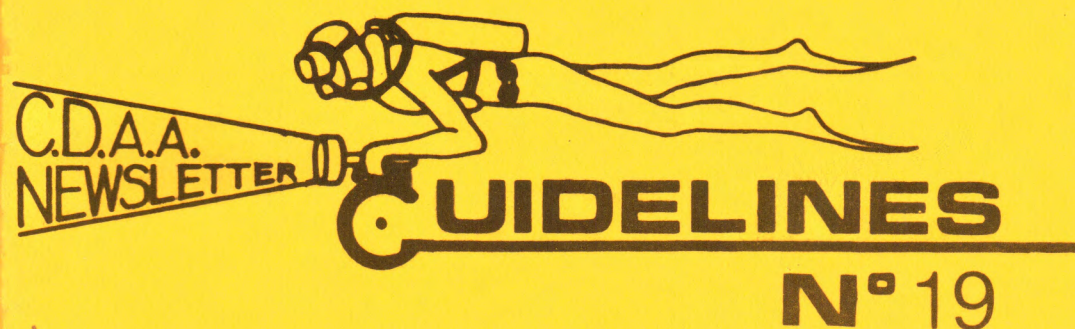


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AUGUST 1984



**CAVE DIVERS ASSOCIATION
OF AUSTRALIA**

(Incorporated in South Australia)

C.D.A.A.

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DIVERS DIARY



ANNUAL GENERAL MEETING - C.W.A. Hall,
Laurence Street, Mount Gambier.
29th September 1984 - Commencing 8 p.m.

GUIDELINES

NEWSLETTER OF THE

CAVE DIVERS ASSOCIATION OF AUSTRALIA.

No. 19 AUGUST 1984

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Editing: Dennis Thamm and Peter Horne. Typing: Peter Horne.

EDITORIAL

It's that time of year again when we see the coming of new ideas and changes in the form of new C.D.A.A. Committee representatives.

In our 1983/84 year, new methods and proposals have been established within our Examining and testing body, that now follow a set standard aimed at training competent cave divers with the minimum of internal red tape. This can be seen as the new examination procedures introduced at the last A.G.M.

The ratification of the CDAA Research Group also leads the Association into its second decade, with more membership participation and involvement to provide better relations between the Committee and those it serves.

The year itself has seen numerous events, including the record-breaking Cocklebidy Cave dives, Ewens Ponds Management Plan proposal, a similar proposal for Piccaninnie Ponds and unfortunately, the tragic loss of two of our members.

Let us all learn from the past year and move ahead into 1984/85 with this in mind.

Dennis Thamm.



DIVER'S ROLE

"The buddy system is mandatory but each diver should dive within his own limitations, and not try to equal his buddy's abilities if it means exceeding his own abilities.

A buddy system is a joint responsibility and each is responsible for the other's safety, and any act which violates the ability to assist a buddy is comparable to a criminal act."

from N.A.C.D. Cave Diving Manual
by Tom Mount.

CDAA NEWS • CDAA NEWS • CDAA NEWS • CDAA

1. NOTICE OF IMPORTANT DIVING SEMINAR

The Scuba Divers Association of South Australia (Inc). and the S.A. Postgraduate Medical Education Association (Inc). have organised a seminar entitled "Diving Medicine : To Bend Or Not To Bend - What Is The Answer?", which will be held on SATURDAY 10TH NOVEMBER 1984 at the Robson Lecture Theatre, 7th Level, Royal Adelaide Hospital, between 1.00p.m. and 5.30p.m.

The seminar addresses the problems of decompression sickness and the important speakers will present the latest findings known to science. Other aspects of diving medicine will also be discussed.

Chairman will be Dr. Tony SWAIN, of the Adelaide Diving Medical Centre, who will also present a talk on the South Australia Situation and a Summary of the talks. The other speakers will be:- Surgeon Lieutenant Commander Des GORMAN, Consultant in U/Water Medicine, R.A.N. and Graduate in Science and Medicine with Specialist Training in Biophysics who will talk on Decompression Sickness and Pulmonary Barotrauma with Dr. Carl EDMONDS, also a Consultant in U/Water Medicine, R.A.N. and author of "Diving and Subaquatic Medicine" and "Dangerous Marine Animals of the Indo-Pacific Region", who will also talk on Marine Bites and Stings; and Dr. Dean BEAUMONT, Chief of Ear, Nose and Throat Surgery, Flinders Medical Centre, who will talk on Aural Barotrauma.

The cost for admission is \$10 for A.U.F. and S.D.A.S.A.-affiliated club members. Application forms are generally available from dive shops or through contacting S.A.P.M.E.A. Inc., G.P.O. Box 498, ADELAIDE S.A. 5001. (Phone (08)-224 5166).

If you enjoy fairly deep diving, please make every endeavour to get there!

2. CLOSURE OF EWENS PONDS / DRAFT MANAGEMENT PLAN PUBLICATION

As most members will know by now, The Minister of Environment and Planning, Dr. Hopgood, released the Draft Management Plan for Ewens Ponds recently, and closed the Ponds at the same time until 1st December 1984.

