



WESSEX CAVE CLUB

Journal No. 104, Vol. 8.

December 1965

CLUB NEWS

Officers and Committee of The Club 1965-66

President: F.W. Frost
Vice-Presidents: Norbert Casteret, Rev. C.H.D. Cullingford, Mrs. D.P. Dobson-Hinton, C.W. Harris,
Cdr. P.B. Lawder, Dr. E.K. Tratman, Dr. F.S. Wallis
Chairman: C.H. Kenney
Hon. Secretary: J.D. Hanwell,
"Chaumbey", 50 Wells Road, Wookey Hole, Wells, Som.
(General Club Policy)
Asst. Secretary: L.M. Teasdale
32 Tonfield Road, Sutton, Surrey.
(Membership applications, cave keys, C.C.C. Permits)
Hon. Treasurer: Mrs. B. Surrall
216 Evesham Road, Headless Cross, Redditch, Worcs.
(Subscriptions, Accounts)
Gear Curator: C. Pickstone
Committee: P. Davies, P.W. Duck, R.A. Gannicott, N.J. Hart, C.J. Hawkes, C.R. Hobbis,
T.E. Reynolds, R.J. Staynings, A.J. Surrall.

The following appointments by the committee have been made and members are requested to address enquiries of information to the appropriate person:-

Hon. Librarian: Dr. D.M.M. Thompson
"Pinkacre", Leigh-on-Mendip, Bath, Somerset.
(Lending Library and Hillgrove Reference Library)
Hut Bookings: P.W. Duck,
13 Goodymoor Avenue, Wells, Somerset. Tel: Wells 2501
(Hillgrove and Eastwater Hut Bookings, Mendip Tackle requirements)
Hut Warden: N.J. Hart,
80 Ridgeway Road, Long Ashton, Bristol.
Asst. Hut Warden: R.A. Gannicott,
52 West Town Lane, Bristol 4.
Activities Secretary: C.R. Hobbis,
Warren Lodge, Long Ashton, Bristol. Tel: L.A. 2127.
(Offers to lead trips, requests for trips)
Sales Officer: R.J. Staynings,
8 Fanshawe Road, Hengrove, Bristol 4.
(Sales of publications, badges, ties, lamp sets, etc., money with orders please)
Survey Scheme: T.E. Reynolds,
Yew Court, Pangbourne, Berks.
(Enquiries and sales of cave surveys, money with orders please)

Journal Editor

Tim Reynolds has now taken over the important task of Editor from Christopher Hawkes. Our Journal is known, quite rightly, as one of the best caving club publications of its kinds certainly it is the major link between all our members and the caving world in general. We have a great deal to thank Christopher for during his many years as Journal Editor; also we must remember of course that no Journal would appear at all without the willing people who write the articles in the first place. Very often these writers are the active cavers and diggers, which broadly is as it should be. A close inspection of past volumes will indeed indicate how very much we owe to a comparatively small group of regular contributors, who seem always to have something to interest us all. Naturally we hope their pens will continue to be so well employed, but at the same time we trust that the excellent standards of their work will encourage others to follow suit.

To every member, therefore, we ask that you consider whether your particular interests and finds in caving might form the basis of a good Journal article, or preferably articles! Far more than we often realize, what appears at first to be a modest undertaking grows into something significant, or at least helps link the important chain essential to most new finds. Also we must seriously consider the vital role published articles play purely for record purposes.

You are reminded that copy for Journal articles should be clearly typed or written on one side only of quarto or foolscap sheets, and submitted in future to Tim Reynolds. It is often wise, too, for authors to allow someone well qualified to read over original drafts, for quite obviously we cannot expect our Editor to be impeccably versed in all aspects of what can prove highly technical and specialised papers. Nevertheless his interests are pretty legion, and so are the appetites of our readers! Tim's address is:-

T.E. Reynolds,
Yew Court,
Pangbourne,
Berks.

New Headquarters Project

Through the last two issues of the Journal, and Annual General Meeting circulars, it will now be widely known that we have completed preliminary plans to acquire a site for a new Headquarters. At the A.G.M. the acceptance of the New Rule No. 21, which legally provides us with the power to appoint Trustees of the Club, now enables the Committee to effect the purchase of a freehold building plot near Eastwater Farm. At a Committee Meeting following the A.G.M., on 23rd October last, the recommendation that the following be appointed as Trustees was formally approved, and an appropriate Declaration of Trust signed in the presence of our legal advisor. The Trustees of the Club's Freehold Property, within the terms of reference of Rule 21, are:- F.W. Frost, C.H. Kenney, P. Davies, J.D. Hanwell.

The Trustees then duly signed the conveyance empowering the site to be purchased on the Club's behalf. Having thus acquired the plot, the full Committee have appointed a Sub-Committee to deal with, and execute, future plans with regard to the actual development. This Development Sub-Committee will be responsible to the full Committee and Trustees.

As most members will be keenly interested in the findings of the Development Sub-Committee, and may wish to offer advice and help, your attention is drawn to the following:-

Development Sub-Committee

Chairman:	C.H. Kenney
Secretary:	J.D. Hanwell
Development Organiser:	P. Davies
Committee Representatives:	N.J. Hart, R.J. Staynings

Phillip Davies has the responsible and immense job of research into the details of the proposed development and the raising of funds. If therefore you feel able to offer any constructive information the Sub-Committee will be pleased to hear from you through Phil, whose address must be well known to you all as:- "Morley", Silver Street, Nailsea, Bristol.

Materials for making wet suits

Members who wish to make themselves wet suits may care to avail themselves of a 10% discount the Club has been offered from a commercial organisation manufacturing neoprene sheets, etc. All orders must be placed officially through the Club, and full details are available from Roy Staynings (address already given).

Council of Southern Caving Clubs

On Saturday the 8th January 1966 the first Annual Conference of the C.S.C.C. will be held in the Department of Geography at the University of Bristol at 2.30 p.m. Apart from the reports on the first year of the Council's activities, the problems arising from the proposal that a national body for caving should be formed will be discussed (cf AGM Report in this issue).

Obviously this is a very vital issue and one upon which many of our members may care to contribute their thoughts. Therefore we hope that many will attend this important Conference, the outcome of which might well shape the future with regard to the sport of caving.

The 1966 Annual General Meeting and Dinner

Members of the Club are asked to make a note in their New Year Diaries that provisionally the 1966 A.G.M. and Dinner will be held on Saturday 22nd October. Full details will be announced early next year.

New Members

We welcome the following new members, elected on 7th November 1965:-

J.C.H. Alder, 257 Olton Boulevard East, Acocks Green, Birmingham 27.
T. Gilbert, "Eydal Mount", Heath Road, Weybridge, Surrey.
T.J. Sharpe, 52 St. Matthews Road, Cotham, Bristol 6.

Access to controlled caves on Mendip

Members are reminded that to facilitate their caving on Mendip they should make sure that the correct procedures are followed in planning trips to controlled caves. These include G.B., Longwood Swallet, Lamb Leer and St. Cuthbert's Swallet, The first three require advance notice to the Assistant Secretary, Leslie Teasdale, but with St. Cuthbert's one should get in touch with the Caving Secretary of the B.E.C. who is:-

D. Irwin, 9 Campden Hill Gardens, London W.8.

CLUB MEETS

Saturday January 8th St.Cuthbert's Meet at the Belfry, 3 p.m.
Leader: Nick Hart, 80 Ridgeway Road, Long Ashton, Bristol.

Sunday January 23rd G.B. Meet at the Cave, 11 a.m.
Leader: Roy Staynings, 8 Fanshawe Rd, Hengrove, Bristol 4.

Weekend January 29th/30th Yorkshire. More details from the Leader, Nick Hart, address above.

Saturday February 5th Lamb Leer Meet at the Cave, 3.0 p.m.
Leader: Carl Pickstone, Rush Common House, Abingdon, Berks.

Saturday March 5th Longwood/August Meet at the Cave, 3.0 p.m.
Leader: Les Teasdale, 32 Tonfield Road, Sutton, Surrey.

Saturday March 12th Aggy Aggy More details from Phil Davies, "Morley", Silver Street, Nailsea, Bristol.

Saturday March 19th Hunters Hole Meet at the Cave, 3.0 p.m.
Leader: Rodney Hobbs, Warren Lodge, Long Ashton, Bristol.

Easter Weekend April 8th/11th Yorkshire Further details from Carl Pickstone, address above.

Saturday April 23rd Pine Tree Pot Meet at the Cave 3.0 p.m.
Leader: Roy Staynings, address above.

Sunday April 24th Longwood Meet at the Cave, 11.0 a.m.
Leader: Roy Staynings, address above.

Weekend April 30th/May 1st South Wales More details from Phil Davies.

Saturday May 7th G.B. Meet at the Cave 3.0 p.m. Leader: Roy Staynings.

Saturday May 21st Stoke Lane Meet at the Cave 3.0 p.m. Leader: Leslie Teasdale, address above.

The 1965 ANNUAL GENERAL MEETING AND DINNER

On Saturday 23rd October, 65 members of the Club attended the Annual General Meeting at Priddy Village Hall. The following article presents an informal report of the business transacted at that meeting (formal minutes will be circulated prior to the 1966 A.G.M. of course), and then concludes with brief remarks upon the Dinner the same evening.

