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ASF

AUSTRALIAN
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NEWSLETTER

CONTENTS

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A S F N E W S L E T T E R

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	VCMS	Victorian Cave Exploration Society
western australia	WASG	Western Australian Speleological Group

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AUSTRALIAN
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EDITORIAL

Editorials are (at least we assume) resultant from the editor's conviction that he has a message to deliver, a wrong to right or a view requiring his readers' attention.

Consequently this cannot be considered an editorial for I have no wrong to right, no message, no anomoly to correct, purely a desire to express the thanks both of the Newsletter manager, Bob Chapman, and myself to those who have supported the Newsletter staff, making it possible to achieve some semblance of order in format content and postage whilst attempting to achieve the high standard set by last term's editor.

We express our gratitude to those who contributed material to the Newsletter both directly, by suggestion or in casual conversation.

Expecially our thanks goes to Lorraine Mottley who has patiently typed and retyped copy.

To you the reader apologise for the lowering in production standard, however, we wish to point out that until the Federation possess its own printing equipment, quality of production is an uncontrollable variant.

Again may we extend our thanks to the two organisations which offered printing facilities when our own were damaged.

On a concluding note may we extend our best wishes of the coming season to all members of the Fedoration and to the many subscribers both in Australia and overseas.

Ian Wood.
(Editor)

LETTERS TO THE EDITOR

The Editor, Dear Sir,

In the last A.S.F. Newsletter it was stated in relation to the rock fall in the Cliefden Cave that "... movement and fall, this generally occurring during the cave's average peak dehydration period December to February".

Presumably this cave is in fairly dense limestone and would not be subject to significant deadweight variations in the rock. The question arises, what is the agency causing the failure in this case? One would normally expect failure when water is present in above average quantities as seems the case in South Australia. Most S.A. caves are in very porous mechanically weak limestones of the Tertiary or younger. Porosities have been measured as high as 33% with a dry density of 1.8. Saturated with water the wet density becomes 2.3 or a dead weight increase of say 25%. The weather cycle in the South East and Kangaroo Island where these limestones occur is a dry hot summer with most of the rainfall occurring during winter.

The caves develop invariably by upward mining with massive roof falls into the flat basal areas where solution occurs at the water table. The mining takes place when basal enlargment reaches a width where the roof can no longer support its own weight. With a possible seasonal increase of deadweight of 25% in the winter it seems reasonable to assume that all major falls take place then when the country rock is at its peak of saturation.

Alan L. Hill,
C.E.G.S.A.

A.S.F. COMMITTEE MEETING.

The 1966 A.S.F. Committee meeting will be held over the long week-end 25th-27th January, 1966, the host society being Canberra Speleological Society.

As yet the location and final details of the meeting are not to hand however it is estimated that business will be concluded by noon Sunday leaving ample time for field caving. The closest caving areas are within two hour's drive of Canberra. These include Wee Jasper, Wyanbone, Mt. Fairy and Chiefmore. Bendithera, Bungonia and Yarrangobilly could be considered just beyond the time available.

The meeting is open to all members of the Federation.

Accommodation will probably be arranged in one of the youth camps in the Canberra District.

Further information can be obtained from the Canberra Speleological Society.

WANTED - A COCKROACH.

On 8th January, 1965, Ted Anderson found the remains of a very dead cockroach in Mullamullang Cave (Nullarbor Plain, W.A.). Fortunately, he collected the remains and included them along with other insects collected on the Plain.

These fragments have been pieced together, and provide approximately half a specimen. Dr. J.J. MacKerras, who is currently engaged in a study of Australian cockroaches, reports "This is the most interesting cave cockroach to come to my notice so far. I think it is truly cavernicolous. There are vestigial eye facets, but they don't look functional. It is apparently a large, spidery looking cockroach with long thin legs and a rather bleached appearance. There are curious, lobiform vestigial tegmina and wings. I should think it would be very hard to detect if it kept still."

