





## WESSEX CAVE CLUB

Journal No. 98, Vol. 8.

November 1964

### CLUB NEWS

#### Committee Appointments 1964-65

Names of this year's Officers and Committee are given in the A.G.M. Report later in this Journal. The new Committee held their first meeting on November 8th, when the following appointments were made:-

Hut Warden - Nick Hart, 80 Ridgeway Road, Long Ashton, Bristol.  
Asst. Hut Warden - Carl Pickstone, Rush Common House, Abingdon, Berks.  
Editor - Christopher Hawkes, 147 Evington Lane, Leicester.  
Librarian - Donald Thomson, "Pinkacre", Leigh-on-Mendip, Nr. Bath.  
Hut Bookings - Peter Riches, Priory Cottage, Chewton Mendip, Nr. Bath.  
Activities Secretary - Rodney Hobbs, Warren Lodge, Long Ashton, Bristol.  
Journal Production - Nick Hart.

Members are urged to make sure that letters are addressed to the appropriate officer of the Club when enquiring about any particular aspect of Club affairs. This will save a good deal of internal correspondence between the Officers and, incidentally, a good deal of their time and postal bills too. All communications concerning membership application, cave keys and Charterhouse Caving Committee Permits should be addressed to the Hon. Asst. Secretary. He will also be holding stocks of cave surveys, a price list of which appeared in Journal No. 95, Vol. 8, May 1964.

Surplus copies of the Journal (1/6 each post free for members and 2/6 for non-members), copies of Vol. 1 (price 7/6), the Supplement to Vol. 8 (Hillgrove Log Books 1954-63, price 6/-), and Club badges and ties are available from Roy Staynings, 8 Fanshawe Road, Hengrove, Bristol 4.

Last year the Club's Officers spent over £44 on postage (excluding the Journal), i.e. 3/3 on behalf of each full member; please help to reduce this very large proportion of your annual subscription by enclosing a stamped self-addressed envelope with all letters requiring a reply. An S.A.E. often means that you get a reply more promptly, too.

#### New Members

We welcome the following new members to the Club.

Elected 30.8.64: C. Jones, 4 The Grove, Wraxall, Bristol.

Elected 8.11.64: A.D. Barwick, 8 Kings Road, Haslemere, Surrey.

I. Weatherley, 48 Weysprings, Haslemere, Surrey.

#### Tackle

Six lightweight pulley blocks for double lifelining have recently been made by Carl Pickstone

for the Club at a fraction of the cost of those purchased earlier, one of which was hastily resold. They will be available for specific trips on application to the Tackle Warden.

### Dr. F.S. Wallis

Dr. Wallis has retired as Curator of Torquay Museum, and is to take up an appointment as Curator of the Wells Museum as from 1st April 1965, and will live at Easton. Dr. Wallis has been a Vice-President of the Club for some time and, as a geologist, has always been greatly interested in the activities of our Club and a friend of all cavers. We congratulate him on his appointment and welcome his return to the area.

### Cuckoo Cleeves

This cave has now been reopened by the Westinghouse Apprentices School Caving Club. There are no restrictions or regulations over access.

### Dan-yr-Ogof and Tunnel Cave

New access rules apply to these two caves and all enquiries should be addressed to the Hon. Sec., South Wales Caving Club, Mr. G. Thomas, Greenfield House, Heol Sarn, Llantrisant, Glam. Permission is granted subject to the recommendation of S.W.C.C. and will only be given to responsibly led parties. S.W.C.C. cannot undertake to provide leaders.

### Hillgrove

Thanks are due to Peter Stovell for the gift of a two-tiered bunk bed for use at Hillgrove; the gift is very opportune. Suitable mattresses and blankets are now required to go with this handsome bed, any offers?

### Journal Articles

Copy for the next Journal should be with the Editor by December 15th, please.

### Subscriptions

Subscriptions for the Club Year 1964/65 are now due and the Hon. Treasurer (Mrs. B.M. Willis, 3 Derwent Lodge, St. Philip's Avenue, Worcester Park, Surrey) would be pleased to receive your 15/- (or 17/6 joint membership). Cheques and P.O.s payable to "Wessex Cave Club" please.

### A.G.M. Report

The Editor would like to express his gratitude to Dr. Oliver Lloyd, Ann Oldham and Pamela Davis for the noble work they put in to making the Report on the Annual General Meeting which appears later in this issue.

## CLUB MEETS

Tuesday 1st December Redcliffe Caves. Meet at the Redcliffe Wharf, Depot 7.0 p.m. Names to: Roy Staynings, 8 Fanshawe Road, Hengrove, Bristol 4.

Wednesday 9th December Visit to Old Mills Colliery, near Radstock.

Meet at the Colliery 1.0 p.m. (for sketch map see last Journal).

Bring overalls and boots - helmets and lamps provided. Limited to 15 persons, all of whom must sign Indemnity Forms before going down. Names to: Rodney Hobbis, Warren Lodge, Long Ashton, Bristol.

Wednesday 16th December Avon Gorge Caves. Meet at Neptune's Statue, on the Centre, 7.0 p.m. Leader: Tony Oldham, 43 Ashley Hill, Bristol 6. Bring caving clothes.

Saturday 12th December St. Cuthberts.

Leader: Nick Hart, 80 Ridgeway Road, Long Ashton, Bristol. Meet 3.0 p.m. at the Belfry.

Saturday 9th January "15th Night" Party. (Apologies for incorrect date given in last Journal).

Red Lion Hotel, Wells. Admission by ticket only, price 7/6d. More details from: Tim Reynolds, Yew Court, Pangbourne, Berks.

Saturday 16th January Pine Tree Pot & Cow Hole. The caves will be open from 3.0 p.m.

Leader: Roy Staynings & Phil Davies. Names to Roy, address as above.

Weekend 23rd/24th January "Teach Yourself Cave Surveying" Course for Cave Surveyors, to include lectures and practical work. Details from: Alan Surrall, 216 Evesham Road, Headless Cross, Redditch, Worcs.

Easter 1965 Yorkshire. Further details from: Nick Hart, address as above.

Whitsun 1965 South Wales. More details in due course.

The U.B.S.S. extend a cordial invitation to all Wessex members to the following meetings. Unless otherwise stated all meetings are held on Mondays at 8.15 p.m. in the Geography Lecture Theatre, University of Bristol, entrance in University Road.

Saturday 12th December at 2.30 p.m.

"A Symposium on the Age of the Caves of North West Co. Clare, Eire."

This may continue on Sunday if necessary.

Monday 11th January

"The Buried Karst of Derbyshire" by Dr. Trevor Ford.

Monday 1st February

"An account of some recent Archaeological Research in the Bath District" by Mr. J. Wedlake, F.S.A.

Monday 8th March

Presidential Address "The Great Cave Niah, Sarawak".

Wessex Members are also invited to the Mendip Nature Research Committee Winter Lectures, which are held on Saturdays at 7.30 p.m. in the Museum, Wells.

5th December

"A Caving Trip to France" L.W.E. Devenish

13th February

"Photography Above & Below Mendip"

A. Hagan.

6th March

"Bat Research" with ultrasonic recordings. J.H.D. Hooper, B. Sc.

Hon. Secretary: J.D. Hanwell, "Chaumbey", Wookey Hole Lane, Wookey Hole, Wells, Somerset.

Hon. Asst. Secretary: T.E. Reynolds, Yew Court, Pangbourne, Berks.

Hon. Treasurer: Mrs. B.M. Willis, 3 Derwent Lodge, St. Philip's Avenue, Worcester Park, Surrey.

Editor: C.J. Hawkes, 147 Evington Lane, Leicester.

Hut Bookings: P.N. Riches, Priory Cottage, Chewton Mendip, Bath, Som. Phone: Chewton Mendip 357

Activities Secretary: C.R. Hobbs, Warren Lodge, Long Ashton, Bristol. Phone: Long Ashton 2127.

## OBITUARY

### GEORGE WILLIAMS

From the very first it was obvious that George was a man of very special merit. Within a short while of joining the Club in 1938 he was elected to the Committee and at once began to give us the benefit of his business experience and connections. After the outbreak of war he became Treasurer and later combined this office with that of Chairman.

Caving activities almost ceased during the war years, but George continued to keep the Club accounts with meticulous care. His enthusiastic optimism was most infectious and this was a most important factor when, after the war, the Club began to expand its membership to something approaching that of pre-war. Things were not too easy as not only had we lost the use of the stables at the "Grange" near the Castle of Comfort Inn as Headquarters, but all the furnishings and most of our equipment and gear. We managed to rent a barn at "Beechbarrow", but when we were given very short notice to vacate the place we found ourselves in a difficult position and it was George who came to our rescue.

At that time it was not possible to purchase a wooden hut of any size without a special permit, so George used his influence and connections to obtain the hut which we erected at Hillgrove. Not only that, he also helped us financially by covering half the cost himself. In the same way he assisted with the purchase of materials for caving tackle.

His good common sense was a great asset when he was acting as Chairman and even after he ceased to be an active officer of the Club both Luke Devenish, who succeeded him as Chairman, and myself as Secretary were constantly asking his advice on Club problems. On the other hand George could at times be very blunt indeed and we well remember the last A.G.M. he attended with the sole object of protesting about the action of some members.

He was well over 40 when he began caving and while not generally attempting anything beyond his capability he really enjoyed caving, and it was great fun having him in one's party. This applied not only when we were underground, but at all Club events he attended. We have very happy memories of him on trips to South Wales and France. His interest in caving and the Club continued right up to the time of his death. Only a few days before he phoned me regarding some holes a friend had found on his land.

The funeral service attracted a large congregation - the Club being represented by Luke Devenish and myself. Cannon Gay paid a moving tribute to George, and our feelings were put into words by a member of the congregation as we were leaving the church

when he said "George was a lovely man."

There is an added note of sadness because, the day before he died, George told me he was looking forward to this year's Annual General Meeting and the Dinner.

I know that every member will wish to extend their sincere sympathy to Mrs. Williams and George's son and daughter.

Frank Frost

The Annual General Meeting of the Wessex Cave Club was held at Priddy Village Hall on Saturday, 24th October, 1964. About 70 members were present. The President (Mr. Frank Frost) took the Chair at 3.10 p.m. After reading apologies for absence he told us something of the work of Mr. George Williams, who, as announced in the last number of this Journal, died recently. At Mr. Howard Kenney's suggestion the Club sent its condolences to George's widow.

The Minutes of the last A.G.M. were taken as read and accepted. Certain matters arose. Mr Kenney told us that the Charity Commissioners had refused our application for registry as a charity on the grounds that we were a sporting rather than a scientific club. Therefore we can get no tax relief on investments or accept covenanted subscriptions. On the other hand, the Ministry of Education proposes to give grants to amateur sporting organisations, for example for the purchase of land or equipment of buildings. This might suit us quite well, but we would have to see there were no strings attached. It is known, for instance, that the sporting club has to be open to the public in general, whatever that may mean. It was proposed that the committee should look further into this matter. As we were not a charity the question of more profitable re-investment of capital did not arise. Moreover we needed an investment which could be realized at a moment's notice to pay for a new H.Q., and that is what we have got.

