

SOUTH PACIFIC UNDERWATER MEDICINE SOCIETY
NEWSLETTER

WE NEED AN EMBLEM FOR THIS SPACE!

Vol. 3

No. 1

June 1973

CONTENTS

1. EDITORIAL
2. SPUMS ANNUAL CONFERENCE
3. CORRESPONDENCE
4. FEES AND NEWSLETTERS
5. DIPLOMA IN DIVING & HYPERBARIC MEDICINE (DDHM)
6. CLINICAL CASE REPORT
7. LIST OF CURRENT MEMEBERS

1. EDITORIAL

Having been landed with the position of Editor of the SPUMS Newsletter by our absentee President, I have been wondering for some time just what would constitute a suitable editorial. Two weeks ago I was appalled to learn of the tragic deaths of four young scuba divers from Sydney in the fresh water sink holes at Mount Gambier, and with this thought in mind, I have decided to once again reiterate Carl Edmonds' statement concerning diving safety in the Newsletters Vol. 2 No. 1 and Vol. 2 No. 4.

I do not wish to criticise the four divers who perished - they have paid the ultimate penalty - however I am astounded at the apparent failure of so called 'experienced' divers who, when interviewed on TV and radio, were unable to elicit the causes for such loss of life. The fact that only the old bogey of nitrogen narcosis could be considered, almost amounts to criminal neglect by those concerned, in not expounding the painfully obvious reasons to the public - especially since many watching are divers themselves, or potential divers.

It seems that everyone is willing to listen to talks on safety in diving - but few pay any heed. One would imagine that a similar treble tragedy only late last year in the same area would have alerted prospective cave divers to the dangers that may be present. It is patently obvious to anyone who can read, that the essential cause for the death of these four divers was due to anoxia (following exhaustion of air supplies) and ultimately drowning. This can directly be attributed to a failure to take adequate safety precautions both prior to and during the dive, such that a return to the surface could be made.

Commonsense demands that one understands and practices all specialised forms of diving, be it cave, open sea, wreck or other, before undertaking the dive. The essential features common to all safe cave diving procedures include such items as surface supply lines, possible buddy lines, emergency gas supplies and regulators, lighting, standby divers, etc., and a definite plan. Whether there is deviance from a dive plan, either due to nitrogen narcosis or not, cannot explain the failure of ensuring the presence of surface safety lines. Reserve air supplies and free swimming buddies, etc., are fine, but they must be able to be easily reached in emergencies, and when visibility is reduced, eg. darkness, silty water, then orientation without a line becomes almost impossible. Provided a diver is in some form of communication with a surface attendant, there will be no problems of the so called 'raptures of the deep' beckoning the diver forever downwards. One could go on ad infinitum analysing each feature s of this and other dives which end in fatalities, but this is not intended

as such an expose. I do however wish people would cease equating 'experience' in diving with 'knowledge' of diving. All who have to treat divers must be realising by now that his comparison fails so frequently as to render many so called 'experienced' divers' knowledge extremely questionable.

Because a diver is qualified according to FAUI, PADI, SRDI (Self Recognised Diving Instructors) or other standards, does not necessarily mean that he or she is an expert in ALL fields of diving. The public is misinformed and all too frequently, I feel, the so called 'expert' diver is misled into thinking he or she is in fact an expert, when in reality this is not so. It is about time that someone put the records right and stated categorically that the standard of diving safety around Australia, in general, is extremely low.

Both Carl and I, along with a few others, have been expounding the merits of safety lines, buddy lines, safety vests (air inflatable) and cessation of free ascent training in any form, for several years. All too frequently we are listened to politely by experienced divers who relegate such safety measures as 'unnecessary junk', 'not for me', etc., but who commonly have never even employed such measures so as to be in a position to confer judgement. Unfortunately these people are also fairly lucky - it is the poor novice who usually pays the penalty for not being adequately taught, with his life. In analysing Dr Walker's reports on Vol. 2 No. 4 of SPUMS Newsletter, it is pitifully obvious that use of such measures would have probably saved many of the lives lost in Australia and overseas.

It seems therefore that our message just isn't 'getting across' clear enough to these 'experienced' instructor divers. All I can suggest is that as a members of SPUMS you plead, cajole, coerce or threaten in whatever form necessary, in order to make them read the message loud and clear! The threat of governmental legislation pertaining to diving is becoming ever greater, and unfortunately, I feel will be a real entity in the near future. Our only consolation for the loss to freedom in diving will be that fewer fatalities will occur. Is the price really that high?

(BOB THOMAS)

PS. For any readers who may take umbrage at this outcry and think that we take a morbid line towards diving safety, I am enclosing a copy of the Editorial of the 'Skin Divers' magazine, May 1973. It is quite ironic that this features a comparable concern at the lack of safety measures taken by cave divers in the US at the time when Australia's recent diving tragedy is still on our minds. I thoroughly endorse these 'unbiased' statements.