This was done so that a study of the regeneration of underwater flora can take place during this period, without the interference or effects of divers. Whilst some members may be upset that they cannot dive at present, most will hopefully understand the need for this closure and will assist by keeping away until after the 1st of December. The Committee's recommendations re. the management of the Ponds have generally been agreed upon by the Lands Dept., and we have offered to assist the Lands Department and National Parks and Wildlife Service as much as possible.

Please help us to co-operate by reporting any groups which choose to disregard the present rules. Any queries regarding diver access can be directed to the Lands Department, P.M.B. 124, Mount Gambier S.A. 5290.

3. NEW LANDOWNER FOR "THE SWIMTHROUGH"

Divers wishing to explore The Swimthrough are advised that they should contact Mr. David EASTON, 3 Griffith Street, Mount Gambier S.A. 5290. Ph: (087)-25 1511.

4. PERMISSION FOR DIVING IN "THE PINES" AND "MUD HOLE"

Some confusion still remains in members' minds regarding the best method of gaining permission from Tantanoola Woods and Forests for diving permission. Unlike in the other situations re. access, a letter is NOT required - a simple telephone call to the District Forester, Mr Mick Underdown, is all that is needed to organise a permit. Naturally, you shouldn't leave things until the last minute, as he may have gone away or others might have made arrangements, so please ring him a few days before going to the Mount, informing him of the names of all members of your group (which he will check against a list of Cat. 3 members) and your expected date and time of arrival. Mick is prepared to take calls until 9.30p.m. S.A. time on (087)-34 4098 so that the cheaper Telecom rates can be taken advantage of. You could ring on weekends but it is possible nobody will be around, so remember to call during the week if possible. These easier arrangements should mean that members have no excuse for diving without permission - remember, action can be taken against underqualified members who may be reported by Woods and Forests or even other members. Please help us to help you, and the Woods and Forests personnel who are prepared to assist after hours as above.

5. BARNOOLUT ACCESS

The Property Manager of Barnoolut, Mr. Reg Watson, has asked that all members be reminded of our obligations to minimise inconvenience to himself by making sure divers know where they are going when on Barnoolut property. Reg does not have time to act as guide tour-leader, and would prefer all divers going on the property to have with them at least one experienced person who has been there before and knows the way around. So please, help Reg as much as possible by minimising inconvenience to himself and Mrs. Watson.

As the shearing season is also due to arrive shortly, closely followed by Summer, please also remember that Barnoolut may be closed when shearing commences, and also during the main part of Summer when the risk of fire is great for the entire Lower South East.

Reg is pleased that most divers who have approached him in recent times have been thoughtful and careful not to do the wrong thing. Please keep up this good work!

6. MOUNT GAMBIER REPRESENTATIVE

Since Jenny Ploenges left Mount Gambier, the C.D.A.A. has been without a formal representative who could act as a liaison person between ourselves and landowners, and members or potential members. Ian Ploenges continued to assist the Committee wherever possible without formal recognition due to his very tight schedule, but recently, he has indicated that he is prepared to act officially. Welcome, Ian - here's hoping our relationship is a happy and fruitful one!

7. PICCANINNIE PONDS RESEARCH GROUP PROJECT

As has been mentioned recently, the CDAA is preparing to undertake a mapping study of Pics. Here's YOUR chance to learn some basic underwater mapping skills and help ourselves and National Parks! So, put your pen to paper and write to the Research Co-ordinator through the S.A. CDAA Address. We hope to commence work shortly.

OUR ROLE IN CAVE CONSERVATION

by Peter Horne.

What do the waterfilled caves and sinkholes of the Mount Gambier region mean to you? Are they merely great places for proving your ability to carve your name on a wall deeper than other divers, or do you appreciate them because they are precious ... natural cavities which formed perhaps millions of years ago - and every one unique?

Those 'holes' didn't just appear overnight from nowhere. Each and every cave is a rare breach between the underground and surface worlds, and in fact, until the 1840s, all of these holes - yes, even the Little Blue Lake, The Sisters and Elä Elap! - lay virtually untouched and unpolluted by human beings (save for the odd Aboriginal who might have sought shelter in the alcoves).

The first known dives in the sinkholes took place around the year 1962 (although some brave individuals might have previously had a look here and there), shortly before Piccaninnie Ponds "Chasm" was discovered from rumours from eel-fishermen, apparently. Before these dives, however, white man had already mutilated most of the larger features - they dropped cars, stones, and animal wastes and bodies into many of them, filled the others with rubbish and poisons, and blew up the walls of the more "drinkable" lakes so that stock could walk down to the water, as most sinkholes were sheer-walled or undercut, with typical drops of around 8m to the water's surface. Naturally, the rubble from these efforts usually found its way to the bottom as well.

Compared with damage of this scale, many divers can't see how their simple graffiti cut in a dark, crumbly wall underwater could be of consequence. In some ways, they are correct - over geologically short-periods of time (say, 1 million years), probably all of our current sinkholes will have changed to the degree of being unrecognisable. Whole massive collapses would have occurred, and walls which didn't would gradually dissolve away further, opening the cave into a still larger cavern.