Further specimens are therefore of the greatest interest, and it is hoped that any future expedition will watch carefully for this insect. It certainly occurs in Mullamullang, may well occur in any other Nullarbor caves, especially the deeper caves. A photograph of the present specimen can be made available to any expedition for comparison purposes.

Apart from searching for the species, trapping should be tried wherever possible. A suitable trap consists of a glas jar sunk into any sandy part of the floor so that its lip is flushed with the surface; it could be baited with water or with any food substance; and should be protected from the depredations of rats by a wire grid or by placing a stone slab over the jar supported on pebbles so that there is sufficient gap for a cockroach to crawl into the jar.

As the first Australian cockroach reported which is apparently troglobitic, and as the first apparent troglobite from the Nullarbor, this is an insect of considerable importance, and well worthy of some time being spent by a future expedition.

E. Hamilton-Smith
17 Helwig Ave, Montmorency. Vic.

FURTHER COMMENTS ON CAVE BREAKDOWN

From a Letter by J.N. Jennings, M.A.
Australian National University

The statement in the A. S. F. Newsletter, No. 29 Sept., 1965, regarding the timing of collapse in the Cliefden main cave is open to discussion.

Unfortunately there is little literature available on the seasonal incidence of cave breakdown; if any attempt is given to the cause of the collapse, it is usually a reference to earthquakes without supporting evidence.

It would be interesting to determine how much evidence has been accumulated at Cliefden to show that collapse is correlated with dehydration. Allan Hill's (see letter to the editor) arguments for Kangaroo Island appears to have a reasonable basis, but he doesn't claim to be able to demonstrate that the falls have taken place during the winter period.

It is unlikely that Hill's argument would apply at Cliefden, the permeability being low in the more massive limestone. The major permeability would occur along joint and bedding planes. The increase in weight due to the filling of pores existing in the Paleozoic rocks of the tablelands would [illegible] amount to 1.3%. In areas such as Cliefden it would be expected that collapse would occur when most water was passing through the limestone - solution eventually freeing blocks sufficiently to allow them to fall.

Assuming that the variation in weight is not great by reasons above and setting aside the possibility of earth tremors, the statistical chance of solution finally freeing a block will be greater in the season when most water is percolating through joints and bedding planes.

Furthermore, in dry periods, joints dry out enhancing the chance of the precipitation of calcium carbonate tending to hold the blocks in place.

Other considerations must be taken into account as well, for it is not simply the quantity of water percolating along the planes of weakness which governs the amount of solution, but its capacity for solution, which varies in the most complex manner. The carbon dioxide content is most important and soil air can convey much of this moisture which attacks the limestone. This can be greatest in summertime because of higher growth rates, higher microbiological activity in the soil faster oxidation of dead plant material etc.

Considering the climatic conditions at Cliefden, the rainfall is well distributed, however evapotranspiration will be greatest during summer, with resultant percolation. Again with the balanced rainfall, the critical control may simply be a short term weather conditions e.g. a series of heavy rainstorms shortly after one another might pass sufficient water down the joints to release the blocks. These storms could occur at any season. Allowing for all these factors then, one might expect collapse at Cliefden to be a winter, not a summer occurrence.

The explanation given here differs from both Hill's and the published one however, whereas Hill's can be modified along similar lines, it is in direct contradiction with the other. It is difficult to see how dehydration would trigger off collapse. Further evidence to

support either view would be most informative.

THE GEOLOGICAL SETTING OF CLIEFDEN CAVES, N.S.W.

In view of the recent report of a rock fall in Cliefden Main Cave and the subsequent discussions of its causes, a review of the geological setting seems pertinent. According to N.C. Stevens (1952) the caves lie in the Ordovician Cliefden Caves Limestone. This formation varies from thinly bedded limestones and shales at its base, on Fossil Hill, followed by beds with reef building corals, east of the large flat, to massive limestone with rhythmically arranged chert bands. Cliefden Main and most of the other caves are accommodated in a 2,000 feet sequence of massive limestone. Like other hard, dense massive limestones its porosity and primary permeability are negligible. It does however, possess a considerable permeability along fractures and joint planes which are often widened by solution.