It was still felt that we might have one or two meetings in Bristol. Dr. Oliver Lloyd repeated what he said last year, that members were welcome to come to the U.B.S.S. meetings, but this, it was felt, was not quite what was wanted: something smaller and less formal. A venue was difficult to find, said the President. Mr. Charles Bryant asked if an affiliated club could find rooms. Mr. Phil Davies said that trips to a coal mine and the Redcliffe Caves had been planned.

The Treasurer announced that altogether 18 membership cards had been sold.

The Report of the Hon. Secretary for 1963/64 was taken as read, having been circulated to members with their voting slips and agendas. It was accepted, after which Mr. Roy Staynings told us of a new cave passage that had been found on Steep Holm, which communicated with the first cave from the landing beach, known as "Hall Cave". There was a short discussion on caves in Steep Holm, but the meeting was called to order and reminded that we were not here to discuss caving.

The Hon. Treasurer presented her Accounts, which were adopted, and the Auditor (Mr. Frost) gave us a "breakdown" to highlight some of the details. There was a slight deficit in the Income and Expenditure Account, mainly due to postage and publications. The former included circulars in connection with proposed new premises, the latter would eventually be sold.

There will be an additional premium to pay on third party cover for the use of explosives. Each member gets 7/- worth of Journal and 3/- of postages during the year. Mr. Lao Holland asked why the Treasurer sent receipts for subscriptions paid by cheque. She replied that it was partly to keep her books straight and partly because she thought they liked it.

Mr. Kenney proposed that as there was no surplus this year we might consider transferring half of the Accumulated Funds to the Hut Fund, which would be £115. Members were not inclined to fix the sum and, wishing to give the Committee some discretion in the matter, "recommended that the Committee has the support of this meeting in transferring a substantial proportion of the Accumulated Funds to the Hut Fund, if they find it necessary."

The President announced the names of the incoming Officers and Committee. President: Mr. F.W. Frost; Vice-Presidents: Mr.N. Casteret, Mrs. D.F. Dobson-Hinton, Mr. C.W. Harris, Cdr. P.B. Lawder, Dr. E.K. Tratman, Dr. F.S. Wallis; Chairman: Mr. C.H. Kenney; Hon. Secretary: Mr. J.D. Hanwell; Hon. Assistant Secretary: Mr. T.E. Reynolds; Hon. Treasurer: Mrs. Brenda M. Willis; Gear Curator: Mr. D.C .Berry; Committee (after postal ballot): Messrs. P. Davies, P.W. Duck, N.J. Hart, C.J. Hawkes, C.R. Hobbs, C. Pickstone, R.J. Staynings, A.J. Surrall and L.M. Teasdale. 118 ballot papers had been returned, of which 5 were spoiled through not being identified and 3 were too late. Mr. Frost was re-appointed Hon. Auditor. It is a job he enjoys.

Phil Davies came in for a lot of well-deserved praise from the President for his three years work as Hon. Secretary. "I am sincere," said he, "this is not the usual rubbish." Phil had been the perfect secretary and the Club had blossomed, so that we even had to discuss last year how to keep the numbers down. Phil replied that his wife had helped him a lot. Mr. Jim Hanwell then took the "hot seat", as he described it, and told us that his wife, too, could type.

Alteration to Rule 8. This alteration, which has the effect of raising the ordinary subscription from 15/- to £1. and the joint subscription from 17/6 to 22/6 (from 1965) was carried by a large majority, but not without a spirited protest from Mr. Lao Holland that the fees for schoolboys should remain the same. This developed into a discussion on affiliated membership. They, by rule, pay one quarter of the ordinary subscription. It was hard enough to get them to pay 3/9, and would be harder to get 5/-. Mr. Kenney said that the one quarter rule could be revised next year, if the schoolboys were finding it difficult. The schoolboys who are not affiliated are left to pay at the new rate of £1.

On the motion of Mr. Christopher Hawkes it was proposed that the Journal be split into its two natural components: Newsletter and Journal proper. The former should appear more frequently and the latter should be on sale to non-members by annual subscription. Non-members, frequently wanted to get the solid, valuable material from the Journal, but did not need the domestic part. They were not able to purchase either at present. There was a considerable difference of opinion as to what this demand might be. Some said it might be as much as 100, while those seeking to allay the fears of the Journal Production Team said it

couldn't be more than a dozen or so.

The Production Team's fears were well grounded. Mr. Nick Hart said that if any more copies had to be produced costs would go up and standards down. Mr. Davies gave some figures. At present we made 320 copies a time, six times a year. If sold to other individuals it might go up to 450 copies. The Production Team couldn't cope with it, even if the Journal were cut down to 3 or 4 times a year. The Newsletter would be monthly, and postages on this alone would be £60. The Journal would have to be done professionally and would cost around £66 per issue if printed. The total bill would be £266, of which a proportion would come back as sales, perhaps £100. Mr. Teasdale pointed out that the postage costs alone would swallow up the proposed increase in annual subscriptions.

Mr. Wyndham Harris said that the motions should be made permissive by inserting the word "may" into each. This was done. Mr. Warburton said that the Club was already allowed to send out newsletters if it wished and that if anyone wanted the Journal they should join the Club.

The President reminded us that the hub of the whole question was whether the Journal should be split into two: newsletter and magazine. He took a vote on this issue. There was a heavy majority for keeping it as it is. This left us to decide whether to sell copies outside the Club. Mr. Hart, for the Production Team, said we don't want to print more, but if it is for more members, then we don't mind turning the handle a few more times. In support of this Dr. Lloyd pointed out that this made it impossible to guarantee copies by annual subscription to outsiders; extra members must have first service. The Meeting eventually decided "That the Journal may be sold to non-members," with no mention of subscriptions.

Next was considered what we should charge outsiders for copies. Dr. Lloyd, leading a rear-guard action, proposed that the charge should be at least 20/- a copy. This, though supported by the Production Team, was defeated, and the issue left for the incoming Committee to decide.

In conclusion the President pointed out that Mr. George Pointing had been Hut Warden for 6 years, and that he deserved our warmest thanks on his retirement. These were proposed by Mr. Davies and seconded by Mr. Eric Hensler. The meeting concluded at about 5 p.m.

WESSEX CAVE CLUB

INCOME & EXPENDITURE ACCOUNT

YEAR TO 30TH SEPTEMBER 1964.

	<u>1963</u>			
To: Subscriptions	£200	£196.	10.	0
" Affiliation Fees	24	24.	18.	9
" Entrance Fees	13	6.	5.	0
" Donations	7	10.	16.	6
" Headquarters Fees	110	121.	10.	3
" Eastwater Hut Fees	22	12.	4.	0
" Tackle Fees	7	5.	5.	0
" Lamb Leer Fees	5	4.	3.	0
" Use of Duplicator	1	4.	2.	6
" Profit on sales of Badges, Ties, Carbide & Lamps	5	7.	19.	0
" Profit on Exposure Suits	18	-	-	-
" Sales of Journal Vol. 1 reprint	-	24.	15.	0
" Dinner Surplus	8	5.	19.	9
" Deposit Shares interest	5	5.	1.	6
" Sundry Receipts	-	1.	18.	0
	<hr/>			
	425	431.	8.	3
" Balance-being deficiency for the year	-	7.	5.	6
	<hr/>			
	425	£438.	13.	9
		<hr/>		

		<u>1963</u>			
By:	Headquarters:-				
	Equipment	£-	£51.	13.	6
	Repairs & Renewals	35	5.	19.	0
	Rent	10	10.	0.	0
	Lighting & Heating	31	33.	6.	11
	Insurance	5	5.	16.	9
	Rates	5	4	12.	7
	Property Tax	1			
		87			
"	Eastwater Hut:-				
	New Roof	2			
	Repairs & Renewals	5	2.	15.	6
	Rent	5	5.	0	0
	Lighting & Cooking	2	2.	0.	9
	Insurance	1	-	11.	0
		15			
				10.	7.
					3
"	Tackle Expenditure	37			
				8.	9.
"	Club Digs Expenses	7			
				4.	16.
					6
"	Journal:-				
	General	111	106.	13.	11
	Reprint – Vol. 1	-	39.	10.	4
	Supplement – Vol. 8	-	27	17.	6
			174.	1.	9
"	Library Expenses	1			
				8.	10.
"	Insurances:- Third Party	17			
				19.	15.
"	Duplicator	1			
				-	13.
					6
"	Postages	26			
				44.	3.
"	Stationery	11			
				27.	9.
"	Meeting Expenses	4			
				7.	5.
"	Bank Charges & Cheque Books	2			
				1.	15.
"	Lamb Leer Rent	-			
				-	15.
"	Cave Research Group	3			
				1.	5.
"	Yorkshire Cave Rescue Organisation	-			
				3.	2.
"	Charterhouse Caving Committee	5			
				11.	8.
"	Mendip Cave Registry	5			
				-	-
"	Wreaths:- Jack Wadden	2			
				-	-
	Ian Dear	-			
				1.	16.
"	Sundry Expenses	-			
				1.	10.
		334			
				438.	13.
"	Balance – being surplus for the year	91			
				-	-
		425			
				£438.	13.
					9

WESSEX CAVE CLUB

BALANCE SHEET

AS AT 30TH SEPTEMBER 1964

Accumulated Funds

As at 1st October 1963	£287.	12.	7		
Less Transfer to Hut Fund	50.	0.	0		
	<hr/>				
	237.	12.	7		
Less Deficiency for the year	7.	5.	6	£230.	7. 1

Hut Fund

As at 1st October 1963	151.	14.	3		
Add Transfer from Accumulated Funds	50.	0.	0		
Donations for new Headquarters	301.	11.	3		
Interest on Investment	7.	5.	10	510.	11. 4

Survey Fund

As at 1st October 1963	11.	14.	2		
Add Profit on sale of surveys for year	7.	8.	10	19.	3. 0

Mendip Atlas Fund

As at 1st October 1963				2.	13. 4
				<hr/>	762. 14. 9
<u>Subscriptions in Advance</u>				6.	2. 6

---

£768. 17. 3

<u>Economic Building Society</u>				£200.	0.	0
Realised Preferential Shares						
<u>Somerset Building Society</u>				350.	0.	0
“P” Shares						
<u>Midland Bank</u>						
Current Account				168.	12.	1
<u>Survey Fund</u>						
Stock of Surveys	£10.	5.	4			
Cash in Hand	8.	17.	8	19.	3.	0
<u>Mendip Atlas Fund</u>						
Paid on account of work to date				2.	13.	4
Stocks of Badges, Ties and Carbide				28.	8.	10
<u>NOTE:-</u> The value of the Club’s Headquarters, Equipment, unsold Journals and Stationery is not included.						
				<u>£768.</u>	<u>17.</u>	<u>3</u>

## THE TECHNIQUE OF CAVE SURVEY

D. Warburton

This article is by way of being a sequel to the discussion "The Accuracy of a Cave Survey" published in Journal No. 89. However it is entirely different in its aims, and those who thumbed rapidly through the previous article need not worry - the bias is now shifted from the theoretical to the practical. The appearance of this article at the present time is connected with the proposed Survey instruction scheme which will be held as a club trip in the near future, and may to a certain extent be regarded as homework for would-be cave surveyors.

After all that was said in the previous article about instruments and accuracies, there would seem to be little to discuss under this heading. However, there are many points that could well prove helpful to anyone taking up this sort of work for the first time. In this article we shall be considering mainly "precision" surveys, generally to Grade 5 or 6 which are intended for publication on large sheets, rather than as sketch plans to be published in the Journal as provisional surveys. Even so, much of the discussion also applies to the lower grades of survey.

