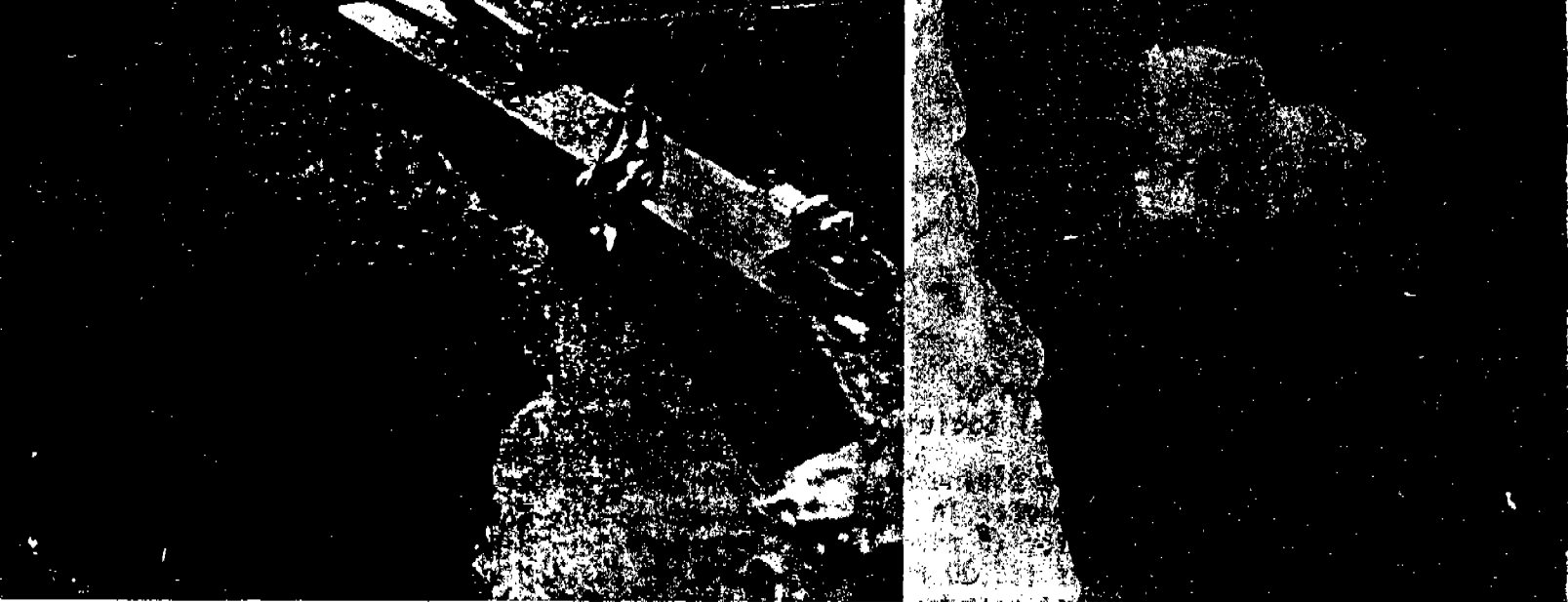


JUL 12 1978



TEXAS!



underwater speleology

OFFICIAL NEWSLETTER OF THE CAVE DIVING SECTION OF THE NATIONAL
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UNDERWATER SPELEOLOGY

published bi-monthly
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by

The Cave Diving Section of
The National Speleological Society

Membership in the NSS Cave Diving Section is open to any NSS member in good standing that is interested in cave diving and has paid the dues (\$3.00 for 1978). Immediate family of members not wishing to receive a newsletter may also join for \$1.50. Persons not wishing to join may subscribe for \$5.00 per year. Checks should be made payable to "NSS Cave Diving Section" and sent to the treasurer, Stephen Maegerlein.

Deadline is the second Friday of the preceeding month. Send articles and correspondence to the editor, Sheck Exley.

Opinions expressed herein are not necessarily those of the NSS Cave Diving Section.

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WHOOPS

We omitted to mention that the excellent shot of Cow Springs on the cover of our February issue (vol. 5, no. 1) was taken by Ned DeLoach.

