

Undersea and Hyperbaric Medical Society Presentations September 23, 2016

By Gary Lehman

The Scuba Sports Club / Dive News Network attended the UHMS Northeast Chapter Annual Meeting on September 23, 2016 for the first day of 'main tent' presentations. The topics were too exciting to pass up!

There were three presenters giving five presentations, and *when you see this lineup* you will see why this conference was a 'must-attend'! The first presenter was John Hanzl, Dive Safety Officer at the New England Aquarium in Boston. John gave two presentations, one was on the technical diving experience and sheer *adventure* of diving the *Andrea Doria* off the coast of NY. His next presentation was his *harrowing* experience cave diving in Florida, which – *despite meticulous planning* - almost went terribly wrong for him. It was only through superb situational awareness, courage, and physical preparedness that John was able to return to his terrestrial duties on *this* side of the River Styx... His presentation covered the dive incident and subsequent actions including days in a decompression chamber.

The next presenter was diver/filmmaker Richie Kohler, of fame *no less* for his astounding against-all-odds discovery of the identity of U869 off the coast of New Jersey than for his animated, captivating and edge-of-the-seat presentations on diving the *HHMS Britannic* in 400' of water off the coast of Greece. It is a testament to Richie Kohler's presentation style and depth (ahem) that *even though I had already seen his HHMS Britannic* at the NYC Explorer's Club, there was still more and new things to learn, and was once again spellbound by his recounting of this historic exploration. In terms of marine architecture, this wreck has major historic significance by providing evidence of shipbuilding 'lessons learned' on this, the sister ship of the *Titanic*.

UHMS's last presenter was Dr. Matias Nochetto, an expert in undersea and hyperbaric medicine. Dr. Nochetto is also the Director, Medical Programs at Diver Alert Network (DAN) who coordinates the Emergency Hotline for Latin America and the global hyperbaric chamber network. Dr. Nochetto revealed what to many was an unknown humanitarian crisis related to conch and lobster fishing in Latin America, which is injuring and crippling large numbers of vulnerable local workers who are being heartlessly exploited in the capture of these species for (largely) consumption in the United States market.

There was another important result of the UHMS presentation by Dr. Nochetto - many of the attendees, who are medical professionals in their own right (physicians, nurses, EMT's and nurse practitioners) - are *not* scuba divers - and as such were not familiar with the crucial resource and undersea medicine leadership provided by Divers Alert Network. The excellence, medical depth and peer-to-peer aspects of Dr. Nochetto's presentations to this group turned the focus for this community over to DAN as leaders in scuba diving-related medicine and safety. This put DAN on the undersea and hyperbaric medicine map for this team!



John Hanzl, Dr. Scott Gorenstin, Dawn Salka,
ACHRN and Program Chair

Kickoff speaker John presented on his dive on *Andrea Doria* in 2009 and then about a near-tragedy (one in which he himself was in the crosshairs). Interestingly, John's wife Amy was in the audience, and John was brave indeed for forthrightly sharing his harrowing experience with his wife in the audience. Not every spouse would be so understanding and supportive. Situation would probably devolve to the diver pleading "Give me back my regulator and dive computer!" John started by giving an overview of the July 1956 sinking of the *Andrea Doria*, a beautiful, new passenger liner which was struck by the passenger liner *MS Stockholm* with the loss of 46 passengers on *Doria* (as well as several crew members aboard *Stockholm*). There was plenty of blame, not the least of which was the *Stockholm* crew misinterpreting their radar return signals.

Why dive *Doria*? Because it is *there*! Perhaps to catch a glimpse of the \$249 million (in current dollars) artwork which graced her interior (John reports that the interior spaces are anaerobic with low oxygen content and are essentially mummified, so the splendor is still largely there to behold), or to retrieve dinner plates or rosaries from the chapel. Why is diving the *Andrea Doria* known as the 'Mount Everest' of diving? Why have 17 divers perished diving her? Clearly the depth (250' down, 114 miles offshore from Long Island) combined with the risks of penetrating wrecks lead to these deaths from disorientation, becoming 'narced', getting tangled in cables inside the wreck, from decompression sickness and from cardiac arrest -- all are factors. John trained and prepared for his dive *for six years* with multiple redundancies and every preparation that an engineer could design into a dive. He and team departed with great expectations on July 3, 2009 aboard *Garloo* under command of legendary Hank Garvin. It went flawlessly (other than for his dive buddy, who unfortunately was too violently ill to dive). One of John's most treasured artifacts from the dive was *Andrea Doria's* rust on his drysuit. (I know a mountaineer who kept his worn out boots which he wore summiting Mount Everest...). One fascinating aspect was the detailed description of the equipment necessary for such an endeavor! The divers weighed in at 350lbs with all their gear (!). Multiple deco bottles. Different 'gas travel mixes'. Reels. Contingency plans. Lights. Backup lights. Strobes. Multiple computers. Cutting tools, etc. John wants to do this again. And has a plan for where he wants to go. Safe diving always to Dive Safety Officer Hanz!! Hats off for this spellbinding presentation, and future success on *Andrea Doria*. (for those with an interest in further research on *Andrea Doria*, K. McMurray's *Deep Descent*, Touchstone Press 2002 is a great resource).