One of the most important things to stress is that there is really no such thing as a cave surveyor - there is a survey team. It simply is not practicable for one man to do everything on a cave survey, and the final plan will depend on the combined efforts of several people. To start at the beginning, there must be someone who will build, modify, repair and maintain the instruments, someone who reads them in the cave, someone who records the measurements and sketches such passage detail as may be thought necessary, someone who computes or plots the results and draws the plan. Even the people who are merely putting target lamps at particular points can play their part in making a survey easier to do. If there is any possibility of an extension to the cave, then one of the team must be prepared to dive into every likely (and unlikely) hole in the hope that something new will be added to the plan.

The basic accuracy of the framework is largely dependent on the man who reads the instruments - the actual surveyor of the team. He needs a considerable amount of patience for an accurate survey - it can be extremely trying to read a compass under a heavy drip or in a muddy pool - and whatever limits of accuracy have been set in advance must be adhered to. That is not to say that if a Grade 6 survey is planned then every single passage must be surveyed to that degree of accuracy. While that might be very desirable it would not very often be practicable, and some difficult sections or out of the way extensions might well be surveyed to Grade 4. These should be indicated on the plan.

The member of the team reading the instruments should be on his guard against a quite common source of error; that of transposing figures. A bearing of 186 degrees is surprisingly easy to read aloud as 168 degrees, and this must be carefully watched. Also, in tape measurements, the tape should where possible be read by the surveyor rather than by the

assistant at the other end. In an ideal team the surveyor is only responsible for reading the instruments, the donkey work of finding other positions and running up and down the passage with tape and notebooks is done by other members of the team.

The recorder fulfils a role that is just as important as the surveyor's. For while the accuracy of the framework depends on the latter, then the detail and final usefulness of the plan depends on the recorder. If a simple line survey is being made, then the recorder has only to copy the figures solemnly uttered by the surveyor (not his exact words if the notes are to be seen by others) and keep track of the numbers of the survey stations. The practice of making a strictly line survey is not very common now (I have always regretted that the finest and most popular of all Mendip surveys has no passage detail) and in a typical Grade 5 or 6 survey the recorder will have his hands full. The amount of detail to be recorded should be decided in advance from a knowledge of the type of plan intended to be published.

There are many features which should be recorded in the field notes, even if they cannot be fitted into the final plan for reasons of space - they are always available at a later date if any query arises regarding detail. Among these are height of roof, width of passage, nature of floor and walls (stal flow and scalloping are two important features) changes in level of floor and roof and the presence of water. Cross sections should be drawn liberally, but always bearing in mind the fact that cave passages are often very irregular. It is more or less useless to record the width of a passage at Station X as 5ft. 4½ins. in a place like Harris Passage in Eastwater. It may be 8ft. 4½ins. a couple of feet on and 1ft. 4½ins. in another two. Moreover, the width of a passage such as this is affected by the exact height of the survey station above the floor and the presence of recesses, bulges, bedding planes and what-have-you. If the passage is very irregular we must compromise, and draw sections which represent its general nature rather than attempt an exact portrayal. A survey that takes a full trip to record one leg is not yet a practical proposition. Longitudinal sections of some passages can be very illuminating, and can force the recorder to do almost as much moving about as the stooge.

A slightly different technique is used for the survey of chambers. The line survey from the preceding passage is brought to a point in the chamber from which all the important detail can be seen. This includes entrances to other passages (which will form part of the line traverse) any recesses of note, special features such as formations and prominent joints and if possible an unmistakable point such as a large stalagmite to serve as a prime survey point for later work. More often than not it will be found possible to include most of the detail from one point. The instruments are set up here, target candles placed at the various points of interest, and the readings taken one instrument at a time reading round the chamber in a clockwise direction. This helps to eliminate gross errors. It will be found that ten to twelve compass readings can be taken in quick succession, certainly faster than the recorder can cope with them, and even the tape is relatively easy to carry round the various points, then the three sets of readings have been taken there will be a wait while the recorder gets to work on the detail. There will be ample time for the rest of the team to brew coffee - with some recorders a seven course meal would seem within the bounds of possibility.

An interesting technique for determining inaccessible heights in chambers and rifts is the use of hydrogen balloons. This does not seem to be particularly common, but it is a useful addition to the surveyor's range of equipment. When one uses this technique it quickly becomes obvious that estimation is completely unreliable, even experienced cavers over-estimate by 50 - 100 per cent. Small cylinders of hydrogen are apparently not available, and the only practical way out of the impasse is to modify other cylinders with an adaptor. The alternative is to fill the balloons on the surface from a standard cylinder and carry them down the cave inflated. We used this method with great success at Pen Park Hole, but imagination boggles at the thought of taking a couple of 18 inch balloons into Swildon's IV. It has been suggested that heights may be determined by triangulation, using a measured base line on the floor of the cave. If we take a typical case and require the height of a point about 60ft. above the floor using a 15ft. base line, we find that to determine the height to the nearest foot requires the angles of inclination to be measured to within 7 minutes of arc - not a practical proposition for anything but a theodolite.

The joint system of the rock in a detailed survey is important, and bearings along all prominent joints and bedding planes take very little extra time and materially increase the usefulness of the survey. If one of the team is a geologist it will be found that by making him the recorder one can get an absolutely phenomenal amount of detail into the field notes, so much, in fact, as to slow down the survey almost to a standstill.

From all these considerations we can arrive at an ideal survey team. If we assume that we are making a Grade 5 or 6 survey with as much detail as we can get into a large scale plan, then a team of four people is ideal. No. 1. is the surveyor who sets up and reads the instruments. No. 2. is the recorder who carries nothing but his sketch pad and does nothing to get his hands muddy. He will be continuously at work. No. 3. is a ferret who pokes his nose and on occasions the rest of his body into every hole in the vicinity, shouting out cryptic remarks to the recorder. No. 4. is familiarly known as the stooge. On a normal survey trip he will run (or crawl) up and down each leg of the passage three or four times with target lamps and the end of the tape. He will be cursed by the surveyor for choosing bad survey stations, by the recorder for getting in the way of important passage detail, and by the ferret on principle. In addition to all this he will do twice as much caving as any other member of the party, and he will carry most of the gear. Small wonder that a stooge rarely joins a second trip.

This is an ideal team for a slow survey trip in a relatively easy cave. It is not always practicable to have four people. In the Primrose Path in Eastwater, for instance, a team of two is the limit, and in such a passage one must slow down even more or else sacrifice a lot of detail. On the other hand, in such a restricted passage as this it is not found to be too much of a hardship to slow up!

The question of the length of survey trips is one which must be left to the individual. I have found over the years that in my case the accuracy tends to suffer if a marathon trip is made and the amount of detail in the notes dwindles almost to vanishing point. In one trip in

Hillier's Cave I was kept at it by the enthusiasm of Phil Davies and Derek Ford, and after eight hours I was uttering remarks such as "Clinometer 281 degrees, distance due North". On the other hand some cavers can cheerfully survey for ten or twelve hours with no effect at all on their accuracy. Nor is this wholly dependent on the difficulty of the caving conditions. We have cut short a survey trip in the ideal conditions of Balch's Hole after two hours because we felt we had done enough, yet in the far more difficult Valentines Passage in Lamb Leer we surveyed to about the same standard for three times as long, and still felt like exploring the odd corners of the cave afterwards.

It was mentioned earlier that the survey could be made much easier if the stooge was able to find good survey points. This cannot be overemphasised. The natural tendency to start with is to get as long a leg as possible by retreating down the passage until the surveyor can only just see the target. If this is done, then nine times out of ten it will be found that the next leg varies from exceedingly difficult to downright impossible. If the surveyor is sighting forward from each position this can seriously affect the accuracy of the survey as well as being extremely irritating. A variation of the usual method can be used, and this has been aptly described by Ellis as the "leap-frog" method.

Briefly, the essence of this technique is that instrument and target positions are non-interchangeable. The instruments are set up at point B in a passage, and sights taken back to A and forwards to C. Then they are moved beyond C to a point D and sights are taken back to C and forwards to E, and so on. That is, the instruments are read only at every other position and two sets of readings obtained each time.

The advantages of the method are as follows. Firstly, instruments may be set up at any convenient point in the centre of the passage. As the location need not be repeatable this can be any point chosen for the comfort of the surveyor. Secondly, the target lamp can now be anywhere in the passage that makes for convenience; i.e. it can be on a narrow ledge, at floor level in a pool, high up on the wall, etc. Thirdly, and very important, is the fact that there is a considerable reduction in position error. The target lamps are fixed, and therefore there is not the position error which occurs when instruments and targets are interchanged, and the instruments themselves need merely to be pivoted to read the two legs. For a survey of Grades 3 to 5 this is a useful device to increase the precision. For the higher grades this is not so marked as the instruments are tripod mounted in any case, but the increased convenience remains. It will be seen that this method precludes the taking of back bearings at each separate station, but there is still the possibility of repeating the survey of complete sections of passages, which in addition to being the equivalent of taking back-bearings also gives an artificial closure. This method of surveying is strongly recommended as being more accurate, more convenient and faster than the usual method.

The actual taking of the notes should receive some attention here. A note-book seems to be the most obvious recording medium, and the writer for many years used any note-book that happened to be lying around - someone else's old school books were the obvious choice. A note-book is recommended by Butcher in the C.R.G. publication. It is strongly condemned

by Railton and other surveyors. Once again it boils down to a matter of individual opinion. Depending on the cave conditions and the requirements of the survey one may use anything from an elaborately bound note-book to a piece of greaseproof paper, which can be washed outside the cave if covered in mud.

In the W.C.C. Survey Group we have now standardised on duplicated quarto sheets of two kinds. One, for normal traverses, consists of three sections; a table with six lines of the following headings:

Station	To	Prism	Climo	Distance	Height	Width	Floor
---------	----	-------	-------	----------	--------	-------	-------

and two parts headed

"Plan" and "Elevations and Sections". Recorders have been known to turn the sheet over and elaborate the plan view on the back.

The second type of sheet is for chambers, and consists of a block of 21 lines with the above headings and a small inset for the plan. This is to cope with the system of rays used in large chambers, and the plan portion is normally of secondary importance as chambers are drawn separately on large sheets of paper. Although these sheets have only been in use a short time they have proved a great help in reducing the amount of unnecessary writing. The recorder no less than the surveyor, must be on his guard against transposed figures and incorrect distances. It is a very useful practice to get into the habit of repeating aloud the figures written down so that the surveyor can hear them - if a mistake is made the entire team will be heard to pour abuse on the head of the miscreant.

Immediately the trip is over the instruments must be cleaned. This is vitally important - leaving a steel tape for a week after a wet trip can render it completely useless. The compass can generally be cleaned by simple immersion as there are rarely any parts to be harmed by this treatment (this refers of course to a liquid-filled compass, the only type that would be used in normal circumstances). The clinometer treatment will vary with the type of instrument; an Abney level may take a lot of cleaning while a mirror clinometer will require less attention. The motto with a clinometer should be that applied to an expensive camera lens - "keep it clean, don't keep cleaning it". If it is wrapped in several folds of cloth for carrying in the cave and only unwrapped for each reading it will be found to require much less periodic maintenance. After each trip steel tapes must be unrolled fully, washed, cleaned of all mud, dried and then given a wipe over with a paraffin or oil-soaked rag to leave a protective film. Care should be taken with them at all times as they are rather brittle and can be snapped easily. Fibron tapes are less delicate but all abrasive particles should be removed before storage.