However, I believe that we should be thinking in terms of human time - the next generation, perhaps your sons and daughters who might wish to take up cave diving with who-knows-WHAT sort of diving gear in say 30 years time. Caves, like everything else, are born, grow and die, becoming one with the earth again. During their millions of years of existence, though, they can act as individual time-capsules, each site harbouring specialised creatures and very special cave formation which can often be of immense scientific value.

For instance, the plotting of cave features and study of wall fossils or sediment layers might assist with the study of the land of thousands of years ago - e.g., the fossils of long-extinct animals found by divers in Fossil Cave near Tantanoola only a few years ago. A "living fossil" very different from these, was also found in the same cave in 1981, and this could possibly be only the "tip of the iceberg" due to the very poor documentation which has been done to date in the caves of this region. The huge "spires" on the walls of Black Hole might represent many thousands of years of growth of bacterial colonies. At the moment, we can only go on guesswork.

We should take care not to introduce foreign or toxic substances into cave waters too. Phosphorescent dyes and broken "night sticks", whilst apparently very pretty for some are fatal for many of our unseen water companions - insect larvae, fish, crustacea and sponges, to name a few. The caves themselves are far from being sterile, as many popular authors would have us believe. Life forms are often just as numerous, but less obvious. Some are transient water-dwellers, using the cave waters for their larval stages of growth - the underwater "crickets" often seen in Black Hole, for instance, are May Fly larvae. Fully grown, they will take to the air.

The permanent underwater residents are, as was mentioned before, poorly documented or understood. The "living fossils", syncarids, found in 1981 in Fossil Cave and currently being described by the South Australian Museum, are classic underwater cave life-forms - blind, living in near or total darkness, and possessing extra-long sensory antennae or feelers etc. The role we cave divers can play in assisting science generally is vast and not fully tapped.

Who knows what future discoveries will be? What lies under those beautiful, great boulder slabs we see littering the floors of the sinkholes? Only time will tell!

In the meantime, we should all try to actively participate in protecting our underwater heritage, even if this includes protecting them from ourselves to some degree. That next demonstration of siltouts in caves COULD change the course of history for the sensitive inhabitants of the living 'time capsules' we enjoy exploring so much.

★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★

BEYOND REALITY

by Brian Dohnt
Safety Officer
South East Scuba Divers (Inc.)

HOW VALUABLE is Human life? How deep is the safe diving limit? Easily answered questions as we all know, but how do you answer the problem of overconfidence, or perhaps the avid thrillseeker, the diver who says "I can and I have"?

In all sports we have achievers, people who can do better, go faster, compete better than the rest of us, but in Scuba diving, especially sinkholes, I wish this were not the case.

I refer to those side caverns, the nooks and crannies, the tight squeezes where danger is multiplied to "extreme", and "beyond reality" of safe cave diving practice!

We all know how it feels to hear of loss of life in these situations. Does the message really get through, or does it fade away as quickly as it came? I hope not.

Remember what could happen, reassess yourself, rethink and don't place yourself in a position of foolish, dangerous diving, and if you do, I hope your buddy has more intelligence and refuses to dive!

Dive safely and within the limits.

DIVING THE 'GROTTE de la 3e' -

The Isle of Pines New Caledonia

by Dave Cowan.

After a morning outrigger cruise in the rain on Oupi Bay, Tony Koltz took three of us in the VW Ute to the lush rainforest on the western side of the island. The objective of the afternoon was to dive in a freshwater-filled cave.

After gearing up and a dive plan briefing beside the parked vehicle, we followed Tony along the rugged trail under the forest canopy. Soon an overgrown pothole appeared on our right. Long ago, the ground had collapsed here allowing access to a large underground cavern. We entered through the person-sized portals.

The dry cavern has all the classic formations (ie, speleothems) such as stalactites (the things hanging down from the ceiling), stalagmites (the things sticking out of the floor) and numerous columns linking the ceiling to the very slippery floor. Vandals have broken some of the delicate speleothems and left graffiti on the larger features. Careful examinations showed that the cave was no longer "active" - that is, dry, thus the stalactites and stalagmites are no longer growing. At the muddy beach, we made final buddy checks and filed in after Tony with torches blazing.

The underwater caverns appeared to be pitch dark at first. Eventually one could perceive some natural light filtering in from above. Meanwhile, the caverns were artificially lit by a host of torches, movie lights and strobes.

The water was gin-clear and the viz. about 15m. Just above the silty floor, I could see a layer of haziness or shimmering - evidence of a Halocline (an interface between waters of differing salinity). The water temperature was quite pleasant considering that I was using a 3mm surf suit without a hood!

The caverns have a Baroque quality when compared to the brutal proportions and detail of Mount Gambier sinkholes. Delicate straw stalactites hang from the ceiling (Watch out for your heads!) Towards the edges of the ceiling, regular stalactites appear individually then blend together into draperies, and then into rows of columns which Tony called "Organ Pipes". I found some formations which resembled the hideous Medusa of Greek mythology, while others looked like frozen waterfalls (I think these may be called 'flowstones').

Occasionally, I could see tempting little side passages leading off from the main trio caverns.

Eventually, we surfaced in the lake at the top of the map, in a dry cavern lit from an opening nearly overhead. After a chat, we returned underwater to our entry point.