B.T.

CAVE DIVING IS NOT FOR SPORTS DIVING

Editorial, Skin Diver, May 1973

Although the national average for sports diving accidents appears to be happily improving, we continue to be haunted by several serious local problems. One of the worst of these is freshwater cave diving - a type of highly specialized underwater exploration almost totally unique to the north central area of Florida.

Over 400 freshwater springs and sinkholes are known to exist in this inland section, of which 150 are being frequented regularly by scuba enthusiasts. The water flowing from these marvellous springs is a constant 72 degrees, absolutely pure, and crystal clear. Underwater visibility often exceeds 150 feet, offering a pleasurable, exhilarating dive experience. But these very same springs can prove to be death traps for they lead to a tremendously complex labyrinth of twisting tunnels, pitch black caves, and cathedral-size caverns - sometimes winding their way underground for thousands of feet.

In spite of their known perils and dozens of highly publicized horror stories of cave diving deaths, cave diving continues to grow in popularity. It is believed that more diving is now being done in springs than in all of Florida's coral reefs and the Florida Keys combined. During 1972, for example, an estimated 3000 scuba divers were visiting the Florida springs on any given weekend, totally 156,000 divers for the year. Dale Stone, owner of the Aqua Shack in Branford (heart of the Florida cave country) reports filling an average of 800 scuba tanks per day on normal weekends.

For most Florida divers, the springs and caves are convenient, dependable, and economical. They are situated within easy driving distance of home, remain perpetually clear and constant in temperature, and do not require a boat or costly entrance fee. Even though many cave diving regulars would prefer the beauty and excitement of a coral reef, they cannot afford the expense of a weekly plane ride to the Bahamas, not to mention the high cost of a resort hotel and diving facilities. And the coastal waters of Florida are becoming less and less appealing in the face of increased pollution, turbidity, and reef destruction. Echoing the sentiments of most Florida residents, one Gainesville diver simply explained, 'We dive the springs and caves because they're there. It's all we got.'

The rising popularity and increased publicity about the wonders of Florida cave diving has spread to neighbouring states. Much to the dismay of resident divers, they are finding themselves inundated by an avalanche of visiting divers from the north. The combined factors of a burgeoning sport disgorging tens-of-thousands of new certified divers ... the exploding popularity of diver/trave ... and improved roads to more isolated springs has created a situation which can only be described as 'The Great Dave Rush of the Seventies'.

The end result of this mad migration has proved disastrous. During the 11 years prior to 1972, scuba fatalities involving cave diving activities had been averaging 6.5 deaths per year. Both researchers and local instructors had been relieved to see this accident rate stabilize, in spite of the rising number of active divers. Then, in 1972, the accident rate zoomed to a record high of 20 cave diving deaths, three times the prior 11 year average!

Contained in this frightful statistic spiral are two rather spectacular triple-deaths and several cases of double-deaths. An even bigger shock is to learn that all 20 victims were certified sports divers or in the process of getting a C-card. And 80 per cent of the victims were from out-of-state.

According to Dave Desautels, chief investigator on cave diving accidents, the primary cause of 1972 accidents were: inadequate knowledge of cave diving technique and safety procedures; lack of proper cave diving equipment; and an obvious lack of mature diving judgement. Many of the victims had become lost in the maze of tunnels because they did not bring safety lines. Others had run out of air because they had no submersible tank gauge, or started into caves with a half empty tank on a second dive. But the saddest aspect of all is that practically all the victims had been warned not to go into the caves because of their obvious lack of experience and equipment. Incredibly, they disregarded the warnings of experienced shop owners, scuba instructors and local cave diving veterans. They also ignored warning signs posted at the springs by the National Association of Cave Divers (NACD), and in several instances, deliberately swam beyond underwater signs which marked the limit of safe cave diving.

It is no wonder then, that Florida resident divers, who are trained in the proper procedures of cave diving, are greatly alarmed by the influx of out-of-state visiting divers. The increased death rate has caused the closing of several favourite springs and has jeopardized many more. Talk has already circulated about limiting cave diving to Florida resident divers or possibly to certified cave divers only.

The crux of the problem seems to boil down to a matter of attitude and ignorance. Ill-prepared, untrained divers from up north appear totally unaware of the dangers of cave exploration. They cannot seem to accept the fact that cave diving is a highly specialized activity. Being a certified sports diver does not qualify a person for cave diving. Cave diving requires a special course of training, special equipment and extra safety precautions. Cave diving is far more perilous than reef diving, lake diving, or other forms of open water diving. The risk is double, for the cave diver is UNDERGROUND as well as underwater. In essence, Florida cave diving is not for sports divers unless they are willing to undergo training in this unique form of underwater exploration. Special training, special equipment, and special certification should be basic prerequisites for cave divers.