After all that, John ran into trouble cave diving at Ginnie Springs, Florida. The incident was not root caused in any lapse in dive planning/execution in these too-frequently lethal caves. John and his dive partners were using rebreathers; John's rebreather flooded and he did not have his bailout because he had donated it to another diver during a drill. He almost died in the subterranean chamber known as ...'the bone room'... After surfacing John began experiencing DCI symptoms (nausea, vertigo, joint pain, and red welts). Once he understood that something was physically *wrong*, he did not fall victim to the phenomenon of 'deny, deny, deny'; instead he and his dive team collaborated to get him to treatment which included five days at Southern Georgia Medical Center alternating between the ICU and a hyperbaric chamber. One disturbing fact is that despite the prevalence of diving throughout Florida's interior and coastal areas, there are only four chambers for use after hours. (And, if one or two of them are receiving preventive maintenance, that further reduces the availability.) Another major take-away from John's presentation was understanding of a cardiac condition known as Patent Foramen Ovale (PFO). John (along with 20-30% of adults) have this condition, which is a small hole between the left and right side of the heart. Happily, John fully recovered from his experience - and had much then to teach his staff on matters related to DCI *from personal experience*. Next time we visit the NE Aquarium, we will certainly have a new level of personal connection to this amazing and wonderful aquarium!

Patent Foramen Ovale: In most cases, this is a benign condition, but in divers it can contribute to an increase in the potential for an arterial gas embolism (AGE) in which nitrogen bubbles can enter an artery with potentially dire consequences. PFO's (detectable via echocardiogram) can be repaired; John had his repaired which kept him sidelined from diving for seven months. More information on this condition can be obtained at http://www.diversalertnetwork.org/medical/articles/Patent_Foramen_Ovale. John's full experience of diving at Ginnie Springs, getting seriously bent and his treatment/recovery is viewable on YouTube at <https://www.youtube.com/watch?v=0t8djdervQw>



Figure 1 Dr. Scott Gorenstin, Richie Kohler and Dawn Salka, ACHRN and Program Chair

Richie Kohler's engaging presentation on diving *HHMS Brittanic* started out with a review of her sister ship *HHMS Titanic*, whose story is well known. What *is not* generally known is that many naval architectural safety improvements were engineered into ships based on the post-incident review of the sinking of *Titanic*. Among the significant improvements were adding lifeboats and extending the watertight compartmentalization much higher into the ship to improve its survivability in the event of structural damage. Indeed, photographs of *Brittanic* show clear evidence compared to *Titanic* of the safety improvements incorporated into her design, a direct result of lessons learned from *Titanic's* sinking.

Richie's account was brimming with details, such as the commercial roles that the Olympians – sister ships *Olympic*, *Titanic* and *Brittanic* -- played in the first decade of the 1900's; how *Brittanic* and other ships were appropriated from White Star and Cunard by the British government to transport troops to the field of battle against Germany and Turkey in WWI (or in the case of *Brittanic*, for use as a hospital ship); how Jacques Cousteau discovered *Brittanic* 3.5 miles off the Greek island Kea; marveling at how Cousteau's team was able to dive that deep with the by-comparison primitive scuba equipment they had to work with; and how Richie and John Chatterton were imprisoned (albeit briefly) by the Greek Ministry of Antiquities during the first dive on *Brittanic* for having violated the prohibition against penetrating wrecks.

It is so out of the experience of most divers to *contemplate* diving a wreck 400' down -- Richie's account sounds more like a spacewalk. This dive had more in common with that, than with warm blue water recreational diving! The big question at hand - and which Richie sought to discover is - *why did it take only 55 minutes for Brittanic to sink, compared to three hours for Titanic?* This is particularly important to understand given the safety engineering improvements incorporated into *Brittanic*. The enigma of why *Brittanic* sank persisted for many years after WWI – the British claimed she was ruthlessly torpedoed despite being painted white as a hospital ship with illuminated red crosses; the German's unequivocally denied it, and counter-claimed that the ship had explosives aboard (which in fact was the case with the other passenger liner sunk during WWI, the *Lusitania*). The Germans were very tight-lipped about the incident too because they had a military secret at stake – *Brittanic* was sunk by a mine in water which was previously too deep to allow mines to be placed. Richie did not give us the answer why *Brittanic* sank so quickly – the answer is contained in his book *Mystery Of The Last Olympian* (Best Publishing, 2015 North Palm Beach Fla). Don't look for the answer in this column, *get the book, like I did!* The presentation was filled with details about how the dive – assisted by a Russian diving company - was engineered with a submersible near the divers providing local support. (This reminded me of the Apollo missions' Command Module and Lunar Module). Richie points out that the presence of this submersible made the dive *safer*, but not *safe!* The presentation was captivating on many levels, and we remind him of the following: *In mountaineering there is a saying-- "getting to the summit is optional, but it IS mandatory to get back down safely"*. By analogy – always please call your dive if appropriate to do so, and we know Richie will; thus it is with 'push-the-envelope' diving exploration by intrepid explorers like Richie Kohler!