The President, Frank Frost, took the Chair at 2.45 p.m. and welcomed those present. Apologies for absence were received from 26 members and included letters from such faraway places as the United States, and from Jim Giles, on a slow boat from China somewhere between Hong Kong and Singapore! The President opened the meeting by congratulating the Secretary, Jim Hanwell, on his first Annual Report, but added that he wished to correct the Secretary in his use of the misnomer Lamb "Lair". He explained that, in fact, "Leer" was the real name, being derived from the old Somerset word meaning "empty". Indeed he well remembered his grandmother using "Leer" to imply that one felt empty, faint and hungry. The Secretary replied that he should have known better.

The Minutes of the 1964 A.G.M. were adopted after two minor typographical corrections had been made, and the meeting then moved on to consider the Secretary's 1964-65 Report. Several matters were discussed. First was the now widely known proposal from Northern Cavers to form a National Committee to co-ordinate the growing numbers of people who were keen on the purely sporting aspects of caving. The Secretary outlined the history behind this proposal and the subsequent formation of the various Regional Councils, including our own Southern Council, during the past year. Liaison with the Central Council for Physical Recreation was discussed fully, and the different approaches currently adopted by cavers in the North and those in the South made clear. A number of speakers felt that ultimately cavers must speak with one voice, but feared links with Government sponsored bodies. Cliff Beauchamp said that only good would come out of any contacts with the C.C.P.R., including generous grants with no undesirable strings attached. Dave Savage was not so happy about the possibility of no strings, however, and considered that we should tread very carefully. Leslie Teasdale attempted to sum up the feelings of previous speakers and proposed that, "We instruct the Secretary to proceed towards the formation of a national organisation which does not commit us to any Government sponsored organisation but puts us in a position to negotiate with Government organisations." Mike Thompson pointed out that this resolution did not make it clear whether or not the meeting was in favour of a formal national committee and he himself preferred a "loose" approach as favoured by the Southern Council. A show of hands accepted the latter type of association by 55 votes to 10. Geoff Tudgay requested that members be informed of progress in this field through Journals.

The Secretary drew attention to our failure once again to find a suitable venue to hold mid week evening meets in Bristol, despite having planned a number of talks and discussions. The President pointed out that we could expect about 20 people to be present at these meetings, and it was felt that just one or two such gatherings annually would prove worthwhile. Geoff Tudgay thought that the Bristol Scouts might provide a venue for us.

Luke Devenish raised the vexed question of artificial and fixed aids in caves, and the recent removal of the 40' pipe in Swildons was referred to. Howard Kenney tactfully "killed" this hare before it had really started by recalling a conversation with Commander Lawder before the meeting. "The Commander had the obvious answer The pipe must be put back, but it must have a sluice gate fitted so that 'tigers' and others may vary the water flow as they feel inclined!"

The President congratulated the Editor and Journal Production Team on their first class efforts in getting out six issues during the year, the last of which had arrived that very morning. Howard Kenney queried why his had been pinned with only one staple, and many others reported likewise. The Secretary said they should count themselves lucky for his copy wasn't stapled at all. To this good natured banter Nick Hart countered, "What else do you do when you run low on staples at 10 o'clock at night, and the Journals must be in the post the next morning? If it hadn't been raised here each person would have thought they were the only one to receive a Journal in such a condition and said nothing!" No one dared challenge this logic, so a vote of thanks was proposed by Will Edwards to all concerned with the Journal, and carried nem. con.

Howard Kenney gave a resume of our efforts to acquire land for a new H.Q., and pointed out that the proposed New Rule No. 21 (if accepted later by the meeting) would permit us to proceed with developments near Eastwater Farm. A lot would depend upon the generosity of members and whether a Government grant would be forthcoming. Will Edwards queried whether or not we proposed retaining Hillgrove as a "second hut", or removing it to the new site. Nick Hart doubted whether it would ever be practical to "transplant" Hillgrove, and Phil Davies pointed out that in principle the thought of separate quarters was quite unacceptable. The President and Secretary reminded everyone that in any case our Hillgrove Hut would be in use for some years yet, and so it would be unwise to consider its ultimate fate there and then.

The Secretary proposed a vote of thanks to Tim Reynolds on his retirement as Assistant Secretary. This was seconded by Phil Davies and carried by the meeting. The President drew attention to Brenda Willis's retirement as Hon. Treasurer after 6 years, and for her services as a committee member prior to that for a period he was sure Brenda would not wish him to specify. His kind remarks were endorsed by Donald Thomson and a vote of thanks formally accepted. Thus concluded the business arising from the Secretary's

Report.

Copies of the 1964-65 Balance Sheet prepared by the Hon. Treasurer were distributed (see enclosed statement) and as is now customary. Howard Kenney in the role of “dogs body” drew, the meeting’s attention to the most important points. In particular he thought the handsome profit on the sales of club stocks very welcome and congratulated Roy Staynings on his efforts in this direction. Phil Davies proposed a transfer of £75 from the Accumulated Funds to the Hut Fund, and this was supported by Howard Kenney and carried by the meeting. The President then put on his Auditor’s cap and summed up with interesting data on the use of club accommodation throughout the year. Obviously we were running at capacity at our huts.

The Secretary introduced the meeting to the reasons prompting the already circulated Committee proposals to amend Rules 10, 14 and 15. As all three alterations stemmed from the same point of clarification concerning Affiliated Clubs, they were put to the meeting en bloc and passed. The New Rule No. 21 was then read, and it was pointed out that it would be necessary to pass this Rule in order to complete the legal formalities for purchasing the New H.Q. Site. Mike Thompson, our legal representative, explained that as a Club we could not own freehold property and that it was necessary to appoint an optimum number of four Trustees. The Committee’s recommendation that the four Trustees should be Messrs. F. Frost, C.H. Kenney, P. Davies and J. Hanwell, was accepted. After further legal and administrative points had been made clear Luke Devenish led a vote of thanks to Mike Thompson for his work on our behalf.

The President then moved on to the appointment of Officers and Committee for 1965-66, He pointed out that there had been no need for an election this year, though on balance he considered it a good thing now and again if an election proved necessary. "On the other hand it does mean that we are all happy to accept the outgoing Committees’ nominations, which indicates confidence in our Officers." The appointments were read out by the Secretary (see Club News of this issue), and also a letter from the Rev. Cecil Cullingford saying how delighted he was at receiving the honour of becoming a Vice President amongst such distinguished company. The President moved that the meeting passed on to Dave Berry our sincere thanks for the great efforts he had made in improving both the quantity and quality of our tackle. "Indeed, we have been extremely lucky in all our Officers and Committee members. Dave, for example, has served us very well." Luke Devenish proposed a vote of thanks to all concerned, and this was seconded by Denis Warburton and carried unanimously. Eric Hensler proposed that the President be re-appointed as Auditor for the coming year. All agreed.

The meeting closed at 4.30 p.m. Light refreshments were available, and members were able to purchase Nife Cells, Boiler Suits, Club Publications, Surveys, etc. In the general discussions afterwards someone (who shall remain nameless) enquired why we had not

taken advantage of Oliver Lloyd's absence from the meeting, and changed the colour of the "Dragon" back to red! Perhaps after all the Lloyd spirit was never far from Priddy that day, and the prospect of his wrath opening the heavens and precipitating a flood rescue proved too severe a punishment to contemplate. Or have we over the years become subtly indoctrinated concerning our "Dragon's" image?

The same evening saw 135 members, guests and friends assembled for the Annual Dinner (and air display!) at the Caveman, Cheddar. We were very pleased to have Dr. F.S. Wallis with us as Guest of Honour. After the meal Howard Kenney proposed the health of absent friends, including apt remarks concerning William Stanton's enforced sojourn on Mendip, and an oblique reference to the now departed 40' pipe. Bob Pyke was called upon to propose the health of our guests. He welcomed Dr. Wallis and the many Club representatives present, with a very special word for Ken Dawe, now shepherd of "The Sheep". In his reply Ken thanked the Wessex for their hospitality and then embarked upon stories concerning a wily Welshman and a virile Scotsman. Surely there must be a joke about a Cornishman somewhere? As if carried away by the sheer eloquence of Ken's oratory, more than half of the assembled multitude rose to drink their own health! Could it be that many of our members have taken the "Wessex Song" to heart and really joined the B.E.C., or was it that your scribe was seeing double by then?

Leslie Teasdale introduced our Guest of Honour, who was warmly received by everyone present. Dr. Wallis thanked the Wessex for their kind thoughts on his return to Mendip and said how glad he was to be back in the district. Characteristically he then gave us all food for thought by suggesting that, in view of the significant contribution cave studies can make to scientific research, Mendip cavers should seriously consider publishing papers in printed Journals. He recalled that the choice of a duplicated magazine versus a printed Journal had confronted the U.B.S.S. at its inception many years ago. Most authorities now agree that their decision had been a happy and useful one. He felt that even now clubs like the Wessex should and could effect such a change, which would only be of ultimate benefit to all concerned in view of the important work undertaken by many cavers on Mendip.

Everyone who attended the Dinner must surely have enjoyed themselves. The only outstanding query one might have is, what happened to the York Ham and Pineapple? Mine tasted very much like Norfolk Turkey; perhaps pigs can fly after all, or has Paul Duck a vested interest in poultry?

