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Lumen in Tenebris

SUSS

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End of Volume 16

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PRESIDENT'S REPORT

Guy Cox

It was with some surprise that I found myself asked to stand as President of SUSS. Apparently Randall, my predecessor, had made himself ineligible for re-election by taking a year away from Uni, and it was felt that an academic as President would give some sort of veneer of respectability to the Society. Naturally, it was understood that I would be only a figurehead; Randall would continue to do all the work, thus making SUSS the only constitutional body in the world with both a King and a President.

1976/77 has been quite a satisfactory year for SUSS. An enormous amount of work by lots of people (and even more by Bruce) led to the final appearance of THE BOOK (The Caves of Jenolan II. The Northern Limestone) in the nick of time for the ASF Convention. The year also saw the transfer of responsibility to SUSS for the coordination of tagging at Jenolan, so it is not surprising that caving activity tended to concentrate on that region. Nevertheless the jet-setting members managed to get to New Zealand and New Guinea, and many other members made the pilgrimage to Tasmania, for periods varying from a weekend (!) to three weeks. Most of the NSW cave areas were visited at some time or another during the year, and a big dye-tracing experiment at Yarrangobilly saw SUSS and many other clubs there for the wettest weekend of the year.

CAVCONACT, the 11th Biennial Convention of the ASF, saw a substantial SUSS participation, with 5 members giving papers, and no less than 3 teams in Speleosports, none of which distinguished themselves. Several serious research projects are in progress, the most recent of which are Graeme Smith's study of cave-dwelling silverfish and my own investigation of cave-wall algae at Jenolan and, more recently, at Cooleman Plain. The latter project has received welcome funding from the Australian Research Grants Council which cannot, alas, go to SUSS funds !

What of the future ? (as all SUSS Presidents say at this point in their reports). During the past year an attempt has been made to brighten up our regular meetings by having an organized talk or slide show at each one. The Bulletin is better produced, larger and more regular (touch wood) than ever before. Thus we should be able to retain the interest of prospectives, and look forward to another SUcceSSful year.

Secretaries Report 1976-1977 (Correspondance)

Peter Campbell.

This year has seen reams of correspondence on all manner of issues, varying from permits to bills, to advertismants, to letters of a speleolgdcal nature, and even one letter wanging to know where to buy caving ladders to climb trees.

Bruce Welch started out as General Secfetary and after a temporaty resignation from the Committee I took over in July as correspondence secretary, since we decided that the work load was such that the job should be split. Needless to say, Bruce could not keep away from the Committee long, and is now back as editor.

Several impoftant points in secretarial affairs were learnt during the year. Phone calls are cheaper than letters and can be noted in the correspondance. They are less likely to be misconctrhed than letters when concerning 'delicate' matters. On volatile matters, a second opinion at least should be sought.

Over 100 letters were sent this year and as many received. Much of the present correspondance received concerns The Caves of Jenolan 2: The NORTHERN LIMESTONE. Each month Gestetner sends us a pleasant reminder. Library receipts are discussed in the Library report.

All in all the correspondance relects the high level of activity in SUSS this year, and an indicator of a good prognosis for the next year.

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Treasurers Report

Peter Winglee.

Although SUSS increased its fees for the past financial year it will be noticed that the final balance fs roughly equal to that for the previous year. This is because of the large acquisition of stocks of materials for the production of the Bulletin at low prices, including the production of front and back covers. It should also be pointed out that the trip fees collected were substancially below last years total.

I reccommend the following schedule of fees and prices:-

Family Membership	$9	per year
Full Menbership	7	
Associate Membership	7	
Corresponding Membership	4	
Prospective Membership	4	

with a concession to those prospectives joining during Orientation Week being $1 for membership for Lent Term.

Metal Badges	$1.50
Cloth Badges	.50
Membership Cards	.10

or free to new Full & Associate members.

I should also like to acknowledge and thank the following organisations for grants and loans to the Society that were used to finance the production of The Caves of Jenolan 2: The Northern Limestone.

Students Representative Council	$200	grant
" " "	250	loan (repayable by 14.7.77")
Sydney University Union	300	grant *
NSW Tourist Department	250	ex-gratia grant
Paddy Pallin Foundation	200	grant

* for ongoing activities. This amount will eventually be credited to the Ian Carpenter Equipment Fund.

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MEMBERSHIP FEES ARE NOW DUE

SYDNEY UNIVERSITY SPELEOLOGICAL SOCIETY

FINANCIAL STATEMENT: 1.3.76 to 28.2.77.

RECIEPTS:		$	$	$
Balance Brought Forward 1.3.76				83.41
Membership:	Full	119.00		
	Associate	69.00		
	Family	18.00		
	Corresponding	8.00		
	Prospective	68.50		
			282.50	
Sale of Stocks:	Badges and Cards	6.25		
	Back Bulletins	5.00		
	Wine	22.50		
			33.75	
Dinner Repayments:	U.N.S.W.S.S.	44.25		
	M.U.S.I.G.	17.70		
			61.95	
Miscellaneous:				
	Sale of S.R.C. Ltd Publications	44.25		
	Sale of Jenolan Submissions	10.50		
	Ticket Sales - B. Dew Lecture	19.50		
	Repayment for Speleo Handbook Delivery	13.50		
	Repayment of Jenolan Book Expenses*	8.15		
	Interest on Account 901-001	4.86		
	Donation	.20		
			100.96	
Total Receipts 1976/1977				497.16
TOTAL TURNOVER				562.57
PAYMENTS:				
Administrative			20.20	
Bulletin;	Materials	130.70		
	Postage	69.11		
			199.81	
A.S.F. Subscriptions			124.50	
S.U.S.S. Library Purchases			49.20	
Miscellaneous:				
	Return of Sales Proceeds - S.R.C. Ltd.	44.25		
	Return of Sales Proceeds - C.S.S.	10.50		
	Hire of Hall - B. Dew Lecture	21.75		
	Transfer to Ian Carpenter Equipment Fund	10.78		
			87.28	
Total Payments 1976/1977				480.99
Balance Carried Down 28.2.77				81.58
TOTAL TURNOVER				562.57

* Transactions on Behalf of Jenolan Book Account.