Oddly enough, it is often the northern scuba instructor who contributes to Florida's cave dilemma. Many of these instructors possess only a little more knowledge about Florida cave diving than their blissful students. They organize bus loads of freshly trained students for open water checkouts in the springs. Four of last year's victims drowned in caves during their final check out dives! In one case of a triple death, a New Jersey instructor led two other cave diving neophytes into a cavern where all three perished. None of the three had any previous cave diving training, nor were properly equipped for the dive. It is becoming increasingly obvious that many newly certified divers are being told they are fully qualified for any and all types of diving, even though the instructor doesn't have the faintest notion of what Florida cave diving is all about. No wonder these sports divers arrived in Florida's cave country with a chip on their shoulder. They've been told they know it all, so why the big fuss about these caves?

Still another interesting aspect which has surfaced from current cave diving accident studies is that 73 per cent of the fatalities involve teenage divers between the ages of 15 and 20. In one double death case at Peacock Slough, the divemaster expressly warned two 16 year old divers not to go into the cave. They were supposed to remain in the open area in the spring. Several hours later their bodies were recovered from a point some 400 feet back into the cave. This represents strong and damning evidence against the judgement capabilities of our younger divers. Lack of mature judgement, impulsiveness, thrill seeking, and childish disregard for safety regulations are all too fatal faults linked with teenage diving accidents. Are we teaching scuba diving to people too young to handle the sober responsibilities of caution, self-discipline, and programmings? Or is it possible that the Florida caves are more frequently dived by teenagers because of the low cost and easy access? Whatever the reason, it must be clearly understood that cave diving is definitely more perilous than other types of diving.

What is being done to combat the alarming rise in cave diving accidents? Quite a bit. Six years ago, a group of the top cave diving experts in Florida formed the National Association for Cave Diving. Spearheaded by Dave Desautels, Tom Mount and other veterans, the NACD has conducted cave diving accident research, recovered the victims involved in many of the accidents, conducted cave diving seminars, and developed a sound program for cave diving safety.

To date, the NACD has trained and certified 11 cave diving instructors. These men were already qualified sports diving instructors - NACD simply provided the specialized training in cave diving technique and safety. These 11 instructors, in turn, are now offering specialized training courses in cave diving that range from five weeks of intensified training (every Saturday and Sunday) to six

months on a slower, more spaced out series of classes. Florida cave diving courses include a minimum of 20 cave dives under every possible condition imaginable - silt dives, moderate cave penetration, deep caves, night dives, etc. A minimum of 12 hours classroom lecture is also required, but the major emphasis is placed on open water experience. Desautels explains, 'The only way to learn Florida cave diving safely is to dive those caves under the close supervision of an experienced, certified cave diving instructor. Cave diving cannot be learned in a classroom or swimming pool'.

NACD has explored and mapped most of the popular Florida Cave diving spots, and in the process evolved a completely new method and code for three-dimensional underwater mapping of intricate cave and tunnel labyrinths. The organization has also developed an official list of safety rules for cave diving, and a list of specialized equipment which they feel is mandatory for cave exploration. They have also posted warning signs around (and in) some of the more dangerous springs.

At present, the NACD is offering the following publications to divers all over the country:

Cave Diving Manual	\$3.25
Proceedings of the First Annual Seminar on Cave Diving	1.50
Mapping Underwater Caves	1.50
Proceedings of the Fifth Annual Seminar on Cave Diving	3.00
Safety Tips on Cave Diving	no charge

You can obtain any or all of the above publications by sending a check or money order to:

Jack Banbury
 Publications Chairman of NACD
 Institute of Marine Science
 10 Rickenbacker Causeway
 Miami, Fla. 33149.

And by the looks of the blissful 'certified' sports divers pouring in from the northern states, this cave diving material should be mandatory reading for every scuba instructor.

If you want to hear about the problems of cave diving first hand, you might be interested in attending the Sixth Annual Cave Diving Seminar, June 16 and 17, 1973, Lindenwood College, St Louis, Missouri. For further information on this important workshop, contact: NACD, 2900 NW 29th Ave, Gainesville, Florida 32601.

It's not impossible for a sports diver to become a safe cave diver.

Florida divers do it everyday. It's just that you have to learn before you leap into an inviting spring.