After each trip the results of the day's work should be plotted, even if only roughly, as soon as possible, and preferably while all the survey team are still together and the trip is fresh in their memory. It may happen that if a gross error has been made in the measurements it can be spotted if a plan is drawn out quickly enough. It may also indicate places where more

detail is wanted, or certain features more fully checked. Above all it acts as a strong incentive to the team as a whole. During the survey of Eastwater Swallet some years ago, two of us spent a week working into the cave, surveying to Grade 6. By the end of the week we were both sick of the sight of that cave, and the survey might well have ended there. However we plotted the results, which were so interesting and led to so many questions which had to be answered that we approached the next survey trip with something near to enthusiasm. There is a peculiar fascination in plotting out a survey trip by trip. Parts of a cave which seemed to be quite unpredictable and illogical are seen to fall into their correct perspective as normal features. This seems to be particularly true of Mendip caves with their pronounced bedding and jointing features.

This brings us to the preparation of the final plan. It may be intended to publish this in the Journal, in which case the size is chosen for us, or we may have in mind a larger plan with more detail than can be crammed into a quarto sheet. First of all let us consider how we shall record our measurements so that they may be plotted out most easily. It is not advisable to work directly from the field notes, but to copy the essential figures into a separate book, reversing any back bearings so that we may plot point by point in the correct order.

The first five columns will be quite straightforward, we shall require the stations "From" and "To", and our three instrumental readings "Compass", "Clinometer" and "Distance". Column 6 will be "True North", obtained by correcting for magnetic variation and any local anomaly that we have determined. On any survey that has clinometer readings we must now record the horizontal and vertical components of each leg, and this will give us columns 7 and 8, " $d \cos a$ " and " $d \sin a$ ", where " $d$ " is the distance given in column 5 and " $a$ " is the angle in column 4. All this is perfectly straightforward, and the only calculations required are for columns 7 and 8, These can be determined very simply with the aid of a slide rule or a set of log tables.

We are now ready to produce our plan, using the horizontal measure " $d \cos a$ " from column 7 and the bearing "True N" from column 6. The simplest way is to plot on to graph paper with the aid of a protractor graduated in half degrees, and a good scale or a pair of dividers, and this way has the merit of needing no further calculations. The alternative is to reduce the measurements to rectangular co-ordinates. This has a fearsome sound, and I have found when talking to other members that the imagined difficulty of the process puts them off trying it. Even one member of the Survey Group can be heard to make rude noises as soon as I open a set of log tables. It is really perfectly simple, and there is no more calculation to do than in the original " $d \cos a$ ", " $d \sin a$ " columns. The only thing that we need to watch with special care is the little matter of positive and negative readings.

Let me try to explain this in the simplest possible way. Assume we have a passage running from the entrance of our cave on a bearing of 60 degrees, i.e. approximately N.E., and with a length of 50ft. The usual way is to measure off 60 degrees from the True North line by means of a protractor, and then plot along this position line for the scale equivalent of 50ft. Now it can be seen that we can reach this position by travelling due East for a certain

distance  $x$ , and then due North for another distance  $y$ ,  $x$  and  $y$  are our rectangular co-ordinates,  $x$  being the Eastings and  $y$  the Northings. It is as simple as that.

Only the most elementary knowledge of trigonometry is necessary to calculate the co-ordinates; they are our old friends " $d\cos a$ " and " $d\sin a$ " again. But here, the distance is the plan distance already calculated (the " $d\cos a$ " of column 7) and the angle " $a$ " is the bearing from True North. The only thing to watch is whether our co-ordinates are positive or negative. As regards the Eastings, bearings from 0 to 180 degrees have positive values, and from 180 to 360 degrees have negative values; for Northings, bearings from 270 degrees through 360 to 90 degrees have positive values, bearings from 90 to 270 degrees have negative values. This point does want watching carefully. Even in the C.R.G. publication the signs are given incorrectly. The diagram showing the actual bearing should be sketched in for each leg, and the signs entered in the appropriate quadrant. When the Eastings and Northings have been calculated for each leg it merely remains to add them together to get the co-ordinates for every survey point in the cave.

Now why do we go to this extra trouble to compute the results instead of plotting them. One very good reason is that it is easy to correct any errors in closures. A misclosure will show up as a discrepancy between the two sets of co-ordinates for our start and finish points (which of course are the same). The error can then be distributed over the complete circuit in any way we like before any plotting is done. It is true that closures can be corrected by graphical methods on the drawing board, but it takes more time and considerably more skill. Cave surveyors are not always trained draughtsmen. Another reason is that results may be computed sitting before a fire armed with only a sketch pad and a slide rule, plotting requires a large drawing board and plenty of time. I am not trying to suggest that computing the results is inherently superior to plotting them, merely that it is a convenient method which might be more used if its imagined difficulties were seen in their true light.

Another useful point about computed results is that projected sections can be drawn out directly from the co-ordinates provided that the chosen projection plane is either E/W or N/S. Any other plane may be used by means of a trifling calculation of the same type as before. As regards the question of projected sections versus true length sections, this is a controversial point. True length sections give a better representation of the slope of the passage, particularly one that meanders a lot, while projected sections give the correct relationship between various parts of the cave. We have used both; examples being Eastwater, where projected sections were almost essential due to the number of closures, and Lamb Leer, where a true length section was used to give a more accurate pictorial representation.

If the computing procedure given above still seems a little complicated, I would recommend actually trying it out with an imaginary set of bearings and distances - it is much easier to do than to describe.

It might be helpful here if I gave a description of the actual procedure used by the Survey

Group in producing their results. We have emerged from the cave with our readings and notes, and are now at the Hut, waiting for "them" to open. The various members of the team are eager to see on paper the results of the day's work.

Firstly the surveyor goes through the field notes, abstracting the figures only into a notebook ruled with about a dozen columns. He writes down the stations "From" and "To" then the compass, clinometer and distance readings. This is done with the survey stations in their proper order, so that any back bearings will need to be reversed - that is, 180 degrees added to the compass bearing and the sign of the clinometer angle reversed. Then the "True North" column will be completed by subtracting the magnetic deviation from the "compass" column. This only takes a few seconds. The next thing he must do is calculate the "dcos a", "dsin a" columns. For this he uses a set of "logarithmic and other" tables, holding them so that the four pages logarithms, anti-logs, log sines and log cosines can be selected. From here it is just a matter of writing down the figures, adding them together and taking the anti-logs to arrive at the horizontal and vertical components. A similar calculation with the bearing angle and the co-ordinates are ready to plot on to a piece of graph paper.

An average survey trip runs from perhaps 15 legs if there is a lot of detail to as many as 30 or 40 legs in a quicker survey. Great cunning can be exercised here - the ideal procedure is to do the calculations while the others are cooking and washing up. A skilful computer can manage to produce the last figure just as the last of the chores is completed. At that point he will sit back and let the rest of the team fill in the detail. This rapid computing of results is not without its dangers. In the rush and noise of a caving hut it is easy to make mistakes which, although they may be accepted in the rough plan must not be allowed to pass through into the final result. To guard against this, our practice is to repeat the whole set of calculations in a different book, starting from the field notes, preferably at home in a more relaxed atmosphere. In this way any mistakes can be checked immediately.

The first copy of the plan will be drawn to a very large scale and every bit of detail possible incorporated. Our original plan of Hillier's Cave was over seven feet long when we abandoned it, with section after section joined together with sellotape. When the survey is finally completed the original plan will give us a good idea of how big our final plan should be, and how much of the detail we should incorporate. It will also lead to two or three "last trips" to fill in empty corners on the plan and inevitably, just after the survey is drawn up there will be fresh discoveries made, rendering the plan obsolete. Eastwater and Hillier's, to name but two have suffered this fate, but the prize must surely go to Swildon's, in which fresh discoveries have time and time again rendered the survey incomplete.

However, we shall assume that we have made the last of our trips underground, completed all the surface detail that we need, corrected all our closures, and are now sitting in front of the drawing board with a book full of co-ordinates and a rough plan full of detail. I shall assume here that the survey is to be drawn and traced by an amateur draughtsman - a professional would not need telling how to do the job and would probably do quite a lot of it in a different way.

For the master plan we always use graph paper, this may be scaled in any convenient way. All the surveys produced by the Group are scaled in simple multiples of feet per inch, 10, 20, 50, etc. Metric scales are sometimes advocated, but these are not as easy to understand. 50 feet to an inch has an immediate impact, but 5 metres to a centimetre has not. It may be that the Centigrade scale and the Common Market may alter our insular preferences in a decade or so, but for now we recommend the traditional measures. We are surveying for the benefit of other cavers, not pedants. The keen-eyed may note that we do not always quote a representative fraction together with the scale. This is because we sometimes have reduction prints made for various reasons as well as the direct prints, mainly for Journal use, and this makes an R.F. impracticable.

Plans for direct printing by the dyeline or similar processes can run up to about 40" by 30". Anything bigger is unwieldy and is best reduced by altering the scale or splitting the plan into two or more parts. If plans, are required for the Journal it is as well to note that a reduction of more than 2:1 is not very satisfactory for the production of an electronic stencil. This means that if our plan is much bigger than 20" by 16" we must have an intermediate reduction print made and re-draw the detail to permit satisfactory reproduction.

A skilled draughtsman might well put in the lettering by hand and make a neat job of it, but for the amateur the best method is to use UNO stencils. These may be used down to the smallest size for a direct print, but if a 2:1 reduction is to be made then the smallest size (UC1½ etc.) tends to clog up on some of the letters. A satisfactory scheme is to use three sizes of stencil - the largest which could be UC6 or UC8 for the main title, a smaller one such as UC4 for the more important names (such as UPPER SERIES, STREAMWAY etc.) and the smallest, UC2 for detail. With practice in using these stencils a quite neat survey may be produced fairly rapidly.

A tracing will naturally be required to enable prints to be made and it is better to do one's own tracing from the master plan rather than have one produced photographically, as any construction lines and markings can be eliminated on tracing. Great care should be taken with the largest lettering, on one occasion an almost finished tracing of Stoke Lane was ruined by using a flooding pen on the title lettering. It might be a good idea to do this part of the plan first to save wasting many hours of work.

In the C.R.G. publication there is a complete list of symbols for detail such as sand, mud, boulders, stalagmite, heights, etc. These have become generally recognised in this country and should always be used. It also saves a lot of explanatory notes on the survey if one can write "Symbols as C.R.G." Certain modifications and additions have been made by various surveyors, including a rather comprehensive list by Waddon, but these are for specialist use and will not affect most surveys.

The final point is probably the most important, especially to cavers who might be encouraged by this article to do a survey of their own (which after all is the main reason for writing it at all). Make your survey generally available. A survey is no use if it is locked up

in someone's private collection and a published Grade 3 is infinitely more valuable than a superb Grade 6 which has never seen the light of day.

