Tce., Constitution Hill, Swansea.

G.

GOUGH, M. "Tideswell", Chipstead Rd., Banstead, Surrey.

H.

HENSLER, E. 12 Knighton Close, Woodford Green, Essex.

J.

JEFFRYS, L. Mrs. 29 Angel Mead, Woolhampton, Berks.
JENKINS, P.D. "Dinmere", Dyffrya Rd., Llandrindod Wells.
JORGENSEN, B.T. D4290344 A.C. Photo 15. S.O.P. RAF Cosford, Near Wolverhampton, Staffs.

M.

MILLET, P. 36 Bacton Road, Gabalfa, Cardiff.
MORSE, M.G. Glenholme Nurseries, Sandford Orcas, Sherbourne, Dorset.
MURRAY, A. 5 Second Ave., Walthamstowe, London, E17.

O.

OGDEN, P. 18 Churchill Close, Llanbleddian, Cowbridge, Glam.

P.

PRICE, A.C. 18 Brynaa Drive, Ridgewood Park, Mayals, Swansea.
* PRICE, A.C. Dr. 13 Bryafield Court, Langland, Swansea.

R.

ROBERTS, J.F. 8 Albany Rd., Blackwood, Mon.
ROSSITER, P.R. 13 Woodlands, Fleet, Hants.

S.

SMITH, D.W. 75 Gooding Ave., Braunstone, Leicester.
SMITH, R. 17 Llwyn-y-Grant Rd., Penylan, Cardiff.

T.

TONKIN, G. Mr. & Mrs. 20 Market St., Hatherleigh, Devon.

4. WATER TRACING.

(i) FLUORESCEIN METHODS.

(a) The Visibility of Fluorescein Dye in Water.

Tests were carried out to try and find out something about the visibility of fluorescein in water, and the quantity of dye that can be detected by the naked eye.

The impurities in water, and the strength of solutions are expressed in parts per million (p.p.m.). One grain per imperial Gallon is equal to 14.3 p.p.m.

Ten samples of dye/water solutions were made up as shown in the table below. Section A. gives the p.p.m. of the sample, B. gives the number of grains of dye that would be required to dye 1000 galls. of water to the dilution given in section A. Section C. gives the number of gallons 1 lb. of dye will colour to the dilution as given in A.

Section A. p.p.m.	Galls./grain.	Section B. Grains/1000 galls.	Section C. Galls./lb.	Comments
14.3	One.	1000.	70,000	Very Strong
7.15	Two.	500.	140,000	" "
3.6	Four.	250.	280,000	Strong.
2.36	Six.	166.	420,000	Weak.
1.78	Eight	125.	560,000	"
1.43	Ten.	100.	700,000	Very Weak.
1.192	Twelve.	83.	840,000	" "
1.021	Fourteen.	71.	980,000	" "
0.073	196.	5.1	13,720,000	V. Very Weak
0.00052	2744.	0.46.	192,0808,000	Invisible.

A four inch deep sample was viewed in a white plastic bowl, the results of which are given in the end column of the table. Although in the 0.00052 p.p.m. sample, the dye was invisible by daylight, it could clearly be detected with the aid of an Ultra Violet lamp. A sample of each dilution was put in cubic inch glass containers and these were viewed in daylight, by which the dye could be detected down to 1.021 p.p.m. and to 0.73 by U.V.

Conclusions.

Although the dye can be seen down to 1.021 p.p.m. the dilution that I advise for one to aim for at the rising is in the order of 2.36 p.p.m. This can clearly be seen in clear water.

If the rising water is murky due to flood conditions, even 2.36 may be undetectable; if this is the case it is advisable to either use charcoal detectors, or take half hourly samples of the water and view these after the sediment has settled. All samples of water containing fluorescein should be stored in darkness since daylight is capable of fading a sample very quickly. (After a week a 2.36 p.p.m. sample can look like 1.43 p.p.m. whilst after a fortnight it becomes invisible.) Oxygen and carbon dioxide also have detrimental effects on the visibility of the dye, so the sample should also be placed in a sealed container.