These rocks are of considerable antiquity and have suffered both medium scale folding and faulting. Lines of normal and thrust faults are marked by breccias and shatter zones. Although not of recent age the fault planes provide zones of structual weakness which would be the site of any recent movements. Undoubtedly a dislocation following an earth tremor or the gravity subsidence of a cave would preferentially occur in such a zone. Significantly Stevens has mapped a north-east trending fault within several hundred feet of the entrance of Cliefden Main Cave.

Initial investigation has indicated seasonal climatic variation as the cause of the rock fall in Cliefden Main Cave. In view of the geological setting this may be only an ancillary factor. Cave collapse due to a zone of structual weakness should be clearly differontiated from general break down during the ultimate stage of cave evolution when the karst has achieved late maturity or old age. It might be added that recent rock falls or fracturing is not peculiar to Cliefden Main Cave. The Piano Cave at Walli, in the same belt of limestone has a similar fall as do the further distant Canomodine Caves. However it would be unwise to damn any of these caves as "obviously inherently unstable".

Boyd T. Pratt,
U.N.S.W.S.S.

Reference Cited:

Stevens, N. C., (1952) -- Ordovician Stratigraphy at Cliefden Caves near Mandurama, N.S.W. Proc. Linn. Soc. N.S.W., 77, 114-119.

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NULLARBOR EXPEDITION.

The C.E.G.S.A. Nullarbor expedition is entering its final stage of preparation.

Emphasis will be placed on the exploration and survey of Mullamullang now estimated to have a length of over four (4) miles.

It is planned to establisha base camp $2\frac{3}{4}$ miles into the cave to provide services to the survey team. Estimated stay underground will be seven days. A telephone will maintain communication between the camp and the surface.

The expedition will also visit Koonalda, Weebubbie and Madura 7 mile caves.

C.E.G.S.A. reports that several vacancies are still available.

R E V I E W

"Communications" Occasional Papers
No. 1. October, 1965
Sydney Speleo. Soc. 5/-

Originally a monthly journal "Communications" has remained unpublished for several years. The journal had been supplemented as a society News-sheet by "Stop Press" and is now re-issued in the form of occasional papers.

"Communications" is published in quarto format and is stapled together between attractive semi-hard covers, the front bearing a photograph which unfortunately is not identified.

Generally "Communications" holds and equivalence to the "S. U. S. S. Journal", published by the Sydney University Speleo. Society, if not in quantity certainly in quality.

The contents constitute papers on Radio Direction Finding , an expedition to New Caledonia conducted by three members of the society, a report on the Cave Fauna collected by the expedition and is concluded with the lighthearted memories of English Caving by a member of the Bradford Pothole Club now resident in Sydney.

The paper on Radio Direction Finding (R.D.F.) equipment used extensively by this society is reviewed by R. Zimic.

Zimic explains two techniques employed in Radio Direction Finding and indicates the application of both. The purpose of R. D. F. is explained and problems arising out of its use outlined.

Detailed discussion on the theory of electromagnetic radiation and the effects of its transference through varying strata constitutes the greater portion of the papers.

The methods used to determine the depth of the transmitter is treated fully. This includes using (1) the tilt of the receiver loop in conjunction with trigonometric calculations and (2) by setting the transmitter loop horizontal and measuring the slope angle of the elliptical magnetic lines. Simple calculations are included.

The construction of transmitters and receivers is discussed and a circuit diagram for the transmitter and two alternative diagrams for the receivers included.

In the paper on the New Caledonia Expedition three distinct areas are discussed; the west and east coasts of New Caledonia, and the Loyalty Islands.