WESSEX CAVE CLUB RULES

1. That the Club shall be called the Wessex Cave Club.
2. That the objects of the Club shall be:
 - (a) initiating newcomers into the best tradition of the game.
 - (b) gating caves-that are likely to be despoiled.
 - (c) publications.
 - (d) organizing gatherings to explorer or excavate.
 - (e) by arranging for Members to visit caves in districts other than their own.
 - (f) erecting and maintaining huts where members can stay while cave hunting.
 - (g) maintaining gear for the use of members.
 - (h) maintaining for the use of members a library of books, literature, and maps.
3. That the Club shall consist of Honorary Members and Ordinary Members who may be of either sex.
4. That the President, Vice Presidents and Honorary Members shall be entitled to exercise all the, privileges of ordinary members, including the rights to stand for office and for the committee, and all voting rights. The President and Vice Presidents shall retire annually and be eligible for re-election.
5. That the affairs of the Club shall be conducted by a Committee which shall consist of a Chairman, Honorary Treasurer, Honorary Secretary, Honorary Assistant Secretary, Gear Curator and nine other members who shall retire annually and be eligible for re-election, and that the Honorary Secretary of any group within the Club be eligible to attend a committee meeting in an ex officio capacity, and may nominate a substitute to attend any meeting which he cannot attend personally. All members standing for office or for membership of the Committee must be nominated by two members of the Club. The Committee shall fill any casual vacancies. An Honorary Auditor shall be appointed each year at the Annual General Meeting.
6. That the election of the Committee shall be by postal ballot, and that the Club year shall end on September 30th and the A.G.M. and Club Dinner shall be held during October.
7. That any person desiring to join the Club must be nominated by two members and elected by the Committee. All applicants for full or joint membership, or members of an affiliated club, who are under the age of 21, must obtain the permission of his or her parent or guardian, who will be required to sign a special form supplied by the Club.

Adult members of an affiliated club must sign a form accepting the provisions of Rule 10.

8. That the subscription for Ordinary Members shall be £1 per annum due on October 1st each year, and every new ordinary member shall be required to pay an entrance fee of 5/-. Any member whose subscription has become more than three months overdue shall be named in the next Journal, and if within one month the subscription has not been paid, the member's name shall be removed from the list of members, and notice to this effect shall be sent to the member.

The subscription of a member joining near the end of the financial year may be deemed, at the discretion of the Committee, to cover the subscription for the following year. Married couples, may become joint members paying an annual subscription of 22/6. They shall enjoy all the amenities of the Club, except that they shall receive one copy of each Journal issued, and one vote only.

9. That a charge of 1/6d. (exclusive of any gate fee) shall be payable by any non-member who takes part in any trip on which Club gear is used. The size of the party shall be at the discretion of the leader.
10. That every person, whether a member of the Club, member of an affiliated club or non-member, making use of the services of a guide or guides, or taking part in any activity or expedition organized by the Club, or in which any member of the Club shall take part, shall do so at his or her own risk, and that he or she, or his or her legal personal representative or assigns or dependents shall have no claim or right of action against the Club, or any member thereof in respect of any damage, loss or injury sustained notwithstanding any negligence of the guide or any members, or the body of members of the Club.
11. That an extraordinary general meeting may be called at any time by the Honorary Secretary when required to do so by the Committee, or in writing by ten members of the Club. Two weeks' notice must in all cases be given. Such a meeting may not pass a resolution, but by a simple majority of those present may draw up a resolution to be voted on by postal ballot within one month by the members of the Club.
12. That members using the Club's Headquarters shall leave it in a tidy and clean condition.
13. That no alteration shall be made to these rules except at the A.G.M. or by special resolution passed at an E.G.M. called at the request of the Committee.

14. Any person, or affiliated club whose membership is deemed to be undesirable by the Committee may have membership suspended by the Committee until, and not longer than the next A.G.M., at which the member or affiliated club concerned shall have an opportunity of being heard. A three-quarters majority of the members present at the A.G.M. may expel such members or affiliated clubs.
15. That the Committee shall have the right to refuse the use of Club possessions to members, or affiliated clubs, when they consider it desirable in the interest either of the Club or the member or affiliated club concerned, but the member or affiliated club concerned shall have the right to appeal to the Committee against this decision.
16. That caving clubs or societies attached to educational establishments for minors or youth organizations may be affiliated to the Club on the approval of the Committee and subject to the inclusion in the rules of the club to be affiliated certain rules as approved by the members of the Wessex Cave Club and compliance with regulations as laid down from time to time by the Committee of the Wessex Cave Club for the time being. The subscription shall be one quarter of the subscription of an Ordinary Member of the Wessex Cave Club for each member of the affiliated club. Each affiliated club shall have one vote and receive one copy of each Journal and other Club communications.

NOTE: The concession given by this rule is normally intended for minors under 18 who are not wage earners and who are still pupils at the educational establishments concerned or active members of the affiliated youth organisations. Adults attached to an affiliated club will normally be expected to join as full members.

17. That members of affiliated bodies may become Ordinary Members of the Club when their application has been approved by the Committee and the annual subscription has been paid. The entrance fee shall be waived for members joining the Club in accordance with this rule.
18. That notices of motions for discussion at the Annual General Meeting shall be received by the Honorary Secretary not more than two weeks after the posting of the notices of the meeting. Such notices of motions must have the names of the proposers, and be circulated to the members at least seven days prior to the meeting.
19. That at each A.G.M., the Club shall decide on the sum of money that is to be placed for that year in the Hut Sinking Fund. This fund is to be used only for major repairs, extensions, additions to or replacements of the Club Huts. The administration of the fund is in the hands of the Committee.

20. No part of the Club's funds shall at any time be distributed by gift, division or bonus in money, to or between any of its members. On dissolution, surplus funds shall be applied in or towards the advancement of science in the fields of Spelæology, Archaeology or Geology, or of any of them.
21. There shall be four trustees of the Club. The first trustees shall be appointed by the Committee and the freehold property of the Club shall be vested in them to be dealt with by them as the Committee shall from time to time direct by resolution (of which an entry in the minute book shall be conclusive evidence). The trustees shall be indemnified against risk and expense out of the Club property. The trustees shall hold office until death, or resignation, or until removed from office by a resolution of a General Meeting of members who may for any reason which may seem sufficient to a majority of those present and voting at a General Meeting remove any trustee or trustees, from the office of trustee. If by reason of any such death resignation or removal it shall appear necessary to the Committee that a new trustee, or trustees, should be appointed or if the Committee shall deem it expedient to appoint an additional trustee or trustees the Committee shall by resolution nominate the person or persons to be appointed the new trustee or trustees. For the purpose of giving effect to such nominations the President is hereby nominated as the person to appoint new trustees of the Club within the meaning of Section 36 of the Trustee Act 1925 and he shall by deed duly appoint the person or persons so nominated by the Committee as the new trustee or trustees of the Club and the provisions of the Trustee Act 1925 shall apply to any such appointment. Any statement of fact in any deed of appointment shall in favour of a person dealing bona-fide and for value with the Club, or the Committee be conclusive evidence of the fact so stated.

December 1965.

MENDIP NOTES

by

Cheramodytes

The Editor

First, according to my custom, may I salute the new Editor, Tim Reynolds. Tim joined the Club on the 11th March, 1962, but by that time was no stranger to caving, as he had been receiving his schooling at Sidcot. For over a year and a half he has been Assistant Secretary to the Club, replacing David Causer in March 1964; at a time when the departure of the latter for America was imminent. In this role, as members will know, Tim has managed to make a lot of work for himself and get it all done. This is a good qualification for the Editorship, because if an Editor doesn't look for work, he won't find any. Tim asked me at the outset, whether I would continue with Mendip Notes, and I reminded him that, apart from the Wessex Journal, Cheramodytes does not exist, (Will imitators please note!)

Cave Rescue Conference

The fourth biennial conference of cave rescue organizations was held at Buxton on the weekend of the Wessex Dinner. In consequence it was very sparsely attended by Mendipers. Dr. O.C. Lloyd demonstrated the new sump rescue apparatus. This is a self-contained kit designed for use in long or distant sumps, such as Sumps 2 onwards in Swildon's or Stoke Lane. A full description is being published by the Cave Diving Group. Its limitations are that it has to be operated by two trained divers. The old sump rescue apparatus can be operated by anyone, as has often been shown on practices. Donald Robinson of the Upper Wharfedale crowd demonstrated his survival bag, which is made of foam neoprene with a waterproof zip fastener and valves to let out the air. It is rather heavy, but would be very useful for sumping or in those cases where a dry suit was not available for the subject. It was used with good results in the Giant's Hole rescue of November 14th 1965.

Mike Hollingworth, Chairman of the C.R.O., gave an account of the Maeshafn Search which was as good as any adventure story. Apparently he found it necessary to by-pass the complacency of the Chief Constable of Denbigh by posing as a Home Office Expert. He was successful in this way in getting the necessary cave search forces mobilized and put to work. Afterwards he made his peace with the Authorities.

On the Sunday we went to the cliffs by Carlswark Cavern and watched the Derbyshire C.R.O. demonstrate their Counter-Balance Method of bringing a subject up pitches. The principle is that you use a chap to act as a counterweight. The tackle problems are however a little complicated. Next "Industrial Pumps" electric pump was put to work to empty Carlswark Sump, which it did in about 1½ hours, we were then able to go and look at the place where the Boy Soldier had got stuck after a dive of 90 feet in June 1965. It was a

record dive. The passage is roomy all the way to the end, where it is obstructed by a boulder fall. This can be passed on either side by narrow openings to a large airspace. Beyond is another sump which does not get drained.

The "record dive"

I've been hearing a lot more stories about this Boy Soldier and his dive. Apparently it wasn't his idea in the first place, it was his commanding officer's. Someone asked him afterwards whether that was the furthest he could dive, whether he wasn't running short of breath. "Oh no," said he, "at least it would have been all right, but my beret came off and I had to stop and look for it."