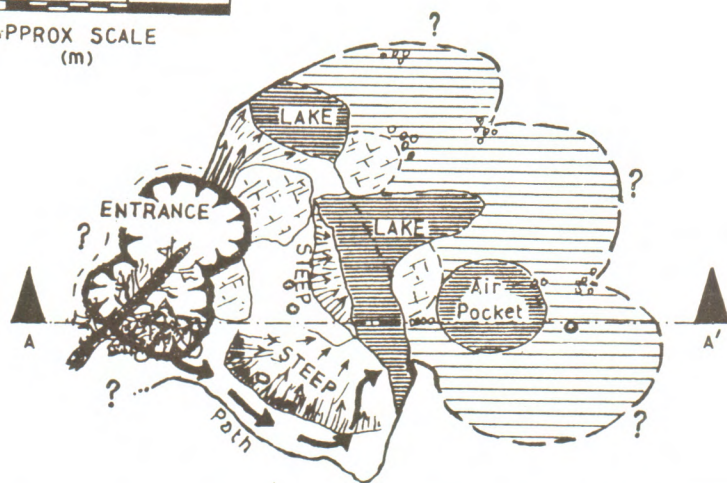
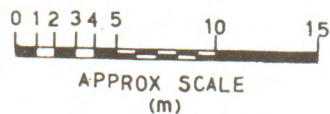
Diving in this cave is strictly controlled. We were only allowed to do so after being checked out on our previous sea dives (including two in a network of caverns and tunnels filled with painted lobsters and soft corals). We dived in small supervised groups. No reels were used as only known areas were explored. Air supply was monitored regularly; in addition, the dives were short and shallow. We were also advised to float high in the caverns to avoid silting.

(For more information, contact Tony Koltz & Abenta Thoma, Nauticlub, BP 18, Isle of Pines, New Caledonia (or Aquarius Travel)).

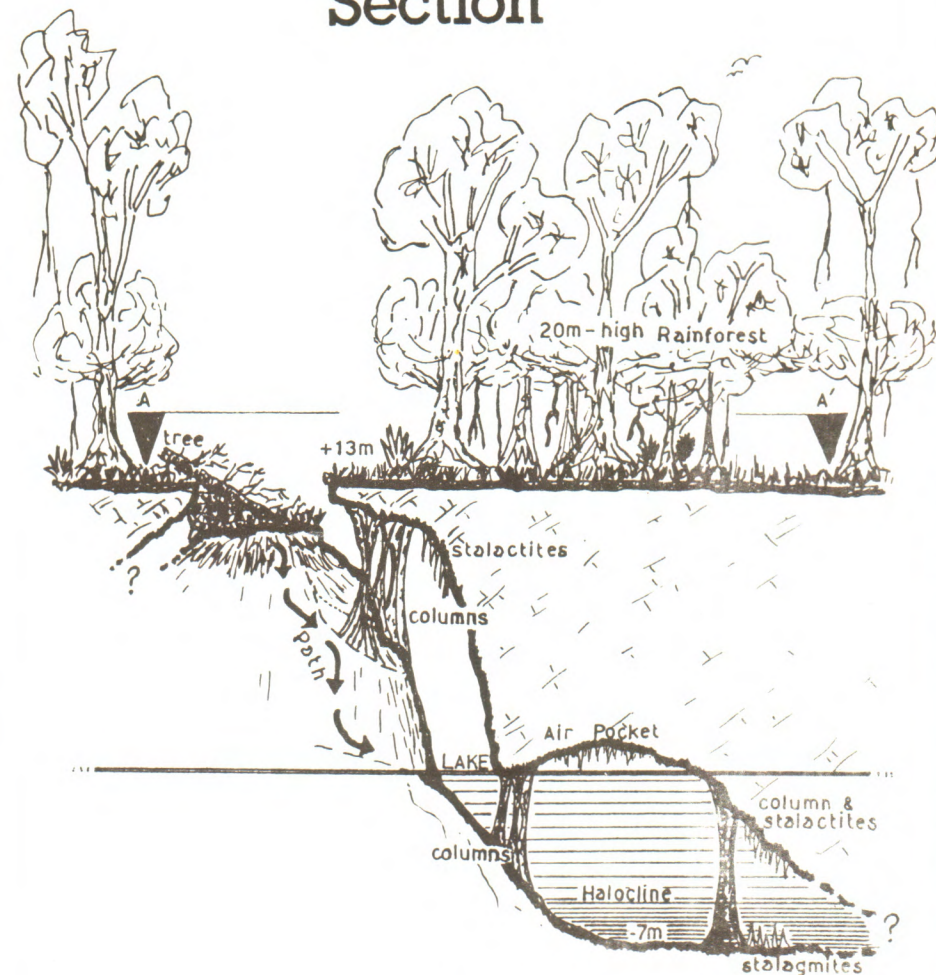
Grotte de la 3^e

The Cave of the Three Sections
The Isle of Pines, New Caledonia

Plan



Section



© 1983
David Cowan (redrawn by P. Horne)

THE **REAL** RISKS OF DEEP OR REPETITIVE DIVING

by Peter Horne.