Students Representative Council Grant		200.00
LESS Artwork Expenses	138.03	
Advertising in A.S.F. Nl.	25.00	
Transfer to Book A/C	28.82	
		191.85
Repayment of 1975 Expenses		8.15

IAN CARPENTER EQUIPMENT FUND

Balance 1.3.76		49.53
PLUS: Trip Fees		17.60
Misc. Receipts		9.29
LESS: Tripod		34.00
Rope Subsidy		12.40
Balance 28.2.77		30.02

P. J. Winglee
Hon. Treasurer.

I have examined the books and vouchers of the Society for the period of the twelve months ended February 28th 1977. Having regard to the explanations given, I am of the opinion that the statement is a correct record of the Society's transactions as contained in the books.

Frank Zions. A.A.S.A.

12 Albyn Road Strathfield. Dated March 19th 1977.

Equipment Officers Report

Malcolm Handel

The trend amongst the more active members of the society has been to use single rope techniques almost exclusively for any serious caving. In accordance with this a substancial amount of the equipment used by members is privately owned since SRT requires that equipment receives the very best of personal care. Histories of ropes and other vertical hardware are not easily known if they are continually being handed out from the societies equipment store. As a result it is not society policy to buy large amounts of static rope etc., but there is a rope subsidy scheme whereby trip leaders are encouraged to buy it personally and allow it to be used by fellow members on trips where the owner is present.

Such a setup leaves the SUSS Equipment Store with two functions:- To supply specialised equipment such as surveying instruments and to provide equipment for beginners trips where ladders are frequently used.

List of SUSS Equipment to 27/2/77.

Brunton compass
Forestry compass (SRC).
2 Tripods for Forestry Compass.
Emergency First Aid Kit.
6 Safety Helmets.
Scaling pole 6 sections 10 m total.
3 unserviceable ropes.
61 plastic cups.
Theodolite,stadia, tripod (SRC)
2X 30m fibreglass tapes.
11mm kernmantle ropes 42m, 12m, 7m.
Ladders
50' & wire trace
30'
30'
50' & wire trace
30'
2X 30' without c-clip at ends.

Librarians Report 1975-1976.

Peter Campbell.

The library has seen some improvement over the years although as usual I have been pretty slack. We receive journals from US, Italy, France, Austria, Jugoslavia, Greece, Venezuela, Cuba, Hungary, Niugini, and all over australia. It is hoped increase this list to at least Canada, New Zealand, South Africa, Great Britain, Spain, & Japan next year.

The Library has been made infinitely more useful by the purchase of a set of ASA. Recent books of local interest have been purchased, and a photo library (which will receive any contribution) commenced.

Peter winglee has started the plastic spiral binding of journals into volumes and this will make material more accessible. I thank him for this work.

As a trial, the latest publications wil be brought to the meetings for loan in an effort to increase library usage.

A survey data section will be commenced to keep field books and reduced surveys in a central area. The SUSS Jenolan Map Library Is enormous.

Information of limited interest will also be stored in the library, and it is hoped to build up a list of private owners or speleobooks to increase the library's scope. Multiple copies of library material are being flogged to make room.

I feel that perhaps something should be said about the production of the Jenolan Book although the other office-bearers will no doubt thrw in their two bobs worth.

This book was a major undertaking for an amareur group although the result is anything but amateurish in quality. We now have a large group of book producers who have the requisite skills, which were only gained by trial and error. We must put this obvious talent to use in the near future before the inevitable turnover of membership loses it. This vital because of our commitment to a continuing series of monographs on speleological aspects of Jenolan. Having a book in production is one of the best ways of catalysing enthusiastic useful, systematic, and enjoyable speleological work.

We would hope that the loss of expertise after the Mammoth Book does not happen again.

The library is bigger, better , and easier touse- USE IT!

A RESPONSE TO THE PROPOSED ADDITIONS TO THE A.S.F. CODE OF ETHICS

In his report to the ASF committee meeting, Adrian Davey, as convenor of the ASF Commission on conservation, proposed changes to the code of ethics. This article is my response to his proposals.

Firstly I feel that some broad general principals or objectives should be stated. Why do we need to conserve caves? The answers to this question are: We have no God-given right to destroy them, caves are of scientific value, which is greatest when they are in an undamaged state, future generations and other people have a right to this heritage, and caves are a valuable recreational resource.

The second general principle is that anyone who enters a cave will damage it irregardless of how careful they are. This message was brought home to me when I was attempting some cave restoration. Despite scrupulous cleaning and extreme care in moving around, we left the section of cave in a worse state than when we arrived. Charlie Brown, a Canadian geomorphologist showed SUSS some slides of ice caves, where body heat alone, or firing an electronic flash caused the destruction of ice crystal formation.

This does not mean that because we cannot achieve perfection in cave conservation that we should not strive for it. If people only minimally damaged caves, then the process of self regeneration may cope. This process is as yet poorly understood but may go on at a rate far in excess of what we previously believed.

This leads to the question of how much damage are we going to tolerate? Many factors obviously come into this; 1. Although damage can never be nil, it must be minimised. 2. Damage rate must not exceed the regeneration capacity of a cave (no one yet has any quantitative data on this) 3. We cannot stay outof caves for several reasons. Firstly, we are selfish and will continue caving despite the damage occurring. Secondly, since there are other demands on this resource (e.g. the land over the top as water storage and the limestone as a raw material for industry)of necessi-y an alternative "exploitation" proposal must be put forward(i.e. scientific and recreational caving) because politicians can not comprehend the saving of caves purely "because they are there".

It is within this franework, that any proposals for the code of Ethics should be considered.

The proposals and my response wil now be presented.

