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The 94 Lusitania Expedition—Seductive or Suicidal?

The 1994 Lusitania Expedition led by British wrecker Polly Tapson (aquaCORPS Journal N9) was the source of considerable controversy at the 95 tek.CONFERENCE, following an evening show presentation by author and expedition member Gary Gentile. Though the dive team, consisting of eight Brits and four Americans, conducted 120 dives on the wreck over a ten day period without incident, several tek participants, including Cal-Dive and Oceaneering founder, Lad Handelman, publically challenged the operation as being unsafe. This Forum presents some of the discussion that has ensued. The participants—Handelman, Gentile, and Tapson—were interviewed separately by phone and the results were combined into a single transcript. M²

aquaCORPS: At the tek.CONFERENCE, you expressed some very strong opinions about the Lusitania presentation, and voiced them in the Safety Session and our closing wrap-up. Would you mind telling us how you felt about the expedition and what was presented at tek?

Handelman: First off, I knew nothing about this project until Gary Gentile's presentation at the tek.95. It was all I could do to contain myself during his presentation, and as each detail unfolded I became more and more disturbed. Out of respect for the people attending the conference who paid good money, I elected to withhold my questions until I could visit Mr. Gentile, one on one, directly after his presentation. I raised several, very direct safety issues with him and the response I received to the more difficult ones was, "that was Polly Tapson's responsibility. I suppose that was all she knew to do or had available."

Who was the real leader of this project? As far as expedition credit and fame and glory would have it, Gary Gentile held himself out in that position. Furthermore, his lifetime of diving on wrecks in deep waters would appear to certainly make him the *ex officio* leader in my book.

Did you speak with Polly as well?

H: Later on. I decided then and there that this expedition needed to be really seen for what it was. That if it was left as the "leading example of technical diving," there would be all hell to pay in the form of future fatalities and injuries. I decided to seek out Polly and other involved expedition divers. The more I dug, the more clear it became to me that this expedition should never have taken place and, further, should never have been publicized by aquaCORPS or given a platform at tek.95. The whole thing made me kind of sick.

Gentile: I think in one regard, Lad is seriously concerned, but the reason for his concern is his lack of understanding. He just doesn't know that this is the way things are done [in the technical diving field]. It's like saying, "We're going to take a chairlift up to the top of this mountain and ski down as fast as we can," and somebody says, "Well you don't have to ski down. You can take the chairlift down." We're saying, "But that's not the idea. We didn't come out here to take a chairlift; we want to ski." Handelman just doesn't have the background to understand any of this. That's not to put him down, it's just he's coming at it from a different point of view.

I would say it was the best run and safest operation I've ever been involved in, including those that I've run myself. The reason is that it was performed in what I would call a quasi–militaristic way. I don't mean you had sergeants screaming down your throat. What I mean is the organization was very well thought out. There was a protocol book that we went by, just like you do in the Army. Everyone was designated a job and that became that person's responsibility. That's what worked out so well. Everybody did his job. There was a great deal of cooperation between every member of the team, a real team glue, so to speak.

Polly, you were the expedition leader, how do you feel about this whole set of issues, and generally about your approach to planning the expedition?

Tapson: When I met with Lad, I could see his

point of view entirely. He is looking back on a career in diving from a position where he is disabled and has a lot of time to think about his work in the diving industry. It's difficult for us—in what is to us a sport that we do during holidays and free time—to provide extremely expensive surface cover as in a major commercial diving operation. We are nonprofessional divers, but we organized our expedition amongst like–minded people who had mutual respect for each other, and had open discussions on all aspects of the diving that we planned, as well as a great deal of training.

When aquaCORPS was in the UK last year you were holding meetings in your living room with the team, going through...

T: Yes. We had regular meetings, and discussed every single aspect of the dive over and over and over again. This is very different then deep mixed-gas diving as seen in the United States, where a diver with a trimix certification card can go to a shop, get her cylinders filled, and then just do a deep dive from a boat without necessarily knowing the level of experience of the other divers or the way the captain organizes the diving. As a group planning an expedition to the Lusitania, we all took responsibility. We were all involved in the safety discussions and planning.