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COVER

All four cover shots this month are of section member Karan Exley (NSS 16265) at fabulous Jacob's Well just a few miles from this year's NSS Convention in New Braunfels, Texas. Jacob's Well is only one of several sites that have been lined up for cave diving by our members during the convention. Join us underwater this year "Deep in the Karst of Texas."

ADDRESS CHANGES

Robert Goodman, 2133 Corinne St., Tallahassee, FL 32308

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David P. Manor, 1077 Princewood Dr., Orlando, FL 32810

John Wittersheim, 4005 Le June Ave., Titusville, FL 32780

Paul O. DeLoach, 122 Story Lane, Leesburg, GA 31763

Curtis H. Wheeler, 7344 W. Manchester, Apt. G, Los Angeles, CA 90045

NEW 6-MAN RECOMPRESSION CHAMBER

David Desautels, chief respiratory therapist at Shands Teaching Hospital in Gainesville, Florida, reports that the old one-man chamber there will soon be replaced by a much larger chamber at the hospital when a special building for it is completed. Dave, a former cave diver and NSS member (as well as a long-time director of Florida's NACD), usually runs the chamber. The phone number is (904) 392-3441.

MORE TREASURE IN CAVES UNDERWATER

In addition to the sites described in vol 5, no. 1 of *U.S.*, it has come to our attention recently that once every five years the wishing well in Luray Caverns produces over \$32,000 for the Nat.'l Multiple Sclerosis Soc.