1. "They will not camp overnight in any cave". Dunkley (1) has already shown that all Australian Caves can be readily be explored without the need for camping, and camping actually reduces exploration efficiency; this and the conservation disaster that occurs with all camping underground should show that this practise is taboo However there are caves (mainly very deep) in other countries (e.g. France, ? Niugini ? Italy) that <u>may</u> be beyond the limit of a single spate of endurance. Do these caves fall under ASF jurisdiction?(I.e. will ASF members be able to explore these, using underground camps?) Technically, it is possible to remove all wastes, excreta etc from such camps. My alternative is:

"They will not camp overnight in any cave except where exploration is established to their society committee to be impossible by any other means, and that the A.S.F code of ethics is in all repects adhered to."

My reasoning behind the compromise is that if people decide to camp underground on a big expedition, they will despite the Code of Ethics, but may thus be held to think carefully about such a proceedure, nad not leave a mess behind at the end.

2. "They will not smoke in caves" I have absolutely no qualms about this proposal. Smoking in confined space is shown to be harmful to the non-smokers in the group (the passive smokers), the effect on caves is unknown, & is certainly not a positive influence. I have not yet seen a smoking caver who carries an ash tray. If a smoker cannot go without cigarrettes, he should go withiut caves. SUSS has already got a ruling on this issue.

3. "They will not conduct any dig, on the surface or underground without the express prior permissiOn of the landowner (or Management Authority) and their society committe." This will certainly make people think carefully about any excavation. A useful addition.

4. "They will not use any tools other than their bare hands in any dig." At the outset I should state that I think That this proposal needs considerable modification, but that my "rationalisation" is probably motivated by guilt. Perhaps we should look into what sorts of excavation are carried out. In the most extreme case solid bedrock or calcite are chipped and blasted away e.g. the Binoomea Cut at Jenolan. In others rocks are pulled out e.g. J28 (Adrians Folly) Jenolan. Most digs involve glutinous mud being removed or gravel fill from partially filled passages. As far as success goes it is these latter digs which have in the past yielded the "best " results. I rationalise that in participating in such a dig as this, that if there is already an air connection, then the air flow is not going to be significantly disturbed, and that in effect what I am doing is what the next flood may do itself (probably wishful thinking).

SUSS has had an unofficial policy over the last few years that this type of dig is acceptable , but that breaking formation, blasting, or major masonry work is not tolerated. We consider that minor chiseling in bedrock is ok if it means the difference between taking your shoulder through a squeeze or leaving it behind. Such a dig is the first one in J156 Spider Cave, and it is almost impossible the detect where the hacking went on. The dig itself was the widening of a 2 decimeter air space above gravel fill to about 3 decimeters. Ifeel that with this in mind as a suggestion for acceptable digs, that limitation to bare hands serves only a deterrent conservation purposeand makes digging unnecessarily hard work. I believe that a limitation to hand excavation trowels and simple masonry chisels would be more realisticthus eliminating explosives rock wedges, jack hammers, power drills etc toolof a more versatile and destructive nature.

It should also be noted that the object in a dig is not to reroute Eastern Suberbs Railway, and that grotty digs are almost as good a deterrent as gates. Any-

anyone has tried chiselling limestone will know that limitation to masonry chisel eliminates all but the most minor modifications.

My alternative proposal is:4. "They will not use tools other than hand excavating trwoels, will make only minor modifications to bedrock passages with a masonry chisel, and wil keep excavation to the minimum dimension compatible with safety.

£ "They will not use explosives, on the surface or underground, under any circumstances." We know the reasons for not using explosives and the general Speleological consensus is that only yobbos would use explosives. My own wish is that the yobbos of this world were smart enough to think of using explosives, but too stupid to learn how.

6. "They will not construct a gate in a cave without first obtaining the permission of the landowner (or management authority) and their society committee, and ensuring that permanent provision is made for the security of keys."

To this suggestion I recommend the addition of the clause "and encorporaring a design which enables the opening of the gate from the inside without keys" Sufh a design is simple to incorporate to avoid the cry "OH NO! I've locked us in!"

7. "They will not construct a gate in a cave without an accompanying sign explaining the reasons for restricting access, and the circumstances under which authorised visits are possible." Hopefully these signs will reduce the incidence of damage to gates

8. "They will not carry out any water tracing experiments in karst areas without having first carefully assessed the alternative tracing agents available, and selectingonly those which can be shown to present no danger of chemical pollution of the cave or disturbance of aquatic flora or fauna."

I recommend that this be rewritten:

"They will not carry out any water tracing or other experiments, in karst areas without first having assessed the alternative tracing or other agents and techniques available, and selecting only those which can be shown to present no danger or chemical or other pollution of the cave, or disturbance of aquatic flora or fauna, or injury to speleologists visiting the area.

The other threats that come to mind are air tracing experiments, visual pollution (e.g. laying cables for instruments in a permanently defacing manner).

I hope that the ASF accepts these changes to the code of Ethics. I hope my own concessions on digs are not too much of a double standard. If these recommendationsare not accepted, it will be a sad inditement of the Federation, and the future of caves will be gloomy.

Recognition must be given to Adrian daveys enthusiasm in arousing a "microconservation sensibility" in cavers in Australia, and an improvement in behaviour will be largely due to his efforts.

References:

(1) Dunkley J.R. A.S.F. Newsletter No 61 pp14&12.

Davey A. Proposed alterations to the ASF Code of Ethics 1976.
SUSS Bull 16(8):113.

Where to buy your SRT ropes:

Bluewater: Speleo Enterprises, 108 Queens Parade East NEWPORT BEACH N.S.W. 2106.

Super Braidline: Marina Yacht Ropes, Bridon Fibres And Plastics Condereum House 171 West Road Newcastle-Upon Tyne NE991AE U.K.

Kinnears: Ships Chandlers or Kinnears Geo & Sons Pty Ltd 16 Bunn Street PYRMONT 2[illegible] Sydney Telephone 6604122.

Marlow: Ships Chandlers & Abel Lemon & Co. Pty Ltd 204 George Street CONCORD WEST SYDNEY 2138. Telephone 730241.