Many of our members regularly undertake cave dives under less than ideal conditions - fatigued after a lengthy overnight drive from home, weak through lack of a good breakfast and rushing to meet deadlines, as well as enduring the suffering of bitterly cold conditions and hard work in the form of gear-lowering and ladder-climbing. Added to these factors are other, less obvious aspects which increase our individual risk, day by day and dive by dive, to becoming afflicted with the often talked-about, but still poorly-understood, Decompression Sickness (popularly known as "The Bends").

Until fairly recently, we generally believed that the simple adding of some kind of "fudge factor" would greatly improve our chances of remaining safe - because generally we are nowhere near as fit as Navy divers. We automatically might add the next longest time increment to our dive profile for decompression purposes. Cold conditions and some work at depth meant another time and depth increment for many divers. Other members seem to be under the impression that such "conservative" decompression is not needed. According to the Tables, some 3-5% of Navy divers develop decompression sickness on the U.S. Navy air decompression schedules, but what is not often recognised is that these statistics were arrived at mainly from SINGLE DIVES UNDERTAKEN WELL WITHIN THE NO-DECOMPRESSION LIMITS.

Recent studies have confirmed that relatively shallow single dives are good candidates for decompression sickness. For example, 4 dives who recently performed 30-40 minute dives to 60 feet (18m) developed decompression sickness. It would seem that even the shallow calculations require urgent and dramatic revision.

Another area of concern is the whole theory of bubble formation in that the schedules (whether USN, RNPL/BSAC or AS2299) all work on the basic assumption that bubbles only form when the partial pressure of inert gas in a tissue exceeds ambient pressure by some amount. This has been shown to be wrong - bubbles will form when the partial exceeds the ambient pressure by ANY amount.

The problems and risks of repetitive diving are very interesting. Twenty years ago, Val Hempleman performed experiments to determine what ratio of partial pressure of inert gas in tissues to ambient pressure produced joint pain in 50% of goats. This ratio was used to calculate "safe" decompression. He then found that, if a dive not approaching this ratio was done, that after a 90-minute surface interval and a second dive, the ratio changed completely, producing symptoms well below the calculated ratio! This occurred DESPITE the fact that Hempleman took both gas loads into consideration. This means in effect one should be ultra-conservative when performing a repetitive dive. The level of risk for triple dives is almost unthinkable high. Remember, your body eliminates gas at a far slower rate on repetitive dives - something YOUR tables have NOT taken into consideration.

It is the opinion of the experts that no-decompression limits should be considered as a maximum limit that should not be approached. All diving below 8 msw should be understood to have a high risk element, and any dive within 12 hours of a previous one should be limited to 9 msw. Whilst such recommendations may seem over-conservative, in view of the variables and uncertainties inherent in our activity, all divers who are truly concerned about absolute safety should consider these facts carefully.

(Rewritten from information kindly supplied by Surgeon Lt. Cdr. Gorman, School of Underwater Medicine, HMAS PENGUIN NSW).

CAVE DIVING INCIDENTS -

FOOD FOR THOUGHT!

by Peter Horne.

Virtually all cave divers at some time or another have unexpected problems or 'near-misses' during the course of their activities, but few details of such incidents are reported to the Association or "Project Stickybeak", the Australian centre for collation and dissemination of diving accident and incident information and statistics. This unfortunately means that serious potential problems are not widely known or discussed, and it is with this in mind that this article is presented here.

Accidents are defined as FATAL outcomes of diving problems, whilst Incidents, as severe as they might be, are NON-FATAL - ranging from apparently simple problems (running out of air and performing free ascents etc) to hospitalisation or permanent incapacitation.

Cave and sinkhole dives, to be undertaken with safety, need to be considered, planned and executed almost as though the divers were astronauts, simply because in many ways, we are as much on our own as they are. Self-confidence and ability, continual awareness of the environment and equipment (squeezes, amount of silt in motion, slackness of guideline etc) and your buddy/ies status and dive plan are all equally important aspects leading to safer cave diving. The final outcome of even the simplest problem whilst in a cave largely depends on the situation at that particular moment. A guideline reels which jams during entry is a nuisance, but it can become life-threatening during a silted-out, difficult exit. Always remember the good ol' "Five Ps" - Prior Planning Prevents Poor Performance.

Below are a few incidents which have been reported, the more recent of which have generally been carefully documented. Anonymity of the "victims" is assured to avoid embarrassment or other repercussions. Problems can be many and varied:-

- (a) In the early days, a diver severed his airline clean through on some disguised wire, forcing him to perform a completely unexpected free ascent from 36m. Upon surfacing, he could barely breathe and coughed out copious amounts of blood-flecked froth, but after gargling with water he felt better, so went home, got onto aspirin and rested for a week. He apparently recovered, but never dived again.
- (b) A group of 4 divers at 33m were startled when they heard a sudden, very loud "BANG!" and saw an 'inverted pyramid' of bubbles pour out of a diver's first stage. His buddy rushed over with his spare mouthpiece extended for use, but the diver found that he could still get air, so they commenced the ascent with 1500psi. Four minutes later, after reaching the surface, the tank was almost empty. The regulator, a DACOR PACER 900, had only done 35 dives from new since purchased 3 months beforehand. The mechanic found that a high-pressure O-ring in the swivel section of the first stage had somehow dislodged (possibly during initial assembly), and the regulator worked almost normally since that time.
- (c) Two divers exploring a particularly tight section of a silted-out cave moved single-file until they decided to turn around and exit. However, the line-man became wedged during his exit, blocking the way for the reel-man as well. After many very anxious minutes, the diver who had been wedged finally found his way past the obstruction, and they both exited without further incident. This incident occurred despite the correct use of lines by very experienced cave divers. At least three similar incidents are known to the author.