NACD SAFETY RULES FOR CAVE DIVING

1. Always dive with a buddy and stay close to him for the entire dive.
2. Plan your dive in advance and stick to your plan.
3. Plan your dive around your air supply - 1/3 tank going in, 1/3 tank coming out, and 1/3 tank for a safety margin.
4. Your safety line should be made of a strong, sturdy line on a reel and the end should be securely tied to an immovable anchor point outside the cave mouth.
5. Always swim within arm's length of the safety line. Maintain visual contact with the line at all times. In silty conditions, keep one hand on the line, but handle it gently.
6. Use a well constructed, dependable diving light which has been pre-tested prior to the cave penetration. Always carry a spare light for safety back-up.
7. Don't over extend your physical or equipment capabilities, nor those of your buddy. Check your submersible tank pressure gauge frequently; also your buddy's.
8. Beware of crumbling walls and ceilings. Avoid bumping cave interiors with tanks.
9. Beware of stirring up silt. Swim well off the cave floor whenever possible.
10. Avoid narrow passageways in which you cannot turn around easily.
11. Avoid panic by being properly trained and equipped for cave diving emergencies. Your regulator should be equipped with a spare second stage (octopus rig) for buddy breathing.
12. Start your cave dive with a full tank of air.

2. SPUMS CONFERENCE, JUNE 1973

As most of you are already aware, the conference scheduled for 17-24 June on the Isle of Pines, New Caledonia, had to be cancelled at the last minute owing to the action taken by Australian trade unions in banning UTA flights into and out of Australia. An alternative flight could have possibly been arranged with Pan Am, but the change in dates, and general concern re the political climate in New Caledonia, rendered any such chance extremely risky, and the SPUMS Conference Committee (Jim Hazel, Bob Thomas and Ian Unsworth) after much debate, decided to postpone the conference indefinitely.

Needless to say, we are extremely sorry that this had to happen and that members' holidays would be consequently disrupted. Alternative venues were considered, but the short time available for contacting members, obtaining approval and rearranging the conference at these sites made such action unfeasible.

A SPUMS (NSW) meeting is to be held at the Shore Motel on Saturday 14th July (following dinner in the restaurant) at which it is hoped a new venue and date for a conference will be proposed. If such venue meets the approval of members in other states, then hopefully, such an event will occur later this year.

If there are any NSW members who have not been informed of this meeting on 14th July, and who wish to attend (there are 38 persons including wives coming, to date) could you please contact Bob Thomas on 960 0300 or 92 8973

Unfortunately earlier tentative arrangements for the June conference to be held in Fiji collapsed when confirmation of bookings was not forthcoming, and when it was learned that most accommodation suitable was booked out many months ahead. Enclosed you will find a report on the diving in Fiji by our President, now colloquially nicknamed the "Kava kid".

ADVENTURES OF AN AQUATIC APOTHECARY

PART 1 - FIJI

In order to assist in the SPUMS Annual Meeting which I understand is to be held in Suva, I decided to forego 10 days of my annual holiday and reconnoitre the area. (*One can feel the anguish Carl suffered here - Ed.*) In performing this task, which I consider part of my obligations to the Society, I came across many activities which would be considered inappropriate for such an academic and moral organisation as SPUMS and therefore I shall not elaborate on these activities. In the very short time remaining from my 10 days I managed to glean the odd bit of information which may be of interest to the Society's members during their sojourn.

Dangerous Marine Animals

Although it is commonly stated that Fiji is happily free of nearly all the poisonous creatures found in tropical areas, perusal of the local newspapers will reveal that the following injuries do occur. Deaths from cone shell bites, stonefish injuries, sea snakes, sharks, and divers carrying spear guns. I could find no definite knowledge of the existence of the blue ringed octopus, nor the sea wasp. There were however numerous stories of jellyfish stings of unidentified type.

Diving

The major block to pleasant diving activities is the rarity of compressors. The only really well equipped area is that of Scubahire, and these divers can easily be contacted by phoning 361 241, at Suva. It is necessary to dive with someone who is aware of the local terrain, otherwise an extraordinary amount of time can be lost looking at rather dull and uninteresting areas. Dave Evans who is also employed at the Scubahire, has an excellent knowledge of the more interesting areas and an hour or two spent with him, on one of the diving charters, is fully worthwhile. As the divers in Suva use the SOS decompression meters and do perform repetitive dives, I would also recommend the taking of a diving manual. (*Perhaps a recompression chamber would be more suitable - Ed.*)

For families and snorkellers, one can't go far wrong by spending a few days or even a week on one of the outlying islands such as Castaways or preferably Molololailai. These dives can also become rather exciting when one attempts to avoid the water skiers and speed boats.

Accommodation

This of course depends entirely on one's finance. If you are a benevolent millionaire, then I can recommend places such as the Tradewinds in Suva, however if you are running on a strict budget and especially if you have your family, then the Capricorn Apartments are ideal. For the cheapest and most delightful family holiday (*? possibly no scuba diving though - Ed.*) I thoroughly recommend Molololailai, (*an island off the west coast town of Lautoka - Ed.*) at which one can participate far more in Fijian activities under the traditional Fijian regimes. They also make better kava. It was not without reason that this traveller became known as the "Kava kid". In any case it is strongly recommended that you either enjoy the delights of Suva, or move to one of the islands. The resorts such as Korolevu, or for example the Fijian, are delightful places to go (if you have a lot of money) and want a lot of comfort and don't wish to at any stage be contaminated with Fiji. Areas such as Nadi, Lautoka and Sigatoka have basically been developed for the tourist and his main desire is to inspect Japanese electrical equipment as opposed to the local attractions.