How much will it cost? At least $1.20 per metre (Bluewater) and up to $200/150m roll of 12mm Marlow Matt finish- i.e. $1.33/metre. Interalp 10mm $1.20/metre from Paddy Pallin Liverpool street Sydney.

It is sometimes possible to get sales tax off. Due to the cost, group sharing of ropes is a good idea. However Club ropes are abused. Thus the best idea is for say 4 people to go shares in a 500 foot roll and the society to subsidise the cost to 25% for the use of the rope on Society trips, under supervision of the owners.

Caring for Ropes: There are a number of important principles to get maximum life and safety out of a rope. The owner must supervise all use of his rope. Protect all sections of rope in contact with rock- it is surprising how abrasive an innocuous looking ledge can be. Do not stand on ropes-roll up the excess at the bottom of the pitch. Carry all ropes in packs through the cave and on the surface. Wash ropes after every trip and dry before storing. Washing is best done in a washing machine, and no detergent is required. We do not know what effect detergents have on the rope. On expeditions, one can pull a dirty rope repeatedly through a descending devise in a pool of water until all the mud is removed(1). Check the rope, metre by metre after each trip for abrasion, flaws, discolouration etc. Chain your rope to store and carry it. fig. (1) Do not expose the rope to excess sunlight, heat or chemicals.

What length To Get: For Australian Caving, 150m is more than adequate, and any mainland cave can be descended with the following lengths: 48m, 34m,27m,20m,18m,12m If you are going on an expedition to a vertical area, ropes up to 100m and more ropes in the 10m region are useful(1) For big deep caves groups of 4 cavers can combine to provide more than enough rope.

Cutting The Rope: A red hot knife does a good clean job and should be run around the sheath to seal it to the core. This can be whipped with coloured cotton or masking tape to code the various lengths.

When is a Rope Worn Out:

When it breaks-- not a very subtle sign. When the sheath is worn so that the core core can be seen(asin Bluewater) When the fibres of the outer sheaty (in e.g Marlow) stop being just fuzzy & little bits hang out along the length of the rope. Fuzziness is not a sign of weakness and does not significantly alter the UTS.(2)

Rope should be discarded when a severe flaw, burn, or laceration is found in the course of routine checking. All these criteria are rather qualitative, but that is all we know about it at the moment. A rope, well looked after & receiving regular use should last up to 3-4 years. You're doing something wrong if they don't. When a rope is worn out, don't just throw it away, use it as a tow rope, a hauling rope, or sell it to an adventurers club and help conserve Australia's Caves. Need less to say you should not put a rope to any other use than SRT if you are going to risk your life on it. If you must use a defective rope. (I find it hard to imagine when you would need to) test it with the weight of two people and put the worst part down the bottomof the pitch.

Rope Protectors fig (2) There is only one type of rope protector really worth considering since it is so much better and safer than any other type that its use should be universal. The only exception is the use of the old hessian bag at the top of pitches where it sit under the rope- provided it is in a stable position. This facilitates getting off the rope at the top.

Julia James and Neil Montgomery have designed a new rope protector (4). This consists of a 6cm wide strip of any resilient fabric- canvass pvc coated cotton, vinyl etc which has an eyelet at either end. It can be made in any length, 0.5-1.0 metres being the popular size. Light cord from the eyelets hold the protector at a given level on the rope. Velcro (that stick together stuff with the little nylon hooks on one side & loops on the other) is sewnonto the strip of fabric- one strip longitudinally down each side of the protector so that it wil wrap around the rope and seal together.(remember to have one strip each of male and female velcro) These protectors can be used in muddy and wet conditions and several can be joined together if this is required. Split hose and non-sealing cloth strips are pathetic compared to these highly effective protectors. Don't forget that protectors can be worn through, and that rope can be worn by friction on a protector.

Protectors are placed on any section opposite any rack face that is is rough or does not run parallel to the r e. They must be replaced in the same place if removed during prussiking. The length of a rope protector must allow for sheath stretch in the rope.

Pitch Rigging

Choice of Anchor: This must be immobile- an excellent belay point is one which is larger than the hole you are going down. Trees make good belays especially since they allow a very strong knot to be tied(see knot section) Size is not always an indication of security, since quite small belay points can be very safe whilst large belay points are nasty to have fall on you let atone give way at the top of a 30m pitch. Beware of bollards in mud. These are often not anchored to bedrock below but sitting in a deceptively secure fashion ready to come unstuck. Beware of anchoring to conglomerate- this is brittle & comes unstuck easily. Beware of calcite- this is a very brittle substance and it is vandalistic anyway. Make sure that your

knot will not slide up off the belay point- very embarrasing just after you have started your abseil.

Safety Tie-Offs: these are highly recommended for all but "Rock of Gibralta" belay points. Leave a long end in you figure of eight or bowline to tie to the secondary belay point. With artificial anchors- (chock stones, jamb nuts, pitons or bolts) 2 anchors are mandatory. You should use a secondary tie-off on any untried belay point.

Traces: These are madeof super tape,(1" hard webbing) 2" terylene tape, or Tiger Tape and are useful to avoid wearing out your rope on the belay point, or if the belay point is away from the pitch. Wire traces are useful- over a long time, they cut into a repeatedly used belay point- e.g. the second pitch in B24 (Oddysey Cave, Bungonia) This can be stopped by coating them in PVC tubing. Wire traces are strong, light, and quick to rig. They do not make good handlines to get from where the rope is attached by a Karabiner. Wire traces do not readily abrade.

