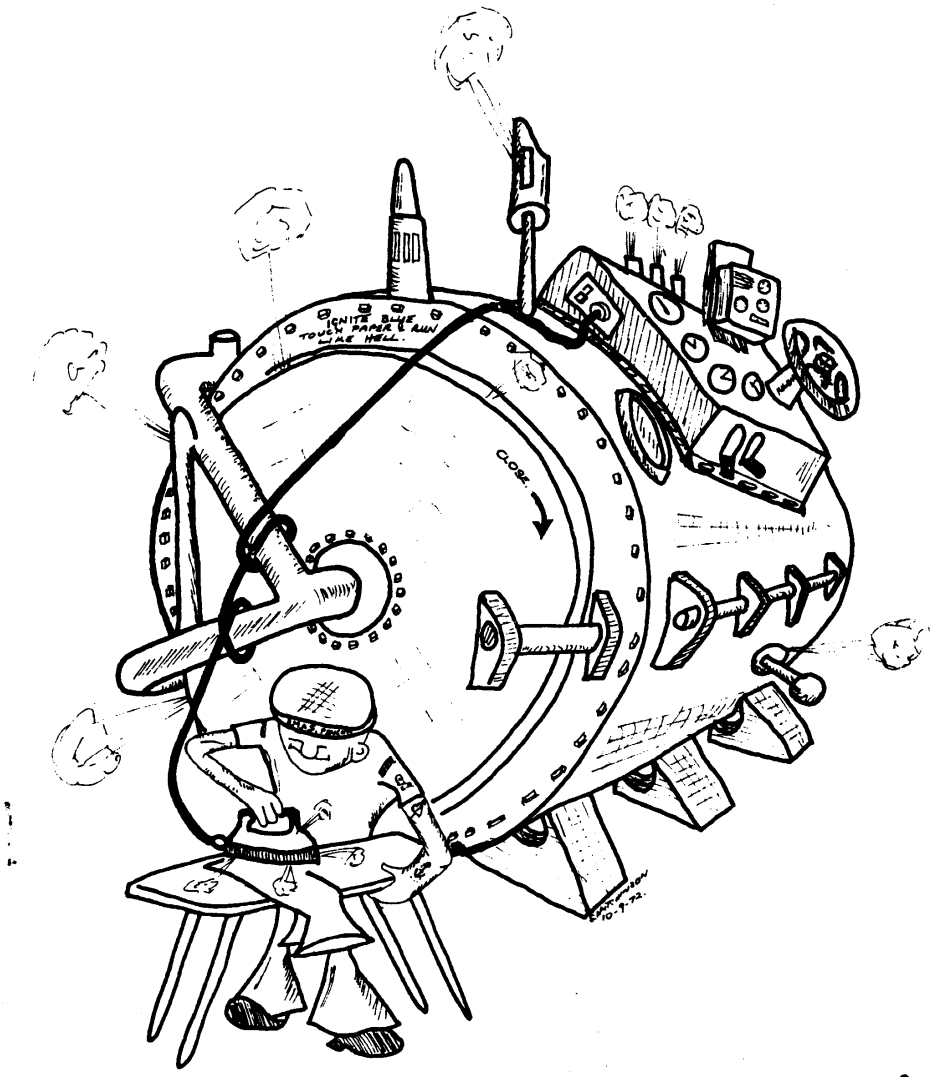
SOUTH PACIFIC UNDERWATER MEDICINE SOCIETY
NEWSLETTER



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May 1972

SOUTH PACIFIC UNDERWATER MEDICINE SOCIETY

NEWSLETTER 2/72

1. EDITORIAL

I am delighted to report that the contributions to SPUMS Newsletters are now so great that yours truly did not have to put pen to paper, did not have to search through his files for a case report, and only reluctantly included the section known as ‘Bubbles’.

We are all looking forward to the meeting at Heron Island, and our full appreciation goes to Dr Bob Thomas for his unrelenting enthusiasm in pursuit of hedonistic pleasures. Any information regarding accommodation and transport can be obtained from Dr Thomas, assuming that his recurrent suicidal attempts are unsuccessful. Business discussion which must be held at this conference will include a submission by the sub-committee working on qualifications in Underwater Medicine, and proposals for the site of the annual meeting, to be held on the second Monday of June, 1973. Suggestions that I have heard floating around have varied from Bali to Darwin to Green Island to Norfolk Island to Fiji. The discussion should be interesting.

This edition is the first in which there has been a considerable input of material from the non-Sydney area. It was tempting to call it the Singapore edition, however I refrained from doing this because of the knowledge that there would be much more information from that area. From the diving point of view, that’s where the action is at this time. It would also be a little disrespectful to the contributors from the States and Rabaul.

This month has seen the entry of the Australian standards for diving with compressed air. It is beyond the scope of SPUMS to prepare a summary of the standards, but we shall continue to supply all relevant medical information which is presented by these statutory bodies. Currently we are attempting to produce, for all SPUMS members, extra copies of the diving medical history and examination sheets as proposed by the Australian Standards Association. These will be included in this issue.

A list of members, or at least those who are currently financial, is also attached to this Newsletter. I reiterate my appreciation for those who have submitted articles and correspondence, and for the sake of our small but specialised corner of medicine, I ask that this type of communication continue.

- Carl Edmonds.

2. ANNUAL GENERAL MEETING - HERON ISLAND

SOUTH PACIFIC UNDERWATER MEDICINE SOCIETY

Revised programme - Heron Island

Monday	am	Practical Underwater Medicine - field expeditions.
	pm	Marine Ecology Speakers: Dr Carl Edmonds, "Dangerous Marine Animals" Dr J Morton, "Dangers Encountered Around the Island near Lae"
Tuesday	am	Field expeditions
	pm	Hyperbaric Medicine Dr Ian Unsworth Current Status of Aseptic Bone Necrosis Dr Bob Thomas Delayed Treatment of Decompression Sickness and Pulmonary Barotrauma Dr Carl Edmonds
Wednesday	am	Annual Meeting
	pm	Reef Barbecue
Thursday	am	Field expeditions
	pm	Physiology of Increased Pressures Speakers: Dr Ian Unsworth, "Cardiovascular Effects" Dr Bob Thomas, "Hyperventilation"
	evening	Under the Red Sea Slides: Dr Victor Brand. Plus other movie/ slide items of members.
Friday	am	Field expeditions
	pm	Hazards of Free Diving Dr Bill Douglas Underwater Accidents/Deaths Dr Douglas Walker Business meeting to follow.

* Modified from suggestions by 'our man on the spot'.

i. Diving better on flood tide: high tide Monday 10 am; high tide Friday 12.30 pm
ii. Afternoon increase in winds.

CONVENOR: Dr Bob Thomas

ORGANISER Dr Ian Unsworth

3. PERSONALITY PROFILE OF DIVERS

by Major Jimmy How, Singapore

Scientific advancement has reached a stage of sophistication that man no longer marvels in disbelief at every ‘step forward’ he makes, but has adapted himself to an attitude of hopeful anticipation of ‘greater wonders to come’. The societies of tomorrow may not be distinguished racially or culturally but can be identifiable as societies of Astronauts, Aquanauts, or as Underwater Societies, Medical Societies and what have you; each society having its own physical adaption and mental approach with personalities peculiar to its own; each having the same aim to specialise and ‘step forward’ to unravel the mysteries untold by our Creator.