In some cases - in fact in my own - it may be that the survey was produced as a matter of personal interest, and the surveyor may not have the time or the inclination to deal with copies to be sent through the post. With this in mind I should like to draw the readers attention to the survey scheme which was started a couple of years ago and is now a very flourishing infant. Looking at the list in the Journal of surveys obtainable it is evident that this has become a very valuable service, and I urge each surveyor to make his survey available to this scheme. It may be that, quite understandably he does not wish to part with the master tracing that has cost him so much labour; if so then Messrs. Hall, Harding, who hold the tracings for the scheme will prepare a duplicate tracing at a very moderate charge. This duplicate can then be used to prepare the prints for the survey scheme.

As a postscript to this article on the technique of surveying, I should like to give brief details of a new method of taking positional readings, which as far as I know has not yet been tried underground.

One of the most annoying obstacles that the cave surveyor has to contend with is the mass of ironwork that is frequently to be encountered at the entrance to a cave, particularly if the cave has been entered by a dig. Diggers are not prone to worry about the difficulties caused to surveyors, and they often line the walls of the dig with sheets of corrugated iron, angle iron girders, old bedsteads, bicycles and any other type of iron that will give a little stability to the entrance. Now this ironwork can have a disastrous effect on the readings obtained with a magnetic compass, and many and varied are the subterfuges resorted to in an effort to overcome the interference.

In some cases it is possible to take an extended bearing - in other words keep the compass well behind the survey point to eliminate the effect. Sometimes it is possible to drop a plumb line to avoid a particular girder, and sometimes back bearings may come in useful. The particular survey that brought this problem to a head as far as the Survey Group were concerned was the entrance to Cow Hole. This entrance had received the full attention of the "Cave Engineers" over many months, and from the bottom of the swallet right to the head of the main pitch was an erection comparable with a bridge building project. A magnetic survey was thought to be out of the question, as several legs were involved, and none of the subterfuges mentioned above could be used to any extent, while the use of a theodolite was not at all practical in the restricted space.

Experiments were carried out to eliminate this kind of bottleneck, and the answer was found in the use of a gyrocompass, obtained from ex-Government sources. The compass is the G.M. Mark 4F Type B-6B/563 and the actual gyro is powered by a 24 volt battery running an inverter and control unit. The inverter in use by the Group is the Type 100A, driving a control panel Type 12-F2801. This is rather an elaborate unit, as the power delivered to the gyro is 3-phase, 115 volt, 400 cycles, and the inverter takes some 6 amps out of the

batteries, thus necessitating rather substantial batteries and wiring. The complete survey gear is of course extremely heavy and bulky, and for surveys where the only need for such instruments is in the entrance it is better to leave both the batteries and the control gear outside the cave, and trail in a wire to the gyro.

At the time of writing this gear has not been tested on an actual cave survey, but a number of experiments have been carried out on the surface, and there seems no doubt that this is the answer to the problems of magnetic disturbance. The instrument is extremely stable when run up to full speed, reading is far easier than with a magnetic compass, and providing that reasonable care is taken in lining up the gyro at the beginning of the survey, there seems no reason why it should not take the place of a magnetic compass as far as the various grades of survey are concerned.

\*\*\*\*\*

### LETTER TO THE EDITOR

"Dear Sir,

It seemed a great pity that the whole of the 30,797 feet of Pollnagollom should have merited a description of only eight lines in the September issue of the Journal.

The whole system is described in the 'Proceedings of the Speleological Society of the University of Bristol for 1961-1962', by Brian Collingridge. Had this been read before the expedition the Wessex could hardly have missed the Muddy Link, nor would they have been surprised to find a pitch at the end of The Sewer.

For future reference the Muddy Link begins as a passage some 7 feet high some 30 feet inside Gunman's Cave. The route is quite obvious, but where in doubt turn right. It is a flat out crawl of 150 feet, and takes one into Branch Passage Gallery, a large stream which eventually joins Branch Passage over a 20 foot waterfall, and thence to Main Streamway.

I did wonder if Leslie Teasdale et al. had confused the First Waterfall with the Branch Passage waterfall, and were thus trying to get from Gunman's Cave to Upper Pollnagollom, but there is no known passable connection.

Yours faithfully,

Donald Thomson."

## CAVES AND CAVING IN CZECHOSLOVAKIA

Graham Stevens

For two weeks this summer, I was privileged to be a guest of the Czechoslovakian cavers. Our British party of eleven, which included Professor E.K. Tratman the only other Wessex member, comprised a broad cross-section of the major clubs and was very ably represented in the negotiation stages by Alan Ashwell of the Cave Research Group. The Czech organiser was Dr. F. Skřivánek of their National Speleological Museum, and I would like to record at this stage our thanks to him for a most enjoyable visit. We visited all the major karst areas in the Republic thus obtaining a more general outline of the karstic features. To facilitate this in the short time at our disposal, most of the caves visited were show caves, in fact nine out of a total of fourteen.

Caving in Czechoslovakia in many ways resembles it in this country. Cavers are members of clubs, and the clubs in each karst region have some central organisation. These are often in the form of a museum, as with the National Speleological Museum in Prague, the Moravian Museum in Brno and the Slovakian Karst Museum in Liptovský Mikuláš. This latter was visited and was similar to the Karst Museum in Postojna, Yugoslavia. Scientific exploration is said to date from the seventeenth century, but it gathered impetus soon after the beginning of this century and a notable early worker was Professor Karel Absolón. A great spur to cave exploration and excavation has been, and still is, provided by the "commercialisation potential" of so many of the caves. There are 23 show caves, out of more than 2,000 known caves, and the financial reward in the discovery of a show cave has inspired the employment of "professional" diggers to do exploratory excavation (as opposed to work within a known cave for facilitating access). Unlike this country, there did not appear to be any "bobs" to pay (diplomatic immunity?) though many of the caves were gated. We were told that bona-fide cavers do not have to pay to enter show caves and further reaches are generally open to them.

Language is one difficulty. English is very rarely spoken and German would be the best foreign language. Dr. Skřivánek speaks French and much of our information came via this from him. Of the many publications, most are in Czech or Slovak, often with a German and Russian summary. Periodicals include *Ceskoslovenský Kras*, published by the National Speleological Museum in Prague and *Slovenský Kras*, published by the Slovakian Karst Museum. Many books are available including a paper-back guide "*Ceskoslovenské Jeskyně*" by J. Rubin and F. Skřivánek (in Czech). A small pamphlet in French gives a brief outline of the country, "*Les Grottes en Tchécoslovaquie*" by F. Skřivánek - Publication 1, 1963 Krasová Sekce Společnosti Národního Muzea, Praha. In Slovakia, a number of guide books dealing with individual systems are found, many written by Dr. A. Droppa, for example "*Demänovské Jaskyne*". These are in Slovak but contain excellent surveys and photographs. By far the best book on Czechoslovakian caves is the book of photographs "*Homes of Primeval Man*" by Prof. J. Kinský, which was published in English some years ago, but is now more difficult to obtain. These periodicals and books are probably in the library of the

C.R.G.

Three geographical regions, Bohemia, Moravia and Slovakia have areas of karst. In Bohemia, in the west of the Republic, the main karst area is developed in Silurian and Devonian limestones. The largest cave Koněpruské Jeskyně (Koněprusy Cave) is 2km. long. It is a show cave discovered by quarrying, and is of archaeological interest.

The Moravian Karst is situated to the north of Brno, and is again developed in Devonian rock. The largest system was formed by four streams which unite underground to form the River Punkva.

There are four show caves associated with the system, and of these, Punkevní Jeskyně was the most interesting. After a walk through well decorated passages and chambers, one emerges at the bottom of the Macocha Abyss, being a 430ft. deep pothole from the surface above. At the bottom of the abyss are a number of deep pools, and fish were seen in one of these. The trip continues to the underground River Punkva, along which one sails in a motorised punt to the resurgence. Also in this area we had our most sporting trip, down Rudické Propadání. This is a 120 metre (400ft.) deep, 3.7km. long water cave. The depth is rather artificial since one enters by a fossil entrance high above the stream sink. After about 80m. (270ft.) of fixed wooden and steel ladders one meets the streamway. These aids which were originally installed in the 1930's continue throughout the cave, and the deeper pools in the earlier sections are bridged by wooden cat-walks. The stream soon sumps, but a climb in a side passage a short distance back leads to a bypass passage which rejoins the streamway beyond the trap (c.f. Swildon's!). Our "guides" on this trip were some French cavers who felt a rubber dinghy was needed on a waist deep canal, but our goon-and wet-suited party pressed on along a very impressive streamway, in places 50ft. wide, and at least this in height often very much higher. Suddenly, the roof came down and we thought the end had been reached, but after a little crawling, one emerged from a low passage into a cavern so large that even a nife cell could not pick out the walls. It was truly a sensation of having emerged from a cave on a dark night. This alternation of large and small passages continued for a considerable distance until finally, a siphon was reached. Here a dig had been started but had not progressed far. The journey out gave an opportunity to "play" with the dinghy and take photographs, and the permanent ladders eased the long climb to the surface. The absence of a lifeline on these pitches, which were mostly about 30-50ft. was not really desirable. The French in fact climbed the ladders in convoy!

In the east of the Republic is Slovakia which has the largest karst region in Czechoslovakia. The Slovakian Karst is developed in Triassic limestone, and covers an area of 800 square kilometres. It is dissected by rivers into 5 plateaux and has many lapiaz fields, caves and deep potholes. There are about 100 caves and 50 pots, some of the latter being 180m. (600ft.) deep. The longest cave system is that of Domica Baradla, 21km. long. Most of this is in Hungary, and the underground frontier is sealed by a metal door! In the Liptovsky Karst is the cave system of Demanova. This has a length totalling 20km. but not all the sections are accessibly connected. Two of the four main sections are show caves, and one of

these, Jaskyňa Slobody (Freedom Cave) is the most beautifully decorated cave I have ever seen. We were shown some easy non-tourist sections which added to our enjoyment of this wonderful cave. The other show section is an ice-cave, Dračí Ladová Jaskyňa (Dragon's Ice Cave). This was a great novelty to us, and our hosts could not understand our enthusiasm. A thermometer in the cave recorded -3°C. In Slovakia, 15 ice-caves are known. The largest is Dobšinská Jaskyne which is 400m. long and 80m. deep.

The formations in the cave are best described as "continental". Stalagmites are well developed, with both slender columns and tall bosses like pagodas. Pool formations and deposits, e.g. rimstone, crystals, candlesticks and false levels are of frequent occurrence, but straw stalactites are not common and are considered as a special feature where they occur. Aragonite is found at a number of sites and it was suggested that Strontium salts influenced the crystallisation giving rise to this form.

What of future visits? Foreign cavers seem welcome, but an official party would be essential to obtain keys (and guides if requested) for the caves. The caving areas are by no means worked out, and there is certainly more scope for new discoveries than in this country. Slovakia is in my opinion the best area, and with the Tatra Mountains nearby, the scenery both above and below ground is magnificent. The only drawback is the distance, for it is about 1,000 miles from Calais!

In conclusion, I would like to thank all concerned both here and in Czechoslovakia for this excellent holiday.

Pembroke College,  
Oxford.

\*\*\*\*\*

## W.C.C. RECONNAISSANCE TRIP TO THE PYRENEES, 1964.

by

T.E. Reynolds & P. Davies.