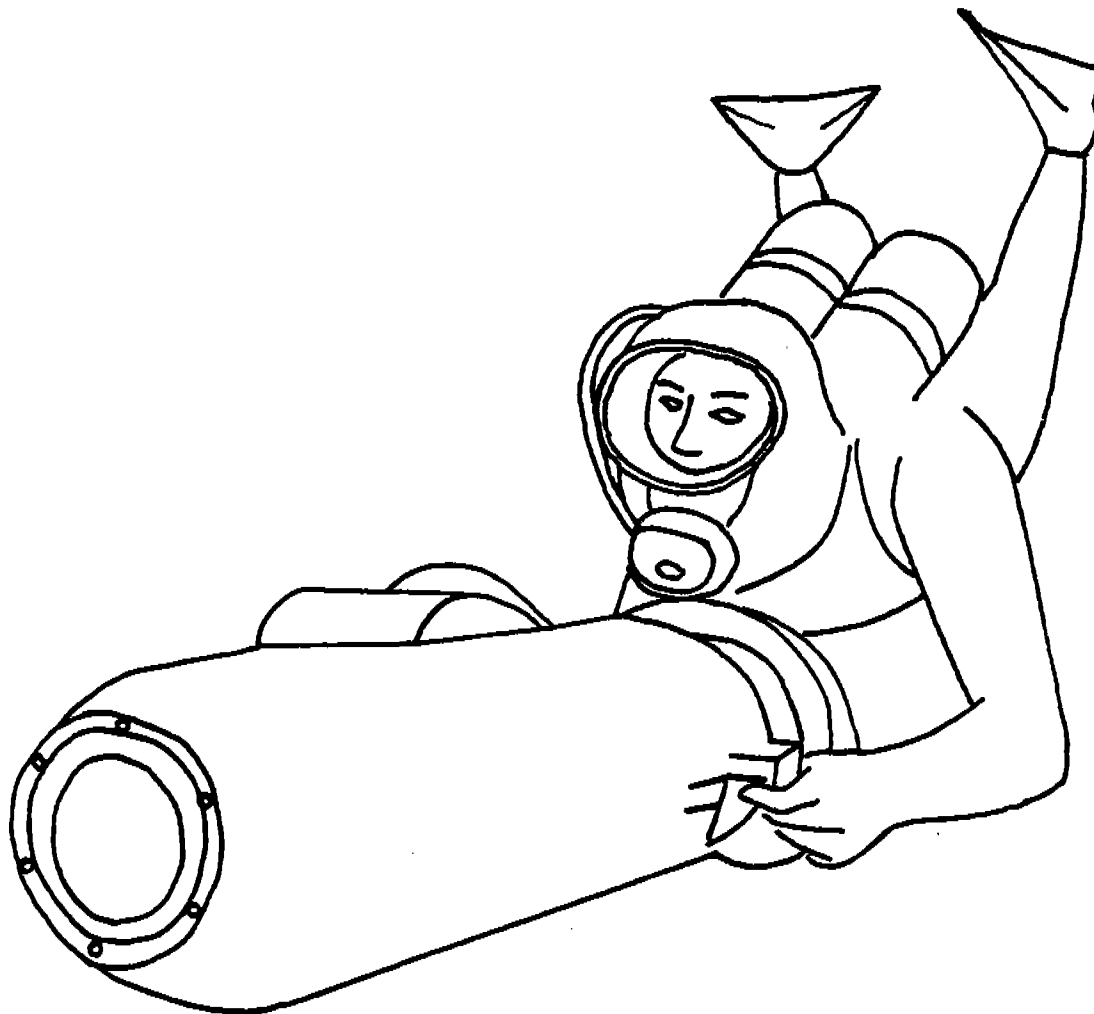
UNDERWATER SPELEOLOGY, June 1978

dpv cave diving

by William S. Morse (NSS 17946)

As technology increasingly brings more innovations to the sport of scuba diving, we must evaluate each as to whether its use in cave diving would be an asset or a deficit. The advent of the DPV, or diver propulsion vehicle, is one such innovation, and this article will attempt to explore its ramifications with respect to cave diving.

Initially we must discuss why the DPV would be considered for cave diving. Obviously the fins a diver wears are his most inefficient means of propulsion. The amount of energy necessary to move the fins and their propulsive force generated require a great deal of muscular effort for the forward movement produced. We therefore use the "pull and glide", "flywalking", "fin kick off", and other such more direct means of propulsion whenever possible.¹ All of these techniques, however, require muscular effort, thus increased air consumption and chance of disturbing silt. The DPV requires no more muscular effort than is necessary to hold onto the handles and squeeze the trigger. When the DPV is held properly the propeller vortices are broken up as they pass the underside of the diver and will not disturb the silt on a cave floor.



There are certain new situations which must be dealt with in DPV cave diving. The first and most obvious is the possibility that the DPV will malfunction and leave the diver at a point from which he cannot return under his own power. To reduce this possibility he must choose a DPV with a proven high reliability record. Of the units this author has used and has had reports of, the Farallon DPV has the best reliability record. These units were originally designed for the US Navy under government contract. Of the different models this company offers, the Mark II is constructed using the most basic techniques. Without a variable speed control to malfunction or a battery strength indicator to leak or short circuit, the unit offers a constant speed using two lead acid 12 volt motorcycle batteries. Protected with spill and vent chambers, the batteries will operate even inverted for short periods of time and with increased maintenance schedules for the motor, wiring, and batteries, the Farallon Mark II has proven so far to be a trouble-free unit.

The two man buddy team is best suited for DPV cave diving with each diver operating his own Mark II. If a three man team is used there is increased difficulty in communicating and keeping track of everyone in the team. Because of the added difficulty in handling a temporary safety line, DPV cave diving should be confined to cave systems where a permanent line is installed and checked regularly.

It is imperative for the same team of divers to make the identical dive using only fins for motive power and insure that they will not exceed their CAS point (*turnaround pressure - ed.*) when they run with DPVs. For this reason a traverse is most readily suited for the DPV dive. If a penetration is planned, the CAS point should be determined by a previous kick in. It is important that the running time of each DPV be known and be calculated into the planned dive time with at least a ten minute safety margin.

Before the diver attempts his first DPV cave dive he must be thoroughly familiar with how to use the DPV properly. He will find that buoyancy control can easily be effected by a slight tilt up or down of the DPV. When the diver stops, however, if he has changed depth appreciably, he must compensate immediately or he will ascend or descend rapidly, as the case may be. For this reason the DPV cave diver must keep slightly positively buoyant at all times to prevent his falling rapidly into the silt should he have to stop for any reason. Also, the divers must practice certain special safety procedures prior to cave entry. They must be able to buddy breathe with the five foot hose while running side by side. The faster DPV must be determined so it can run last, thus preventing the possibility of its outrunning the slower unit. At times in certain cave structures it may be possible for the two DPVs to run side by side or top and bottom to permit increased communications ease and relative position awareness. The owner of the lead DPV may consider the installation of a rear view mirror to facilitate in communications. The DPV headlight is the signal to attract attention. Another emergency drill which must be practiced is the dropping of one unit after a simulated failure and riding "two up" as motorcyclists call it. At all times the diver must be prepared to drop his DPV without hesitation should a malfunction occur. It is always possible to retrieve the damaged unit at a later date.