We are interested in one of these social groups - namely, the diver. Must he be a Superman to withstand the ordeal of changes of pressure of the deep? Or must he possess a Super-mind and personality, quite distinct in his ‘society’ to outwit the challenges of the deep?

Studies have been conducted in an attempt to establish the Personality Profile of a typical successful diver.

Wise (1963 EDU report) reported on the aptitude selection standards for the US Navy’s First Class Diving Course. Using the Navy’s basic battery of tests - GCT, MECH, ARI and CHER as predictor variables, he concluded that a combined score of the ARI and MECH were found to be test predictors of success in the First Class Diving Course.

Caille (1969 Documenta Geigy) conducted a study with MMPI and concluded that divers require emotional stability and mental maturity.

Edmonds (1969 RANSUM) conducted a study to classify the psychological factors which influence a man’s adaption to the undersea world. His subjects were candidates for CABA courses. His findings were a neuroticism score of 5 or less on the Eysenck Personality Inventory (EPI) positively correlating with success in the diving course. With the 16PF, Factor C, depicting maturity and calmness and Factor Q2, depicting self sufficiency and resourcefulness, stood out as test predictors of success in the diving course.

How (1970) conducted a personality profile study of a group of clearance divers from the RAN, by the use of the 16PF test. His

results showed marked projection in Factor B (bright, intelligent), Factor C (mature, calm), and Factor Q2 (self-sufficient, resourceful).

The Personnel Research Department of the Singapore Armed Forces in 1971 conducted a pilot study on a group of CABA trainees to determine the relevant psychological correlates of diving success. The tests used were 16PF, EPI and PMS. The following traits were found to be significantly related to course performance for the group:

a. Mature (16PF ‘C’ +)
b. Stable, calm (Eysenck ‘N’ -)
c. Aggressive, competitive (16PF ‘E’ +)
d. Conscientious, persistent (16PF ‘C’ +)
e. Accepting, adaptable (16PF ‘L’ -)
f. Sophisticated, polished (16PF ‘N’ +)
g. Confident, self-secure (16PF ‘O’ -)
h. Controlled, exacting will-power (16PF ‘Q3’ +)

No statistically significant results were revealed in this study in respect of intelligence and group dependence. Ravens Progressive Matrices (PMS) Test results measuring general intelligence, showed no relationship with course performance.

From the above studies of personality traits of divers, one can only feel that there is a polar attraction towards a type of personality earmarked for the kind of job to be performed. Could it be that only such personalities will fit into the 'Society of Divers'? Or I could be altogether wrong in my 'theory of vocational segregation'. It may well be that Tom, Dick and Harry could be made to adapt to the water. The richness of the sea, the survival instinct, the motivation to achieve what has not been achieved may be sufficient to drive man 'around the bends'.

4. PROJECT "STICKYBEAK" - AUSTRALIA AQUATICUS

by Douglas Walker

An on-going investigation of accidents associated with underwater activities in Australian waters.

The object of this research is to indicate the incidence of both fatal and non-fatal accidents occurring in non-military underwater activities. From an investigation of all the discoverable factors involved, it is hoped to indicate 'avoidable factors' in the sequence of events. Planning the prevention or treatment of accidents or hazards requires valid information about their incidence and relative frequency.[1] Such is almost completely lacking, except for strictly military diving. Intelligent planning of public health actions and of regulations controlling or qualifying the act of diving by amateur or professional divers depends on identifying weaknesses in present practices. Such information can only be obtained from conscientious continuous and correlated reporting of such accidents. There is at present both a rapid increase in underwater activities by amateur and professional divers (of very varying skills) and an increasing relatively unresearched problem. All parties should benefit from discussion based firmly on facts relating to the Australian context. Concerted effort and informed action by the divers, their employers, local Health authorities, etc. to all concerned, particularly to the divers themselves. Commercial diving costs could be reduced if accidents could be prevented or if, when they occur unavoidably, proper treatment were available. Many persons could be alive today if this were so, just as many who have been irrevocably crippled as a result of diving accidents[2] and hazards could be leading normal, healthy, productive lives if both prevention and proper treatment were available.

There are two phases in any such investigation. First, the cases must be identified. Secondly, the facts must be sought. Only the interest and assistance of those approached can ensure success to the investigation.

Identification of cases will be from several sources, it is hoped. The mainstay will be newspaper reports, and these will be added to by direct reporting by clubs, diving organisations, divers and others who hear of incidents and are interested in assisting. The project will be heavily in debt, especially to coroners and their staffs, for copies of inquest proceedings into fatalities, and their interest and assistance is earnestly requested.

The medical cum diving qualifications of those involved in the survey, and the fact that they are members of SPUMS, is the guarantee that all reports will be regarded as medically confidential and not to be identifiably revealed or made available in any circumstances for legal proceedings. The legal view of ‘responsibility’ for an accident is entirely different from this attempt to plot the ‘natural history’ of each accident.

Most published reports have concentrated on single factors and all have been aware of the incompleteness of their coverage. The appendix gives brief notes of previous surveys and their sources of information. By far the best report is that recently published by the University of Rhode Island. If their findings should be confirmed here, or other equally important findings be made, the effort of all concerned will certainly lead to the savings of lives.

This article has been written to enlist support and interest. Any incident, not only fatal ones, could indicate a dangerous practice not yet widely so regarded. All offers of assistance, advice, and information, will be welcome. The life saved could be yours.

All correspondence, please, to:

Dr Douglas Walker
1423 Pittwater Road
NARRABEEN NSW 2101

1. Gillen (Ghairman, Committee on Man’s Underwater Activities of the Marine Technology Society) *Arch. Environ. Health*. 1967; 14, April.

2. Lanphier. Personal communication.

APPENDIX

AUTHOR	SOURCE OF INFORMATION		DATA
Bayliss	Forensic Pathologists,Depts. of Health in capital cities. Coroners,Commonwealth Statisticians.	1957-67	71 deaths
Berghage	US Navy NAVMED 816 Accident Reports.		1956-65
Av. 78 accidents			yearly. Average 1.6 deaths yearly.
BS-AC	Voluntary reporting - 1965-70		36 deaths
Denny & ...	Death Certificates with co-operation of Vital Statistics Bureau, Michigan Department of Health. Coroners	1959-65	21 deaths
Desautels	State Board of Health (Florida) Bureau of Vital Statistics. An on-going project, started 1 January 1960	1960-69 (10 years)	150 deaths
Hassel	South California area - 1953-60. Apparently Los Angeles Fire Dept(?)	1953-60	41 deaths
Miles	Cases notified to RN Medical College over 5 years except for 'hard hat'		1959-64? 120 non fatal 45 (deaths)
NZ	Notifiable accidents - professional divers		
Naguchi	Author is Chief Medical Examiner - Coroner, county of Los Angeles. Organised investigation scheme	1961 onwards	46 deaths
Press, Walker, Crawford	12 months check of all drownings in five American states, based on Illinois Dept of Health. Wrote to coroners.	1965-66	3 skin, 16 scuba deaths Total 1201 drownings
Smith FR	Seattle-King Country Safety Council supported by Police	1959-65	10 deaths
	Harbour Patrol,Sheriff Patrol, Coast Guard, Coroner.	1959-63	181 other drownings
Taylor, Williams,	Florida coded deaths certificates. Skin and Scuba diving from 1960.	32 months	37 deaths