It is several years since the club organised an official trip to France; so, when it was decided to try and organise a club trip to the Pyrenees in the coming year, it was felt that some first-hand knowledge of the area and conditions was essential to the successful planning of such an expedition. Thus it was that an exploratory trip was organised with the main aims of: making contact with the French cavers in the area around St. Giron, finding an area with as wide a variety of caves as possible, finding a site for a permanent camp site, and finally, if possible, to do a little caving. Our secondary object was to reconnoitre the area around the Trou du Toro in Spain and perhaps do a little hill-walking.

The plans for the trip had to be built around the available transport, Phil Davies' car, and in the end five of us: Pat and Phil Davies, Tim Atkinson, Rod Hobbs and Tim Reynolds left for the Pyrenees, picking up a sixth, Bob Gannicott, en route at Toulouse. In addition we also carried sleeping gear, tents, caving kit, ladders, ropes and food for the entire holiday, which altogether made a fearsome load, for which the car, a Citroën Safari, seemed designed to cope. We were later joined by Jim Giles and Mike Holland who motored down in a mini-van. We were away for ten days, all told; in that time we travelled 2,000 miles. In order to make best use of the limited time and daylight; and, when we were in the mountains, to avoid the midday sun; we got up early, 5.00 - 6.00 a.m. and saw the dawn eight mornings out of ten. Although this may sound a bit grim, as long as it was balanced by going to bed at nightfall, it worked very well and became almost pleasant after two or three days.

We left England on Wednesday, September 2nd via the Southampton-Cherbourg car ferry, a new service introduced during the year, by a Swedish line. The boats are of a drive on, drive off type, and brand new. They feature a Scandinavian Smorkvorden; for this you pay 13/6 and eat, literally, as much as you like. On the way out, the sea was calm and we did the meal full justice. The boat left Southampton at about 11.0 a.m. and reached Cherbourg by 3.00 p.m. We were through the customs by 3.30 and set out on the drive South. The first night we slept out in a forest near Tours, having driven 235 miles in under 5 hours. The next day, Thursday, we drove through the Massif Central to Toulouse where we had arranged with Bob Gannicott, who had been down the Gouffre Berger, to meet him on a certain bridge at 2.00 p.m. We duly picked him up at 2.25 pm. and retired to a cafe. Bob, it transpired, was rather glad to see us, since he had, by some accident, 'lost' a day down the Berger, and so had arrived at the rendezvous 24 hours early, and had spent ten hours on the bridge looking for a right hand drive Citroen. It was only at 11.0 p.m., when he had gone to the railway station to buy a platform ticket so that he could sleep on the station, that he discovered his mistake.

With a full complement, we drove on to St. Gaudens to see Nobeert Casteret, who is incidentally, a vice-President of the Club and greeted us most cordially; he appeared to be in the best of health and very active. He led us into his 'study', at the top of his large house, a

room full of souvenirs of past caving trips, with a magnificent view over the Pyrenees; here we spent about an hour discussing plans for next year, this year's Gouffre Berger expedition, and recent developments in his favourite, Pierre St. Martin. The discussion finally closed with reminiscences of Luke Devenish's jeep and of the 1948 W.C.C. trip to the Pyrenees. Casteret kindly offered us the use of a field at the back of his house to camp in, since it would be cheaper than going to the municipal camp site.

We were woken up the next morning at about 4.0 a.m. by torrential rain; not having bothered to pitch tents, we ate a sodden breakfast and set out to look for the Gouffre de la Cigalere; leaving behind, as we discovered later, two ice axes and Bob Gannicott's hat. We took the car as far as possible up the valley beyond Bonac and the mines of Bocart until we were halted by a locked gate beyond which the road did a series of hairpin bends, impossible for a vehicle 16' long, but negotiable by a jeep to within 200 ft. of the Cigalere. The walk without any kit up to the cave took about an hour and a half of hard going; it was raining on and off the whole time. We sheltered in the entrance, from which there is an impressive view down the valley, and left a note of good wishes for some Belgian cavers who were underground at the time. Half an hour's climb took us to the mining camp above the Cigalere, where it is possible to get permission to stay while visiting the Cigalere or the Gouffre Martel, which is still higher up the mountain. On returning to the car, we met with our only accident, spontaneous fragmentation of the offside front window on slamming the door; this necessitated a visit to the nearest Citroën agent, in St. Gaudens, where the window was replaced in about half an hour, the new one being hammered into place with a 2 lb. lump hammer! We then visited the Cave Research Centre at Moulis, where we were given a very friendly reception by the principal, M. Coumotin, and obtained advice. A quick look at the terrain around Soix ended our recce of the possibilities of the region near the Cigalere; so we set out for Foix. The rain had at last stopped, and going over the Col de Port we were treated to a superb sunset, before dropping down into the valley at Tarascon. We then drove on to Foix, where we camped at the municipal camp site.

The next day, Saturday, we went into Foix to look for Joseph Delteil, who was one of the people Casteret had recommended us to see. We found him at the Chamber de Commerce and arranged to meet him at a cafe at 2.0 p.m. To kill time profitably, we went to see the Grotte de Maz d'Azil. This cave is very impressive, and can be seen in comfort - it has a road running through it! Unfortunately, the part containing the cave paintings was not due to open until 2.00 p.m. During the morning, Bob Gannicott started to feel ill, due, we decided to a faggot he had been ill enough advised to eat the previous day; so we returned to Foix for lunch and bedded Bob down in the tent. The rest of the afternoon was spent talking to Delteil, who continually kept rushing off to see other people, mostly cavers we suspected. Delteil, an exuberant, enthusiastic little man, finally left at about 6.0 p.m., by which time we had sorted out a provisional plan for the major trip next year, and Delteil had agreed to find a camp site for next year, as well as give assistance in other activities; i.e. arranging local guides and making introductions. After a supper at camp, four of us went back into Foix to witness a Fete, which was taking place, much like a typical English fairground, but enlivened by a shambolic procession of several bands playing half a dozen different notes

arranged in no recognisable tune.

The next day, with Bob Gannicott feeling somewhat better, we set out for Spain and Benasque. We drove up from Foix via Tarascon into Andorra through some wonderful country, but were somewhat disappointed by Andorra itself, which seemed full of touristy gimmicks, but at least sold cheap petrol. We did not stay long in Andorra, and soon continued in to Spain. In order to get to Benasque from Andorra, we had been advised to drive South nearly to Lerida on account of the roads, and we finally reached Benasque at about 10.45 p.m. The last twenty miles or so had been along spectacular roads through Gorges the equal of Cheddar, but with an active river. We pitched camp above Benasque and tried to get some sleep before the walk up to the mountain refuge the next day, but we were woken up at 5.0 a.m. by the arrival of Jim Giles and Mike Holland, who had driven without a break from Le Havre.

We got up at 5.0 a.m. and packed kit for the climb up to the Refugio de la Renclusa where we planned to stay for the next few days. This is a climbing hut, run by Señor Antonio on behalf of the Spanish Mountain Club. It lies at an altitude of about 7,000 ft. in the hills near the Trou du Toro. It is an excellent place to explore the Maladetta range from, and can only be reached on foot by a mule track, which makes it a pleasanter place in consequence. Provisions are brought up by mules, twice a week. We left the car at the Banos de Benasque which is an hotel built over some thermal springs. Then, Tim Atkinson, who was feeling energetic, was encouraged to go off ahead and promptly vanished from sight across the mountainside. The rest of us set out on the six mile walk, heavily laden with kit, at a more decorous pace. The walk took about 4½ hours, and we reached the Renclusa in a rather exhausted state, at 2 p.m., having climbed up the steepest slope in the hottest part of the day. We lay in the sun and drank beer, which we afterwards discovered, to our horror, was 2/6 a bottle, until Tim Atkinson appeared at 2.45 p.m. having got well and truly lost. The rest of the day was spent sunbathing and planning a climb up the Pic d'Aneto (at 11,168 ft. the highest mountain in the Pyrenees) for the next day. Mike Holland and Jim Giles arrived after dark at 10.0 p.m. having followed us up from Benasque, even more heavily loaded than ourselves. We all shared an eight bunk dormitory with Hillgrove standard bedding, blankets being provided, making sleeping bags superfluous, but none-the-less welcome.

The next day, Tuesday, we were woken up at 5.10 a.m. by loud bangs on the ceiling below our room. However, some of us didn't get up fast enough, so Señor Antonio returned to the fray, armed with a massive caber with which he proceeded to pummel the ceiling below our room. We eventually set off at 7.50 a.m. for Aneto, the climb, which we did leisurely, took 5½ hours over some rather hairy scree slopes, which we found later, could have been avoided. The final stretch was a two mile slog over a snowfield, which in the rarefied atmosphere and with the glare of the sun, was most uncomfortable, most of us getting sunburnt, in spite of decent snow goggles and large quantities of glacier cream. The peak culminated in a narrow exposed ridge, with a sheer drop on either side, leading to the summit, which was reached at 1.0 p.m. When we had recovered from the ascent, signed our names in the visitors book and admired the view, we set off down again, leaving Mike

Holland to, sunbathe on top. We reached the Renclusa at 5.30 pm. Mike arriving later by another route.

We got up late the next day, and after a leisurely start, we set off for the Trou du Toro, which, as anyone who has read Casteret's books will know, is a very large stream sink, about 100 ft. deep at its deepest, with a sandy floor which absorbs quite a large river from the melt water of the glaciers of the Maladetta range. We descended into the Trou and had a look around; Tim Reynolds, clad in a wet suit, had a probe in the sump where the bulk of the stream seemed to sink. The water was very clear, but at a depth of about 10 ft. the sump narrowed down to a hole about 1½' x 3' still going down steeply; since we had no breathing apparatus, exploration finished there. The afternoon was spent cave prospecting; Mike Holland and Tim Atkinson found a likely spot in the walls of the Trou, with a draught; but a boulder choke prevented them from entering any passage. A shaft near the Trou was descended, it consisted of a 40 ft. shaft into a choked chamber; obviously an overflow from the Trou, which, like Hull Pot fills to the brim on occasions. A few other sinks in the area were looked at, but nothing was found.

The next day, Thursday, was time for most of us to start the journey home leaving Jim Giles and Mike Holland, who had not finished their holiday, at the Renclusa to continue the speleological work. Doubtless they will be writing their report in the Journal soon, briefly however, they descended other pots in the area, extending the known length of one cave, before moving on to another refugio in the Valle de Estos, at the head of which other shafts were laddered and limited exploration made before returning to Benasque where another limestone outcrop was investigated. Anyway, to return to most of us; agreeing the bill with Señor Antonio was a process that took the best part of an hour, but it finally worked out at nearly exactly £1 per person per day, this included a bunk, breakfast, supper inclusive of wines, beer at 2/6 per bottle and a night cap of brandy. We then started off down from the Renclusa, reaching the Banos de Benasque at midday, where we had a very welcome and needed bath in the hot springs. We then repacked the car and set out for France; rather than making a long detour inland, we returned via Viella over some rather poor roads, and crossed the frontier into France at Les late in the evening; the Spanish frontier guard solemnly enquiring whether Mrs Davies was Tim Atkinson's fiancée! The next day we drove to St. Gaudens to see Casteret to collect the kit we had left there, which fortunately had not been required on Aneto. Casteret was again very pleased to see us and questioned us about our findings near the Trou du Toro, we picked up the ice axes and Bob's 'chapeau speleologue anglais', and set off northwards, not being in any particular hurry. En route, we paid a visit to the Gouffre du Padirac. We found the cave full of artificial aids (lifts, restaurants, steps, boats etc.) but impressive between the iron works. Cave guides however, as a race, are the same in France as in England, but we did manage to get a 20% reduction in entry fees by showing our Charterhouse Caving Committee permits. We reached Cherbourg at 6.0 p.m. the next day, in plenty of time for the boat. While waiting for the boat however, we made the interesting discovery that a passport was necessary to visit the lavatory. The return crossing was considerably rougher than the outward one, as a result the Smorkvorden wasn't quite such a rewarding meal as it had been on the way out. The boat docked at

Southampton at 4.30 a.m. and we were off the boat and through the customs by 7.0 a.m., and back at Nailsea at 9.00 a.m.