North Hill Swallet

This has a nice tidy shaft and goes down for 50 feet or more. Its lower part is in a choked rift, which is being cleared. The rift is rather small in comparison with the size of the shakehole, and it seems rather unlikely that it will open up much, unless it is soon joined by another cave passage, say from the depression nearest to Eastwater Farm. The bad weather is likely to put an end to progress until next spring.

Manor Farm, Charterhouse

This also has a nice tidy tubular shaft, put there a few summers ago by the U.B.S.S. Unfortunately recent floods have washed away all the shoring beneath this and have opened the cavity to such an extent that the shaft, so I am told, appears to be standing on nothing.

Cave Diving

No spectacular advances have been made in the last two months. Mike Wooding tells me that the terminal downstream sump in P.8 has been followed for 250 ft. with two bell chambers on the way. Since the last flood it has seemed less tight. In Peak Cavern the "Ink Sump" has been pushed 350 ft., to where the depth is 35 ft. There are no air spaces. Mere Gill Skit, near God's Bridge, Weathercote, is a flood resurgence with a 70 ft. deep sump.

From Ian Lennon

Some of our members will remember Ian, who was at school at Clifton College and was for a short time (1963) a member of the Wessex. He has now been in Australia for a year working as a geologist. Early in 1965 he went to Alice Springs and worked in an area about 100 miles north of there, around Central Mount Stuart. He found some caves full of Aborigine carvings, which had never been recorded before. After that trip he visited Wonnaminta and the Koonenberry range, about 100 miles north of Broken Hill in N.S.W. The area had been very popular with Aborigines in the past and he frequently came across their old "ovens" beside the dry creeks. These ovens consist of a small pile of stones, and

charcoal can be found beneath them. When cooking their meat they heaped stones on top of the fire and cooked on the hot stones. All around one can find flint scrapers, knives, grinding stones and the occasional axe head. All these are left exactly as they were when the natives last used them. "It is incredible to think that one can still study, at first hand, a stone-age culture".

The next place he visited was Wertaloona, east of Leigh Creek, in the Flinders Ranges. He had expected to find much Aborigine material there, as it was ideal country. Kangaroos were everywhere on the plains, while back in the hills there were large limestone caves and gorges with rock-holes permanently filled with water. But there was hardly a trace of anyone ever having settled there. He did find charcoal on the floor of one small cave and excavated it, but found no artefacts.

Although he misses caving in England very much, he has not really had the time to think much about it! "Perhaps the thing I miss most is an evening in a Mendip Pub!". He sends his greetings to club members.

Mendip Cave Registry.

At the Registry A.G.M. on 6.11.65, Bryan Ellis retired as the Secretary and Gordon Tilley took over. The occasion must not be allowed to pass without congratulating Bryan on the good work he has been doing. The idea has spread to Wales, where the Cambrian Caving Council are thinking of compiling a similar registry of Welsh caves.

St. Cuthbert's entrance rift.

Early in November Nick Hart and three other Wessex members had the interesting experience of being stuck down a cave ladderless for the second time. It appeared that the previous B.E.C. party had pulled out the ladder from the entrance rift under the impression that there was no one else down the cave. Fortunately the lock on the gate had jammed so that they could not lock it. The party found that they could climb the rift without too much difficulty. This is a feat which I fumbled for a long time, until 5.12.65., when I had the opportunity of doing it while still fresh. I found it surprisingly easy - far easier than the rift up to Swynne-Puke passage. The rift was, however, dry. The B.E.C. have carried out extensive waterworks, as a result of which some water now normally goes down this rift, but can easily be turned off at source. This gives them far more control of the water in flood conditions. The day I climbed the rift, water was flowing over the grating in Swildon's.

WASHFOLD POT 1931-1965

Graham Stevens

The first account of this system appears in the Journal of the Gritstone Club, Vol. IV, No. II, 1933. Here one learns that the story begins in 1931, when the Grits first heard of it, but the narrow cave passage had been known for some time before this. The entrance is situated at the foot of Park Fell, near the wall which runs along the top of the scars, about half a mile north of Lower Long Churn and south of the small wood. A small stream sinks near a derelict sheepfold into a short passage that sumps, but nearer the wall, in a shallow depression, a collapse of roof gives an 18 ft. drop into the streamway. In 1933 the Grits bottomed the big pitch and reached a choke. In 1934, the Northern Cavern & Fell Club passed the choke and made a complete descent. In 1963 my own activities began with a modern approach to the problem. Consider first the findings of the Gritstone Club.

In 1931 Griffiths reached the previous limit of exploration in the narrow streamway and climbed up to the roof, finding a bedding plane on the left "through which it is just possible to squirm", and leading to a climbable pitch of 20 ft. back to the stream. This soon falls over "a serious waterfall pitch" and to bottom this required a great deal of effort by the Grits, which is described thus in their Journal. "Ladders will not go in rolls and have to be cuttled as in Swinsto Hole. Attempts to 'snake' them end in rout and confusion. In 1932 small parties made several abortive attempts on this pitch but failed for the usual reasons. Firstly a weak party arrived at the head of the pitch with one ladder that did not reach the bottom. Secondly a party arrived with two ladders, but following heavy rain the water was too much for them. Thirdly, a stake was fixed in the roof of the crack beyond the lip of the fall. Hanging from this stake two ladders did not reach the bottom. Fourthly a third ladder was brought into action but the pot had also mustered reserves and a roaring flood swamped the whole shaft." In 1933, in dry weather, using a dam of old clothes, the Grits bottomed the pitch and followed the stream down a narrow passage to an "impossible slit where the stream bade us a mocking adieu". On the return one man got wedged and escaped with difficulty and another, when the dam was released, had his CANDLE (!!) blown out and had to re-ascend the pitch in darkness. The Grits estimated the cave to be rather less than 200 yards long and rather more than 200 feet deep. They suggested it might be interesting "to our youthful successors for an off day".

This was considered as a definite challenge to members of the N.C.F.C. who took four weekends to reach the present-day end. On the first the ladder was at first too short on the big pitch (learned the hard way!). Another was added and "after imitating a tram-ticket sideways, Downham managed to get through the narrow fissure and slide down the rippling waterfall to the bottom of the pitch at 110 ft. In between six inch shivers",

he carried on and passed the impossible slit. The passage went on, so tackle was left in till the following weekend. This weekend the previous week's limit was passed and the head of a 40 ft. fissure was reached, requiring a rope. The third weekend a rope was taken in and the fissure descended for 40 ft. followed by a 60 ft. climb down chockstones. At the bottom a short section of streamway led to a short pitch of about 6 ft. This was climbed and revealed another pitch, but owing to light trouble (...Carbide and electric this time!) its depth was not ascertained until Downham was part way down in an effort to climb down it. When a' blaze of light from the torch revealed a deep pitch, Downham "hastily returned with more speed than grace", and the party (two of them) decided the pitch was about 80 ft. deep! On the fourth weekend the extra tackle was taken in, and a dam used on the big pitch. There were six in the party, four in the van and two in support. The pitch turned out to be 40 ft., and the anger of those carrying the excess ladder was only abated by the discovery of a further 20 ft. pitch which led to the final sump chamber. This was described as "terrifically high, 25 yards in length, 10 ft. in breadth, with a sump running the length of the cave". This is not so, for the length of the final chamber is 25 ft., not yards. The last two ladders were left cut down, to speed up the journey out in soaked clothes.

The difficulties and dangers of Washfold are only brought to light in these accounts by the humorous descriptions of the features. It is variously described by "rotten little hole", "worst hole of its kind", "dirty rotten hole", "positively devilish pot" and the final comment of the N.C.F.C. account - "If you weren't in at Washfold, thank your lucky stars."! The following quote is instructive, "Thence followed more typical Washfold passage, wet, hellishly loose chocks weighing several tons with the whole caboose having the appearance of falling in any moment". These accounts sufficed to establish Washfold's reputation. Washfold was said to be black-listed by the C.R.O. along with Juniper Gulf.

So the situation appears to have remained static. The only change in the cave was the appearance of a large metal dam, which in recent years has been useless. The guide book in its three editions still gave the same description and the tackle that had been used on the first descent, rather than an actual tackle list. The pot was only attempted in very dry weather. Perhaps one party bottomed it each summer and one in the depths of winter. In 1962 I had my first trip into Washfold with the Kendal Caving Club who had been essaying the descent for some time, but were defeated by the big pitch on at least three occasions. This time the pitch was laddered from the beam and by means of a rock flake the direct line of the fall was avoided. Four of us reached the foot of the pitch, but the fifth slipped off the ladder near the bottom and badly cut his finger on the wire side. We had to withdraw. The injured man was hauled up the pitch on two lifelines whilst he did his best with one hand. This was the wettest pitch I had done at the time and I was relieved to be out of the place.

In 1963 I started cave surveying and was surprised to hear that Washfold had never been surveyed. This then was a new challenge, but first one must bottom it to know its extent. Being away in Oxford for much of the year I was unable to wait for drought, so some plan that was independent of the weather was required. In theory there are three ways of dealing with a wet pitch. One can either ignore the water, move the water or move the pitch. The first was impracticable in Washfold most of the year, the second involves a lot of time and effort, but the latter, although limited in application, proved ideal in this case. The roof of the passage above the pitch contains the Grits' beams, but beyond the beams it is possible to traverse out six feet with ease and further with difficulty. The traverse gets wider towards the end and the prospect of 120 ft. of nothing below is a little hair-raising. A bolt-hole was commenced on the right-hand wall at a left-handed angle, and thereafter most of the drilling had to be done by me as right-handed people had difficulty (or so they claimed!). There were only about six inches in which to "swing" a three inch hammer head, so the drilling took four hours! After inserting a bolt one of the party descended 90 ft., beyond which the ladder became sprayed (in normal weather this occurs 50 ft. below the bolt). He estimated it was 30 ft. to the ledge at the bottom.

