oxygen, if they did not open their Eustachian tubes. We even titrated the various He/O_2 mixtures against the middle ear pressures, but the results were never published.

It is likely that nitrous oxide administered to a diver who already had sub-clinical bubble development from a considerable hyperbaric exposure, would aggravate the bubbles present.

Of interest to diving physicians, but not relevant to this case, is the analogous change of pneumothorax volume. A pneumothorax will double its size within 10 to 15 minutes if 70% nitrous oxide 30% oxygen, a common anaesthetic mixture, is breathed instead of air.

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THE WORLD AS IT IS

OUT OF COURT, OUT OF SIGHT, OUT OF MIND

Douglas Walker

There are many, often compelling, reasons why a case which has been entered into with vigour by the parties involved can end, as far as outsiders can ascertain, in a conspiracy of silence. The practice of Law frequently involves the quoting of precedents and where cases are settled out-of-court no precedents are established. It is this fact, combined with limiting the vast expense of litigation, which encourages settlements. Naturally there are losers as well as winners. Public good seems to be the loser in some out-of-court settlements as the opportunity to learn of problems and plan to avoid their repetition is lost.

This may seem an irrelevance to most divers but they would be wrong. In a hypothetical claim for damages after a diving incident which resulted in morbidity, the people sued, be they persons or organisations, will have a real interest in avoiding both publicity and cost, and hope to prove no blame should attach to their actions. Their insurer will want to minimise the expense, even if this means that the insured has to accept an implied blame which may not be deserved. The lawyers of both parties have a financial benefit from a prolonged battle, but the plaintiff can avoid the uncertainty of outcome which is always present with even the most apparently cast iron of cases.

Without going to the extremes of the claims which are rumoured to be made in America, where such cases are often taken on a no-win no-pay (contingency) basis (for a proportion of the award) it is possible to suggest some scenarios which could arise in New Zealand or Australia. Litigation could result from defective hired equipment or injury during a Resort Course Dive or a dive from a commercial dive boat. It is possible that an injured party could claim that an inadequate or incorrect course content provided less skill than the pupil required and expected. This is a veritable minefield, with present and potential risks to all levels of the diving industry.

At this time (February 1994) there have been no reports of anyone making a claim on the grounds that they have suffered pain and morbidity following dives made during a training course, or by an instructor claiming his duties have resulted in an episode of decompression illness. However, this situation will not continue indefinitely. There are records of such cases which have required recompression treatment. There is no guarantee that all patients in the future will have complete resolution of their problems, nor that they will meekly accept such discomfort as unavoidable. One day they will demand a cash recompense.

In the analysis of scuba diving-related fatalities it is not unusual to find some adverse comments made about the function of the equipment, though it is unusual for such problems to be critical. If the equipment was hired or had been checked by the dive master there could be a duty of care case launched. Unless there is very careful and frequent checking of dive shop equipment there always will be a risk of a claim if the wet suit was too loose or tight, the regulator incorrectly set or letting in water, or the buoyancy vest had some fault. A claim could arise from those whose holidays are spoilt or who feel they have suffered in some way from such problems, even when they had suffered no actual harm. Failure to isolate, for examination, the equipment worn by a diver who suffers a significant problem could be taken to indicate poor attention to safety factors. Keeping meticulous records is a great legal protection.

A dive master (or equivalent) now faces responsibilities which have increased greatly in recent years, and probably include matters which are the responsibility of the dive shop when taking the diver's booking for the trip. The diver should have proof not only of training but also of experience adequate for the planned dive. The dive master must ensure that those who enter the water are aware of the depth and other basic details of the locality, have the correct equipment and are suitably buddied. The adequacy of the surface, and possibly underwater, care provided will be dictated by the circumstances. Proper contemporaneous documentation often appears to be a bureaucratic chore but can save one much grief if an accident occurs and one is cross examined in court later on.

The de facto situation nowadays is that all scuba divers must initially obtain a basic training before being permitted any access to air refills or acceptance on any commercial dive, except for the special situation of a Resort Dive Experience.

