Invited editorial

The foundations for today's future

David Elliott

This journal can flag, on its behalf, two 40th birthdays for the European Undersea Biomedical Society (EUBS); one now in 2011, and the other in 2013. Launching a new Society needed a lengthy incubation, but that gap was primarily to avoid a clash with the 1972 Underwater Physiology Symposium.

Not widely known to today's members is that the inaugural meeting of the EUBS was held on 30 September 1971 at the Royal Society of Medicine in London. Rather than presenting any scientific communications, this meeting was needed to create the Society, to confirm a formal organisation with an independent constitution and to ratify the planning and priorities for future meetings. On that occasion, our Editor, Mike Davis, was one of only some twenty founding members who were present, and it is thanks to him that a copy of the minutes of that meeting is available.[1]

At that time, I was at the US Naval Medical Research Institute for three years. In spite of being on the EUBS Executive Committee after that for nine years, until now, I had heard only oral versions of the Society's origins. Circulating stories reported some of the decisions made but omitted any formalities and all the personalities that created them. So no list of those involved was seen and some hearsay also suggested, wrongly, that this meeting had happened one year later than it did. Now, some forty years on, all has been revealed, and for this timely revelation, we thank Mike for revealing the minutes of that occasion, preserved in his meticulous archives.

A second 40th anniversary should be held in 2013. This is in recognition of the '*First Scientific Meeting of the EUBS*' which was held at the Karolinska Institutet, Stockholm in 1973.[2] Professor Carl Magnus Hesser, as the first President of the Society, gave the address of welcome and recorded that "*to get this far had required a great expenditure of time, money and effort by many individuals*". I was formally invited to attend as President of the Undersea Medical Society, and this gesture marked the beginning of the continuing liaison between these two societies.

Not many in the medical profession are familiar with an influential diving committee that had been created, also in 1973, by members of the Society of Underwater Technology. This is the EDTC (European Diving Technology Committee) which was set up to work closely with DG V, a Directorate in Luxembourg responsible for the oil industry within the CEC (The Commission of European Communities). The objectives and constitution of this were political and directed towards the formal harmonisation of diving safety and regulations across Europe's borders. Within this review, it is unique because it represents a non-scientific committee created with a 'tripartite' membership. 'Tripartite' allows three representatives to be nominated from each European nation. These were: one government, one employer and one trade union representative but, formally, no medical input. However, the nature of its business meant that each nation could then nominate one doctor to join the meetings, and several were asked to do so.

Following an inadequate medical response to a serious North Sea diving accident, the Diving Medical Advisory Committee (DMAC) was created in 1975 at the request of senior members of the international diving industry. Initially its members facilitated cross-border coordination between national sectors for medical emergencies, particularly in bad weather. Now its recommendations cover many medical aspects of diving. The DMAC guidance on decompression sickness treatment and, in particular, deep recompression in saturation diving, with a safe route back to the surface, was based on Royal Navy experience of the 1960s and this protocol remains in effective use worldwide today.

From the liaison established between EDTC and CEC's DG V, a number of symposia and workshops were held in Luxembourg and, in particular, one was the Annual Scientific Meeting of the EUBS in 1978, together with a workshop on the long-term health hazards of diving.[3] However, the regular periodic meetings of EDTC were, for the minority of medical members, not an effective use of their professional time and so, as Chairman of the EDTC in 1991, I created a separate medical subcommittee. Since then Jürg Wendling, as Chairman of EDTCmed, has continued to enhance medical input to this field.

Because of the complexity of industrial diving, DMAC's role also extended to formulating guidance related to the physiological and medical safety of hazardous procedures and environments, and to the training needed by doctors associated with diving. The Secretariat for DMAC continues to be provided by IMCA (the International Marine Contractors Association) but the members of DMAC each maintain their own 'fierce independence'. Currently IMCA advise their worldwide member-companies of the need for all doctors associated with diving to achieve and maintain their training at Level IIA.[4]

The hyperbaric speciality in Europe is recognised by the activities of the ECHM (European Committee for Hyperbaric Medicine), active from 1989 and registered in 1991, and it remains a purely medical committee. Among its many hospital-related topics, their meetings have covered the treatment of divers, predominantly recreational, who may require recompression in a clinical chamber. Related to those emergency needs, one must recognise the world-wide activities of DAN in the medical co-ordination and provision

of telephone advice and in arranging possible evacuation from remote emergencies, mostly for air-range recreational divers. Many diving contractors who employ compressed-air divers are required to provide recompression facilities on site (or have access to a treatment facility within two hours' travel time). These chambers are often used for surface-interval decompression (SurD) and are not 'medical' but, rather, are constructed and regulated as diving equipment.