Dr. Matias Nochetto, Dr. Scott Gorenstin, and Dawn Salka, ACHRN and Program Chair

Our final speaker was the Director, Medical Programs at Diver Alert Network and DAN Latin America focal point Dr. Matias Nochetto. Dr. Nochetto advised us of a disturbing humanitarian crisis happening in many parts of Latin America where the extractive trade in lobsters, conch, sea cucumbers and other species for human consumption (largely in the US) is taking a terrible toll on local workers, suffering from crippling and life-threatening DCI and spinal cord injuries. The reason is that the fishing boat operators are dispatching these fishermen into the water ill-prepared and uninformed as to the risks of DCI in underwater environment. The human wreckage in the wake of the dangerous diving practices is disturbing - with no end in sight. The divers are subjected to multiple daily deep dives with minimal or no decompression time, and

are suffering from cumulative nitrogen buildup compounded with comorbidities such as malnutrition, parasites, drug usage, dehydration and other contributing factors which intensify their vulnerability. When a diver is stricken the boat owners don't take responsibility, and will not interrupt the diving/fishing operations by bringing the boat back in to get the diver the required medical attention to try to minimize the injuries. This is all further compounded by a cultural clash in which fishermen have traditional beliefs which contradict modern medical advisement.

Readers who wish to get more information about extractive industries involving divers in general and the plight of the Honduran divers in particular are directed to consult the DAN website article at http://www.alertdiver.com/Harvesting_Divers_Update. Another source is the film *My Village, My Lobster* and the Facebook site: <https://www.facebook.com/thelobsterfilm>. Finally, YouTube has the BBC mini-documentary Diving with Death – Brazil viewable at <https://www.youtube.com/watch?v=Sn0cMiVuAgQ>

The final session of the day was an intensely-valuable practicum for medical professionals who treat patients with diving-related injuries; Dr. Nochetto presented a rapid-fire series of medical scenarios utilizing the medical professional methodology of SOAP (subjective data, objective data, assessment, plan). This built a skill base for the medical professionals to rapidly narrow down root causes of patient symptoms and select the most appropriate medical responses. This is a key component to rapid, effective treatment, and this presentation put a cap on a most intensively interesting and fruitful day of discovery and diving education. Thank you Dr. Nochetto for your service to the dive community, and for your advocacy for the fishermen of Latin America in furtherance of DAN's mission to all divers globally. And to all: hope to see you next year at the next Undersea and Hyperbaric Medical Society Event and Annual Meeting, which will be at the Harrisburg PA Hilton on October 27-29, 2017. (Those who are interested in presenting on 10/27 'Divers Day', please contact Dawn Salka, ACHRN and Program Chair at nyvan7@aol.com !)

Gary Lehman

The Undersea and Hyperbaric Medical Society (UHMS) is a unique, important resource for the community of commercial, technical, wreck and recreational divers. The Society has over 2,400 members from over 50 countries, and is the focal point for dive and hyperbaric medicine and physiology. The range of undersea/hyperbaric presentations and technical content from September 23 – 25 exemplify UHMS's leadership. Medical professionals including nurses, nurse practitioners, physicians, EMT's and others in the medical field will receive continuing medical education credits from participation, and will bond and learn from the peer to peer interaction as well. Some of the presentations on Day 2 and Day 3 included "More Oxygen Vs More Pressure"; chamber safety; a day in the life at a wound center, and hydrogen peroxide and arterial gas embolism (AGE). (There were, as expected, many very technical and medical sessions of particular relevance to medical professionals)

But it is not just the medical, commercial, military and law enforcement community which benefits from participation in UHMS in these events! As discussed in this article, the 'main tent' on Day One place UHMS right in the frontlines of continuing education dive safety and dive medicine awareness for those in recreational diving as well.

All recreational divers are whole-heartedly encouraged to keep tabs on UHMS and their presentations and activities at <https://www.uhms.org/> and <https://www.facebook.com/UnderseaAndHyperbaricMedicalSociety/?fref=ts> . In addition to checking the website, those interested can contact Lisa Tidd, UHMS Membership/Meetings Coordinator at Direct: 919-490-5140 x 101 / 877-533-8467 x101 and via email at Lisa Tidd, lisa@uhms.org; the Facebook site can be reached by searching on @UnderseaAndHyperbaricMedicalSociety. The next Undersea and Hyperbaric Medical Society event and Annual Meeting which will be at the Harrisburg PA Hilton on October 27-29, 2017. (Those who are interested in presenting on 10/27 'Divers Day', please contact Dawn Salka, ACHRN and Program Chair at nyvan7@aol.com .)