Once the diver has mastered the DPV, he will find a new enjoyment to cave diving, to be pulled along effortlessly and simply watch the cave around him. The Mark II can be turned easily in any space where it is possible for a diver

alone to turn. In becoming more adept at DPV cave diving, however, the diver must constantly be aware that should both DPVs fail he and his partner must be able to affect a safe exit from the cave.

The author wishes to thank Ernie Smith for the input of his thoughts and experiences.

* * * * *

200 CU. FT. TANK UPDATE

from information supplied by Jamie Stone

The original tank described in vol. 4, no. 4 of U.S.(p. 50) has been discarded because of a lack of a DOT test stamp on the tank. These fiberglass and steel tanks, which hopefully would contain approx. 200 cu. ft. apiece when filled to 3000 psig, were slightly longer and considerably larger in diameter than the 100 cu. ft. @ 2640 psig steel cylinders now popular with cave divers.

Another tank has been located which promises to be even better. Instead of being much larger in diameter than 100's and thereby greatly increasing drag and vertical clearance, they are only slightly larger in diameter (8.24 in. total) and approximately 14 in. longer (38.37 in. total). Jamie and Carol Vilece have experimented with 100 cu. ft. tanks with a 14 in. extension added to the base and report that there are no particular problems; in fact they are easier to put on in that it is possible to squat down and use one's legs for lift rather than the sit down, roll over (hernia city!) and back strain technique we use with 100's. Best of all, they will be DOT-approved for a working pressure of 3600 psig, at which pressure they contain 191.3 cu. ft. of air (203.9 cu. ft. ideal gas) apiece.

Just as with the tanks mentioned in the previous article, these tanks (which are fiberglass and aluminum) will be positively buoyant. Fortunately, it is easier to compensate for positive buoyancy by adding weight than negative buoyancy (as is the case with steel 100's). John Zumrick reports that Sherwood Selpac has an adapter available that will lengthen its dual-valve manifold the small amount necessary to get harness bolts between the tanks. All the tanks will be delivered complete with a machined adapter necessary to make them compatible with valves designed for 3/4 in. diameter scuba openings.

The current estimated cost for two tanks is over \$600 but the final price will doubtlessly largely depend on how many are ordered. No cost will be added to the tanks other than what is being charged by the manufacturer. It should be pointed out that the company selling the tanks is not accustomed to selling in such small quantities but is willing to do so only on a one-time-only experimental basis. Any future orders will have to be in much larger quantities.