Artificial Anchors: Bolts are the most popular- since I have no experience of bolting, my information is from Caflyn (1974) (5).
Bolts: Use e.g. 2½" long 5/16" diameter bolts with the threaded end filed flat on 2 or 4 sides to allow room for debris from the hole. Shorter bolts can be used- they are temporary only. The hole is drilled with a bit 1/16" less in diameter than the bolt being used, to a depth at least that of the bolt. If shorter holes are used, care must be taken to avoid too much leverage on the end of the bolt. A No 12 4" long, ¼" diameter jumping bit in a hexagonal handle is used to drill holes. Holes are drilled by a combination of driving and twisting the drill into the bedrock. Periodically the hole is blown out with a piece of rubber tubing. Spare drill bits are kept for the bolting kit since breakages can readily occur. Bolting requires practice and judgement to produce secure anchors. It is also very hard work- often requiring 20 min per bolt. A new technique from Europe (6) involves self-drilling rawl plugs which are driven into the hole they cut themselves, and then expanded by screwing in a bolt. This may prove faster and more secure. Once a bolt is drilled and placed a metal hanger fig(3) is attached, to which a Karabiner can be clipped. Bolts should be tested before a life is risked on them- this is especially so of old bolts which can be very corroded. Two well-placed bolts provide a secure anchor. Bolting kits are often hard to obtain; you could try Paddy Pallin or Mountain Equipment. Other artificial aids are seldom used in caves, but worthy of consideration. They all require skill in placement; best learnt from rock climbing types. Chockstones also require great care, with attention paid to seeing that the force is always being applied in the correct line. Preferably use a safety tie-off.

The Line Of The Rope: The aims in rigging a pitch are 1. to provide a safe place to get on to the rope or a traverse to the top of the rope. 2. to avoid falling rocks 3. to avoid waterfalls and landing in pools, on delicate formation etc 4. to reduce the number of points requiring protection to a minimum.

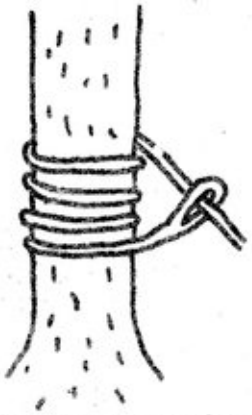
Often a well-placed bolt will leave the rope free hanging requiring no protection at all. This is however frequently at the cost of a safe start (traverses will be considered with other exotic SRT techniques in a later article)

It is important to leave ropes clear of streams. Experience in Danii Brook showed that ropes are chewed up by rubbing and the rocks which are brought down especially in flood (in spite of the rope protectors which were washed away!)

SRT KNOTS. Pull all knots tight before use. It is good practise to have your pitch rigging inspected by someone else.

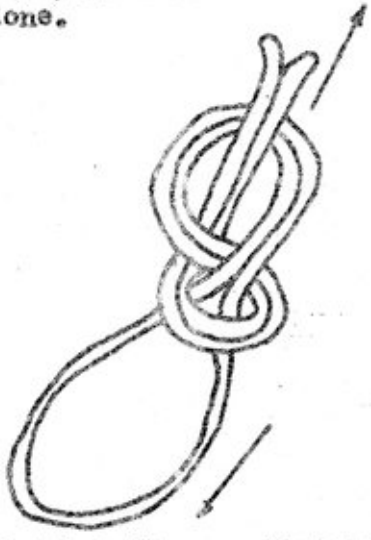
Figure of Eight Knot
Tied in the end of the rope to stop you abseiling off if it's too short.

Half Hitch
You tie several of these in the short end of the rope to stop your knots coming undone.

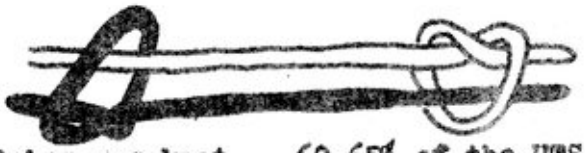


The strongest method of anchoring your rope strength approaches 90% of the UTS.

Bowline-remember to tie your half hitches with this knot. Strength is 70-75% of the UTS.



Doubled figure of eight. very popular SRT Knot 70% of UTS.
Both this and the bowline must be loaded along the vertical axis as illustrated



Fishermans knot. 60-65% of the UTS. in use. you must double the thumb knots to make a double fishermans knot.
A figure of eight to join 2 ropes has efficiency of only 50% of the UTS

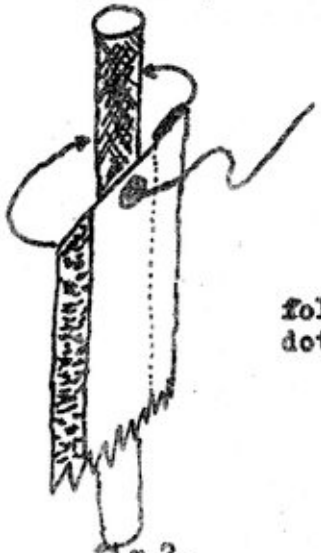
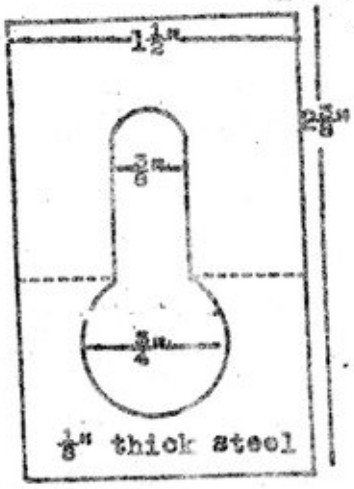


fig 2.



fold along dotted line

with karabiner attached hanger cannot be removed. Here loops not recommended

fig 3. after Caffyn and Montgomery.

Other points to consider are which ledges are going to be easier to cross coming back up, and how easy pack-hauling will be from a certain position. On a long or difficult to protect pitch, retying off to a new belay point (e.g. bolt) part way down is advantageous. It allows 2 people to prussik without necessarily being in tandem (see later article) & means that the abrasive action for the top half of the pitchis greatly reduced. A single rope with a figure of eight half way down will give a suitable secondary belay for the lower pitch, up to the top of the first.

Clearing pitches: Rocks are a major hazard and more prevalent in new caves which have had little traffic. If a pitch is going to be used often then it is a good idea to throw all the loose rocks down before they fall on someone.