> If [the Lusey Expedition] was left as the "leading example of technical diving," there would be all hell to pay in the form of future fatalities and injuries. This expedition should never have taken place and, further, should never have been publicized by aquaCORPS or given a platform at tek.95.
>
> *Lad Handelman*

Gary, how did you and Barb and the other Americans stay in the loop? Did you meet when you got there, did you go through some of the planning?

G: Polly forwarded to us the minutes of the meetings so that we knew what was going on, could participate, offer advice or anything else, either by phone or by mail. I had a lot of conversations with Polly on the phone talking over the various aspects of the dive.

...Boat Size...

Lad, I know that you have specific key safety issues with regard to this expedition. The first issue you raised was the choice and size of the boat, which was used for the 10 people on the diving team, plus a skipper and mate.

H: As I understood it from Gary's presentation, the Sundancer was a 35–foot vessel, and in the visual part of the presentation, one could see that it had a relatively small ante–deck, regardless of the length of the vessel. In my opinion, this size vessel might well have been adequate for taking four to six divers out to a mission in a hundred feet of water, but clearly was far too small for mounting this expedition. It was inadequate for a water depth that required additional gas supplies, decompression contraptions and a mountain of other equipment.

In sport diving, people rarely talk about boat size specifically, other than as a complaint. Explain to me why boat size is an important safety issue on an operation like this.

H: You can compare this to a refugee boat. It's one thing to have a boat size adequate for simply transporting people to and from a point. It's an entirely different matter to have the clear work space be sufficient to handle the very likely problems and emergencies which regularly arise on diving missions. Chaos and confusion are the climate. Too many bodies and too much gear in a situation where it's difficult to get on and off the vessel in expected rough sea conditions is a sure-fire recipe for inexcusable disaster. If you can't afford the right size and seaworthiness in the vessel, you shouldn't tackle the mission.

Gary, in looking at the video, it appears that you were really jammed in there, quite honestly.

G: I'll admit that it was uncomfortable, but uncomfortable is a long way from saying that it wasn't big enough to support the operation. It *was* big enough to support the operation: the proof is in the pudding. We did it, so for anyone to claim now that it can't be done is like the engineer measuring the wingspan of a bumble bee and claiming that, according to their mathematics, bumble bees can't fly, bumble bees are still flying. Now I would rather have had a larger vessel as far as comfort goes, but it would not have made things any safer. What really made things safe was the fact that we had two boats. That was the biggest plus.

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>
> *Gary Gentile*

The main boat and a chase boat, so if anyone cut loose and there were problems....

G: Exactly. That was a great thing to have and something I really promote a lot. Let's face it, if you're anchored in, the larger boat doesn't do you any good; you're still anchored in. You can have people decompressing on the anchor line, you can't cut free and go traipsing around after them.

T: In fact, although it seems crowded, it worked, and it was efficiency that made it work. It was the fastest boat on the South Coast of Ireland and we had the best electronic eco–sounding and sea-depth mapping technology. We also had the best skipper on the South Coast of Ireland, who had worked with [Robert] Ballard the year before. We went to use him and we knew that we had to limit expense on the boat, so we prepared accordingly. We had a great deal of space on shore, and each morning would assemble the equipment that we were to use in the dive on the slip. One person, Jamie Powell, was responsible for boat's steerage/storage and there were ten positions marked around the boat. Literally, pair one, pair two, pair three, pair four, pair five. Pair one would be closest to the exit point from the boat. Pair two would be second closest and so on, so there was never an obstruction between the point that you were hitching up and entering the water. Not only that, you only loaded on the boat the equipment that you were going to use for the dive. So all dive bags, unnecessary tools, and pieces of equipment were left back on shore. We had one spare box in the cabin which carried all the tools, all the spare chin straps, mouth straps that any one of the divers might need at the last minute, so there was one, plus the First Aid box.

...Short Tidal Window and Mooring in Rough Seas...

My understanding is that the Celtic Sea is an intense environment. The sea is known for changing conditions, and has a short, very extreme tidal window. I think there was about a 45–minute window in between tides, with low visibility.

H: Exactly. In fact Mr. Gentile described it as a "frightening and perhaps even terrifying experience." Although he also explains this away by adding that the Lusitania "is not just a dive, it is a seductive experience." He chose the word "seductive;" I would have chosen "suicidal."