AUTHOR	SOURCE OF INFORMATION	DATA
Chappell	Search of Death Certificates, newspaper reports, then questionnaire to coroner/physician certifying cause of death.	(24 deaths in springs)
UK	Notification of Decompression Sickness in workers	
URI	Newspapers, complimented by other proforma sent to coroner or medical practitioner certifying cause of death	21 skin divers, 101 scuba divers
Webster	Newspapers - author was Chief of Division of Accident Prevention, Bureau of State Services, Public Health Service.	1965 26 skin divers 60 scuba divers
Naguchi 6 points	1. ‘At scene’ - investigation and recovery by experienced personnel 2. Post-mortem examination by trained forensic pathologist 3. Lab procedures for gas, toxicological and biological analyses 4. Examination of diving gear by expert 5. Co-ordination and presentation of findings to an Underwater Safety Committee 6. Establish Registry of Diving Fatalities	

Progress Report on "Stickybeak"

The Attorney General's Departments of the states have given their support to the supply of information revealed at Coronial Inquests on fatal diving accidents. This assistance will be invaluable, but to obtain this information it is necessary to supply them with details to identify the victim. For this reason the notification of all known accidents is essential even if few details are known. Name, date and state will identify. Using this source of information will enable the collection of information from past accidents, so please do not hesitate to 'cry stale fish'. To this date, the following fatal cases are known, so please send me any additional deaths known to you.

Mount Gambier	6 April 1960
Adelaide	7 February 1970
North Molle	24 March 1971
Port Hacking	10 October 1971
Jervis Bay	19 December 1971
Piccaninny Ponds	29 January 1972
South West Rocks	31 January 1972
Toowoon Bay	3 January 1972
Mallacoota	3-4 March 1972
Avalon	19 March 1972

The project has been publicised in this Newsletter and also by direct application to several members and to both the Australian Underwater Federation (AUF and FoAUI) and the Scuba Divers Association of Australia (SDAA). To date only one reply has resulted. Please give this investigation every assistance.

Any information about non-fatal accidents is doubly important and can only be obtained by the co-operation of all divers and others with an interest in underwater safety. Additional information concerning the above fatal accidents will be of assistance, as not everyone with knowledge of an accident is called upon to give evidence at the inquest.

All information supplied will be treated as confidential and the names of victims will, naturally, not appear in the final or any other report.

DG Walker
April 1972

7. REPORT ON HYPERBARIC FACILITIES FOR DIVING ACCIDENTS *

Preface

In response to a large number of requests for advice on the treatment of diving accidents and on recommendations to assist in the planning of hyperbaric units, the following report has been prepared. Over recent years a need for recompression facilities has become more pressing, due to the increased number and depth of diving operations. Many of these are carried out by amateur or semi-professional groups, quite unable to administer or finance any of the support recompression chambers (RCC) that may be required in emergencies.

It is axiomatic that the most satisfactory way of dealing with diving morbidity and mortality is to prevent it occurring by adequate training and licensing of the amateur and professional divers at risk. Unfortunately such an aim seems to be beyond the capabilities or inclination of either the Government Departments concerned or the multitudinous diving clubs and groups, many claiming to be ‘national’.

Accepting that even in the most highly trained group there will be occasional diving accidents requiring recompression, and considering the proliferation of so many amateur groups, abalone divers, semi-commercial divers and professionals now at risk, the number of diving accidents and deaths will continue escalating.

The ideal solution to this problem is to supply, at the site of diving, recompression facilities and trained staff capable of handling the illnesses concerned viz. Pulmonary Barotrauma and decompression sickness (burst lung and bends). The current facilities for the treatment of such cases throughout Australia are inadequate in every state. Nevertheless, the problem has to be kept in perspective and it would be impracticable to suggest that equipment, trained personnel and finance could be made available to supply RCCs at the site of all diving operations.

Where there is an RCC, and where oxygen is supplied to this chamber, the facility can be of immense benefit to patients other than diving accidents, eg. those with gas gangrene (saving both life

* Written in February, 1971, but still applicable to-day.

and limb), carbon monoxide poisoning and other medical disorders.

Problems

Having reiterated the obvious requirement for recompression facilities throughout Australia, it is prudent to highlight some of the deficiencies which become evident when recompression treatment is considered.

a. Medical staff specialised in this field are needed to decide upon the advisability of recompression, to select the most suitable recompression regime and to take the clinical responsibility of subsequent management. Not only is specialised training required in this field, so is experience and constant practice. It is difficult for lay administrators to realise two related facts, viz. doctors are not interchangeable with each other, and recompression injudiciously performed can be as dangerous as it is beneficial. Unlike most forms of medical treatment, recompression exposes both the patient and therapist to certain dangers, aggravated considerably by the current use of oxygen at high pressure. It is of note that the recompression treatments available in Australia at this time suffer more from inadequate specialised medical advice than any other single factor. Fortunately this is capable of being rectified.

b. The absence of recompression equipment. There appears to be kudos in the acquisition of a RCC, and many small groups acquire or build these chambers, only to subsequently let them deteriorate, because of the absence of adequate use and maintenance. Some states simply do not have any recompression chambers available. Often they are not aware of this, having confused a RCC with the aviator's decompression chamber, or believe they have a commercial chamber available, which when inspected by even the most optimistic diver is clearly unable to be used in any successful therapeutic regime. Other states have home made chambers available, and although these may be of value in the initial stages of therapy their use will often greatly complicate subsequent and more satisfactory treatment. Certain hospitals with small chambers used for radiotherapy have often the mistaken belief that these chambers are adequate for the treatment of diving accidents. In fact they may be of value in treating minor cases of bends, but they are also likely to aggravate other cases with the inadequate therapeutic regimes available to them. It is also

necessary to have adequate compressor facilities, gas mixtures, etc.

Once adequate equipment has been obtained, it requires regular and vigilant maintenance. Without this, the facilities become unsafe in practice, as well as imparting quite an unjustified confidence in the local diving and medical population. Of the four recompression chambers I have examined outside New South Wales during 1969-70, one was literally overgrown with weeds; one had no pressure gauge adequate below 30 psi; one was rusted beyond repair; and another had no portholes and no lighting system. A proposal was made for the latter to be remedied by the insertion of a lighting arrangement which could only be described as explosive.

c. Specialised staff capable of running and maintaining the chamber as described above, are required. These include engineering type personnel, as well as a supervisor able to ensure correct procedure and techniques during the recompression therapy (usually referred to as the Diving Officer).

d. An administrative authority. It is necessary that one authority takes over the administrative aspects of recompression treatment. This administrative authority must be responsible for the ensuring of adequate training of personnel, maintenance of chamber facilities and rostering of staff so that the recompression facilities are able to be used. It need not also be the financing authority.

e. Communication and emergency alarm systems. It is a necessary part of the administration authority's responsibility to ensure that all involved groups are aware that the facilities do exist, and of the method of initiating this system without undue delay. Most of the recent diving accidents have been greatly complicated by the initial reluctance to obtain adequate assistance at the earliest opportunity.

f. Finance. This problem is the one that most people seem to tackle first, and although extremely important it is perhaps the least restrictive. Recompression facilities available in Australia vary from between $4,000 and $100,000 at different establishments. Most are concerned only with

obtaining the minimal satisfactory conditions, and these can be obtained for approximately $5,000. Finance for the current chambers has been obtained by the commercial diving companies, the Royal Australian Navy, donations direct to hospitals from various charities, State Departments of Health, etc.

g. Transport of the patient to the recompression facilities. It is characteristic of the geographic features of Australia that most of the coastline is not within easy reach of the capital cities. Much of the diving is performed at locations which are remote or accessible over difficult terrain. Such is especially the case with Western Australia, Queensland and Tasmania. Transport of diving casualties in aircraft not pressurised to group level (and this includes most commercial aircraft) is contraindicated, unless the aircraft is prepared to fly at extremely low altitudes. This is often impossible, and therefore in many cases it may be necessary to take a portable recompression chamber to the patient, and not vice versa. When only a few hundred miles are involved, the use of helicopter transport, either from commercial or armed services, is the most acceptable and rapid method.