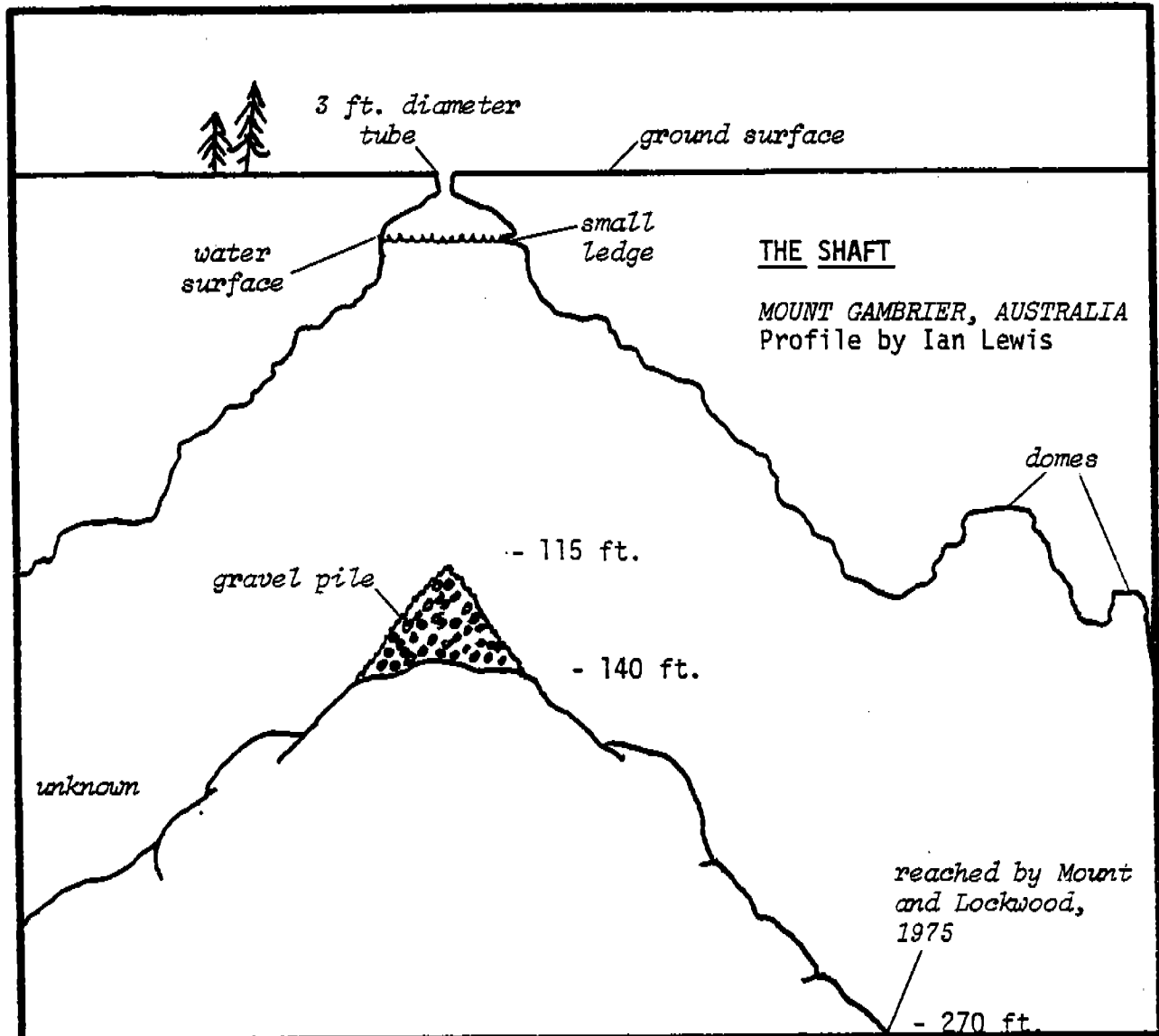
The order will be completed and the tanks shipped as soon as the DOT testing is completed. Jamie asks that a minimum \$200 deposit accompany all double tank orders, and be sent to: Jamie Stone, 1125 NW 36th Rd., Gainesville, FL 32601.

cave diving in AUSTRALIA

from information supplied by Ian D. Lewis

One of the greatest pleasures Karan and I have had was having Ian Lewis visit us for a couple of weeks last fall on the way home from the 3rd International Cave Diving Camp in Great Britain. Not only is Ian a really nice guy, he is also an excellent cave diver and I learned a lot from him. His slide show of Australian cave diving, shown in an informal get-together at Steamboat Bill's, was a tremendous hit. He was also the bearer of some astonishing news: the longest cave dives have not been made in Europe or the U.S.A., but in Australia! The following article is a composite of a pamphlet Ian did for us entitled "Selected Australian Cave Diving Maps" as well as informal conversations and an article by Ian entitled "Cave Diving In Australia" which was published in new series no. 45 (Oct. 1977) of the Cave Diving Group Newsletter. -- Editor

Most cave diving in Australia occurs in two areas, the Mount Gambrier area in SE South Australia and the Nullarbor area considerably further west, although the earliest dives (from around 1950 to 1968) were carried out gener-