So ended a very enjoyable, and I hope useful holiday. We certainly managed to achieve our main aim of reconnoitring the area around St. Girons for a club trip. In the course of so doing we met several French cavers who went out of their way to help us, and promised help for the future. The area offers something for everyone, and should make an ideal centre for a Club trip. The caving area of the Benasque valley didn't measure up to our hopes, but possibilities of original exploration exist in the neighbourhood, and doubtless members will be returning some time to investigate further.

## MENDIP NOTES

by

Cheramodytes

### Above Cowsh Aven

Members of the Severn Valley Caving Club have distinguished themselves by climbing Maine's Aven and discovering a loop passage of about 200 ft. which goes north to within about 160 ft. of the bottom of the Priddy Green Dig, turns west and then back along the fault to finish in an aven just the other side of the main streamway from Cowsh Aven. They were successful because they have a team of particularly good climbers, Bob Lewis, Mike Wooding and Ken Higgs.

The Shepton-Wessex exploration of May 1962 ended at the foot of Maine's Aven, the third of a series, of which the second, Great Aven, is 78 ft. high. This brought them to a height of 140 ft. above streamway. Maine's Aven is a difficult climb of 46 ft. and seems to close down at the top, and it is not certain where the water from Priddy Green comes in. It gives access to a horizontal passage running north. At its most northerly end this passage drops down a series of verticals, Bladder Pot (50 ft.), Boss Pot and Little Pot (32 and 13 ft.), gets into one of the strongly marked sections of the Great West Priddy Fault and returns down it to Sump IV, thus establishing another nice little academic round trip. Maine's Aven was climbed on the 11th and 14th October and the round trip was completed on the 24th. Survey on the 21st was done by Mike Wooding and members of the U.B.S.S.

### Picken's Hole

Dr. E.K. Tratman in an address to the U.B.S.S. on 19.10.64. was able to correct some of the rather misleading statements which had appeared in the Press about this dig. The hole is on the north side of the ridge leading up to Crook Peak, so that the Pleistocene deposits there have gathered very slowly. In consequence a long period of time is compressed into a small space. The period extends back to the first peak of the last ice age (Würm I). The retreat of the ice cap which followed this is well represented by a deposit containing reindeer, arctic fox, ox and bear. Above this is another barren frost-shattered layer representing the height of Würm II and then

comes a rich layer with horse, woolly rhinoceros, cave lion, mammoth, reindeer, red deer, ox or bison, arctic hare, arctic fox and hyena. At this period (about 18,000 years ago) the ice was retreating and the cave was a hyena den. One mammoth molar comes from an unborn child and is no bigger than the last joint of a little finger.

This dig is unique, because it is the first time for 50 years that such a well represented collection of Pleistocene deposits has been properly excavated and recorded in this neighbourhood.

### The Social Event of the Year

The Club's Annual Dinner should not be confused with those of Other Clubs. It is the one event attended by everybody. Instead of saying, "Oh you should write to so-and-so about that." you say, "Come and meet So-and-so and we'll ask him." This year we have our President dining with us, which must mean that his health is completely recovered, as indeed it would appear to be. Oliver Lloyd was Toastmaster, and Willie Stanton, whose flourishing state of health is exclusively attributable to the toasts we have drunk him during the past 10 years, himself proposed "Absent Friends". Les Teasdale proposed The Guests. It is to be noted that the Severn Valley were attending for the first time. This means they have arrived.

The Guest of Honour was Mr. Kenneth Hudson, an industrial archaeologist of the B.B.C. As a preservation expert he was introduced by our demolition expert, Luke Devenish. Mr. Hudson said something about the colour of our hair, not realizing that we had washed, told us that we were Cave Men, "well, you are, aren't you?" and that the prehistoric monsters painted on the walls were acquiring for him a third dimension and would almost certainly follow us home. After some more of such pleasantries we roamed around Gough's Cave before returning to the bar. Here the retiring Hon. Secretary was to be seen drinking beer from a domestic utensil, that had earlier been presented to him. On the bottom of it were the words, "Join the.B.E.C.", but this he had already done.

### Denis Warburton

Denis' retirement from the Club's Committee happened all too quietly. He was first elected in 1955 and has been a member for longer than anyone else. If we are to see less of him in the future, we may well ask who is going to do the good surveys that we need. And who is going to sing to us "Abdul the Bulbul Amir"?

### Belt and Braces at Mitcham

As announced in the last Journal, a film evening was held at the White Hart, Mitcham on the 3rd October. Here is a snatch of the conversation.

Wary ciné enthusiast (to projectionist), "Have you got a spare bulb?"  
Projectionist, "We've got a spare projector!"

(Collapse of W.C.E.)

## THE DEVON TRIP OCTOBER 1964

Donald Thomson

The Wessex trip to South Devon on October 4th was not well attended. It had been intended to make it a full weekend, but as little support appeared forthcoming it was decided to limit it to the Sunday. In the end I went on my own. It is an easy two hour run from Mendip and I arrived more or less on time. Later two prospective Wessex members, Ralph Mann, from one of the London hospitals, and Helen Polok, one of his decorative nurses, arrived in a convertible down the track the wrong way.

We did Read's Cavern to start with, taken down by Mike Bond. It's one of the few caves - like Llygad Llwhwr - that one has to climb up into, and the defences, of massive doors, breeze blocks, and cemented old bedsteads, would do credit to the Axbridge Rural District Council. Read's is not a big cave by Mendip standards, but has several interesting features. It begins with a crawl which brings one to the Main Chamber, entering quite dramatically up in the side. The floor is boulder-strewn, and on the far side is a large rock with a loose stalagmite on it. This marks the parting of the ways, and above and below it are two passages, the upper of canyon type, the lower a mud crawl, which join just before the final chamber where the well-known Little Man is. He is much photographed and quite realistic. The story goes that he is directly beneath the tomb of a local Don Juan, whom he resembles in many respects. Here also is Hedgehog Grotto, with its prickly, red, calcite pool. On the way back Mike and I went into the Upper Series, a maze of dip and strike passages, with squeezes and rifts, leading to the Plug Hole, a pitch apparently devoid of holds, furnishing a rapid and undignified means of descent into the Main Chamber. Read's connects with Baker's Pit Cave, on the other side of the hill, probably through several connections, through a constricted series leading off the Main Chamber. The D.S.S. bung up all these holes with rocks and cement when they find them, but last time I was there burglars had entered and sawn off two stalagmites in the Main Chamber.

After Read's we knocked off for lunch and inspected the latest haul of bones from Joint Mitnor Cave. Some are from large animals with quite a sprinkling of bear. Rhino bones were said to make up most of the others, and hyenas were mentioned, but most of the bones looked unchewed.

In the afternoon we were taken into Afton Rift Cave by Bill Watkins. This cave is in the wall of a quarry (NGR 838632) about 400 ft. above sea level. It used to be a canyon passage 120 ft. long, ending at an impassable squeeze, but this was chipped away just over two years ago. The passage continues, at first as canyon meanders, leading to the Main Chamber. There are several inlet passages here, and the chamber gives the impression of being the upper part of a large passage. Another inlet passage lies to the left, also of canyon type, but with tighter meanders. It has one or two awkward climbs in it, and finishes with a steep, narrow and slippery chimney. Nearby is Bill Watkins' dig, and through it two members of D.S.S. scrambled and emerged in the bottom of the

entrance rift, through a very tight squeeze. After a smoke they very sportingly returned. On the way back we by-passed the Main Chamber, emerging at the bottom of a traverse in the right angle bend just before the Main Chamber. Afton Rift is a colourful cave, predominantly bright red, but in places this has come away to leave grey rock, which by contrast looks pale green. Calcite formations are few, and where present are strategically placed as handholds.

Afton Rift is becoming an all too popular trip. On the way down we passed members of the Plymouth Caving Group who were laughing like maniacs as they emptied spent carbide over the mud deposits in the Main Chamber. A linear survey (Grade 0) has been published, but the proven connection between the end and the beginning suggests it is very inaccurate. The system has been broken into by quarrying, though the quarry is now disused.

The Devon Speleos complain that they are seldom visited by the Men of Mendip. People like Bill Watkins are frequent visitors to Mendip and still find the Devon caves worthwhile. The climate of this area is mild, the company pleasant, and the D.S.S. have a warm and reasonably spacious H.Q. within a few yards of the pub.

Perhaps the most rewarding experience of the day was seeing a brilliant humming bird hawk moth hovering over the valerian outside the Pengelly Research Centre and gathering nectar methodically from each flower in turn with a tongue as long as himself.

## THE ROLLING CAMERAS

R.E. Lawder

The film show advertised in the last two journals took place according to plan at Mitcham and was attended by 37 members and friends - just a nice room-full. Most of them lived in the London area, but "Atty" deserves an honourable mention for "commuting" from Swindon.

The first attraction was a film depicting a trip down Swildons to Sump I complete with commentary and incidental music from a synchronised tape recorder. The sound track gave an almost professional polish to a film which already "told a story" thanks to careful and painstaking editing (seeing the characters' mouths working on the screen made me wonder how often the buzzer would have sounded if the sound had been 'live').

The cameraman and stooges are to be congratulated on overcoming the difficulties of operating delicate equipment underground and rehearsing and shooting scenes in conditions undreamt of by the ordinary moviemaker. My only criticisms are firstly that the high proportion of close-up photography gave the impression that the cave was smaller than it is and it was often difficult to identify the scene, and secondly the occurrence of occasional lapses in continuity such as a person entering a squeeze wearing a ripped boiler suit and emerging in an immaculate one. The first shortcoming was inevitable due to lack of light and the second is difficult to avoid when filming is spread over many sessions - as I know to my cost in one of my own films where wife, boat, sea and sky all change their appearance from shot to shot.

There was then a break for film and tape changing and a concerted rush to the bar to replenish our glasses ensued.

The next attraction was a shorter film on Lamb Leer, also with a sound track. The handicap of insufficient light was again evident but a creditable idea of the cave was conveyed; shots of a person starting on the Main Chamber ladder pitch were particularly effective. An amusing parallel with the original black-and-white film was a stumble and recovery by a member of the party.

After another pause for rehydration a film of the Wessex visit to Ireland in June was shown. This was silent - except for comments from the audience when the love scenes were on - and treated us to a wide variety of surface shots from a game of shinty (or was it a border skirmish?) to mountain scenery. A portion of the film was taken underground in the new discovery(?) mentioned in the account in the Journal. Like most holiday films, the presentation was rather scrappy but gave a good idea of the expedition.