   A difficulty in providing fixed recompression facilities at areas in which diving is occurring is the migratory tendency associated with divers. A commercial abalone site at one time may become fished out, with the divers moving on to more productive fields. Similar variations occur in the popular sites for amateur divers, and these are often limited by the availability of compressors, social conveniences, etc.

Therapy for Diving Accidents

a. First Aid. This is almost invariably performed by fellow divers. The quality is reliant upon the degree of training obtained from the diver's club. There is usually unnecessary and avoidable delay at this stage, and with the patient receiving such homespun remedies as a hot bath, a few beers, etc.

b. Local Medical Treatment. This may be obtained from either medical practitioners or district hospitals. The quality of the treatment is very variable and certain hospitals in popular diving resorts obtain advice and assistance rapidly once a diving casualty is admitted. Unfortunately this is not widespread, and

there is a reprehensible tendency to ‘observe’ the patient for many hours prior to taking any other action.

c. Specialised Medical Advice and Treatment. Usually by this stage the patient has been subjected to either fruitless or harmful short recompression attempts, or has languished in a hospital bed, with or without symptomatic therapy.

Although it is unlikely that the sequence of events from first aid to specialised medical attention be altered appreciably, the quality of management of the patient could be markedly improved and the speed with which he moves through this sequence could be appreciably lessened. If this were so, then subsequent morbidity could be greatly reduced.

Different Systems of Recompression Facilities

a. Specialised hyperbaric facilities and personnel available at peripheral centres ie. adjacent to diving areas. This is of course ideal, but is usually impracticable because of the problems previously referred to. It is also doubtful whether the number of diving accidents warrants multitudinous small centres throughout Australia, held at readiness, and costly in both time and effort.

b. Specialised hyperbaric facilities and personnel at major centres throughout each state. One could envisage a system whereby centres were staffed every few hundred miles throughout diving areas. This would ensure that diving accidents were within a three hour by road radius of a diving accident centre. This would also mean that states such as Queensland would require many of these, whereas South Australia and Tasmania could get by with three each. Whether the number and degree of diving accidents warrants the outlay needed for this system, would have to be decided by each state. The use of such a system does not obviate the need to use an air ambulance type service, as many diving accidents will occur in areas remote from those mentioned, or in areas cut off from major highways by mountains.

c. Specialised hyperbaric facilities and personnel available at capital cities. This is the most economical system, with each chamber being ensured of many uses, and with minimal requirements for trained personnel. It does however, impose a heavier burden on the requirement for an efficient transport system from the site of the accident to the capital city. This is discussed later under aeromedical evacuations. Fortunately many diving groups

are centred in or near the capital cities, and thus these cities would require recompression facilities in any case; there is also the proximity to major hospitals, so that hyperbaric oxygenation may be given to the greatest number of medical patients requiring it.

Irrespective of which of the above systems is used, there are two factors which need to be considered:

a. Aeromedical evacuation of casualties from diving areas, or transport of portable chambers to the diving area. The less the number of centres equipped with hyperbaric facilities, the more efficient the air evacuation needs to be. The only way of avoiding the necessity for this is to have recompression chambers and experienced personnel wherever diving is carried out, and this is a practical impossibility. The ability to transport patients, recompression chambers, or patients in recompression chambers, to areas with more adequate facilities and more specialised personnel will be needed.

b. Standardisation of equipment and training is essential if there is going to be any rational integrated system of treatment of diving accidents. Unless this does occur, there will be complete confusion in the first aid management, indications for treatment, recompression regimes utilised, and the transport of patients to major recompression facilities. Standardisation is most important when it comes to the ability to transport a patient from one chamber into another while still under pressure. As the Royal Australian Navy is the possessor of the largest number of recompression chambers, and as it has ordered for construction during 1971 a series of large chambers and portable chambers, all with the same interlocking system, it is strongly recommended that all other groups utilise the same interlocking facility. If one diving group decides to have its own special chamber, not able to be mated with the others around Australia, then any patient placed in that chamber will not be able to receive the advantages of the more sophisticated chambers at the larger centres.

Therapeutic Recompression Chambers

The adequacy of hyperbaric therapy is to a considerable degree limited by the forethought given to the recompression chamber design. There are many chambers available, and many firms prepared to supply recompression chambers which are less than adequate for therapeutic

purposes. Most of the chambers have been designed for surface decompression viz. the decompression of healthy young men, not suffering from pulmonary barotrauma or decompression sickness, not requiring resuscitation and not requiring physiological monitoring. Requirements for therapeutic recompression chambers are quite different, as one is often dealing with a seriously ill patient unable to be left unattended and often requiring minor surgical procedures during decompression. The different types of chambers available for therapeutic recompression are as follows:

a. Large Chambers. These are fixtures, able to take one or more patients as well as medical staff, and having two locks - one to transfer medical equipment and food in to the occupants, and the other to allow medical personnel to enter and leave the chamber during treatment. These chambers are of great value for both diving accidents and hyperbaric oxygenation in medical conditions. They are usually placed in or alongside major hospitals. All the large chambers designed in recent years have a TUP (transfer under pressure) facility, so that suitable portable chambers may be mated to them, and patients transferred from the smaller to the larger chamber, while still under pressure. All these chambers have capabilities for breathing oxygen or nitrogen/oxygen mixtures independently from the chamber environment. The cost is usually in excess of $10,000, ready to run.

b. Portable recompression chambers. This type of chamber allows extreme flexibility in both the transport and and the treatment of diving accidents. The modern portable chambers have sufficient room to take two men, one patient and one attendant. This is required because of the obvious first aid and resuscitation needs of a seriously ill patient. It is also needed whenever one administers oxygen to a patient with decompression sickness or pulmonary barotrauma, under pressure. They are also cheaper than the large chambers, and serve as an ideal chamber for the initial treatment. Indeed, the full treatment may be carried out in many cases, in one portable two man chamber. When this chamber is moved to a site where it is able to mate with either a large chamber or another two man chamber, there is no limitation to the adequacy or flexibility of treatment which can be given. The chambers are manufactured for approximately $5,000 in Australia.