Finance

Scuba tanks can be hired for \$8 per week, regulators for \$15 per week. Items such as fins, masks, snorkels, weight belts, etc. are all available for about \$3 per week. The air costs \$1 per tank and a diving boat, including a professional diver guide, is about \$7 per hour. This can take 4 divers, but larger boats are available for larger parties. Accommodation rates vary from about \$30 per couple per day to about \$10 per couple per day. About the same amount is spent on food and entertainment, depending on one's site of operation. Some equipment, both electrical and diving, can be obtained slightly cheaper than identical pieces from discount areas in Australia, however one does not have the same guarantee and after sales service. A great deal of the equipment, both electrical and diving, can be obtained for well above the Australian prices. This is especially so if one shops in Suva, Nadi and Lautoka.

Warning

Do not assume that the underwater scenery of either Fiji or the surrounding islands is in any way comparable to that of the Barrier Reef. Some of it, and especially those areas in which people like Dave Evans can guide one to, is extremely impressive. It is nevertheless not of the same type as the Barrier Reef, and it certainly does not have the same profusion of sea life. One cannot help but get the impression that most of the diving performed around Fiji is done for the gratification of blood lovers as opposed to sportsmen and sportswomen.

Next stop, Tahiti.

NOTE: The Editor wishes to express his sincere thanks to the Kava Kid for displaying such devotion to SPUMS as to voluntarily forego 10 days of his annual holiday. Perhaps the spirits of the Yagoona festival on Molololailai caused some remorse.

3. CORRESPONDENCE

There appears to be a dearth of letters from members at present. Apart from some letters concerning the Conference and various venues proposed, the only letter received comes from none other than the Kava Kid and is enclosed.

This situation is deplorable and members are asked to please forward on to the Editor any such information regarding case history and treatment details of diving emergencies, recompression facilities available at various sites, opinions concerning SPUMS activities, etc. Yes - even bribes will be accepted provided cheques don't bounce!

Letter from Carl Edmonds

"Fellow members, old friends,

"It is with deep regret that I find myself unable to attend a meeting of our Society. Such an oversight shall not happen again, as I firmly believe that for all our hedonistic manners and attitudes, SPUMS is a major milestone in the development of both diving and diving medicine in our Indo-Pacific area. With little pomp, no ceremony and no bureaucracy, we have achieved a cohesion and a strength that is being emulated with less success elsewhere. The other two analogous societies, the UMS and EUBS exceed us in financial support and in membership. Nevertheless we have gained firsts in the stated achievements of each society, namely

- distribution of a newsletter;
- nationalising medical standards for diving;
- initiating diving medical qualifications; and
- standardising RCC transfer facilities.

"In some of these achievements, special mention must be made of the individuals who developed both time and effort, often against unreasonable resistance.

"The Newsletter is the lifeline of our Society, and despite us beating the UMS by over a year, it now seems as if we are losing the race for quality. I refer only to the typographical quality. The reason for this lies not only in their superior finances (the membership fee is now \$25 per annum), but also in the possession of a patron, Joe Wheeler Jr, who is a wealthy and hard working business man, devoted to the UMS and its aims. We badly need a group similar to Wheeler Industries in Australia. If my memory serves me correct, an approach is being made to certain pharmaceutical firms to either support or print our Newsletter, by Drs. Thomas and Unsworth. Let us wish them well in this undertaking, as it may be of far reaching import. Our Society relies on this communication link, and it could be severed at any time.

"The intention to institute a Dip HDM is also to be commended. This aim has received unexpected approval and support from almost all of the north American group, and I am aware of the active involvement anticipated from the South East Asian countries. It is likely to grow out of the originally intended proportions. I stand as one who was initially a passive resister to this concept. I now acknowledge the judgement of the SPUMS members who stood for it, and especially Drs. Gray, Thomas and Unsworth, who had the foresight and the administrative ability to carry it through. The only unfortunate result that I now foresee is an even heavier work load in the future.