In the commercial world, a great emphasis is placed on having a stationary position, multiple mooring points and all that. The Lusey Expedition used a live boat and a downline. Can you talk about moorings, how that evolved in the commercial world and why that's important from a safety point of view?

H: To start with, my comments are as an expe-

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rienced marine person who understands and has experienced all sorts of events as a sailor and fisherman. Nothing to do with commercial diving, except that's part of the great experience. Have you ever tried locating someone in a baseball hat who's fallen off the boat during a typical afternoon six–foot chop at a distance of more than 50 yards? I'm not much for relying on bells and whistles and maybe a flashing light if they are all working. I prefer the idea of a solid come–home base that's going to reliably be there when needed. And what happens when more than one diver is adrift in the extreme tides of the Celtic Sea. Yes. Management is a concern when any other to–be–expected complication arises like, God forbid, one of the divers does not reappear at the surface? Whose life does the captain choose to try to save? There are perhaps some conditions where a solid mooring is not essential, but certainly not in 300 feet of water with only a 45–minute tidal window and eight divers hanging off on a makeshift decompression contraption.

In commercial diving, the boat needs to stay in one place because all your equipment is there. But you didn't do that, Gary. Why not?

G: In this case we didn't want to stay in one place. This boat is adrift and decompression is adrift. The worst thing is to be tied into the wreck because you're not only hanging in the water all that time, but hanging on in a tremendous current.

Commercial divers would follow one of two procedures. At those depths they would probably be in SAT and just pop into the bell and be hauled back up to the surface, or they'd do surD-O2, where the divers would make it up to a 40–foot stop, then get out of the water and be popped into the chamber.

G: That's why I'm saying we have a different system, and that doesn't mean that it's better or worse than a commercial diving system. It means that it's different, and it addresses issues in a different way. Again, in the entire history of wreck diving, there has never been three– or four–point moorings. It's just not the way it's done. I think Handelman's problem is not so much that he doesn't understand about our backup systems as opposed to his, but that he refuses to accept our backup systems as opposed to his.

> We were not expecting embolisms. We were not expecting decompression sickness because the schedules that we were cutting were schedules that we had dived before. We weren't expecting someone to blow–up or panic because we were confident enough in the divers.
> *Polly Tapson*

T: Given the fact we had free swimming divers, it was inappropriate to have a stationary mooring for various reasons. The boat drifts with the divers, and when the decompression station casts off, it drifted with them, so it's a totally different way of diving. We don't use commercial diving techniques and we've tailored our procedures to the environment. It is the best procedure for this environment tidal...

Drift decompression is a common practice in British sport diving.

T: I suppose our single biggest concern was if a diver needed to make an open water ascent, they'd be unable to find their way back to the down-line. We wanted them to have all the decompression gas that they needed for the dive. So we had a system whereby any diver who needed to would deploy a delayed surface marker buoy from a depth anywhere from 25 meters up before they needed their oxygen. It's a tube about one and a half meters long, about eight inches.

We call them sausages.

T: So they would deploy a sausage and the surface crew would put down a spare buoy with 30–meter down-lines attached to them, weighted at the bottom with oxygen cylinders, and whips attached at six meters, and then the support diver would go in to check that they were okay. There were always a minimum of two support divers. Plus the boat crew.

How did you handle the operation? You had a short tidal window, obviously very deep water, and changing conditions and a lot of divers. Your typical dive was about two hours, two-and-a-half hours, long. It seems like a lot to manage.

G: There was only a 45–minute slack in the tide, and that meant that everybody had to be up off the bottom before the tide got too strong. With 45 minutes, we had to be there right at slack, and as soon as the tide went slack, the first team went into the water. The rest went in at five–minute intervals. That meant that the last team was in the water 25 minutes afterwards, and they still had 20 minutes to do their dive, by which time the tide started to change and they'd be on their ascent. When it first starts to change, it's not really strong. But by the time they'd get up to the breakaway line at 60 feet, the tide would be picking up and fairly strong. It did require a fair degree of coordination. Then, of course, the last team out just broke the line off, a breakaway line with a carabineer on it, and the whole decompression station went adrift. Decompression was very simple. Everybody was drifting; we were all on the same escalator. That's essentially what it's like, being on an escalator.

What were the contingency plans if you missed the line or didn't make it back in your time frame?

