4. FIRST AID AT THE TIME OF THE ACCIDENT

by Surgeon Lieutenant Commander Carl Edmonds

(Note: Lecture given to the Instructors' Meeting, early 1972)

I am delighted to be able to attend this meeting and discuss some of my problems with the very group of people that cause the problems. The standard of diving around the coast of Australia never cease to surprise me. Everyone seems to be a good diver, or so they tell me, and almost without exception each diver has a fund of thrilling escapes and brilliant individual activities which support his view of himself as an underwater genius. Unfortunately the enthusiasm engendered by these anecdotes tends to be inflicted upon the younger, more gullible divers under training. I am heartily sick of hearing about one crummy free ascent from 150 feet or what have you, performed once by one guy and therefore proposed by him for every diving accident thenceforth. I am also a little tired of hearing reports of an instructor being 'Navy trained', when in fact he has completed one amateurish three week course in compressed air diving, and thus has achieved, at least in the Navy estimation, the lowest qualification of all Navy divers, and certainly is not qualified to instruct others. The third factor which also causes dyspepsia is the statement that precedes most diving instructors' viewpoints, namely 'I am all in favour of safety, but ...'; they then proceed to do whatever they want to do, absolutely irrespective of axiomatic safety precautions.

Having made this criticism, let me reassure you that I am not suggesting that the instructors available today are not good divers. In many cases they are superb divers in their own right. They are just lousy instructors. To take this matter a little further, I would like to explain in what way the instructors do not come up to obvious standards. Most of them will spend a considerable time teaching the novice diver techniques of diving which are of considerable importance. They may even teach techniques which will decrease the possibility of diving accidents occurring, eg. adequate planning of the dive including depths and times prior to entering the water, methods of reading decompression tables, the use of pressure gauges that can be read while diving, depth gauges, ditching rules, etc. They may even teach techniques such as buddy breathing, free ascent training etc. which I would prefer not to go into tonight. After they have taught the novice to dive with some capability, the instructional standard plummets to zero. They gloss over the teaching of first aid measures to be instituted at the time of a diving accident. It is very rare that instructors will actually advise on what steps would be taken once the accident actually has occurred. I hope that you understand the difference between prevention of accidents, and the first aid treatment of the accident, which must sometimes occur despite adequate training. It is the latter aspect

which I would like to discuss.

Some of the facts on diving deaths should be comprehended. Too often one hears the statement that we have no factual data on which to base safety recommendations. This is a nonsensical statement as there has been as vast amount of information available, but people don't seem to both reading it.

The UK information is as follows: Surgeon Captain Stanley Miles of the RN produced his paper on the cause of 165 diving accidents approximately 8 years ago. Heading the list of the major predisposing factors for fatal accidents was Inadequate Safety Precautions. I will quote exactly what Captain Miles has stated:

> 'Inadequate safety precautions. This applies solely in this context to the ability to remove a diver from the water should he become in difficulties and implies primarily adequate supervision and attendants and the use of a lifeline or buddy line.'

The British Sub-Aqua Club requires its members to remain within touching distance ie. 6 feet of each other. The Royal Navy Diving Manual states that when diving or underwater swimming ... a diver is always to have a lifeline securely attached to him except ... when operating in pairs, when swimmers are always to be attached to each other by a buddy line.

There also seems to be adequate information coming from the States. On the civilian scene Paul Tzimoulis, writing in 'Skin Diver', has kept many people up to date with the diving death statistics. I thoroughly recommend his editorial on January 1971 and his article of March 1971. If you do nothing else after this meeting than peruse the March 1971 article, you will have gained enormously. Instead of quoting from the 'Skin Diver' as so many of you do, please read it. The US Navy are equally clear in the Diving Manual of March 1970, they state that the buddy system is the biggest single safety factor in scuba diving. It makes two divers responsible for each other's safety, over and above all other safety precautions which the diving supervisor may take. It recommends the use of the buddy system wherever possible in any diving operation, even for surface attended scuba divers. It stresses that buddies are a pair of scuba divers working as a unit, each of the pair is responsible for his buddy's safety throughout the diver. It also states that the buddies must maintain a continuous contact.

From New Zealand comes the information in 'Dive South Pacific', by Wade Doak. His article entitled 'Six Divers Die Alone' is worthy of careful thought. In Australia we seem to be roughly where the

Brits were twenty years ago. I bring to your attention the last 10 diving deaths along the eastern coastline. Of these, two were due to decompression sickness, and the other eight decided against obeying the normal safety rules. In some cases they were innocents under training, and the negligence must be attributed directly to their instructors.

In each of the eight cases the person in difficulty was unable to be rescued because his ‘buddies’, when he had them, were unable to find him and surface him in time. That type of ‘buddy diving’ we can well do without. As you know, in some cases they are still looking for the bodies. In one case it was the instructor who died, and he presumably felt, in common with most of the rest of you, that the safety rules did not apply to him. On these diving fatalities that have occurred in the twelve months, over half were in very experienced divers - not sensible or safety conscious divers, just experienced.

I would now like to briefly explain what buddy diving is. It requires that you are personally responsible for the welfare and safety of your companion diver. This means that whether he has warning of his difficulty or not, you should still bring him to safety and commence resuscitation. This requires three things. Firstly, that you have an excellent communication system between. It does not imply mental telepathy.

- if you don’t know where your buddy is, then you haven’t got one;
- if you have to search for your buddy, then you haven’t got one;
- if you can see your buddy, but can’t reach him, or if you can reach your buddy in time, but cannot get to the surface you may as well not have a buddy.

The only method of reliable communication with which I am familiar is that of a buddy line between the two divers. Occasionally this may be avoided by having a surface attendant-to-diver line with a standby diver in readiness, but this is a second rate alternative.

That brings us to the second point. It follows that not only must there be excellent and immediate communication but then the two buddies, there must also be a method of ensuring that both divers reach safety. As those of you who have read the diving death statistics will realise, most divers who die do not ditch their weights, and less than half will inflate their life jackets. The reason is pretty obvious - they have greater priorities, eg. breathing. First aid therefore requires that the buddy is able to bring his disabled companion to the surface and maintain him on the surface with relative ease. There are, now, two obvious requirements: a buddy line which ensures that the injured diver is able to be reached, and an inflatable buoyancy vest which will ensure

that both divers reach the surface and remain on the surface.

The third aspect of first aid in a diving accident is resuscitation. Once the injured diver has got to safety, or sometimes even before, resuscitation must be commenced. Thus is the buddy who is doing the rescuing is not capable of performing mouth to mouth respiration or external cardiac massage correctly, then his companion can still die, despite prompt rescue.

Allow me to reiterate the three factors that are almost always essential for first aid treatment of serious diving accidents, and almost always absent in the fatal cases. There are:

- a buddy line for communication and assistance with rescue;
- an inflatable life jacket;
- training in resuscitation.

These refer to first aid given by divers, not to first aid from ambulance staff and medical officers. These latter groups give secondary aid and definitive treatment.

Mark Terrell, 'The Principles of Diving': *No diver shall be beyond the reach of immediate effective assistance....If diving is to be done in dark or tidal water a lifeline would be worn, and the divers should operate independently. But in good visibility the divers can often work more efficiently in pairs, being linked with a buddy line so that they maintain contact.*