On 12th January 1964 a party of four, all members of the Fylde Mountaineering Club, Caving Section, carried in the tackle for the bottoming trip. Two of us wore goon-suits and formed the advance party. The other two remained in support, and returned to lifeline the big pitch at a pre-arranged time. We had taken in some old boiler suits and a sack for a dam, but as this gave only 8 seconds respite it was not used! The pot was successfully bottomed, one person carrying all the tackle for the other pitches and the other carrying the survey gear. We surveyed the final and penultimate chambers and returned de-tackling, the same person carrying the tackle bag back out! The trip took 8½ hours and the wettest part of the survey was over. In April an attempt to complete the survey was made by two members of the Oxford University Cave Club. We surveyed from the entrance to the bolt, but with only two people the tackle carrying and rigging of the pitch took longer than expected so the link was not completed.

In July heavy rain and floods abounded in Yorkshire and the water in Washfold was the highest I had seen it. Rather than waste the trip we decided to insert another bolt on the traverse above the big pitch. This second bolt-hole is 3 ft. further out than the first. The next day we optimistically returned to the pitch, but the water had not abated so a descent could not be made. Returning to the surface we decided to make a start on the survey of the passage leading upstream towards the sink. This passage is longer, wetter and much more tortuous than the downstream passage to the pitch! It may be entered by going upstream at the bottom of the 18 ft. climb from the surface shakehole or by climbing down at the opposite end of the shakehole. 25 ft. on the surface corresponds to 40 ft. of cave passage. Winding upstream a chamber is reached with daylight entering from a roof collapse 15 ft. above. This roof collapse forms a useful entry into the upper passage. A ladder is required, but the 70 ft. walk over the surface from the upstream

entrance in the shakehole is easier than the 140 ft. of anfractuositities below. Continuing upstream, the delights in store include tight squeezes in water, a climb to the roof to avoid a constriction, a duck and a squeeze where the body dams the stream and one is ill-advised to linger. The passage finally ends in a sump after 860 ft. of the most sporting passage I know. After two surveying sessions we still had about 400 ft. left to survey and this was left until September when four members of F.M.C. returned to finish the job. On the 12th September we carried in to the Depot tackle for a complete descent and made the second bolt more secure by deepening the hole. Returning and going upstream we completed the survey to the sump. The next day we descended the pot using the second bolt for the ladder belay and the first for a double lifeline belay. The four of us reached the final sump and after returning up the final pitches two set off back with the tackle whilst two of us remained to do the surveying. Thus the 800 ft. link of the final chambers with the big pitch was completed. The tackle was withdrawn and the pot was left nine hours after entering.

My twelfth and last visit to the cave was in April this year. Two members of the Wessex went to the sump at the end of the upstream passage whilst another waited at the sump 25 ft. inside the cave passage where the surface stream sinks. The purpose of the trip was to try and determine the length of the submerged section which the survey suggested was about 15 ft. If a more accurate estimate could be obtained the accuracy of the survey could be increased. It had already been found that the sump was much too tight for diving. On this occasion three bamboo drain rods (a total of 9 ft.) were carried in and to these was attached some narrow bore rubber tubing. These were fed into the sump and air was pumped down the tube from a bicycle pump fitted with a football inflator adaptor. A position was found about 5 ft. into the sump from which the bubbles did not return. We pumped for about twenty minutes, but alas the bubbles did not appear on the upstream side. This would tend to suggest that the sump is fairly long, but the efficiency of the apparatus left much to be desired, and I still think the sump is short. Some evidence for this is the presence of midges at the upstream sump and the presence of large logs wedged in the approach passage.

Washfold is now becoming a popular club trip. Exposure suits and lightweight tackle have removed the most hazardous obstacles faced by the early explorers. Only the pure cave obstacles remain, but these are still sufficient to tax all but competent and experienced parties. A significant recent event was a successful mock rescue from the Depot to the entrance by members of the C.R.O. This showed it was possible to bring out a rigid stretcher, but all agreed that anyone sustaining injuries in Washfold would be in a very grave predicament. I would repeat here the warning I gave in the White Rose Pothole Club Newsletter No. 49, 1964, that the bolts are only lightweight fixtures ($\frac{3}{8}$ ins. welded eyebolts), and their use is not recommended. A rock belay and wooden beams can be found on the traverse. The bolts have been left in and would be useful in an emergency. A description of the descent and a tackle list are as follows.

From the entrance an 18 ft. rope descent (belay round a slab) drops into the stream and downstream a narrow winding passage is followed to where the stream sinks and a dry oxbow with a partial floor is used. After a few feet one drops down a manhole into the stream in a low roomier passage. After 60 ft., one climbs up to pass a stalagmite choke and on rounding two corners one keeps one's height for the roof climb. Entering the roof bedding plane an 8 inch squeeze on the left leads to a 20 ft. rope descent (belay to stalagmite on the right). At the bottom is the Depot; the last (and first!) chamber before the pitch.

At the end of the Depot a climb into the roof is made and the passage followed by traversing to a knob of rock with a useful sideless oxbow behind. Here is the lifelining position. Ladders may be assembled here and hung from the beam. The lifeline can be passed through a pulley hanging from the beam. The pitch is 120ft., free after 20 ft., to two ledges at the bottom separated by a 6 ft. deep gully. Downstream a few small cascades are reached and a traverse is commenced here. Two holes in the floor are found (about 25 ft. deep) and the far side of the second hole seems to be the easiest climb (50 ft. rope may be belayed round the boulder beyond if desired). Below, the stream is rejoined and a wet crawl follows to where the stream again cascades down a pitch. Another traverse leads to a hole in the floor and a rope (50 ft.) may be belayed round a knob of rock on one of the chockstones on the nearside of the hole (if desired). At the bottom is a substantial floor of boulders, and forward one can climb down the chockstones for about 40 ft. down to the stream. Next there is a short pitch, very narrow and awkward but climbable, then a 20 ft. descent in the rift landing in a pool. Beyond are the 'dangerous' chockstones in the roof. One leaves the stream at a jammed boulder floor and after a tight awkward squeeze between and over chockstones a low round chamber is reached. From the big pitch to here is one long straight rift. In this chamber the stream bends sharply right in a trench and goes over an easily climbed 7 ft. pitch with a flake above.

The next pitch is best done in two parts of 20 ft. and 15 ft. The first part requires 3 ft. belay to a knob high on the right at the head of the pitch. It is awkward at the top and very wet. The second part is belayed to a flake at the far end of the bucket ledge on the right looking out, which makes the bottom part of the pitch 'dryer'.

The second ladder is belayed either by a sling or by looping a rung over the flake. The chamber below is small and spray-filled. The last pitch of 25 ft. is belayed to a knob on the left traverse above the pitch (either use a sling or loop the ladder over). Both these pitches are very wet indeed. The final chamber is roughly pear-shaped with a low sandy inlet on the S.W. side. The sump is 8 ft. long by 2½ ft. wide and very deep. Its level was seen to fluctuate about 18 inches as if by a syphon action.

Tackle Note;- The four rope descents in the rift are all the same standard of difficulty and are fairly easy chimney climbs. It is probably best to carry a rope in case one is needed. All the rope pitches in the cave are climbable without much difficulty.

Ladders:-

1st big pitch: 120 ft. ladder, sling to beams or knob on right.
2nd 40 ft. pitch: 20 ft. and 15 ft. ladders, 3 ft. belay to knob and loop over knob.
3rd 20 ft. pitch: 25 ft. ladder, loop over knob or use a sling.

With lifelines as necessary.

Surveyed Lengths

From lowest entrance to the big pitch	270 ft.
From the big pitch to the final sump	835 ft.
From the lowest entrance upstream	<u>860 ft.</u>
<u>Total</u> :-	<u>1,965 ft.</u>

Depth:- 365 ft.

Altitude of final sump:- 835 ft. O.D.

Altitude of Alum Pot sump 832 ft. O.D.

Altitude of Turn Dub (resurgence for both) 800 ft. O.D.

Acknowledgments:- I would like to thank the Yorkshire Ramblers' Club for a copy of the N.C.F.C. 1934 Log and E.C. Downham, the author, for permission to quote from it; also J.R. Sutcliffe for the loan of a G.C. Journal 1933, and the committee of this club for permission to copy from this.

THE SWILDON'S HOLE PIPE AND SOME OF ALL THAT

E.K. Tratman

In this account I would like to put the record straight. 1921 was marked by a record drought and various attempts were made, successfully, to pass the "40 foot". There had been a near tragedy in one attempt when the one man below was all but drowned by being held on the line in the waterfall, which fortunately was quite small. So Balch thought up the idea of a long canvas tube with a wide mouth to take the water down. (This tube subsequently became known as "The Elephant's Trunk" and is still in the hands of the M.N.R.C.). The top of the tube was sealed into the crevice on the left by puddling clay on each visit and woe betide the person who brushed against the pipe and made the clay leak. Balch always insisted on resetting the clay before the next man went down! (I should add that at this time only parties led by Balch could go down the cave at all, so trips were infrequent.)

Later on the U.B.S.S. began to make up their own parties and made up their own Elephant's Trunk but this method of taking off the water was unsatisfactory. On one trip "Porthos" (now Dr. Taylor) had a good look at the pitch from below and thought that a pipe cemented in at the top would shoot the water over our heads. The idea was taken up and soon two 4ft. lengths of fabricated galvanised iron tubing were down the cave. They were only 6in. in diameter. After the first length was cemented in it was seen that this was quite sufficient to take the water over our heads so the second length was never used. This pipe served for years.