   It is extremely important to realise that the portable one man chambers which are on sale from most diving equipment manufacturers are designed initially for surface decompression,

not therapeutic recompression. The purchase of a one man recompression chamber for treatment of diving accidents is completely irrational if one attempts to cope with anything other than the most minor case of decompression sickness. The use of this type of chamber is now obsolete in therapy. When attempting to treat pulmonary barotrauma, serious complications are to be expected with this equipment.

c. Transit bags. This concept, of having a material bag which is able to be pressurised to a low pressure eg. 15 psig, and in which the patient can be placed, while breathing air or oxygen from an external supply, is being investigated at this time. If these transit bags are able to be developed satisfactorily, then they would be a relatively cheap way of giving initial and strictly first aid therapy to the diver at the site of the accident. They presumably could be purchased by diving groups at a reasonable price, and used to transport the patient to the site of a recompression chamber, in which the bag could be placed holus bolus with the patient, the chamber pressurised and the patient then released from the bag. These bags are not available commercially at this stage.

Recommendations

The following recommendations are made regarding the acquisition of recompression facilities for the treatment of diving accidents in Australia.

1. Recompression facilities should be available in each capital city, sited at or adjacent to one major teaching hospital or repatriation hospital in that city. It should be under the administrative control of that hospital. If there are other areas in the state scheduled to have recompression facilities, then the capital city recompression facility should be a large fixed chamber. If this is not financially possible, or if there are not other areas in the state likely to have recompression facilities, the capital city hospital should have a portable two man recompression chamber available, with transport facilities, eg. able to be put on the back of a small truck, together with compressor and/or gas cylinders.

2. If financially possible, other areas in the state adjacent to diving centres should acquire portable two man recompression chambers, and organise transport facilities.

3. Medical staff should be rostered to give on-call service. The training of this medical staff could initially be performed at

the RAN School of Underwater Medicine, at HMAS Penguin in Sydney, if application is made to the Secretary, Department of the Navy, Canberra.

4. The RAN School of Underwater Medicine could remain the central area for consultation, treatment, instruction and information into diving accidents. It is likely that the current RAAF and RAN attitude to assist in the medivac facilities in transporting and treating divers will be continued. This would be far more efficiently conducted if the injured diver were in a portable two man RCC, with an attendant.

5. All recompression chambers, be they RAN or civilian, should have the same transfer under pressure facility incorporated in the new RAN recompression chambers.

(CARL EDMONDS)
President
SOUTH PACIFIC UNDERWATER MEDICINE SOCIETY

6. SNIPPETS FROM SINGAPORE

Dear Editor,

Let me congratulate you on the fine progress of the Society since its inception. (I know you are used to flattering by now). Much has certainly been achieved in spite of the highly over-pressured number of selected officers in the society. The newsletter reflects an appealing style of informality, and is highly informative and academic. This is one effort that really cannot be judged by its cover (won't hurt to be a perfectionist though).

I hope our silence thus far has not been misconstrued as lacking in enthusiasm and interest. The inscrutable oriental is merely showing respect to the old hands by allowing them the due honour of getting it out of chests first.

And now to business and this is what I hope to sell at every publication from now on.

IT'S HAPPENING IN SINGAPORE

1. CASE REPORT

The Singapore Straits Times on 7 December 1971 printed the following report:

"Seconds after a skin diving enthusiast shot a two foot long fish near a broken-down kelong, he was found senseless on the seabed a coroner heard today.

"When Jimmy Foo Seck Dong, 29, a restaurant manager, was hauled out of the 40 feet deep water near Palau Sulu of Jurong, he failed to regain consciousness and died at Outram Road General Hospital on November 28. A member of the skin diving party, Bernard Chan, 25, told a coroner court he was diving near Foo when he heard a speargun shot.

"When Foo did not surface half a minute later Chan dived down to see if he needed help to haul in whatever he had caught.

"'I found a fish speared. I untangled the fish and took the spear and gun with me to the surface', Chan said. 'Three of my friends were in a nearby boat. I then realised that Foo was missing and called out to another diver.' Soh, a marketing executive, said he found Foo after a brief search.

"'Foo was on the seabed, face upwards with his diving gear still intact. I brought him up to the surface and applied mouth to mouth resuscitation' Soh said.

"He added that Foo was unconscious all the while and was bleeding

at the mouth.

"The court was told that Foo had been skin diving for the past six years and had gone spear fishing almost every week. Inspector Syed Kadir Alsree, the investigating officer, said the diving equipment Foo used was in good working condition.

"Verdict: Misadventure"

DIAGNOSIS (As CE used to say, if you haven't got it by now, give up diving).

Hyperventilation leading to drowning. SPUMS Newsletter Vol. 1 No. 1 published a write-up on this subject by Dr R Thomas.

I do not believe this is the first case happening in Singapore; certainly it will not be the last unless the public could be educated. In this respect I call on SPUMS to make a joint press release with me for publication in Singapore to herald a word of warning to the unheeding. I am awaiting your statements.

2. DEEP DIVE

A Deep Sea Diving Company in Singapore last week made an on-the-job dive off Sabah to 585 feet using pre-mixed Oxygen/Helium. I have not a clue what decompression tables they used. Don't ask them either, because they wouldn't tell you.

3. RECOMPRESSION FACILITIES

We are compiling a list of Companies possessing RCC facilities in and around Singapore. Suffice it to know that both the Singapore Maritime Command and the Royal Malaysian Navy stationed in Singapore do have decompression chambers capable of recompression therapy.

Attached is information volunteered by companies and institutions with RCC facilities [not published]. While obtaining this information it became very obvious to me that there are many ways we could help these companies and institutions while there are just as many ways they could help us with information and statistics.

A problem which you might have overcome but is now under consideration by us, is the mobilising of chambers for emergency use. One can clearly see the reluctance on the part of companies to avail their facilities for emergency use on the point that deaths might be attributed to them. Their argument is that one can never be too sure of chamber fires, defective compressors and scores of other things which can go wrong while treatment is in progress. What then?

- Dr Jimmy How

7. ROCHE INSTITUTE OF MARINE PHARMACOLOGY

The Roche Institute of Marine Pharmacology is shortly to be built at Dee Why in the northern beaches of Sydney at a cost of more than $4 million. It will be a multi-disciplinary effort containing chemistry and microbiology sections as well as pharmacology.

There are no national limitations in staffing the Institute but is naturally hoped that suitably qualified Australian graduates will be available. The Director's position has been advertised in Nature and other international journals with the expectation that senior Australian scientists, who would like to return home, will be attracted.

The Institute will study the highly potent toxins and other biologically active materials present in or secreted or organisms of the Australian seaboard and particularly the Great Barrier Reef. The long term object is to discover new compounds of value in the treatment of disease in man and animals or compounds with useful insecticidal or herbicidal properties. Procedures for synthetic manufacture must then be elaborated before any discovery can be put at the service of the medical and veterinary professions.

Steps are being taken to establish a collecting centre on the Great Barrier Reef but it is not clear yet whether the centre will be a permanent fixed base or whether it might be in the form of a suitably equipped vessel.

However it is arranged, the centre will be able to call on the advice of expert taxonomists to identify the variety of species and subspecies collected. If an interesting activity is observed in the Institute at Dee Why, it is essential that the collecting centre can unerringly find precisely the same material for further investigation.

The Institute will consult with scientists of four Universities in Australia as well as with Roche research organisations in Switzerland, the UK and the USA. This is long term, basic research which will certainly enlarge our knowledge of marine organisms and which, hopefully, will in the end come up with a valuable range of new medicaments.