G: Every diver carried a wreck reel and a safety sausage so if you didn't get back to the line...in fact it happened during the last dive, when the tide changed and three people happened to be down-current and had to swim up into it and couldn't make the anchor line. So they did a controlled ascent until they got to a hundred feet and then popped their safety

sausage. Once they did that, we (I happened to be surface support that day) could see where they were. We just went over there and set a drop in the deco station where we were initially planning to drop it, and dropped it where they were.

There were only three divers in the water on that day.

G: Right. At any time, either one of the two boats could go chase somebody and drop a oxygen line. Each boat had its own buoy, which floated, kept the oxygen bottles at 20 feet, and had a weight on it, so technically everybody could decompress all by himself...

I have a small one-man chamber on my 28–foot commercial abalone boat, which could be loaded on, hooked up with a hoist in the pier within 10 minutes. I cannot fathom why the leaders in the technical diving sport industry don't all have chambers on board.
Lad Handelman

People were diving in teams?

G: That's right. Everybody went in as part of a team. The objective was to have five two-person teams, but it didn't always work. Sometimes we had people who bagged the dive. They said, "I don't feel good today," or, "The weather conditions are not to my liking," or whatever. In which case, that person's partner would triple-up with someone else, did not go in alone.

T: Most of the time it was really calm. On the days that it was rougher, we had much better support and fewer people diving.

What would happen if you got to the deco station and Team X didn't show up?

T: It's partly a judgment call, but I would first say that these are some of the best deep wreck divers there are, and with full redundancy to deal with any underwater emergency. All the divers had the training and the expertise to deal with any standard problems.

...No Chamber on Board...

Technical diving falls in between traditional no-stop recreational diving, where no one has an onsite chamber, and commercial and military diving that require recompression chambers. What are your thoughts on using recompression chambers for deep, technical dives, such as the one on the Lusitania?

H: There is no excuse for dives of this level of difficulty to occur without a chamber on board. That would apply to the Andrea Doria, Lusitania, or any similarly difficult wreck. Polly's explanation was that "they couldn't afford one." If you can't afford to do it right, you should simply not take on the mission until you can afford it. It doesn't matter how much value you place on life versus the thrill of showing you can do without the chamber.

Did you guys talk about having a chamber on board?

T: There was a chamber near the Lusitania, about 15 to 18 sea miles. There was also a helicopter base, and the support diver and boat skipper always had the helicopter number. The chamber always knew the dates and times that we were diving. It was an air/O_2 chamber, rated to 50 meters. The potential incidents that we projected, which in fact we didn't have, were the kind of individual physiological hiccup. Maybe a skin bends, maybe a joint pain. We were not expecting embolisms. We were not expecting decompression sickness because the schedules that we were cutting were schedules that we had dived before. We weren't expecting someone to blow up or panic because we were confident enough in the divers. We weren't expecting equipment malfunction that someone couldn't handle.

G: I'm always concerned about DCI because it's so problematical. You can have it even if you do everything right. We had access to a Navy chamber within about 45 minutes. The main option was to have helicopter evac, and also to have one boat to transport someone if that proved necessary.

What people need to understand is that there has never, ever, in the history of wreck diving, been an expedition that was run with a chamber onboard. That's like saying, we're going mountain climbing but we're only going to do it if there's a hospital at the summit. There are no hospitals at the summit, and there are no chambers in wreck diving.

One of the arguments the tech community raises against having a chamber is the expense and the space required. How much does it cost to get a chamber in the U.S.?

H: If one were to go out and order a brand new chamber designed for a smaller–sized sport boat, and probably limited to a pressure depth of, say, three atmospheres, then my guess is that built and fully outfitted, it could be had for $25,000 or less. On the other hand, the commercial industry has many, many ASAME-approved recompression chambers which they'd probably be more than happy to sell or lease, and my guess is one could be had for probably on the order of $10,000. I have one, a small one-man chamber on my 28–foot commercial abalone boat, which could be loaded on, hooked up with a hoist in the pier within 10 minutes, and I see no excuse for any deep diving effort not to have one.

T: It's a judgment call. Sometimes it's just not

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practical. We're not forcing anyone to come. We're not paying anyone to come. They're paying for themselves. They're signing a four-page contract saying they understand exactly what they're doing.

I would assume that, all other things being equal, you'd take a boat with a chamber?