After I had gone abroad the story reached me that this pipe had been removed by the he-man cavers of the day who did not believe in artificial aids to caving! And, dare I mention it here, that totally unreliable and lying jade rumour said that they were Wessex members. However, there was an outcry and the Wessex members put in a new and larger pipe and made a very good job of it too.

It was U.B.S.S. members (Bertie and Trat) who made the Water Rift easier by removing the choke below the low level stalagmite barrier just beyond the "Over or Under" and got the water to run under the low barrier and so lowered the water level upstream by the best part of 2ft. Balch & Co. had previously removed an above water obstruction in the "Under" route but that is another story.

If anyone really wants to make the Water Rift easier why not dig down and let the water go under the stalagmite barrier at the "Needle's Eye". Oh yes it can be done - a U.B.S.S. digging party did it once with the aid of shovels, picks and a long bar. Yes the Water Rift was actually drained for a couple of hours till the temporary lower opening was allowed to fill up again with stream borne debris.

It was then that the presence of the choke referred to above was noted. It can be done again and for good measure it would also not be too difficult to carry the work a stage further and open up the bottom of the pool just behind the Pipe and the Water Rift would clear itself. The snag of the latter effort would be that it would bring the water out in a swirl about 10ft. down the pitch on the left, where its diversion might prove to be difficult.

It was my privilege to be with Balch on the first party to reach Sump 1. Balch saw the stream on the right near the sump. He stopped, looked at it, and said "that must be the Priddy Green stream. It's the right size and comes from the right direction" and that 'Best beloved, ' is how the stream got its name.

LETTERS TO THE EDITOR

"Dear Sir,

I wish to draw the attentions of the members of your club to the condition of the air in the through route from Swildons 6 to Shatter Passage.

On Saturday, 21st November, Dave Savage, Pete Standing, and myself did the Swildons 6 - Shatter Passage round trip (followed by the old round trip to complete the figure of eight) and found the condition of the air in the Swildons 6 - Shatter Passage link rather dangerous. Whilst bailing the first sump, the CO₂ accumulated very quickly, and was enough to cause headaches when the sump was only half bailed. Dave Savage, who bailed the last half did, in fact, nearly pass out at one point and only just managed to retreat to fresh air in time. When the sump was passed, all three of us had splitting headaches. The air situation between the sumps was not as bad, but was still bad enough to cause shortness of breath; and the foul air left behind the first sump ruled out leaving someone behind to bail while the second sump was being bailed, thus effectively cutting off our retreat.

The situation gets worse with the parties going through, and the air seems to clear very little during the course of weeks. The earlier parties had no trouble at all, but the next party may well be in for serious trouble.

It is a fact that the fatal concentration of CO₂ is only 5-6% over a long period, and this concentration will cause headaches and passing out over a short period. To cause hallucinations and persistent headaches over the following few days, as actually happened, means that we were probably subjected to a concentration of more like 10%.

continued.....

The next party will have to withstand an even greater concentration. This is very dangerous, and unless the Swildons 6 - Shatter Passage round trip is left alone for a good few weeks (or months) there could easily be a nasty accident. The onset of a bad headache is the time to stop bailing and get out. If a person feels sleepy and dizzy as well, then he does not have much time to get out, since he is on the verge of passing out. Once a person passes out, it is impossible to revive him under cave conditions - artificial respiration is no good unless started immediately with ample quantities of fresh air about.

Yours sincerely,
Mike Norton.
(Hon. Sec. U.B.S.S.)"

1 New Ridley,
Stocksfield,
Northumberland.

"Dear Sir,

There are two points on Mr. Pickstone's article on ladders. (See last issue of the Journal No. 104 - Ed.). Firstly, anyone using the zinc method should be warned not to use a wire with a hemp core, because the grip is by shrinking onto the wire rather than by sticking to the galvanising, and the hemp core is too resilient. I made some ladders using the zinc method and a hemp cored rope and the zinc made rather nice nuts which ran down the two wires. The ladder was like a bunch of knitting when the weight was taken off!

Secondly, I have found it better to use a cup-ended Allen screw and a ball bearing to grip the wire. A 3/16" ball will go down a 1/4" Whitworth tapped hole. The thread should be Whitworth when used in soft material, and not B.S.F. The tapping drill should only go so far that the conical end is just into the rung or insert, and not the parallel part of the drill. There was no slip at 10 cwt. on a complete rung (two Allen screws).

Yours sincerely,

J.M. Burnett.

"Dear Sir,

I was interested to read Carl Pickstone's mathematical computations in the last Journal, and would like, if I may, to add a few comments.

Diameter of Rungs

It is instructive to calculate the actual load required to reach the Proof Stress in a given rung. The actual factor of safety can then be seen at a glance, remembering that most people weigh 150-160 lbs (not 200).

Thus for 1/2" O.D. rungs with an inside wire length of 5.375 ins. and a Proof Stress of 18 Tons per sq. inch, as suggested.

16 gauge	Load required is	256 lbs.
14 gauge	Load required is	289 lbs.
1/4" Bore	(approx.. 10 gauge)	345 lbs.
Solid Rod		367 lbs.

It can be seen that Mr. Pickstone's desired load of 2 x 200 lbs. can never be achieved with 1/2" O.D. tubing, but that 1/2" O.D. 1/4" Bore - which is I believe now used by Wessex - does give a safety factor of two over the Proof Stress for persons of normal weight.

The real criterion is that of least weight to give the desired strength, for which 9/16" and 5/8" rung tubing must be considered, and their lighter weight at the desired strength set against their inconveniently large bulk.

Strength:-	1/2"	9/16"	5/8"		Weight:-	1/2"	9/16"	5/8"	
16 gauge	256	332	425	lbs.		.323	.369	.416	lbs.
									/ 10 Rungs.
14 gauge	289	386	499	lbs.		.389	.447	.505	lbs.
									/ 10 Rungs.

Rung Fastenings

The earlier work on the construction of ladder using 'Araldite' (H. Lord 1963, Cave Science No. 33) was perhaps not known to Mr. Pickstone; it contains details of the use of Carborundum powder, and an 18 s.w.g. pin to part the wire strands. A slipping strength of 680-700 lbs. was achieved by this method. A graph of bending force as wall thickness for 1/2" O.D. rungs is also given which parallels my figures above.

Corrosion

Unfortunately, since corrosion often occurs on a single metal, reference to the Electro-Chemical Series is not very helpful. The technique of using metals is to ensure that the slight current

which does occur preserves the most important component - the wire - admittedly at the expense of other material. The use of stainless wire is dangerous; Messrs. 'Talurit' do not recommend an alloy ferrule on stainless since in salt water conditions corrosion of the wire is rapid - a copper ferrule is apparently quite safe. It would seem that both with ferrules and rungs some corrosion would occur if stainless wire was used on caving ladder. However, apart from an American incident, which was attributed to this cause with the aid of a brass thimble, no trouble has been experienced in caves.

The best way to determine the rate and direction of corrosion is experimental. Either with a sensitive milli-voltmeter, or in an Agar-Agar gel with a Ferroxin indicator. The latter is a mixture of Phenolphthalein and Potassium Ferricyanide, and will colour areas where iron is being corroded; blue, and those where any metal is protected; pink.

In addition, I would like to point out that ladder has been in use in Devon for some years made from 3/8" O.D. 16 gauge tube and 11/64" BRASS pins. Slipping loads in excess of 700 lbs. are believed to have been achieved with this and NO corrosion has yet occurred.

Finally, in the article, EPOXY was consistently transposed to APOXY.

Yours sincerely,

Peter R. Cousins."

Dear Sir,

I have read with interest Carl Pickstone's articles on caving ladder technology in the May and October numbers of the Journal. The subject is a difficult one to cover in two short articles so perhaps he will not take amiss these rather lengthy comments on them.

I agree entirely with his conclusion in the first article that 10 cwt. aero cable is the best wire rope for caving ladders. The price of wire rope was until recently fixed by the Wire Rope Manufacturers Association but earlier this year the Restrictive Practices Court found this agreement to be against the public interest and recommended that the manufacturers should abandon it. It remains to be seen whether this will have an effect on the price we pay for it.

However, it is upon the second article that I mainly wish to comment. There seems to be an unnecessary amount of technical data included in this article which is already adequately set out in either BS 1471 itself or in the Nonferrous Metals Handbook. Only the last four alloys mentioned in the list (p.308) really need to be considered as all the rest are either too weak or too brittle or both. These four alloys are HT30WP, HT14W (designated HT14T by some manufacturers) HT15W and HT15WP. They are all

duralumin type alloys containing about 4% Cu and smaller proportions of Hg and other elements. It is not commonly realized that duralumin refers not to one particular alloy but to a group of similar alloys. Indeed, one of the best articles on practical testing of alloy rungs is marred by the omission of the name of the alloy used and its strength characteristics (Lord, 1963).

Each of the four alloys mentioned above has at one time or another been used in caving ladder rungs, and while I agree with Pickstone that HT15WP lacks the reserves of ductility necessary for this use, it should be noted that this was the alloy recommended by Railton in his pioneering article on caving ladders in 1952. I will return to the other three alloys again later after considering some other matters.