Written in the usual "trip report" style, details are given on the topography, descriptions of caves some local history and anecdotes, the whole being neatly referred to two well drawn maps, one of which unfortunately contains no information of scale or magnetic direction . These maps are supplemented by three further sketches which help to illustrate the article, making it generally easy and pleasing to read.

A shorter paper by Elery Hamilton-Smith classifies Cave Fauna collected during the expedition.

Identified are species of birds, bats, wetas, midges, and flies. Material still under examination includes millipedes, springtails and isopods.

Reference is made to the similarity between this fauna and that found in Australia, Malaya and New Zealand.

I.D.W.

ABSTRACTS AND REVIEWS

Annotated Checklist of the Macroscopic Troglobites of Virginia with Notes on their Geographical Distribution

J. R. Holsinger.
Bull. N.S.W. 25(1) 23rd Jan. 1963

Extensive field work in recent years has facilitated the publication of Virginia's troglobitic species. A large number of range extensions remains to be worked out, however and in addition, several new species probably remain to be discovered.

Forty one troglobitic species are presently recognised from Virginia, including:

Planarians,	(2)
Amphipods,	(4)
Isopods,	(3)
Millipedes,	(9)
Collembolans,	(4)
Beetles,	(10)
Pseudoscorpions,	(4)
and Spiders.	(5)

At least fifteen more species in caves and genetic changes within cave-dwelling populations are believed to be causative factors in troglobitic speciation. Certain cavernicolous groups....."are restricted to very small geographic areas and in come cases only one cave system. Othor groups.....are, not restricted to isolated areas, but their range extends over a wide geographic region with the exception of spiders and collembolans, aquatic troglobites seem to be more widely dispersed than terrestrial troglobites. The limestone region of Virginia which was remote from the Pleistocene glaciation contains more than three times as many troglobitic species as the limestone area in Pennsylvania which was close to Pleistocene glaciation."

G.R.W.

The Survey and Improvement of Natural Caverns for use as Fallout Shelters in North Alabama

T. E. Bailey
Bull. N.S.S. 25 (1) 15th Jan.1963

During the Natural Fallout shelter survey recently completed, a significant amount of shielded space was found to exist in natural Caverns. In ninety country areas of North Alabama potential shelter space for 25 per cent of the population was found to exist in caves.

Conditions such as remote locations, difficult access to shelter rooms, ventilation, filtration of atmosphere, stream flow into entrances, infiltration of surface water dampness, rough floors, etc. indicate that improvements would be required before the average cave could be put to use as a shelter. In nearly all cases there appears to be a feasible logical solution to each of these improvement problems. A test shelter programme in whick improvements designed and constructed to operate in a selected cave would be the next logical step in studying this important problem.

G. R. W.

ABSTRACTS

International Journal of Speleology: Pub. J.Cramer,Germany.DM 80 per year This new Journal, appearing along with several other new journals, is clearly in a class by itself. Each year's issues is planned to cover 400-500 pages in four parts; the printing and illustrations are superb quality; and the papers are at top level. It seems clear that this will be the most significant single scientific journal in the field of speleology. Papers are published in any of English, French, German, Italian, and Spanish, each with summaries in one other language. The first three issues contain nine papers in English, eight in German, and thirteen in French.

The contents are divided between cave biology, cave microbiology, and geology, as far as possible in equal proportions.The first issues contain a number of papers on microbiology, several on cave development, one on cave detection by gravimetric methods, and a number on biology. Of interest to Australians is one paper by Dr. W. D. Williams of Monash University discussing the cave occurrence of Anaspides tasmaniae.

The annual subscription could be paid direct to J. Cramer, P.O. Box 166, Weinheim/Bergstr., Germany or to E. Hamilton-Smith. Cost in Australian currency is about £8—— extremely high, but the results are well worth it.Anyone seriously interested in any aspect of cave science will need to have this journal available -- perhaps it is the sort of thing that should be considered for your Club library if you cannot talk another library into buying it.