8. NAUI COURSE TO QUALIFY PHYSICIANS IN DIVING MEDICINE

The National Association of Underwater Instructors will hold a Special Course to Qualify Physicians in Diving Medicine, July 22-28, 1972, in Honolulu, Hawaii. The course will be held at the Princess Kaiulani Hotel, 120 Kaiulani, Honolulu, Hawaii 96815. Special course rates will be available.

The primary objective of this type of 7 day program, taught by physicians for physicians, is to eventually acquaint a major segment of the medical population with the problems of underwater physiology and therapy for diving and diving related injuries. The course will be open only to physicians (MD or DO) and will include diving physics, venomous marine animals, diving physiology, advances in diving equipment, shallow water blackout and drowning, decompression chamber operation, physical exams for divers, air embolism, treatment tables and other related subjects.

James J Woodruff, MD, Qualified Submarine Medical Officer, NAUI Instructor, consultant to NAUI Diving Accident Research Committee, and presently in private practice, will direct the program.

The staff will include:

Richard T Arnest, MD, Senior Medical Officer at Pearl Harbor, Submarine Medical Officer who has had extensive experience in Diving Medicine.

Albert R Behnke, Jr, MD, Clinical Professor, University of California, San Francisco Medical Center. Dr Behnke, consultant in Hyperbaric Medicine, has done extensive work in decompression table development and is now on the NAUI Board of Advisors.

Bruce W Halstead, MD, Director of World Life Research Institute, authority in Marine Bio-Toxicology, member of NAUI Board of Advisors.

Thomas T Naguchi, MD, Medical Examiner for the County of Los Angeles, authority in Diving Pathology, consultant to the Diving Accident Research Committee.

Jon Pegg, MD, Chief Medical Officer of Makai Undersea Test Range, currently involved in research and the practical aspects of Saturation Diving.

Hal Reuter, MD, Otolaryngologist and ENT Surgeon, Qualified NAUI Course in Diving Medicine, consultant to NAUI Diving Accident Research Committee.

For more information on this program, write to NAUI Headquarters, 22809 Barton Road, Grand Terrace (Colton), California 92324, phone (714) 783 1862.

9. WHEELER INDUSTRIES INCORPORATED

SUBJECT: Plan for Scientific Underwater Explorations in 1972 - Utilizing Future Scientists of the 1990s

GOAL: To explore the research potentials of the sea, and to demonstrate the safety aspects utilizing established training techniques.

Dear Dr Edmonds:

Preliminary planning for the Wheeler Industries 1972 underwater explorations have begun. Your advice and counsel is herein requested.

Tentative plans include a series of scientific dives in the Bahamas during the month of August for a period of two to three weeks. Primary categories for these efforts include - but are not limited to - the following:

1. Archeology The scientific study of material remains (as fossil relics, artifacts, monuments) of past human life and activities; remains of the culture of a people; antiquities.

2. Scientific Diver Tools and Aids Use of various tools and aids, such as: an underwater habitat located at Freeport in the Bahamas (1 atm) ... desirably for a period of approximately 24 hours at a depth of 30 feet; scientific exploratory dives to the depth of 50 to 100 feet; use of submersible-type equipment ... demonstration of lock-in/lock-out capability; and, use of specific propulsion-type gear to support diving excursions.

3. Marine Biology Collection of samples of living life, plankton; experiments, lobster evaluation, etc.

4. Geology Bottom sediments, soil mechanics, compaction techniques, bottom stabilization, and bottom topography, etc.

5. Others Not Yet Identified Suggestions and recommendations are now solicited from you.

The theme of this particular expedition is to afford young, properly trained, qualified and certified divers (who can be expected to become the researchers of the future) and opportunity to commence involvement with the scientific aspects of diving. For those who are not aware, the Wheeler children (4 girls, 2 boys) - all certified by the National Association of Skin Diving Schools (NASDS) - have been selected to conduct these experiments. Each individual has

demonstrated his or her abilities and capabilities to perform underwater in cold water (40°F) dive sites in the local Washington, DC area and in their initial salt (warm) water dive efforts off the coast of Florida in August of 1971.

The identified FY72 planned Wheeler underwater explorations will be conducted parallel to - although not as part of - the 5th Symposium of Underwater Physiology, 21-25 August 1972. The scientific sessions of this symposium consist of areas of particular current importance to the evaluation of man's participation in the undersea activity.

I am writing to you, and to others, at this time because of your scientific involvement with, and professional understanding of, the numerous problems related to these proposed underwater efforts. I therefore earnestly request your advice and counsel to guide me in this endeavour.

Very truly yours,
E Joseph Wheeler, Jr
President

PS. I solicit support from you, from the broad standpoint, to identify potential research tasks - international in nature. Further, please feel free to show this letter to any of your associates.

10. MEDICAL COMMITTEE, WORLD LIFE SAVING - FIRST MEETING

The medical steering committee of World Life Saving (WLS) sat down to a first official meeting while the World body's Council session was in progress in Sydney, Australia on December 4.

Forming a medical panel for WLS is not an easy task, particularly as there has been so little international contact on life saving medical areas in the past.

This is why a steering committee has been set up first, to define terms, methods and aspects of operation; and to build international communications.

The steering panel of medical experts now established is: Chairman Don Harrison, Deputy Chairman Tess O'Rourke-Brophy, Graham Fisk, Warren Gunner, Professor Charles Kerr, Graham Budd, Professor Joseph, Kurt Singer and Secretary Surgeon Lt-Commander Carl Edmonds.

Three countries have already appointed nominal heads for medical contact: South Africa - Ian Dalziel, Ceylon - Douglas Arndt and UK - Surgeon Rear Admiral Stanley Miles.

This group of doctors brings wide medical expertise to the steering committee.

The panel reported to the WLS meeting their initial objectives would be to bring down terms of reference, investigation of the types of projects to be undertaken, establishing communication lines with other countries in setting up operations for the official panel to be formed later.

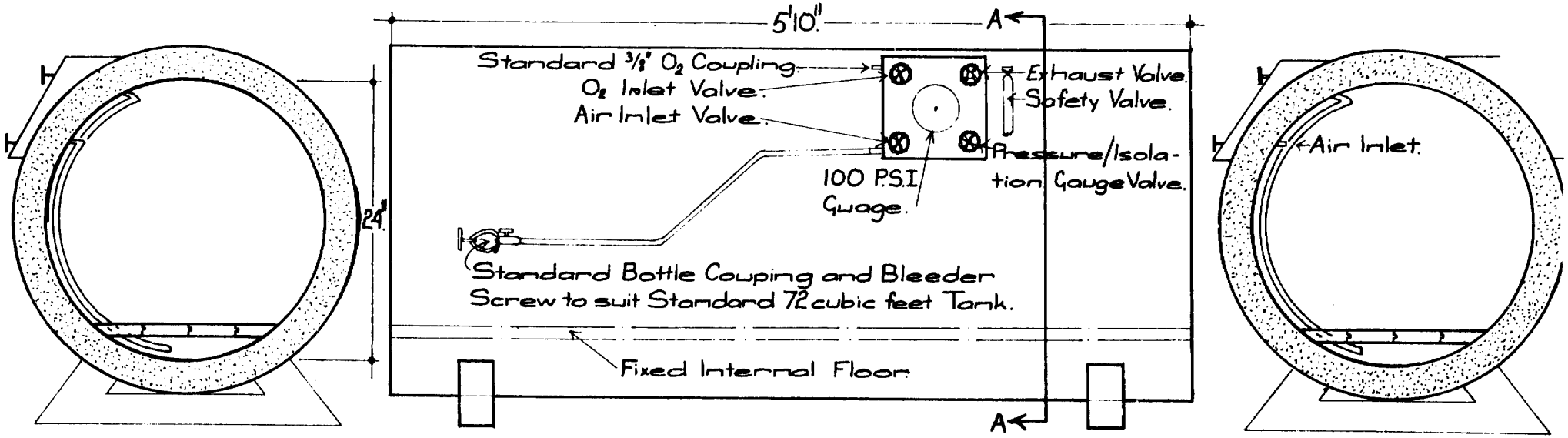
To date the Committee has begun looking at different countries' methods of field resuscitation, through a comparison of literature and training manuals received from Great Britain, USA and Australia.

