

DEEP DIVING; THE LIMITS ?

Rob Palmer

Key Words

Deep diving, safety, technical diving

Technical diving expert Rob Palmer believes that the frontiers of deep, mixed-gas diving are being reached, and that the new areas opened up need to be mapped and made safe. He also argues that divers who die in the pursuit of records, or mere fun, are to be mourned less than "serious explorers".

Over the past two years or so, the expansion of sport diving beyond its traditional boundaries has gathered momentum. Gradually, the relatively new territory of what has variously been called extended range or technical diving has been explored.

Of course, only a relatively small minority of divers have actually taken part in this process (most have, quite rightly, no interest whatsoever in doing so). But while such an upsurge of discovery can be of benefit to diving as a whole, feeding new techniques and expertise into the sport, it can also unleash all the considerable risks and problems that invariably accompany such exploration. What I mean by this is that all unexplored territory has its danger zones.

Technical diving is rapidly reaching the sensible frontiers of its first expansion. A few individuals are besotted by the glamour of record breaking depths and durations and many other practitioners are beginning to wonder what to do with their new-found expertise. The former are, frankly, dangerous. There is absolutely no point in going to great depths, using either open- or closed-circuit scuba, simply for fun.

The practical limit of self-contained diving is around the 75-80 m mark in temperate waters, and perhaps 100 m or so in tropical waters. Depths beyond these can be reached only by engaging in a sort of peculiar Russian roulette, akin to putting an increasing number of bullets into an automatic and pulling the trigger for an increasingly longer time.

Of course, plenty of people have been to far greater depths than we, as self-contained divers, can. But they have had good reasons for doing so. And they have used appropriate technology, one atmosphere systems such as the Newt Suit, small manoeuvrable submersibles such as Deep Rover or the new Deep Flight or expensive saturation support systems. That sort of technology goes with the territory.

Flesh and bone have no place unsupported beyond 120 m. Not yet, anyway. I am not saying that technology will not evolve to the point where we can breathe the necessary gases from the water and biologically engineer

ourselves to cope with the environment. Such things may be possible one day, but they are not possible yet.

The thing about technical diving is that every time new frontiers are set, the territory they bound has to be explored before it can be made safe. This is what the next stage of technical diving will be about, the safe "mapping" of the areas within the new frontiers.

Currently, we can shorten decompression by using oxygen-enriched mixtures, but we cannot eliminate it. We can virtually banish narcosis by using trimix and heliox-based mixtures in open, semi-closed or closed circuit systems, but this comes at the price of extended inert gas intake and longer decompressions, requiring more complex use of different gases to bring us back to the surface in a reasonable time.

We can reduce the effects of temperature by looking properly at insulation and drysuit construction, and at passive heating systems that warm from inside out, but hypothermia is still a problem on long deep dives in non-tropical waters.

With all these new freedoms come new limits, and we have to learn what these are before we can understand how to cope with them. For instance, it is no good using heat packs or electric undersuits to heat the body extremities when it is the core you have to keep warm.

This is where attitude of mind comes in. To be a good explorer, you have to have an aim. The best explorers come back to share their findings with others. Explorers who go places simply for fun are the dilettantes of the genre; they do not give back to the system. They are tourists, visiting, looking, but not really appreciating the full potential of the experience.

To be a good technical diver, it is necessary to appreciate the fact that there are limits and to understand that there are sound physiological reasons for many of these. For instance, the human frame has evolved to work in a narrow range of temperatures and in pressures centred around 0.21 bar oxygen and atmospheric pressure.

While there are times when it is convenient to have human eyes and human hands at 150 m or more, getting there and getting back safely can become as complicated as the task itself, and once this is the case, the reason for actually being there needs to be a very good one. That is when it becomes worthwhile having the luxury of saturation systems, whether you are working on surface-supplied gas reclaim or untethered closed-circuit.

While there is a breed of self-styled technical diver who is, essentially, irresponsible, who sees the setting of records and the wearing of the gear as mere fun, there are others who see the crossing of personal frontiers as

meaningful, and who devote their lives to them, adding input to the system as they do so. Do not confuse the two.

Neither is immortal; but the passing of the latter is to be mourned more than that of the former. The shock to the diving community caused by the recent death of experienced American technical diver Sheck Exley was far greater than would have attended the passing of a diver foolishly exploring territory he was neither experienced enough to explore nor trained to be in. Internationally, there have been several deaths this year which fall into the latter category (though far fewer than in, say, British winter mountaineering) and they have barely caused a ripple, other than to contribute to the argument of a vocal minority who say all such technical diving should be banned.

This is why we need to see the right attitude developing in technical diving. That is what most of us who started to teach the new boundaries were trying to get across: learn new skills, develop experience and go there for a good reason. Carefully.

Developing experience is one of the key areas. For all any course will teach you is a basic understanding of the skills covered by that course; there is not a diving course in the world, recreational, commercial or technical, that will turn you into an instant expert, whatever the brochures say. Experience comes by doing it and such experience can be painless or painful depending on how, and how quickly, you try to undergo it.

I had dinner with Sheck Exley in New Orleans in January (1994) a few weeks before his death at a depth of over 900 ft in a Mexican cave resurgence. We talked about this very thing, this attitude problem, this "strutting of stuff" by some of the new generation of technical divers that was in danger of bringing the discipline into disrepute.

Exley summed it up pithily. "They ain't seen the varmint". What he meant was that there was a whole group of people out there who had learned all the skills to take them to 80 m and back on a good day, but who had never looked fear straight in the face when things went wrong. Unfortunately, some of this generation are now rushing into being instructors, full of the enthusiasm of exploration without having experienced the dangers. It is a long way back from 80 m in a dark sea when Murphy is at your shoulder and you are cold and tired and scared.

That is what worries me about technical diving. Not that it is too dangerous to dive to 80 m, or too difficult to remember which regulator offers which gas and when to change mixtures, or the crushing boredom of a long cold decompression in an open sea. All of these are manageable on a good day, when Murphy is making someone else's life miserable. People do things that are just as dangerous, if not more so, all the time. On horses, up mountains, in racing cars, hang-gliders and motorcycles....

What worries me is the instant expert straight off a bad course, or no course at all, who has no idea that fear even exists, much less what it looks like, who buys all the gear and sets off on some personal underwater crusade.

It matters that you know what fear looks like. It matters that you carefully develop the *experience*, as well as getting the training and buying the equipment. And you can start by developing the right attitude, whatever depth you dive to. It is the attitude that helps tame the varmint, that keeps Murphy from getting out of control. And it matters that you know when to stop, to be happy with the new territory and help map it. There is something very mature about accepting personal boundaries and knowing when to go no further.

So what are we left with?

There is an enormous amount of new territory to explore. The top 100 m of ocean gives us access to most of the continental shelf, and a "soft" 75-80 m limit in northern European waters places a lot of unexplored territory within reach. New wrecks, drop-offs, pinnacles, hundreds of square kilometres of ocean floor to discover. Be happy with that.

Meanwhile, let the serious technical divers get on with their own thing, and do not condemn them for their ambition. There is nothing wrong with extending personal boundaries for good reason. It is what brought us out of the trees, and it is what has taken us to the moon. But please do not encourage the "tekkie" who struts his stuff in all the latest gear and brags about how deep he is going to dive.

At the time he wrote this article Rob Palmer was a Director of Technical Diving International (Europe), one of the leading technical diving training companies.

Earlier this year (1997) he failed to return from a routine dive in the Red Sea. For some reason unknown he sank steadily after entering the water. His companions could not reach him and his body was never recovered.

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