G: That's true, but other things cannot be equal, particularly the cost. I once estimated—when I was running an expedition relating to the Monitor, because that was a prerequisite initially being used as an excuse to keep divers off the wreck—that a boat with a portable chamber was going to increase the cost of the expedition about three-fold to five-fold.

On a per–person basis?

G: Yes. Not just because of the chamber rental, but because of the weight of the chamber requires a boat that is at least two to three times larger than what we normally use. Not only that, you also have the weight of all the compressed air bottles, the weight of all of the compressors, plus you need to have an operator. Then, of course, you need a crane to load it on a boat, and you need a boat with "x" space and the buoyant capacity to carry all of this weight. When I totaled it all up, it was conservatively going to be between three and five times as much. That's a lot.

It's generally agreed that every minute of delay in getting a bent diver into a chamber greatly increases the chance for permanent injury or impairment.

H: I recall having my partner, Danny Wilson, blow up from 240 feet to the surface and we managed to pop him in the chamber within a few minutes, and he was never paralyzed. On an everyday basis, all deep commercial diving from the surface relies on the four–minute air gap where a diver exits at his 40–foot stop and returns to 40 foot in the chamber and wherein what would have been a severe bends case is a nonoccurrence. If one is decompressed in a matter of minutes, not hours, the explosive bends and embolisms have an excellent chance of either not occurring or being reversed. I cannot fathom why the leaders in the technical diving industry don't all have chambers on board.

T: I think Lad Handelman is being ridiculous, because anyone who wants to do this is going into it with their eyes open in most cases, and I'd certainly say we were. I'm not going to have someone like Lad Handelman policing what I do in my free time. I really, really don't mind if you print this: He can fuck off. Because what I do in my free time is my business; it's not his business. It seems to me that the people who are criticizing it…they're not the people who are involved in the sport.

Given the facilities we had available, the safety couldn't have been improved upon in my opinion. Now, if somebody had wanted to give us a chamber on board, I'm not even convinced of the merits of a chamber in that situation for a serious, serious mixed gas bend, unless it's a mixed gas chamber facility. Now you're talking about many thousands of dollars which, for a kind of recreational sport, is not really practical and quite unlikely to start appearing on the scene.

H: Eight weeks after this expedition, a diver blew up from the Lusitania on another expedition and was flown to a shore–side chamber. By that time, what probably was a mini–case of explosive bends could not be reversed and that diver is now a quadriplegic. A chamber on the spot, in my opinion, would have been an immediate fix. Sorry to bring this up, but in Polly's own interview [aquaCORPS N9, *Interview with a Wrecker*], she said, "what I don't want to do is to be an example of someone who acted irresponsibly and got away with it. And then have someone else do the same thing and subsequently ends up in a wheelchair for life."

Do you think that's what happened.

H: I think so.

T: I don't want somebody to follow in my footsteps and get hurt, and I'd like to say that that person did not follow in my footsteps. If they had, they wouldn't have gotten hurt because they would have done a great deal more preparation. The team that came after us wasn't well enough trained. They just got their trimix tickets two months before. They hadn't done enough build–up dives, and dives with each other very often. The two that were diving hadn't really dived with each other more than a couple of times.

My understanding was that the Irish chamber was inadequate for treatment, and the injured diver had to be flown to the DDRC (Diving Disease Research Centre) at Ft. Bovisand.

T: Yeah, it was an air–O_2 chamber, depth–rated to 50 meters. The medic was knocked off his face trying to deal with something he'd never seen anything like before. Lad Handelman claims that it's imperative that we start thinking about having chambers on board. Now, to me, if we really talk about safety, we need to have a DDRC person on board. We need to have serious depth–rated chambers with seriously trained hyperbaric operators.

Gary, do you see a day when tech divers will have a chamber on-boat for an expedition like this?

G: By and large, no. For reasons I outlined above. I don't see most expeditions being able to afford them because most expeditions are not sponsored by groups or organizations or agencies. The individuals pay their own way. It's not something I'm going to go out and buy and have hanging around just in case I want to do an expedition. I see the logistics of ownership, and right now, chambers aren't for rent, so that means there's no option of "Let's just rent a chamber for this one expedition." If that occurred, it may be a possibility. Then we're talking lightweight, portable chambers, inflatable ones that a person can actually pick up and carry around.