- (d) Another two divers, undertaking their first Category 2 sinkhole dive, were exploring the 30m level with one diver being situated about 1m above and to the right of his buddy. The top diver, realising their bottom time was nearly up, began a roll/descent turn to signal to his companion below, when he suddenly felt himself starting a more drastic spin, and an uncontrollable ascent. At the same time, his buddy noticed a rapidly descending object pass him, just to the right of his head, and recognised his buddy's weightbelt as it plummeted down into the gloom. He saw his buddy ascending at speed and commenced his ascent as well. Fortunately, his buddy, grappling along the sheer wall of the sinkhole, finally managed to get himself wedged under a small ledge at about 5m depth, and then ascended due to the dive being within no-deco time. It was later believed that his weightbelt had unbuckled itself either due to wetsuit compression alone (the buckle was the old wire-loop style which is held in place by tension) or being bumped by a torch. Either way, the incident could have been a serious accident if the belt had hit his buddy's head or body, and if it had occurred at the conclusion of a lengthy deep dive.
- (e) A team of six divers were exploring a very popular waterfilled chasm at night, when 2 of them found a body-sized hole in the wall at about 25m depth. Diver "A" first looked in, then backed out and moved up about 1m so that diver "B" could have a go. Diver B, realising the hole was too small to allow access to a diver with full gear, also slowly backed out, but when he tried to descend a little to avoid contacting his buddy just above, he found that somehow, they were connected together. Diver A had in fact noticed a strange "click" noise whilst diver B was moving back out of the hole, and felt along his gear and hoses, searching for a possible hook-up point. Diver B moved carefully to the left and right, and arched his back, to no avail, and was about to remove his tank when his companion, with a chuckle, found the problem and separated. Somehow, a small snap-hook similar to a climber's 'carabiner' which he wore on his torch battery-pack, attached to his weightbelt for securing the light head, had snagged on diver B's tank valve/regulator first-stage attachment area - possibly by clipping over the yoke screw past the knob, or even, perhaps, by sliding over a yoke leg along the tank valve. Although the problem was not seen as serious at the time, things could have been different under different conditions.

As you can see, the types of problems encountered range from the "common" (silt and confinement) through to the completely unexpected.

These reports are presented here in the interests of furthering cave diving safety, and I hope they will indicate why divers should report any diving incident, thereby helping Project Stickybeak to help us all. Please forward such reports (anonymity and confidentiality of personnel etc. is assured if required), detailing important facts such as date, location, time, depths etc. to the CDAA in your State, and Project Stickybeak, via Dr. D. G. Walker, P.O. Box 120, NARRABEEN NSW 2101.

Maybe YOUR report will help save a life!

HINTS FOR SNORKEL AND SCUBA DIVING IN PICCANINNIE AND EWENS PONDS

Due to the delicate nature of the freshwater ponds in the Mount Gambier region, divers must take particular care to prevent further deterioration of these unique aquatic environments. These few disciplines will help you and those behind you to enjoy the ponds, and will certainly help save them for your children to see. Conservation now will also help prevent further restriction of access to divers in the future.

The amazing clarity of the water in the ponds is due to the naturally-occurring dissolved limestone particles. These attract suspended silt from the surrounding water, eventually forming a mass heavy enough to sink to the bottom. This process gives rise to the powdery silt layers on the ledges, walls and floors of the ponds. Disturbing the silt causes it to quickly rise and foul the water. One careless sweep of a fin can result in a very embarrassing "silt-out". More importantly, constant disturbance of the pond floor retards growth and inhibits any hope of re-growth. There is already disturbing evidence of this on the barren floor of Ewens Ponds.

It is best to avoid any contact with the bottom and sides of the ponds. Treading water in shallow areas while adjusting masks or to see where you are is particularly damaging. Assuring your equipment is comfortable and properly adjusted before entering the water will help you relax and minimise unnecessary finning.

Remember, a diver in fresh water requires about half the lead weight normally used in the sea.

Aimless exploring amongst the reeds and shallow areas will achieve little but a trail of destruction that may take years to repair.

For snorkellers who wish to prove their prowess at breathhold diving, do it in the Piccaninnie Chasm. It is no achievement to descend to the floor of a shallow pond to disturb the bottom in a frantic rush to return to the surface for air.

Scuba divers must always wear a buoyancy vest and more importantly - use it! Use your vest constantly to control contact with the floor. If you must land on the bottom (to take photos for example), choose a sand patch and try to do it gently. When finning close to the bottom use a finning technique popular with cave divers called "shuttle kicking" - swim with one foot above the other, the top one finning, the bottom staying motionless to break the surge - it works.

Disturbing birds, fish, eels, yabbies, freshwater crays, tortoises and other wildlife will only make them go away.