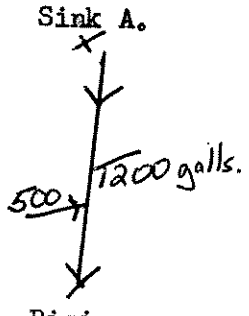
The visibility of the dye greatly depends on the surrounding conditions. A white plastic bowl in the stream bed will greatly assist in the identification of the dye if the dilution is great, and it should also be noted that bright sunlight often does not show up the dye as well as if it were viewed in the shade. *

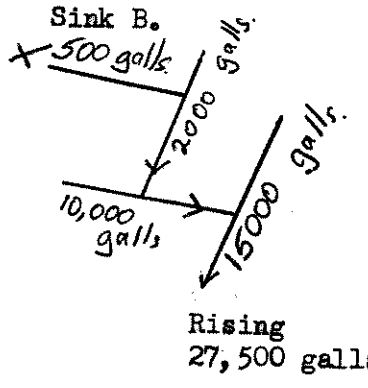
* Additions

The dye tests that I have carried out using visual detection, have had one thing in common, that is, when the dye has appeared at the rising it has never looked the fluorescent green it was when put in the sink. In fact, if the dilution is great it may be difficult to establish if it is in fact the dye, or reflection of surrounding vegetation that can be seen. This happened during a test at the Llanriddian rising, where on one visit the stream looked green, and I suggested that the test was positive, but the detector contradicted this and it took a further 24 hrs. for the dye to appear as shown by a fresh detector in the rising.

Peaty Water is capable of making a fluorescein solution colourless.

The amount of dye to use for a test is extremely difficult to state because of the many unknown dilution factors that are involved. Take the following two examples:





It can be seen that both risings have the same flow rates, but if the same amount of dye were to be used in both sinks, the dilution factor involved in Sink B, is so much greater than in A that the dye may give a negative result in B but not in A.

Sumps, rapids and waterfalls also tend to dilute the dye, so to state exactly how much dye to use is almost impossible, although it has

been suggested in Ref. 1 that 10 grammes per 1000 galls/min. per mile is a good guide.

The method that I employed for estimating the quantity of dye to use in a number of the Gower water tests was to find the half hourly flow at the rising and put enough dye in the sink to colour this volume of water to 14.3 p.p.m. with allowances made for distance and other expected complications.

As all the major risings in S. Wales have now been tested, there are few tests that will require more than 12 ozs of dye, as expense should not prevent one from using adequate dye for a given flow rate.

(b) <u>The Detection of Fluorescein in Risings Using Activated Charcoal.</u>

This method (as described in Ref. 1) consists of putting some absorbant coconut shell charcoal in a cloth bag, and anchoring it in the possible rising. To determine if any dye has been absorbed by the charcoal, a sample is placed in a solution of 5% Potassium Hydroxide in Ethyl Alcohol, and allow to stand for up to 24 hrs. after which any dye absorbed by the charcoal will appear.

<u>General Observations Regarding the Use of This Method.</u>

The detector bags, if going to be left in a stream for any length of time, should be made of nylon to prevent rotting.

The detector should be anchored in a slow flowing section of the rising, because the longer the charcoal and dye are in contact, the more positive the result.

Samples should be taken from the detector as frequently as possible, and the charcoal replaced completely once a week, or more frequently if possible, because after a while the absorbtion qualities of the charcoal are greatly reduced.

When I first started to use this method, I had on several occasions a result from the detector that looked as if it did contain dye, but I wasn't absolutely sure. To overcome this I purchased an Ultra Violet Lamp; this I have found to be a most useful instrument; it leaves no doubt as to whether the dye is present, and it also allows the poor and needy to use meths instead of alcohol in the test solution! (When made up with meths the test solution will be seen to have a greenish tinge; fluorescein can be distinguished in this solution very distinctly under U.V.)

When testing a sample I have found that if the charcoal is dried out before adding the test solution a clearer result can often be obtained. When I make up a sample, I use approx. 2 cc of charcoal in a test tube. This I cover with 6 cc of the test solution. Do not use too much test solution, this will only dilute any dye present, making it more difficult to detect.

Should U.V. not be available, the sample should be made up in a white dish, because under certain conditions the dye can be seen more

clearly against the white dish than if in a test tube, but it should be noted that the dye in a test tube is often to be seen clearest if the tube is held in the shade, and viewed against a grey background.

Without a U.V. lamp I have come to the conclusion that one can not be sure in most cases whether any dye exists in the test solution. I have had several detectors that looked as if they contained fluorescein by daylight, but under U.V. this could clearly be seen to be false, the colouration being due to sediment. On the other hand, there have been detectors that looked negative by daylight, but U.V. proved them to be strongly positive. When examining a charcoal sample I always make up a similar sample containing no dye to compare it with; the comparison samples that I have made have appeared blue under U.V. which makes dye identification easier.