"In obtaining the medical standards for diving, we must acknowledge the assistance of many others in the amateur diving scene. There are too many to mention, but I would like to state that I now have a much greater appreciation for the part-time diving medicos in Australia, now that I have seen their counterparts in other countries. These men willingly and enthusiastically donate their valuable time without reward. They are the frequent contributors to the Newsletter, and may represent the medical profession at both diving clubs and government bodies. Of all groups interested in diving medicine, it is the general practitioners who will first assess the value of our deliberations, and decide on their validity. The next most important group in my opinion are the anaesthetists. These always supply the pertinent question, and guide our attitudes to immediate therapies. A new breed of medicos, the diving physicians, will develop only by constant association with the first two groups, and with divers. This new speciality is now inevitable, and the only danger that I can envisage is that it may develop in too insular an environment. We need the GPs, the anaesthetists, the otologists, the physicians, the radiologists, and the respiratory physiologists. We need the paramedics and the technologists. Most of all we need the co-operation of the divers. We need these people, they don't need us. I feel in the past that some of us, and I certainly include myself in this, have been too arrogant, have taken too much for granted.

"It was delightful to see some of the new names on the conference agenda. The Victorian group, and the Queenslanders, seem to be getting off the ground. Thank heavens the New Zealanders have joined in at last. Our Kiwi colleagues have an extraordinary experience and capability in this field of diving and diving medicine. Roydhouse and Doak have pioneered the development in the NZ area, and it is high time that they shared their experiences with their Australian and SE Asian colleagues. Now we may well consider the development of international standards of diving and its medical aspects, at least for the Indo-Pacific region. There is no way that the Atlantic and N Pacific contingents can achieve this, at this late date. There are too many divergent interests. Let us show them the value of co-operation.

"In conclusion, let me wish you well in your 1973 meeting. I look forward to sharing with you some of my own diving medical experiences of this year, during 1974, in both meetings and the Newsletter. I have taken care to record many of the research successes, the problems and the anecdotes. As your President, I have been remiss in being absent when I should have been present. But I do assure you that our Society has played a large part in my N American activities. More of this when I return. Suffice to say that we will have a reasonable representation in UMS and journal activities, and there will be no difficulty in obtaining reciprocal membership with the UMS, without the necessity of payment of two contributions. I now take my leave of you, and ask for your pardon. SPUMS is now comprised of some of my dearest friends, and a meeting based on friendship is not easy to forego."

* * * * *

4. FEES AND NEWSLETTERS

At a recent SPUMS executive Committee Meeting in Sydney (present were Ian Unsworth, Rex Gray, Douglas Walker and Bob Thomas, with apologies from Carl Edmonds and Fred Ashmore), it was decided that the context of the Newsletter needed improving. To this end, Bob Thomas is looking into the possibilities of obtaining better quality reproduction for the Newsletters. Unfortunately this will probably necessitate a slight increase in fees (probably between \$2-\$3 per annum).

At the July meeting (NSW branch) a proposal for:

- a. improvement of quality of printing and associated cost,
- b. incorporation of a motif designed by SPUMS for the Newsletter and official correspondence,
- c. subsequent fees increase if necessary,

will be raised. It is hoped that some correspondence from SPUMS members elsewhere expressing opinions re same will be received prior to this date. If none is forthcoming, we can only assume that interstate opinions are favourable.

The only motif so far envisaged has been proposed by Bob Thomas and Frank Blackwood - surely other members have some ideas which could be presented? We need a small motif signifying SPUMS for inclusion on official correspondence and newsletters.

5. DIPLOMA IN DIVING AND HYPERBARIC MEDICINE

The RAN has formally agreed to support this Diploma by allowing use of SUM staff and facilities for training purposes of prospective candidates. Further discussions are continuing in order to expedite an early start for the course, and more information will be available in the next Newsletter.

* * * * *

6. CLINICAL CASE REPORT

HISTORY (37 year old Nauruan Islander)

Friday 2nd February

9.30 am Dive to 200 feet for unknown time with stops at 20 feet and 10 feet during ascent (uncertain duration - not following a recognised decompression table).

2.00 pm Dive to approximately 250 feet. Equipment is standard 72 cu ft tank. During this dive air supply was exhausted so diver had to rely on reserve (J valve). During ascent, reserve gas was exhausted and so an immediate return to surface was made.

2.45 pm Arrived at surface. Times may be incorrect, but it is known that tanks are frequently over-pressurised at Nauru so this may explain the length of the dive on a single tank. On leaving the water carrying equipment ashore the diver noticed slight back pain which increased during the next 20 minutes, with some slight associated difficulty in breathing. Over the next few hours, diver noticed some weakness in the legs, severe pains radiating around lower abdomen and to some extent down the legs.

5.00 pm Presented at Nauru Hospital and was admitted.

7.00 pm By this time the patient had developed a total areflexic paralysis of both legs with complete anaesthesia below the xiphisternum. He was given Solu-Cortef 200mg IMI and intermittent O₂ therapy by mask. No other injuries were noted.

- - - - -

Saturday 3rd February

10.30 am Call for assistance received from Nauru.