Waterfalls: Some people when properly equipped get a thrill out of SRT in a stream of water. Several accidents have occured (8) (9) where people have drowned in waterfalls the hazards of which they did not appreciate

Knots- See attached illustrative pages.

Belaying using static ropes: Top belays for most purposes and especially ladders can be done safely and effectively using SRT ropes. The ideal is a Jumar/gibbs belay (see later article) The rope must be kept taught all the time to avoid shock loads. If the person climbing the ladder complains that you are hauling him up the pitch or that you are strangling him, then the rope is tight enough.

The next article will deal with descending devices and their use.

REFERENCES:

(1) Montgomery Neil In James Julia P & N.G. Speleological Expedition 1973. page 55.
(2) Bosler J. Spar 39:3-8
(3) Annon A.S.F. Newsletter No 67 page 3 section A8.
(4) Pavey A.J. Spar 53:9 April 1976.
(5) Caffyn Paul H. J.S.S.S. 18(4):97-99.
(6) Pavey A.J. Spar 53:9,10 fig9 a-f.
(7) James Julia pers comm.
(8) AAP Reuter Reprint J.S.S.S. 19(10):251.
(9) Foote W. & Meyers A. American Caving Accidents 1967-1970 p18-19.

Whats Happening Overseas:

Labyrinth 14. Details the June/July '76 NSWITSS expedition to the Solomon Islands led by John Weir. 2 Islands, Honiara and Santa Isabel were investigated. On Santa Isabel limestone with an 800-900m releif was investigated an 80m deep cave with a well-presented survey, Kolokofa Cave is Described. This finished in a sump at about 400-450m ASL. In the Honiara area with 700m releif, Mbao Hol was examined and surveyed. The maps are well-drafted but the elevation is at 1:750 and the plan at 1:850. A very useful isometric map which is more than just a block diagram is drawn. The cave was 360m long. Some interesting photographs accompany the article- in all the best potential seems to be on Santa Isabel.

NSS News December 1976 Has a FULL COLOUR COVER. If you want a job surveying in Mammoth Cave National Park (Kentucky) you can be paid $161 US per week. Bill Cuddington (From Bluewater) is now flogging "an alternative source for caving rope", a braided sheath on continuous core Pigeon Mountain Industries rope C/- 3412 Hutchen Ave SE Huntsville, AL 35801.

THE SEDIMENTS OF KNOCKERS CAVERN, ODYSSEY CAVE

GEOFF FRANCIS

Knockers Cavern is the lowest part of Odyssey Cave, Bungonia, being situated about 130-150m below entrance level. The cavern is 46m long and up to 22m wide with the main part being developed along a northerly tending fracture which dips about 65° east (Jamesand Montgomery, 1976). Two underground streams enter Knockers Cavern: the Styx comes from deep caves such as Drum and Grill in the Lookdown Limestone and enters through a rift in the eastern wall of Knockers Cavern to reach the terminal pool (James and Montgomery, 1976). After rain its flow is greatly augmented by water from the ephermeral surface stream which sinks in the B24 doline. Under these conditions the Enipeus flows in a flood channel down the middle of the cavern.

The sediment banks lie mainly on the eastern side of the cavern. Originally the sediments consisted of well bedded or laminated muddy sands, sandy muds and muds with some layers of organic material. The organic material was deposited with the muds because the materials have similar swttling velocities. There were also distinct horizons of charcoal laid down when this material sank after becoming waterlogged. Iron oxides, sulphides and calcite were chemically precipitated within the cave environment and formed distinct laminae within the sediment sequence (James, 1975). Thw sulphides were produced by anaerobic decomposition of organic matter in the sediments and the iron oxides by bacteria which gain energy by precipitating iron from the cave waters.

Because the bands of sediment were laterally continous, James (1975) believed that these were laid down in a permanent pool rather than during transient floods. The absence of mud cracks and mud curls from the finer grained sediment also supports this conclusion. The evidens suggests that a rockfall consolidated by tufa dammed the Efflux and raised groundwater levels in Odyssey Cave, giving rise to sedimentation in Knockers Cavern (James and Montgomery, 1976). Sunsequent excavation at the Efflux lowered water levels in Odyssey Cave and permitted erosion of the sediments. There has been some micro faulting and slumping which occurred because of the low shear strength in the soft sediments.but most of the destruction has been accomplished by the Styxand Enipeus streams which have cut channels in the sedimentfill.

SUSS Bull 16(8):119.

A series of floods since 1974 has greatly reduced theextent of the pool deposits and formed newer sediments consisting partly of re-worked material from the earlier deposits. Along the flood channel of the Enipeus the former sediment layers have been mixed by slumping and contain introduced gravels. These consist mainly of vein quartz, quartzite, greywacke and chert with some quartz-veined sandstone, lateritic ironstone, shale and limestone.

At the northern end of the sediment banks (section A) is a sequence which shows evidence for at least three phases of cut and fill which probably occured during floods that post date the trenching of the Efflux. Up to 2.5m of the sediment sequence is exposed but the base lies below the present floor of the Cavern. In the lower part of the bank well bedded and interlaminated sands, muddy sands and muds are disconformably overlain by 30cm of sandy pebble gravel. The underlying sediment was eroded to depths of 10cm or more before the deposition of gravel. This gravel contains numerous bladed slate and greywacke pebbles which show well developed imbrication indicating a northerly current flow. The gravels could have been deposited either by the Styx or the Enipeus. The gravel has a depositional dip of up to 15° and has in places compacted the underlying mud. This gravel bedhas protected the underlying sediment to a certain extent and given rise to a small peninsula which extends north from the main banks.

Further south the gravels lense out and are disconformably overlapped by crossbedded sands which were deposited by currents flowing west from the eastern wall of the cave (probably the Styx) The planar cross bedding shows primary dips of 20-25° Mear the eastern wall of the cave the cross bedded sands disconformably overlie muds and slightly pebbly muds which contain a few quartz sandstone and shale clasts.