(c) The Absorbtion of Fluorescein by Activated Charcoal.

Eight dilutions of fluorescein in water were made up as given in the table on page 35.

Three sets of eight detectors were then made to determine the following:

Set One. Was fresh charcoal, a detector containing this was suspended in the dye water solution for 30 mins. after which they were removed, covered with the test solution and viewed by U.V. and daylight, the results of which are as follows:-

Daylight.

The dye could clearly be seen down to 3.6 p.p.m. after which it became fainter, until it became invisible around 2.35 p.p.m.

Ultra Violet.

The dye became invisible around 1.43 p.p.m.

This test proves how useful fresh charcoal can be to determine the presence of dye in a rising that is murky due to flooding.

Set Two. The eight dye - water dilutions used in this test and also for set three, covered the dilution range from 14.3 - 1.78 p.p.m. Before being suspended in the dye solutions the detectors were placed in running water for a week.

The charcoal was then removed and viewed under U.V. in the test solution, the dye was found to be very strong down to 3.6 p.p.m. whilst it could still clearly be seen in the weakest sample (1.78 p.p.m.).

Set Three. The conditions for this test were the same as for set two except after absorbing the dye, the positive detectors were replaced in running water for a further week, they were then removed and compared with set two and the difference in colouration was found to be negligible.

Before I carried out the above tests I made a detector, suspended it in a weak dye solution for 30 mins. and then placed it in a strongly flowing stream for a fortnight, after which the contents were placed in the test solution and examined, the dye was to be clearly seen, proving that if the charcoal is fresh, a detector will absorb and hold dye for considerable periods.

Conclusions.

This is a first class method of dye detection provided the following conditions are fulfilled:

1. Use the same quantities of dye as one would use for visual detection at the rising.
2. Change the charcoal as frequently as possible.
3. One should be familiar with the sight of fluorescein in the test solution, and on no account should a detector be declared to be negative until viewed under U.V.

(ii) REPORTS FROM VARIOUS PERSONS REGARDING WATER ON GOWER.

A few years ago when the Water Board were digging a sewerage system near the well on Murton Green, a passage large enough to negotiate was discovered a couple of feet below the surface.

Quote: A water engineer. Jan. '63.

Bishopston.

An underground stream is supposed to run in an East to West direction 100 yds South of Herberts Lodge. This stream was discovered by a Water Diviner.

Quote: Cornel Morgan, Herberts Lodge, Bishopston. Feb. 1963.

MOOR MILLS. LLANRIDDIAN RISING (CHURCH). STONEY FORD SINK. WELLHEAD.

Upon trying to get permission from the farmer at the Old Mill, Llanriddian, to enable me to put dye in Moor Mills sink to test for a connection with the Llanriddian Church Rising, he stated that when the mill was working his Grandpa used to divert the Moor Mills stream down into Stoney Ford Sink, the water would then rise at the Mill some 12 hours later.

He also claims that the water sinking at Moor Mills rises at Wellhead.

I tend to think that the old boy has got his facts a bit mixed up when he stated that Moor Mills rises at Wellhead, this can be either proved or disproved by a simple dye test, the only possible snag being that the farmer did not give us permission to go ahead, because we couldn't convince him that his cows would not give green milk should they drink the water if the dye came through!

Giants Grave. Green Cwm.

During the restoration excavations that were carried out on this monument during 1962, a narrow passage was found under the S.W. corner, going sharply down dip.

LLANRIDDIAN MARSHES.

These marshes have numerous small springs on them, from which water that probably sinks on the Northern Slopes of Cefn Bryn, in the form of very small sinks and general drainage West of Moor Mills rises.

OXWICH MARSHES.

These marshes form part of the Penrice Estate, to which access can not be gained. It has been noted that a stream with a flow rate of 1000 galls/min. flows from them, this is rather interesting because the surface streams feeding the marsh do not supply anything like this quantity of water, so there must be some springs on the estate supplying the extra water. How large they are one can only speculate, but it is fairly certain that they are the resurgences for water sinking on the Southern slopes of Cefn Bryn such as the Nicholaston Swallets.

CASWELL VALLEY.

While digging a cess pit for a new house near Espalene Hill the owner lost a crowbar through a 6" crack. There was running water underneath, so the cess pit was finished and "will never get filled up." The water may find its way to Caswell and run across the beach, in which case it would cause a health hazard.

(Editor's Note: If there are any more rumours of underground water in Gower, would the hearer be good enough to communicate with us.)
