

SPUMS SCIENTIFIC MEETING
1983

The quality of the recordings of the question and answer sessions after Professor Hill's lectures left a lot to be desired. We were able, however, to salvage the following which covers three important points.

Dr Peter McCartney

What advice should I give to an abalone diver who asks about breathing oxygen after diving?

Dr Brian Hills

I think that what is going on between the primary event and the critical insult is that one triggers the gas phase almost instantaneously and the bubbles have to grow but they also have to coalesce. There was a classical study done by the US Air Force during World War II, in which they took continuous X-rays during decompression. When they went to a bends provoking altitude, say 25,000 feet, a cloud came across the X-ray. Then when they exercised, one would see the cloud actually coalesce into bubbles. Those cadets did not complain of pain, until one could actually identify bubbles. So I would stick my neck out and say that the process which is probably rate determining is coalescence. Of course, exercise and the resulting movement of the facial planes, coalesces gas into a concentrated insult. Then the gas is in one place, and will press harder onto a nerve or a nerve ending or a blood vessel.

Now for the use of oxygen. I recommend to diving companies, to whom I am a consultant, that rather than use surface decompression tables, as one knows that if that diver remains on the surface and does not go back under pressure he is going to get the bends, give him a treatment table anyway. That has cleared up a lot of the problems which several of the companies have had in the Gulf of Mexico.

What is very controversial is what some companies are doing, changing to oxygen in the water. There have been some nasty accidents, because it is very, very unpleasant having what is virtually an epileptic fit on one of the diving stages. So one must make sure that the diver is well secured before giving him oxygen in the water. Many diving companies, for economic reasons, are letting their divers breathe oxygen at the 40 foot mark before bringing them up to the surface. But one must be careful. It is a controversial issue as to whether to do it or not, but it certainly cuts down the incidence of decompression sickness.

I would highly recommend that in place of the surface decompression table when the diver gets back to the surface one gives them a treatment, as though they have been bent. It is all treatment, anyway, as there is gas there the whole time and whether the diver has symptoms or not, one is really treating a gas phase.

ENCOUNTER WITH A BLUE-RINGED OCTOPUS
A FAILURE OF MURPHY'S LAW

*Based on a report to the PROJECT STICKYBEAK
Non-fatal Incidents file.*

Douglas Walker

To most people it is self evident that their lives are governed at all times by everything implied by saying "Murphy's Law", and to a casual observer this case fits the mould. That such is not the case is here related.

Joe, which naturally is not his real name, was on a day trip with his two young nieces to an island off the Queensland coast. They walked along the beach and the children saw some creatures in a pool. As they were too frightened of the unknown to pick one up, he did so. He seemingly had a vague feeling that the small octopus could be dangerous to children but felt safe in handling one himself. He threw away the first creature and picked up another, which he placed on the back of his left hand. It was after this one also had been discarded that he noticed a spot of blood where the animal had rested. There had been no sensation of a bite.

At this time he was near the launch which had brought them and told the skipper what had happened. This conversation was overheard by the pilot of a seaplane drawn up nearby in preparation for a flight. The pilot saw Joe collapse to the ground, which was due to his legs becoming weak, and remembered articles recently published in the local paper which gave warning that there were many blue ringed octopuses in the locality at that time. He had become interested and had read up the symptoms and correct management of victims of their bite, so immediately diagnosed this as such a case. With the help of two persons standing nearby he quickly assisted Joe into his plane and set off for the mainland where treatment would be available. During this short (7 minute) flight Joe twitched a few times and then became apparently pulseless and ceased to breath.

Joe's luck still held, for both the bystanders from the beach who had been co-opted to assist had accompanied him on the plane trip. They were not only aware of resuscitative measures but had recently attended CPR refresher courses. The crisis occurred about 7 minutes from the time of the bite. Because of their work Joe was alive on arrival at the airport, where an Emergency Ambulance awaited, summoned via the plane's radio. On arrival at the hospital an ECG confirmed asystole. Brain oxygenation was sufficient, despite the difficulty of resuscitative action in the confined space of a small plane, to prevent irreversible anoxic changes. The end result was complete recovery, though with some amnesia for the fine details of the incident and of the plane trip.

Remarkably few people are bitten by the blue ringed octopuses despite their large numbers. Which is extremely lucky, as the paralysing effect of their toxin cannot be reversed though it has a short period of action. Support for respiratory function is the total but essential management of anyone showing symptoms after contact with such an octopus.