1.00 pm Medical officer from SUM discussed problem with doctor on Nauru (poor communications). A diagnosis of spinal decompression sickness was made and the following treatment was advised:

1. 100% O₂ by mask
2. increase steroids
3. Set up IV infusion
4. Indwelling urinary catheter

Arrangements were made with the RAAF to fly to Nauru to bring the diver to HMAS Penguin.

6.00 pm Hercules departed from Richmond.

12.00 midnight Refuelling stop at Port Moresby.

- - - - -

Sunday 4th February

7.00 am (Sydney time). Arrived at Nauru. Examination of the patient revealed that he now had brisk reflexes in both legs, flexor plantar responses but the paralysis and anaesthesia were still present. His abdomen was soft, slightly tender centrally, however movement particularly sitting up caused intense pain. Upper recti muscles contracted voluntarily. Abdominal and cremasteric reflexes absent.

The patient was placed on the aircraft and flown back to Sydney. Treatment in flight consisted of intravenous fluids, Dexamethasone 4 mg 6th hourly and 100% O₂ by demand valve.

6.00 pm Plane arrived in Sydney and patient transferred to SUM, HMAS Penguin, where he was reassessed. Neurological examination was essentially unchanged except for clonus in both ankles, the left greater than the right. Examination of the chest revealed diminished air entry in all areas with widespread inspiratory and expiratory rhonchi. Vital capacity was 2.35 litres although this appeared to be limited by his abdominal pain. There was also an occasional irritative cough. Respiratory rate was 16/minute.

Prior to entry to the chamber he was given Lazix 40 mg IVI, Aminophylline 250 mg IVI stat and Aminophylline 250 mg and Dexamethasone 4 mg were added to his infusion of 4% Dextrose and N/5 Saline (IL 8th hourly).

8.00 pm Patient placed in RCC approximately 51 hours after his last dive.

Initially compressed to 30 feet (breathing 100% O₂) and after 2 minutes the sensory level dropped to just above the pubis.

After 10 minutes there was a return of sensation to both legs. This included pinprick (dulled) and light touch, position and vibration sense but equivocal 2-point discrimination. There was no return of motor power.

The chamber was then pressurised to 60 foot (20 min O₂/5 min air). After 45 minutes there was no further change and he was then compressed to 165 feet 40% O₂. Again no improvement. He was then decompressed at 6 ft/min to 60 ft and subsequently brought out on the long O₂ table (Table 6B).

Except for the initial improvement there was no further change and in particular his VC remained unaltered.

- - - - -

Monday 5th February

4.00 am Patient left recompression chamber. At this time a flicker in his thigh muscles was noted and a very small flexion of the knee joints with contraction of hamstrings. There was no ankle or toe movement. Oxygen therapy was stopped because of his pulmonary signs, and further possible hyperbaric therapy was delayed. IV Aminophylline and Dexamethasone were continued and he was also given 500cc of Rheomacrodex over 4 hours. Oral Ampicillin was commenced to combat possible urinary tract infection. Elementary physiotherapy in the form of passive joint movements was commenced.

- - - - -

Tuesday 6th February Condition unchanged except rhonchi now in anterior upper zones only and his VC was 3.1L. No voluntary movements occurred in lower limbs although there was a marked withdrawal response to a sharp stimulus to the soles. Serum electrolytes and urea were normal. Enzymes SGOT 58 (normal >28 IU), LDH 330 (normal > 50-170 units), and CPK 270 (normal 0-50 units). Chest x-ray and abdomen x-ray NAD. However x-rays of lumbar spine showed old probably fracture of upper anterior lip of L4. There was no history of injury.

- - - - -

Wednesday 7th February On awakening patient was noticed flexing left leg and to a lesser extent right ankle. This could not be reproduced voluntarily, however a small amount of tone was noted in both thighs at times.

Transferred to RNSH Spinal Unit.

- - - - -

Wednesday 14th February Bladder remained atonic. Paralysis persisted both legs.

- - - - -

Wednesday 21st February Some voluntary movement both thighs noted. Also some plantar flexion of ankles (L > R). Bladder atonic.

March 10 Able to walk with assistance of parallel bars. Regaining some functional control of bladder.

- - - - -

March 15 Able to walk with walking sticks, steady gait, slight (R) sided foot drop.

Bladder residual volume 80ml with functional control.

- - - - -

March 18 Patient returned to Nauru.

- - - - -

Some weeks later another patient arrived from Nauru (whose story will be related in the next issue of this Newsletter). This diver reported that our previous patient was no walking well and was seen occasionally to drop his walking sticks and walk down the beach unaided.

COMMENT

After such a long period of time had elapsed, it was doubtful that recompression would be of great benefit to this man. However, the sensory return in the first 10 minutes was quite dramatic.