The top set laminae of these sands have been truncated by erosion and are overlain by a few cms of ripple marked sand. The ripple crests are oriented east-west and are relatively symmetrical, suggesting a gentle wash going back and forth alomg the axis of the cavern. An interesting feature of the Knockers Cavern sediments is the variation in roundness of the clasts. The slate and shale pebblesare mostly sub-angular to sub-round, while many of the quartz pebbles are well rounded or have been fractured after rounding. These variations indicate

multiple sources for the gravels since quartz is more resistant than slate or shale and would not be as wellrounded under the same conditions of weathering and transportation.

The Tertiary sediments that cap the divides on the south and west of Bretons Creek contain clasts of wellrounded quartz, quartzite, quartz-veined sandstone and greywacke, so it seems likely that much of the allegenic gravel in Odyssey Cave has been derived from the Tertiary sediment cover. The lateritic ironstone has certainly come from this source but the slate does not appear to be present in the Tertiary sediments and has probably come directly form the Ordovician source rocks through the underground drainage system.

Another significant feature of the Knockers Cavern sediments is the relative absence of graded bedding. There is rudimentary grading in the bed of sandy pebble gravel and several thin sandy beds. but generally the coarser and finer sediments occur as discrete beds or laminae. Graded bedding usually develops if ther is a gradual slackening in current velocity and its abscence here suggests rapid fluctuations in water flow during deposition.

REFERENCES : James,J.M.(1975); Cold Water Mineralisation Processesin an Australian Cave
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James,j.m. amd Montgomery,N.R. (1976): The Geology, Geomorphology, Hydrology and Development of Odyssey Cave,Bungonia.
Helictite 14:5-30

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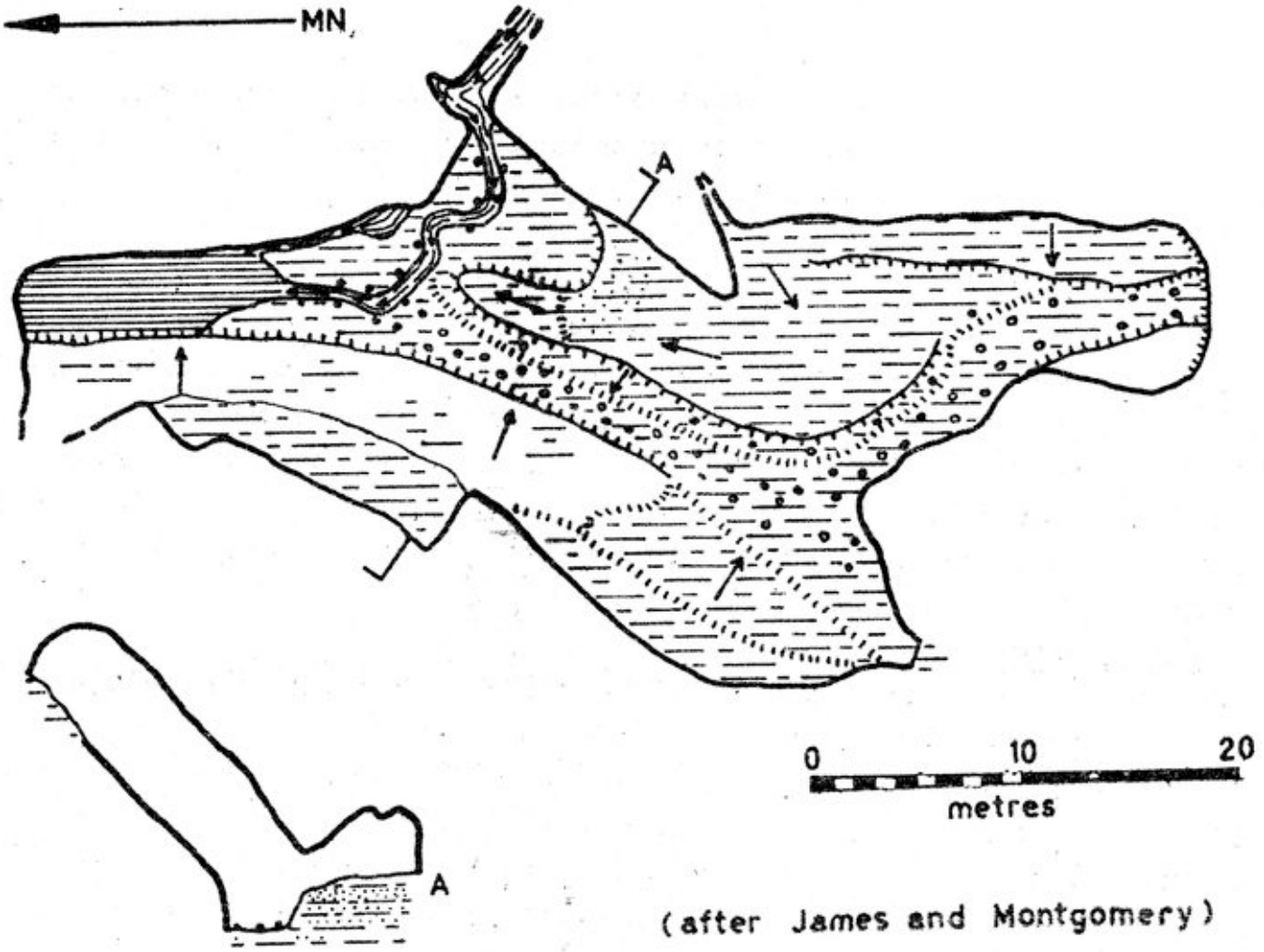
KNOCKERS CAVERN



(after James and Montgomery)

OH GOODY, ANOTHER TOWOLAN TRIP

TRIP REPORT: JENOLAN 11-13 February 1977

P.J.Winglee

Generally a Joint Jolly Jaunt at Jenolan or...

"When you go caving with Holland - you go dutch!"