A line for further investigation is the 'intensive care of patients'.

A number of people feel the lifeguard's work should not finish on the beach, after the patient has been brought ashore. Investigation is needed on how to best compile case histories of hospital treatment of the drowned.

The idea is to learn about the efficiency of efforts at all stages of rescue, leading eventually to an analysis of various hospitals' methods, ambulance attention, first aid efforts and the lifesavers' work in the water and ashore.

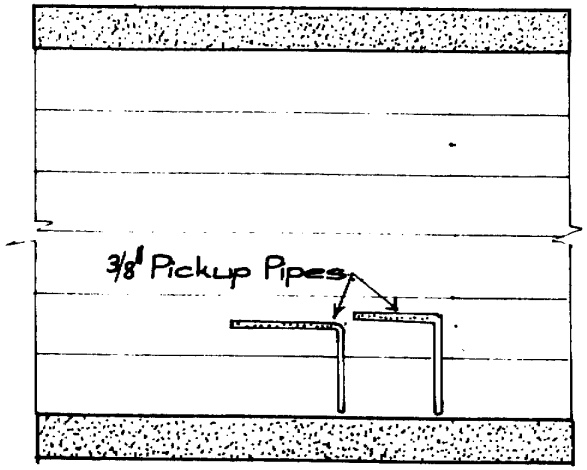
The steering committee is also keen to compile data on marine stingers in general, and on the shark menace. In particular they intend to seek detailed information from doctors experienced in shark attack treatment.



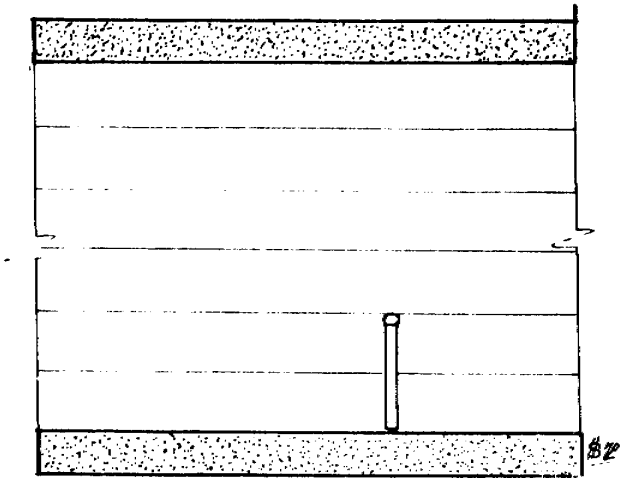
AIR EXHAUST AND PIPE WORK. Section A.

RECOMPRESSION CHAMBER IN RABAUL.

OXYGEN INLET PIPE SYSTEM. Section A.



LOOKING FROM BENEATH THE R.C.C. – AIR EXHAUST SYSTEM.



LOOKING FROM BENEATH THE R.C.C. – OXYGEN INLET SYSTEM.

11. CORRESPONDENCE

• Divepac Rabaul

Your request on info of recompression chambers for this area is as follows:

1. Operator - Robert Scott, Coconut Products Limited, Rabaul.

2. Site - Portable on board Diving Tender ‘Aquarius’

3. Maximum working depth - 150 feet

4. Internal Size - 24" dia x 5’10"

5. Internal Door opening - all reinforced fibreglass construction

6. One man, two if both in a bad way

7. Made by myself, early 1972

8. No problems foreseeable.

The position is this Carl, it was made by myself for the transfer of a diver down to you at Rushcutter unless instructions from a doctor here are to the contrary. Up till recently this area has had 7 cases of bends, one fatal in the past two years. Boy, could we tell you guys something about deep diving’ and boo boos made. Will give a rough drawing of recompression chamber and photo. Cheers for now,

R M Scott"

• Dr Cedric Deal, Royal North Shore Hospital of Sydney

"I am not all together satisfied with the medical standard as set down, if this is to be adopted for short diving.

"I would like to list my objections.

1. I feel colour of hair, etc. to be totally fatuous.

2. I agree with Editor in finding no real purpose in Box 18 colour perception.

3. I can’t see any hope of putting audiometry into a medical examination for divers - the facilities for getting the examination done and its significance to sport divers are

both open to question.

4. I see little purpose in knowing in such detail what inoculations a sport diver has had over and above tetanus.

5. In basic standards respiratory I regard respiratory function tests difficult to obtain and probably as much information can be obtained from a careful respiratory history.

6. In Visual 12-d. This surely is also irrelevant and redundant.

7. In cardiovascular I feel that an arbitrary standard such as a BP of 140/90 without qualification as to the lability is much too simple. I think it should set out conditions as to repeat performances and sedation.

I have written this partly with tongue in cheek because I think the scope is probably excellent for a professional diver but for the ordinary sport diver besporting himself in the relative shallows I think they are too exacting and difficult to obtain. It is for this individual I put in my protest and would like to apologise to Bob Thomas as it is easily seen he has taken considerable trouble and time in preparing them.

Yours sincerely
CEDRIC W DEAL"

• Surgeon LCDR KF Shepherd, RANR

"Reference SPUMS newsletter. After not quite understanding the full significance and writing a very dirty letter - I thought twice and range the old b... Carl himself and got straightened out (so much the need for psychiatry in diving).

If this ASA Medical is going to be used for:

1. Professional diving exams - it seems very good, but I do feel it needs an AF Med 1A questionnaire as well - make it like an insurance exam form and make it better than Deep divers and Transocean forms.

2. Sports diving - well my suggestions are namely - need history questionnaire like AF Med 1A must watch the cost - ? <u>how much</u>.

Box 3 - if <u>female</u> ? pregnancy - have had 2 at 4/12 doing courses.

Audios and ECGs and FEV’s etc. are not really on for the type of

individual I am examining for several teaching schools.

"The cost would be excessive and if they are knocked back medically by me they will only go to somebody with little interest and get the OK or go diving without instruction.

I would stress the need to concentrate on history, CVS, RS, ENT and general health rather than including the boxes, eg. like 45 and 46. As I suggested to Carl - I feel a medical like diving licence but with endorsements for deep diving, etc. as they do for semitrailer, buses, etc. Yours,

KF SHEPHERD"

• UNDERSEA MEDICAL SOCIETY

The Undersea Medical Society is international by its charter; as such, it is especially interested in other similar organizations throughout the world. Consequently, we would like to know more about the South Pacific Underwater Medicine Society (incorporated Sydney, Australia) - its bylaws, membership, and charter information. Since the UMS is concerned with communications among all researchers in the underwater environment, we are anxious to learn more of the efforts and accomplishments of our colleagues. Any light you can shed will be appreciated. Very truly yours,

E JOSEPH WHEELER, JR."