Whether this improvement was due to hyperbaric oxygenation of ischaemic and oedematous tissue or to shrinkage of a remaining bubble is open to conjecture.

After this time it is likely that no bubble as such was present and this is partially supported by the lack of response at 165 ft.

The only other improvement initially was noted immediately after being removed from the chamber.

Rheomacrodex and steroids did not appear to alter the course over the next 2 days.

Further sessions of hyperbaric O₂ may have a place in management to reduce oedema of the spinal cord, and may 'swing the balance' for cells whose O₂ supply is precarious. However, in this case, further HPO sessions were decided against because of the probable pulmonary O₂ toxicity.

The spinal lesion was probably around the T7 level.

Although immediate recompression is the treatment of choice in DS it is felt that even after a long delay recompression is still worthwhile. It is impossible to say at what point in time the benefits are due to recompression and therapeutic decompression (ie. getting rid of a bubble) or due to hyperbaric oxygenation of ischaemic tissue. In the individual case the argument is largely academic, especially

if one routinely uses O₂ tables in treatment.

This case once again illustrates the consequences of diving gear being made freely available without associated training in its use and the limitations and hazards of diving. This man had heard of 'bends' and knew one had to stop on ascent before reaching the surface but had never used or even seen any recognised decompression tables. The reason given for being at 250 ft was 'chasing a little red fish'. A second case of spinal decompression sickness from Nauru several weeks later showed that it is difficult to get the message across.

7. FINANCIAL MEMBERS * * * * *

The following are financial members to 30 June 1973:

Dr Amri Amiruddin
 Mr F Ashmore
 Australian Museum (Dr Frank Talbot)
 Mr K Batchelor
 Mr F Blackwood
 Dr V Brand
 Mr J Brennan
 Mr Keith Breynard
 Dr J Brown
 Dr BJ Cairns
 Dr ABMcK Cant
 Dr Gene Chan
 Mr Peter Cullen
 Dr G Davis
 Dr G Dawson (financial to June '75)
 Dr RGK DeCastro
 Mr W Doak
 Dr W Douglas
 Dr C Edmonds
 Dr ER Emmanuel
 Mr W Fitzgerald
 Dr H Foster
 Mr John Fox
 Dr C Friendship
 Dr Peter Gill (financial to 30 June '74)
 Dr JE Gilligan
 Dr R Gray
 Dr P Hamilton
 Mr John Harding
 Dr JR Hazell
 Dr A Hodgkinson (financial to 30 June '74)
 Dr Terry Horgan (financial to June '74)
 Dr J How
 Mr A Kastanias
 Mr Peter Kay
 Dr RJ Knight
 Dr Pavel Kolisch
 Dr F Kwok

Dr J Lander
 Dr JL Lander (financial to 30 June '74)
 Dr G Long
 Dr A Long
 Dr C Lowry
 Dr W Lucas
 Capt JB Macmillan
 Mr J Manley (financial to June '74)
 Prof. JP Masterton
 Dr M McIntosh
 Dr H Millar
 Mr B Montgomery
 Sister M Nash
 Dr P Nicoll
 Dr D Noble
 Dr THG Oettle (financial to 30 June '74)
 Dr Ronald Palmer
 Mr J Pennefather
 Dr P Prociw
 Dr G Roden
 Dr W Rowe
 Dr Noel Roydhouse
 Dr P Rubenstein
 Dr Sasongko
 Dr BG Schultz
 Dr K Shepherd
 Dr JH Silver
 Dr AG Slark
 Dr F Summers
 Dr D Sutherland
 Dr RL Thomas
 Dr I Unsworth
 Miss Gillian Wale
 Dr D Walker
 Dr G Westwood
 Dr JM Whaites
 Dr AW Young

All members are advised that fees are due on 1st July 1973 for the year of July 73/June 74. Fees at present are still \$2.00 per annum, and cheques should be made out to South Pacific Underwater Medicine Society, and sent to the Treasurer, Mr F Ashmore, C/- School of Underwater Medicine, HMAS Penguin, Naval PO, Balmoral NSW 2091.

* * * * *

Vol. 3 No. 1 pp 19-20

8. CLOSTRIDIAL GAS GANGRENE

The Director of Hyperbaric Medicine, Dr Ian P Unsworth, The Prince Henry Hospital, Sydney, is concerned with the apparently abnormally high incidence of clostridial gas gangrene occurring in the State of New South Wales. Over the past 27 months since the Hyperbaric Unit came into operation 38 cases of gas gangrene have been referred to the hospital for treatment. Of these, 26 have required hyperbaric oxygenation, high dosage antibiotics and surgical debridement or

amputation. The survival rate has been high at 80%. It would appear that more attention must be given to adequate prophylaxis in cases of compound fractures particularly following motor vehicle accidents, which comprise 45% of the cases referred for treatment.