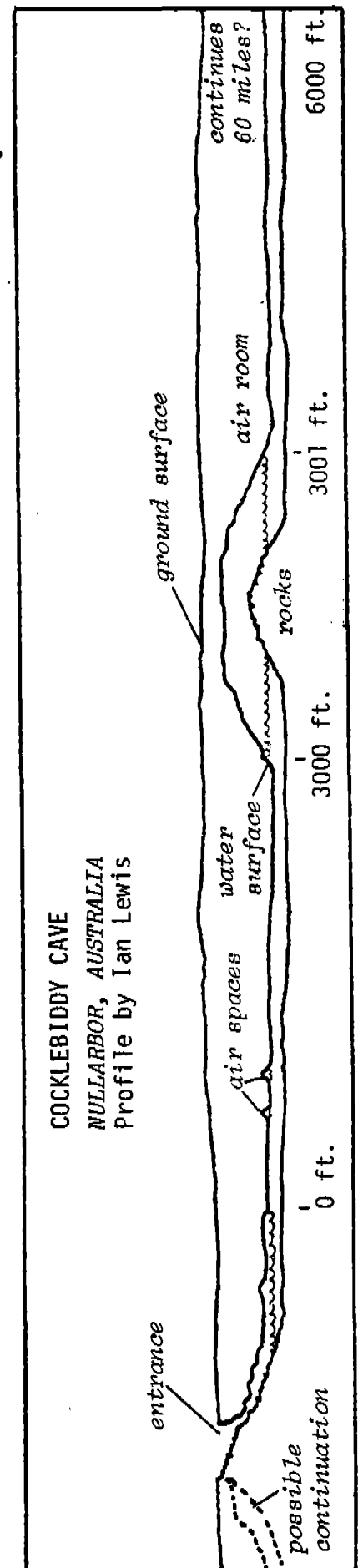


ally in the eastern states of Australia (New South Wales, Victoria and Tasmania). The Mount Gambrier area is probably best known to Americans due to articles in *Skin Diver*, *Dive*, etc., and consists of dozens of sink-holes and fresh-water caves. Visibility is over 300 ft., current is absent and the temperature averages in the mid-50's°F. They range in size all the way up to the gigantic collapses of Piccaninnie Ponds and The Shaft (see map on preceding page), with diameters of more than 300 feet at the bottom. The Shaft itself is probably a gigantic enlarged joint 400 ft. wide and more than 600 ft. long, rather than the classic sink-hole shape.

The Nullarbor area is, as the name implies, a flat, arid area devoid of trees. It is a considerable distance from the populated areas and dives there usually involve long expeditions and considerable planning and support. The caves there are huge horizontal affairs with white walls, 500 ft. visibility measured and a complete absence of silt despite a lack of current flow. Water temperatures are again in the 50's°F, with the sole exception of the sumps in Tommy Grahams Cave, which run 72°F. The water itself is slightly brackish.

Starting in the mid-1960's thousands of sport divers discovered the majesty and thrill of cave diving in the Mount Gambrier area, who unfortunately had little idea of the dangers of narcosis, embolism and the bends. Four deaths were caused by severe silting underwater in smaller caves, but seven more fatalities at the Shaft in two accidents within a six month period led to a public outcry that caused the State Government to call a halt to all cave diving activities within its boundaries, even though the drownings were an extremely small proportion of the number of divers and were due to very poor judgment. This led to the formation of the C.D.A.A. (Cave Diving Association of Australia), which has categorized the sink-holes into easy, difficult and dangerous grades and trains and tests divers in corresponding levels. All cave diving in the Mount Gambrier area is now quietly controlled by the C.D.A.A.

Australian cave diving techniques are essentially similar to those used in the United States. One exception is that wrist lanyards are used to maintain contact with the guideline in caves subject to possible visibility loss due to silting. For long pushes triple steel 72's are used since steel 100's and the other large volume tanks available in the U.S. and Europe have not been cleared for import due to the rigid Australian safety standards. Underwater tank staging similar to that used by Americans in Florida has been used at the "Railway Tunnel" in Weebubbie Cave in the Nullarbor, where the water depth after considerable penetration drops to over 140 feet.