Present: P. Winglee (L) M. Handel V Morand, B.&C. Spzak J Martineau& Sharon & the cast from S.S.S. featuring R Holland.

Most of the J41 crew from both Societies arrived on Friday night and proceeded to prepare for their allegedly rigourous trip later in the morning by staying up and yarning. Despite this we got up at the obscene time of 7.30am and festered around. Since Sharon had not been caving before, Judy accompanied her on tours of the show caves.

We were underground at approx. 10.00am; Tom Haylor, the cave's rediscoverer, was unable to guide us due to an injured elbow or something. A minor accident occurred while trying to climb the "Laundry Chute". Two members of the fairly large party had to turn back, one with an injured ankle and the other with a possible broken finger. In the former case some of the goading and further assistance up this smooth steep tube may have worsened the problem as he originally wanted to turn back earlier.

The Dig was finally reached where we had lunch and the party showed a distinct lack of enthusiasism for digging. Nevertheless Bob Holland was able to persuade a number of us to look at it and some time was spent poking around and listening for the echoes in the fabled chamber just beyond the dig. A substantial amount of gravel has been removed from this upstream dig representing a great deal of time and effort. There IS a draught - when your body blocks 99% of the passage the flame of a carbide will flicker. Thoughts on the prospects ranged from fanatical optimism (Bob) to scientific pessimism (Malcolm) including exhausted indifference (the rest). The more pertinent question is, however do we need or want more of J41? Even if the new passage here were quite clean and well decorated, the mud brought in by eager trogs would soon destroy its beauty and would just become another part of the cave that "has to be done".

Our trip out was uneventful and we emerged in daylight, having been underground for 10 hours - not a bad time for the size of party I am told. The dreaded J41 mud did not live up to expectations being extremely sticky rather than slimy due to the very dry conditions then being experienced at Jenolan. After dinner a moonlight swim was required and we gave the enthralling JCHAPS meeting a miss as a sales representative was already there.

SUNDAY: SSS entered Mammoth and visited Central Lake and River and reported that the Lake was quite low &the River only a trickle. Jennings Cave was used to introduce some of the visitors to Jenolan caving. Peter and Brian spent the day checking the visitation levels of several small caves: J20, J24, J51, J79 & J174. Later that afternoon a couple of hours was spent in a joint equipment cleaning ceremony in the River Lett.

SUSS Bull 16(8):123.

TRIP REPORT: SYDNEY March 6th. P.J.Winglee

SUSS Field Day: Avalon Sea Caves, the Kings' house & Milson Park Drain.

From a brilliant concept born on the drive home after a sweltering week-end at Jenolan; the S.U.S.S. field day developped into a radically new method of introducing freshers to caving and cavers - after all the most characteristic facet of caving is being undergroung, not laddering or abseilling.

The troops gathered at 12 noon at Avalon and proceeded to St. Micheal's Sea Cave with Bruce Welch leading the way in his native territory. For the rest of us this was a venture into the unknown. Since most of us had considered sea caves quite second rate, this one was quite imposing. The markings on the wall were obviuosly left behind by a primitive, uncultured and probably savage race of people. Despite much prodding, in an unusual burst of modesty Bruce could not be induced to geomorphologise or to recite his 1974 Conference paper.

After this rigourous adventure; we had lunch and eventually drove north to the other side of the headland to examine the Ovens. Some amusement was provided by the way in which a party ahead of us was using a handline down the rocks - being hardier individuals we used a ladder. This cave is also dyke controlled and fairly extensive. It has the added attraction of a calm pool along the length of the cave which some took advantage of. Movement in it was easier than along the narrow ledge and you could get someone else to carry out your gear.

Our ex-P.S.G. guide also knew of another cave slightly further south along the rock platform. Despite a Southerly having already whipped up the seas our persistent little leader demanded that we brave the waves. While P.S.G. could quite easily make itself defunct (being only an associate of A.S.F.) S.U.S.S, having much greater responsibilities, had no wish to meet that fate and so turned back.

A swim then became the order of the day, at nearby Whale Beach and at 5pm we departed for our barbeque at Randall King's place (its not a hole). Thanks must be given to Mrs King for providing such a convenient venue. Beer and other drinks were deliberately in short supply so that the dreaded SUSS White had to be consumed eventually.

After the arrival of the M.U.S.T.G. team, back from a slack week-end at Bungonia, we proceeded to do some real caving. (If you think Sydney is devoid of karst features, where then has all the Bungonia limestone gone.) The expedition now consisted of 10 cars and first descended on Anderson Park only to find the tide too high. Next stop was Milson Park and the drain beside Bradley Ave. At the head of a U-shaped valley was an imposing entrance to an efflux, in the Jennings sense. The stream flow was approx. 0.25 cusecs and the passage immediately bificated but later came together. Close to the entrance, the passage was obviously recently formed with smooth sides of metamorphosed limestone and other minerals. Excitement was provided by a climb that an earlier party had used pitons to get up. Deeper into the unknown we entered the older sections with downcutting in the brick and convict scallopped sandstone passage. There was a distinct break in this ancient streambed by a recent intrusion of Warringah Expressway concrete forming a perfectly cylindrical pressure tube - Joe Jennings take note. Guy Cox tried to escape from the aphotic zone but the oncoming steel creatures on the expressway detered him. In order to pay for this large expedition the party stopped at the terminal sump and collected money from the sediment layers- as well as a library monitors badge. The main party left the cave at Miller St., much to the bewilderment of bystanders and a security guard. Richard Wilson had to fend off oncoming buses lest they fall douw our second entrance. After leaving a Channel 10 news car stopped and the driver got out, but we fled as we did not wish to create sensationalism around speleology.

Quite a memorable field day and congratulations to Brenda, Ken and Susan who lasted the distence.

Lumen in Tenebris

SUSS

BULLETIN
of the
SYDNEY UNIVERSITY
SPELEOLOGICAL SOCIETY

BOX 35, THE UNION,
UNIVERSITY OF SYDNEY,
N.S.W., 2006.

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