While this rule may protect the dive operator from the untrained there is, as a corollary, the implied contract that the training given is fully adequate for the skill level the pupil believes he or she was trying to attain. They should be fully aware of any limitations in their grade of training and not misled by certification cards stating they are "Advanced", when this term is not given the meaning which it has in everyday life. Misapprehensions on such matters can be, and indeed have been, fatal.

Quoting the official manual of the diving organisation is often relied upon as a defence against negligence claims, based on a belief that a divergence from the manual implies improper behaviour. This is probably an unwise assumption for manuals are rarely critically revised and updated to take into account the lessons of incident analysis. Judges may choose to require greater or different skills to those stated in a manual. Any organisation which fails to seek actively to revise and improve its procedures, through the analysis of data obtained by a continuous collection of "incident" reports, may be found to be irresponsible and liable for the consequences of failing to apply information it should possess. The diving organisations should act before legislation forces harsh obligations upon them. It may be cheaper, as well as better business morality, to maintain a critical review of all the customers' expectations and rights. The Diving Incident Monitoring Study (DIMS) and Project Stickybeak continue to offer a confidential resource for data exchange and collection.

There is little available data on claims and their outcome so little is known concerning either the problems which give rise to litigation or about the outcomes. However they will certainly become both increasingly frequent (and costly) and harder to defend in the future, unless those with power to make the necessary changes recognise the need for changes to take account of available information. The requirement to show an ongoing upgrading of procedures in response to any new information is a reasonable requirement to which coroners and all who represent litigants will increasingly draw attention.

Before this is disregarded as mere theory take note of what has been stated in connection to fatal incidents in the worlds of commerce, shipping and aviation. Taking the theme of accountability, Mr Joe Catanzariti has commented[1] that corporate crimes in the USA were usually a consequence of company inadequacies. He said that, in addition to charging the primary criminal, the prosecution should also pursue the company and place appropriate conditions on it. These would include requiring the introduction of strict auditing controls, increased internal accountability, and provision of regular and detailed reports on the progress it was making. In relation to the Zeebrugge car ferry disaster he drew attention to the finding that it was the ferry company rather than individuals which was held responsible "because it was found to be infected with the disease of sloppiness". He summarised his views by stating "regardless of who is finally convicted (of some crime) management can rarely claim to be free from blame". Recently at the inquest into the crash of a RAAF Boeing 707, while making an emergency-management training manoeuvre, the coroner was told that RAAF operational publications were deficient, that there was an erosion of

corporate knowledge as pilots left for civilian life, that RAAF officers knew little of other incidents involving Boeing 707s, and that there was inadequate collection and dissemination of information about accidents involving RAAF aircraft.[2] There was a comment by the coroner that "in a sense this (crash) was due to a systemic failure, responsibility for which could be said to rest with the entire chain of command of the Air Force".

In Australia the Bureau of Air Safety Investigation (BASI) runs a confidential non-punitive reporting service and many airlines are now developing similar reporting schemes. The idea is to identify how mistakes are made and rectify any systemic factors which play a part in causing them. Prof Jim Reason, University of Manchester, has defined two types, active and latent, of failure in complex systems,[3] and his model is now used by human factors psychologists. The traditional focus of (the aviation) industry has been on active failures involving front-line operational staff. Latent failures are accidents looking for a "window of opportunity", one created by systemic deficiencies.

The Australian Incident Monitoring Study was started in 1987. It is a confidential collection of anonymous reports of incidents from anaesthetists. The information is published from time to time, the latest being a symposium issue of Anaesthesia and Intensive Care,[4] when the data base was over 2,000 reports. These publications have been acted upon by the Faculty of Anaesthetists of the Royal Australasian College of Surgeons and its successor, the Australian and New Zealand College of Anaesthetists, to change their recommendations about anaesthetic practice.

The relevance of the coroner's remarks on the crash of the RAAF's Boeing 707 should be clear to the diving community, and especially to those running the instructors' organisations. While this may be taken as a plea for the more active involvement of such individuals and groups in the Dive Safe/Project Stickybeak projects (which it indeed is) it can also be regarded as an advanced warning of looming problems which can either be minimised by decisions taken now or allowed to grow to become devastatingly (and deservedly) costly in impact.

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