On the longest dive, a 6000-ft. penetration at Cocklebidy Cave in the Nullarbor (see map on preceding page), fresh sets of triple 72's were pushed through the first 3000-ft.-sump for the 3000 ft. push past the rockpile in the air-filled room halfway back. (The editor would observe that the large air space does not really interrupt the penetration in that there is no way of getting out of the cave at that point.) The depth of the water on the ceiling is about 30-40 feet, the tunnel is 80-100 feet wide and 25-30 feet high and there is no known geological reason that it should stop for the next 60 miles!

Persons planning on visiting Australia for cave diving are urged to contact the C.D.A.A. beforehand.

* * * * *

CONVENTION UPDATE

by Tom Cook (NSS 15548)

A number of excellent cave diving opportunities will present themselves to section members attending this year's NSS Convention in New Braunfels, Texas. Jacobs Well will be available all day Wednesday 6/21 to qualified divers. Nearby commercial Cascade Caverns has several possible dives in the lake rooms. Cave Without A Name has no less than 13 siphon dives, but involves a 10-15 hour trip. Another cave only 20-30 miles from the camp in New Braunfels and 8 miles from Jacobs Well contains virgin underwater passage. Four additional dive sites have been set up for sump and cave diving.

* * * * *

NSS CAVE DIVING SECTION FINANCIAL REPORT FOR 1977

by Stephen D. Maegerlein, Secretary-Treasurer

INCOME		EXPENSES	
Dues	\$111.00	Publication	\$272.07
Publication Sales	183.75		
Donations	36.96		
total	<u>\$331.71</u>	total	<u>\$272.07</u>
Balance forward from previous year			\$86.47
Net Income 1977			59.64
BALANCE AT THE END OF 1977-----			<u>\$146.11</u>

* * * * *

AMOEBIA KILLER IN FLORIDA LAKES AND PONDS

In a story in the March 30, 1978 Jax Air News, the Florida Medical Association (FMA) reported that 45 percent of Florida's freshwater lakes contain a soil amoeba that attacks divers and swimmers through the nasal passages. It penetrates the mucous membrane and multiplies in the brain cavity, causing severe headaches, high fever, nausea and vomiting and ultimately death in about 10 days. To reduce the risk of infection, medics recommend blowing the nose after swimming and avoiding long stays underwater. Since it was diagnosed in the mid-1960's, seven people in Florida have died from the infection.

INTERNATIONAL CAVE DIVING COMMISSION
WORKING GROUP FOR CAVE DIVING RESCUE

by Guy De Block, Coordinator

In the course of the 2nd International Meeting of our commission, held from the 1st to the 7th Sept. 1975 at Barcelona, it was agreed that the working party for cave diving rescue should draw up a list of rescue operations, practice or real ever carried out, both in and behind sumps. With such a short time at our disposal, we have opted to obtain information by way of a circular.

The object of the exercise is to find out what has been accomplished with regard to rescue and then to inform all our diving colleagues. In making known the current methods, it is hoped cave divers could eventually improve their rescue techniques. The principal subject is this: the rescue of cavers injured or in difficulty on the far side of a sump. The problem posed is that of transporting an injured person up to the sump, but more particularly through it.

You will find below a series of questions to which we would like answers as clearly as possible. Thank you for your assistance. We will endeavor to redistribute the information to the best effect. Please mail to: Guy De Block; Maison des Arts (E.S.B.); chaussee de Haecht, 147; B - 1030 - BRUXELLES Belgium.

-
- A. Have you ever participated in:
- the rescue of a person in difficulty or injured either in or beyond a siphon?
 - the recovery of a corpse either in or beyond a siphon?

If so, would you in each case

- relate the facts (when, where, names of victims & rescuers
 - give the conditions in the cave (the difficulties of access to the cave and/or in the siphon, time taken to reach it, description of siphon difficulties in negotiating it, obstacles beyond the siphon, etc.
 - detail all the techniques used according to the circumstances and the places with a description of the equipment and material used during the rescue.
- c. the training for the rescue of injured cavers trapped beyond a siphon?

If so, would you state the conditions under which the training was being carried out (where, by whom, object of the exercise, etc.) and inform us of your observations and conclusions.

- d. the development of equipment for rescue use?

If so, describe the material developed and the manner of its use (diagrams, where applicable)

- B. Please send the name & address of other persons who could reply to the above.