The formal business came to an end with a film taken by myself showing rock climbing and a snatch of very gentlemanly caving in Malaya - perhaps I had better leave it to Maurice Hewins to criticise this effort!

The evening was a popular success and it is to be hoped that further get-togethers can be arranged.

DERBYSHIRE CAVING ASSOCIATION  
THIRD CONGRESS OF SPELEOLOGY AT  
BUXTON

A.D. Oldham

The Congress was opened in the Town Hall by the Mayoress of Buxton who said that in this day and age, when there was such a lot of bad publicity directed against modern youth, it was wonderful to see such a spirit of adventure as there undoubtedly was amongst those who went caving. In making a brief reference to the stupidity of the two boys supposedly lost in the caves of North Wales, the mayoress praised the unselfish attitude of the cavers who took part in the underground search especially those from Buxton. The mayoress said she was extremely interested to see the exhibition and hoped that the Congress would prove a great success and benefit to all.

As in previous years the Congress consisted of a public exhibition, by local caving clubs and a full two day programme of lectures and films.

The exhibition contained many stands to interest both the general public and the caving fraternity. The British Speleological Association showed cave surveys to illustrate their recent discoveries. Each survey had a series of photographs around the edges with tapes leading to the respective positions on the plan. This gave a useful insight into the underground features at that particular point. The show-piece was the survey of the Oxlow Cavern-Maskill Mine-Giants Hole complex, depicting the latest B.S.A. discovery, which, by joining these systems together, forms the deepest cave in Great Britain, about 600 ft. deep! Pegasus Club, Nottingham showed photographs and surveys of a new passage which they had explored in the Gouffre Berger. Peak District Mines and Historical Society displayed photographs of mines and mining equipment, copies of old mining records and mine surveys together with a selection of the Society's publications. The Eldon Pothole Club stand was centred around their latest discoveries in Eldon Hole. By pegging 70 ft. up the wall of the chamber they discovered a 115 ft. long passage, full of formations. Their discovery was excellently illustrated by photographs, colour transparencies and a survey. Another exhibit on the Eldon Stand was the "Remington-Dunn Hydro-Geological Water-Tracing Agent Automatic Detection and Recording Device". This had the appearance of a tape recorder, mounted sideways, beneath a tripod. A chemical sensitive tape is passed through the water thereby taking samples for future testing. A box full of relays and resistances means that this device can be set to a certain programme e.g. taking samples at 10 minute intervals for 3 days. Wilson's Army and Navy Stores, Buxton, displayed a large range of camping and caving equipment, tents, primuses, boots helmets etc. Peakland Archaeological Society exhibited finds from both mines and caves. From the mines these finds included tramcars, rails, picks, shovels, wedges and a large collection of clay pipes etc. The cave finds mainly were bones and pottery and of special interest were some of the hoard of miners skulls from Dowel Hall Cave. Also exhibited on the same stand were plants from limestone regions. The Shropshire Mining Club displayed minerals, surveys photographs etc. and some human

bones and Roman-British pottery found in a cave in North Wales, The Derbyshire Caving Association Stand contained newsletters and copies of Dr. Ford's "Caves of Derbyshire" which was produced on behalf of the D.C.A. The Craven Pothole Club displayed part of their fine collection of cave photographs, together with surveys, caving ladders and surveying equipment. The Derbyshire Cave Rescue Teams showed ropes, ladders, lamps, stretchers, photographs of rescues and a list of call-outs. "Expedition Photographique au Gouffre Berger" exhibited some of the equipment used on the 1964 expedition. This was the trip in which two Wessex members participated.

The first lecture by Mr. D. Bramwell of The Peakland Archaeological Society entitled "The Archaeological Importance of Caves" delineated some of his excavations in the Manifold Valley, showing some of the interesting and important finds which have been made there. This was followed by Mr. I Brown, who talked on "A General Survey of Present Day Mining in Derbyshire". We were surprised to hear of the extent of present day active unstratified mining in Derbyshire as there are still 7 working mines in Derbyshire, employing 84 men underground extracting minerals including fluorspar, limestone, chert, calcspar and lead barytes. There are also a few mines being worked solely at weekends, but if coal mines and mines are included in this total then there are no fewer than 84 working mines in Derbyshire today.

"Caving with Test Tubes" by Mr. P.W. Crabtree, described, not biology as one would expect, but the use of chemistry in caving. The majority of the lecture dealt with the different types of explosive most widely used in cave work, and explained their various chemical components, before and after detonation. Mr. Crabtree also made a reference to the various methods of Water Tracing in use today.

Dr. Woolley's lectures on "Underground Photography" can generally be relied upon to go with a bang, and this one was no exception. All the sleeping members of the audience were quickly woken up by having 300 watt lights shone in their faces and the shock of the unexpectedly loud report of a Woolley Woofer. Dr. Woolley described his most comprehensive range of photographic equipment, including that which was used on the Gouffre Berger Photographic Expedition. He concluded his lecture by showing some very fine colour slides.

The first lecture on Sunday Morning was given by Mr. R.T. Clough, and dealt with "The Lead Smelting Mills of the Yorkshire Dales: Their Contribution to Metallurgy." This lecture was mainly concerned with the architectural aspects of surface features, and included some very fine drawings by Mr. Clough himself.

Dr. J.A. Robey's lecture on "The Drainage of the Upper Lathkill Dale" described the hydrology of the area bounded by the Rivers Wye and Lathkill. He also discussed the effects of mines and mining in the present day drainage system and the relationship of the Lathkill House Cave System.

Dr. T.D. Ford provided an excellent lecture on "Mineralisation and Caverns in Derbyshire" and his talk, which described the formation of mineral veins and the part they play in the flow of underground water, also included some slides of the now closed Golconda Mines.

The following lecture "A Prototype Communication Device for Use in Caves" by Mr. R.R. Glover, created a vast amount of interest amongst all those present. Mr. Glover (a former Wessex member) has taken part in cave rescues and is therefore aware of the difficulties of communications during such times of emergency. He has therefore set out to produce a form of communication which will fulfil all the requirements of a cave rescue organisation. His device, although still in the first stages of development, is both light and portable and could be used while walking, crawling or climbing a ladder. It is a cross between a two way radio and a telephone and works by using magnetic waves at audio frequencies, the only disadvantage being that it must be operated in close proximity with a wire although no connection is necessary.

The final lecture by D.G. Allsop on "The 1964 Photographic Expedition to the Gouffre Berger" was indeed a fitting end to the Conference. He told several amusing anecdotes about the expedition and showed some very fine colour slides.

The Conference may be summed up as being informal, interesting and educational. It was very pleasing to listen to such a wide range of experts each talking about their own pet subjects. The D.C.A. hopes to make this an annual event in the future which will surely prove very popular among caving circles throughout the country.

\*\*\*\*\*

## BOOK REVIEWS

### CLIMBING, CANOEING, SKI-ING, CAVING. By Anthony Greenbank.

(156 pp. 16 plates 27 figs. 8 tvo. published by Elliot Right Way Books, Surrey, at 7/6d.)

Written by the well-known author of many climbing articles, and joint author of 'Caving and Potholing', this book will go a long way towards furthering interest in these four sports, as it is published at a price which will appeal to the novice.

It is a pity that the chapter on caving has such a short write up (6 pp.) Being the next cheapest sport after climbing it is felt that it would have warranted more detail, but this omission is partly compensated for by the chapter on "Basic Steps in Rock Climbing" which covers belaying and lifelining and the chapter on "Survival and Emergency" most of which is applicable to caving as well as climbing although it should be noted that the author is not quite up to date on the treatment of exposure. As well as describing the four sports of Climbing, Canoeing, Ski-ing and Caving it is only fitting that the art of camping should be included, for camping readily associates itself with these sports and indeed often plays a great part in them.

The book is concluded with a useful bibliography for further reading.

A.D.O.

### THE FIRST BOOK OF CAVES By Elizabeth Hamilton.

(4 to. 64 pp. 18 plates and figs. published by Edmund Ward at 10/6d. September 1964.)

This is the book that will not only fire the imagination of the younger reader but will also be of considerable interest to his parents. The book begins with the classic archaeologist's anecdote of how the five year old Maria de Sautuola discovered the prehistoric paintings of Bulls in the cave of Altamira, Spain. Later on in life she admits that she has no recollection of this ever happening, but apart from this the story makes an engrossing and exciting opening chapter.

This book was first published in America in 1956, and has been brought up to date by an account of Ken Pearce diving in the terminal sump in the Gouffre Berger. As one would expect American Caves have a good coverage, although British caves have not been left out. Also included are brief accounts and photographs of caves in Norway, France, South Africa, India and New Zealand, presenting a world wide outlook.

I would like to have seen references given to the many snippets of information which Elizabeth Hamilton has collected together. Whilst this would probably detract from its appeal as a popular book, it would have the advantage of suggesting further reading.

The many photographs, illustrations and good quality paper make this a most desirable book.

A.D.O.

DOOLIN - ST. CATHERINE'S CAVE. By Dr. O.C. Lloyd. University of Bristol Speleological Society.

(4 to. duplicated. 30 p.p. 8 plates 2 surveys, published by John Wright & Sons Ltd. 10/- plus postage.

An immediate question springs to mind, why produce a separate publication? Why should such a polished piece of work not have been included in the latest Society Proceedings? The easy answer is that a good deal of the same ground has previously been covered by D.S.A. Robertson et. al. in the Proceedings for 1956 when the subject is treated under the heading "The Doolin Cave System".

The monograph covers the subject systematically devoting the first section to a history of the cave, with various anecdotes associated with the discovery and exploration, which, with small exceptions has all been the work of the U.B.S.S. The next section deals with the change of name since the system was first written up in the Proceedings 1956. Dr. Lloyd gives his reasons; the arguments sound most convincing, but is the new name any less cumbersome than the old?

Prior to the actual description of the cave passages there is a useful section dealing with the strata in which the cave is developed, five easily recognisable beds, totalling about 75 ft. in thickness, to all intents and purposes horizontally bedded. This apparently simple geological set up together with the plan survey with its enlarged insets of the more complex passages and its helpful cross-sections makes the description of the cave passages particularly easy to follow.

Dr. Lloyd devotes the next large section to his views on the origins and development of the cave. The most striking feature he thinks is that the roof is in the same bedding throughout the cave. Half a page of statistics follow showing a total length of  $4\frac{3}{4}$  miles of passage and a through trip of very nearly 2 miles.

In his acknowledgements the author sheds more light on the reasons for a separate publication; originally it was to have been a revision of the 1956 account for a book shortly to be published on the Caves of N.W., Co. Clare, but it became too lengthy. We must be grateful that the work didn't suffer editorial mutilation as a result and that the author decided to give it independent existence in its original form, particularly as much of the publication expenses must have fallen on his shoulders. The last sentence before the references is significant perhaps to my original question "The work is the Society's, the opinions are my own".

The monograph is nicely rounded off with eight first class plates, the original photographs were all taken by the author and enable one to actually visualise the passages described in the text. Three of the photos have appeared previously in the Proceedings in the 1956 account. Altogether it makes, enjoyable reading, the style though familiar is admirably suited to the primary object of the book, which is to provide a guide to the cave for the increasing numbers of parties visiting Co. Clare for a sporting caving holiday; they will find it invaluable. The layout and quality of production leave nothing to be desired, would that all caving productions could attain the same heights in these respects.

P.D.