The Aluminium Federation, in correspondence, recommended that a rung should overhang at each end by twice the diameter of the wire hole in it, measured from the centre of the wire hole. This is slightly at variance with what Pickstone recommended. However, the main point here is that in the past most clubs have left much more than this at each end and caving clothes were liable to catch on the long ends especially when one climbed up the ladder.

My main disagreement with Pickstone concerns the size of the rungs themselves. I have done calculations very similar to those in the article and yet my conclusions have been very different. This has not arisen in the arithmetic (we are both tolerably good at that) but rather in the assumptions we have made for the purposes of the calculation I agree that assumption No. 3 provides a suitable theoretical case to consider for this purpose but it seems to me that the chance of such a condition arising in practice (i.e. a point fulcrum at the exact centre of the rung with the full weight on it) is sufficiently small to be an adequate safety margin by itself without adding a further factor of two (assumption No. 5) over the Proof Stress. For even if the conditions of assumption No. 3 did arise there is a large margin in the alloy's characteristics between the Proof Stress, where distortion in the rung commences, and the Ultimate Tensile Stress, where complete failure occurs. In any case, if bending occurred, it would occur gradually and the danger to a person on the ladder would only be that of a slight jerk providing that the rest of the ladder was sound (see below with respect to C-links). During normal use with the ladder correctly hung from C-links, the bending moment in the rungs is quite low. On these grounds I consider that assumption No. 5 is unnecessary.

No doubt many readers will think that assumption No. 6 implies some necessary relationship between the outside diameter (O.D.) of the tube and the inside diameter (I.D.). This is not, in fact, so and it appears that the $d=2/3D$ was used in the article only to simplify the calculation. Tube sizes are specified by:- (a) the outside diameter (O.D.) and (b) the thickness of the tube wall measured in standard wire gauge (SWG) units. The standard wire gauge is a confusing scale of thickness which increases as the actual

thickness decreases. For our purposes we need only note four values of it:

SWG	14	16	18	20
inches	.080	.064	.048	.036

The sizes of alloy tubing commercially available are fairly limited and although other sizes of tubing can be obtained either by special order or by chance, the only sizes which really need concern us are those cheaply and readily available. For our purposes these have O.D.s of $\frac{3}{8}$ ", $\frac{1}{2}$ ", $\frac{5}{8}$ " and $\frac{3}{4}$ " each in wall thicknesses of 14 swg, 16 swg, 18 swg, and 20 swg.

Instead of the method of calculation used by Pickstone, I prefer to turn the problem he poses round the other way and starting from a known size of tube, calculate the weight of cover it will support in the extreme situation stated. It is possible to do this calculation for each size of tube, starting from $\frac{3}{8}$ " O.D./20swg. and working through progressively bigger tubes to $\frac{3}{4}$ " O.D./14swg. This is an extremely tedious set of calculations; however, it gives some interesting results. It shows that no $\frac{3}{8}$ " O.D. tube, even a solid rod, can withstand the conditions of the amended assumptions without distorting beyond that allowed at the 0.1% Proof Stress. It also shows that $\frac{1}{2}$ " O.D. 18swg tube is sufficient to satisfy these assumptions. This is the size of tubing we used for rungs in the newest Cambridge University Caving Club ladder and it has so far proved to be entirely satisfactory. I had anticipated that some members might dislike the extra weight and bulk of $\frac{1}{2}$ " O.D. rungs, so I was pleasantly surprised to find that everyone welcomed the change because the larger rungs are so much easier on the hands while climbing than the old cheese cutter rungs ($\frac{3}{8}$ " O.D.) This emphasises the point that when designing ladder there is more than just the engineering formulae to consider.

An interesting matter which was not mentioned in the article is the research carried out on $\frac{1}{2}$ " O.D. alloy tubes of different wall thicknesses (Lord, 1963). This shows that there is a critical wall thickness below which kinking rather than bending is the mode of distortion which occurs when a rung is overstressed. This is important because while a slightly bent rung could perhaps be straightened, a kinked rung could not. With the particular type of alloy used, kinking occurred for 18, 20 and 23 swg. but not for 17, 16 or 14 swg. tubes.

A similar calculation to that above shows that $\frac{1}{2}$ " O.D. 16 swg tubing of HT30WP is more or less equivalent in strength to HT14W. A rung made of the former alloy has better corrosion resistance but is about 24% heavier than the latter and is marginally more brittle.

Perhaps the critical factor in a case like this is the relative price. Unfortunately, the position here is less certain than with respect to wire rope as there are no standard prices

and merchants quote a price per lb. according to the size of the order and, presumably, the size of their stocks. Thus, quoted prices for HT30WP ranged from 10/11 per lb. to 16/10½ per lb. and those for HT14W from 12/10 per lb. to 21/4½ per lb. The only advice one can give is to avoid the big manufacturing companies who dislike small orders, and to make the alloy orders as big as possible to get the best terms.

I feel that Pickstone's advice on the distance between rungs is too rigid. In Britain various clubs have recommended distances of 10" to 12" while in France three rungs per metre (i.e. about 13") is fairly standard. It depends mainly on the length and difficulty of average pitches in a region and on personal preference. I venture to suggest that perhaps the size of rungs and the distance between them should to some extent be considered together for it may be that widely spaced large rungs are easier to climb than more narrowly spaced small rungs. This kind of adjustment also affects the rolled bulk of the ladder and the cost because fewer rungs are needed per 100'. In all events, a distance of 10½" seems very ill-advised if only because of the practice of surveyors and others of measuring pitches by the number of rungs down it. For this, a 12" spacing is simplest but 10" is quite manageable too - count rungs in dozens and call them tens of feet. But a 10½" spacing - well!

Another important section of Pickstone's article concerns the methods of fixing rungs. In my opinion only the last three methods he mentions are worth considering but each of these has its own particular advantages. He has rather maligned the resin bonding method which is very popular among some clubs. By inserting a half inch stainless steel panel pin between the strands of the wire within the rung before adding the resin, the strength before slipping is much greater than he suggests. It seems to me that three factors over and above a simple comparison of strengths will give guidance to a club trying to choose between the various methods.

(1) Construction

the pinning method restricts the choice of rung sizes which can be used because of the necessity of getting the right degree of interference between the pin and the inside of the rung. Also, I should imagine that pinning adds somewhat to the weight of the ladder and could cause corrosion difficulties by trapping moisture within the rung unless some method of sealing it is used. But the method is very quick and easy if the materials are at hand. I think that Pickstone has overemphasised the difficulties of resin bonding as there are resins now which will begin to harden overnight at radiator temperature and this means that if all of the rung ends on one side are filled in one evening, then all those remaining on the other side can be treated the following evening. The British Expedition to the Cantabrian Mountains made hundreds of feet of ladder very quickly by this method. If a little suitable dye is added to the resin the ladders can be permanently marked with the club colour too. Technically, the ferrule method is the most difficult of the three. Not only must the

ferrules and the wire be very close fitting for good strength results but also an electric wire cutting machine, a flypress and a ferrule die are needed to do the job effectively. However, it is the only method which allows the wire to freely rotate and thus there is no chance of permanent sets as in the other two methods.

(2) Comfort while climbing

both the resin bonding method and the pinning method give a very comfortable construction to climb on, compared with the ferrule method which leaves sharp edges unless each ferrule is filed smooth, and this may weaken the ferrule.

(3) Salvage

I wonder how important this factor really is, I don't even know what part of a worn out ladder one usually wishes to salvage. If there are many broken rungs it could be the wire, while if the wire has frayed about the splicing and top rung it would be the rungs. Personally, I doubt whether it is ever wise to salvage wire and I'm not too keen on salvaged rungs either. However, with ferrule and pinning methods rung salvage is possible, and with the pinning method so is wire salvage. With the resin bonding method salvage of neither is practicable.

I would like to discuss two topics which Pickstone does not mention in his article. One of these is the preferred length of ladders. C.U.C.C. have standardised on twenties and thirties - usually one of each loose rolled together to give a convenient 'load' of 50'. However, for clubs with an excess of tackle it is probably better to standardise on one length only - say 25'.

The other topic he has not considered is that of end fixings. There is no doubt that professional Taluriting is far and away the most reliable method of splicing the ends of the wire. If it is done well, it avoids entirely the dangers of fraying wire ends. The price of Taluriting varies widely. While one firm charged the C.U.C.C. 3/- each for 18 splices, another did 44 splices for just under 1/6 each.

C-links are a subject inadequately covered in almost all the literature and are to my mind 'the weakest link in the chain' as far as ladder construction is concerned. The literature shows that different clubs have used C-links varying in size from 7/32" diameter section to 3/8" diameter section. The C.U.C.C. has used 5/16" diameter short link high tensile steel chain but the main reason for using this size was that we already had miscellaneous ladders fitted with 3/8" and 1/4" diameter links and this intermediate size fitted both. So far they have proved satisfactory and have shown no signs of opening out but what would happen under shock loading, I don't know. This is a field which needs further investigation. The relevant standard on short link high tensile chain is B.S. 1663. One non engineering aspect to note is that links smaller than 5/16" diameter will not take 10 mm. karabiners through them and those smaller than 3/8" diameter will not take 12 mm.

karabiners. On whether the advantage of the latter is worth the additional weight, I shall not venture to express an opinion.

Yours sincerely,

Frank Morland"

"Dear Sir,

I have been asked to comment on Mr. Morland's observations. The criticism is mainly concerned with the second article and I will confine myself to that.

The purpose of these articles, as I see it, on ladder technology was to give the layman an introduction into the engineering world, and to the B.S. specifications. It was also intended to give an insight to the problems and the way they could be tackled. For these reasons a large amount of 'technical data' was included.