The educational objectives needed to provide medical support for divers are based on the joint EDTC-ECHM guidance, originally formulated by Jordi Desola, the late Tor Nome and myself some 30 years ago. These European training requirements were implemented by DMAC for the diving industry (AODC and IMCA) worldwide, simply because many working divers move around the world frequently and dive from vessels carrying a variety of national flags. Working divers use procedures not found in recreational diving and such techniques, and their possible consequences, are reflected by the breadth and the detail of the competencies required within the medical training objectives that must be mastered by those who accept the challenging responsibility of treating them.

These training objectives have now been agreed by DMAC, EDTC and ECHM and current discussions will lead to some formal recommendations on training and periodic revision. This recent review has also generated an international awareness of the increasing similarities between some recreational diving (in particular 'tekkie' diving) and the many techniques used by working divers. Saturation diving remains almost entirely confined to commercial activities but, as some 'top-up courses' have shown, supplementary training is only a matter of a few extra days.

One never knows, when the emergency phone rings, what kind of diving has preceded it, and it is considered by many of us that those who accept the responsibility of answering the 'red phone' must know how to handle any diving emergency.

To endorse the view that all training for diving doctors should cover all diving is, in summary, simple.

- The laws of physics are the same.
- All fit divers have the same physiology.
- They are subject to the same pathologies. Indeed, even the long-term pathologies that have been described in saturation divers were each described previously among conventional air divers.
- The technical aspects of advanced recreational diving have developed to have much in common with some working procedures.
- Treatments of air-range recreational divers in the past have entered the air-saturation mode and the diving doctor must understand the options available for continued management.
- Deep mixed-gas dives of 28 days' duration needs special consideration, and their associated emergencies can happen anywhere in the world.

Those who do not agree with such comprehensive training for all on-call doctors must first define clearly the boundary of their limited ability.

So, what is it that divides divers into two major groups, recreational and working? It is not the range of diving techniques, a number of which can be found to different extents in both groups, but in every country this division is based simply on the local employment law. Unlike the laws of Nature, which are universal, national laws on diving differ. However the essence of any difference is that:

- recreational divers are responsible for their personal health and safety (but can enter into other agreements with trainers, expedition leaders, etc); they can dive when, where and how they wish, or they can, at any time, decide not to make that dive. Many recreational diving deaths appear to happen to those who dive beyond their competency.
- working divers are expected to dive when asked, where asked and are also told what to do in their dive. The health and safety assessment for each proposed dive, deep or shallow, and all aspects of its control is the ultimate responsibility of the employer. Self-employed divers are expected to follow the guidance for working divers, but national interpretations vary.

These considerations suggest that a unified medical approach to all divers is appropriate and should reflect the personal freedoms of recreational activities in contrast to the legal and hierarchical responsibilities within the work-place. All divers are exposed to hazards on every dive. Recreational and working divers assess risk on every dive and, if not avoidable, take appropriate action. Some divers may be exposed to hazards that could have delayed effects on their health, and, for working divers, this possibility needs to be considered by the examining doctor (Level I) at the time of their periodic fitness examination. Unless conducted by one who is an occupational medicine specialist, any doubts concerning the physical, chemical or biological hazards of that individual's underwater activities must be referred to an occupational medicine specialist.

So, from the 20 persons gathered in a meeting room 40 years ago, the EUBS has grown, and it continues to encourage scientific communication within our hyperbaric communities, both wet and dry. Long may this journal facilitate the continued reporting and dissemination of ideas. For those who cannot attend the meetings or workshops around the world, summaries and reports are important. Members and others should publish their scientific papers in this, their Journal, because it is now Medline-indexed.

References

1 Barnard EEP. The proceedings of the inaugural meeting of the European Undersea Bio-Medical Society. Royal Society of Medicine, London, 30 September 1971. London: European Undersea Bio-Medical Society; 1971. *Diving Hyperb Med*. 2011;41:120-1.

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4 DMAC 29. *Approval of diving medicine courses*. Rev 1, December 2008. Available at: <http://dmac-diving.org/guidance>

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