Above all, take care on your dive and don't thrash about. Try and gain an impression of the ponds without making an impression on them. Someone may be coming in behind you, and that someone might be you.

Russell Jeavons.

CAVE DIVING AND DRY SUITS

by Ian Lewis.

Cave diving is one of the most advanced branches of sport diving because of the demand for different techniques and added safety considerations. Through the pioneering efforts of the American cave divers, the industry became aware of the marketability of such diving equipment as octopus rigs and lighting systems, although they haven't got around to mass producing Nullarbor sleds and cave locating detectors yet! However, one development which has great application to our particular sport is the Dry Suit.

Dry suits are not a new idea by any means, but have generally been ignored by sports divers and the industry since they are regarded as important to professional divers and have seemed too elaborate for leisure use. But recent developments in suit manufacture are now bringing dry suits to within range of the sport diving public who live and dive in cold temperate waters - including caves. And it is now being widely recognised that dry suits are becoming very popular as a practical and effective means of enjoying cold water diving - both in the water and standing around between dives.

The advantages of staying warm and dry for extended periods in the water are many, particularly for instructors, research divers and cave explorers. You don't lapse into a mild hypothermic state or start to lose the sensitivity of your hands, for instance, which allows efficient use of your underwater time for whatever tasks have to be done. Similarly, you don't get into the phase of slowed reaction time mentally, so that when other problems arise you're still able to cope as well as at the beginning of the dive. This has particular importance for cave diving where so many things can go wrong at any time during the dive. It also has great significance for cave diving training and instruction, or for that matter any training in cold water.

Some Facts And Fiction.

Quite a lot of popular misconception exists about dry suits, due to the usual diving reason of the uninformed being advised by the ignorant or prejudiced! Much of this mis-information is derived from the old concepts of drysuits being little better than the hard hat and canvas brigade. Not so. Today's modern sports diving drysuits are lightweight and flexible and tailored to size if you wish. Two different basic designs currently exist ---

1. Neoprene body-contoured
2. Loose-fitting lightweights

The Neoprene body-contoured suits are slightly bulkier than a wetsuit and are usually made from 5mm neoprene. They do not require very much internal air volume for warmth and buoyancy adjustments, but allow enough room inside to wear something warm such as a jumpsuit, or woolly bear (a big furry undersuit) or even a tuxedo if you happen to be James Bond (however the big furry undersuit definitely sounds more erotic)! Still, whatever you do inside your drysuit is your own business, I guess... The major brands of body-contoured drysuits are Poseidon (jetsuits), Seasuits, US Divers and Henderson, although there are more than a dozen other overseas brands from Canada, the USA and Japan.

By contrast the Loose-fitting lightweights are noticeably more bulky -- very similar in volume and fit to a pair of overalls. As such they are extremely easy to get into and out of, and are very comfortable to move around in at the dive site or on a boat or wherever.

You could wear 3 tuxedos under one of these if you felt so inclined, but I'd rather use the extra volume to put my girlfriend in it as well and rely on body contact! The major brands of these type of suits are Viking and Offshore, Vikings being made of a thin tough resistant rubber and Offshores out of a rugged plasticised heavy-duty nylon weave.

Drysuit Construction

There are options available on drysuits as there are for wetsuits, but the basic construction is of a single garment covering the diver from head to toe, with seals at the neck and wrists and at the ankles unless the suit has built-in boots. The seals work very well -- don't believe people who tell you otherwise. The neck seal is very thin rubber or neoprene (3mm down to 1mm) and seals against your neck with almost no detectable pressure or discomfort, fitting like an inverted turtle-neck sweater. Wrist and ankle seals are either a similar tuck-in design or more recently a cone-shape, narrowing down around the wrist just tight enough to be waterproof but not enough to hurt or restrict circulation to the hands.

The hoods are usually wet hoods; just a 3mm attached hood above the neckseal which keeps the head warm but does not have the difficulty of needing a close-fitting face seal. Why, I hear you ask, don't they keep the head dry since you lose so much heat from that area? The answer is that the insulation of the dry suit around the body contains body heat so well that a dry head seal is actually just not necessary. And as I said, the face seal is a difficult technical problem.

People have a good laugh at the expense of drysuit divers at the thought of the suits leaking and the diver being wet and cold after all. WRONG. If a suit does get a leak (through a worn seam, for example, or a seal that has been used and stretched a lot) then the small amount of water that does get in warms up to body temperature and stays in the suit. Wetsuits have a "flow-through" effect where warm water is constantly lost to the outside, but the drysuit is a self-contained environment so even if you get a little damp, you are still as warm as when you got into the suit in the first place! (And in fact warmer, if you're gearing up at Little Blue in the rain...)

Last of all, the zipper is the most important (and expensive) part of the suit. These special zips press two strips of rubber together and lock them so water cannot get in, and they are extremely effective. Zippers either run down the front and back of the suit (eg the Poseidon Unisuit) or across the back of the shoulders and arms - that's where you get into the suit. A very attractive option is a fly zipper so you can stay in your drysuit all day without filling it from the inside! Interestingly though, because you are warm and dry during your diving, your bladder doesn't go through the usual trauma of wetsuit divers so having an internal leak is very rarely a problem.