12. BUBBLES

DITCH AND RECOVERY

It has been noticed by one of our members, who wears corrective lenses underwater, that a whole new concept of ditch and recovery methods have been attempted by civilian skin diving classes at Clovelly ocean pool. The doctor concerned, having somewhat of a scientific nature, noted that immediately following the removal of parts of bikinis from two scuba diving ladies, the previously sparsely populated area took on the appearance of Pitt Street at 6pm. Divers materialised from nowhere, churning up the sea bed and causing hazardous conditions for the photographer and the doctor. These conscientious divers plodded on with their work, which seemed to go on for hours, despite the physical hardship they endured. All in the cause of science.

STARCK IN AUSTRALIA

Dr Walter Starck, world famous inventor of the Electrolung, is now in Sydney. It is believed, although not yet confirmed, that Beckman have no longer the sole rights to the development and sale of the Electrolung, and there is even a rumour that somewhere between Japan and Australia, Starck's new diving set may be available at something less than $1,000. Marine biologists and professional divers may be interested in this development, however a word of warning. This is not for the amateur. Forget your decompression tables when you use this equipment, you require specially produced tables.

ASHMORE

One erstwhile treasurer of the SPUMS is now unable to be contacted. It is not that he has made a beeline for Monte Carlo, only that he does not yet know his diving signals.

BRIBERY AND CORRUPTION IN HIGH PLACES

Many office bearers of SPUMS have made it publicly known that they are amenable to bribes, especially in the form of diving equipment, for a period covering the second week of June, 1972. Some members in fact have been rather forthright in this regard, and it was considered by the President that he should make a public statement disclaiming this group. This statement is no longer required as he has obtained the necessary equipment himself, and it is now every man for himself. Go to it members.

13. LIST OF FINANCIAL MEMBERS FOR 1971/72

MEDICAL

Dr DB Paul, 72 Carmen Drive, Carlingford 2118
Dr Ken Shepherd, 7 Young St, Brighton 3186
Dr Terry Horgan, 232 Mona Vale Road, St Ives 2075
Dr Carl Edmonds, 6A Mistral Ave, Mosman 2088
Dr George Carter, 19/180 Spit Road, Mosman 2088
Dr Frank Summers, 515 Hunter Street, Newcastle 2300
Dr Jimmy How, 20 Jalan Labu Manis, Singapore 19
Dr JT Clift, Dept. of Anaesthesia, Darwin Hospital, Darwin 5790
Dr AG Slark, 19 Stanley Point Road, Devonport, Auckland 9, New Zealand
Dr JL Lander, HMAS Tarangau, Lombrun, TPNG
Dr W Douglas, 201 Wickham Terrace, Brisbane 4000
Dr David Noble, 69 Old Cleveland Road, Stone's Corner 4120
Dr Noel Roydhouse, Middlemore Hospital, Otahuhu, Auckland, New Zealand
Dr JC Isles, Mental Health Services Commission, 141 Hampden Road, Hobart 7000
Major A Thambirajah, SO2 Health, HQ 1 Div, Kuching, Sarawak, East Malaysia
Dr AW Young, PO Box 65, Lindisfarne 7015
Dr RL Thomas, C/- School of Underwater Medicine, Balmoral 2091
Dr FM Cave, 6 East Street, Rockhampton 4700
Dr W Ryan, 141A Birdwood Terrace, Toowong 4066
Dr P Hamilton, C/- No. 1 Birdwood Avenue, Lane Cove 2066
Dr W Tucker, C/- HMAS Penguin, Balmoral 2091
Dr JW Walsh, C/- CVA of WA, Box T1789 GPO, Perth 6001
Dr RC Wonson, 152 Richmond Road, Blacktown 2148
Dr MJ Flynn, HMAS Albatross, Nowra 2540
Dr R John Knight, Suite 6, 108 George Street, East Melbourne 3002
Dr WSG Rowe, North Shore Medical Centre, 66 Pacific Highway, St Leonards 2065
Dr D Walker, 1423 Pittwater Road, Narrabeen 2101
Dr Peter Nicoll, Princess Alexandra Hospital, Ipswich Road, Wooloongabba 4102
Dr Ian Unsworth, Hyperbaric Unit, Prince Henry Hospital, Little Bay 2036
Dr JR Hazell, 2 Arkana Street, Telopea 2117
Dr JA Lowson, 54 Durham Street, Heidelberg 3084
Dr F Winter, 22/33 Kimberley Street, Vaucluse 2030
Dr J Waites, Box 439 PO, Rockhampton 4700
Dr Victor Brand, 396 New Street, Gardenvale 3185
Dr Anthony Hodgkinson, 2 Davidson Avenue, Warrawee 2074
Dr JC Morton, PO Box 100, Lae, TPNG
Cdr RJJ Gray, Medical Directorate, Dept of Navy, Victoria Barracks,

Melbourne 3004
Dr ER Emmanuel, 114 Grey Street, East Melbourne 3002
Dr G Davis, 5 Moten Street, Campbell ACT 2601
Dr Colin Mills, District Health Office, Box 1630, Boroko, TPNG
Dr J Silver, 57 Electra Street, Williamstown 3016
Dr Pavel Kolisch, Department of Health, Republic of Nauru
Dr Phillip Rubenstein, 4 Highfield Grove, Kew 3101
Dr JE Gilligan, 17 Queens Ave, Burnside 5066
Dr Zolton Okalyi, 32 Lochiel Street, Kenmore 4069
Dr BJ Cairns, Pathologist, Latrobe Valley Community Hospital, Moe 3825
Dr Ronal Palmer, 19 Coronation Drive, Innisfail 4860
Dr John Fox, 8 Foss Street, Hunters Hill 2110
Dr F Kwok, 19 Old Northern Road, Baulkham Hills 2153

Non-Medical

Mr W Fitzgerald, Hyperbaric Unit, Prince Henry Hospital, Little Bay 2036
Mr John Manley, HMAS Melbourne, C/- GPO
Mr Frank Blackwood, C/- School of Underwater Medicine, Balmoral 2091
Sub Lieutenant FR Ashmore, C/- School of Underwater Medicine, Balmoral 2091
Sister Marie Nash, Hyperbaric Unit, Prince Henry Hospital, Little Bay 2036
Captain JB McMillan, 2 Farnell Place, Curtin ACT 2605
Lcdr R Sutton, C/- Diving School, HMAS Penguin, Balmoral 2091
Mr John Pennefather, C/- School of Underwater Medicine, Balmoral 2091
Mr Les Graham, Terrigal Diving School, Terrigal 2260
Mr A Kastanias, 49 Irvine Street, Kingsford 2032
Mr A Little, Biochemistry Dept, St Vincent’s Hospital, Darlinghurst 2010
Mr John Harding, Editor, Fathom Magazine, 8 Mary Street, Surry Hills 2010
Mr Peter Kay, 140 Watsons Road, Glen Waverley 3150
Mr Robert W Kelsey, 133 Victoria Road, Gladesville 2111
Mr K Breynard, 6 Reynolds Street, Blackwood 5051