Williams, W. D. (1965)--Subterranean occurrence of Anaspides tasmaniae (Thomson) (Crustacea, Syncarida) Inter. J. Speleol., 1:333-337.

Records the occurrence of the Anaspides with reduced pigmentation in cave waters at Mole Creek, Tasmania.

Mulvaney, D. J. et al (1964)--Archaeological excavation of RockShelter number 6, Fromm's Landing, South Australia. Trans. Roy. Soc. Vict., 77: 479-516.

A detailed report of the results of this excavation of a shelter used by aboriginals over an extended period.

Merrilees, D. (1965)--Two species of the extinct genus Sthenurus Owen (Marsupialia, Macropodidae) from South-Eastern Australia, including Sthenurus gilli sp. nov. J. Roy. Soc W. Australia, 48:22-32.

Describes Sthenurus remains from cave earths at Strathdownie, Victoria and the Haystall Cave, Naracoorte, South Australia.

Teusner, R.E. (1963)-Aboriginal cave paintings on the River Marne near Eden Valley, South Australia. Mankind, 6:15-18.

Description of a series of paintings in a small rock-shelter.

Ollier, C.D.(1964)--Caves and related features of Mt. Eccles. Vict. Nat 81:64-71.

Structure of this cave, situated in flat--bedded oligocene limestones, is apparently joint-determined with a floor of fallen blocks and ceiling following the bedding.

A.S.F. LIBRARY

Would any person knowing the whereabouts of PHIL MACUMBER (VCES) please ask him to return to the ASF Librarian, 26 Malverne St East Roseville Vol. 17, No. 6 of N.S.S. News. The volume was borrowed Oct., 1963, and has not been returned to-date and is required by another member.

Club librarians are likewise advised of this person's tardiness in returning publications.

G. Wallis,
Librarian.

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MALAYSIAN CAVES — A special issue of the Malayan Nature Journal, Vol. 19 (1), pp. 1-112 (May 1965).

This special issue of the MNJ is a publication of outstanding interest to the speleologist. Although the research done in these caves has been little known to-date, it is clear from a perusal of this journal, that to our North is perhaps of the most fascinating speleological fields yet investigated. Three papers deal with the cave areas of Sarawak, Sabah, Perlis and North Kedah and the general geological problems posed by Malaysian caves. Three deal with the archaeology of the caves - and recent excavations have disclosed perhaps the greatest spectrum of human occupation yet uncovered in any such excavation.

Three deal with the fauna of the caves in terms of general ecology and one with the identification of bats within the region. A closing article on conservation echoes many of the problems facing us here in Australia, with its plea for united and co-ordinated action towards conservation. The author also draws timely attention to the harm done by inaccurate comments - even if these are dramatic - in matters relative to conservation. Exaggeration or distortion of a case will not assist us to gain an adequate conservation policy. One cannot help but be impressed, however with the urgency of conservation which is demonstrated by the whole issue - the archaeological potential alone fully justifies the strongest possible moves for rapid implementation of adequate protection where necessary.

The issue is available from the Malayan Nature Society, P.O. Box 750 Kuala Lumpar at a cost of 12/6 stg. It should be bought by anyone with a serious interest in the general problems of speleology - I have a hunch that many readers would, like myself, be fired to look towards visiting the area at some future date.

A.S.F. COMMITTEE MEETING.

ERRATA: The date is Jan. 29 - 30 not Jan. 25 -26 as on Page Two.

The conference will be held in the Ainslie Scout Hall, Fisher Place, where accommodation has also been arranged. All persons are expected to supply their own sleeping gear and food.

An Agenda is being compiled and will be sent to club secretaries in time for the January club meetings.

Contact Mr. C. Pratt, 38 Simpson St., Watson, A.C.T., or 'phone CANB. 4 -4050 for accommodation or further details.

The conference begins at 10.00 A.M.