The drysuit principle works around containing a thin layer of body-temperature air close to skin and clothing so that insulation between the suit material and the outside water is achieved. By now you should be getting the idea that warmth and dryness and comfort on a cold water dive is Fantastic.

Buoyancy

Another hoary old rumour about drysuits is the common belief that once you put air into them and head on downwards, all the air runs up into your legs and you're stuck upside down and can't get rightside up again! WRONG AGAIN. Even with the loose-fitting suits it's very easy to manoeuvre around, although air does rumble around inside a bit. With the neoprene suits this is hardly noticeable at all (and any air rumbling around is a personal problem!).

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Thus buoyancy adjustments are necessary as you descend and ascend but only to the extent of maintaining a small air/suit volume. Dry suits are a bit finicky with regard to buoyancy in shallow water less than about 10 metres because of the relative volume changes as you vary your depth in this range. But for anything deeper, the buoyancy is easily controllable via a scuba-feed inlet and a dump valve on the chest or arm. Dump valves can be set to bleed off excess air automatically as you move upwards through the water.

The Future

Sports drysuits are here to stay. I bought a Henderson drysuit three years ago and got laughed off the planet by all the cave diving heavies, but now there are at least 6 different brands of drysuit being used in cave diving, and in the colder Victorian ocean waters. Drysuits are owned and used in their thousands off the cool water coasts of the USA, Canada, Japan, Britain and Europe and will inevitably become the accepted form of diving clothing in Australia, south of a line drawn through Sydney and Perth. As this happens, the Australian diving industry will realise that more people will want to dive all year round and enjoy it, both in and out of the water, and that drysuits will make this possible.

The very latest trends in drysuit design are combining the attributes of both the drysuit styles, towards a lightweight tough body-hugging style, which will relegate wetsuits to warm water diving where they are appropriate. Just as the good old Buoyancy Compensator received a lot of scepticism initially but has now become highly refined and universally used for comfort and safety, so will the sports drysuits.

Interesting, isn't it, that once again cave diving has shown the way for new diving developments!



"DIVER" Magazine

MEDIA WATCH

Very quiet, surprisingly enough! The only media coverage of note known at this time was the front page headline in "The Border Watch" of 31/8/84 which read "EWENS PONDS CLOSED : DIVERS BLAMED". Whilst this statement indicates that "blame" was laid on divers, causing the closure, this is not strictly true - the closure occurred to enable a study to be undertaken to see if divers were making a significant impact on the flora of the Ponds and to watch the regeneration. The closure is only until the 1st of December this year.

FOR SALE

(This section is available free of charge to CDAA members who have personal cave diving equipment they wish to sell (reels, torches, tank manifolds and the like). Please state prices and contact numbers).

1. U.S. DIVERS TWIN TANK MANIFOLD

Any reasonable offer will be considered.

K. Lengs, (08)336-1616 (hm); (08)225-5980 (wk).

2. SEALED BEAM LAMPS

- 6V 6W 1.25a (#4547), 8 only, \$4 each. Same size as GEC lamps. \$27 for the lot.

- 12V 30W GEC, 2 only (one stained reflector). \$10 for both, or \$8 and \$5.

TORCHES - 4 CELL TYPE

2 only, \$15 each.

L. Jerman, (08) 293 4464 (hm).

3. COMPRESSOR : BAUER 2.7 cu. ft Good Condition - \$1500.

Phil Prust, (08)-270 1203 (hm).

4. VARIABLE BEAM TORCH HEADS TO SUIT 12v SYSTEMS

55W or 100W. The ULTIMATE in underwater lights. \$95 Complete.

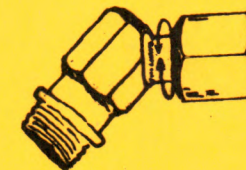
Christopher Brown, (08)-79 1445 (hm).

Elbow swivel joints can be purchased from the Association.

They are good quality chromed, brass type and can be attached to any brand of second stage regulator.

Send \$18 to : CDAA,
P.O. Box 290,
NTH. ADELAIDE,
5006.

The item will be sent by mail.



SCUBA DIVING ACCIDENTS

can include:

- decompression sickness*
- pulmonary barotrauma*

FIRST AID FOR BOTH OF THESE:

1. OXYGEN
2. FLUIDS
3. ASPIRIN
4. OBTAIN EXPERT ADVICE

CONSCIOUS PATIENT

- 100% O₂ mask. High flow
- Fluids — salted and sweetened 1 litre/hour
- Two tablets of aspirin

UNCONSCIOUS PATIENT

- Intubate O₂ 100% High flow
- I.V. fluids (saline or Hartmann's Solution) 1 litre/hour

LOCAL CONTACTS

MOUNT GAMBIER HOSPITAL: (087) 24 2211
A.H. (087) 24 2213

ROYAL ADELAIDE HOSPITAL: (08) 223 2855

Ask for Intensive Care
Unit.

Duty Diving Medical Officer
R.A.N. School of Underwater Medicine
02-960 0444 (0800-1600 hrs)
02-960 0321 (after hours)

Please state:

- The diving medical emergency
- Ask for the Duty Diving M.O. to be contacted
- Give your telephone number