With regards to the overhang on the end of the rungs; I agree it is not worth quibbling over 1/16". However, I think it is worth while pointing out, that if the 'Allen Screw Method' is used, more than twice the wire diameter overhang should be recommended. This allows a sufficient number of threads to take the load imposed by tightening the screw.

My main criticism of Mr. Morland's letter is concerned with the size of the rungs. Mr. Morland admits that there is a slight possibility of condition 3 occurring (namely the ladder on point fulcrum in the centre of the rung). The additional factor of 2 was allowed to cope with the effects of dynamic loading, which under certain circumstances can double the static stress. If all the conditions occurred, and they could, though the chances are remote, the Pickstone ladder would be safe, whereas the Morland ladder would suffer from bent or broken rungs, which could lead to loss of life. The practice of hammering bent rungs straight again is extremely undesirable and should be discouraged as it rapidly leads to a decrease in ductility with resulting failure. The proposal of using the stress between the proof stress and the U.T.S. as a factor of safety is very bad and should under no circumstances be considered. The difference between the proof stress and the U.T.S. is generally small for materials used in this application and does not represent a 'factor of safety', but a 'factor of folly', and bad engineering practice.

With regards to assumption 6 ($d = 2/3D$) and the resulting comments. Referring to the popular Bending Moment Formula $P/y = M/I$ or rewriting $P = My/I$ it can be seen that for a fixed bending moment M_1 I/y should be as large as possible in order to keep the stress P to a minimum. Bearing in mind that I/y is proportional to D^4/D i.e. to D^3 the

larger the diameter the better, but this unfortunately leads to excessive weight, and therefore to the fact that the rung has to be hollow. The hollow rung now modifies the relationship to $I/y \propto (D^4-d^4)/D$. The internal diameter d should not be so large as to greatly reduce the second moment of area I . The magic $d = 2/3D$ is the result of some optimisation between weight, second moment of area and the 'cheese-cutter action'. Mr. Pickstone probably did not explain in sufficient detail, the S.W.G. system though all his rung sizes are quoted using this, as it seemed a logical thought that the wall thickness should equal $1/6D$ (approx.).

With regard to the calculation, I imagine it was intended only to show how the problem could be approached and more than one calculation was almost certainly done prior to writing the article. I cannot agree with the idea of turning the problem inside out, as suggested. Surely, with certain assumptions e.g. weight of caver etc., the only unknown is the diameter of rung?

I feel Mr. Morland has included some useful information on price of tubing. His observations on the spacing of rungs seem quite justified, and I hope would-be ladder manufacturers will bear this in mind!

Moving on to the subject of rung fastenings. I am very much against the pinning method, because of the high stresses that may be set up as a result of bending the wiring in a tight radius and the cutting action of the edge of the hole. With regard to the ferrule method, if proper discs are used, the 'flash' can often be broken off with the fingers. If filing is necessary, providing a little care is used no damage should be done to the fastening.

I agree with the idea that salvage is a bad practice, particularly of the wire, where the pinning method has been used.

I cannot agree with the idea of standardisation of the length of ladder. If the club is particularly active in one area, then surely it would be a good idea to have the ladders made to suit the individual pitches. Having a standard length inevitably means taking an extra ladder, when the use of non standard length would mean that there would be no excess load to carry, (e.g. 40' Swildons).

It seems a great pity that Mr. Morland relies so heavily on literature, some of which is out of date, and lacks good mathematical analysis.

Yours faithfully

John Phillipott"

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- 1964 D. BRANDON & K.H. TONGE Some simple methods for the construction of lightweight all-metal ladders. C.R.G. Newsletter No. 94.
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Ed.

BOOK REVIEW

The Caves of Ireland.

Coleman, J.C., (1965). Anvil Books, Tralee, Co. Kerry, Eire.

Quarto, 88 pp. 8 sides of plates, comprising 35 photographs.

22 text figures, including 9 cave surveys. The maps include; distribution of cave areas, counties of Ireland, regional and geological sketch maps.

The publication of 'The Caves of Ireland' is a most welcome addition to the now fairly comprehensive stock of regional 'undergrounds'. For some years, there has been a need for a guide book to aid the ever increasing flow of British cavers visiting Ireland. Confusion as to the location of many caves has been common, also the published information on explorations in Ireland is diffused through a large variety of journals, some of which are not now readily obtainable. This situation has led to cases of 're-discovery' and much duplicated work. This book will do much to clarify the situation.

The book is at once both more and less than the usual underground guide; less in that there is an unevenness of treatment of certain caves and areas, and that one cannot expect to find full details of locations or descriptions of some of the caves without resort to the original literature. In a few cases the brevity of description is somewhat alarming, e.g. p. 63, Pollarafta, Co. Fermanagh, a system of over 6,000ft. in length and some complexity is dealt with in only one inch of the half page column, and for any really useful details one must retire to the C.P.C. journal. By contrast; p. 14 Dunmore Cave, Co. Kilkenny, with a total length of perhaps some 1,000ft. receives nearly three full sides of text, and a survey, some 40 inches in all. On p. 61, Marble Arch Cave, line 10, the explorer is advised that; 'The usual entrance to the system is via a hole on the east side pit E which.....' This is in dense undergrowth, and it is not made clear that the reference is to the survey of Brodrick (1909).

Mr. Coleman is well known for his numerous papers on Irish caves, including many discoveries in some of the lesser known cave areas, and large sections of this book are drawn, almost word for word, from these papers. This is in itself of great value, as many of the original papers appeared in journals not so readily available to the average caver, however it is the considerable volume of material contributed by this treatment which tends to create the imbalance found in the sections on the cave areas with which the author is less familiar. If these are shortcomings, they are slight when viewed against the merit of the book, which includes much material not normally

found in an underground guide.

The description of the caves of each area, is prefaced by a general account of the geology and topography of the region, with historical notes on the cave explorations. Most of the caves are given a map reference in terms of inches and tenths from the nearest margins of the appropriate map and in some cases the approximate altitude is also given. (The recording of the exact locations of Irish caves will be much improved if large scale maps, incorporating a grid become available, but until then this alternative system seems the simplest answer). The individual cave descriptions include many minor sites, records from maps, and by hearsay - this being particularly valuable in a country where active exploration is still proceeding so rapidly.

Two introductory chapters cover the formation of caves in general, limestone areas of Ireland, maps, and sources of information. On this latter point the book is most valuable, as very extensive references to the literature postscript every chapter, and generally where a survey has been published this is indicated in the text, although there are some omissions on this score. Seven chapters are then devoted to the principle cave areas. There is a final archaeological chapter; 'Ireland's Past in Caves'. And three appendices which cover; place names, equipment and exploration, and the inevitable glossary. Finally there is a full index of the caves described; some 300 in all.

The centre section of eight plates, many by the author, is an additional bonus which adds much to the pleasure of the book. The cover is of the glossy card type, and not too substantial, certainly not up to ruc-sac survival. But then at 10/6 one can't grumble. To summarise: a most valuable addition to the 'undergrounds' and well worth the money. Very readable, and with much more variety of content than might be expected. Experience has shown that each cave area will support one guide book, and Ireland is not likely to be an exception. In trying to cover such a large area Mr. Coleman undertook a difficult task, but it is certain that he will have stimulated more exploration in Ireland and hence paved the way for further editions of this guide, in the production of which something might be gained by his resorting more to the capacity of a compiler, rather than dealing with the less familiar areas himself.

Alan Fincham,

Leeds 1965.

The British Caver Vol. 42 Winter 1965. 99 pp. Edited and produced and published by G. Platten, of Rotherfield, Fernhill Lane, New Milton, Hants at 10/- post free.

Once again the British Caver contains a veritable mine of information. Mr. Platten has reprinted articles from a wide range of magazines and books, consequently this latest volume provides an interesting review of British Cave literature. Space does not permit a discussion on all the articles but apart from details of new discoveries, one outstanding article is "Snow and Stalactites on Mendip" by John Hooper, an account of a caving trip in the winter of 1945, (petrol rationing and all that). The readers letters section also calls for some comment, when Mel Davies actually admits to removing bats from mines for vivisection, in an area where bat ringers are at work!

Foreign caves are also given good coverage, with notes of caves of Malaya, Aden, Tasmania, France, Ireland, Czechoslovakia etc.

A.D.O.

Geheimnisvolle Schwäbische Alb by Hans Binder published by the Schwabenwerk GmbH Stuttgart, 1965. 120 pp. 4.80 DM.

Geheimnisvolle Schwäbische Alb, or as the title may be freely translated, "The Mysterious Swabian Alb" is a well written and compact guide to caves, springs, and waterfalls, in this interesting karst region in Southern Germany.

The book begins with a chapter on cave formation, with particular reference to the Alb, followed by notes on archaeology, folk lore and the origin of cave names in this area.

Over 200 caves are listed. This number includes about 20 show caves for which the price of admission, opening dates and the address and telephone number of the guide/manager are given. For all caves; length, depth, altitude, location and a brief description are provided. Waterfalls and springs are similarly dealt with but with the addition of water flow rates. All the caves, waterfalls, and springs, are described area by area, each section being defined by the sheet edge of the local large scale maps.

Mary of the caves are less than 100 ft. long, although a few such as Falkensteiner Höhle near Urach, nearly 10,000 ft. and the Mordloch near Eybach, 8,200 ft. are much larger. The Falkensteiner Höhle is a large resurgence where in February 1964; four students of botany and zoology from Tübingen University were trapped for 66½ hours by flood waters from melting snow.

A most useful guide for the explorer both on top and under the earth.

A.D.O.

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